Estudio para análisis de falla EAF 006/2016

" Falla en línea 154 kV Alto Jahuel - Rancagua - Punta de Cortés Nº1"

Fecha de Emisión: 28-01-2016

1. Descripción pormenorizada de la perturbación

a. Fecha y Hora de la Falla

Fecha	07-01-2016
Hora	01:18:00

b. Estimación de consumos desconectados

Consumos desconectados (MW)	000088.20

c. Origen de la falla:

Cortocircuito monofásico entre la fase B y tierra, causado para robar conductor de la línea 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº1 entre sus estructuras Nº354 y Nº355, ubicadas aproximadamente a 53 km de S/E Alto Jahuel, en el sector Tap Punta Cortés - Tap Tuniche

c.1 Fenómeno físico:

VAN3: Robo conductor o equipo

La instalación ha sido afectada por este fenómeno físico en el período de un año calendario

c.2 Elemento donde se produjo la falla:

TX2: Conductores

c.3 Fenómeno eléctrico:

DI21N: Distancia residual

c.4 Modo (comportamiento de interruptores principales):

13: Opera según lo esperado

d. Comuna donde se presenta la falla:

6101: Rancagua

2. Descripción del equipamiento afectado

a. Sistema de Generación

Central	Unidad	Pérdida de Generación (MW)	H. Desconexión	H. Normalización

Total : **MW**

b. Sistema de Transmisión

Elemento Afectado	Tramo	Hora Desc.	Hora Norm.
Alto Jahuel - Rancagua- Tinguiririca 154kV C1	Alto Jahuel - Tap Paine 154kV	01:18:00	08:47:00
Alto Jahuel - Rancagua- Tinguiririca 154kV C1	Tap Paine - Tap Tuniche 154kV	01:18:00	08:47:00

Alto Jahuel - Rancagua- Tinguiririca 154kV C1	Tap Tuniche - Rancagua 154kV	01:18:00	08:47:00
Alto Jahuel - Rancagua- Tinguiririca 154kV C1	Tap Tuniche - Tap Punta Cortés 154kV	01:18:00	06:00:00 08-10-2016

c. Consumos

Sub-Estación	Pérdida de Consumo (MW)	% consumo pre-falla	Hora Desc.	Hora Norm.
S/E Hospital	000005.70	000000.102	01:18	02:57
S/E Buin (TRANSNET)	000013.20	000000.236	01:18	01:21
S/E San Francisco de Mostazal	000011.80	000000.211	01:18	02:53
S/E Papelera Talagante	000018.20	000000.326	01:18	04:05
S/E Isla de Maipo	000011.20	000000.201	01:18	02:50
S/E Isla de Maipo	000007.50	000000.134	01:18	03:08
S/E Hospital (FFCC)	000000.10	000000.002	01:18	02:57
S/E Fátima	000006.15	000000.110	01:18	06:54
S/E Fátima	000014.35	000000.257	01:18	09:45

Total : **88.2 MW** **1.579 %**

- Horas y montos señalados corresponden a lo informado por Transelec S.A. y Transnet S.A.

3. Estimación de la energía no suministrada

Sub-Estación	Empresa	Tipo de Cliente	Pérdida de Consumo (MW)	Tiempo Desc. (Hr)	ENS (MWHr)
S/E Hospital	CGE	Regulado	000005.70	00001.65	0000000009.4
S/E Buin (TRANSNET)	CGE	Regulado	000013.20	00000.05	0000000000.7
S/E San Francisco de Mostazal	CGE	Regulado	000011.80	00001.58	0000000018.7
S/E Papelera Talagante	CMPC PAPELES CORDILLERA	Libre	000018.20	00002.78	0000000050.7
S/E Isla de Maipo	CGE	Regulado	000011.20	00001.53	0000000017.2
S/E Isla de Maipo	CGE	Regulado	000007.50	00001.83	0000000013.8
S/E Hospital (FFCC)	EFE	Libre	000000.10	00001.65	0000000000.2
S/E Fátima	CGE	Regulado	000006.15	00005.60	0000000034.4
S/E Fátima	CGE	Regulado	000014.35	00008.45	0000000121.3

Clientes Regulados : **215.5 MWHr**

Clientes Libres : **50.9 MWHr**

Total : **266.4 MWHr**

- Horas y montos señalados corresponden a lo informado por Transelec S.A. y Transnet S.A.

4. Descripción de las configuraciones en los momentos previo y posterior a la falla

Demanda del sistema previo a la falla: 005584.57 MW

Regulación de Frecuencia

Unidad reguladora: Ralco U2

Operación Programada

En anexo Nº 1 se adjunta el detalle de la generación programada para el día 07 de Enero de 2016

Operación Real

En anexo Nº 2 se adjunta el detalle de la generación real del día 07 de Enero de 2016

Movimiento de centrales e informe de novedades relevantes del CDC

En anexo Nº 3 se presenta el detalle del movimiento de centrales e informe de novedades relevantes del CDC para el día 07 de Enero de 2016

Mantenimientos

En anexo Nº 4 se presenta el detalle de los mantenimientos programados y forzados para el día 07 de Enero de 2016

Estado y configuración previo a la falla

En los momentos previos a la desconexión forzada las instalaciones de transmisión se encontraban en servicio con la siguiente topología:

- Interruptores 52A3 y 52A4 de S/E Itahue de las líneas 154 kV Itahue - Tinguiririca Nº1 y Nº2 respectivamente abiertos por control de oscilaciones de potencia en el Sistema de 154 kV
- Transformador Nº2 154/66 kV de S/E Malloa alimentado de circuito 1 de la línea 154 kV Alto Jahuel - Rancagua - Tinguiririca, con el seccionador 52AS de S/E Malloa abierto
- S/E Teno 154 kV alimentada desde la línea 154 kV Itahue - Tinguiririca Nº1
- Línea 154 kV Alto Jahuel - Rancagua - Tinguiririca Nº2 fuera de servicio por falla desde las 01:08 horas, con S/E Punta de Cortés 154 kV y el transformador Nº1 154/66 kV de S/E Malloa fuera de servicio (evento asociado a EAF 004/2016)
- Línea 154 kV Itahue - Tinguiririca Nº2 fuera de servicio desde las 01:08 horas (evento asociado a EAF 004/2016)
- Central La Higuera Unidad Nº1 fuera de servicio a solicitud del CDC desde las 01:10 horas
- Interruptores 52A2 y 52A3 de S/E Punta de Cortés abiertos desde las 01:13 horas (evento asociado a EAF 005/2016)
- SS/EE San Fernando 154 kV, Malloa 154 kV y Teno 154 kV sincronizadas al SIC vía la línea 154 kV Itahue - Tinguiririca Nº1 desde las 01:17 horas

Otros antecedentes relevantes

De acuerdo con lo consignado en el informe de novedades relevantes del CDC:

Hora	Observación
01:43	Línea de 66 kV Rancagua – Rosario se realiza microcorte para transferir consumos desde S/E Rancagua hacia S/E Malloa, para mejorar regulación de frecuencia y voltaje en área de Rancagua alimentada en isla desde C. Sauzal.
01:57	S/E Rancagua F/S a solicitud del CDC para transferir consumos hacia S/E Alto Jahuel, debido a mala regulación de frecuencia, tensión y recuperar la mayor cantidad de consumos perdidos en la zona.
02:40	S/E Rancagua E/S desde S/E Alto Jahuel.
03:37	C. Esperanza unidades con informe de limitación, no obedecen orden de partida remota.
04:23	C. Esperanza unidades DS-1 y DS-2 sincronizadas, TG-1 indisponible. Causa informada: Falla en la partida por problemas en el calefactor del aceite.

05:07	C. M. Valle Central CDC solicita reducir sus consumos desde 28 a 5 MW (consumos esenciales), para controlar la transferencia en transformadores de 110/154 kV de S/E Sauzal.
08:11	S/E Rancagua se reduce 1 MW de consumos a solicitud del CDC por control de transferencia del TR4 de 110/154 kV.
08:16	S/E Rancagua alimentador Berrios reduce 3 MW de consumos a solicitud del CDC por control de transferencia de TR4 de 110/154 kV.
08:23	Compañía Papelera Talagante reduce 1 MW de consumos por control de transferencia de línea de 66 kV Paine – Bajo Melipilla.
08:26	S/E Rancagua alimentador Río Peuco reduce 3 MW de consumos a solicitud del CDC por control de transferencia de TR4 de 110/154 kV.
08:41	S/E Rancagua se reduce 4,3 MW de consumos a solicitud del CDC por control de transferencia de TR4 de 110/154 kV.
08:47	Cerrada línea de 154 kV Rancagua – A. Jahuel 1 queda abierto puentes en estructura 359, CDC solicita normalizar el 100 % de los consumos de SS/EE Rancagua y Paine.
09:39	CDC solicita a C. Minera Valle Central reducir sus consumos a 0 MW para realizar cambio de barra de 110 kV en S/E Sauzal.
09:40	CDC solicita a C. Minera Valle Central normalizar el 100 % de sus consumos, queda alimentado desde S/E Rancagua.
10:20	S/E Lo Miranda reduce 2,5 MW de consumos por control de transferencia de línea de 66 kV Rancagua – Punta de Cortés.
10:56	S/E Rancagua abierto interruptor 52B5 de línea de 66 kV Rancagua – Punta de Cortés para realizar microcorte afectando los consumos de S/E Punta de Cortés con 54 MW. Causa informada: Normalización de topología por 154 kV.
10:56	S/E Punta de Cortés cerrado 52AT quedando normalizada topología por 154 kV y normalizado el 100 % de los consumos.

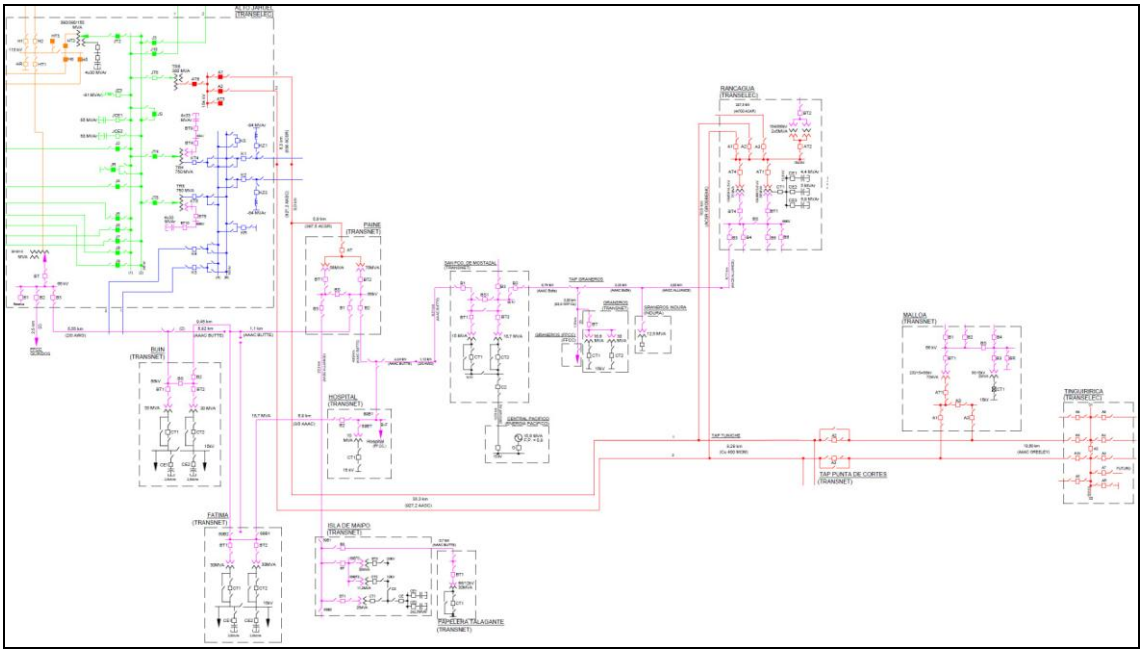
Acciones correctivas a largo plazo

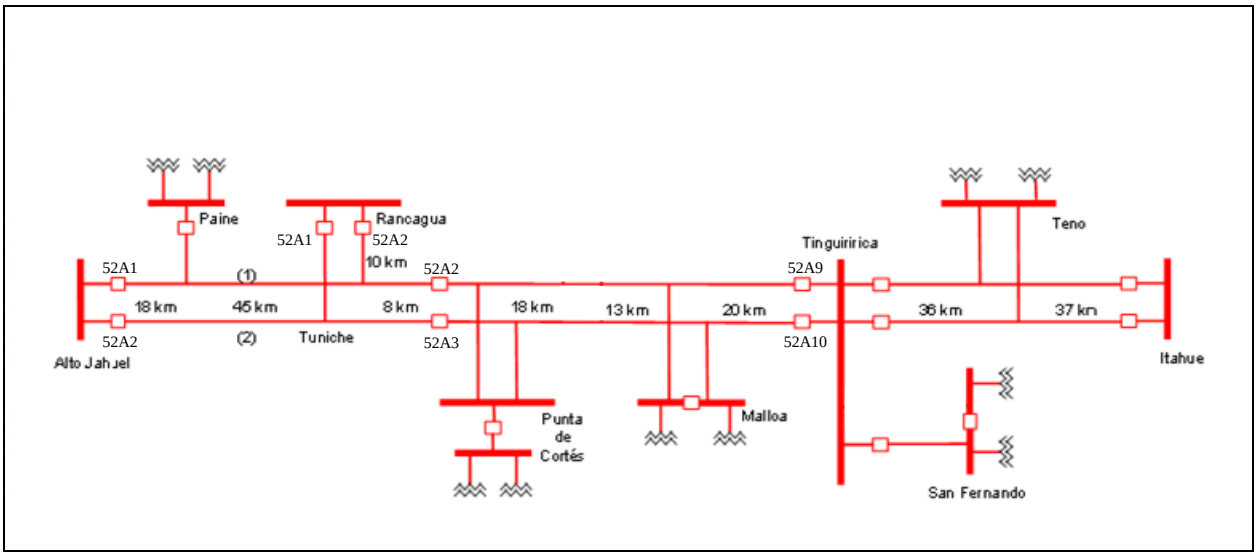
- Transelec S.A. señala que "No hay"
- Transnet S.A. señala que "No aplica"

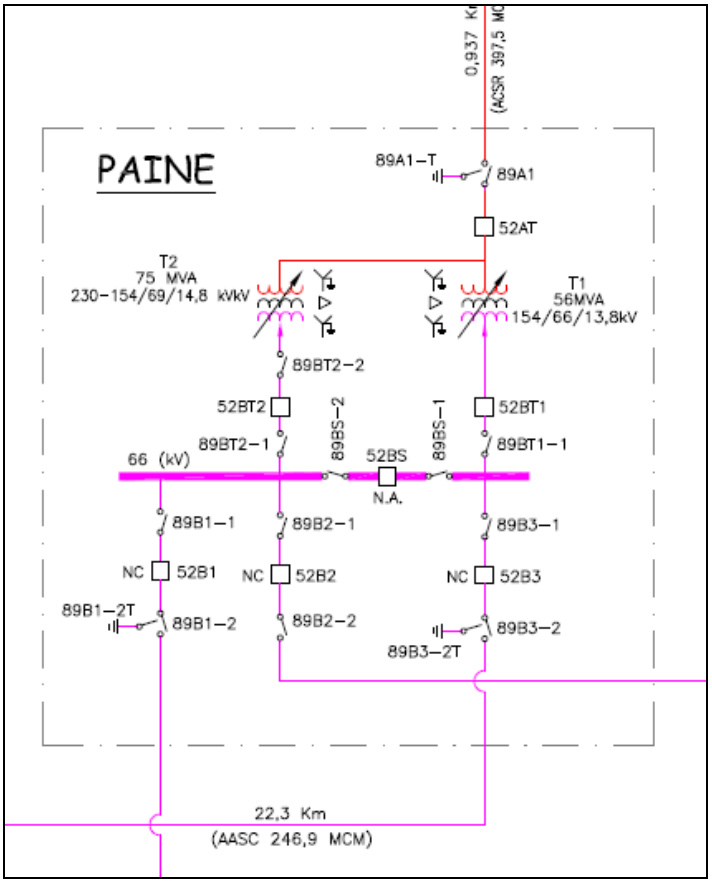
Acciones correctivas a corto plazo

- Transelec S.A. señala que "No hay"
- Transnet S.A. señala que "No aplica"

Diagrama simplificado de las instalaciones previo a la falla







5. Cronología de eventos y la descripción de las causas de los eventos

Hora	Evento
01:18:00	Apertura del interruptor 52A1 de S/E Alto Jahuel de la línea 154 kV Alto Jahuel - Rancagua - Tinguiririca Nº1 por operación de protección de distancia 21N zona 1
01:18:00	Apertura del interruptor 52A2 de S/E Rancagua de la línea 154 kV Alto Jahuel - Rancagua - Tinguiririca Nº1 por operación de protecciones de distancia 21N zona 1 S/E Rancagua 154 kV queda operando en isla eléctrica abastecida desde centrales que generan hacia S/E Sauzal 154 kV

6. Normalización del servicio

Fecha	Hora	Acción
07-01-2016	01:18:00	Apertura del 52AT de S/E Paine
07-01-2016	01:18:00	Se realiza apertura del 52B3 de S/E Isla de Maipo
07-01-2016	01:18:00	Apertura del 52BT1 de S/E Papelera Talagante
07-01-2016	01:20:00	Se realiza apertura del 52B2 de S/E Buin
07-01-2016	01:21:00	Se realiza cierre del 52BS de S/E Buin. Se recuperan los consumos perdidos de esta S/E
07-01-2016	01:26:00	Se realiza intento de cierre infructuoso del 52A1 de S/E Alto Jahuel por operación de protección de distancia 21N zona 1 y función de cierre contra falla
07-01-2016	01:27:00	Se realiza intento de cierre infructuoso del 52A2 de S/E Alto Jahuel por operación de protección de distancia 21N zona 1 y función de cierre contra falla
07-01-2016	01:28:00	Se realiza intento de cierre infructuoso del 52A2 de S/E Alto Jahuel por operación de protección de distancia 21N zona 1 y función de cierre contra falla
07-01-2016	01:32:00	Se realiza cierre del 52A3 de S/E Tinguiririca y del 52A4 de S/E Itahue, normalizando la línea 154 Tinguiririca - Itahue Nº2
07-01-2016	01:34:00	Se realiza apertura del 52ET3 de S/E Isla de Maipo
07-01-2016	01:36:00	C. Coya U-5 F/S a solicitud del CDC para transferir su inyección hacia S/E Rancagua para mejorar condiciones de tensión y frecuencia en la zona
07-01-2016	01:43:00	Línea de 66 kV Rancagua - Rosario se realiza microcorte para transferir consumos desde S/E Rancagua hacia S/E Malloa, para mejorar regulación de frecuencia y voltaje en área de Rancagua alimentada en isla desde C. Sauzal
07-01-2016	01:43:00	C. Chacayes U-1 sale del servicio en forma intempestiva, produciéndose tras lo anterior operación de EDAC[1]
07-01-2016	01:51:00	C. Coya U-5 sincronizada hacia Rancagua
07-01-2016	01:57:00	S/E Rancagua F/S a solicitud del CDC para transferir consumos hacia S/E Alto Jahuel, debido a mala regulación de frecuencia, tensión y recuperar la mayor cantidad de consumos perdidos en la zona
07-01-2016	02:12:00	C. Sauzal U-2 F/S a solicitud del CDC para transferir su inyección hacia S/E Alto Jahuel
07-01-2016	02:39:00	Se realiza apertura del 52C1, 52C2, 52C3, 52C4 y 52C5 de S/E Fátima
07-01-2016	02:40:00	S/E Rancagua E/S desde S/E Alto Jahuel
07-01-2016	02:46:00	Se realiza apertura del 52B3 de S/E Paine
07-01-2016	02:48:00	Se realiza apertura del 52BT1 de S/E Isla de Maipo
07-01-2016	02:48:00	Se realiza apertura del 52BT de S/E Isla de Maipo
07-01-2016	02:50:00	Se realiza cierre del 52BT1 de S/E Isla de Maipo, recuperándose parte de los consumos perdidos de esta S/E
07-01-2016	02:52:00	Se realiza apertura del 52B1 de S/E San Francisco de Mostazal
07-01-2016	02:53:00	Se realiza cierre del 52BS de S/E San Francisco de Mostazal, recuperándose los consumos perdidos de esta S/E
07-01-2016	02:56:00	Se realiza apertura del 52B2 de S/E Paine
07-01-2016	02:57:00	Se realiza cierre del 52B1 de S/E San Francisco de Mostazal. Se recuperan los consumos perdidos de SS/EE Hospital y Hospital FFCC
07-01-2016	02:59:00	Se realiza cierre del 52A10 de S/E Tinguiririca
07-01-2016	02:59:00	Se realiza apertura del 52B4 de S/E Fátima
07-01-2016	03:00:00	Se realiza cierre del 52B5 de S/E Fátima
07-01-2016	03:01:00	Se realiza cierre del 52C5 de S/E Fátima. Se recuperan parcialmente consumos de esta S/E
07-01-2016	03:08:00	Se realiza cierre del 52BT de S/E Isla de Maipo. Se recupera la totalidad de los consumos perdidos de esta S/E
07-01-2016	03:16:00	Se realiza cierre del 52C1 de S/E Fátima. Se recuperan parcialmente consumos de esta S/E

07-01-2016	03:17:00	Se realiza cierre del 52C3 de S/E Fátima. Se recuperan parcialmente consumos de esta S/E
07-01-2016	03:42:00	Se realiza cierre del 52B3 de S/E Isla de Maipo. Se energiza S/E Papelera Talagante
07-01-2016	04:04:00	Se realiza cierre del 52C1 y 52C2 de S/E Papelera Talagante
07-01-2016	04:05:00	Se realiza cierre del 52C3 de S/E Papelera Talagante, recuperándose todos los consumos de esta S/E
07-01-2016	04:07:00	Se realiza apertura del 89A1 de S/E Paine
07-01-2016	04:19:00	Comienzan los trabajos de reparación de los circuitos 1 y 2 de la línea 154 kV Tinguiririca - Rancagua - Alto Jahuel, sector Tap Punta de Cortés - Tap Tuniche
07-01-2016	06:54:00	Se realiza cierre del 52C2 de S/E Fátima. Se recuperan todos los consumos de su transformador Nº1
07-01-2016	08:44:00	Se realiza cierre del 89A1 de S/E Paine
07-01-2016	08:47:00	Se energiza la línea 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº1 con puentes abiertos entre Tap Tuniche y Tap Punta de Cortés
07-01-2016	08:48:00	Se realiza cierre del 52AT de S/E Paine
07-01-2016	09:45:00	Se realiza cierre del 52C4 de S/E Fátima. Se recuperan todos los consumos de su transformador Nº2
07-01-2016	10:39:00	Se realiza cierre del 52A2 de S/E Punta de Cortés
07-01-2016	21:05:00	Finalizan los trabajos de reparación de la línea 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº1 y 2
07-01-2016	21:05:00	Se energiza la línea Tinguiririca - Rancagua - Alto Jahuel Nº2, sector Alto Jahuel - Rancagua - Punta de Cortés. Se mantiene abierto el 52A3 de S/E Punta de Cortés
08-01-2016	01:27:00	S/E Isla de Maipo consumos se transfieren hacia S/E Bajo Melipilla por medio de microcorte
08-01-2016	01:42:00	S/E P. de Cortés con solicitud de desconexión de curso forzoso. Causa informada: Cambiar alimentación hacia línea 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº2 por desconexión para unir puentes en línea 1. Consumos se respaldan desde S/E Rancagua
08-01-2016	01:54:00	S/E Punta de Cortés cerrado interruptor 52A3 de línea de 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº2
08-01-2016	02:01:00	S/E Punta de Cortés cancelada solicitud de desconexión de curso forzoso
08-01-2016	02:15:00	S/E Paine con solicitud de desconexión de curso forzoso. Causa informada: Por desconexión línea 154 kV Tinguiririca - Rancagua - A. Jahuel Nº1, para unir puentes en estructuras 342 y 359. Consumos se respaldan desde SS/EE Bajo Melipilla y Rancagua
08-01-2016	02:24:00	S/E Malloa TR1 y TR2 se transfieren hacia línea 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº1, tramo Tinguiririca - Punta de Cortés para controlar transferencia en línea Nº2
08-01-2016	02:30:00	Línea de 154 kV Punta de Cortés - Rancagua - Alto Jahuel Nº1 con solicitud de desconexión de curso forzoso. Causa informada: Cierre de puentes en estructuras de anclaje Nº242 y Nº359
08-01-2016	06:00:00	Cerrada línea de 154 kV Punta de Cortés - Rancagua - Alto Jahuel Nº1. Cancelada solicitud de desconexión de curso forzoso
08-01-2016	06:15:00	S/E Paine cancelada solicitud de desconexión de curso forzoso
08-01-2016	06:47:00	S/E Isla de Maipo consumos se transfieren hacia S/E Paine por medio de microcorte. Normalizada topología

- Horas, maniobras y eventos señalados corresponden a lo informado por Transelec S.A. y Transnet S.A. y a lo consignado en el Informe de Novedades Relevantes del CDC

[1] Evento analizado en EAF 007/2016

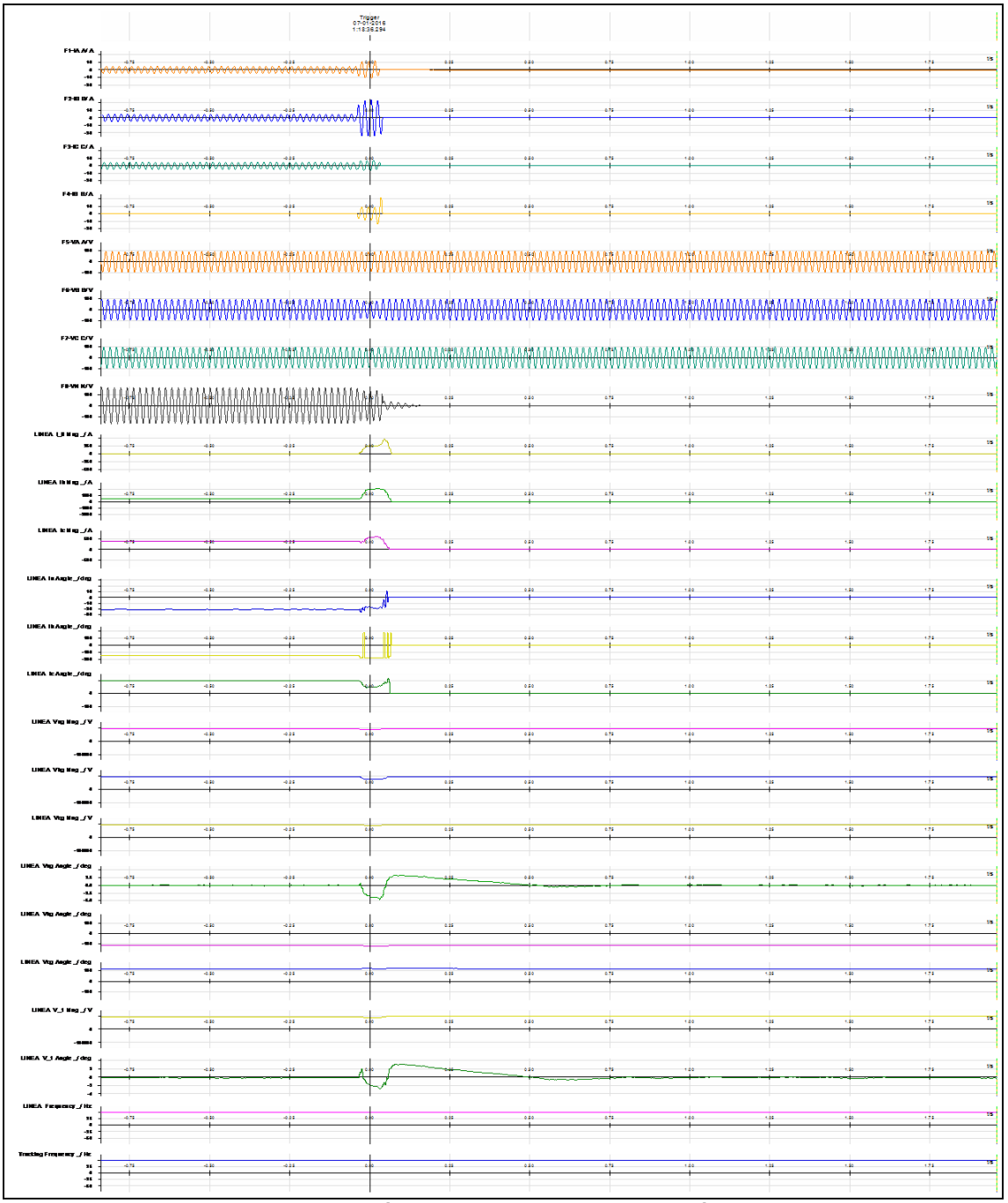
7. Análisis de las causas de la falla y de la actuación de los dispositivos de protección y control

Cortocircuito monofásico entre la fase B y tierra, causado para robar conductor de la línea 154 kV Tinguiririca - Rancagua - Alto Jahuel Nº1 entre sus estructuras Nº354 y Nº355, en el sector Tap Punta Cortés - Tap Tuniche.

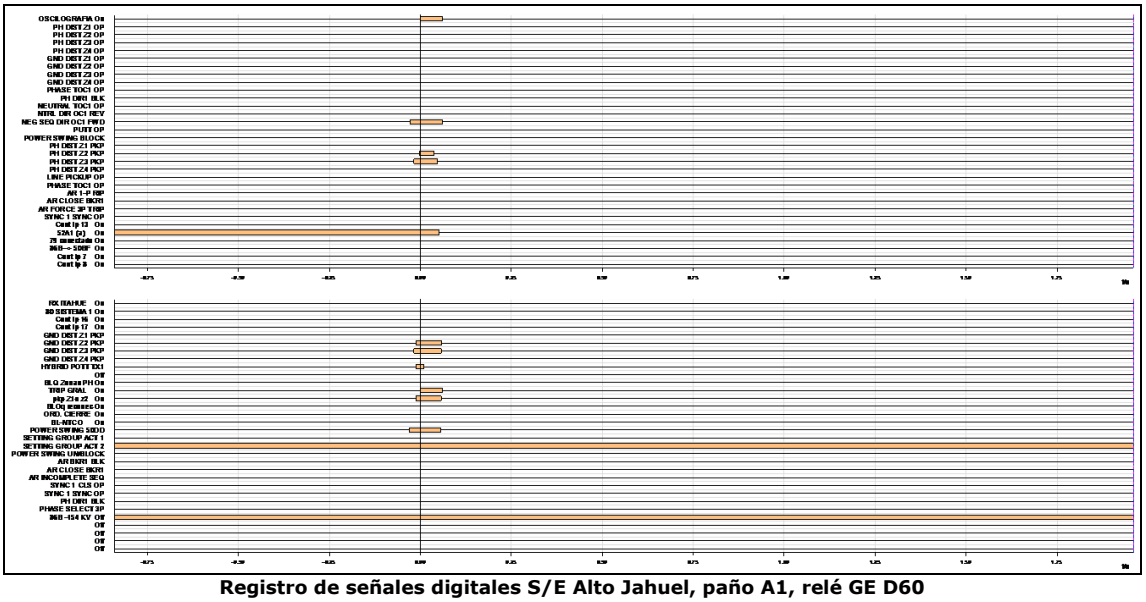
Las protecciones asociadas a los tres extremos de la línea 154 kV Alto Jahuel - Rancagua - Tinguiririca Nº2 están formados por dos sistemas de protecciones de los que forman parte los relés Siemens 7SA612 y GE D60, los que poseen ajustados elementos de protección de distancia 21 y 21N, y de sobrecorriente 67N. Además dichas protecciones están complementadas mediante esquemas de teleprotección de sobrealcance permisivo. Los ajustes correspondientes se encuentran en el Anexo 6.

De acuerdo con lo informado por Transelec S.A., alrededor de las 01:18 horas del día 07-01-2016 se registra la apertura de los interruptores 52A1 de S/E Alto Jahuel y 52A2 de S/E Rancagua asociados a la línea 154 kV Alto Jahuel - Rancagua - Punta de Cortés Nº1. La apertura de los mencionados interruptores se origina por la operación de protecciones eléctricas ante una falla monofásica ocurrida en la línea de 154 kV causada por descarga eléctrica entre la fase B y tierra, provocada para robar conductor, entre sus estructuras Nº354 y Nº355, ubicadas aproximadamente a 53 km de S/E Alto Jahuel, en el sector Tap Punta Cortés - Tap Tuniche.

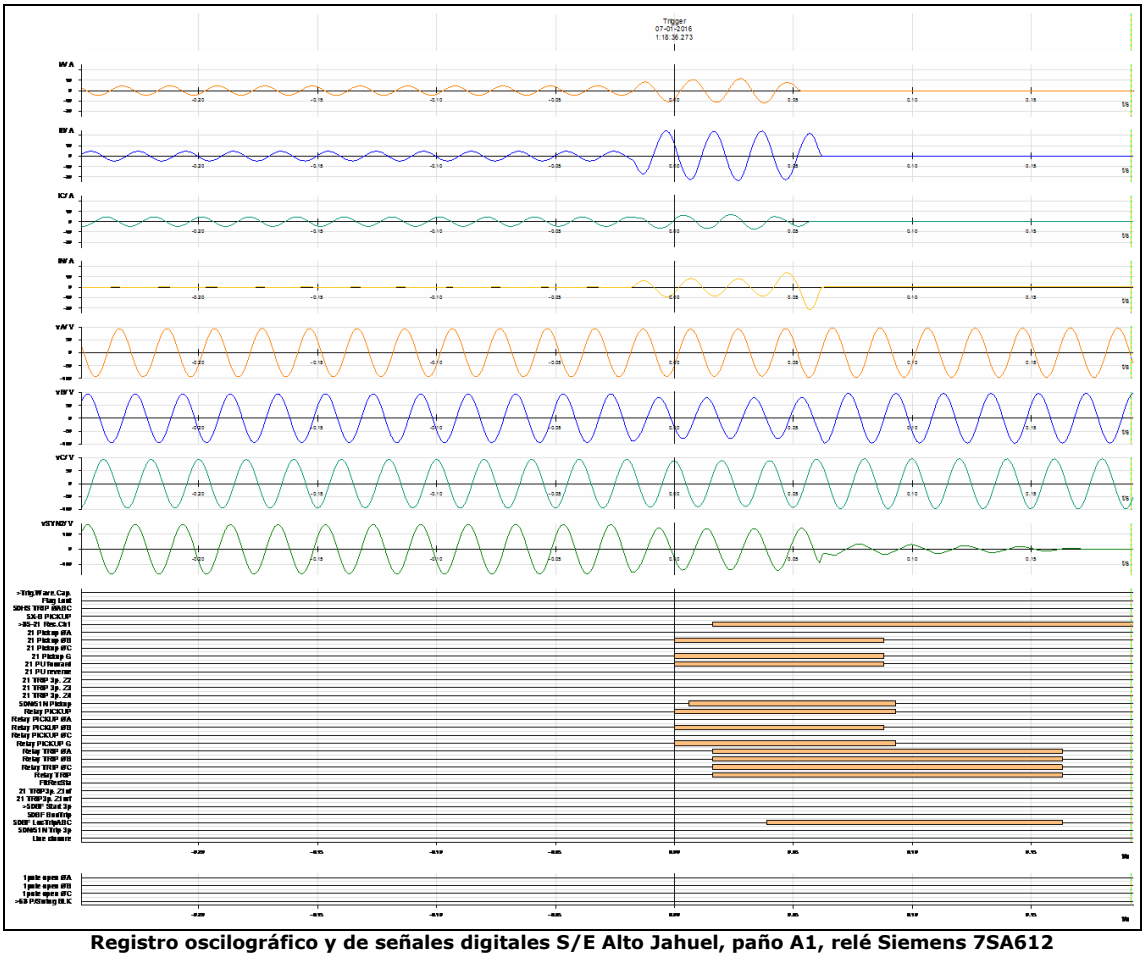
Producto de la descarga eléctrica ocurrida, las protecciones asociadas a los interruptores previamente mencionados detectan una falla, cuyos registros se presentan a continuación.



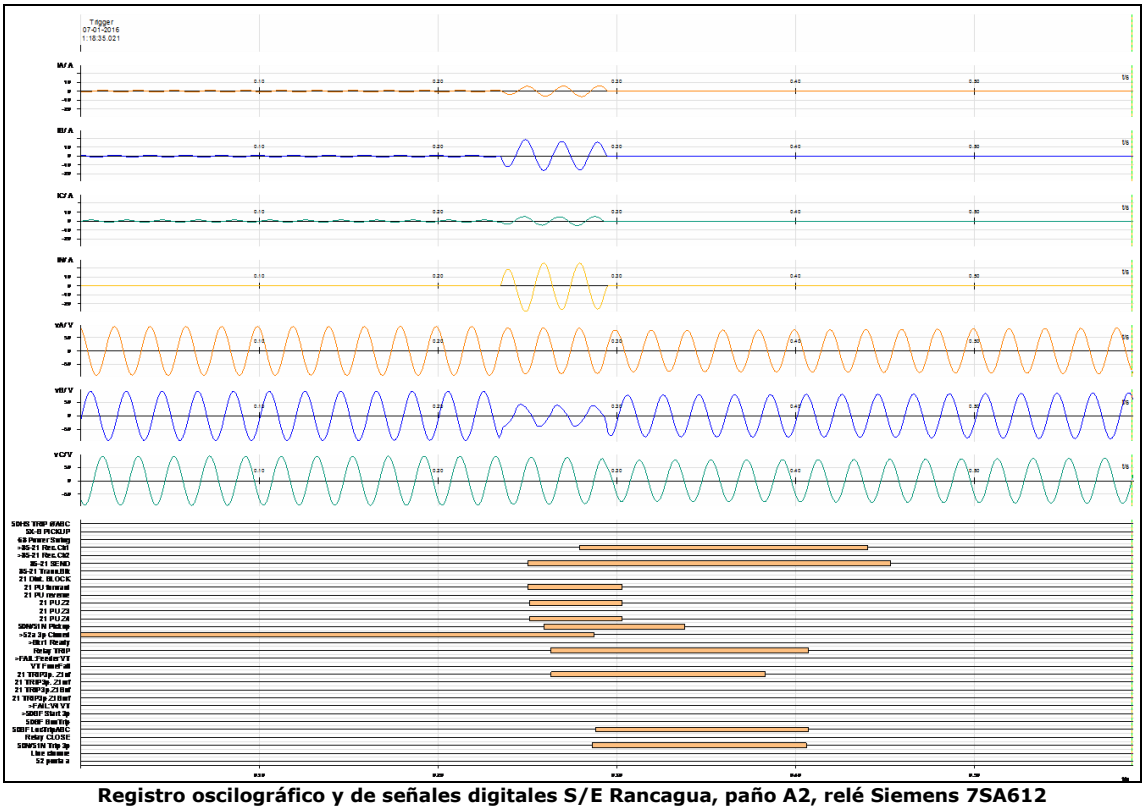
Registro oscilográfico S/E Alto Jahuel, paño A1, relé GE D60



Registro de señales digitales S/E Alto Jahuel, paño A1, relé GE D60



Registro oscilográfico y de señales digitales S/E Alto Jahuel, paño A1, relé Siemens 7SA612



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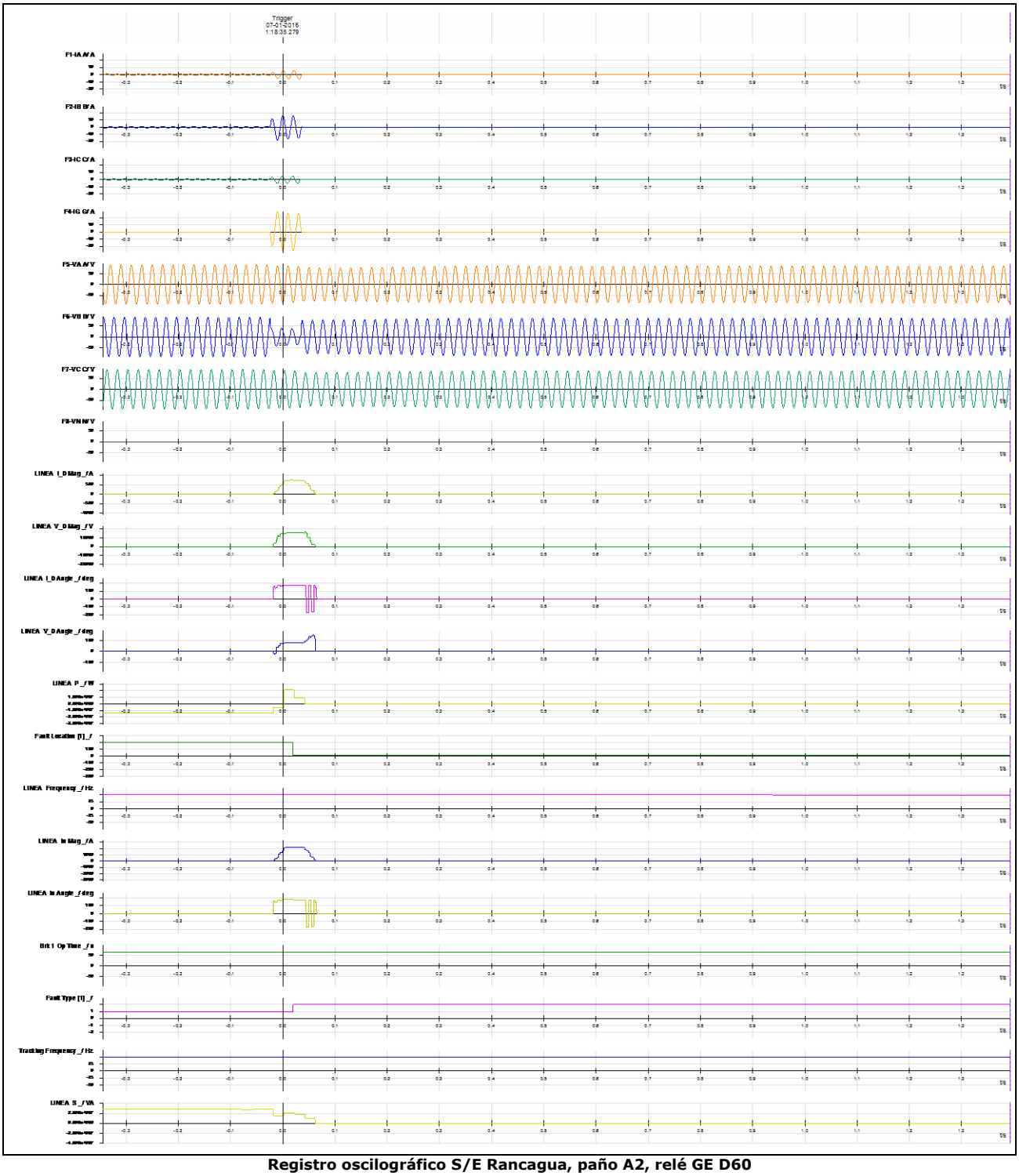

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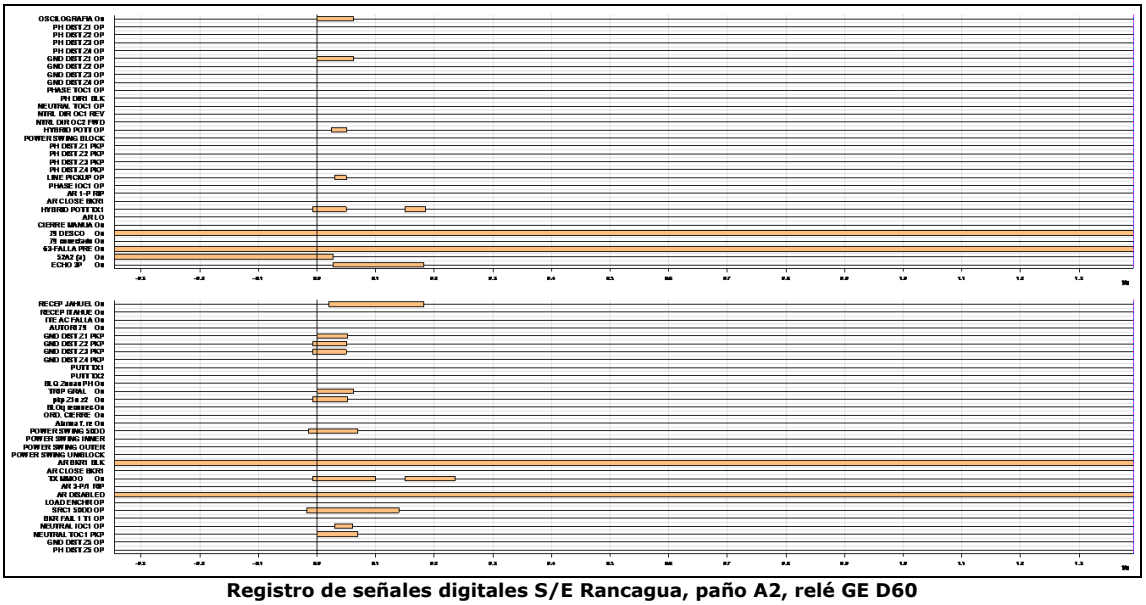
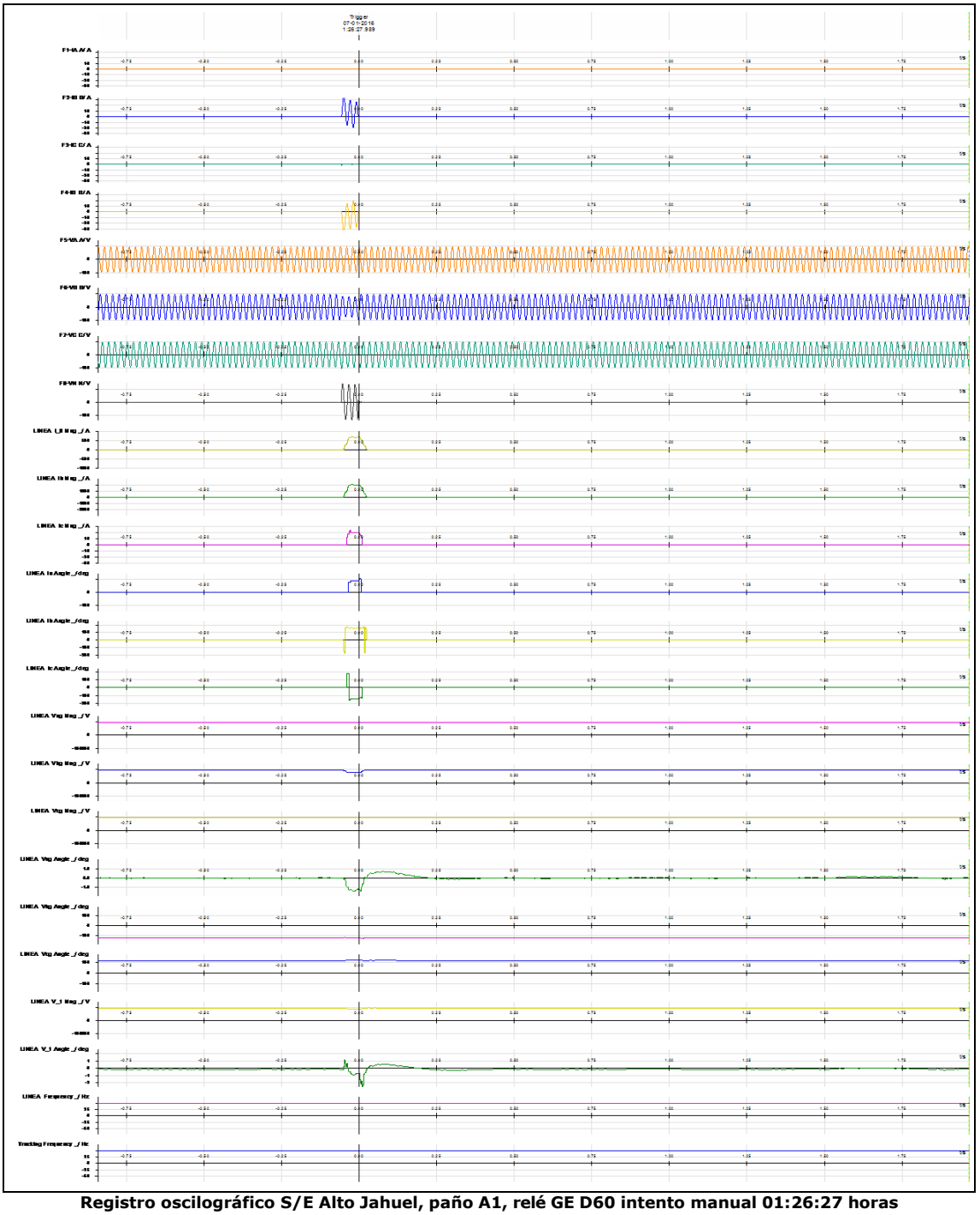


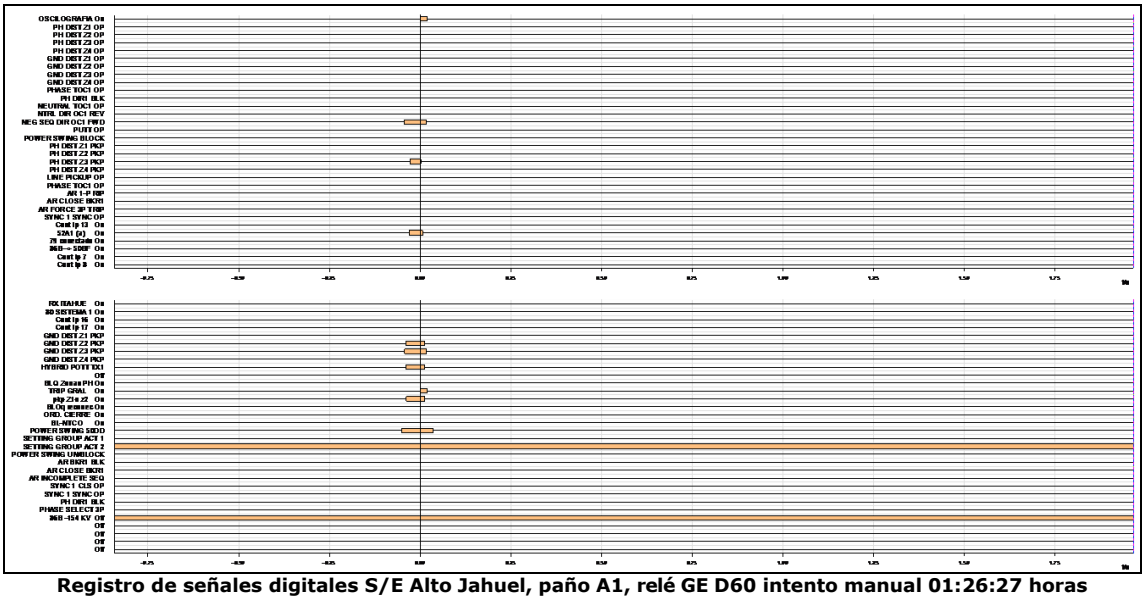
Registro de señales digitales S/E Rancagua, paño A2, relé GE D60

En los registros oscilográficos previos, se aprecia la presencia de una falla monofásica en la fase B de la línea 154 kV Alto Jahuel - Rancagua - Tinguiririca Nº 1, teniéndose que en ambos extremos esta falla es detectada por las zona 1 de las protecciones de distancia 21N de los relés y/o por las zonas aceleradas de las protecciones 21N, produciéndose envío de orden instantánea de trip sobre los respectivos interruptores como se aprecia en los respectivos registros de cada relé, observándose en ellos el envío de señal de aceleración hacia los otros extremos del circuito Nº1 de la línea de 154 kV y recepción de señal de aceleración desde el respectivo extremos opuesto (en los respectivos instantes que en el otro extremos la falla es detectada, considerando que el extremo Tinguiririca no detecta esta falla al encontrarse abierto el 52A2 de S/E Punta de Cortés).

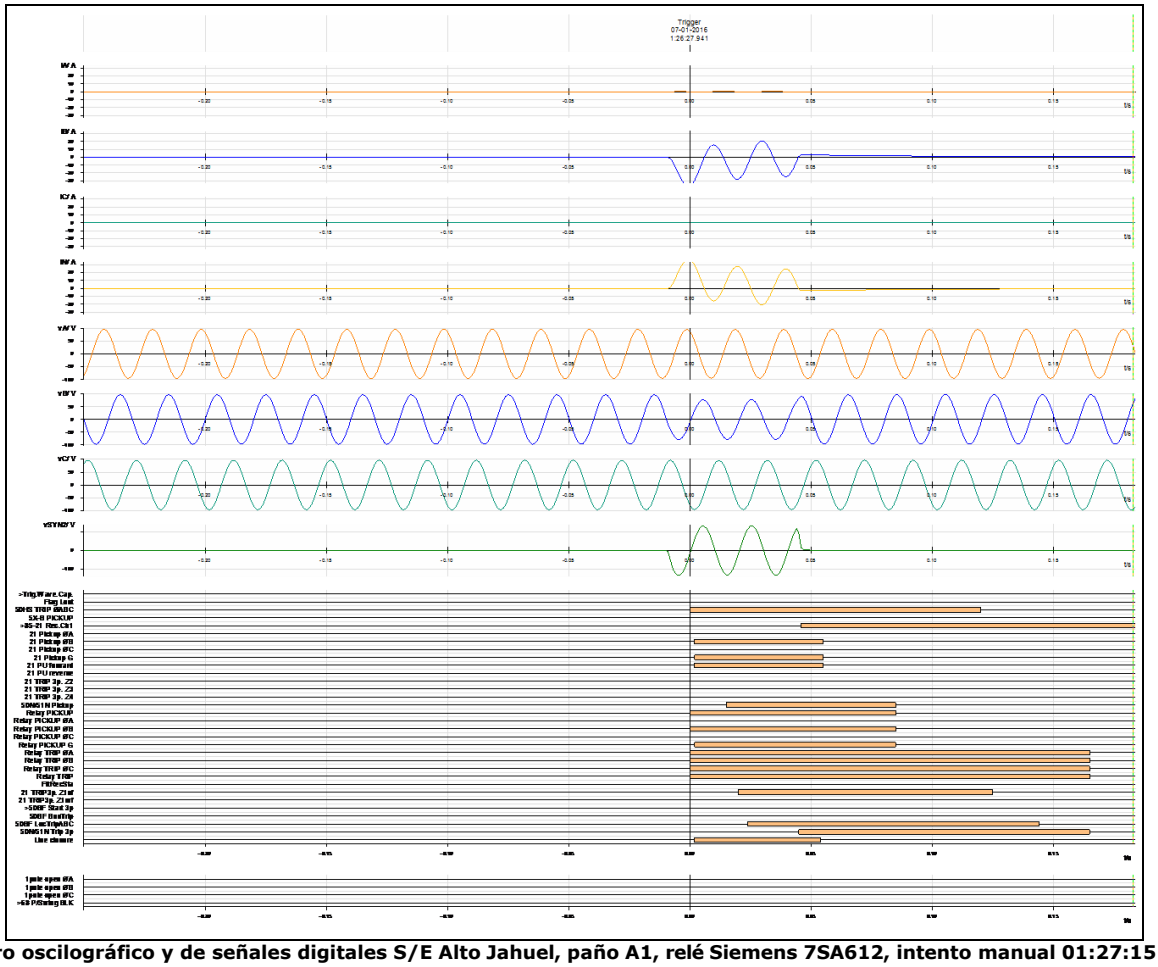
Por otra parte, alrededor de las 01:26 horas se realiza un intento de cierre manual del 52A1 de S/E Alto Jahuel, el que resulta infructuoso por operación de protecciones, cuyos registros se presentan a continuación.



Registro oscilográfico S/E Alto Jahuel, paño A1, relé GE D60 intento manual 01:26:27 horas



Registro de señales digitales S/E Alto Jahuel, paño A1, relé GE D60 intento manual 01:26:27 horas



Registro oscilográfico y de señales digitales S/E Alto Jahuel, paño A1, relé Siemens 7SA612, intento manual 01:27:15 horas

En los registros previos se aprecia la presencia de la falla de característica permanente, la que nuevamente es detectada por las protecciones del 52A1 de S/E Alto Jahuel, teniéndose que en esta oportunidad la falla es despejada por la protección de distancia 21N zona 1 y/o por la función de cierre contra falla de cada relé, según se aprecia en los respectivos registros.

8. Detalle de toda la información utilizada en la evaluación de la falla

- Detalle de la generación programada para el día 07 de enero de 2016 (Anexo Nº1)
- Detalle de la generación real del día 07 de enero de 2016 (Anexo Nº2)
- Detalle del Movimiento de Centrales e Informe de Novedades Relevantes del CDC correspondientes al día 07 de enero de 2016 (Anexo Nº3)
- Detalle de los mantenimientos programados y forzados para el día 07 de enero de 2016 (Anexo Nº4)
- Informes de fallas de instalaciones ingresados en el sistema CDEC por Transelec S.A. y Transnet S.A. (Anexo Nº5)
- Otros antecedentes aportados por Transelec S.A. y Transnet S.A. (Anexo Nº6)

9. Análisis de las actuaciones de protecciones

9.1 Pronunciamiento CDEC y Propiedad

La falla en la línea 154 kV Alto Jahuel - Rancagua - Tinguiririca Nº1 se origina producto de cortocircuito monofásico entre la fase B y tierra, causado para robar conductor de dicha línea entre sus estructuras Nº354 y Nº355, ubicadas aproximadamente a 53 km de S/E Alto Jahuel, en el sector Tap Punta Cortés - Tap Tuniche

La propiedad de la instalación afectada corresponde a Transelec S.A.

9.2 Desempeño Protecciones Eléctricas

De acuerdo con los antecedentes proporcionados por Transelec S.A. y Transnet S.A.:

- Se concluye correcta operación de la protección de distancia 21N zona 1 asociada asociadas al 52A1 de S/E Alto Jahuel
- Se concluye correcta operación de la protección de distancia 21N zona 1 asociada al 52A2 de S/E Rancagua
- Se concluye correcta operación de la protección de distancia 21N zona 1 y de la función de cierre contra falla asociada al 52A1 de S/E Alto Jahuel al realizarse el intento de cierre manual de dicho interruptor

9.3 Desempeño EDAC

No aplica pronunciarse sobre el desempeño de EDAC ante este evento

9.4 Desempeño EDAG

No aplica pronunciarse sobre el desempeño de EDAG ante este evento

10. Análisis de las acciones e instrucciones del CDC y la actuación de los CC que corresponda

No hay observaciones respecto de las actuaciones del CDC y los CC durante la falla del día 07-01-2016

11. Recomendación respecto de las instalaciones a las cuales la DO debería solicitar una auditoría

No se solicitó información adicional

Para el análisis de esta falla no se requirió la realización de auditorías en ninguna de las instalaciones del SIC

ANEXO Nº 1

Detalle de la generación programada para el día 07 de enero de 2016

Operación Programada del Sistema Interconectado Central

jueves 07 enero 2016

Centrales	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Prog.
Pasada	1,629	1,613	1,605	1,600	1,586	1,585	1,585	1,583	1,593	1,666	1,769	1,776	1,785	1,776	1,776	1,776	1,755	1,764	1,712	1,700	1,746	1,782	1,769	1,749	40,680
Molles	7	5	5	5	5	5	5	5	5	7	17	18	18	8	4	4	4	4	4	2	1	18	18	18	192
Sauce Andes	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	19
Aconcagua Ublanco	54	54	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	55	55	1,310
Aconcagua Ujuncal	24	24	24	24	24	24	24	24	24	24	24	24	25	25	25	25	25	25	25	25	25	25	25	25	588
Los Quilos	35	35	35	35	35	35	35	35	35	27	27	27	35	35	35	35	35	35	35	35	35	35	35	35	816
Florida	25	24	23	23	23	23	24	23	13	12	12	12	12	12	12	12	12	12	12	12	22	21	21	22	419
Maitenes	12	12	13	12	12	13	13	12	12	13	13	13	13	12	12	13	13	12	12	13	13	12	13	12	300
Alfalfal	160	160	160	158	158	156	156	155	155	145	145	151	150	145	145	145	145	145	150	152	145	156	156	155	3,648
Quelltehues	39	40	40	39	40	40	39	39	40	40	40	40	41	40	40	41	42	41	42	42	41	41	42	42	971
Puntilla	11	12	12	12	12	11	11	11	11	12	14	11	12	12	14	12	13	12	12	12	13	13	13	12	290
Volcán	13	13	13	13	13	12	13	13	12	12	13	13	13	12	13	13	13	12	13	13	13	13	13	13	307
Los morros	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	0	3	3	3	3	3	3	67
Sauzal	73	70	72	72	71	72	71	72	72	72	71	70	70	71	73	73	72	71	70	70	71	72	71	71	1,713
Sauzal 60 Hz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sauzalito	12	11	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	12	11	11	11	12	12	12	283
Curillinque	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	2,016
San Ignacio	5	5	5	5	5	5	5	5	5	5	34	34	34	34	34	34	34	34	34	34	34	34	34	34	526
Loma Alta	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	888
Rucúe	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	1,486
Pullinque	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	30	30	30	30	30	30	15	450
Pilmaiquén	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	480
Capullo	5	5	5	5	4	4	4	5	5	5	6	6	5	5	5	5	5	5	5	5	5	5	5	5	119
Peuchén	0	0	0	0	0	0	0	0	0	0	37	37	37	37	37	37	37	37	30	18	0	0	0	0	344
Mampil	0	0	0	0	0	0	0	0	14	0	18	23	23	23	23	23	23	23	20	20	19	8	0	0	260
Chacabuquito	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antuco	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	3,888
Abanico	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	840
Isla	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	1,608
Eyzaguirre	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Quilleco	26	26	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	646
El Rincon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chiburgo	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	3	3	3	20	429
Palmucho	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744
Hornitos	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	1,312
Puclaro	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Ojos de Agua	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	120
Coya	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288
Lircay	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	480
El Manzano	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Pehui	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truful-Truful	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
La Paloma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trueno	1	0	1	1	0	1	1	0	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	0	17
San Clemente	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	120
Los Bajos	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	120
Auxiliar del Maipo	4	4	4	4	4	4	4	4	4	2	3	3	3	3	3	4	3	4	4	3	3	3	3	4	84
La Higuera	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	2,040
Juncalito	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
El Tártaro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Guayacan	12	13	13	13	12	12	12	12	12	12	13	13	13	13	13	12	13	13	12	13	13	13	13	13	303
Confluencia	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	1,968
Mariposas	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Los Corrales	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
Los Corrales II	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Carena	10	10	10	10	10	10	10	10	10	8	8	8	8	10	10	10	10	10	10	10	10	10	10	10	232
Duto	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Dongo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mallarauco	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Lican	0	0	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	8	8	6	0	0	102
Chacayes	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	2,640
Muchi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
La Arena	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allipén	3	2	3	2	2	2	2	3	3	3	3	3	3	3	3	2	3	2	2	2	2	2	2	2	59
Nalcas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Callao	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Purísima	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rucatayo	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	480
Providencia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Robleria	3	3	3	3	3	3	3	3	2	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69
Don Walterio	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	48
El Canelo	2	2	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	23
MC1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	48
MC2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Ensenada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renaico	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	144
Rio Huasco	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Las Vertientes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
El Llano	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Los Hierros	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	96
Los Padres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Andrés	35	35	30	30	30	30	30	30	35	35	35	35	35	40	40	40	40	40	40	40	40	40	40	40	865
Malaun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Collil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Las Flores	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Laja 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Angostura	80	70	60	60	50	50	50	50	50	150	150	150	150	150	150	150	130	130	80	80	160	180	180	160	2,670
Llauquereo	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Picoiquén	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Los Hierros II	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Trailelfú	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quillaileo	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	5
Pichilonco	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Térmicas	2,705	2,705	2,705	2,705	2,705	2,705	2,705	2,705	2,810	2,853	2,854	2,953	2,945	2,933	2,924	2,932	2,948	2,990	2,957	2,957	2,957	2,957	2,957	2,957	68,524
TAL - TAL 2_GNL_1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAL - TAL 2_GNL_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tal - Tal 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tal - Tal 2_diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAL - TAL 1_GNL_1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAL - TAL 1_GNL_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tal - Tal 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tal - Tal 1_diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diego de Almagro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Guacolda 1	125	125	125	125	125	125	125	125	125	125	100	60	60	60	60	60	60	60	125	125	125	125	125	125	2,520
Guacolda 2	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	3,648
Guacolda 3	0	0	0	0	0	0	0	0	5	48	74	95	107	115	126	134	150	152	152	152	152	152	152	152	1,918
Guacolda 4	152	152	152	152	152	152	152	152	152	152	152	140	120	100	80	80	80	120	152	152	152	152	152	152	3,304
Guacolda 5	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	3,648
Huasco TG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Huasco TG_JFO180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.Verde TG (18 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Los Vientos TG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco gas + Nehuenco gas_C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco diesel + Nehuenco die	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco 9B gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco 9B diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco 9B GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco II CC + Nehuenco II CA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco II diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nehuenco II GNL	260	260	260	260	260	260	260	260	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	7,840
San Isidro gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Isidro diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Isidro GNL	0	0	0	0	0	0	0	0	0	0	0	130	130	130	130	130	130	130	0	0	0	0	0	0	910
San Isidro II gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Isidro II diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Isidro II GNL	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	9,120
San Isidro II GNL_CA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventanas 1	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	2,520
Ventanas 2	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	3,600
Nueva Ventanas	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	6,000
Laguna Verde	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nueva Renca GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nueva Renca FA_GLP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nueva Renca FA_GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nueva Renca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nueva Renca diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Campiche	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	6,528
Celco	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	120
Petropower 1	65	65	65	65	65	65	65	65

Viñales	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	528
Candelaria 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candelaria 1_die	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candelaria 1_GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candelaria 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candelaria 2_die	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candelaria 2_GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trongol (2.8 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lebu (2.5 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cañete (3.1 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Traiguen (1.7 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Curacautin (2.2 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Collpulli (2.5 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yungay_1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yungay_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yungay_3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yungay_4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yungay_1 _GAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yungay_2_GAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Casablanca 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Casablanca 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Las Vegas (2.3 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Curauma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Con Con (2.7 MW)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESCUADRON (ex FPC)	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288
Constitucion 1_elektr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maule	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monte Patria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Punitaqui	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EnorEsperanza_DS1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EnorEsperanza_DS2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EnorEsperanza_TG1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Degañ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Olivos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
El_Totoral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quintay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Placilla	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHILOE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quellon_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colmito Diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colmito GNL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Los Pinos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chuyaca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skretting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cenizas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Lidia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trapen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Espinos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Gregorio + Linares	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eagon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmofood I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teno	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newen_diesel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newen_gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Watts I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Watts II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Multiexport I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Multiexport II	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cardones	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quintero DIESEL A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quintero DIESEL B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quintero GNL A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quintero GNL B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Louisiana Pacific	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peñon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San_Lorenzo_U1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San_Lorenzo_U2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San_Lorenzo_U3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tapihue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Termopacífico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loma Los Colorados I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Loma Los Colorados II	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	384
Emelda U1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emelda U2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COLIHUES HFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COLIHUES DIESEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Curicó	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PUNTA_COLORADA_IFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PUNTA_COLORADA_DIESEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Masisa	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	120
Calle-Calle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cementos_Bio-Bio_F_OIL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cementos_Bio-Bio_DIE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lautaro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tomaval	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skretting Osorno	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energía Pacífico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lonquimay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tirúa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lautaro-Comasa	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	624
Lautaro-Comasa 2	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	528
Danisco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ICE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Maria	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	8,520
Laja CMPC	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360
Santa Fe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CMPC Pacífico	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	552
Santa Marta	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	264
CMPC Santa Fe	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	120
Los Guindos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Embalse	**1,595**	**1,188**	**934**	**851**	**811**	**863**	**1,006**	**1,140**	**1,522**	**1,889**	**1,911**	**1,853**	**1,812**	**1,802**	**1,924**	**2,056**	**2,133**	**1,983**	**1,886**	**1,873**	**1,933**	**2,312**	**2,317**	**1,945**	**39,539**
Cipreses	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	2,232
Rapel	0	0	0	0	0	0	0	0	0	225	275	275	200	200	150	150	150	50	0	0	0	190	190	40	2,095
El Toro	210	210	210	211	211	211	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	5,043
Colbún	400	300	0	0	0	0	100	100	240	320	320	300	300	300	300	300	300	300	300	300	300	300	300	300	5,680
Machicura	32	32	32	32	32	32	32	32	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	1,568
Canutillar	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	3,840
Pehuenche	380	120	120	0	0	0	120	250	327	359	221	183	217	207	299	411	488	488	441	428	438	447	452	420	6,816
Pangue	80	60	60	60	60	70	70	70	70	100	210	210	210	210	240	260	260	260	260	260	310	440	440	300	4,570
Ralco	240	213	259	295	255	297	221	225	340	340	340	340	340	340	390	390	390	340	340	340	340	390	390	340	7,695
Eólicas	**76**	**68**	**82**	**82**	**90**	**97**	**115**	**123**	**100**	**73**	**96**	**135**	**174**	**201**	**187**	**180**	**153**	**122**	**89**	**67**	**62**	**46**	**52**	**64**	**2,534**
Eólica Canela	0	0	0	0	0	0	0	0	0	1	2	3	5	6	6	5	4	2	1	1	0	0	0	0	36
Eólica Canela 2	0	0	0	0	0	0	0	0	1	2	6	11	14	16	17	16	12	8	5	3	1	1	1	0	114
Eólica Lebu	6	5	4	4	5	5	6	5	4	5	5	5	5	5	3	4	4	4	3	2	1	1	1	1	93
Eólica El Totoral	0	0	0	0	0	1	1	1	1	2	4	8	11	13	13	12	9	5	2	1	1	0	0	0	85
Eólica Monte Redondo	0	0	0	1	3	7	9	10	9	8	8	9	10	9	8	7	5	3	2	1	1	0	0	0	110
Eólica Ucuquer	0	0	0	0	0	0	0	0	1	2	1	0	1	0	1	3	3	3	2	2	4	1	0	2	26
Eólica Ucuquer 2	0	0	0	0	0	0	0	0	2	4	1	0	1	0	1	3	3	3	2	2	3	1	0	2	28
Eólica Talinay	1	0	0	1	5	11	16	16	13	11	12	14	15	14	12	11	10	10	9	10	12	11	6	2	222
Eólica Punta Colorada	1	0	0	2	0	0	3	8	2	2	4	7	10	9	8	8	15	15	7	0	4	3	4	0	112
Eólica Cuel	6	6	6	6	8	8	8	7	4	2	1	1	1	3	5	5	5	6	6	7	7	7	7	6	128
Eólica El Arrayan	1	0	0	0	0	2	4	5	4	4	5	11	17	18	14	9	6	5	3	2	2	1	1	1	115
Eólica San Pedro	5	7	11	12	16	14	16	18	15	13	13	10	11	8	4	2	2	3	6	9	8	12	21	27	263
Eólica Los Cururos	0	0	0	1	2	3	3	4	4	11	25	38	43	39	35	28	20	11	6	4	2	0	0	0	279
Eólica Punta Palmeras	22	3	7	2	3	0	1	2	0	0	0	0	2	9	4	10	3	2	4	0	0	0	0	0	74
Eólica Taltal	34	47	54	53	47	42	40	39	33	0	0	0	0	20	25	31	33	29	22	15	9	4	9	23	609
Eólica Talinay Poniente	0	0	0	0	1	4	8	8	7	6	9	18	28	32	31	26	19	13	9	8	7	4	2	0	240
Eólica Raki	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solares	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**	**168**	**275**	**332**	**367**	**387**	**388**	**380**	**370**	**348**	**311**	**246**	**134**	**15**	**0**	**0**	**0**	**3,775**
Solar Tambo Real	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
Solar SDGx01 (Andacollo)	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	4
Solar Esperanza	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	1	1	0	0	0	0	0	17
Solar Llano de Llampos	0	0	0	0	0	0	0	9	25	45	63	75	83	86	85	79	67	51	34	16	2	0	0	0	720
Solar San Andrés	0	0	0	0	0	0	0	6	16	28	37	44	47	48	47	45	41	35	25	14	2	0	0	0	435
Solar Santa Cecilia	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	1	0	0	0	0	0	0	15
Solar PSF Pama	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	1	0	0	0	0	0	0	9
Solar PSF Lomas Coloradas	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	1	1	1	0	0	0	0	0	0	9
Solar Diego de Almagro	0	0	0	0	0	0	0	4	15	24	26	28	29	29	28	28	28	26	22	12	1	0	0	0	300
Solar Las Terrazas	0	0	0	0	0	0	0	0	1	1	1	2	3	3	3	3	2	1	1	0	0	0	0	0	21
Solar Javiera	0	0	0	0	0	0	0	11	31	47	56	60	62	61	61	61	60	57	47	27	3	0	0	0	644
Solar Chañares	0	0	0	0	0	0	0	5	15	23	28	30	31	31	31	30	30	28	23	13	1	0	0	0	319
Solar Lalackama	0	0	0	0	0	0	0	6	20	36	42	45	48	48	48	48	46	42	32	17	2	0	0	0	480
Solar PV Salvador	0	0	0	0	0	0	0	12	37	55	57	60	59	58	58	58	58	56	50	28	3	0	0	0	649
Solar Luna	0	0	0	0	0	0	0	0	0

ANEXO Nº 2

Detalle de la generación real del día 07 de enero de 2016

Operación Real del Sistema Interconectado Central (MWh)

jueves 07 enero 2016																										Generación		
Centrales	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Real	Máxima	Prog.
Pasada	1,801	1,538	1,524	1,551	1,586	1,610	1,614	1,627	1,624	1,641	1,696	1,724	1,754	1,749	1,755	1,752	1,743	1,803	1,852	1,785	1,785	1,821	1,824	1,803	40,961	1,852	40,680
Los Molles	5.0	3.0	3.0	3.0	3.0	3.0	3.0	6.0	11.0	18.0	18.0	18.0	9.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0	12.0	18.0	18.0	10.0	188	18	192
Sauce Andes	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	24	1	19
Aconcagua Ubianco	55.4	55.4	55.3	55.1	55.3	55.0	54.9	54.3	52.8	51.6	51.0	50.7	50.5	50.3	50.0	50.2	51.1	53.3	55.3	55.4	55.4	55.4	55.4	55.3	1,284	55	1,310
Aconcagua Ujuncal	24.5	23.2	24.0	25.5	25.2	26.1	27.0	27.7	26.9	27.0	27.0	27.5	27.4	27.4	27.4	27.1	25.4	26.3	26.9	26.9	27.0	27.1	27.0	27.0	635	28	588
Los Quilos	34.2	35.5	34.1	35.1	35.1	35.3	33.7	35.2	34.8	35.3	35.0	34.0	34.5	34.7	35.1	34.3	34.9	35.9	36.3	36.3	36.6	36.4	36.7	36.9	846	37	816
Florida 1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	72	3	0
Florida 2	18.0	19.0	18.0	18.0	19.0	18.0	18.0	18.0	10.0	9.0	10.0	10.0	10.0	10.0	9.0	10.0	10.0	9.0	14.0	15.0	16.0	17.0	17.0	18.0	340	19	419
Florida 3	2.0	2.0	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	51	3	0
Maitenes	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	12.0	12.0	12.0	12.0	12.0	12.0	296	13	300
Alfalfal	150.1	151.6	153.6	148.0	144.6	140.6	132.5	136.7	136.3	134.8	134.6	132.5	132.1	131.5	129.3	129.5	129.4	130.6	138.6	140.3	143.8	148.7	153.9	152.9	3,357	154	3,648
Quebrataes	39.0	39.0	39.0	39.0	39.0	39.0	38.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	42.0	41.0	41.0	41.0	41.0	42.0	971	42	971
Puntilla	16.0	16.5	16.9	17.0	16.8	16.9	17.6	17.6	17.2	16.1	15.3	16.6	17.5	14.5	17.3	17.0	15.9	14.5	15.7	16.5	16.0	16.3	16.0	16.1	394	18	290
Volcan	13.0	13.0	13.0	13.0	12.0	13.0	13.0	12.0	13.0	13.0	12.0	13.0	13.0	13.0	12.0	13.0	13.0	13.0	12.0	13.0	13.0	13.0	13.0	13.0	307	13	307
Los Morros	3.0	3.1	3.1	2.9	3.0	2.9	3.0	2.9	2.9	2.9	3.0	2.9	3.0	2.8	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.0	3.1	3.0	72	3	67
Sauzal 50Hz	69.0	70.0	54.0	75.0	77.0	77.0	75.0	71.0	70.0	67.0	62.0	68.0	68.0	69.0	70.0	69.0	69.0	69.0	69.0	69.0	74.0	75.0	75.0	75.0	1,686	77	1,713
Sauzal 60Hz	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Sauzalito	11.0	10.0	0.0	0.0	0.0	5.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	12.0	11.0	11.0	225	12	283
Curillinque	84.0	85.0	85.0	84.0	84.0	84.0	84.0	83.0	83.0	83.0	83.0	82.0	83.0	82.0	84.0	82.0	83.0	82.0	82.0	82.0	83.0	83.0	84.0	84.0	1,998	85	2,016
San Ignacio	17.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	242	17	526
Loma Alta	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	36.0	37.0	36.0	37.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	37.0	37.0	879	37	888
Rucue	60.0	60.0	60.0	60.0	60.0	69.0	72.0	73.0	72.0	73.0	72.0	72.0	72.0	72.0	70.0	70.0	61.0	62.0	70.0	72.0	71.0	71.0	72.0	72.0	1,638	73	1,486
Pullinque	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.2	15.1	15.1	15.1	15.1	15.1	15.4	29.4	30.2	30.2	30.1	30.1	30.2	16.0	453	30	450
Pilmaiquén	20.2	20.3	20.4	20.4	20.5	20.5	20.5	20.6	20.5	20.3	19.9	20.3	20.3	20.4	20.5	20.4	19.9	19.3	21.2	21.3	21.3	21.5	20.1	20.2	491	22	480
Capullo	4.4	4.2	4.1	4.0	4.0	4.1	4.0	4.2	4.4	5.0	5.5	5.5	5.5	5.1	4.9	4.2	4.2	4.3	4.3	4.5	4.5	4.8	4.6	4.6	109	6	119
Peuchén	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.3	34.4	37.0	37.6	38.1	38.1	38.1	38.1	38.1	38.1	38.1	30.2	8.7	0.0	0.0	435	38	344
Mampil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	19.2	19.1	21.5	22.0	22.0	22.0	22.0	22.0	22.0	21.4	18.9	17.3	6.2	273	22	260
Chacabuquito	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Antuco	167.0	167.0	167.0	167.0	167.0	163.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	161.0	168.0	163.0	161.0	161.0	161.0	164.0	3,897	168	3,888
Abanico	37.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	35.0	36.0	35.0	35.0	36.0	36.0	35.0	36.0	35.0	35.0	36.0	36.0	36.0	35.0	36.0	36.0	859	37	840
Isla	67.0	67.0	67.0	67.0	66.0	66.0	66.0	65.0	66.0	65.0	66.0	66.0	64.0	65.0	65.0	65.0	64.0	64.0	64.0	65.0	65.0	66.0	66.0	66.0	1,573	67	1,608
Eyzaguirre	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	29	1	24
Quilleco	24.0	24.0	24.0	24.0	25.0	27.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	31.0	30.0	29.0	25.0	25.0	29.0	29.0	30.0	31.0	31.0	678	31	646
El Rincón	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	7	0	0
Chiburgo	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	8.0	3.0	3.0	3.0	20.0	417	20	429
Palmucho	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	672	28	744
Hornitos	47.4	47.9	48.3	48.6	48.9	49.1	49.4	52.3	53.2	53.0	52.8	52.5	52.3	52.0	51.9	51.9	52.2	52.5	52.7	53.0	53.3	53.7	52.6	52.2	1,234	54	1,312
Pucluro	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	24	1	24
Ojos de Agua	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	7.7	8.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	201	8	120
Coya	12.1	6.9	7.9	12.0	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.0	11.6	12.0	11.8	12.0	11.8	11.8	11.9	12.1	12.0	12.0	12.1	279	12	288
Lircay	20.2	20.2	20.2	20.2	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.2	20.2	20.2	20.1	20.1	20.1	20.1	20.1	20.1	20.2	20.1	20.1	20.1	483	20	480
El Manzano	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.2	3.2	3.2	3.3	3.2	3.3	3.4	3.4	3.3	78	3	72
Pehuí	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	4	0	0
Truful Truful	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	17	1	4
La Paloma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Trueno	0.7	0.3	1.1	1.1	0.2	1.1	1.1	0.0	1.1	0.9	0.2	1.1	0.8	0.3	1.1	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	18	1	17
San Clemente	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	120	5	120
Los Bajos	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.1	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	126	5	120
Auxiliar del Maipo	3.5	3.6	3.8	3.9	3.8	3.9	3.4	3.6	3.6	3.0	3.3	3.4	3.2	3.3	3.6	3.4	3.4	3.6	3.5	3.5	3.5	3.3	3.6	3.7	84	4	84
La Higuera	154.5	74.0	83.9	84.4	84.5	84.4	84.3	84.8	84.6	84.8	84.4	85.2	84.8	84.6	85.0	84.4	84.8	84.2	84.6	84.5	85.0	85.4	84.9	85.1	2,091	155	2,040
Juncalito	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	0.9	0.9	22	1	24
El Tartaro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Guayacán	12.7	12.7	12.7	12.6	12.7	12.7	12.5	12.5	12.6	12.5	12.5	12.2	12.3	12.2	12.2	12.2	11.7	10.9	11.9	11.7	12.0	12.0	12.2	12.7	295	13	303
Confluencia	81.7	49.9	81.8	81.8	81.8	81.8	81.7	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.8	81.9	81.9	81.8	81.9	1,931	82	1,968
Mariposas	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	78	3	72
Los Corrales	0.5	0.7	0.6	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.6	0.6	0.6	0.5	0.6	0.6	17	1	23
Los Corrales II	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	17	1	24
Carena	9.6	9.6	9.4	9.4	9.4	9.4	8.9	9.3	8.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	9.4	9.4	9.4	9.6	9.4	9.6	9.4	9.4	164	10	232
Diuto	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	72	3	72
Dongo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Mallarauco	3.5	3.4	3.5	3.5	3.4	3.5	3.4	2.7	3.3	3.5	3.5	3.6	3.6	3.6	3.6	3.4	3.4	3.2	3.2	3.2	3.2	3.1	3.1	3.1	81	4	72
Licán	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.4	8.4	8.2	8.4	8.2	8.4	8.3	8.2	8.2	8.1	8.0	6.7	2.9	0.0	100	8	102
Chacayes	110.9	96.1	55.4	60.3	94.2	108.0	108.5	109.1	108.9	109.1	108.5	95.8	111.7	111.5	112.2	112.0	111.9	112.1	112.5	111.5	111.7	111.9	111.6	111.0	2,506	113	2,640
Muchi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
La Arena	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Reca	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	8	0	0
Purísima	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	10	0	0
Allipen	1.6	1.4	1.4	1.5	1.4	1.4	1.4	1.7	1.0	1.5	1.1	1.4	1.5	1.5	1.2	1.5	1.5	1.3	1.5	1.5	1.5	1.5	1.5	1.5	34	2	59
El Canelo	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	44	2	23
Nalcas	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	24	1	24
Callao	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6	0	0
Rucatayo	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.6	21.4	21.2	21.2	21.2	21.2	21.2	21.2	21.1	21.4	22.0	22.7	22.9	23.0	521	23	480
Renaico	5.7	5.7	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.7	5.8	5.7	5.7	5.8	139	6	144
Providencia	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	17	1	24
Don Walterio	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	38	2	48
Roblería	2.6	2.6	2.5	0.2	2.6	2.6	2.5	2.5	2.5	2.6	2.5	2.6	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	59	3	69
MC1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	51	2	48
MC2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	14	1	24
Ensenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Río Huasco	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	31	1	24
San Andrés	37.8	37.3	37.1	30.6	30.6	30.6	30.6	30.8	35.0	35.8	35.7	35.8	36.9	39.5	40.2	40.3	40.3	40.2	40.1	38.8	36.4	35.7	27.2	25.9	849	40	865
El Llano	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	31	1	24
Las Vertientes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Laja 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Los Hierros	2.6	2.7	2.7	2.8	2.9	2.9	2.9	3.0	3.1	3.1	3.1	3.1	3.0	3.1	3.0	2.9	2.7	2.7	2.5	2.5	2.5	2.6	2.7	2.8	68	3	96
Maisan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	5	0	0
Los Padres	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	2	0	0
Alto Renaico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Quillaileo	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3	0	5
Pichilonco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	24
Donguil	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	3	0	0
María Elena	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0	0
Collil	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	0	1
Llauquereo	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0	0	24
Los Hierros II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	24
Puleifu	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.2	3.6	3.8	3.8

Yungay G2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Yungay G3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Yungay Diesel 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Yungay Diesel 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Yungay Diesel 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Yungay 4ca	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Casablanca 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	0	0
Casablanca 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Las Vegas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Curauma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	0
Concon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Escuadrón (ex FPC)	9.4	9.4	9.4	8.4	8.4	9.4	9.6	9.9	9.9	10.4	10.1	10.1	10.1	9.5	10.1	9.0	10.0	10.3	10.6	10.5	9.4	9.3	9.9	8.0	231	11	288
Constitución 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0	0	0
Maule	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2	2	0
Monte Patria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Punitaqui	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Esperanza 1	0.0	0.0	0.0	0.0	0.7	1.4	1.4	1.4	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	1	0
Esperanza 2	0.0	0.0	0.0	0.0	0.8	1.6	1.6	1.6	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	2	0
Esperanza TG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Degan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Olivos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Totoral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	1	0
Quintay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Placilla	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Chiloé	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Quellon II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Colmito GNL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Colmito Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Los Pinos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Chuyaca	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Skretting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Cenizas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Santa Lidia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Trapén	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	27.3	21.2	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85	28	0
Los Espinos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
San Gregorio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Linares Norte	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Biomar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Eagon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Salmofood I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Teno	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Newen Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Newen Butano	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Newen Propano	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Newen Gas Natural	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Newen Mezcla Butano/Propano	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Watts I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Watts II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Multiexport I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Multiexport II	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Los Álamos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Cardones	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Quintero DIESEL A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Quintero DIESEL B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Quintero GNL A	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.0	114.0	116.0	115.0	115.0	116.0	116.0	116.0	117.0	117.0	117.0	117.0	1,237	117	0
Quintero GNL B	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0	118.0	116.0	116.0	117.0	116.0	115.0	116.0	116.0	117.0	117.0	117.0	116.0	116.0	1,574	118	0
Louisiana Pacific	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
El Peñón	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	0
San Lorenzo de D. de Almagro U1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
San Lorenzo de D. de Almagro U2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
San Lorenzo de D. de Almagro U3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Tapihue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Termopacífico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Loma Los Colorados I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	24
Loma Los Colorados II	14.1	14.1	13.9	14.0	14.0	14.0	13.9	14.0	13.8	13.0	13.7	13.5	13.2	13.5	13.5	13.5	13.1	13.4	13.4	12.5	12.5	13.4	13.7	13.7	325	14	384
Emelda U1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Emelda U2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Colihues IFO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Colihues DIE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Curicó	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Punta Colorada IFO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Punta Colorada Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Cabrero	7.6	7.5	7.5	7.5	7.7	8.0	8.2	8.2	7.7	8.1	7.6	8.0	8.1	8.1	7.8	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0	7.9	189	8	120
Calle-Calle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Cem Bio Bio IFO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	8.1	8.5	1.1	0.0	0.0	0.0	0.0	0.0	20	9	0
Cem Bio Bio DIESEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Southern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Lautaro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
HBS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Tomaval	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Skretting Osorno	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Energía Pacífico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Lonquimay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Tirúa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Lautaro-Comasa	26.1	26.0	25.8	24.1	25.3	26.0	26.0	26.1	26.0	26.0	26.0	26.3	26.0	26.0	26.3	26.0	26.1	25.8	26.1	26.1	26.1	26.3	26.0	26.1	623	26	624
Lautaro-Comasa 2	20.3	20.2	20.1	20.3	20.4	20.0	20.3	19.8	20.2	20.0	20.3	20.1	20.0	20.1	19.8	20.4	20.3	20.3	20.2	20.4	20.1	19.9	20.3	20.4	484	20	528
Danisco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Contulmo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
ICE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Santa María	355.0	355.0	355.0	356.0	354.0	355.0	354.0	354.0	354.0	353.0	353.0	353.0	353.0	354.0	354.0	353.0	352.0	353.0	353.0	354.0	353.0	355.0	354.0	354.0	8,493	356	8,520
Estancilla	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Trebal Mapocho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Laja CMPC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.4	0.0	0.4	2	1	360
Tamm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Ancali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Sta Fe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ANEXO Nº 3

Detalle del Movimiento de Centrales e Informe de Novedades Relevantes del CDC correspondientes al día 07 de enero de 2016

07/01/2016									
	Sincron. de Unidad		POTENCIA (EN MW) SUBE	BAJA	QUEDA	MOTIVO	Etapa de la Central	Condición del Embalse	Condición de la Central
00:00		Pehuenche			240	Unidad 1 Regula frecuencia y ratifica condicion de agotamiento		Normal	(1) E/S Reguladora
00:00		Colbún			300	Ratifica condicion de agotamiento	COLBUN_sinv	Agotamiento	(6) E/S
00:00		Rapel		40	0	por cambio en politica de precios y ratifica condicion de agotamiento		Agotamiento	(8) F/S
00:00		Nehuenco II		120	260	Por control suministro de Gas	NEHUENCO_2_GNL		(5) E/S Min Técnico
00:00		Arauco		10	4	Por cambio en politica de precios	ARAUCO_1		(7) E/S Plena Carga
00:00		Cipreses			100	No ratifica condición de vertimiento.	CIPRESES_sinv	Normal	(7) E/S Plena Carga
00:06		Colbún	100		400	QCR	COLBUN_sinv	Agotamiento	(6) E/S
00:06		Ralco			204	Unidad 2 regula frecuencia	RALCO_sinv	Normal	(1) E/S Reguladora
00:06		Pehuenche		200	280	Deja regulacion de frecuencia		Agotamiento	(6) E/S
00:07		Quintero 1B		70	0	DCR	QUINTERO_CA_1B_GNL		(8) F/S
00:07		San Isidro II		290	370	Sincronizada la TV	SANISIDRO_2_GNL		(6) E/S
00:08		Quintero 1A		120	0	DCR	QUINTERO_CA_1A_GNL		(8) F/S
00:14		Angostura		50	170	Control Cota Angostura	RALCO_sinv	Normal	(7) E/S Plena Carga
00:20		Angostura		50	120	Control Cota Angostura	RALCO_sinv	Normal	(7) E/S Plena Carga
00:29		Colbún	40		440	QCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
00:31		Pangue	50		200	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
00:34		Pehuenche		30	250	DCR		Agotamiento	(6) E/S
00:39		Angostura		40	80	Control Cota Angostura	RALCO_sinv	Normal	(7) E/S Plena Carga
00:40		Pangue		120	80	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
00:40		Angostura		33	47	Control Cota Angostura	RALCO_sinv	Normal	(7) E/S Plena Carga
00:43		San Isidro		100	130	Por control Suministro de gas	SANISIDRO_GNL_CA		(5) E/S Min Técnico
01:04		San Isidro		130	0	Control Suministro de gas	SANISIDRO_GNL_CA		(8) F/S
01:07		Colbún		40	400	DCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
01:24		Colbún		100	300	DCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
01:30		Colbún		50	250	DCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
01:44		Pehuenche		100	150	DCR		Agotamiento	(6) E/S
01:47		Colbún		150	100	DCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
01:48		Pehuenche		30	120	DCR		Agotamiento	(6) E/S
02:24		Colbún		100	0	DCR	COLBUN_sinv	Agotamiento	(8) F/S
03:37		Colihues			0	No se solicita por tiempo de partida. Por falla en L. 154kV Tinguiririca - Rancagua - Jahuel 1 y 2 Sector P. Cortes - Rancagua - Jahuel	COLIHUES_HFO		(8) F/S
03:37		Esperanza DS1	1.6		1.6	Por falla en L. 154kV Tinguiririca - Rancagua - Jahuel 1 y 2 Sector P. Cortes - Rancagua - Jahuel			(7) E/S Plena Carga
03:38		Esperanza DS2	1.8		1.8	Por falla en L. 154kV Tinguiririca - Rancagua - Jahuel 1 y 2 Sector P. Cortes - Rancagua - Jahuel			(7) E/S Plena Carga
03:38		Esperanza TG1	18		18	Por falla en L. 154kV Tinguiririca - Rancagua - Jahuel 1 y 2 Sector P. Cortes - Rancagua - Jahuel No ingresa por lfxxxx			(7) E/S Plena Carga
05:42		Colbún	100		100	QCR	COLBUN_sinv	Agotamiento	(5) E/S Min Técnico
05:43		Pehuenche	50		170	QCR		Agotamiento	(6) E/S
05:55		Pehuenche		50	120	DCR		Agotamiento	(6) E/S
06:18		Colbún	50		150	QCR	COLBUN_sinv	Agotamiento	(5) E/S Min Técnico
06:22		Colbún	50		200	QCR	COLBUN_sinv	Agotamiento	(5) E/S Min Técnico
06:25		Colbún	30		230	QCR	COLBUN_sinv	Agotamiento	(5) E/S Min Técnico
07:06		Guacolda 5		90	60	Segun SICF SD000595/2016			(7) E/S Plena Carga
07:37		Pangue	120		200	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
07:42		Nehuenco II	120		380	QCR - Por control suministro de Gas	NEHUENCO_2_GNL		(5) E/S Min Técnico
08:08		Pehuenche	80		200	QCR		Agotamiento	(6) E/S
08:10	08:55	San Isidro	240		240	QCR - Disponibilidad de gas	SANISIDRO_GNL_CA		(7) E/S Plena Carga
08:12		Pehuenche	50		250	QCR		Agotamiento	(6) E/S
08:16		Pehuenche	20		270	QCR		Agotamiento	(6) E/S
08:24		Colbún	70		300	QCR	COLBUN_sinv	Agotamiento	(6) E/S
08:27		Arauco			10	Queda generendo en isla con SD 366/2016	ARAUCO_1		(7) E/S Plena Carga
08:29		Pehuenche	60		330	QCR		Agotamiento	(6) E/S
08:35						**INICIO Prorrata por Control TX Línea 220 kV San Andrés - Cardones.**			
08:35		**ERNC**			**-20**	**Prorrata por Control TX Línea 220 kV San Andrés - Cardones. 219 MVA a 23 °C con Sol, flujo N>S.**			
08:35		C. PFV Lalackama		3	47	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PFV Diego de Almagro		0	9	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PFV Chañares		0	15	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PFV Javiera		6	47	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PFV San Andrés		0	20	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PFV Salvador		5	47	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PFV Luz del Norte		6	54	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:35		C. PE Taltal		0	9	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
08:37		Pehuenche	30		360	QCR		Agotamiento	(6) E/S
09:00		DEGAN			25	En Pruebas SD 47924/2015			(3) E/S En Prueba
09:03	09:06	Guacolda 3	60		60	QCR			(5) E/S Min Técnico
09:03		Guacolda 5		60	0	Con SDCF 606/2016 (Realizar reparación al motor del calentador de aire de la caldera)			(8) F/S
09:04		Esperanza DS1		1.6	0	Por falla en L. 154kV Tinguiririca - Rancagua - Jahuel 1 y 2 Sector P. Cortes - Rancagua - Jahuel (a las 9:36 hrs. F/S)			(8) F/S
09:04		Esperanza DS2		1.8	0	Por falla en L. 154kV Tinguiririca - Rancagua - Jahuel 1 y 2 Sector P. Cortes - Rancagua - Jahuel (a las 9:36 hrs. F/S)			(8) F/S
09:06		**ERNC**			**-30**	**Prorrata por Control TX Línea 220 kV San Andrés - Cardones. 213 MVA a 24 °C con Sol, flujo N>S.**			
09:06		C. PFV Lalackama		5	42	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PFV Diego de Almagro		0	9	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PFV Chañares		0	15	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PFV Javiera		8	39	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PFV San Andrés		0	20	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PFV Salvador		7	40	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PFV Luz del Norte		10	44	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:06		C. PE Taltal		0	10	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 213 MVA a 24 °C con Sol, flujo N>S.			
09:16		El Peñón	2		2	En Pruebas SD 300/2016			(3) E/S En Prueba
09:30		Rapel	100		100	QCR		Agotamiento	(6) E/S
09:41		Pehuenche		40	320	DCR		Agotamiento	(6) E/S
09:51		Colbún	20		320	QCR	COLBUN_sinv	Agotamiento	(6) E/S
09:57		Colbún	30		350	QCR	COLBUN_sinv	Agotamiento	(6) E/S

09:59		Pehuenche	40		360	QCR		Agotamiento	(6) E/S
10:00	10:41	Quintero 1B	120		120	QCR - Disponibilidad de gas	QUINTERO_CA_1B_GNL		(7) E/S Plena Carga
10:02		Pangue	50		250	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
10:08		Angostura	33		80	Control Cota Angostura	RALCO_sinv	Normal	(6) E/S
10:14		Pehuenche	20		380	QCR		Agotamiento	(6) E/S
11:01		Machicura		8	32	Control Cota Machicura	COLBUN_sinv	Normal	(6) E/S
11:01		Pehuenche		50	330	DCR		Agotamiento	(6) E/S
11:00		Guacolda 3	90		150	En Pruebas			(3) E/S En Prueba
11:00		Guacolda 2			150	No baja por tiempo de estabilización de 8 horas			(7) E/S Plena Carga
11:00		Guacolda 1		65	60	Control Tx líneas 220 kV Maitencillo - Punta Colorada			(5) E/S Min Técnico
11:27		Rapel	50		130	QCR		Agotamiento	(6) E/S
11:29		Angostura	40		120	Control Cota Angostura	RALCO_sinv	Normal	(6) E/S
11:30		Pehuenche	20		350	Control Cota		Agotamiento	(6) E/S
11:38		**ERNC**			**10**	**Prorrata por Control TX Línea 220 kV San Andrés - Cardones. 219 MVA a 23 °C con Sol, flujo N>S.**			
11:38		C. PFV Lalackama		0	42	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PFV Diego de Almagro	4		13	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PFV Chañares	2		17	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PFV Javiera		0	39	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PFV San Andrés	4		24	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PFV Salvador		0	40	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PFV Luz del Norte		0	44	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:38		C. PE Taltal		0	0	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 219 MVA a 23 °C con Sol, flujo N>S.			
11:41		**ERNC**			**-10**	**Prorrata por Control TX Línea 220 kV San Andrés - Cardones. 208 MVA a 25 °C con Sol, flujo N>S.**			
11:41		C. PFV Lalackama		2	40	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PFV Diego de Almagro		0	13	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PFV Chañares		0	17	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PFV Javiera		2	37	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PFV San Andrés		0	24	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PFV Salvador		2	38	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PFV Luz del Norte		3	41	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:41		C. PE Taltal		0	0	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 208 MVA a 25 °C con Sol, flujo N>S.			
11:52		Pehuenche	30		380	QCR		Agotamiento	(6) E/S
12:10		El Peñón		2	0	En Pruebas SD 300/2016			(8) F/S
12:22		Maule	2		2	En Pruebas SD47634/2015			(3) E/S En Prueba
12:45		Arauco	16		20	QCR	ARAUCO_2		(7) E/S Plena Carga
12:45		Cementos BioBio	13		13	QCR	CEMENTOS_BIOBIO_FO6		(7) E/S Plena Carga
12:45		Machicura			32	No sube por IL 00014/2016	COLBUN_sinv	Normal	(6) E/S
12:45		Valdivia	23		61	QCR	VALDIVIA_4_PINO		(7) E/S Plena Carga
12:45		Arauco	4		24	QCR	ARAUCO_3		(7) E/S Plena Carga
12:45	15:30	Los Vientos TG	120		120	QCR	LOSVIENTOS_TG_CNAVIA		(7) E/S Plena Carga
12:45	13:18	Trapén	80		80	QCR			(7) E/S Plena Carga
13:06	13:23	Quintero 1A	120		120	QCR	QUINTERO_CA_1A_GNL		(7) E/S Plena Carga
13:06		Trapén		60	20	DCR			(5) E/S Min Técnico
13:06		Pehuenche		50	330	DCR		Agotamiento	(6) E/S
13:06		Angostura	20		140	Control Cota Angostura	RALCO_sinv	Normal	(6) E/S
13:29		Pehuenche		30	300	DCR		Agotamiento	(6) E/S
13:33		Rapel		30	100	DCR		Agotamiento	(6) E/S
13:38		Pehuenche		40	260	DCR		Agotamiento	(6) E/S
13:54		Pehuenche	40		300	QCR		Agotamiento	(6) E/S
14:00		Rapel		20	80	DCR		Agotamiento	(6) E/S
14:09		Pangue	50		300	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
14:09		Rapel	70		150	QCR		Agotamiento	(6) E/S
14:12		Pehuenche		60	240	DCR		Agotamiento	(6) E/S
14:25		**ERNC**			**-15**	**Prorrata por Control TX Línea 220 kV San Andrés - Cardones. 180 MVA a 29 °C con Sol, flujo N>S.**			
14:25		C. PFV Lalackama		2	38	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
14:25		C. PFV Diego de Almagro		0	13	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
14:25		C. PFV Chañares		1	16	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
14:25		C. PFV Javiera		4	33	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
14:25		C. PFV San Andrés		1	23	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
14:25		C. PFV Salvador		3	35	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
14:25		C. PFV Luz del Norte		4	37	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 180 MVA a 29 °C con Sol, flujo N>S.			
15:07		**ERNC**				**Redistribución de Potencia Cancelación SD354/2016 -40 MW**			
15:07		C. PFV Lalackama		7	33	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PFV Diego de Almagro		1	12	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PFV Chañares		2	15	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PFV Javiera		7	30	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PFV San Andrés		2	22	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PFV Salvador		7	31	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PFV Luz del Norte		9	32	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:07		C. PE Taltal	36		36	Redistribución de Potencia Cancelación SD354/2016 -40 MW			
15:16		Pehuenche	20		260	QCR		Agotamiento	(6) E/S
15:24		Trapén	40		60	QCR			(7) E/S Plena Carga
15:38		Rapel		70	80	DCR		Agotamiento	(6) E/S
15:43		Trapén		60	0	DCR			(8) F/S
15:48		Pehuenche		20	240	DCR		Agotamiento	(6) E/S
16:11		Pehuenche		60	180	DCR		Agotamiento	(6) E/S
16:28		Rapel		40	40	DCR		Agotamiento	(6) E/S
16:47		Pehuenche	60		240	QCR		Agotamiento	(6) E/S

17:06		Angostura	60		200	Control Cota Angostura	RALCO_sinv	Normal	(6) E/S
17:17		Pehuenche		60	180	DCR		Agotamiento	(6) E/S
17:21		Pehuenche		60	120	DCR		Agotamiento	(5) E/S Min Técnico
17:26		Rapel		40	0	DCR		Agotamiento	(8) F/S
17:43		El Toro	20		250	Por requerimiento de DOH	ELTORO_sinv	Normal	(6) E/S
17:53		Los Vientos TG		120	0	DCR	LOSVIENTOS_TG_CNAVIA		(8) F/S
17:53		Cementos BioBio		13	0	DCR	CEMENTOS_BIOBIO_FO6		(8) F/S
17:53		Arauco		14	10	DCR	ARAUCO_1		(7) E/S Plena Carga
17:53		Valdivia		23	38	DCR	VALDIVIA_3_PINO		(7) E/S Plena Carga
18:00		Colbún		110	240	DCR	COLBUN_sinv	Agotamiento	(6) E/S
18:05		**ERNC**			**23**	**Prorrata por Control TX Línea 220 kV San Andrés - Cardones. 194 MVA a 27 °C con Sol, flujo N>S.**			
18:05		C. PFV Lalackama	3		36	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PFV Diego de Almagro	3		15	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PFV Chañares	3		18	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PFV Javiera	3		33	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PFV San Andrés	2		24	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PFV Salvador	3		34	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PFV Luz del Norte	3		35	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:05		C. PE Taltal	3		39	Prorrata por Control TX Línea 220 kV San Andrés - Cardones, 194 MVA a 27 °C con Sol, flujo N>S.			
18:08		Colbún		60	180	DCR	COLBUN_sinv	Agotamiento	(6) E/S
18:12		Guacolda 1	20		80	Control Tx líneas 220 kV Maitencillo - Punta Colorada			(6) E/S
18:14		Arauco			10	Sincroniza al sistema	ARAUCO_1		(7) E/S Plena Carga
18:23		Colbún		40	140	DCR	COLBUN_sinv	Agotamiento	(6) E/S
18:09						**FIN DE PRORRATA por Control Tx de Línea 220 kV San Andrés - Cardones**			
18:28		Colbún		40	100	DCR	COLBUN_sinv	Agotamiento	(5) E/S Min Técnico
18:39		Pangue		100	200	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
18:53		Guacolda 1	25		125	Control Tx líneas 220 kV Maitencillo - Punta Colorada Limitada según II 374/2015			(10) E/S con limitación
19:05		**Angostura**		40	**160**	**Control Cota Angostura**	RALCO_sinv	Normal	(6) E/S
19:13		Angostura		40	120	Control Cota Angostura	RALCO_sinv	Normal	(6) E/S
19:20		Pangue	100		300	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
19:27		Guacolda 5	150		150	Sincroniza al sistema			(7) E/S Plena Carga
19:34		Angostura	20		140	Control Cota Angostura	RALCO_sinv	Normal	(6) E/S
19:34		Pehuenche	30		150	QCR		Agotamiento	(6) E/S
20:16		Pehuenche			180	U2 toma la regulación de frecuencia.		Agotamiento	(1) E/S Reguladora
20:16		Ralco			365	Deja regulacion de frecuencia	**RALCO_sinv**	**Normal**	(7) E/S Plena Carga
21:03		Colbún	100		200	QCR Se solicita segunda unidad	COLBUN_sinv	Agotamiento	(6) E/S
21:05	21:06	Rapel	80		80	QCR		Agotamiento	(6) E/S
21:27		Colbún	80		280	QCR	COLBUN_sinv	Agotamiento	(6) E/S
22:25		Colbún		80	200	DCR	COLBUN_sinv	Agotamiento	(6) E/S
22:46		Ralco		60	300	Control Cota según IL 304/2007	RALCO_sinv	Normal	(6) E/S
23:01		Colbún	30		230	QCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
23:01		Ralco		40	260	Control Cota según IL 304/2007	RALCO_sinv	Normal	(6) E/S
23:02		Pangue		100	200	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
23:29		Pangue		100	100	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
23:43		Pangue		50	50	Control Cota Pangue	RALCO_sinv	Normal	(6) E/S
23:50		Colbún		70	160	DCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga
23:57		Colbún		60	100	DCR	COLBUN_sinv	Agotamiento	(7) E/S Plena Carga

INFORME DE NOVEDADES CDC
Jueves 07 de Enero de 2016

1. RESUMEN EJECUTIVO

RESUMEN DIARIO OPERACIÓN SIC

jueves, 07 de enero de 2016

Generación por fuente

	Diario (GWh)			Acumulado Anual (TWh)		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Térmico	71.1	63.9	+ 11.3%	0.4	0.5	- 16.8%
Hidráulico	77.5	85.1	- 9.0%	0.5	0.5	+ 19.8%
Eólico	1.3	2.1	- 36.4%	0.0	0.0	- 17.4%
Solar	4.0	4.0	- 0.3%	0.0	0.0	+ 75.5%
Total	**153.8**	**155.1**	**- 0.8%**	**1.0**	**1.0**	**+ 1.9%**

Reducción energía Eólica y Solar

	Diario (MWh)			Acumulado Anual (GWh)		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Total	**521.3**	**803.3**	**- 35.1%**	**5.1**	**0.0**	**-**

Generación Térmica

	Diario (GWh)			Acumulado Anual (TWh)		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Diésel	0.39	1.52	- 74.3%	0.0	0.0	- 40.7%
Carbón	41.34	40.79	+ 1.4%	0.3	0.3	+ 4.9%
Bíomasa	5.57	5.75	- 3.2%	0.0	0.0	- 4.5%
Biogas	0.25	0.35	- 27.6%	0.0	0.0	- 32.5%
GN	23.52	15.44	+ 52.3%	0.1	0.2	- 56.0%
Otros	0.00	0.00	-	0.0	0.0	- 84.0%
Total	**71.1**	**63.9**	**+ 11.3%**	**0.4**	**0.5**	**- 16.8%**

Generación Hidráulica

	Diario (GWh)			Acumulado Anual (TWh)		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Embalse	36.7	42.3	- 13.3%	0.25	0.21	+ 16.5%
Pasada	40.8	42.8	- 4.7%	0.30	0.24	+ 22.6%
Total	**77.5**	**85.1**	**- 9.0%**	**0.5**	**0.5**	**+ 19.8%**

Generación Renovable No Convencional

	Diario (GWh)			Acumulado Anual (TWh)		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Minihidro	3.3	3.4	- 0.4%	0.02	0.02	+ 4.7%
Eólica	1.3	2.1	- 36.4%	0.02	0.02	- 17.4%
Solar	4.0	4.0	- 0.3%	0.03	0.02	+ 75.5%
Bíomasa	3.6	3.6	- 1.0%	0.02	0.03	- 32.6%
Biogas	0.3	0.3	- 27.6%	0.00	0.01	- 32.5%
Total	**12.5**	**13.4**	**- 6.9%**	**0.10**	**0.10**	**- 3.2%**

Cotas (msnm)

	Diario		Máxima	Mín. Operacional
	jue 07/ene	mié 06/ene	2016	2016
Chapo	231.35	231.49	243.00	220.00
Invernada	1317.97	1318.04	1319.00	1280.00
Laja	1324.89	1324.94	1369.00	1308.48
Colbún	432.58	432.73	437.00	397.00
Rapel	104.01	104.02	104.75	97.00
Ralco	709.97	710.37	725.00	692.00
Melado	641.08	641.03	648.00	639.50
Pangue	507.25	507.44	510.50	501.00

Precipitaciones (mm)

	Diario		Acumulado Anual		
	jue 07/ene	mié 06/ene	2016	var% 2015	var% Año Normal
Rapel	0.0	0.0	0.0	-	-
Invernada	0.0	0.0	0.0	-	- 100.0%
Melado	0.0	0.0	0.0	-	- 100.0%
Colbún	0.0	0.0	0.0	-	- 100.0%
Laja	0.0	0.0	0.0	-	- 100.0%
Pangue	0.0	0.0	0.0	-	- 100.0%
Chapo	0.0	0.0	0.0	- 100.0%	- 100.0%

Costos Marginales Promedios Programados (USD/MWh)

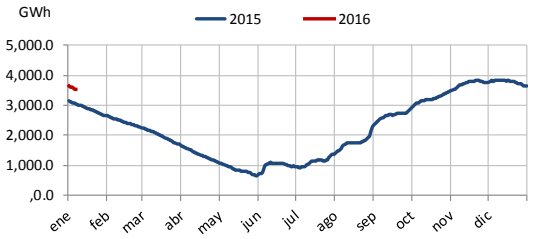
	Diario			Promedio Anual		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Maitencillo	58.2	51.6	+ 13%	46.7	116.5	- 59.9%
Quillota	66.1	51.6	+ 28%	48.5	121.2	- 60.0%
Charrúa	66.1	51.6	+ 28%	48.3	121.2	- 60.2%
Promedio	**63.4**	**51.6**	**+ 23%**	**47.8**	**119.7**	**- 60.0%**

Demanda Máxima (MW) y Generación (GWh)

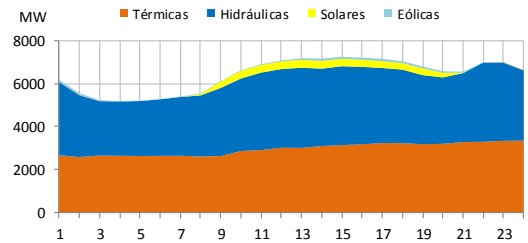
	Diario			Máximo Anual		
	jue 07/ene	mié 06/ene	var%	2016	2015	var%
Máxima Horaria	7243	7348	- 1.4%	7348	7365	- 0.2%

	Programado	Hora	Real	Hora	var%
Demanda Máx.	7337	17	7243	15	- 1.3%
Demanda Punta	-	-	-	-	No aplica
Generación Total	155.1	-	153.8	-	- 0.8%

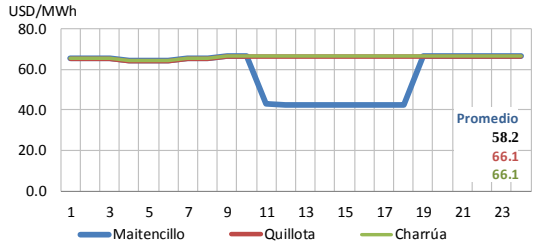
Energía Embalsada en los Últimos 12 Meses (GWh)



Generación horaria bruta por tecnología (MW/h)



Costos Marginales horarios programados (USD/MWh)



(*) Representa el acumulado a igual fecha 2016 y 2015

Fecha reporte: viernes, 08 de enero de 2016

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2. DESVIACIONES DE LA PROGRAMACIÓN

CENTRALES	Prog.	Real	Desv %	Estado	CENTRALES	Prog.	Real	Desv %	Estado
Abanico	840,0	859,0	2,26		Los Hierros	96,0	67,6	-29,63	
Alfalfal	3648,0	3356,5	-7,99		Los Hierros 2	24,0	0,0	-100,00	
Allipén	59,0	34,3	-41,86	PMGD	Los Molles	192,0	188,0	-2,08	
Alto Renaico	0,0	0,0	0,00		Los Morros	67,0	72,1	7,61	PMGD
Andes	0,0	0,0	0,00		Los Padres	0,0	1,8		PMGD
Angostura	2670,0	2637,0	-1,24		Los Pinos	0,0	0,0	0,00	
Antilhue TG	0,0	0,0	0,00		Los Quilos	816,0	845,9	3,66	
Antuco	3888,0	3897,0	0,23		Los Vientos	0,0	265,8	GNP	
Arauco	240,0	190,4	-20,67		Machicura	1568,0	930,0	-40,69	IL
Auxiliar del Maipo	84,0	0,0	-100,00	PMGD	Maisan	0,0	4,6		PMGD
Biogás Ancali	0,0	0,0		PMGD	Maitenes	300,0	296,0	-1,33	
Blanco	1310,0	1284,4	-1,95		Mallarauco	72,0	80,5	11,81	PMGD
Bocamina	0,0	0,0	0,00	SDCF	Mampil	260,0	272,8	4,91	
Bocamina II	0,0	0,0	0,00	SDCF	María Elena	0,0	1,8		PMGD
Callao	0,0	6,2			Mariposas	72,0	78,1	8,47	
Calle Calle	0,0	0,0	0,00		Masisa	120,0	189,2	57,67	
Campiche	6528,0	6529,0	0,02		Monte Patria+Punitaqui	0,0	0,0		PMGD
Candelaria 1 GN	0,0	0,0	0,00		Muchi	0,0	0,2		PMGD
Candelaria 1 GNL	0,0	0,0	0,00		Nalcas	24,0	23,6	-1,50	
Candelaria 1 Diésel	0,0	0,0	0,00		Nehuenco 9B DIE	0,0	0,0	0,00	
Candelaria 2 GN	0,0	0,0	0,00		Nehuenco 9B GAS	0,0	0,0	0,00	
Candelaria 2 GNL	0,0	0,0	0,00		Nehuenco Diésel	0,0	0,0	0,00	
Candelaria 2 Diésel	0,0	0,0	0,00		Nehuenco Gas	0,0	0,0	0,00	
Canutillar	3840,0	3745,0	-2,47		Nehuenco II	0,0	0,0	0,00	
Capullo	119,0	108,7	-8,66		Nehuenco II Diésel	0,0	0,0	0,00	
Cardones	0,0	0,0	0,00		Nehuenco II GNL	7840,0	7904,0	0,82	
Carena	232,0	163,5	-29,53		Newen	0,0	0,0	0,00	
Celco	120,0	122,6	2,17		Nueva Aldea 1	360,0	260,6	-27,61	
Cementos Bío Bío	0,0	20,1	GNP		Nueva Aldea 2	0,0	0,0	0,00	IF
Cenizas	0,0	0,0	0,00	IF	Nueva Aldea 3	888,0	799,2	-10,00	
Chacabuquito	0,0	0,0	0,00	IF	Nueva Renca Diésel	0,0	0,0	0,00	
Chacayes	2640,0	2506,4	-5,06		Nueva Renca GNL	0,0	0,0	0,00	PMM
Chiburgo	450,0	417,0	-7,33		Nueva Ventanas	6000,0	5949,0	-0,85	IL
Chiloé	0,0	0,0	0,00		Ojos de Agua	120,0	200,7	67,25	
Cholguán	216,0	194,0	-10,19		Olivos	0,0	0,0	0,00	
Chuyaca	0,0	0,0	0,00		P. Valdivia	912,0	647,4	-29,01	
Cipreses	2232,0	2212,0	-0,90		Palmucho	744,0	672,0	-9,68	
CMPC Cordillera	0,0	507,2	GNP		Pangue	4570,0	4728,0	3,46	
CMPC Laja	360,0	1,8	-99,50	IL	Pehuenche	6816,0	5493,0	(*) -19,41	
CMPC Pacifico	552,0	584,8	5,94		Pehui	0,0	4,0		PMGD
CMPC Santa Fe	120,0	246,2	105,17		Petropower	1560,0	1277,0	-18,14	
Colbún	5680,0	5559,0	-2,13		Peuchén	344,0	435,0	26,46	
Colihues_DIE	0,0	0,0	0,00		Pichilonco	24,0	0,0	-100,00	PMGD
Colihues_IFO	0,0	0,0	0,00		Picoiquén	72,0	80,2	11,39	
Colmito GNL	0,0	0,0	0,00		Pilmaiquén	480,0	490,8	2,25	PMM
Colmito Diésel	0,0	0,0	0,00		Pulelfu	0,0	78,5	GNP	
Concón	0,0	0,0	0,00		Providencia	24,0	16,8	-30,00	
Const. Elektr.+Maule	0,0	1,9	GNP	IF	Puclaro	24,0	24,0	-0,17	PMGD
Coronel TG Diésel+Gas	0,0	0,0	0,00		Pullinque	450,0	453,3	0,73	
Coya	288,0	278,8	-3,19		Punta Colorada	0,0	0,0	0,00	
Curauma y Casablanca	0,0	1,2		PMGD	Puntilla	290,0	393,8	35,79	

CENTRALES	Prog.	Real	Desv %	Estado	CENTRALES	Prog.	Real	Desv %	Estado
Curillinque	2016,0	1998,0	-0,89		Purísima	0,0	9,9		PMGD
Degañ	0,0	0,0	0,00	IL	Quellón 2	0,0	0,0	0,00	
Diego de Almagro	0,0	0,0	0,00		Queltehues	971,0	971,0	0,00	
Don Walterio	48,0	37,5	-21,83	PMGD	Quillaileo	5,0	3,2	-35,80	PMGD
Dongo	0,0	0,0		PMGD	Quilleco	646,0	678,0	4,95	
El Canelo	23,0	43,5	89,13	PMGD	Quintero Diésel	0,0	0,0	0,00	IL
El Diuto	72,0	71,9	-0,14	PMGD	Quintero GNL	0,0	2811,0	(*) GNP	
El Llano	24,0	30,6	27,50	PMGD	Ralco	7695,0	7168,0	-6,85	PMM
El Manzano	72,0	77,6	7,78	PMGD	Rapel	2095,0	1090,0	(*) -47,97	
El Paso	0,0	733,5	GNP		Reca	0,0	7,6		PMGD
El Peñón	0,0	1,3	GNP		Renaico	144,0	138,7	-3,68	
El Salvador	0,0	0,0	0,00		Renca	0,0	0,0	0,00	
El Tártaro	0,0	0,0		PMGD	Rincón	0,0	7,2	GNP	
El Toro	5043,0	5778,0	14,57		Río Huasco	24,0	31,2	30,00	
El Totoral+Quintay+Placilla	0,0	1,7	GNP	IF	Roblería	69,0	58,5	-15,22	PMGD
Emelda (I + II)	0,0	0,0	0,00		Rucatayo	480,0	521,0	8,53	
Energía León	0,0	0,0		PMGD	Rucúe	1486,0	1638,0	10,23	
Energía Pacífico	0,0	0,0	0,00	SDCF	San Andrés	865,0	849,2	-1,83	
Enor Esperanza(DS +TG)	0,0	15,2	GNP		San Clemente	116,0	120,0	3,45	
Ensenada	0,0	0,0		PMGD	San Gregorio	0,0	0,0	0,00	
Eólica Canela	150,0	34,4	-77,07		San Ignacio	526,0	242,0	-53,99	
Eólica El Arrayán	115,0	57,4	-50,09		San Isidro Diésel	0,0	0,0	0,00	IL
Eólica Lebu	93,0	9,4	-89,89	PMG	San Isidro Gas	0,0	0,0	0,00	
Eólica Los Cururos	279,0	83,9	-69,93		San Isidro GNL	910,0	3743,0	(*) 311,32	PMM
Eólica Monte Redondo	110,0	51,3	-53,36		San Isidro 2 Diésel	0,0	0,0	0,00	
Eólica Cuel	128,0	112,5	-12,11		San Isidro 2 Gas	0,0	0,0	0,00	
Eólica Punta Colorada	112,0	107,5	-4,02		San Isidro 2 GNL	9120,0	8555,0	-6,20	
Eólica Punta Palmeras	74,0	57,9	-21,76		San Lorenzo	0,0	0,0	0,00	
Eólica Raki	0,0	0,0		PMGD	Santa Fe Energía	0,0	0,0	0,00	PMM
Eólica San Pedro	263,0	80,5	-69,39		Santa Lidia	0,0	0,0	0,00	
Eólica Talinay	222,0	97,6	-56,04		Santa María	8520,0	8493,0	-0,32	IL
Eólica Talinay Pte.	240,0	137,6	-42,67		Santa Marta	264,0	251,0	-4,92	
Eólica Taltal	609,0	405,0	-33,50		Sauce Andes	19,0	24,4	28,21	PMGD
Eólica Totoral	85,0	42,8	-49,65		Sauzal	1713,0	1686,0	-1,58	
Eólica Ucuquer	26,0	25,8	-0,62	PMGD	Sauzal 60	0,0	0,0	0,00	
Eólica Ucuquer 2	28,0	35,3	26,14		Sauzalito	283,0	225,0	-20,49	
Escuadrón (Ex FPC)	288,0	231,1	-19,76		Solar Carrera Pinto	0,0	0,0	0,00	
Espinos	0,0	0,0	0,00		Solar Chañares	319,0	154,5	-51,57	
Estancilla	0,0	0,0		PMGD	Solar Lalackama	480,0	343,7	-28,40	
Eyzaguirre	24,0	28,8	20,00	PMGD	Solar Lalackama 2	116,0	107,1	-7,67	
Florida	419,0	463,0	10,50		Solar Diego de Almagro	300,0	113,4	-62,20	IL
Gorbea	0,0	3,3		PMGD	Solar El Pilar-Los Amarillos	0,0	0,0		PMGD
Guacolda 1	2520,0	2631,9	4,44	IL	Solar Esperanza	17,0	0,0	-100,00	PMGD
Guacolda 2	3648,0	3592,0	-1,54	IL	Solar Lagunilla	0,0	0,0		PMGD
Guacolda 3	1918,0	1980,0	3,23	SDCF	Solar Las Terrazas	21,0	23,7	12,81	PMGD
Guacolda 4	3304,0	3646,0	10,35	IL	Solar Llano de Llampos	720,0	932,2	29,47	
Guacolda 5	3648,0	1622,6	(*) -55,52	SDCF	Solar Lomas Colorada	9,0	0,2	-98,00	PMGD
Guayacán	303,0	295,1	-2,61		Solar Loma Los Colorados	0,0	0,0	0,00	
Hidrico Collil	1,0	3,3	230,00	PMGD	Solar Luna	17,0	0,0	-100,00	PMGD
Hidrobonito mc1	48,0	51,1	6,35	PMGD	Solar Luz del Norte	0,0	1138,4	(*) GNP	
Hidrobonito mc2	24,0	14,4	-39,88	PMGD	Solar Pama	9,0	1,7	-81,56	PMGD
H. Laja	0,0	0,0	0,00		Solar Javiera	644,0	450,7	-30,02	
Horcones TG GN	0,0	0,0	0,00	PMM	Solar PV. Salvador	649,0	457,6	-29,49	
Horcones TG Diésel	0,0	0,0	0,00		Solar San Andrés	435,0	250,4	-42,44	IL

CENTRALES	Prog.	Real	Desv %	Estado	CENTRALES	Prog.	Real	Desv %	Estado
Hornitos	1312,0	1233,7	-5,97		**Solar Santa Cecilia (ex Avenir)**	15,0	0,0	-100,00	PMGD
Huasco TG	0,0	0,0	0,00		**Solar SDGx01 (Andacollo)**	4,0	6,5	61,75	
Isla	1608,0	1573,0	-2,18		**Solar Sol**	17,0	0,0	-100,00	
Itata	0,0	5,3	GNP		**Solar Tambo Real**	3,0	0,0	-100,00	PMGD
Juncal	588,0	634,5	7,91		**Solar Techos Altamira**	0,0	0,5		PMGD
Juncalito	24,0	21,7	-9,58	PMGD	**Taltal 1 Diésel**	0,0	0,0	0,00	
La Arena	0,0	0,0		PMGD	**Taltal 1GNL**	0,0	0,0	0,00	
La Confluencia	1968,0	1931,4	-1,86	IF	**Taltal 2 Diésel**	0,0	0,0	0,00	
La Higuera	2040,0	2091,1	2,50	PMM	**Taltal 2 GNL**	0,0	0,0	0,00	
La Paloma	0,0	0,0		PMGD	**Teno**	0,0	0,0	0,00	
Laguna Verde TG	0,0	0,0	0,00	IF	**Termopacífico**	0,0	0,0	0,00	
Laguna Verde TV	0,0	0,0	0,00		**Tissue**	0,0	0,0	0,00	
Laja Energía Verde	216,0	150,0	-30,56		**Trailelfú**	0,0	7,3		PMGD
Las Flores	24,0	21,0	-12,50	PMGD	**Trapén**	0,0	84,5	GNP	
Las Vegas	0,0	0,0	0,00		**Trebal**	0,0	0,0		PMGD
Las Vertientes	0,0	0,0		PMGD	**Trueno**	17,0	17,8	4,71	PMGD
Lautaro 1	624,0	622,6	-0,22	IL	**Truful-Truful**	4,0	17,4	335,25	PMGD
Lautaro 2	528,0	484,2	-8,30		**Ventanas 1**	2520,0	2109,0	-16,31	IL
Licán	102,0	99,8	-2,16		**Ventanas 2**	3600,0	3515,0	-2,36	IL
Licantén	144,0	107,8	-25,14		**Viñales**	528,0	733,6	38,94	
Linares Norte	0,0	0,0	0,00		**Volcán**	307,0	307,0	0,00	
Lircay	480,0	483,3	0,69		**Yungay 1 Diésel**	0,0	0,0	0,00	
Llauquereo	24,0	0,4	-98,33		**Yungay 1 Gas**	0,0	0,0	0,00	
Loma Alta	888,0	879,0	-1,01		**Yungay 2 Diésel**	0,0	0,0	0,00	
Loma Los Colorados 1	24,0	0,0	-100,00	IF	**Yungay 2 Gas**	0,0	0,0	0,00	
Loma Los Colorados 2	384,0	0,0	-100,00		**Yungay 3 Diésel**	0,0	0,0	0,00	
Los Bajos	120,0	0,0	-100,00	PMGD	**Yungay 3 Gas**	0,0	0,0	0,00	
Los Corrales I	23,0	17,3	-53,75	PMGD	**Yungay 4 Diésel**	0,0	0,0	0,00	
Los Corrales II	24,0	16,8	-30,00	PMGD	**Otra Generación**	-17,0	0,0	-100,00	PMGD
Los Guindos	0,0	0,0	0,00	IL					

Otra Generación: Centrales Los Sauces, Malleco, Victoria, Chufquén, Curacautín, Pelohuén, Valdivia SGA, Skretting, Las Pampas, Santa Irene, Tamm, Planta Curicó, Lonquimay, Biomar, Lebu, Cañete, Eagon, Lousiana Pacific, Multiexport, Polincay, Salmofood, Tapihue, Trongol, Watts, Contulmo, HBS, Tomaval, Tirúa, Biocruz.

Abreviaturas:

GNP: Generación no programada.
PMM: Programa de Mantenimiento Mayor.
IF: Indisponibilidad por Falla.
SDCF: Solicitud de desconexión de curso forzoso.
PMGD: Pequeño Medio de Generación Distribuido.
PMMep: Programa de Mantenimiento Mayor con extensión de plazo.
IL: Informe de Limitación de Unidades Generadoras.
S/I: Sin información.

(*) JUSTIFICACIÓN DE PRINCIPALES DESVIACIONES.

C. Guacolda 5	Menor generación real por solicitud de desconexión de curso forzoso.
C. Pehuenche	Menor generación real por condición de agotamiento.
C. Quintero	GNP por costo marginal.
C. Rapel	Menor generación real por condición de agotamiento.
C. San Isidro	Mayor generación real por costo marginal.
C. Luz del Norte	GNP en pruebas.

$$(*)\ \text{si} \begin{cases} \left|E_{real} - E_{programada}\right| > 12.5\%\ E_{programada} \\ \text{y} \\ \left|E_{real} - E_{programada}\right| > 0.5\%\ E_{total\ real} \end{cases}$$

3. ESTADO DE LAS CENTRALES

Estado	CENTRALES (≥100 MW)	Disponibilidad (%)
Indisponibilidad por Falla	La Confluencia	50
Programa de Mantenimiento Mayor	Nueva Renca	0
	Ralco U-1	0
	San Isidro TV	0
	La Higuera	50
Informe de Limitación de Unidad Generadora	Guacolda 1	83
	Guacolda 2	100
	Guacolda 4	100
	Nueva Ventanas	92
	Santa María	95
	Ventanas 1	79
	Ventanas 2	68
	Quintero Diésel	0
	San Isidro Diésel	0
	Los Guindos	85
Solicitud de desconexión de curso forzoso	Bocamina	0
	Bocamina II	0
	Guacolda 3	0
	Guacolda 5	0

- C. Guacolda unidad 1 limitación asociada por puesta E/S de equipos de abatimiento de emisiones.
- C. Guacolda unidad 1, 2 y 4 limitación asociada por tiempo de estabilización.
- C. Nueva Ventanas limitada a 250 MW sin poder variar su generación por problemas en válvula de vapor sobrecalentado, válvula no abre luego de prueba de cierre.
- C. Ralco con U-2 disponible al 100 %. Limitación asociada a gasto por cota (40 cm diario).
- C. Ventanas 1 limitada por control temperatura de agua de sistema de refrigeración.
- C. Ventanas 2 limitada a carga fija por control de combustión de la caldera.
- C. Los Guindos limitación por alta temperatura en el escape.
- C. Santa María limitación por pérdida de eficiencia de la turbina a vapor.
- C. Bocamina indisponible por desconexión indefinida de las líneas de 220 kV y 154 kV, informada a Endesa por Transelec, según lo dispuesto por la Corte de Apelaciones de Concepción en oficio n°10405 dictado en recurso de protección ROL 10.162-2015.
- C. Bocamina II indisponible por desconexión indefinida de las líneas de 220 kV y 154 kV, informada a Endesa por Transelec, según lo dispuesto por la Corte de Apelaciones de Concepción en oficio n°10405 dictado en recurso de protección ROL 10.162-2015.
- C. Guacolda unidad 3 indisponible por filtración de gases en la compuerta de inspección de la chimenea.
- C. Guacolda unidad 5 indisponible por falla en motor de calentador de aire de la caldera.

4. ANTECEDENTES DE LA OPERACIÓN DIARIA

4.1. Observaciones

Hora	Observación
00:00	C. Pehuenche U-1 regula frecuencia.
00:00	Cs. Alto Renaico, PFV Loma Los Colorados, Pulelfu PMG, PFV Luz del Norte, PFV Carrera Pinto, El Paso, CMPC Cordillera, Santa Marta U-9 y 10, Itata, PE Lebu (ampliación de 6,5 a 10 MW), CMPC Tissue y Andes Generación continúan en pruebas.
00:00	C. La Confluencia continúa vertiendo.

Hora	Observación
00:00	Cs. Pehuenche, Colbún y Rapel ratifican condición de agotamiento.
00:06	C. Ralco U-2 toma la regulación de frecuencia.
00:07	C. San Isidro II TV disponible y sincronizada.
00:41	Línea de 66 kV Pan de Azúcar – Marquesa interrupción forzada por protecciones, se pierden 12 MW de consumos.
01:04	C. San Isidro TG se retira por control suministro de gas.
01:08	Línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 2 interrupción forzada por protecciones, se pierden 77 MW de consumos correspondientes a SS/EE Cachapoal, Machalí, Loreto, Lo Miranda, Tuniche, Quinta de Tilcoco, Las Cabras y El Manzano. Causa informada: Robo de conductor entre estructuras Nº 354 y 355.
01:08	S/E Tinguiririca línea de 154 kV Itahue – Tinguiririca 2 interrupción forzada por protecciones, en S/E Itahue se encontraba abierto por control de oscilaciones.
01:10	C. La Higuera U-1 F/S a solicitud del CDC para eliminar las oscilaciones en línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 1.
01:12	Cerrada línea de 66 kV Pan de Azúcar – Marquesa y normalizado los consumos.
01:12	S/E Punta de Cortés CC de Transelec abre interruptores de línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 1 y 2, no autorizado por el CDC. Centrales que inyectan en S/E Tinguiririca quedan generando en isla alimentando los consumos de SS/EE San Fernando y Teno. Por operación de EDAC se pierden 23 y 25 MW de consumos correspondientes a SS/EE San Fernando y Teno, se autoriza la reposición inmediata.
01:12	C. La Confluencia U-1 sale del servicio en forma intempestiva con 77 MW.
01:12	C. El Paso U-2 y U-3 salen del servicio en forma intempestiva con 40 MW.
01:12	S/E Teno Planta Papeles Arauco pierde 1,3 MW de consumos por operación de EDAC.
01:17	S/E Itahue sincronizada línea de 154 kV Itahue – Tinguiririca 1.
01:19	Recuperado los consumos de SS/EE Quinta de Tilcoco, Las Cabras y El Manzano.
01:19	Línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 1 interrupción forzada por protecciones, se pierden 87 MW de consumos correspondientes a SS/EE Buin TR Nº 2, Fátima, Hospital, Isla de Maipo, Graneros, San Francisco de Mostazal y Papelera Talagante. Causa informada: Robo de conductor entre estructuras Nº 354 y 355.
01:19	S/E Rancagua alimentado en isla desde S/E Sauzal.
01:21	S/E Teno Planta Papeles Arauco normalizado consumos.
01:21	Recuperado los consumos del TR Nº 2 de S/E Buin.
01:27	S/E Alto Jahuel cierre manual sin éxito de línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 1.
01:28	S/E Alto Jahuel cierre manual sin éxito de línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 2.
01:32	Cerrada línea de 154 kV Itahue – Tinguiririca 2.
01:36	C. Coya U-5 F/S a solicitud del CDC para transferir su inyección hacia S/E Rancagua para mejorar condiciones de tensión y frecuencia en la zona.
01:43	Línea de 66 kV Rancagua – Rosario se realiza microcorte para transferir consumos desde S/E Rancagua hacia S/E Malloa, para mejorar regulación de frecuencia y voltaje en área de Rancagua alimentada en isla desde C. Sauzal.
01:43	C. Chacayes U-1 sale del servicio en forma intempestiva con 60 MW.
01:50	C. Sauzalito sale del servicio en forma intempestiva con 11.5 MW.
01:51	C. Coya U-5 sincronizada hacia Rancagua.
01:53	C. Coya U-5 F/S a solicitud del CDC para transferir su inyección hacia S/E Alto Jahuel.
01:57	S/E Rancagua F/S a solicitud del CDC para transferir consumos hacia S/E Alto Jahuel, debido a mala regulación de frecuencia, tensión y recuperar la mayor cantidad de consumos pérdidos en la zona.
02:00	C. La Higuera empieza a verter.
02:10	C. Coya U-5 sincronizada hacia S/E Alto Jahuel.
02:12	C. Sauzal U-2 F/S a solicitud del CDC para transferir su inyección hacia S/E Alto Jahuel.
02:40	S/E Rancagua E/S desde S/E Alto Jahuel.
02:41	Recuperados los consumos de SS/EE Hospital y Fátima parcialmente.
02:51	Recuperados los consumos del TR 1 de S/E Isla de Maipo.
03:00	C. Sauzal U-2 sincronizada hacia S/E Alto Jahuel.
03:09	Recuperados el 100% de los consumos de S/E Isla de Maipo.
03:15	Recuperados los consumos de SS/EE Cachapoal y Machalí.
03:37	C. Esperanza unidades con informe de limitación, no obedecen orden de partida remota.
03:42	Recuperado 2 MW de consumos de S/E Papelera Talagante.
03:47	C. Chacayes U-1 sincronizada hacia S/E Alto Jahuel.

Hora	Observación
04:01	Recuperado los consumos de S/E Tuniche.
04:19	S/E Punta de Cortés con solicitud de intervención de curso forzoso. Causa informada: A solicitud de Transelec para iniciar reparación de línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 1 y 2.
04:19	S/E Malloa con solicitud de intervención de curso forzoso. Causa informada: A solicitud de Transelec para iniciar reparación de línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 1 y 2
04:23	C. Esperanza unidades DS-1 y DS-2 sincronizadas, TG-1 indisponible. Causa informada: Falla en la partida por problemas en el calefactor del aceite.
05:07	C. M. Valle Central CDC solicita reducir sus consumos desde 28 a 5 MW (consumos esenciales), para controlar la transferencia en transformadores de 110/154 kV de S/E Sauzal.
05:18	C. Sauzalito sincronizada.
05:54	Se recuperan 3.5 MW de S/E Lo Miranda.
06:13	Se recuperan los consumos de S/E Loreto.
06:13	Se recuperan 1,8 MW de S/E Lo Miranda.
07:06	C. Guacolda U-5 baja al mínimo técnico con solicitud de intervención de curso forzoso. Causa informada: Realizar revisión al motor del calentador de aire de la caldera por ruido anormal, este equipo es crítico para la unidad.
07:28	Chilectra SDAC habilitado.
08:11	S/E Rancagua se reduce 1 MW de consumos a solicitud del CDC por control de transferencia del TR4 de 110/154 kV.
08:16	S/E Rancagua alimentador Berrios reduce 3 MW de consumos a solicitud del CDC por control de transferencia de TR4 de 110/154 kV.
08:23	Compañía Papelera Talagante reduce 1 MW de consumos por control de transferencia de línea de 66 kV Paine – Bajo Melipilla.
08:26	S/E Rancagua alimentador Río Peuco reduce 3 MW de consumos a solicitud del CDC por control de transferencia de TR4 de 110/154 kV.
08:41	S/E Rancagua se reduce 4,3 MW de consumos a solicitud del CDC por control de transferencia de TR4 de 110/154 kV.
08:42	Línea de 44 kV Carena - Puente Alto interrupción forzada por protecciones.
08:42	C. Carena sale del servicio en forma intempestiva con 9 MW.
08:47	Cerrada línea de 154 kV Rancagua – A. Jahuel 1 queda abierto puentes en estructura 359, CDC solicita normalizar el 100 % de los consumos de SS/EE Rancagua y Paine.
09:03	C. Guacolda U-5 cancelada solicitud de intervención de curso forzoso y queda con solicitud de desconexión de curso forzoso. Causa informada: Falla en motor de calentador de aire de la caldera.
09:06	C. Guacolda U-3 sincronizada.
09:17	Compañía Papelera Talagante normaliza el 100 % de los consumos.
09:37	S/E Cerro Navia habilitado trip por contingencia específica del ATR Nº 2 ó 5 de 220/110 kV, 400 MVA sobre la línea de 110 kV Cerro Navia – El Salto 2.
09:39	CDC solicita a C. Minera Valle Central reducir sus consumos a 0 MW para realizar cambio de barra de 110 kV en S/E Sauzal.
09:40	CDC solicita a C. Minera Valle Central normalizar el 100 % de sus consumos, queda alimentado desde S/E Rancagua.
10:13	C. Sauzal U-2 cambia su inyección hacia S/E Rancagua.
10:20	S/E Lo Miranda reduce 2,5 MW de consumos por control de transferencia de línea de 66 kV Rancagua – Punta de Cortés.
10:15	S/E Nahuelbuta interruptor 52CT1 general de barra de 13,2 kV interrupción forzada por protecciones, se pierden 2.9 MW de consumos correspondientes a los alimentadores Roblería y Parronal.
10:37	S/E Nahuelbuta cerrado interruptor 52CT1 general de barra de 13,2 kV y normalizados consumos.
10:39	S/E Punta de Cortés cerrado interruptor 52A2 de línea 1 de 154 kV Tinguiririca – T 342.
10:39	Línea de 154 kV Tinguiririca – Rancagua – A. Jahuel 1 con solicitud de intervención de curso forzoso. Causa informada: Trabajos en circuito adyacente.
10:41	C. Quintero TG-1B sincronizada por disponibilidad de GNL.
10:56	S/E Rancagua abierto interruptor 52B5 de línea de 66 kV Rancagua – Punta de Cortés para realizar microcorte afectando los consumos de S/E Punta de Cortés con 54 MW. Causa informada: Normalización de topología por 154 kV.
10:56	S/E Punta de Cortés cerrado 52AT quedando normalizada topología por 154 kV y normalizado el 100 % de los consumos.

Hora	Observación
11:00	C. Guacolda U-3 cancelada solicitud de desconexión de curso forzoso.
11:05	Línea de 66 kV Arauco – Horcones con solicitud de intervención de curso forzoso. Causa informada: Reparar anormalidad en desconectador de línea 89BL2 en C. Arauco.
12:45	C. Machicura limitada a 33 MW. Causa informada: Trabajos en obras civiles en desarrollo aguas debajo de central San Ignacio
13:23	C. Quintero TG-1A sincronizada por disponibilidad de GNL.
15:00	Cerrada línea de 44 kV Carena – CMPC Puente Alto.
15:14	C. Carena sincronizada.
17:14	Línea de 66 kV Arauco – Horcones cancelada solicitud de intervención de curso forzoso.
17:15	S/E Maule banco de CC.EE. N°1 de 15 kV, 6 MVAr indisponible. Causa informada: Punto caliente en mufa de salida fase B.
18:24	C. Arauco sincronizada.
19:27	C. Guacolda U-5 sincronizada.
20:16	C. Pehuenche U-2 toma la regulación de frecuencia.
21:05	Cerrada línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 2 y con solicitud de intervención de curso forzoso. Causa informada: Trabajos de reparación en línea adyacente. Se mantiene abierto 52A3 en S/E Punta de Cortés.
21:05	Línea de 154 kV Tinguiririca – Rancagua – A. Jahuel 1 cancelada solicitud de intervención de curso forzoso.
23:40	S/E Cerro Navia deshabilitado trip por contingencia específica del ATR Nº 2 ó 5 de 220/110 kV, 400 MVA sobre la línea de 110 kV Cerro Navia – El Salto 2.
23:45	Línea de 66 kV Santa Rosa – Alhué interrupción forzada por protecciones con reconexión automática con éxito.

4.2. Otras Observaciones

Otras Observaciones
Laguna del Maule promedio de extracción diaria para riego es 0 m^3/s.
C. Pehuenche bocatoma Maule promedio de vertimiento diario es 0 m^3/s.
Frecuencia máxima y mínima registrada durante el día: 50.22 y 49.78 Hz.

4.3. Nuevas Instalaciones

Empresa	Instalación	Hora

5. DISPONIBILIDAD SCADA

Empresa	Instalación	Fecha F/S	Hora F/S	Fecha E/S	Hora E/S
Colbún	SS/EE Chagres, Calera Centro, Cerro Calera y Esperanza.	10/08/2010	14:30		
Gener	Datos scada con intermitencia.	04/09/2015	14:30		
E. Coyanco	C. Guayacán datos scada P, Q y S de las unidades generadoras. (*)	28/09/2015	12:13		
Transquillota	S/E San Luis datos scada.	29/10/2015	00:00		
Transelec	PDCE fase 2 Charrúa 500 kV y Charrúa 220 kV con error de telemetría.	25/12/2015	20:00		

Empresa	Instalación	Fecha F/S	Hora F/S	Fecha E/S	Hora E/S
Transelec	S/E Carrera Pinto datos scada de Tº con mucha diferencia respecto a SS/EE cercanas.	06/01/2016	07:15		
E. Panguipulli	S/E Interconexión paño JL2 datos scada.	06/01/2016	09:22		
Transelec	S/E Diego de Almagro paño HT4 datos scada.	06/01/2015	09:22	07/01/2016	16:05
Cía. Minera Franke	S/E Diego de Almagro paño H7 datos scada.	06/01/2016	09:22		
Transelec	SS/EE Diego de Almagro y Paposo data scada y telecontrol.	07/01/2016	00:22	07/01/2016	09:15
STS	Dato scada	07/01/2016	10:50	07/01/2016	11:47
Transelec	SS/EE Temuco,Pullinque, Valdivia y Rahue data y telecontrol.	07/01/2016	23:10	07/01/2016	23:24

* Señales no implementadas.

6. COMUNICACIONES

Empresa	Instalación	Fecha F/S	Hora F/S	Fecha E/S	Hora E/S
Duke Energy	C. Yungay Hot line.	28/12/2015	14:30		

ANEXO Nº 4

Detalle de mantenimientos programados y forzados correspondientes al día 07 de enero de 2016

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD46302/2015	cge	Subestación : M.PATRIA_____066 Otro Elemento de Subestación : OTROS N ° : Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	A solicitud de Transelec debido a trabajo en sus instalaciones, relacionadas con SODI N°5. requiere precaución interruptor 52CT1 y 52ET2 de SE Monte Patria.	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	09:14	07/01/2016	16:36
SD46919/2015	transelec	Subestacion :OVALLE_____066 Linea :MOLLES_____066 - OVALLE_____066 CTO1\n Tramo: MOLLES_____066 - M.PATRIA_____066 CTO1 Tramo: M.PATRIA_____066 - OVALLE_____066 CTO1 Intervencion /Programada Comentario:Equipo:L. 2x66 KV L MOLLES - OVALLE, C 1 Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte o poda de árboles, vanos 24 - 25,26 - 27, 29 - 30, 112 - 113. despejar espinos en base de estructuras 18, 19 y 21. Sodi N° 7. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la Línea 66 kV- Molles - Ovalle 1 Instalaciones con riesgo Línea 66 kV- Molles - Ovalle 1 Observaciones No hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Roce y pode franja servidumbre	Intervencion	Programada	Equipo:L. 2x66 KV L MOLLES - OVALLE, C 1 Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte o poda de árboles, vanos 24 - 25,26 - 27, 29 - 30, 112 - 113. despejar espinos en base de estructuras 18, 19 y 21. Sodi N° 7. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la Línea 66 kV- Molles - Ovalle 1 Instalaciones con riesgo Línea 66 kV- Molles - Ovalle 1 Observaciones No hay	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:32	07/01/2016	16:36

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD46930/2015	transelec	Subestacion :OVALLE_____066 Linea :MOLLES_____066 - OVALLE_____066 CTO2\n Tramo: MOLLES_____066 - M.PATRIA_____066 CTO2 Tramo: M.PATRIA_____066 - OVALLE_____066 CTO2 Intervencion /Programada Comentario:Equipo:L. 2X66 KV L MOLLES - OVALLE, C 2 Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte o poda de árboles, vanos 24 - 25,26 - 27, 29 - 30, 112 - 113. despejar espinos en base de estructuras 18, 19 y 21. Sodi N° 5. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la Línea 66 kV- Molles - Ovalle 2 Instalaciones con riesgo Línea 66 kV- Molles - Ovalle 2 Observaciones no hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Roce y pode franja servidumbre	Intervencion	Programada	Equipo:L. 2X66 KV L MOLLES - OVALLE, C 2 Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte o poda de árboles, vanos 24 - 25,26 - 27, 29 - 30, 112 - 113. despejar espinos en base de estructuras 18, 19 y 21. Sodi N° 5. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la Línea 66 kV- Molles - Ovalle 2 Instalaciones con riesgo Línea 66 kV- Molles - Ovalle 2 Observaciones no hay	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:32	07/01/2016	16:36
SD46938/2015	transelec	Subestacion :L.AGUIRRE_____220 (TRANSELEC) Linea :L.AGUIRRE_____220 - RAPEL_____220 CTO 1 (Proyecto Lo Aguirre)\n Tramo: L.AGUIRRE_____220 - A.MELIP_____220 CTO 1 Tramo: A.MELIP_____220 - RAPEL_____220 CTO 1 Intervencion /Programada Comentario:Equipo:L. 220 kV Rapel - Lo Aguirre Circ. 1. Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte y poda de árboles. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la línea de 220 kV Rapel - Lo Aguirre circuito 1 y 2. Instalaciones con riesgo Línea de 220 kV Rapel - Lo Aguirre circuito 1 o 2. Observaciones Coordinado con Chilquinta. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Roce y pode franja servidumbre	Intervencion	Programada	Equipo:L. 220 kV Rapel - Lo Aguirre Circ. 1. Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte y poda de árboles. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la línea de 220 kV Rapel - Lo Aguirre circuito 1 y 2. Instalaciones con riesgo Línea de 220 kV Rapel - Lo Aguirre circuito 1 o 2. Observaciones Coordinado con Chilquinta.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	08:07	07/01/2016	17:30

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD46942/2015	transelec	Subestacion :L.AGUIRRE_____220 (TRANSELEC) Linea :L.AGUIRRE_____220 - RAPEL_____220 CTO 2 (Proyecto Lo Aguirre)\n Tramo: L.AGUIRRE_____220 - A.MELIP_____220 CTO 2 Tramo: A.MELIP_____220 - RAPEL_____220 CTO 2 Intervencion /Programada Comentario:Equipo:L. 220 kV Rapel - Lo Aguirre Circ. 2. Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte y poda de árboles. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la línea de 220 kV Rapel - Lo Aguirre circuito 1 y 2. Instalaciones con riesgo Línea de 220 kV Rapel - Lo Aguirre circuito 1 o 2. Observaciones Coordinado con Chilquinta. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Roce y pode franja servidumbre	Intervencion	Programada	Equipo:L. 220 kV Rapel - Lo Aguirre Circ. 2. Tipo Trabajo:Corte y poda de árboles Descripción del Trabajo Corte y poda de árboles. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la línea de 220 kV Rapel - Lo Aguirre circuito 1 y 2. Instalaciones con riesgo Línea de 220 kV Rapel - Lo Aguirre circuito 1 o 2. Observaciones Coordinado con Chilquinta.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	08:07	07/01/2016	17:30
SD47008/2015	transelec	Subestacion :CONCEPCION____154 Otro Elemento :EQUIPOS DE MEDIDA FACTURACIÓN\n Elemento: CNCPCION_154_A6 - JEM10 - 96320026 Intervencion /Programada Comentario:Equipo:S/E Concepción: Paño A6-Medidor JEM10 Tipo Trabajo:Análisis Fasorial Descripción del Trabajo S/E Concepción: Verificación y análisis del medidor de energía Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No hay. Instalaciones con riesgo Línea 154kV Concepción-San Vicente 2 (Durante la faena) Observaciones No hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:S/E Concepción: Paño A6-Medidor JEM10 Tipo Trabajo:Análisis Fasorial Descripción del Trabajo S/E Concepción: Verificación y análisis del medidor de energía Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No hay. Instalaciones con riesgo Línea 154kV Concepción-San Vicente 2 (Durante la faena) Observaciones No hay	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	10:37	07/01/2016	16:03

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47089/2015	transelec	Subestacion :TEMUCO_____220 Linea :TEMUCO_____220 - CAUTIN (NVA TCO)_____220 CTO1\n Tramo: TEMUCO_____220 - CAUTIN (NVA TCO)_____220 CTO1 Intervencion /Programada Comentario:Equipo:LÍNEA 220 kV TEMUCO - CAUTIN C1 Tipo Trabajo:Trabajos Sistema de FO Descripción del Trabajo En S/E Temuco: Mantenimiento preventivo basico equipos repartidor de Fibra Optica ., dirección S/E Cautín , verificación de niveles. Restricciones:Teleprotecciones bloqueadas con respaldo Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas SW mantenimiento F.O desconectada en: Cautín TDD, TAD-FO (TPO11, TPO13); Temuco TDD, TAD-FO (TPO11, TPO13) Instalaciones con riesgo LÍNEA 220 kV TEMUCO-CAUTIN CIRCUITO 1 O LÍNEA 220 kV TEMUCO-CAUTIN, CIRCUITO 2 (DURANTE LA FAENA) Observaciones NO HAY.- Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:15:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:LÍNEA 220 kV TEMUCO - CAUTIN C1 Tipo Trabajo:Trabajos Sistema de FO Descripción del Trabajo En S/E Temuco: Mantenimiento preventivo basico equipos repartidor de Fibra Optica ., dirección S/E Cautín , verificación de niveles. Restricciones:Teleprotecciones bloqueadas con respaldo Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas SW mantenimiento F.O desconectada en: Cautín TDD, TAD-FO (TPO11, TPO13); Temuco TDD, TAD-FO (TPO11, TPO13) Instalaciones con riesgo LÍNEA 220 kV TEMUCO-CAUTIN CIRCUITO 1 O LÍNEA 220 kV TEMUCO-CAUTIN, CIRCUITO 2 (DURANTE LA FAENA) Observaciones NO HAY.-	07/01/2016	10:00	07/01/2016	15:00	07/01/2016	10:37	07/01/2016	15:04

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47090/2015	transelec	Subestacion :TEMUCO_____220 Linea :TEMUCO_____220 - CAUTIN (NVA TCO)_____220 CTO2\n Tramo: TEMUCO_____220 - CAUTIN (NVA TCO)_____220 CTO2 Intervencion /Programada Comentario:Equipo:LÍNEA 220 kV TEMUCO - CAUTIN C2 Tipo Trabajo:Trabajos Sistema de FO Descripción del Trabajo En S/E Temuco: Mantenimiento preventivo basico equipos repartidor de Fibra Optica ., dirección S/E Cautín , verificación de niveles. Restricciones:Teleprotecciones bloqueadas con respaldo Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas SW mantenimiento F.O desconectada en: Cautín TDD, TAD-FO (TPO11, TPO13); Temuco TDD, TAD-FO (TPO11, TPO13) Instalaciones con riesgo LÍNEA 220 kV TEMUCO-CAUTIN CIRCUITO 1 O LÍNEA 220 kV TEMUCO-CAUTIN, CIRCUITO 2 (DURANTE LA FAENA) Observaciones NO HAY.- Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:15:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:LÍNEA 220 kV TEMUCO - CAUTIN C2 Tipo Trabajo:Trabajos Sistema de FO Descripción del Trabajo En S/E Temuco: Mantenimiento preventivo basico equipos repartidor de Fibra Optica ., dirección S/E Cautín , verificación de niveles. Restricciones:Teleprotecciones bloqueadas con respaldo Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas SW mantenimiento F.O desconectada en: Cautín TDD, TAD-FO (TPO11, TPO13); Temuco TDD, TAD-FO (TPO11, TPO13) Instalaciones con riesgo LÍNEA 220 kV TEMUCO-CAUTIN CIRCUITO 1 O LÍNEA 220 kV TEMUCO-CAUTIN, CIRCUITO 2 (DURANTE LA FAENA) Observaciones NO HAY.-	07/01/2016	10:00	07/01/2016	15:00	07/01/2016	10:37	07/01/2016	15:04
SD47114/2015	cge	Subestación : TALCA_____066 Otro Elemento de Subestación : OTROS N ° : Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Realizar modificación en registro de datos en los Relés SEL: 387, 311C y 551. Correspondientes al Paño BT2 y 52CT2.	07/01/2016	09:00	07/01/2016	18:00	07/01/2016	11:53	07/01/2016	14:46
SD47155/2015	gener	Subestación : GUACOLDA_____220 Linea : MAITENCILLO___220 - GUACOLDA_____220 CTO1 Tramo : MAITENCILLO___220 - GUACOLDA_____220 CTO1 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Lavado de Aislación / Con Bloqueo a la reconexión LAVADO AISLACION DESDE PATIO SALIDA A ESTR. 94. SISTEMA ENERGIZADO. Restricciones: En S/E Guacolda: No reconectar interruptor 52J1; 52J2 En S/E Maitencillo: No reconectar interruptor 52J5; 52J6	07/01/2016	08:00	07/01/2016	17:00	07/01/2016	09:55	07/01/2016	14:51
SD47169/2015	gener	Subestación : GUACOLDA_____220 Linea : MAITENCILLO___220 - GUACOLDA_____220 CTO2 Tramo : MAITENCILLO___220 - GUACOLDA_____220 CTO2 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Lavado de Aislación / Con Bloqueo a la reconexión LAVADO AISLACION DESDE PATIO SALIDA A ESTR. 94. SISTEMA ENERGIZADO. Restricciones: En S/E Guacolda: No reconectar interruptor 52J1; 52J2 En S/E Maitencillo: No reconectar interruptor 52J5; 52J6	07/01/2016	08:00	07/01/2016	17:00	07/01/2016	09:55	07/01/2016	14:51

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47183/2015	gener	Subestación : GUACOLDA_____220 Linea : MAITENCILLO___220 - GUACOLDA_____220 CTO3 Tramo : MAITENCILLO___220 - GUACOLDA_____220 CTO3 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Lavado de Aislación / Con Bloqueo a la reconexión LAVADO AISLACION DESDE PATIO MUFAS A ESTR. 114. SISTEMA ENERGIZADO. Restricciones: En S/E Guacolda: No reconectar interruptor 52J3; 52J4 En S/E Maitencillo: No reconectar interruptor 52J9; 52J10	07/01/2016	08:00	07/01/2016	17:00	07/01/2016	09:55	07/01/2016	15:15
SD47293/2015	transelec	Subestacion :NOGALES_____220 Linea :NOGALES_____220 - L.VILOS_____220 CTO1\n Tramo: NOGALES_____220 - L.VILOS_____220 CTO1 Intervencion /Programada Comentario:Equipo:L. 2X220 KV NOGALES - LOS VILOS, C 1 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación, entre estructuras 244 y 310. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Nogales - Los Vilos C1. Instalaciones con riesgo L. 2X220 KV NOGALES - LOS VILOS, C1. Observaciones No Hay. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:L. 2X220 KV NOGALES - LOS VILOS, C 1 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación, entre estructuras 244 y 310. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Nogales - Los Vilos C1. Instalaciones con riesgo L. 2X220 KV NOGALES - LOS VILOS, C1. Observaciones No Hay.	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	18:00

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47299/2015	transelec	Subestacion :P.AZUCAR_____220 Linea :P.AZUCAR_____220 - PUNTA_COLORADA___220 CTO2\n Tramo: P.AZUCAR_____220 - PUNTA_COLORADA___220 CTO2 Intervencion /Programada Comentario:Equipo:L. 2X220 KV P. AZÚCAR - P. COLORADA, C2 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo Modificación estructura N° 226, debido a la construcción de doble vía en ruta 5, tramo La Serena ? Vallenar. El trabajo lo realizará la empresa MONGAR ?Montajes GAR Ltda., contratada por SACYR para este efecto. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Pan de Azúcar - Punta Colorada C2 Instalaciones con riesgo LÍNEA 220 kV PAN DE AZÚCAR - PUNTA COLORADA, C2 Observaciones NO HAY Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:L. 2X220 KV P. AZÚCAR - P. COLORADA, C2 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo Modificación estructura N° 226, debido a la construcción de doble vía en ruta 5, tramo La Serena ? Vallenar. El trabajo lo realizará la empresa MONGAR ?Montajes GAR Ltda., contratada por SACYR para este efecto. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Pan de Azúcar - Punta Colorada C2 Instalaciones con riesgo LÍNEA 220 kV PAN DE AZÚCAR - PUNTA COLORADA, C2 Observaciones NO HAY	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	18:00
SD47301/2015	transelec	Subestacion :NOGALES_____220 Linea :NOGALES_____220 - L.VILOS_____220 CTO2\n Tramo: NOGALES_____220 - L.VILOS_____220 CTO2 Intervencion /Programada Comentario:Equipo:L. 2x220 KV NOGALES - LOS VILOS, C 2 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación, entre estructuras 244 y 310. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Nogales - Los Vilos C2. Instalaciones con riesgo L. 2X220 KV NOGALES - LOS VILOS, C2. Observaciones No Hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:L. 2x220 KV NOGALES - LOS VILOS, C 2 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación, entre estructuras 244 y 310. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Nogales - Los Vilos C2. Instalaciones con riesgo L. 2X220 KV NOGALES - LOS VILOS, C2. Observaciones No Hay	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	18:00

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47302/2015	transelec	Subestacion :P.AZUCAR_____220 Linea :P.AZUCAR_____220 - PUNTA_COLORADA___220 CTO1\n Tramo: P.AZUCAR_____220 - PUNTA_COLORADA___220 CTO1 Intervencion /Programada Comentario:Equipo:L. 2X220 KV P. AZÚCAR - P. COLORADA, C1 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo modificación estructura N° 226, debido a la construcción de doble vía en ruta 5, tramo La Serena ? Vallenar. El trabajo lo realizará la empresa MONGAR ?Montajes GAR Ltda., contratada por SACYR para este efecto. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Pan de Azúcar - Punta Colorada C1 Instalaciones con riesgo LÍNEA 220 kV PAN DE AZÚCAR - PUNTA COLORADA, C1 Observaciones NO HAY Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:L. 2X220 KV P. AZÚCAR - P. COLORADA, C1 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo modificación estructura N° 226, debido a la construcción de doble vía en ruta 5, tramo La Serena ? Vallenar. El trabajo lo realizará la empresa MONGAR ?Montajes GAR Ltda., contratada por SACYR para este efecto. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 KV Pan de Azúcar - Punta Colorada C1 Instalaciones con riesgo LÍNEA 220 kV PAN DE AZÚCAR - PUNTA COLORADA, C1 Observaciones NO HAY	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	18:00
SD47303/2015	transelec	Subestacion :C.PINTO_____220 Otro Elemento :SECCIONES DE BARRA\n Elemento: SECCION 1 Intervencion /Programada Comentario:Equipo:BARRA 220 KV - CPI Tipo Trabajo:Montaje de equipos o reles en tableros Descripción del Trabajo S/E Carrera Pinto: Obras civiles a nivel de piso (Obra ampliación de la subestación) (4162 - 4163). Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Carrera Pinto: No reconectar interruptores asociados a la Barra 220 KV Instalaciones con riesgo BARRA 220 KV - CARRERA PINTO Observaciones NO HAY Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-31 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:BARRA 220 KV - CPI Tipo Trabajo:Montaje de equipos o reles en tableros Descripción del Trabajo S/E Carrera Pinto: Obras civiles a nivel de piso (Obra ampliación de la subestación) (4162 - 4163). Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Carrera Pinto: No reconectar interruptores asociados a la Barra 220 KV Instalaciones con riesgo BARRA 220 KV - CARRERA PINTO Observaciones NO HAY	07/01/2016	08:00	31/01/2016	18:00	07/01/2016	08:33	07/01/2016	18:00
SD47344/2015	gener	Subestación : FLORIDA_____110 Linea : FLORIDA_____110 - L.VIZCACHAS___110 CTO2 Tramo : FLORIDA_____110 - L.VIZCACHAS___110 CTO2 Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Refuerzo estructural y montaje de equipos en nuevo paño SE Las Lajas	07/01/2016	06:00	07/01/2016	18:00	07/01/2016	06:00	07/01/2016	19:00

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47348/2015	gener	Subestación : L.LAJA_____110 (chilec) Linea : L.LAJA_____110 - L.VIZCACHAS___110 CTO2 Tramo : L.LAJA_____110 - L.VIZCACHAS___110 CTO2 Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Refuerzo estructural y montaje de equipos en nuevo paño SE Las Lajas	07/01/2016	06:00	07/01/2016	18:00	07/01/2016	06:00	07/01/2016	19:00
SD47351/2015	gener	Subestación : QUELTEHUES____110 Linea : QUELTEHUES____110 - L.LAJA_____110 CTO2 Tramo : QUELTEHUES____110 - L.LAJA_____110 CTO2 Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Refuerzo estructural y montaje de equipos en nuevo paño SE Las Lajas	07/01/2016	06:00	07/01/2016	18:00	07/01/2016	06:00	07/01/2016	19:00
SD47354/2015	gener	Subestación : L.LAJA_____110 (chilec) Linea : MAITENES_____110 - L.LAJA_____110 CTO2 Tramo : MAITENES_____110 - L.LAJA_____110 CTO2 Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Refuerzo estructural y montaje de equipos en nuevo paño SE Las Lajas	07/01/2016	06:00	07/01/2016	18:00	07/01/2016	06:00	07/01/2016	19:00
SD47361/2015	transelec	Subestacion :L.AGUIRRE_____220 (TRANSELEC) Linea :L.AGUIRRE_____220 - RAPEL_____220 CTO 2 (Proyecto Lo Aguirre)\n Tramo: A.MELIP_____220 - RAPEL_____220 CTO 2 Intervencion /Programada Comentario:Equipo:S/E Lo Aguirre: Paño J4 Rapel 2 Tipo Trabajo:Trabajos varios Descripción del Trabajo S/E Lo Aguirre: Remplazo de tapón (Perno) en módulo de servicio (Manómetro) del compartimento G71 (TTCC de 52J4) Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Lo Aguirre: Señalizar y delimitar zona de trabajo. Instalaciones con riesgo Línea 220 kV Rapel - Lo Aguirre Circuito 2 Observaciones Para la realización del trabajo se solicitará abierto int. 52J4 y los desconectadores 89J4-1 y 89J4-2. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:S/E Lo Aguirre: Paño J4 Rapel 2 Tipo Trabajo:Trabajos varios Descripción del Trabajo S/E Lo Aguirre: Remplazo de tapón (Perno) en módulo de servicio (Manómetro) del compartimento G71 (TTCC de 52J4) Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Lo Aguirre: Señalizar y delimitar zona de trabajo. Instalaciones con riesgo Línea 220 kV Rapel - Lo Aguirre Circuito 2 Observaciones Para la realización del trabajo se solicitará abierto int. 52J4 y los desconectadores 89J4-1 y 89J4-2.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:05	07/01/2016	11:20
SD47461/2015	cururos	Subestación : LA_CEBADA_____220 Otro Elemento de Subestación : OTROS N ° : Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	A solicitud de transelec ,no reconectar 52J2 S/E La Cebada inhabilitar switch 79/J2.motivo: Reemplazo cable de guardia Línea 220Kv La cebada ? Pan de Azúcar.	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	07:27	07/01/2016	20:04

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47468/2015	transelec	Subestacion :A.JAHUEL_____220 Transformador :Transformador: Intervencion /Programada Comentario:Equipo:S/E A. Jahuel. Paño HT2 -ATR2. Tipo Trabajo:Lavado de Aislación Descripción del Trabajo S/E Alto Jahuel: Lavado de aislación de las cadenas de aisladores y de los equipos primarios que conforman la instalación. Paño HT2. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Alto Jahuel: No reconectar interruptores asociados a la barra principal de 110 kV sección 1 y 2. No reconectar interruptores asociados al ATR2 220/110/13,8 kV. Instalaciones con riesgo S/E Alto Jahuel: Barra 110 kV sección 1 y 2 ó Banco ATR2 220/110/13,2 kV. Observaciones Coordinado con Chilectra. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:11:00 Fecha Termino:2016-01-07 Hora de Termino:14:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:S/E A. Jahuel. Paño HT2 -ATR2. Tipo Trabajo:Lavado de Aislación Descripción del Trabajo S/E Alto Jahuel: Lavado de aislación de las cadenas de aisladores y de los equipos primarios que conforman la instalación. Paño HT2. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Alto Jahuel: No reconectar interruptores asociados a la barra principal de 110 kV sección 1 y 2. No reconectar interruptores asociados al ATR2 220/110/13,8 kV. Instalaciones con riesgo S/E Alto Jahuel: Barra 110 kV sección 1 y 2 ó Banco ATR2 220/110/13,2 kV. Observaciones Coordinado con Chilectra.	07/01/2016	11:00	07/01/2016	14:00	07/01/2016	12:37	07/01/2016	14:52
SD47472/2015	transelec	Subestacion :A.JAHUEL_____110 Transformador :Transformador: Intervencion /Programada Comentario:Equipo:S/E A. Jahuel. Paño HT1 -ATR1. Tipo Trabajo:Lavado de Aislación Descripción del Trabajo S/E Alto Jahuel: Lavado de aislación de las cadenas de aisladores y de los equipos primarios que conforman la instalación. Paño HT1. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Alto Jahuel: No reconectar interruptores asociados a la Barra de 110 kV sección 1 y 2 y asociados al ATR1 110/66/13,8 kV. Instalaciones con riesgo S/E Alto Jahuel: Barra 110 kV sección 1 y 2 ó ATR1 110/66/13,8 kV. Observaciones Coordinado con Chilectra. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:11:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:S/E A. Jahuel. Paño HT1 -ATR1. Tipo Trabajo:Lavado de Aislación Descripción del Trabajo S/E Alto Jahuel: Lavado de aislación de las cadenas de aisladores y de los equipos primarios que conforman la instalación. Paño HT1. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Alto Jahuel: No reconectar interruptores asociados a la Barra de 110 kV sección 1 y 2 y asociados al ATR1 110/66/13,8 kV. Instalaciones con riesgo S/E Alto Jahuel: Barra 110 kV sección 1 y 2 ó ATR1 110/66/13,8 kV. Observaciones Coordinado con Chilectra.	07/01/2016	08:00	07/01/2016	11:00	07/01/2016	09:47	07/01/2016	12:35
SD47482/2015	cge	Subestación : QUILLOTA_____110 Linea : QUILLOTA_____110 - QUINQUIMO_____110 (con Marbella) Tramo : QUILLOTA_____110 - MARBELLA_____110 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Obras Civiles / Con Bloqueo a la reconexión. Obras a desarrollarse entre las estructuras 21 y 24 de la LT Quillota-Marbella. Considera bloqueo de reconexión del interruptor 52H3 de SE Quillota.	07/01/2016	08:00	07/01/2016	20:00	07/01/2016	08:30	07/01/2016	17:48

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47496/2015	chilectra	Subestación : FLORIDA_____110 Linea : FLORIDA_____110 - L.VIZCACHAS___110 CTO2 Tramo : FLORIDA_____110 - L.VIZCACHAS___110 CTO2 Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Se desconecta el circuito a solicitud de empresa AES Gener	07/01/2016	05:00	07/01/2016	19:00	07/01/2016	06:10	07/01/2016	19:02
SD47503/2015	colbun	Subestacion :COLBUN_____220Linea :COLBUN_____220 - CANDELARIA____220 CTO1Tramo: COLBUN_____220 - CANDELARIA____220 CTO1 Intervencion /ProgramadaComentario:Se realizara trabajos de roce, podas y Tala de Pinos en Sectores de Pelarco, Cumpeo y Curicó de la Línea Colbun - Candelaria, Se solicita bloquear la reconexión automática.Ningun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:08:00Fecha Termino:2016-01-07Hora de Termino:18:00Solicita intervención:COLBUN\JArancibiaTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Se realizara trabajos de roce, podas y Tala de Pinos en Sectores de Pelarco, Cumpeo y Curicó de la Línea Colbun - Candelaria, Se solicita bloquear la reconexión automática.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:28	07/01/2016	19:22
SD47504/2015	colbun	Subestacion :COLBUN_____220Linea :COLBUN_____220 - CANDELARIA____220 CTO2Tramo: COLBUN_____220 - CANDELARIA____220 CTO2 Intervencion /ProgramadaComentario:Se realizara trabajos de roce, podas y Tala de Pinos en Sectores de Pelarco, Cumpeo y Curicó de la Línea Colbun - Candelaria, Se solicita bloquear la reconexión automática.Ningun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:08:00Fecha Termino:2016-01-07Hora de Termino:18:00Solicita intervención:COLBUN\JArancibiaTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Se realizara trabajos de roce, podas y Tala de Pinos en Sectores de Pelarco, Cumpeo y Curicó de la Línea Colbun - Candelaria, Se solicita bloquear la reconexión automática.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:28	07/01/2016	19:22
SD47521/2015	cge	Subestación : P.AZUCAR_____066 Linea : P.AZUCAR_____066 - MARQUESA_____066 Tramo : P.AZUCAR_____066 - MARQUESA_____066 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Roce y pode franja servidumbre / Con Bloqueo a la reconexión, considera bloqueo reconexión interruptor 52B5 de S/E Pan de Azúcar.El bloqueo se realizará en forma paulatina y efectiva, solo en el momento que los trabajos se estén ejecutando.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:20	07/01/2016	19:12

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47566/2015	cge	Subestación : COCHARCAS_____066 Linea : COCHARCAS_____066 - HUALTE _____066 Tramo : COCHARCAS_____066 - HUALTE_____066 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Bloquear reconexión automática del interruptor 52B5 de S/E Cocharcas por tala de árboles. NOTA: La LT 66kV Cocharcas -Hualte es radial. El bloqueo de reconexión se realizará de forma intermitente según el requerimiento en terreno.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:14	07/01/2016	18:19
SD47571/2015	cge	Subestación : HUALTE_____033 Linea : HUALTE_____033 - QUIRIHUE_____033 Tramo : HUALTE_____033 - QUIRIHUE_____033 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Bloquear reconexión automática del interruptor 52FT1 de S/E Hualte por tala, poda y roce de árboles. NOTA: La LT 33kV Hualte - Quirihue es radial. El bloqueo de reconexión se realizará de forma intermitente según el requerimiento en terreno.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:14	07/01/2016	18:18
SD47630/2015	transelec	Subestacion :POLPAICO_____220 Otro Elemento :OTROS\n Elemento: Intervencion /Programada Comentario:Equipo:S/E Polpaico. Sistema SCADA. Tipo Trabajo:Trabajos varios Descripción del Trabajo S/E Polpaico: Normalización de señales de alarmas hacia SCADA en SICAM Polpaico. Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Polpaico: Señalización de la zona de trabajo. Se perderán los datos de SCADA Polpaico 500 kV por un tiempo no mayor a 5 minutos. Instalaciones con riesgo S/E Polpaico: Sistema SCADA. Observaciones No hay. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:09:00 Fecha Termino:2016-01-07 Hora de Termino:17:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:S/E Polpaico. Sistema SCADA. Tipo Trabajo:Trabajos varios Descripción del Trabajo S/E Polpaico: Normalización de señales de alarmas hacia SCADA en SICAM Polpaico. Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E Polpaico: Señalización de la zona de trabajo. Se perderán los datos de SCADA Polpaico 500 kV por un tiempo no mayor a 5 minutos. Instalaciones con riesgo S/E Polpaico: Sistema SCADA. Observaciones No hay.	07/01/2016	09:00	07/01/2016	17:00	07/01/2016	10:40	07/01/2016	13:00

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47701/2015	transelec	Subestacion :LA_CEBADA_____220 Linea :LA_CEBADA_____220 - P.AZUCAR_____220\n Tramo: LA_CEBADA_____220 - P.AZUCAR_____220 Intervencion /Programada Comentario:Equipo:L. 220 kV LA CEBADA - PAN DE AZÚCAR Tipo Trabajo:Mantenimiento de Líneas Descripción del Trabajo Reemplazo cable de guardia, entre estructuras 544 y 558. Sodi N° 43. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 K La Cebada-Pan de Azúcar. Instalaciones con riesgo LÍNEA 220 KV LA CEBADA - PAN DE AZÚCAR Observaciones No Hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:L. 220 kV LA CEBADA - PAN DE AZÚCAR Tipo Trabajo:Mantenimiento de Líneas Descripción del Trabajo Reemplazo cable de guardia, entre estructuras 544 y 558. Sodi N° 43. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a Línea 220 K La Cebada-Pan de Azúcar. Instalaciones con riesgo LÍNEA 220 KV LA CEBADA - PAN DE AZÚCAR Observaciones No Hay	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	20:08
SD47708/2015	transelec	Subestacion :PUNTA_COLORADA___220 Linea :PUNTA_COLORADA___220 - MAITENCILLO___220 CTO1\n Tramo: PUNTA_COLORADA___220 - MAITENCILLO___220 CTO1 Intervencion /Programada Comentario:Equipo:L. 2X220 KV P. COLORADA - MAI, C 1 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación con línea energizada, estructuras 465 a 524. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la L. 220 kV Punta Colorada - Maitencillo C1 Instalaciones con riesgo LÍNEA 220 kV PUNTA COLORADA - MAITENCILLO, C1 Observaciones NO HAY Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:L. 2X220 KV P. COLORADA - MAI, C 1 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación con línea energizada, estructuras 465 a 524. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la L. 220 kV Punta Colorada - Maitencillo C1 Instalaciones con riesgo LÍNEA 220 kV PUNTA COLORADA - MAITENCILLO, C1 Observaciones NO HAY	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	16:25

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47711/2015	transelec	Subestacion :PUNTA_COLORADA___220 Linea :PUNTA_COLORADA___220 - MAITENCILLO___220 CTO2\n Tramo: PUNTA_COLORADA___220 - MAITENCILLO___220 CTO2 Intervencion /Programada Comentario:Equipo:L. 2X220 KV P. COLORADA - MAI, C 2 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación con línea energizada, estructuras 465 a 524. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la L. 220 kV Punta Colorada - Maitencillo C2 Instalaciones con riesgo LÍNEA 220 kV PUNTA COLORADA - MAITENCILLO, C2 Observaciones NO HAY Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:L. 2X220 KV P. COLORADA - MAI, C 2 Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado cadenas de aislación con línea energizada, estructuras 465 a 524. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la L. 220 kV Punta Colorada - Maitencillo C2 Instalaciones con riesgo LÍNEA 220 kV PUNTA COLORADA - MAITENCILLO, C2 Observaciones NO HAY	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	16:25
SD47712/2015	transelec	Subestacion :C.PINTO_____220 Linea :C.PINTO_____220 - D.ALMAGRO_____220\n Tramo: Intervencion /Programada Comentario:Equipo:L. 220 KV C PINTO - D.D.A. Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado de aislación, estructuras 651 a 670 y 770 a 777. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la línea 220 kV. Carrera Pinto Diego de Almagro Instalaciones con riesgo LÍNEA 220 kV CARRERA PINTO - DIEGO DE ALMAGRO Observaciones No hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Lavado de Aislación	Intervencion	Programada	Equipo:L. 220 KV C PINTO - D.D.A. Tipo Trabajo:Lavado de Aislación Descripción del Trabajo Lavado de aislación, estructuras 651 a 670 y 770 a 777. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No reconectar interruptores asociados a la línea 220 kV. Carrera Pinto Diego de Almagro Instalaciones con riesgo LÍNEA 220 kV CARRERA PINTO - DIEGO DE ALMAGRO Observaciones No hay	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	14:56

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47715/2015	transelec	Subestacion :DON_GOYO_____220 Linea :DON_GOYO_____220 - P.AZÚCAR_____220\n Tramo: DON_GOYO_____220 - P.AZÚCAR_____220 Intervencion /Programada Comentario:Equipo:L. 220 kV DON GOYO - PAN DE AZÚCAR Tipo Trabajo:Mantenimiento de Líneas Descripción del Trabajo Reemplazo cable de guardia, entre estructuras 544 y 558. Sodi N° 50. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No recnectar interruptores asociados a Línea 220 KV Don Goyo - Pan de Azúcar. Instalaciones con riesgo LÍNEA 220 KV DON GOYO - PAN DE AZUCAR Observaciones No Hay. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:07:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:L. 220 kV DON GOYO - PAN DE AZÚCAR Tipo Trabajo:Mantenimiento de Líneas Descripción del Trabajo Reemplazo cable de guardia, entre estructuras 544 y 558. Sodi N° 50. Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No recnectar interruptores asociados a Línea 220 KV Don Goyo - Pan de Azúcar. Instalaciones con riesgo LÍNEA 220 KV DON GOYO - PAN DE AZUCAR Observaciones No Hay.	07/01/2016	07:00	07/01/2016	18:00	07/01/2016	08:33	07/01/2016	20:08
SD47869/2015	transelec	Subestacion :DOS AMIGOS____110 Otro Elemento :OTROS\n Elemento: Intervencion /Programada Comentario:Equipo:BANCO CCEE1-DAM Tipo Trabajo:Verificación y/o calibracion de protecc Descripción del Trabajo VERIFICACIÓN Y MEDIDA DE AISLACIÓN REGULADOR DE TENSION BANCO CCEE. Restricciones:Instalación limitada Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas BLOQUEO DE COMANDO DE REGULACION Instalaciones con riesgo BARRA 23 KV - DOS AMIGOS Observaciones No hay. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:16:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:BANCO CCEE1-DAM Tipo Trabajo:Verificación y/o calibracion de protecc Descripción del Trabajo VERIFICACIÓN Y MEDIDA DE AISLACIÓN REGULADOR DE TENSION BANCO CCEE. Restricciones:Instalación limitada Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas BLOQUEO DE COMANDO DE REGULACION Instalaciones con riesgo BARRA 23 KV - DOS AMIGOS Observaciones No hay.	07/01/2016	10:00	07/01/2016	16:00	07/01/2016	08:33	07/01/2016	16:38

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47871/2015	transelec	Subestacion :DOS AMIGOS____110 Otro Elemento :OTROS\n Elemento: Intervencion /Programada Comentario:Equipo:BANCO CCEE2-DAM Tipo Trabajo:Verificación y/o calibracion de protecc Descripción del Trabajo VERIFICACIÓN Y MEDIDA DE AISLACIÓN REGULADOR DE TENSIÓN BANCO CCEE. Restricciones:Instalación limitada Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas BLOQUEO DE COMANDO DE REGULACION Instalaciones con riesgo BARRA 23 KV - DOS AMIGOS Observaciones No hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:16:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:BANCO CCEE2-DAM Tipo Trabajo:Verificación y/o calibracion de protecc Descripción del Trabajo VERIFICACIÓN Y MEDIDA DE AISLACIÓN REGULADOR DE TENSIÓN BANCO CCEE. Restricciones:Instalación limitada Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas BLOQUEO DE COMANDO DE REGULACION Instalaciones con riesgo BARRA 23 KV - DOS AMIGOS Observaciones No hay	07/01/2016	10:00	07/01/2016	16:00	07/01/2016	08:33	07/01/2016	16:38
SD47877/2015	cge	Subestación : MARBELLA_____110 Linea : QUILLOTA_____110 - QUINQUIMO_____110 (con Marbella) Tramo : MARBELLA_____110 - C.VIEJAS_____110 Tramo : C.VIEJAS_____110 - QUINQUIMO_____110 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Roce y pode franja servidumbre / Con Bloqueo a la reconexión. Se considera el bloqueo de la reconexión automática del interruptor 52H1 de S/E Marbella, línea hacia Quinquimo.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	08:34	07/01/2016	17:48
SD47879/2015	cge	Subestación : COLLIPULLI____066 Otro Elemento de Subestación : OTROS N ° : Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Desconexión de interruptor 52B2 de S/E Collipulli por faenas de reemplazo antiguo equipo Delle por nueva unidad Alstom GL309. Lo anterior contemplado dentro de Programa de Mantenimiento Mayor. Interruptor 52B2 de SE Collipulli opera en condición normalmente abierto, por lo que no hay interrupción de suministro.	07/01/2016	07:00	08/01/2016	20:00	07/01/2016	06:43	08/01/2016	16:27
SD47884/2015	hlh	Central : LA HIGUERA / Unidad : U1 / Potencia Disponible : 0.0 MW Desconexión / Origen Interno / Programada Ningún Consumo Afectado	Desconexion	Programada	Cambio sello eje e inspección programada Turbina.	07/01/2016	00:00	09/01/2016	23:59	07/01/2016	02:45	09/01/2016	19:02
SD47924/2015	sts	Central : DEGAN / Unidad : U1 / Potencia Disponible : 25 MW Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Central Degan por pruebas de control y regulación y carga de equipos, solicita hacer pruebas con carga con la central de 0 a 30 MW.	07/01/2016	09:00	07/01/2016	18:00	07/01/2016	09:00	07/01/2016	22:24

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD47929/2015	cge	Subestación : CURANILAHUE___066 Linea : HORCONES_____066 - LEBU_____066 Tramo : CURANILAHUE___066 - T.PINOS_____066 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Se realizará una poda y tala de árboles cercanos a la línea LT 66 kV Curanilahue-Tres Pinos, por tal motivo se requiere el bloqueo de reconexión del 52B1 de S/E Curanilahue. El bloqueo solicitado, se realizará en forma paulatina y efectiva en el período correspondiente al inicio y término de los trabajos en las cercanías de la línea.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	09:12	07/01/2016	17:10
SD47931/2015	sts	Subestación : PIDPID_____110 Otro Elemento de Subestación : SISTEMA SCADA N ° : SISTEMA SCADA Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	reprogramación de RTU en SE Pid Pid por integración de nuevo paño 52H2 próximo a ser energizado. puede que se pierda la comunicación por un lapso no mayor a 5 minutos.	07/01/2016	12:00	07/01/2016	20:00	07/01/2016	16:06	07/01/2016	19:18
SD47943/2015	cge	Subestación : VILLARICA_____066 Linea : VILLARRICA____066 - PUCON_____066 Tramo : VILLARRICA____066 - PUCON_____066 NO Genera Indisponibilidad Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Precaución operacional a línea 66 kV Villarrica-Pucon (Sin reconexión 52B2 de SE Villarrica y No reconectar 52BT de SE Pucon) a solicitud de CGE Distribución (sodi 04) por trabajos de poda de árboles cercanos a línea de media tensión de su propiedad en postación comun con línea 66 kV	07/01/2016	09:00	07/01/2016	18:00	07/01/2016	08:43	07/01/2016	18:25
SD47979/2015	codelco	Subestación : EL_COBRE_____110 (Teniente) Linea : MINERO_____110 - EL_COBRE_____110 CTO1 Tramo : MINERO_____110 - EL_COBRE_____110 CTO1 Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Por trabajos de revisión componentes del banco de condensadores de S/E Minero, se solicita la desconexión del paño H10 de Minero, próximo al lugar de intervención.	07/01/2016	08:00	07/01/2016	16:00	07/01/2016	08:21	07/01/2016	21:21

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00018/2016	transelec	Subestacion :QUILLOTA_____220 Linea :QUILLOTA_____220 - PIUQUENES_____220 CTO2\n Tramo: Tramo: Tramo: Intervencion /Programada Comentario:Equipo:L. 220 kV Quillota - Piuquenes 2 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo Solicitud de Minera Los Pelambres para trabajos en el circuito 1 Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No Reconectar interruptores asociados a la línea de 220 kV Quillota - Piuquenes 2 Instalaciones con riesgo Línea de 220 kV Quillota - Piuquenes circuito 2. Observaciones No hay. Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:16:00 Solicita intervención:CC-TRANSELECTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:L. 220 kV Quillota - Piuquenes 2 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo Solicitud de Minera Los Pelambres para trabajos en el circuito 1 Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No Reconectar interruptores asociados a la línea de 220 kV Quillota - Piuquenes 2 Instalaciones con riesgo Línea de 220 kV Quillota - Piuquenes circuito 2. Observaciones No hay.	07/01/2016	10:00	07/01/2016	16:00	07/01/2016	10:08	07/01/2016	13:16
SD00019/2016	transelec	Subestacion :QUILLOTA_____220 Linea :QUILLOTA_____220 - PIUQUENES_____220 CTO1\n Tramo: QUILLOTA_____220 - PIUQUENES_____220 CTO1 Desconexion /Programada Comentario:Equipo:Línea de 220 kV Quillota - Piuquenes 1 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo Solicitud de MLP para trabajos en sus instalaciones Restricciones:Equipo Indisponible Nivel Riesgo:Bajo Prueba Exp.:Sin prueba Experimental Bloqueo del Jefe de Faenas Puestas a tierra en las estructuras a intervenir Instalaciones con Riesgo L.220 kV Quillota - Piuquenes 2 Observaciones No hay Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:16:00 Solicita intervención:CC-TRANSELECTrabajo a realizar: Otro Tipo de Trabajo	Desconexion	Programada	Equipo:Línea de 220 kV Quillota - Piuquenes 1 Tipo Trabajo:Solicitado por Terceros Descripción del Trabajo Solicitud de MLP para trabajos en sus instalaciones Restricciones:Equipo Indisponible Nivel Riesgo:Bajo Prueba Exp.:Sin prueba Experimental Bloqueo del Jefe de Faenas Puestas a tierra en las estructuras a intervenir Instalaciones con Riesgo L.220 kV Quillota - Piuquenes 2 Observaciones No hay	07/01/2016	10:00	07/01/2016	16:00	07/01/2016	10:08	07/01/2016	13:16

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00023/2016	transelec	Subestacion :PEHUENCHE_____220 Linea :PEHUENCHE - CANAL MELADO - ANCOA_____220 CTO1\n Tramo: TAP_CANAL_MELADO___220 - ANCOA_____220 Tramo: PEHUENCHE_____220 - TAP_CANAL_MELADO___220 Tramo: CANAL_MELADO_____220 - TAP_CANAL_MELADO___220 Intervencion /Programada Comentario:Equipo:S/E PEHUENCHE: Paño J1 L. Ancoa 1 Tipo Trabajo:Investigar o Reparar Anormalidad Descripción del Trabajo S/E PEHUENCHE: VERIFICACIÓN DE OPERACIÓN PROTECCIÓN 21/21N SISTEMA 2, MARCA SIEMENS 7SA612 Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E PEHUENCHE: DELIMITACIÓN Y SEÑALIZACIÓN ZONA DE TRABAJO Instalaciones con riesgo LÍNEA 220KV PEHUENCHE- CANAL MELADO-ANCOA 1 Observaciones S/E PEHUENCHE: MANTENIMIENTO CORRECTIVO DE SISTEMA DE CONTROL Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:10:00 Fecha Termino:2016-01-07 Hora de Termino:16:30 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:S/E PEHUENCHE: Paño J1 L. Ancoa 1 Tipo Trabajo:Investigar o Reparar Anormalidad Descripción del Trabajo S/E PEHUENCHE: VERIFICACIÓN DE OPERACIÓN PROTECCIÓN 21/21N SISTEMA 2, MARCA SIEMENS 7SA612 Restricciones:Normalización sujeta a coordinación Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E PEHUENCHE: DELIMITACIÓN Y SEÑALIZACIÓN ZONA DE TRABAJO Instalaciones con riesgo LÍNEA 220KV PEHUENCHE- CANAL MELADO-ANCOA 1 Observaciones S/E PEHUENCHE: MANTENIMIENTO CORRECTIVO DE SISTEMA DE CONTROL	07/01/2016	10:00	07/01/2016	16:30	07/01/2016	15:30	07/01/2016	18:56
SD00089/2016	colbun	Subestacion :MINERO_____110Otro Elemento :OTROSElemento: Desconexion /ProgramadaComentario:Codelco solicita maniobras en paño H10 de S/E Minero, por desconexión de línea 110 kV Minero-El Cobre N°1. Motivo: En S/E Minero: Inspección de herrajes de desconectadores del nuevo paño de Banco CC.EE.Ningun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:08:00Fecha Termino:2016-01-07Hora de Termino:16:00Solicita intervención:COLBUN\JArancibiaTrabajo a realizar: Otro Tipo de Trabajo	Desconexion	Programada	Codelco solicita maniobras en paño H10 de S/E Minero, por desconexión de línea 110 kV Minero-El Cobre N°1. Motivo: En S/E Minero: Inspección de herrajes de desconectadores del nuevo paño de Banco CC.EE.	07/01/2016	08:00	07/01/2016	16:00	07/01/2016	08:37	07/01/2016	21:21

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00090/2016	colbun	Subestacion :MINERO_____110Otro Elemento :SECCION DE BARRAElemento: SECCION 1 Desconexion /ProgramadaComentario:Codelco solicita desconexión de barra N°1-110kV de S/E Minero (Transferencia de consumos a barra N°2-110kV). Por trabajo propio de Codelco: Inspección de herrajes de futuro banco de condensadores 110kV de S/E MineroNingun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:08:00Fecha Termino:2016-01-07Hora de Termino:11:30Solicita intervención:COLBUN\JArancibiaTrabajo a realizar: Otro Tipo de Trabajo	Desconexion	Programada	Codelco solicita desconexión de barra N°1-110kV de S/E Minero (Transferencia de consumos a barra N°2-110kV). Por trabajo propio de Codelco: Inspección de herrajes de futuro banco de condensadores 110kV de S/E Minero	07/01/2016	08:00	07/01/2016	11:30	07/01/2016	11:10	07/01/2016	17:30
SD00097/2016	colbun	Subestacion :MINERO_____110Otro Elemento :SECCION DE BARRAElemento: SECCION 2 Desconexion /ProgramadaComentario:Codelco solicita desconexión de barra N°2-110kV de S/E Minero (Transferencia de consumos a barra N°1-110kV). Por trabajo propio de Codelco: Inspección de herrajes de futuro banco de condensadores 110kV de S/E MineroNingun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:13:00Fecha Termino:2016-01-07Hora de Termino:16:00Solicita intervención:COLBUN\JArancibiaTrabajo a realizar: Otro Tipo de Trabajo	Desconexion	Programada	Codelco solicita desconexión de barra N°2-110kV de S/E Minero (Transferencia de consumos a barra N°1-110kV). Por trabajo propio de Codelco: Inspección de herrajes de futuro banco de condensadores 110kV de S/E Minero	07/01/2016	13:00	07/01/2016	16:00	07/01/2016	17:30	07/01/2016	20:58
SD00159/2016	chilectra	Subestación : FLORIDA_____110 Linea : FLORIDA_____110 - A.JAHUEL_____110 CTO1 Tramo : BUIN.CHILEC___110 - TORRE1_____110 CTO1 Tramo : A.JAHUEL_____110 - TORRE1_____110 CTO1 Tramo : TORRE1_____110 - L.PINTANA_____110 CTO1 Tramo : L.PINTANA_____110 - TAP_MARISCAL___110 CTO1 Tramo : TAP_MARISCAL___110 - MARISCAL_____110 CTO1 Tramo : TAP_MARISCAL___110 - S.ROSA_____110 CTO1 Tramo : S.ROSA_____110 - S.RAQUEL_____110 CTO1 Tramo : S.RAQUEL_____110 - FLORIDA_____110 CTO1 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Restricción de reconexión del circuito en subestación Florida a solicitud de Transelec	07/01/2016	14:00	07/01/2016	17:00	07/01/2016	14:56	08/01/2016	08:35

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00186/2016	cge	Subestación : CHOAPA_____110 Linea : CHOAPA_____110 - QUINQUIMO_____110 Tramo : CHOAPA_____110 - QUINQUIMO_____110 NO Genera Indisponibilidad Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Lavado de Aislación / Con Bloqueo a la reconexión. Se considera el bloqueo de la reconexión automática del 52H3 de S/E Choapa, interruptor de línea hacia Quínquimo.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	08:05	07/01/2016	19:12
SD00240/2016	cge	Subestación : COLLIPULLI____066 Otro Elemento de Subestación : OTROS N ° : Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Maniobras de apertura desconectador 89B3 de SE Collipulli (arranque 66 kV Collipulli-FFCC Collipulli) por trabajos de Transnet en la mencionada subestación. Desconexión coordinada con EFE. Consumos respaldados a través de red EFE.	07/01/2016	08:00	07/01/2016	14:00	07/01/2016	08:30	07/01/2016	15:02
SD00258/2016	chilquinta	Central : TECNORED / Unidad : C. TOTORAL / Potencia Disponible : 3 MW Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Pruebas con carga	07/01/2016	10:00	07/01/2016	11:00	07/01/2016	10:23	07/01/2016	15:55
SD00260/2016	colbun	Central :LOS QUILOS/Unidad : U3/Potencia :12,5Intervencion /Origen Interno/ProgramadaComentario:Limpieza de Pozo de Refrigeración de la U3 de la CH Los QuilosNingun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:08:00Fecha Termino:2016-01-07Hora de Termino:18:00Solicita intervención:COLBUN\DsolerTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Limpieza de Pozo de Refrigeración de la U3 de la CH Los Quilos	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	10:11	07/01/2016	17:33
SD00261/2016	colbun	Central :NEHUENCO I/Unidad : Central Completa/Potencia :330Intervencion /Origen Interno/ProgramadaComentario:Inspección de válvula de control de nivel domo MP : Ajuste de posición del actuador y apriete de prensa.Ningun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:08:00Fecha Termino:2016-01-07Hora de Termino:18:00Solicita intervención:COLBUN\DsolerTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Inspección de válvula de control de nivel domo MP : Ajuste de posición del actuador y apriete de prensa.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	08:42	08/01/2016	17:55
SD00282/2016	celeoredes	Subestación : A.JAHUEL_____500 Linea : ANCOA_____500 - A.JAHUEL_____500 CTO3 Tramo : ANCOA_____500 - A.JAHUEL_____500 CTO3 NO Genera Indisponibilidad Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Precaución operacional por trabajos de modificación de tendido de conductor del circuito 4.	07/01/2016	07:30	07/01/2016	19:00	07/01/2016	07:44	07/01/2016	19:04
SD00288/2016	metro	Subestación : METRO_____110 Transformador: Transf. TR1 110/20 kV - 40/60 MVA S/E METRO Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Conexión de máquina para tratamiento de aceite y cambio de aceite al cambiador de taps. Se solicita TR1 ,fuera de servicio.	07/01/2016	00:20	07/01/2016	04:00	07/01/2016	00:27	07/01/2016	04:27

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00292/2016	cge	Subestación : CAUQUENES_____066 Linea : CAUQUENES_____066 - LA_VEGA_____066 Tramo : CAUQUENES_____066 - LA_VEGA_____066 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	A solicitud de CGED, de acuerdo a SODI N°13/2016, se requiere el bloqueo de reconexión del interruptor 52B1 en SE Cauquenes, por trabajos en sus instalaciones.	07/01/2016	10:00	07/01/2016	16:00	07/01/2016	10:14	07/01/2016	15:36
SD00300/2016	enlasa	Central : PEÑÓN / Unidad : Nave 2 / Potencia Disponible : 80.00 MW Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Se solicita conexión con 2 MW para realizar pruebas de comunicación y sincronismo de equipo 206	07/01/2016	09:00	07/01/2016	20:00	07/01/2016	09:11	07/01/2016	12:11
SD00301/2016	colbun	Subestacion :STA_MARIA_____220Linea :STA_MARIA_____220 - CHARRUA_____220 CTO1Tramo: STA_MARIA_____220 - CHARRUA_____220 CTO1 Intervencion /ProgramadaComentario:Se realizará la verificación de comunicación y el correcto envío de datos a sistema scada, en servidor Work Center. Ningun Consumo AfectadoFecha Inicio:2016-01-07Hora de Inicio:09:00Fecha Termino:2016-01-07Hora de Termino:17:00Solicita intervención:COLBUN\JArancibiaTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Se realizará la verificación de comunicación y el correcto envío de datos a sistema scada, en servidor Work Center.	07/01/2016	09:00	07/01/2016	17:00	07/01/2016	10:26	07/01/2016	12:36
SD00306/2016	transelec	Subestacion :ITAHUE_____154 Otro Elemento :SISTEMA SCADA\n Elemento: SISTEMA SCADA Intervencion /Programada Comentario:Equipo:S/E ITAHUE: URT SICAM PATIO 220 kV Tipo Trabajo:Obras CAPEX Descripción del Trabajo S/E Itahue: Extracción de Base de datos del SICAM Itahue 220 kV, por proyecto fase 2 Restricciones:Telecontrol en posición local Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E ITAHUE 220 kV: DELIMITACIÓN Y SEÑALIZACIÓN ZONA DE TRABAJO Instalaciones con riesgo SISTEMA SCADA S/E ITAHUE (pérdida de datos y telecontrol Patio 220 kV) Observaciones Extracción de base de datos de SICAM Itahue 220 kV, por proyecto fase 2 Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:18:00 Solicita intervención:ADELVALLETrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Programada	Equipo:S/E ITAHUE: URT SICAM PATIO 220 kV Tipo Trabajo:Obras CAPEX Descripción del Trabajo S/E Itahue: Extracción de Base de datos del SICAM Itahue 220 kV, por proyecto fase 2 Restricciones:Telecontrol en posición local Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas S/E ITAHUE 220 kV: DELIMITACIÓN Y SEÑALIZACIÓN ZONA DE TRABAJO Instalaciones con riesgo SISTEMA SCADA S/E ITAHUE (pérdida de datos y telecontrol Patio 220 kV) Observaciones Extracción de base de datos de SICAM Itahue 220 kV, por proyecto fase 2	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	11:30	07/01/2016	13:06
SD00366/2016	arauco	Central : ARAUCO / Unidad : Central Completa / Potencia Disponible : 0.00 MW Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Relleno de SF6 / Sin bloqueo a la reconexión 	07/01/2016	09:00	07/01/2016	18:00	07/01/2016	08:15	07/01/2016	17:14

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00316/2016	endesa	Central : CANELA II / Unidad : UNIDAD AEROGENERADORA / Potencia Disponible : 0.0 MW Desconexión / Origen Interno / Programada Ningún Consumo Afectado	Desconexion	Programada	Aerogenerador G05, Mantenimiento a generador, transformador, elevador, líneas de vida y engrases.	07/01/2016	08:00	07/01/2016	17:00	07/01/2016	09:33	07/01/2016	17:07
SD00318/2016	endesa	Central : CANELA II / Unidad : UNIDAD AEROGENERADORA / Potencia Disponible : 0.0 MW Desconexión / Origen Interno / Programada Ningún Consumo Afectado	Desconexion	Programada	Aerogenerador D01, Cambio de acumulador de nitrógeno pala 3.	07/01/2016	08:00	07/01/2016	17:00	07/01/2016	09:23	07/01/2016	17:07
SD00324/2016	chilectra	Subestación : RENCA_____110 Otro Elemento de Subestación : OTROS N ° : Desconexión / Programada Ningún Consumo Afectado	Desconexion	Programada	Desconexión barra 110 kV N°2 para retiro de puentes hacia paño interruptor 110 kV Generación Gas. Coordinado con mantenimiento mayor Central Nueva Renca	07/01/2016	00:00	07/01/2016	06:00	07/01/2016	00:12	07/01/2016	06:09
SD00330/2016	comasa	Central : LAUTARO COMASA / Unidad : CENTRAL COMPLETA / Potencia Disponible : 46 MW Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Trabajos en lineas de comunicación por cambios de proveedor.quedando solo habilitada la comunicación con el cdecsic (por lo que dura la actividad) a través de teléfono celular.	07/01/2016	12:00	07/01/2016	14:00	07/01/2016	12:02	07/01/2016	14:45
SD00331/2016	cge	Subestación : MIRAFLORES____110 Transformador: Transf. HT3 110/13.6 kV - 15/25 MVA S/E MIRAFLORES Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Obras Civiles / Con Bloqueo a la reconexión Orden de precaución sobre interruptor 52HT3 por trabajos de obras civiles en proximidad a redes energizadas.	07/01/2016	09:00	07/01/2016	17:00	07/01/2016	08:52	07/01/2016	18:10
SD00354/2016	panguip	Central : TALTAL (EÓLICO) / Unidad : Central Completa / Potencia Disponible : 0.0 MW Desconexión / Origen Interno / Programada Ningún Consumo Afectado	Desconexion	Programada	Prueba de sistema contra incendios en transformador de SSEE.	07/01/2016	09:00	07/01/2016	13:00	07/01/2016	09:38	07/01/2016	15:07
SD00391/2016	gener	Central : GUACOLDA / Unidad : U4 / Potencia Disponible : 152 MW Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Unidad limitada a plena carga para realizar mediciones isocineticas.	07/01/2016	08:00	07/01/2016	20:00	07/01/2016	08:00	07/01/2016	20:41
SD00400/2016	sts	Central : SAN PEDRO EÓLICO / Unidad : UNIDAD AEROGENERADORA / Potencia Disponible : 0.0 MW Desconexión / Origen Interno / Programada Ningún Consumo Afectado	Desconexion	Programada	Desconexión del aerogenerador N° 1 por mantenimiento.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	08:00	07/01/2016	17:35
SD00406/2016	cge	Subestación : P.AZUCAR_____110 Linea : S.JOAQUIN__110 (CGE) - P.AZUCAR_____110 Tramo : S.JOAQUIN___110 (CGE) - P.AZUCAR_____110 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Lavado de Aislación / Con Bloqueo a la reconexión, intertuptor 52H6 de SE Pan de Azúcar.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	15:01	07/01/2016	19:12
SD00407/2016	cge	Subestación : P.AZUCAR_____066 Linea : P.AZUCAR_____066 - MARQUESA_____066 Tramo : P.AZUCAR_____066 - MARQUESA_____066 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Lavado de Aislación / Con Bloqueo a la reconexión de interruptor 52B5 de SE Pan de Azúcar.	07/01/2016	08:00	07/01/2016	18:00	07/01/2016	10:45	07/01/2016	19:12

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00410/2016	hidromaule	Subestación : LIRCAY_____066 Linea : LIRCAY_____066 - MAULE_____066 Tramo : LIRCAY_____066 - MAULE_____066 Intervención / Programada Ningún Consumo Afectado	Intervencion	Programada	Cambio conector curvo fase R salida desconectador 89B4-2, para eliminar punto caliente de acuerdo a ultima inspeccion termografica realizada, este trabajo se realizara con linea energizada, para lo anterior se debera realizar BY-PASS entre salida chicote desconectador y linea.	07/01/2016	08:00	07/01/2016	20:00	07/01/2016	09:54	07/01/2016	13:22
SD00595/2016	gener	Central : GUACOLDA / Unidad : U5 / Potencia Disponible : 60 MW Intervención / Curso Forzoso Ningún Consumo Afectado	Intervencion	Curso Forzoso	Realizar revisión al motor del calentador de aire de la caldera por ruido anormal, este equipo crítico para la unidad.	07/01/2016	07:05	07/01/2016	12:00	07/01/2016	07:06	07/01/2016	09:03
SD00596/2016	cge	Subestación : MAULE_____066 Linea : LIRCAY_____066 - MAULE_____066 Tramo : LIRCAY_____066 - MAULE_____066 Intervención / Curso Forzoso Ningún Consumo Afectado	Intervencion	Curso Forzoso	A solicitud de Hidromaule de acuerdo a SODI N°1/2016 se requiere orden de precaución no reconectar interruptor 52B2 en SE Maule asociado a la línea Maule - Lircay por trabajos en sus instalaciones.	07/01/2016	08:00	07/01/2016	20:00	07/01/2016	09:40	07/01/2016	13:20
SD00606/2016	gener	Central : GUACOLDA / Unidad : U5 / Potencia Disponible : 0.0 MW Desconexión / Origen Interno / Curso Forzoso Ningún Consumo Afectado	Desconexion	Curso Forzoso	Realizar reparación al motor del calentador de aire de la caldera por ruido anormal, este equipo crítico para la unidad.	07/01/2016	09:02	07/01/2016	18:00	07/01/2016	09:03	08/01/2016	02:02

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00614/2016	transelec	Subestacion :TINGUIRIRICA____154 Linea :L1 Tinguiririca?Rancagua?A.Jahuel\n Tramo: TINGUIRIRICA____154 - MALLOA_____154 CTO1 Tramo: MALLOA_____154 - QUINTA_TILCOCO_____154 CTO1 Tramo: QUINTA_TILCOCO_____154 - P.CORTES_____154 CTO1 Tramo: P.CORTES_____154 - RANCAGUA_____154 CTO1 Tramo: RANCAGUA_____154 - PAINE_____154 CTO1 Tramo: PAINE_____154 - A.JAHUEL_____154 CTO1 Intervencion /Curso Forzoso Comentario:Equipo:L. 154 kV TIN - RANCAGUA - A. JAHUEL 1 Tipo Trabajo:Trabajos en el circuito adyacente Descripción del Trabajo Reparación de conductor cortado por robo en circuito 2 Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No Reconectar Interruptores que sirven a la Línea de 154 kV Tinguiririca-Rancagua-Alto Jahuel 1 Instalaciones con riesgo L. 154 kV TIN - RANCAGUA - A. JAHUEL, Cto. 2 (en la normalización) Observaciones Reparación de conductor cortado en circuito 2 Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:08:00 Fecha Termino:2016-01-07 Hora de Termino:15:00 Solicita intervención:CC-TRANSELECTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Curso Forzoso	Equipo:L. 154 kV TIN - RANCAGUA - A. JAHUEL 1 Tipo Trabajo:Trabajos en el circuito adyacente Descripción del Trabajo Reparación de conductor cortado por robo en circuito 2 Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No Reconectar Interruptores que sirven a la Línea de 154 kV Tinguiririca-Rancagua-Alto Jahuel 1 Instalaciones con riesgo L. 154 kV TIN - RANCAGUA - A. JAHUEL, Cto. 2 (en la normalización) Observaciones Reparación de conductor cortado en circuito 2	07/01/2016	08:00	07/01/2016	15:00	07/01/2016	10:39	07/01/2016	21:05
SD00616/2016	cge	Subestación : HORCONES_____066 Linea : C.ARAUCO_____066 - HORCONES_____066 Tramo : C.ARAUCO_____066 - HORCONES_____066 Desconexión / Curso Forzoso Ningún Consumo Afectado	Desconexion	Curso Forzoso	A solicitud de Arauco Bioenergia de acuerdo a SODI N°001/2016 se requiere desconexión del interruptor 52B2 y DD/CC 89B2-1 y 89B2-2 Abiertos en S/E Horcones, asociado a la línea Horcones-C.Arauco por reparación de DD/CC en línea C. Arauco-Horcones en planta Arauco.	07/01/2016	10:40	07/01/2016	18:00	07/01/2016	11:06	07/01/2016	17:06
SD00620/2016	arauco	Subestación : C.ARAUCO_____066 Linea : C.ARAUCO_____066 - HORCONES_____066 Tramo : C.ARAUCO_____066 - HORCONES_____066 Desconexión / Curso Forzoso Ningún Consumo Afectado	Desconexion	Curso Forzoso	Se requiere la desconexión de la línea de 66 kV C.Arauco-Horcones para realizar la reparación del desconectador de línea 89BL2 en Central Arauco. Al momento de realizar la desconexión programada se detectó anormalidad que requiere reparación inmediata.	07/01/2016	11:00	07/01/2016	18:00	07/01/2016	11:05	07/01/2016	17:14

Nro.	Empresa	Resumen	Tipo	Cuando	Objetivo	Fec.Ini.Prg	Hora Ini.Prg	Fec.Ter.Prg	Hora Ter.Prg	Fec.Ini.Efec	Hora Ini.Efec	Fec.Ter.Efec	Hora Ter.Efec
SD00685/2016	cge	Subestación : MAULE_____066 Otro Elemento de Subestación : CONDENSADORES N ° : Bco1 CCEE 6 MVAr; Transf. T1 Maule 154/066/015 kV 60MVA Desconexión / Curso Forzoso Ningún Consumo Afectado	Desconexion	Curso Forzoso	Se debe abrir el interruptor 52CE1 del BBCC N°1 de S/E Maule, y su DDCC 89CE1, por punto caliente en mufa de salida (fase B) del Tranaformador N°1 hacia el DDCC 89CE1. Se programará su reparación.	07/01/2016	17:15	31/01/2016	20:30	07/01/2016	17:15	07/01/2016	17:15
SD00689/2016	transelec	Subestacion :TINGUIRIRICA____154 Linea :L2 Tinguiririca?Rancagua?A.Jahuel\n Tramo: TINGUIRIRICA____154 - MALLOA_____154 CTO2 Tramo: MALLOA_____154 - QUINTA_TILCOCO_____154 CTO2 Tramo: QUINTA_TILCOCO_____154 - P.CORTES_____154 CTO2 Tramo: P.CORTES_____154 - RANCAGUA_____154 CTO2 Tramo: RANCAGUA_____154 - PAINE_____154 CTO2 Tramo: PAINE_____154 - A.JAHUEL_____154 CTO2 Intervencion /Curso Forzoso Comentario:Equipo:L. 154 kV TIN - RANCAGUA - A. JAHUEL 2 Tipo Trabajo:Trabajos en el circuito adyacente Descripción del Trabajo Reparación de conductor cortado por robo en circuito 1 Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No Reconectar Interruptores que sirven a la Línea de 154 kV Tinguiririca-Rancagua-Alto Jahuel 2 Instalaciones con riesgo LÍNEA 154 kV TINGUIRIRICA - RANCAGUA - ALTO JAHUEL, C2 Observaciones Reparación de conductor cortado en circuito 1 Ningun Consumo Afectado Fecha Inicio:2016-01-07 Hora de Inicio:14:00 Fecha Termino:2016-01-07 Hora de Termino:20:00 Solicita intervención:CC-TRANSELECTrabajo a realizar: Otro Tipo de Trabajo	Intervencion	Curso Forzoso	Equipo:L. 154 kV TIN - RANCAGUA - A. JAHUEL 2 Tipo Trabajo:Trabajos en el circuito adyacente Descripción del Trabajo Reparación de conductor cortado por robo en circuito 1 Restricciones:Restriccion a la reconexion Nivel Riesgo:Bajo Bloqueo del Jefe de Faenas No Reconectar Interruptores que sirven a la Línea de 154 kV Tinguiririca-Rancagua-Alto Jahuel 2 Instalaciones con riesgo LÍNEA 154 kV TINGUIRIRICA - RANCAGUA - ALTO JAHUEL, C2 Observaciones Reparación de conductor cortado en circuito 1	07/01/2016	14:00	07/01/2016	20:00	07/01/2016	21:05	07/01/2016	21:05

ANEXO Nº 5

Informes de trabajos y fallas de instalaciones ingresados en el sistema CDEC por Transelec S.A. y Transnet S.A..

INFORME DE FALLA - Nº IF00030/2016

Empresa : Transelec S.A.

Fecha : 07/01/2016

Hora : 06:00

Equipo Afectado :	**Tramo : P.CORTES_____154 - RANCAGUA_____154 CTO1** **Tramo : RANCAGUA_____154 - PAINE_____154 CTO1** **Tramo : PAINE_____154 - A.JAHUEL_____154 CTO1**
Perturbación :	**Fecha:** 07/01/2016 **Hora Inicio:** 01:19 Empresa instalación afectada:Transelec S.A.
Zona Afectada :	Ninguna
Informe con causa reiterada	NO
Causa Presunta:	
Causa Definitiva:	**Código** **Descripción** 2030 Robo de Conductor **Detalle** Robo Conductor Estructuras N°354-355 fase inferior.
Observaciones:	
Acciones Inmediatas:	Informe al CDEC-SIC. Recopilación de alarmas y protecciones operadas.
Acciones a Corto Plazo :	
Acciones a Largo Plazo :	
Consumo Afectado :	Consumo: Ninguno
Retorno :	**Estimado** **Fecha** **Hora** 07/01/2016 22:00

Efectivo (a servicio o disponibilidad completa)

Equipo Afectado	Fecha	Hora
Tramo : P.CORTES_____154 - RANCAGUA_____154 CTO1	07/01/2016	06:00
Tramo : RANCAGUA_____154 - PAINE_____154 CTO1	07/01/2016	06:00
Tramo : PAINE_____154 - A.JAHUEL_____154 CTO1	07/01/2016	06:00

Reporta Falla:	JORGE PONCE IBAÑEZ

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INFORME DE FALLA - Nº IF00030/2016

Empresa : Transelec S.A.

Fecha : 07/01/2016

Hora : 06:00

Interruptores Operados, Actuación de Protecciones y Maniobras de Reposición:	Subestación	A.JAHUEL_____154
	Fecha	07/01/2016
	Hora	01:19
	Protección o Alarma Operada	S1:21/21N zona 2. S2: 21/21N zona 1B Fase B-T 59,7 km
	Interruptor	52A1
	Fecha Normaliza	07/01/2016
	Hora Normaliza	
	Consumo (MW)	
	Comentario	
	Subestación	RANCAGUA_____154
	Fecha	07/01/2016
	Hora	01:19
	Protección o Alarma Operada	21/21N fase B-T; 17,5 km
	Interruptor	52A2
	Fecha Normaliza	07/01/2016
	Hora Normaliza	
	Consumo (MW)	
	Comentario	
Consumos Afectados		
Hechos Sucedidos		

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INFORME DE FALLA - Nº IF00032/2016

Empresa : TRANSNET

Fecha : 07/01/2016

Hora : 06:57

Equipo Afectado :	**PAINE_____154** **Otro Elemento de Subestacion : OTROS**
Perturbación :	**Fecha:** 07/01/2016 **Hora Inicio:** 01:18 Empresa instalación afectada:TRANSNET
Zona Afectada :	Sexta region /
Comuna Origen de Falla :	Paine
Informe con causa reiterada	NO
Causa Presunta:	Se investiga.
Causa Definitiva:	
Observaciones:	Pérdida de suministro aguas arriba a instalaciones de TRANSNET, afectando los consumos de SS/EE Paine, Isla de Maipo, Papelera Talagante, T2 Buin, Fatima, Hospital, EFE Hospital y T2 San Francisco Mostazal.
Acciones Inmediatas:	Recuperación de consumos, previa coordinación con CDEC-SIC.
Acciones a Corto Plazo :	
Acciones a Largo Plazo :	
Consumo Afectado :	CGE Distribución / Perd. Estm. de Potencia: 87.56 MW / Region : SEXTA EFE Hospital / Perd. Estm. de Potencia: 0.1 MW / Region : SEXTA
Retorno :	**Estimado** **Fecha** 07/01/2016 **Hora** 14:00

Efectivo (a servicio o disponibilidad completa)

Equipo Afectado	Fecha	Hora
OTROS	07/01/2015	08:48

Reporta Falla:	Roberto Reyes Ramírez

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INFORME DE FALLA - Nº IF00032/2016

Empresa : TRANSNET

Fecha : 07/01/2016

Hora : 06:57

Interruptores Operados, Actuación de Protecciones y Maniobras de Reposición:	Subestación	PAINE_____154
	Fecha	07/01/2016
	Hora	01:18
	Protección o Alarma Operada	
	Interruptor	52AT
	Fecha Normaliza	07/01/2016
	Hora Normaliza	
	Consumo (MW)	87.66
	Comentario	
Consumos Afectados	Subestación	PAINE_____154
	Fecha	07/01/2016
	Hora	01:18
	Protección o Alarma Operada	
	Interruptor	52AT
	Fecha Normaliza	07/01/2016
	Hora Normaliza	
	Consumo (MW)	87.66
	Comentario	
Hechos Sucedidos		

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ANEXO Nº 6

Otros antecedentes aportados por Transelec S.A. y Transnet S.A.

Informe de Desconexión Forzada IF00029 – 00030 – 00031 – 00045 – 00046 / 2016 del día 07 de enero de 2016. Código 2030.

1. Características de la desconexión forzada

A las 01:07 horas del día 07 de enero de 2016, se produjo la desconexión del circuito 2 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, producto de un cortocircuito monofásico entre la fase A y tierra, causado para robar conductor de la línea, entre las estructuras N° 354 y 355, a aproximadamente 53 km de la S/E Alto Jahuel (sector Tap Punta Cortés – Tap Tuniche). Transcurridos 14 s se produjo la apertura del interruptor 52A3 de la S/E Tinguiririca, desconectando el circuito 2 de la línea 154 kV Tinguiririca - Itahue.

A las 01:18 horas del día 07 de enero de 2016, se produjo la desconexión del circuito 1 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, producto de un cortocircuito monofásico entre la fase B y tierra, causado para robar conductor de la línea entre las estructuras N° 354 y 355, a aproximadamente 53 km de la S/E Alto Jahuel.

2. Instalaciones afectadas directa o indirectamente por la falla indicando horas de desconexión y reposición.

a. Las siguientes instalaciones de TRANSELEC fueron afectadas por la desconexión:
   i. Circuitos 1 y 2 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel.
   ii. Circuito 2 de la línea 154 kV Tinguiririca - Itahue.

b. Otras instalaciones afectadas por la desconexión (de acuerdo al informe de novedades del CDC):
   i. SS/EE Cachapoal, Machalí, Loreto, Lo Miranda, Tuniche y Quinta de Tilcoco, Las Cabras, San Fernando, Teno, Buin, Fátima, Hospital, Isla de Maipo, Graneros, San Francisco de Mostazal, Papelera Talagante y el Manzano. (propiedad de Transnet).

c. El origen de la falla se ubica en la Sexta Región, provincia del Cachapoal, comuna de Rancagua, código de comuna 6101.

3. Pérdidas de Generación, indicando monto y horas de desconexión y reposición.

TRANSELEC no tiene equipos de generación entre sus instalaciones.

4. Pérdidas de Consumos, indicando el detalle por subestación de los montos, horas de desconexión y reposición.

Previo a la desconexión y de acuerdo al registro de nuestro sistema SCADA, se transmitían por la línea 2 x 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 1:

- Desde S/E Alto Jahuel (hacía SS/EE Rancagua y Tinguiririca), alrededor de 31,3 MW.
- Desde el Tap Tuniche hacia S/E Rancagua, alrededor de 16,3 MW.
- Desde S/E Tinguiririca (hacía SS/EE Rancagua y Alto Jahuel), alrededor de 90,01 MW.

Previo a la desconexión y de acuerdo al registro de nuestro sistema SCADA, se transmitían por la línea 2 x 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 2:

- Desde SS/EE Rancagua y Tinguiririca hacia S/E Alto Jahuel, alrededor de 23,62 MW.
- Desde S/E Tinguiririca (hacía SS/EE Rancagua y Alto Jahuel), alrededor de 102 MW.

5. Cronología de eventos, y descripción de las causas directa de cada evento.

A las 01:07 horas del día 07 de enero de 2016, se produjo la desconexión del circuito 2 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, producto de un cortocircuito monofásico entre la fase A y tierra, causado para robar conductor de la línea, entre las estructuras N° 354 y 355, a aproximadamente 53 km de la S/E Alto Jahuel (sector Tap Punta Cortés – Tap Tuniche). Transcurridos 14 s se produjo la apertura del interruptor 52A3 de la S/E Tinguiririca, desconectando el circuito 2 de la línea 154 kV Tinguiririca - Itahue.

A las 01:18 horas del día 07 de enero de 2016, se produjo la desconexión del circuito 1 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, producto de un cortocircuito monofásico entre la fase B y tierra, causado para robar conductor de la línea entre las estructuras N° 354 y 355, a aproximadamente 53 km de la S/E Alto Jahuel.

a. Acciones orientadas a la reposición del servicio y normalización de las instalaciones.

- **i.** Inmediatamente ocurrida la desconexión, se recopilaron las alarmas operadas.
- **ii.** A las 01:13 horas, se abrieron los interruptores 52A2 y 52A3 en S/E Tap Punta de Cortés, seccionando la línea 154 kV Alto Jahuel – Rancagua - Tinguiririca.
- **iii.** A las 01:17 horas, en coordinación con el CDC, se sincronizó el circuito N° 1 de la línea 154 kV Itahue – Tinguiririca, desde la S/E Itahue (los interruptores 52A3 y 52A4 de S/E Itahue se encontraban abierto a solicitud del CDC).
- **iv.** A las 01:27 horas, en coordinación con el CDC, se realizaron dos intentos consecutivos de cierre de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 1, desde el extremo de S/E Alto Jahuel, interruptor 52A1, los cuales no resultaron exitosos.
- **v.** A las 01:28 horas, en coordinación con el CDC, se realizó un intento de cierre de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 2, desde el extremo de S/E Alto Jahuel, interruptor 52A2, el cual no resultó sin exito.
- **vi.** A las 01:32 horas se cerraron los interruptores 52A3 de S/E Tinguiririca y 52A4 de S/E Itahue, con lo cual se energizó la línea 154 Itahue – Tinguiririca, circuito N° 2.
- **vii.** A las 02:59 horas, se cerró el interruptor 52A10 de S/E Tinguiririca, energizando el sector desde S/E Malloa a S/E Tinguiririca.
- **viii.** A las 04:19 horas, en coordinación con el CDC, se iniciaron los trabajos de reparación del conductor de los circuitos 1 y 2 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, sector Tap Punta de Cortés – Tap Tuniche, asociados a las solicitudes de desconexión de curso forzoso SD00614/2016 y SD00689/2016.
- **ix.** A las 08:47 horas, en coordinación con el CDC, se energizó la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 1, con puentes abiertos en la estructura N° 359. Se normalizan los consumos de S/E Rancagua.
- **x.** A las 10:39 horas, en coordinación con el CDC se cerró el interruptor 52A2 en S/E Tap Punta de Cortés.
- **xi.** A las 21:05 horas, en coordinación con el CDC, se energizó la línea Tinguiririca – Rancagua – Alto Jahuel, circuito N° 2, sector Alto Jahuel – Tap Punta de Cortés – Rancagua.
- **xii.** A las 21:05 horas finalizan los trabajos de reparación de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel circuitos 1 y 2, y se cierran los puentes de la estructura N° 359.

6. Esquemas de protección y control involucrados en la falla.

a. Detalle de las protecciones operadas

<u>Circuito 2 línea 2x154 kV Tinguiririca – Rancagua – Alto Jahuel (01:07:26 horas)</u>

Paño A2, 154 kV, S/E Alto Jahuel:

Sistema 1: Protección GE D60, función 21N, Zona 1, fase A y tierra.
Sistema 2: Protección Siemens 7SA612, función 21N, Zona 1, fase A y tierra.

Paño A1, 154 kV, S/E Rancagua:
Sistema 1: Protección Siemens 7SA612, función 21N, Zona 1, fase A y tierra.
Sistema 2: Protección GE D60. No alcanza a operar antes que el sistema 1.

Paño A10, 154 kV, S/E Tinguiririca:
Sistema 1: Protección Siemens 7SA612, función 21N, Zona 1, fase A y tierra.
Sistema 2: Protección GE D60, función 21N, Zona 1, fase A y tierra.

Circuito 2 línea 2x154 kV Tinguiririca – Rancagua – Alto Jahuel (01:27:15 horas, reconexión manual sin éxito)
Paño A2, 154 kV, S/E Alto Jahuel:
Sistema 1: Protección GE D60, función 21N, Zona 2 acelerada, fase A y tierra.
Sistema 2: Protección Siemens 7SA612, función 21N, Zona 1, fase A y tierra.

Circuito 2 línea 2x154 kV Tinguiririca – Rancagua – Alto Jahuel (01:27:53 horas, reconexión manual sin éxito)
P*año A2, 154 kV, S/E Alto Jahuel:*
Sistema 1: Protección GE D60, función 21N, Zona 2 acelerada, fase A y tierra.
Sistema 2: Protección Siemens 7SA612, función 50HS (cierre contra falla), fase A.

Circuito 1 línea 2x154 kV Tinguiririca – Rancagua – Alto Jahuel (01:18 horas)
Paño A1, 154 kV, S/E Alto Jahuel:
Sistema 1: Protección GE D60, función 21N, Zona 2 acelerada, fase B a tierra.
Sistema 2: Protección Siemens 7SA612, función 21N, Zona 1, fase B a tierra.

Paño A2, 154 kV, S/E Rancagua:
Sistema 1: Protección Siemens 7SA612, función 21N, Zona 1, fase B a tierra.
Sistema 2: Protección GE D60. No alcanza a operar antes que el sistema 1.

Circuito 1 línea 2x154 kV Tinguiririca – Rancagua – Alto Jahuel (01:26 horas, reconexión manual)
Paño A1, 154 kV, S/E Alto Jahuel:
Sistema 1: Protección GE D60, función 21N, Zona 2 acelerada, fase B a tierra.
Sistema 2: Protección Siemens 7SA612, función 50HS (cierre contra falla), fase B.

Circuito 2 línea 154 kV Itahue – Tinguiririca (01:07:38 horas)
Paño A3, 154 kV, de la S/E Tinguiririca:
No se registra operación de protecciones en este paño.

b. Ajustes y características de las protecciones operadas.
(En archivos adjuntos).

c. Registros de la falla.
(En archivos adjuntos).

d. Análisis del comportamiento de los dispositivos de protección y control.

Operación a las 01:07 horas:

Paño A2, 154 kV, S/E Alto Jahuel, sistemas 1 y 2:

- Protección GE D60, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A2, operando de acuerdo a sus ajustes.
- Protección Siemens 7SA612, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A2, operando de acuerdo a sus ajustes.

Paño A1, 154 kV, S/E Rancagua, sistemas 1 y 2:

- Protección Siemens 7SA612, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A1, operando de acuerdo a sus ajustes.
- Protección GE D60, sistema 2: Este sistema detecta la falla, sin embargo no alcanza a operar antes que el sistema 1, por lo cual no generó registros oscilográficos y de eventos.

Paño A10, 154 kV, S/E Tinguiririca, sistemas 1 y 2:

- Protección Siemens 7SA612, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A10, operando de acuerdo a sus ajustes.
- Protección GE D60, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A10, operando de acuerdo a sus ajustes.

Operación a las 01:18 horas:

Paño A1, 154 kV, S/E Alto Jahuel, sistemas 1 y 2:

- Protección GE D60, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase B y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 2 acelerada, además recibió señal de aceleración desde el extremo de S/E Rancagua, por lo cual dio orden de apertura instantánea al interruptor 52A1. Adicionalmente envió señal de aceleración hacia el extremo de S/E Rancagua, operando de acuerdo a sus ajustes.
- Protección Siemens 7SA612, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase B y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, además recibió señal de aceleración desde al extremo de S/E Rancagua y dio orden de apertura

instantánea al interruptor 52A1. Adicionalmente envío señal de aceleración hacia el extremo de S/E Rancagua, operando de acuerdo a sus ajustes.

Paño A2, 154 kV, S/E Rancagua, sistemas 1 y 2:

- Protección Siemens 7SA612, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase B y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A2, operando de acuerdo a sus ajustes.
- Protección GE D60, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase B y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, por lo cual dio orden de apertura instantánea al interruptor 52A2, operando de acuerdo a sus ajustes.

Paño A9, 154 kV, S/E Tinguiririca, sistemas 1 y 2:

- No se registra operación de las protecciones debido a que se encontraban abiertos los interruptores en 52A2 y 52A3 en S/E Tap Punta de Cortés.

Operación a las 01:26 horas:

A las 01:26 horas se realiza un intento de cierre de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 1, sin éxito, desde el extremo en S/E Alto Jahuel interruptor 52A1, a continuación se indica la actuación de los sistemas de protección:

Paño A1, 154 kV, S/E Alto Jahuel, sistemas 1 y 2:

- Protección GE D60, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase B y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 2 acelerada, adicionalmente recibió señal de aceleración desde el extremo de S/E Rancagua, por lo cual dio orden de apertura instantánea al interruptor 52A1. Adicionalmente envió señal de aceleración hacia el extremo de S/E Rancagua, operando de acuerdo a sus ajustes.
- Protección Siemens 7SA612, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase B y tierra, en dirección adelante, el cual fue detectado por la función 50HS (cierre contra falla), por lo cual dio orden de apertura instantánea al interruptor.

Operación a las 01:27:15 horas:

A las 01:27:15 horas se realiza un intento de cierre de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 2, sin éxito, desde el extremo en S/E Alto Jahuel interruptor 52A2, a continuación se indica la actuación de los sistemas de protección:

Paño A2, 154 kV, S/E Alto Jahuel, sistemas 1 y 2:

- Protección GE D60, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 2 acelerada, además recibió señal de aceleración desde el extremo de S/E Rancagua, por lo cual dio orden de apertura instantánea al interruptor 52A1. Adicionalmente envió señal de aceleración hacia el extremo de S/E Rancagua, operando de acuerdo a sus ajustes.

- Protección Siemens 7SA612, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 1, enviando señal de aceleración a los otros extremos de la línea y dando orden de apertura instantánea al interruptor 52A2, operando de acuerdo a sus ajustes.

Operación a las 01:27:53 horas:

A las 01:27:53 horas se realiza un cierre de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, circuito N° 2, el cual resulta sin éxito, desde el extremo en S/E Alto Jahuel, a continuación se indica la actuación de los sistemas de protección:

Paño A2, 154 kV, S/E Alto Jahuel, sistemas 1 y 2:

- Protección GE D60, sistema 1: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 21N en Zona 2 acelerada, además recibió señal de aceleración desde el extremo de S/E Rancagua, por lo cual dio orden de apertura instantánea al interruptor 52A2. Adicionalmente envió señal de aceleración hacia el extremo de S/E Rancagua, operando de acuerdo a sus ajustes.
- Protección Siemens 7SA612, sistema 2: De las oscilografías, señales digitales y del registro de eventos generados por este sistema se observa un cortocircuito monofásico entre la fase A y tierra, en dirección adelante, el cual fue detectado por la función 50HS (cierre contra falla), por lo cual dio orden de apertura instantánea al interruptor.

Operación a las 01:07:38 horas:

Paño A3, 154 kV, de la S/E Tinguiririca:

- De acuerdo a los registros del sistema SCADA de Transelec a las 01:07:38 s se produjo la apertura del interruptor 52A3 en S/E Tinguiririca, asociado a la línea 154 kV Itahue – Tinguiririca circuito N° 2, sin embargo los sistemas de protección asociados a este interruptor no registran eventos de operación. Se presume que su apertura se debió a la operación EDAG asociado a Hidroeléctrica La Higuera, sin embargo Transelec no tiene registros de su operación.

7. Análisis conjunto de:

a. Causas y consecuencias de la falla

A las 01:07 horas del día 07 de enero de 2016, se produjo la desconexión del circuito 2 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, producto de un cortocircuito monofásico entre la fase A y tierra, causado para robar conductor de la línea, entre las estructuras N° 354 y 355, a aproximadamente 53 km de la S/E Alto Jahuel (sector Tap Punta Cortés – Tap Tuniche). Transcurridos 14 s se produjo la apertura del interruptor 52A3 de la S/E Tinguiririca, desconectando el circuito 2 de la línea 154 kV Tinguiririca - Itahue.

A las 01:18 horas del día 07 de enero de 2016, se produjo la desconexión del circuito 1 de la línea 154 kV Tinguiririca – Rancagua – Alto Jahuel, producto de un cortocircuito monofásico entre la fase B y tierra, causado para robar conductor de la línea entre las estructuras N° 354 y 355, a aproximadamente a 53 km de la S/E Alto Jahuel.

La transferencia de potencia activa por el circuito, previa a su desconexión, se detalla en el punto 4.

b. Actuación de los dispositivos de protección y control,
De acuerdo a los antecedentes disponibles, las protecciones operaron de acuerdo a sus ajustes.

c. Medidas o acciones adoptadas para mitigar los efectos de la falla y para normalización del suministro.

i. Ver punto 5.

8. Reiteración de la falla según código de descripción en los últimos doce meses

Se registran las siguientes desconexiones de la línea 2 x 154 kV Tinguiririca – Rancagua – Alto Jahuel circuito N° 1 y 2 con la misma descripción de causa:

- IF00627/2015, 13-03-2015, código de causa N° 2030, Robo de Conductor.
- IF00679/2015, 20-03-2015, código de causa N° 2030, Robo de Conductor.
- IF01069/2015, 03-04-2015, código de causa N° 2030, Robo de Conductor.
- IF01245/2015, 23-04-2015, código de causa N° 2030, Robo de Conductor.
- IF02946/2015, 20-11-2015, código de causa N° 2030, Robo de Conductor.

9. Acciones correctivas de corto y largo plazo en caso de comportamiento erróneo de instalaciones.

No hay.

10. Códigos según DO N° 0815/2014.

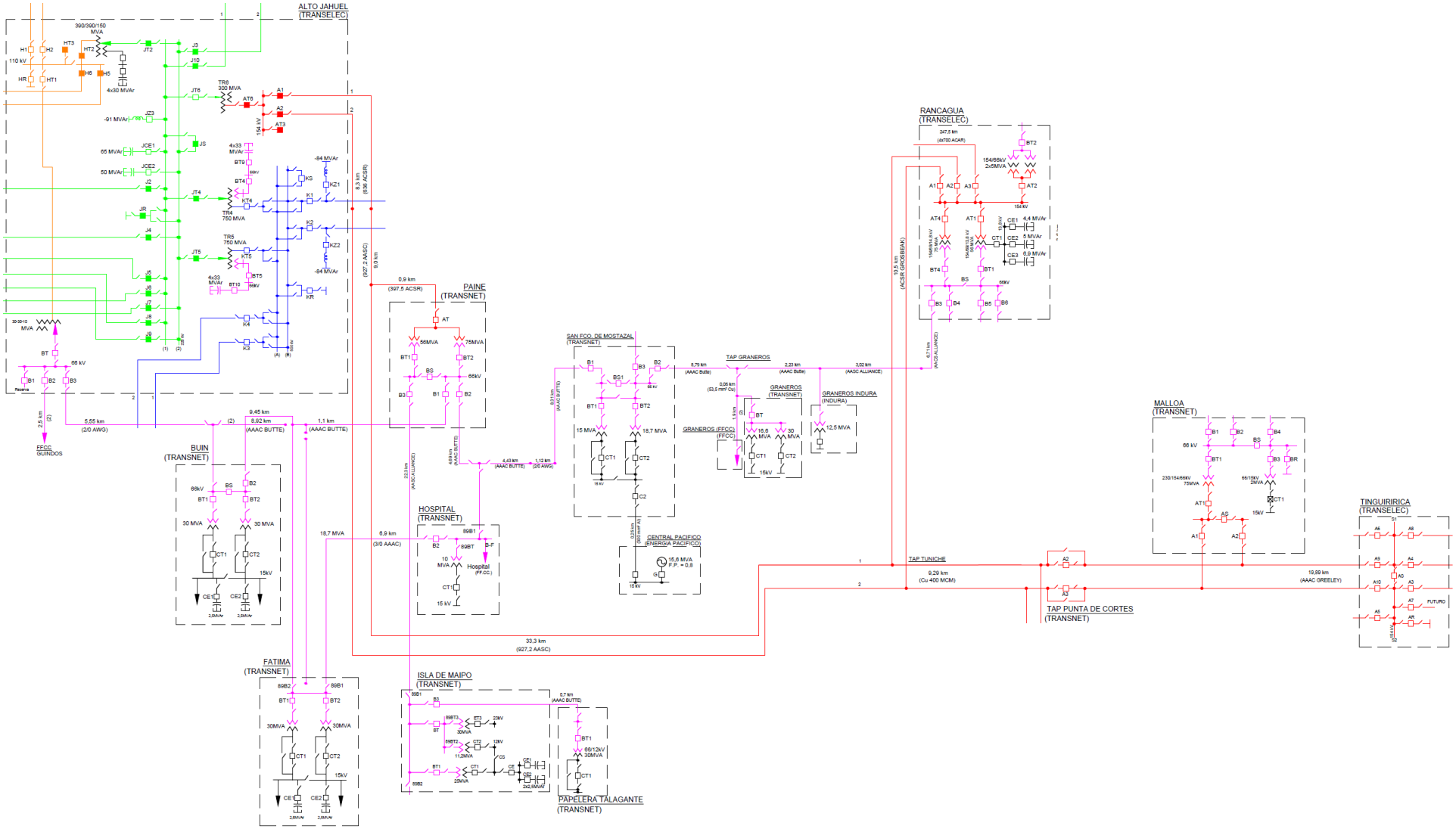
	Código	Descripción
FENOMENO_FISICO_ID	VAN3	Robo conductor o equipo
ELEMENTO_ID	TX2	Conductores.
FENOMENO_ELECTRICO_ID	DI21N	Distancia residual
MODO_ID	13	Opera según lo esperado.

11. Otros antecedentes que la empresa considere relevantes para el análisis y respaldo de las conclusiones.

- En el Anexo 1, se adjunta el diagrama unilineal de las instalaciones involucradas en la falla.
- En el Anexo 2, se adjuntan los registros oscilográficos y señales digitales generadas por las protecciones operadas.
- En el Anexo 3, se adjunta el registro de eventos generado por las protecciones operadas.

Anexo 1: Diagrama unilineal

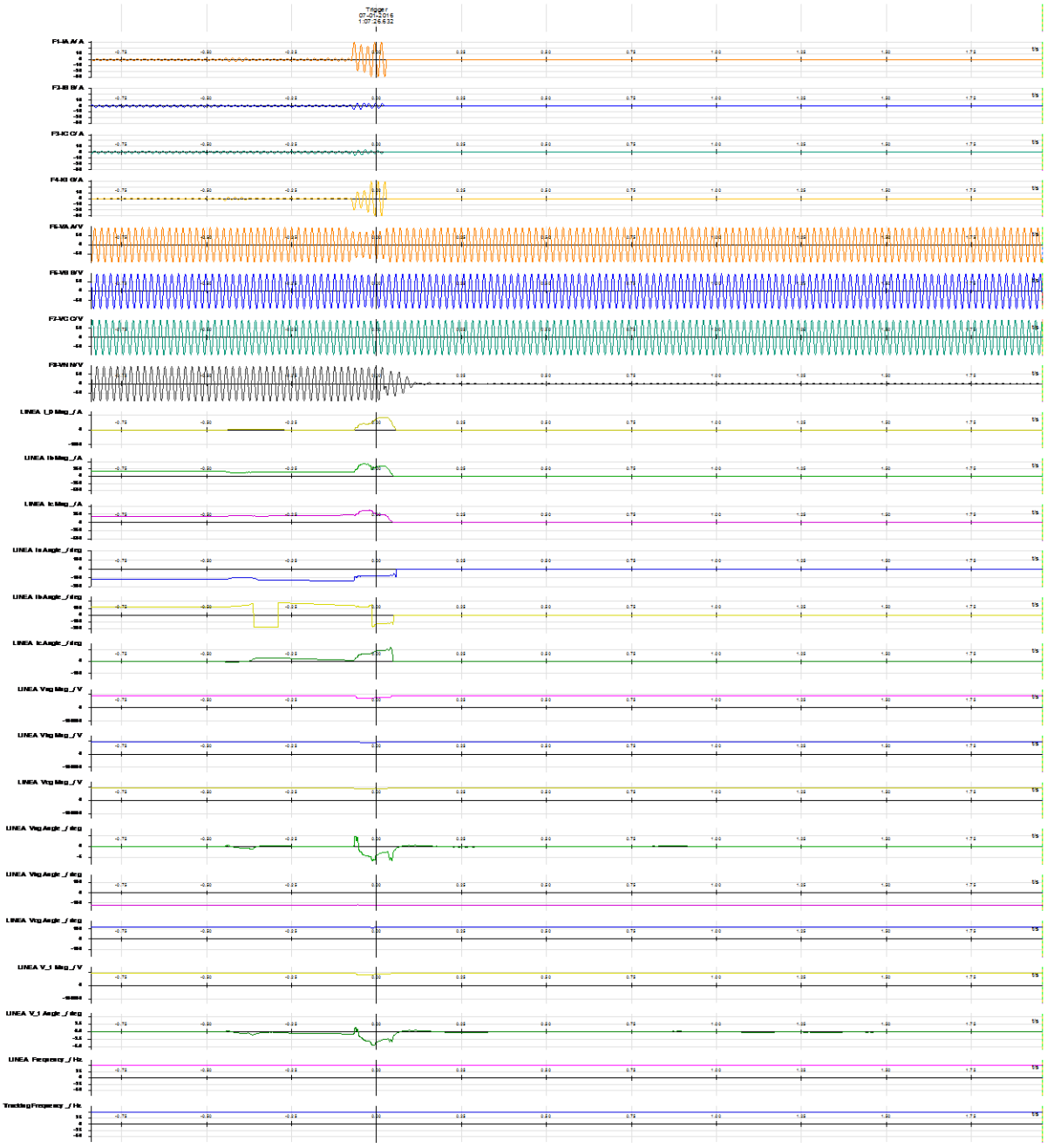
Figura 1: Diagrama unilineal de las instalaciones involucradas en la falla.

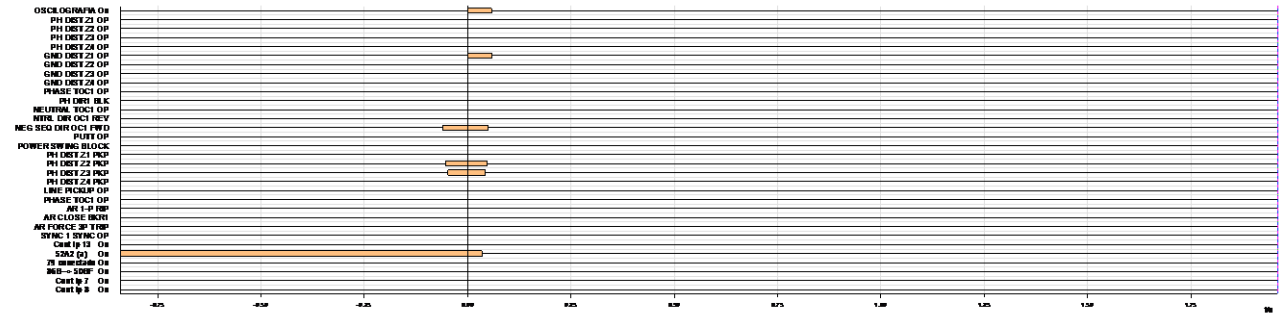


Anexo 2: Oscilografías y señales digitales

Figura 2: Registro de oscilografías y señales digitales

GE D60, paño A2, S/E Alto Jahuel – Sistema 1 (01:07:26 horas).




OSCILOGRAFIA 0s
PH DIST Z1 OP
PH DIST Z2 OP
PH DIST Z3 OP
PH DIST Z4 OP
GND DIST Z1 OP
GND DIST Z2 OP
GND DIST Z3 OP
GND DIST Z4 OP
PHASE TOC1 OP
PH DIR1 BLK
NEUTRAL TOC1 OP
NTRL DIR OC1 REV
NEG SEQ DIR OC1 FWD
PUITT OP
POWER SWING BLOCK
PH DIST Z1 PKP
PH DIST Z2 PKP
PH DIST Z3 PKP
PH DIST Z4 PKP
LINE PICKUP OP
PHASE TOC1 OP
AR 1-P TRP
AR CLOSE BKR1
AR FORCE 3P TRP
SYNC 1 SYNC OP
Cont Ip 13 0s
52A2 (a) 0s
25 manetizm 0s
86B-->50BF 0s
Cont Ip 7 0s
Cont Ip 8 0s
-0.5
-0.37
-0.25
0.00
0.25
0.37
0.75
1.00
1.25
1.37
1.50
1.75
ms

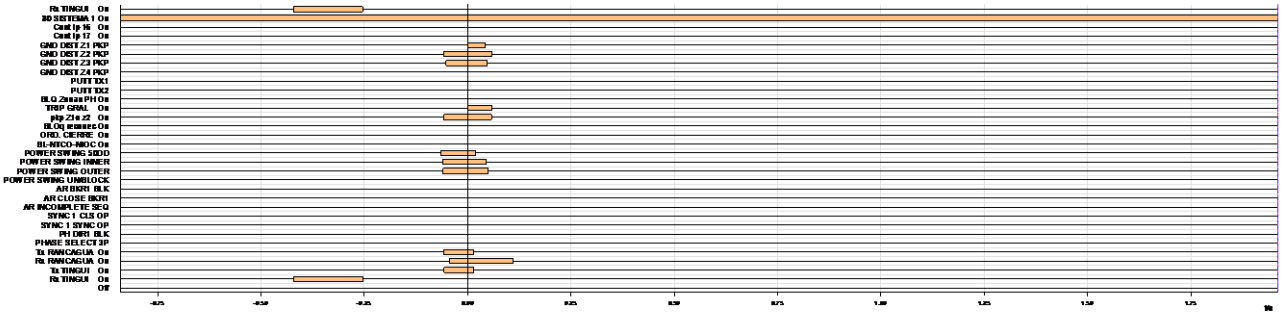

Rx TINGUI 0s
86 SISTEMA 1 0s
Cont Ip 16 0s
Cont Ip 17 0s
GND DIST Z1 PKP
GND DIST Z2 PKP
GND DIST Z3 PKP
GND DIST Z4 PKP
PUITT DX1
PUITT DX2
BLQ 2zona PH 0s
TRIP GRAL 0s
pkp Z1 o z2 0s
BLOq remoto 0s
ORD. CIERRE 0s
BL-NTCO-NIOC 0s
POWER SWING 50DD
POWER SWING INNER
POWER SWING OUTER
POWER SWING UNBLOCK
AR BKR1 BLK
AR CLOSE BKR1
AR INCOMPLETE SEQ
SYNC 1 CLS OP
SYNC 1 SYNC OP
PH DIR1 BLK
PHASE SELECT 3P
Tx RANCAGUA 0s
Rx RANCAGUA 0s
Tx TINGUI 0s
Rx TINGUI 0s
Off
-0.5
-0.37
-0.25
0.00
0.25
0.37
0.75
1.00
1.25
1.37
1.50
1.75
ms

Figura 3: Registro de oscilografías y señales digitales

Siemens 7SA612, paño A2, S/E Alto Jahuel – Sistema 2 (01:07:26 horas).

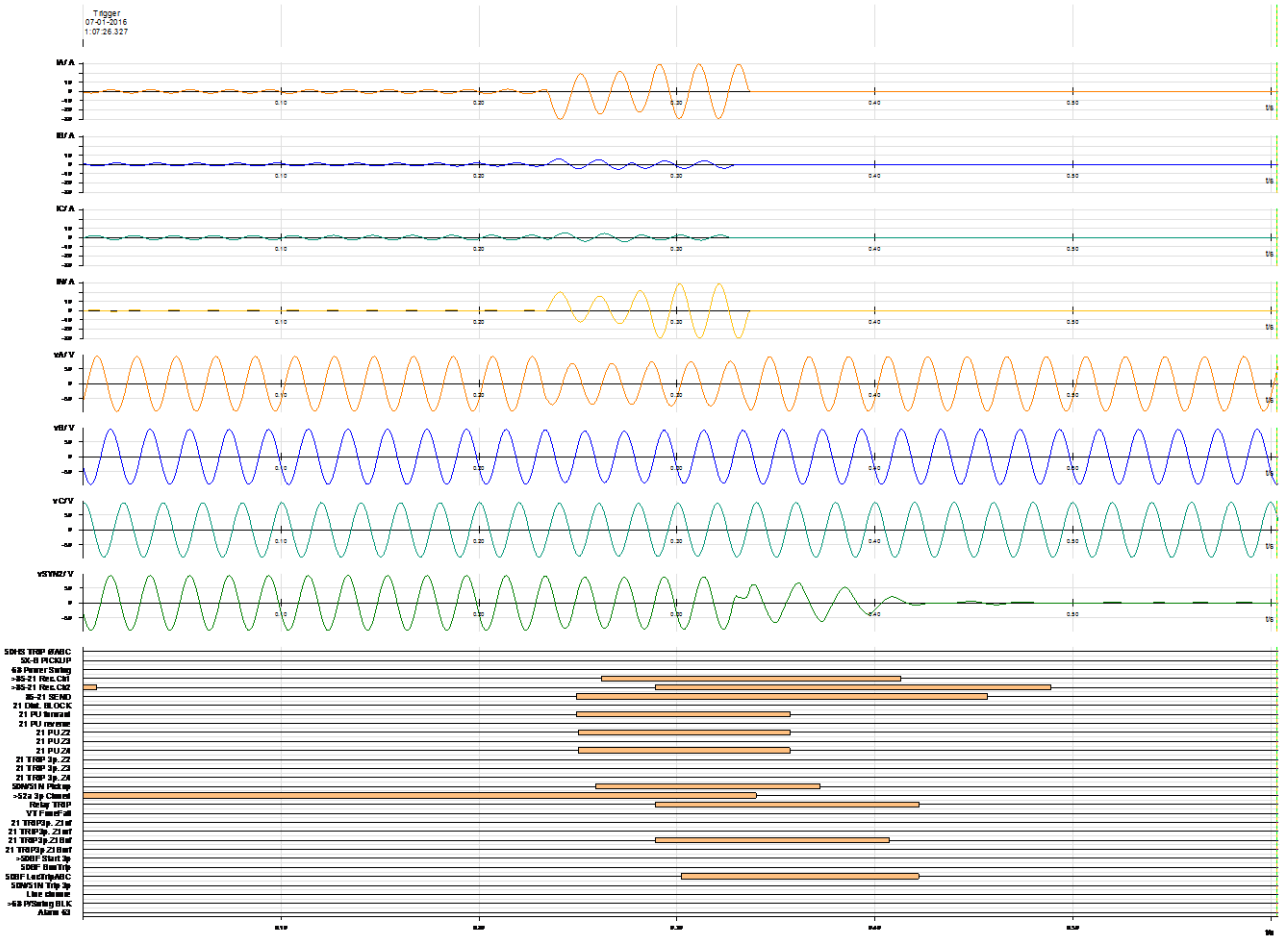


Figura 4: Registro de oscilografías y señales digitales

Siemens 7SA612, paño A1, S/E Rancagua – Sistema 1 (01:07:26 horas).

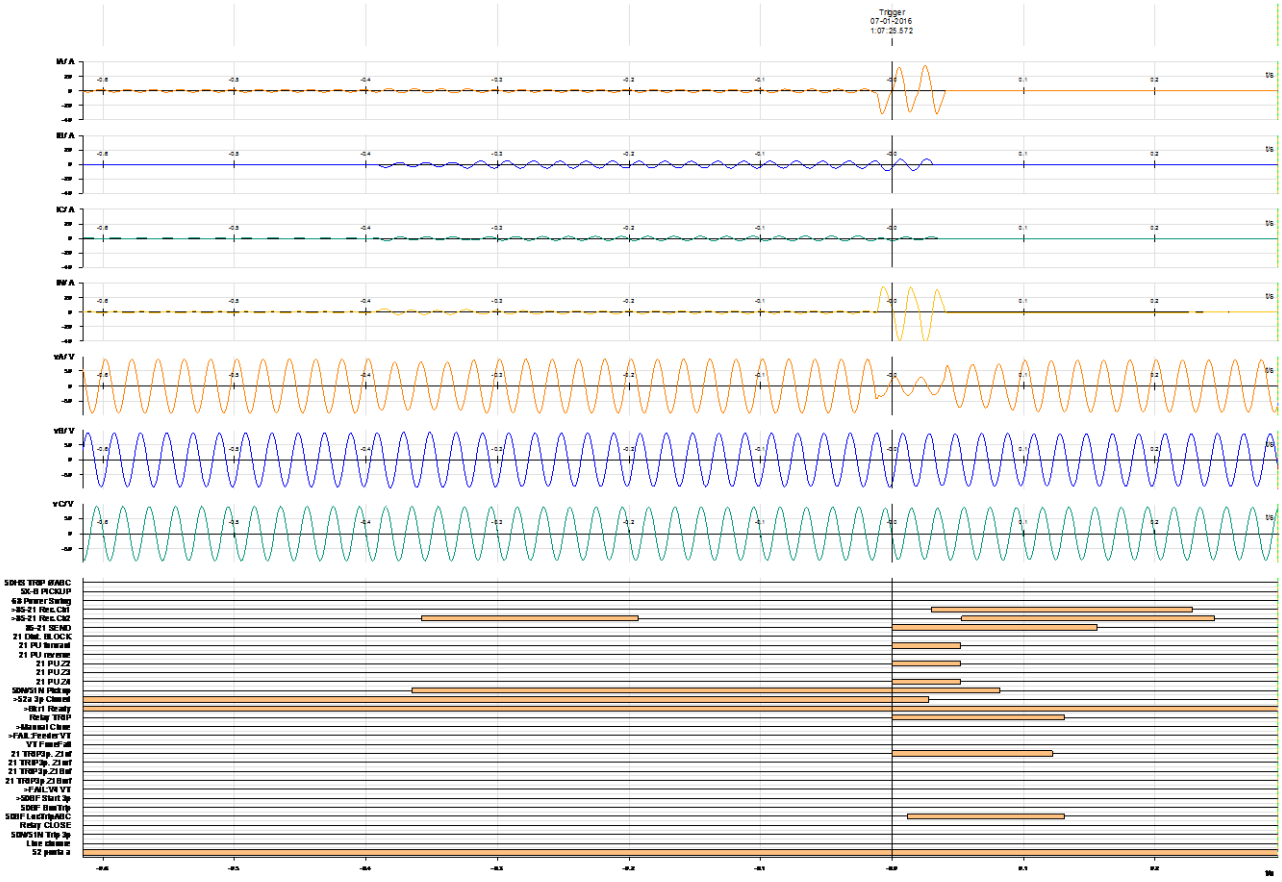


Figura 5: Registro de oscilografías y señales digitales

Siemens 7SA612, paño A10 S/E Tinguiririca – Sistema 1 (01:07:26 horas).

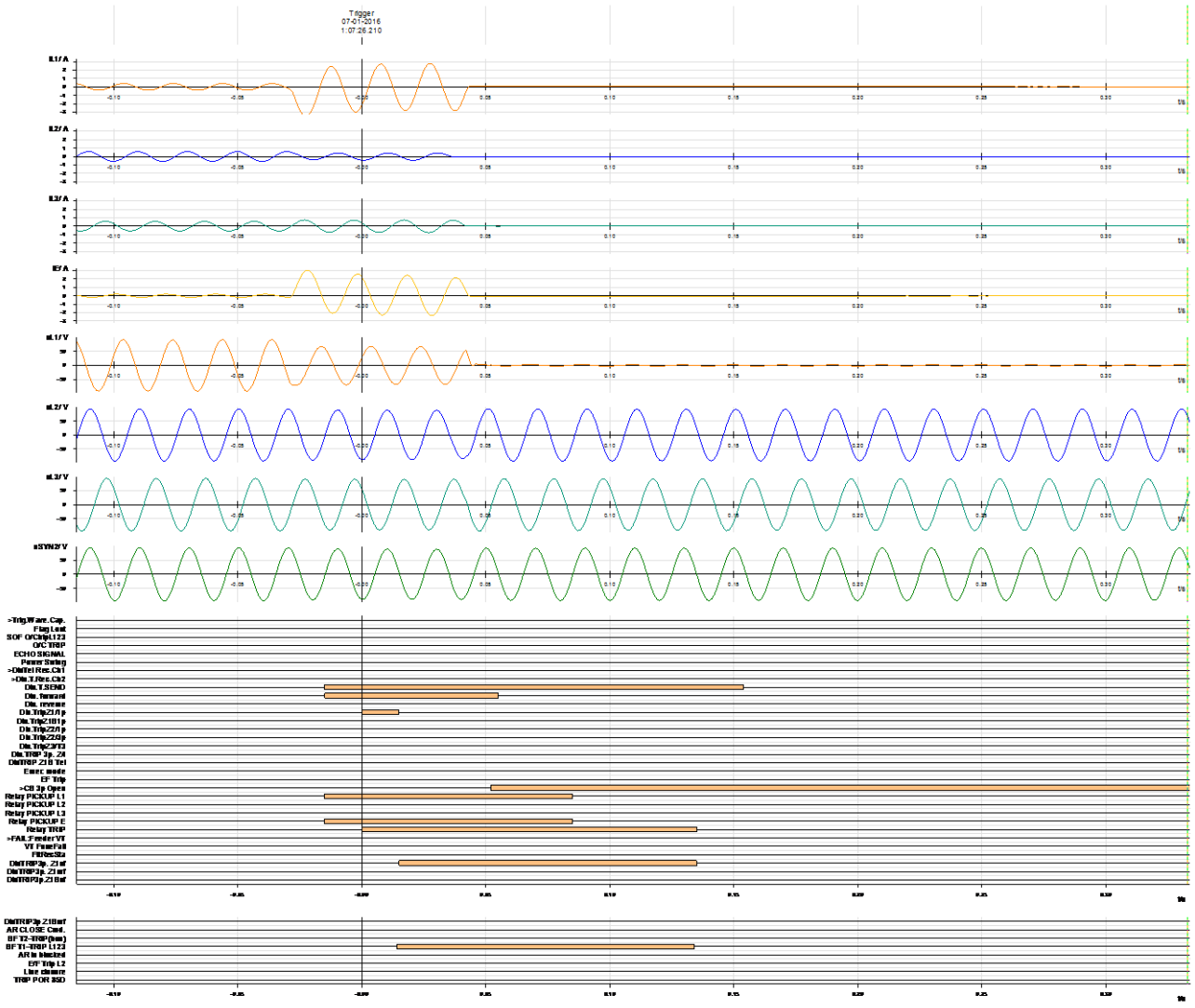
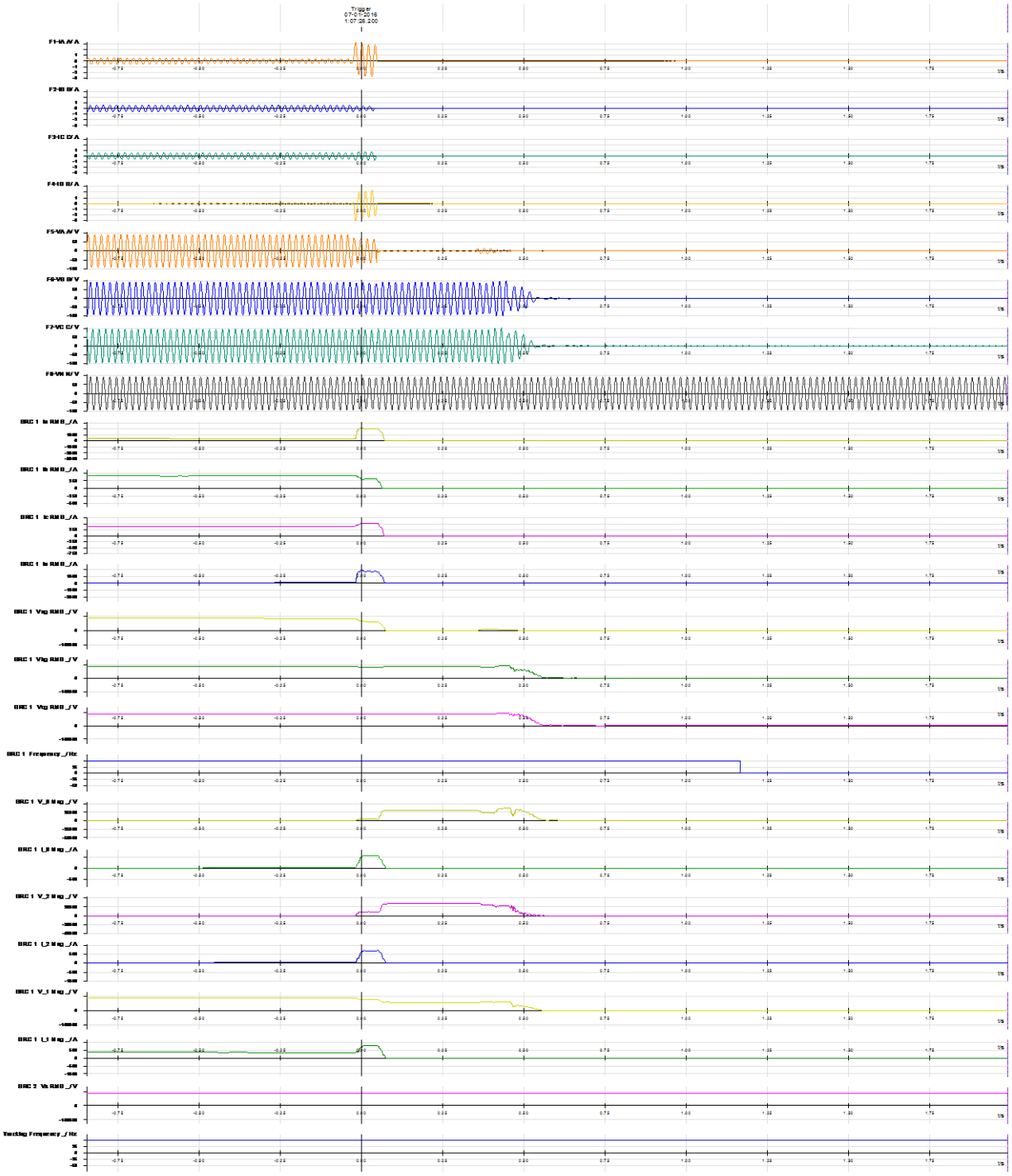


Figura 6: Registro de oscilografías y señales digitales

GE D60, paño A10, S/E Tinguiririca – Sistema 2 (01:07:26 horas).



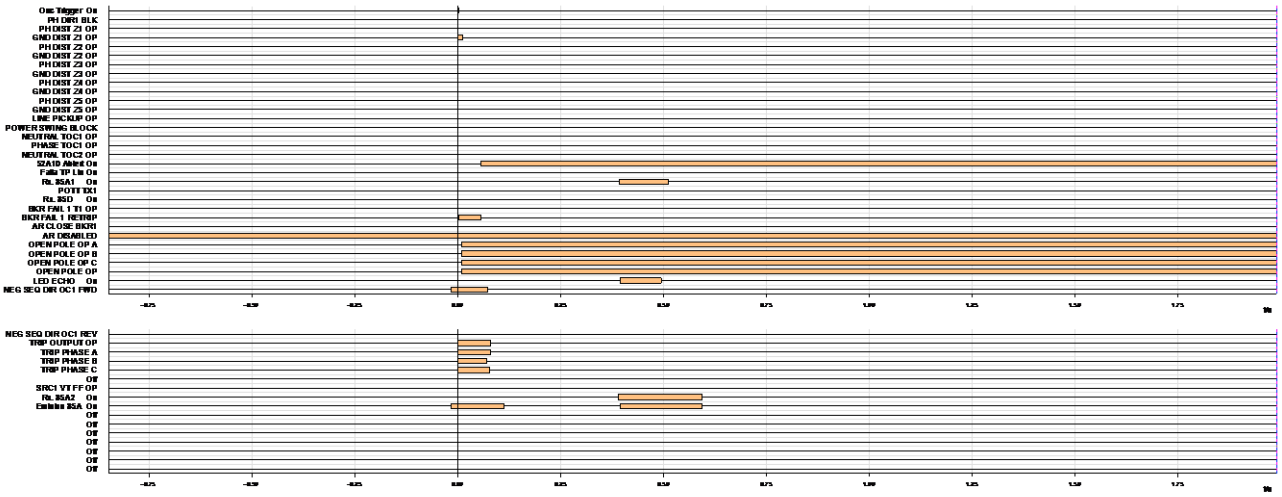
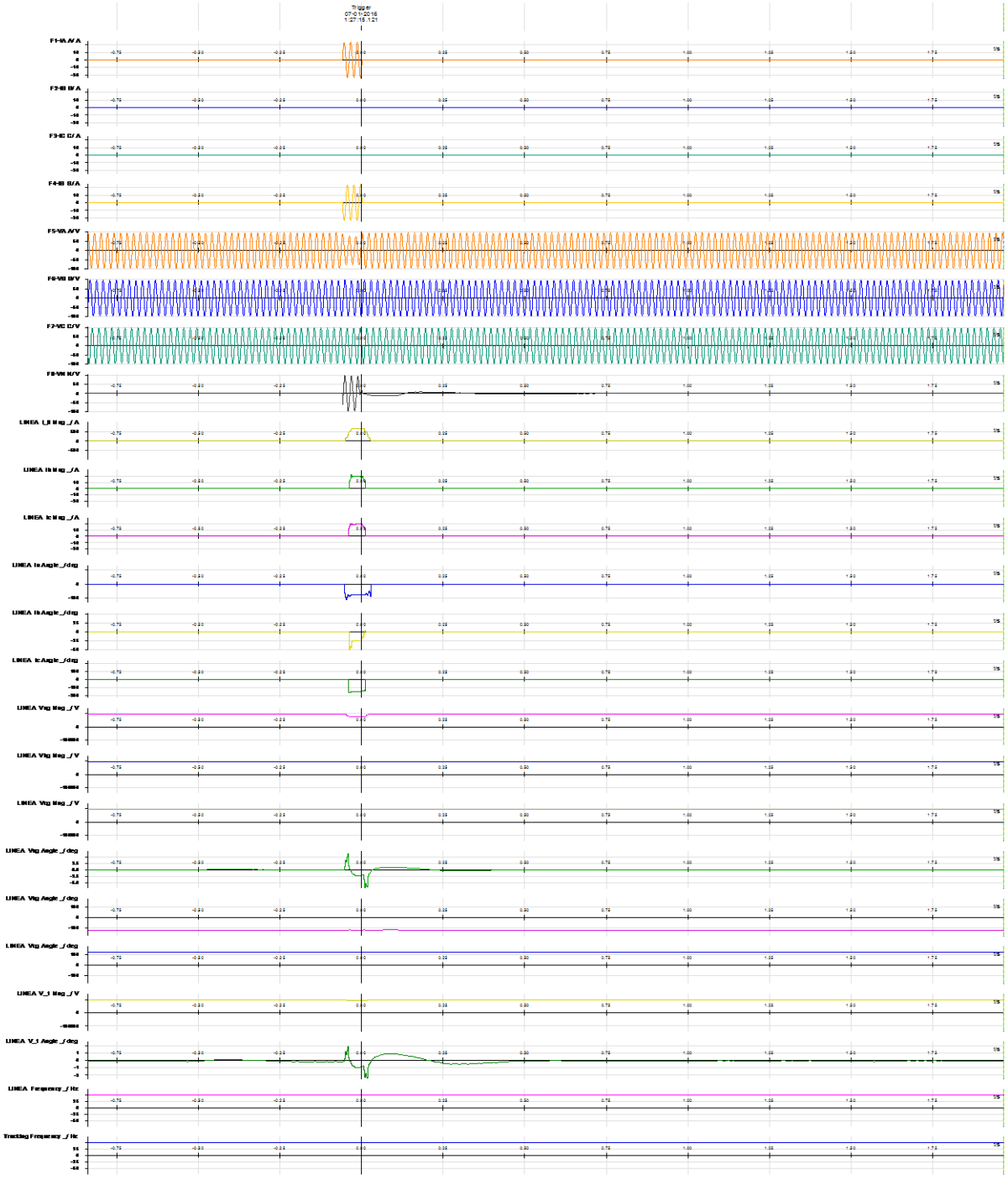
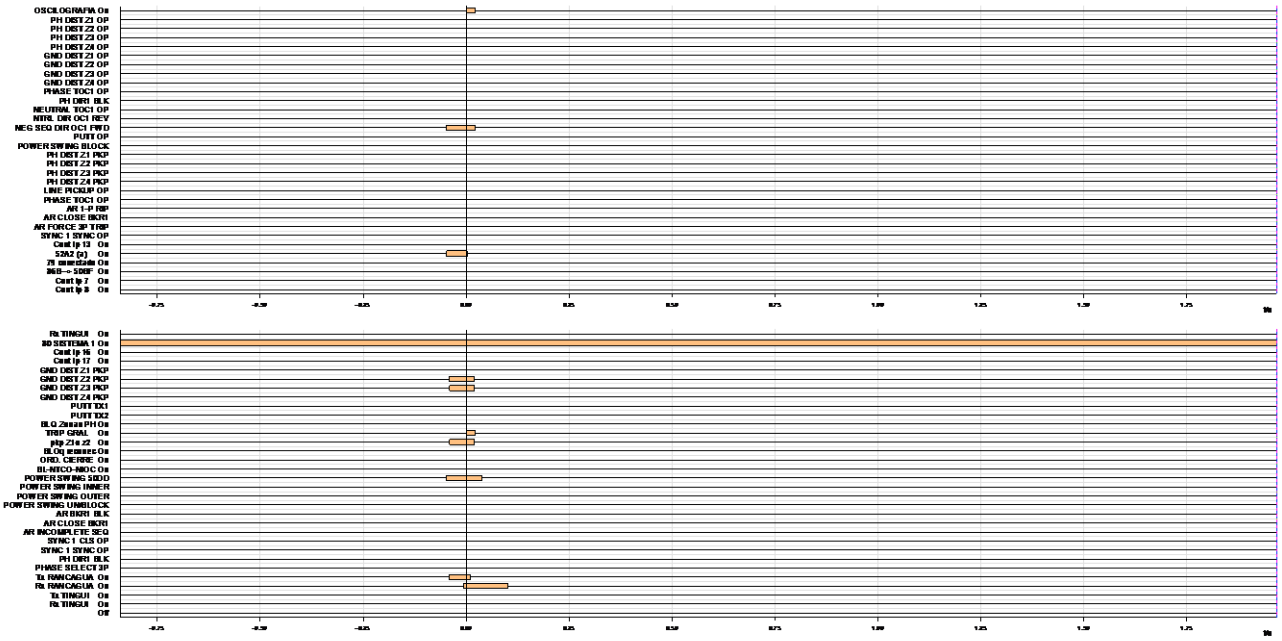

Ohc Trigger On
PH DIR1 BLK
PH DIST Z1 OP
GND DIST Z1 OP
PH DIST Z2 OP
GND DIST Z2 OP
PH DIST Z3 OP
GND DIST Z3 OP
PH DIST Z4 OP
GND DIST Z4 OP
PH DIST Z5 OP
GND DIST Z5 OP
LINE PICKUP OP
POWER SWING BLOCK
NEUTRAL TOC1 OP
PHASE TOC1 OP
NEUTRAL TOC2 OP
SZA10 Alrmd On
Fault TP Lin On
Rx 85A1 On
POTT TX1
Rx 85D On
BKR FAIL 1 T1 OP
BKR FAIL 1 RETRIP
AR CLOSE BKR1
AR DISABLED
OPEN POLE OP A
OPEN POLE OP B
OPEN POLE OP C
OPEN POLE OP
LED ECHO On
NEG SEQ DIR OC1 FWD
NEG SEQ DIR OC1 REV
TRIP OUTPUT OP
TRIP PHASE A
TRIP PHASE B
TRIP PHASE C
Off
SRC1 VT FF OP
Rx 85A2 On
Echoing 85A On
Off
Off
Off
Off
Off
Off
Off
Off

Figura 7: Registro de oscilografías y señales digitales

GE D60, paño A2, S/E Alto Jahuel – Sistema 1 (01:27:15 horas).




OSCILOGRAFIA On
PH DIST Z1 OP
PH DIST Z2 OP
PH DIST Z3 OP
PH DIST Z4 OP
GND DIST Z1 OP
GND DIST Z2 OP
GND DIST Z3 OP
GND DIST Z4 OP
PHASE TOC1 OP
PH DIR1 BLK
NEUTRAL TOC1 OP
NTRL DIR OC1 REV
NEG SEQ DIR OC1 FWD
PUTT OP
POWER SWING BLOCK
PH DIST Z1 PKP
PH DIST Z2 PKP
PH DIST Z3 PKP
PH DIST Z4 PKP
LINE PICKUP OP
PHASE TOC1 OP
AR 1-P TRP
AR CLOSE BKR1
AR FORCE 3P TRP
SYNC 1 SYNC OP
Cont Ip 13 On
52A2 (z) On
25 manstatus On
86B-> 50BF On
Cont Ip 7 On
Cont Ip 8 On

Rx TINGUI On
80 SISTEMA 1 On
Cont Ip 16 On
Cont Ip 17 On
GND DIST Z1 PKP
GND DIST Z2 PKP
GND DIST Z3 PKP
GND DIST Z4 PKP
PUTT TX1
PUTT TX2
BLQ 2zona PH On
TRIP GRAL On
pkp Z1 o z2 On
BLOq remoto On
ORD. CIERRE On
BL-NTCO-NIOC On
POWER SWING 50DD
POWER SWING INNER
POWER SWING OUTER
POWER SWING UNBLOCK
AR BKR1 BLK
AR CLOSE BKR1
AR INCOMPLETE SEQ
SYNC 1 CLS OP
SYNC 1 SYNC OP
PH DIR1 BLK
PHASE SELECT 3P
Tx RANCAGUA On
Rx RANCAGUA On
Tx TINGUI On
Rx TINGUI On
Off

Figura 8: Registro de oscilografías y señales digitales
Siemens 7SA612, paño A2, S/E Alto Jahuel – Sistema 2 (01:27:15 horas).

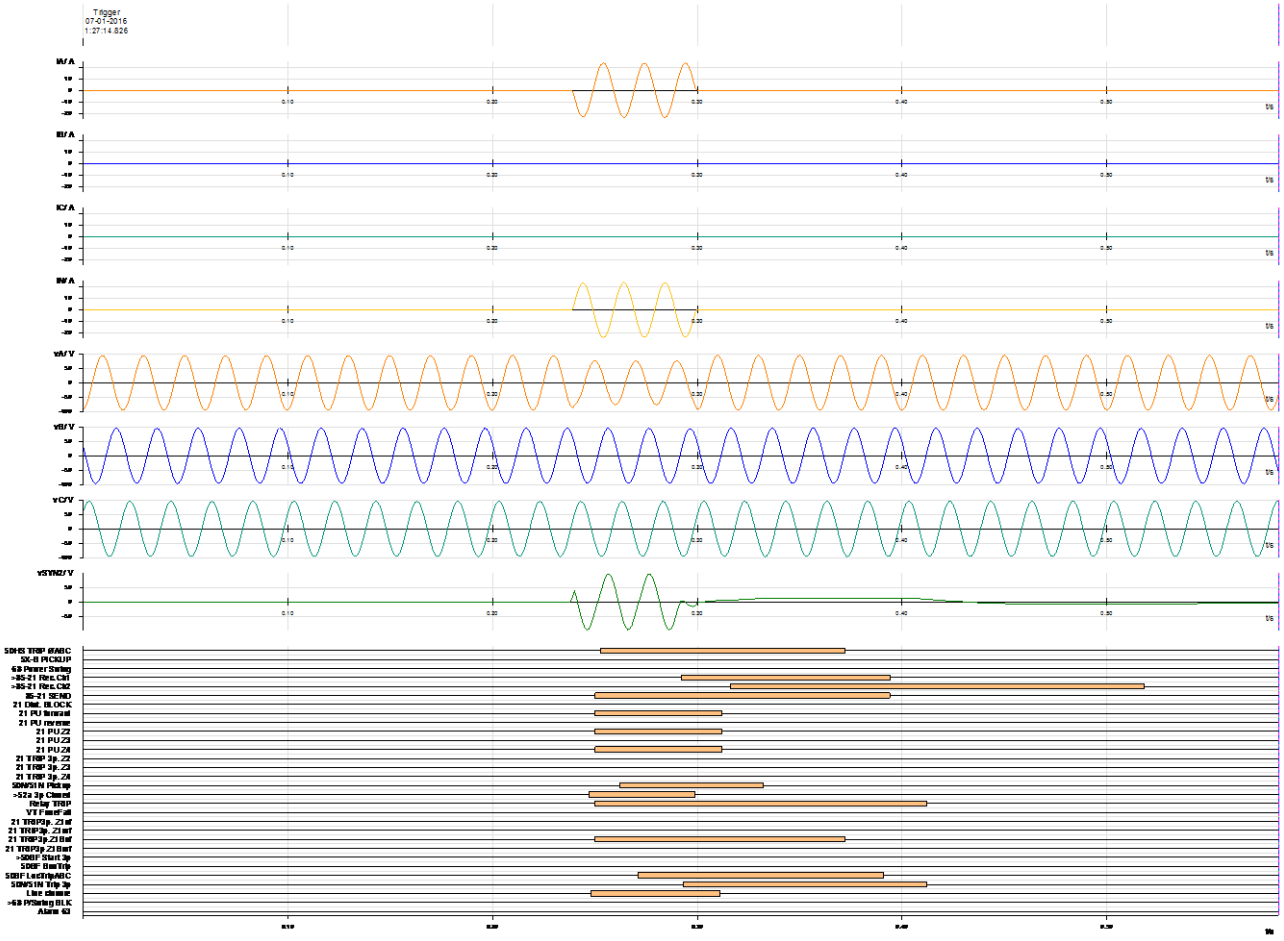
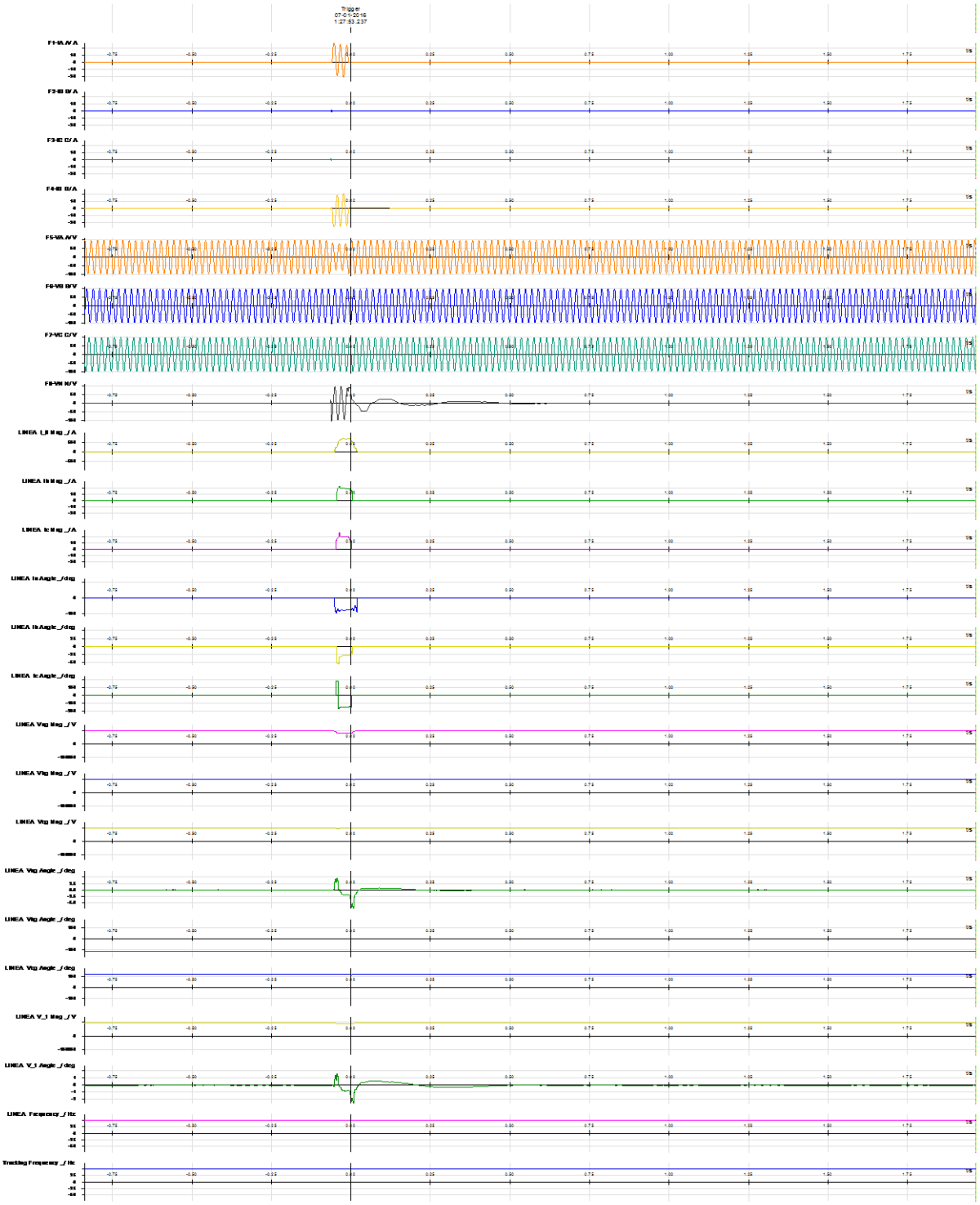
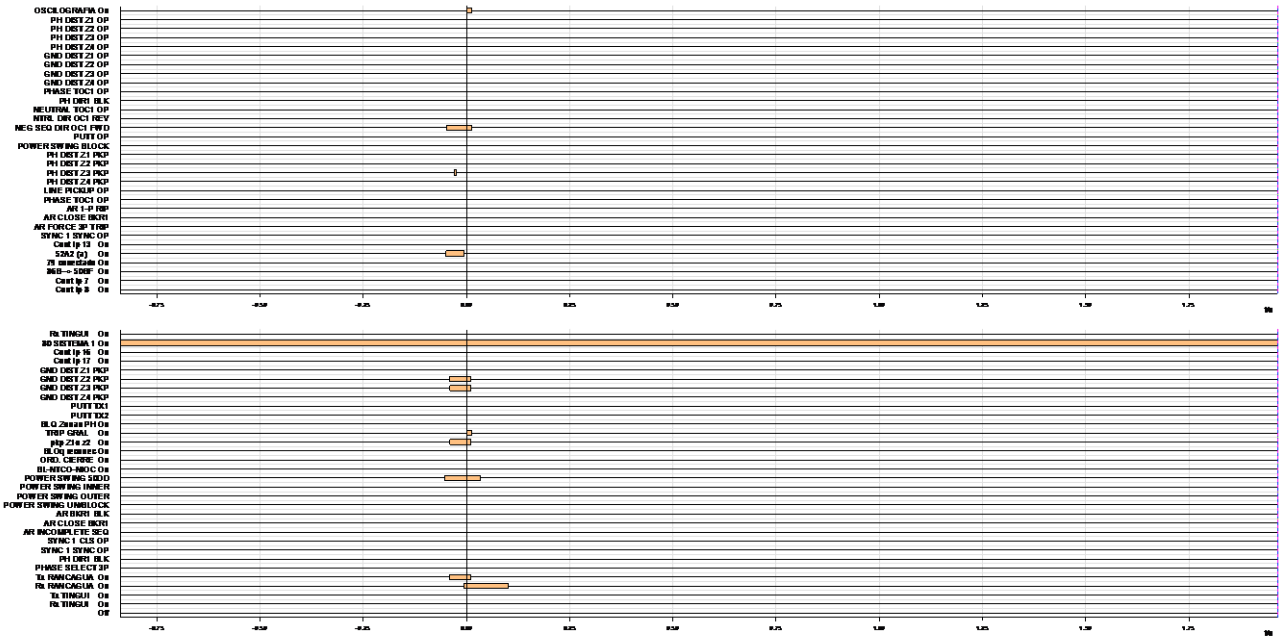


Figura 9: Registro de oscilografías y señales digitales
GE D60, paño A2, S/E Alto Jahuel – Sistema 1 (01:27:53 horas).




OSCILOGRAFIA 0s
PH DIST Z1 OP
PH DIST Z2 OP
PH DIST Z3 OP
PH DIST Z4 OP
GND DIST Z1 OP
GND DIST Z2 OP
GND DIST Z3 OP
GND DIST Z4 OP
PHASE TOC1 OP
PH DIR1 BLK
NEUTRAL TOC1 OP
NTRL DIR OC1 REV
NEG SEQ DIR OC1 FWD
PUTT OP
POWER SWING BLOCK
PH DIST Z1 PKP
PH DIST Z2 PKP
PH DIST Z3 PKP
PH DIST Z4 PKP
LINE PICKUP OP
PHASE TOC1 OP
AR 1-P RIP
AR CLOSE BKR1
AR FORCE 3P TRIP
SYNC 1 SYNC OP
Cont Ip 13 0s
52A2 (a) 0s
25 monitoring 0s
86B-->50BF 0s
Cont Ip 7 0s
Cont Ip 8 0s

Fa TINGUI 0s
86 SISTEMA 1 0s
Cont Ip 16 0s
Cont Ip 17 0s
GND DIST Z1 PKP
GND DIST Z2 PKP
GND DIST Z3 PKP
GND DIST Z4 PKP
PUTT TX1
PUTT TX2
BLQ 2nas PH 0s
TRIP GRAL 0s
pkp Z1 o z2 0s
BLOq remoto 0s
ORD. CIERRE 0s
BL-NTCO-NIOC 0s
POWER SWING 50DD
POWER SWING INNER
POWER SWING OUTER
POWER SWING UNBLOCK
AR BKR1 BLK
AR CLOSE BKR1
AR INCOMPLETE SEQ
SYNC 1 CLS OP
SYNC 1 SYNC OP
PH DIR1 BLK
PHASE SELECT 3P
Ta RANCAGUA 0s
Fa RANCAGUA 0s
Ta TINGUI 0s
Fa TINGUI 0s
Off

Figura 10: Registro de oscilografías y señales digitales
Siemens 7SA612, paño A2, S/E Alto Jahuel – Sistema 2 (01:27:53 horas).

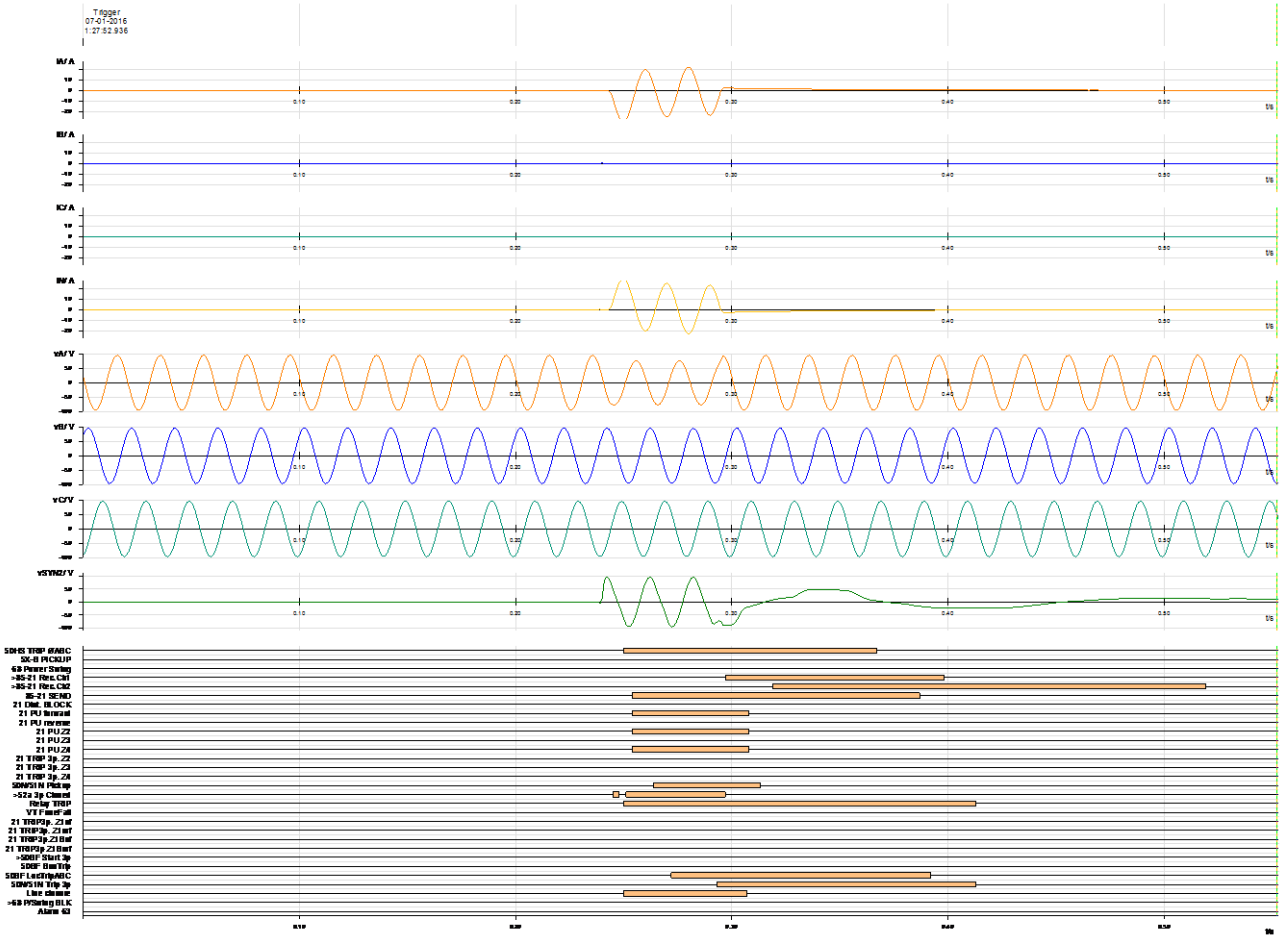
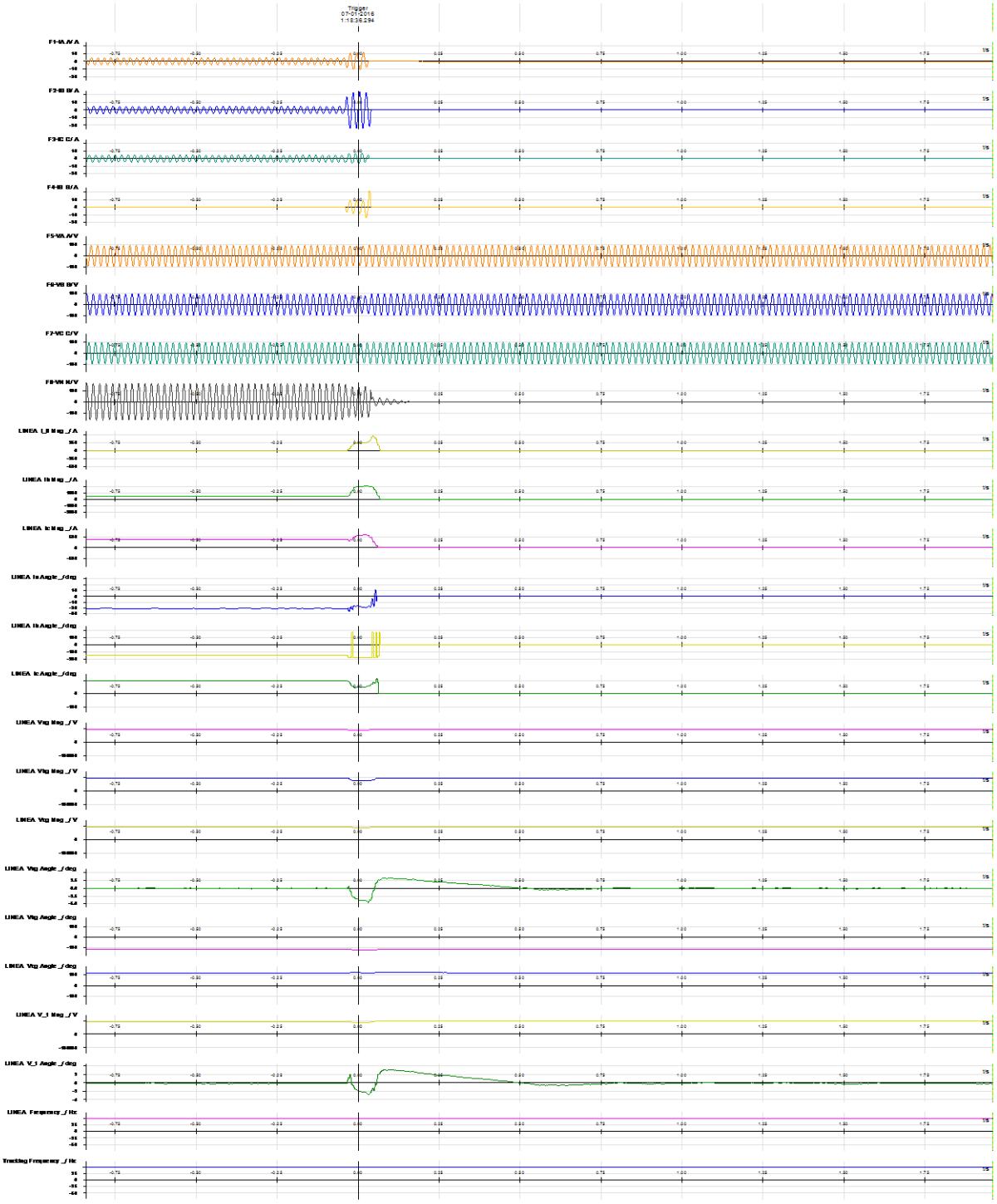


Figura 11: Registro de oscilografías y señales digitales
GE D60, paño A1, S/E Alto Jahuel – Sistema 1 (01:18 horas).



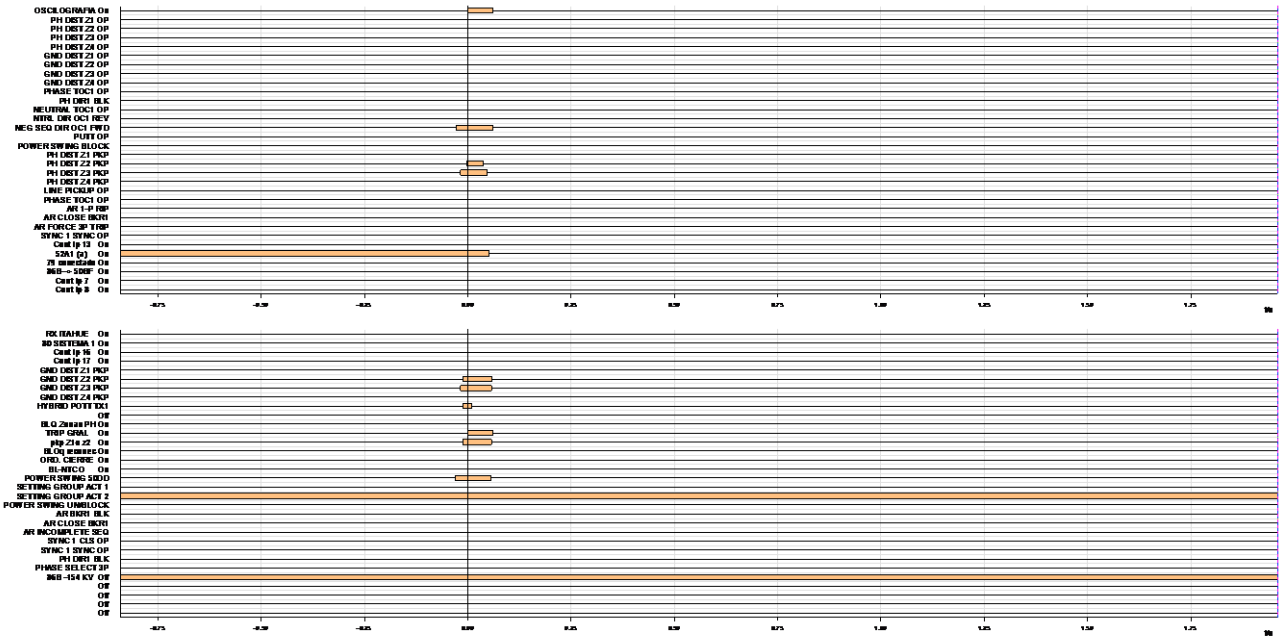

OSCILOGRAFIA 0s
PH DIST Z1 OP
PH DIST Z2 OP
PH DIST Z3 OP
PH DIST Z4 OP
GND DIST Z1 OP
GND DIST Z2 OP
GND DIST Z3 OP
GND DIST Z4 OP
PHASE TOC1 OP
PH DIR1 BLK
NEUTRAL TOC1 OP
NTRL DIR OC1 REV
NEG SEQ DIR OC1 FWD
PUIT OP
POWER SWING BLOCK
PH DIST Z1 PKP
PH DIST Z2 PKP
PH DIST Z3 PKP
PH DIST Z4 PKP
LINE PICKUP OP
PHASE TOC1 OP
AR 1-P RIP
AR CLOSE BKR1
AR FORCE 3P TRIP
SYNC 1 SYNC OP
Cont Ip 13 0s
52A1 (o) 0s
25 monitoreo 0s
86B-->50BF 0s
Cont Ip 7 0s
Cont Ip 8 0s
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
s
RX ITAHUE 0s
86 SISTEMA 1 0s
Cont Ip 16 0s
Cont Ip 17 0s
GND DIST Z1 PKP
GND DIST Z2 PKP
GND DIST Z3 PKP
GND DIST Z4 PKP
HYBRID POTT TC1
Off
BLQ 2zona PH 0s
TRIP GRAL 0s
pkp Z1 o z2 0s
BLOq remoto 0s
ORD. CIERRE 0s
BL-NTCO 0s
POWER SWING 50DD
SETTING GROUP ACT 1
SETTING GROUP ACT 2
POWER SWING UNBLOCK
AR BKR1 BLK
AR CLOSE BKR1
AR INCOMPLETE SEQ
SYNC 1 CLS OP
SYNC 1 SYNC OP
PH DIR1 BLK
PHASE SELECT 3P
86B -154 KV Off
Off
Off
Off
Off
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
s

Figura 12: Registro de oscilografías y señales digitales
Siemens 7SA612, paño A1, S/E Alto Jahuel – Sistema 2 (01:18 horas).

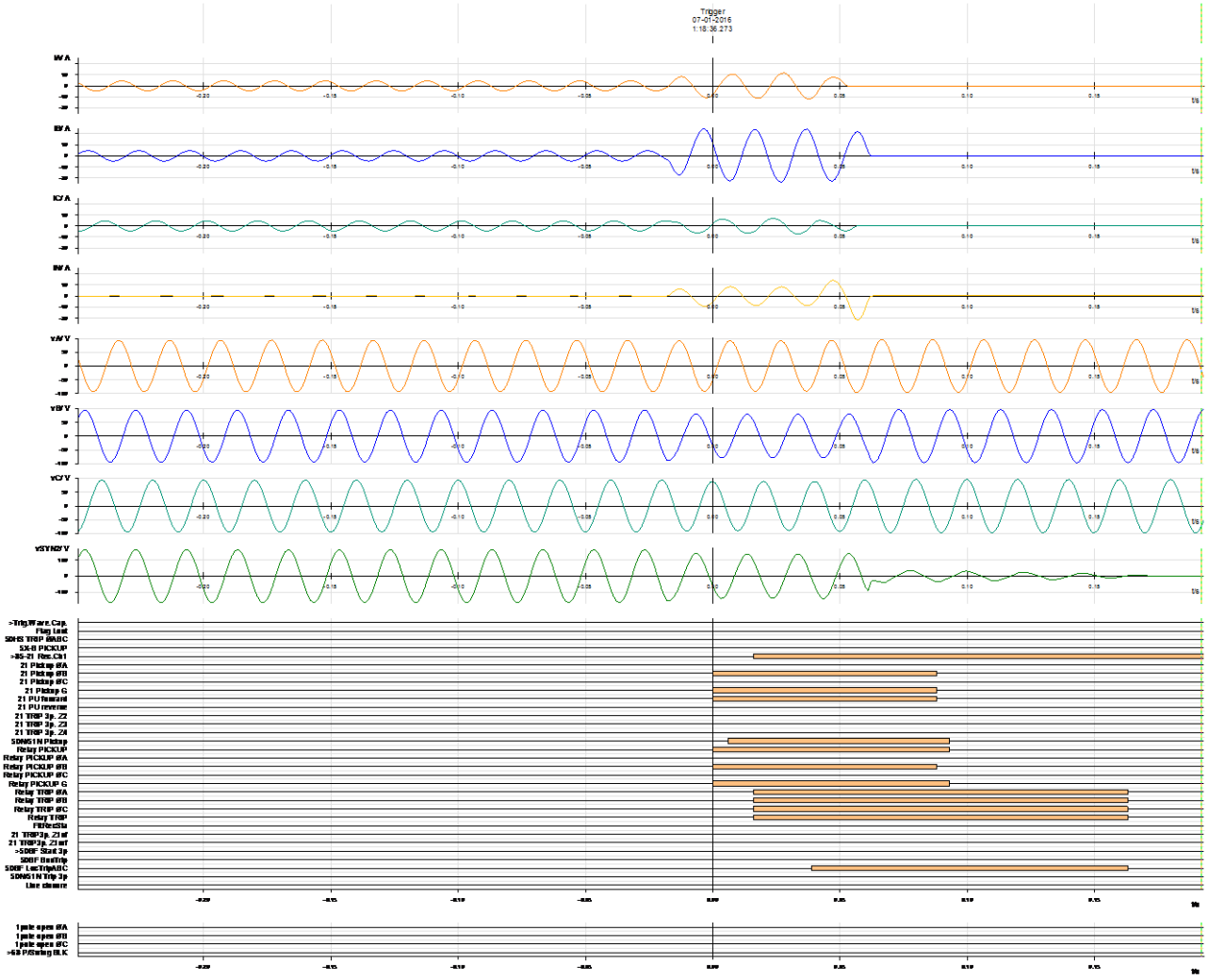


Figura 13: Registro de oscilografías y señales digitales
Siemens 7SA612, paño A2, S/E Rancagua – Sistema 1 (01:18 horas).

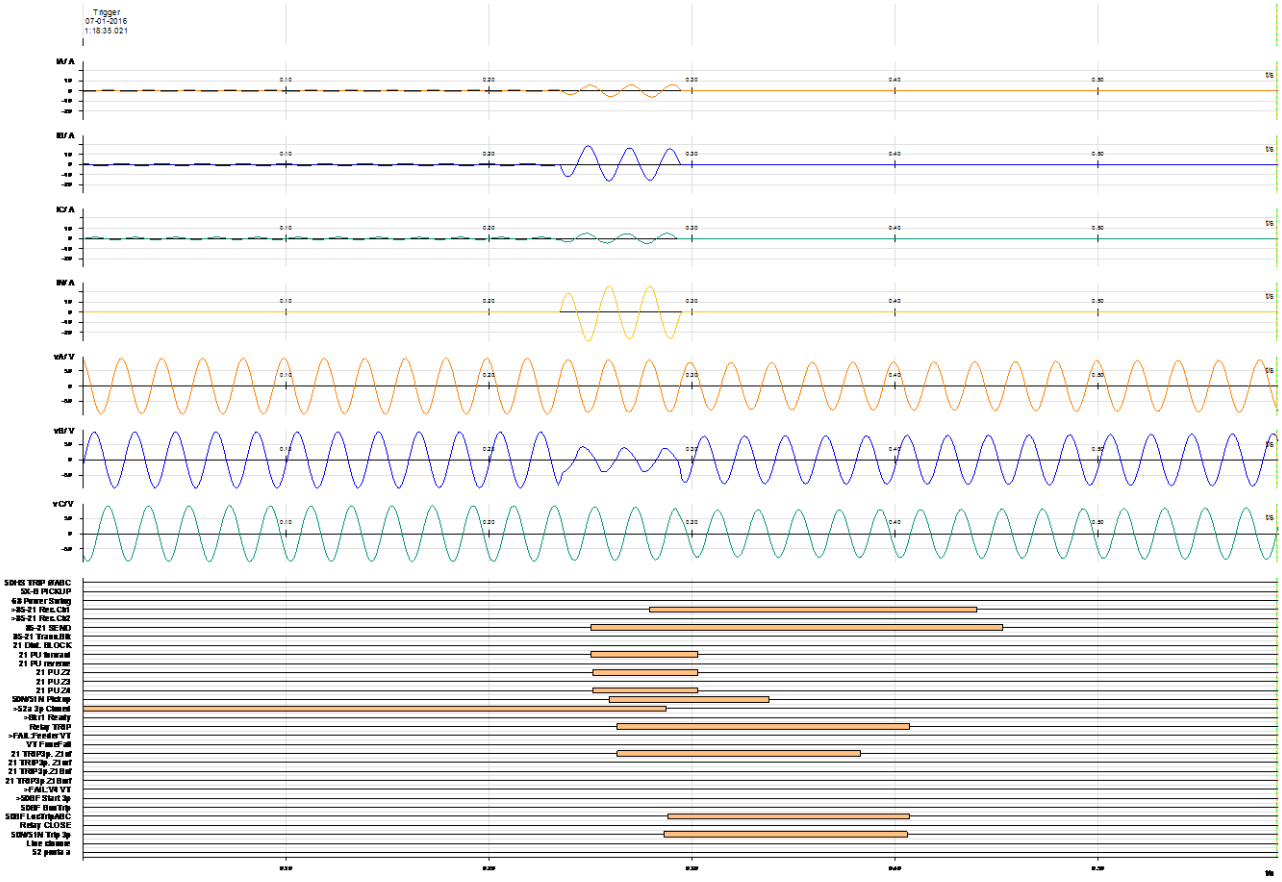
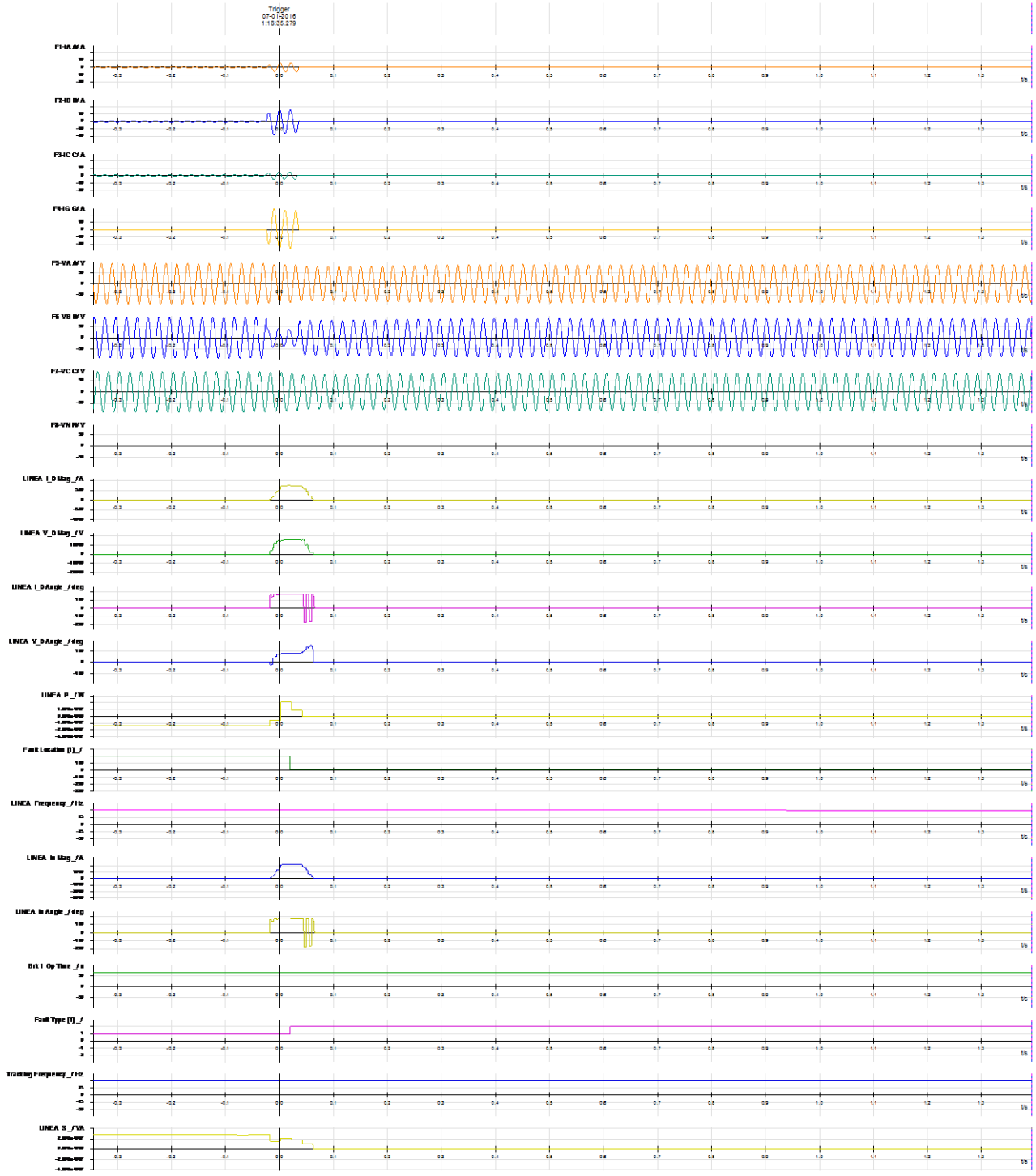


Figura 14: Registro de oscilografías y señales digitales
GE D60, paño A2, S/E Rancagua – Sistema 2 (01:18 horas).



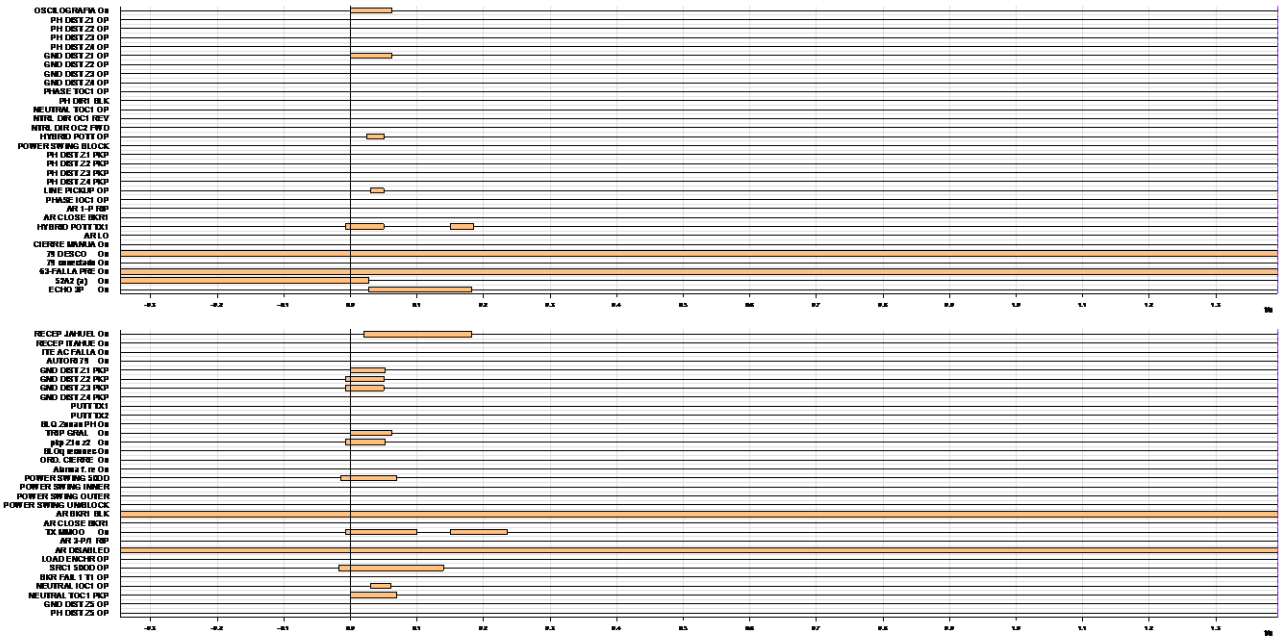
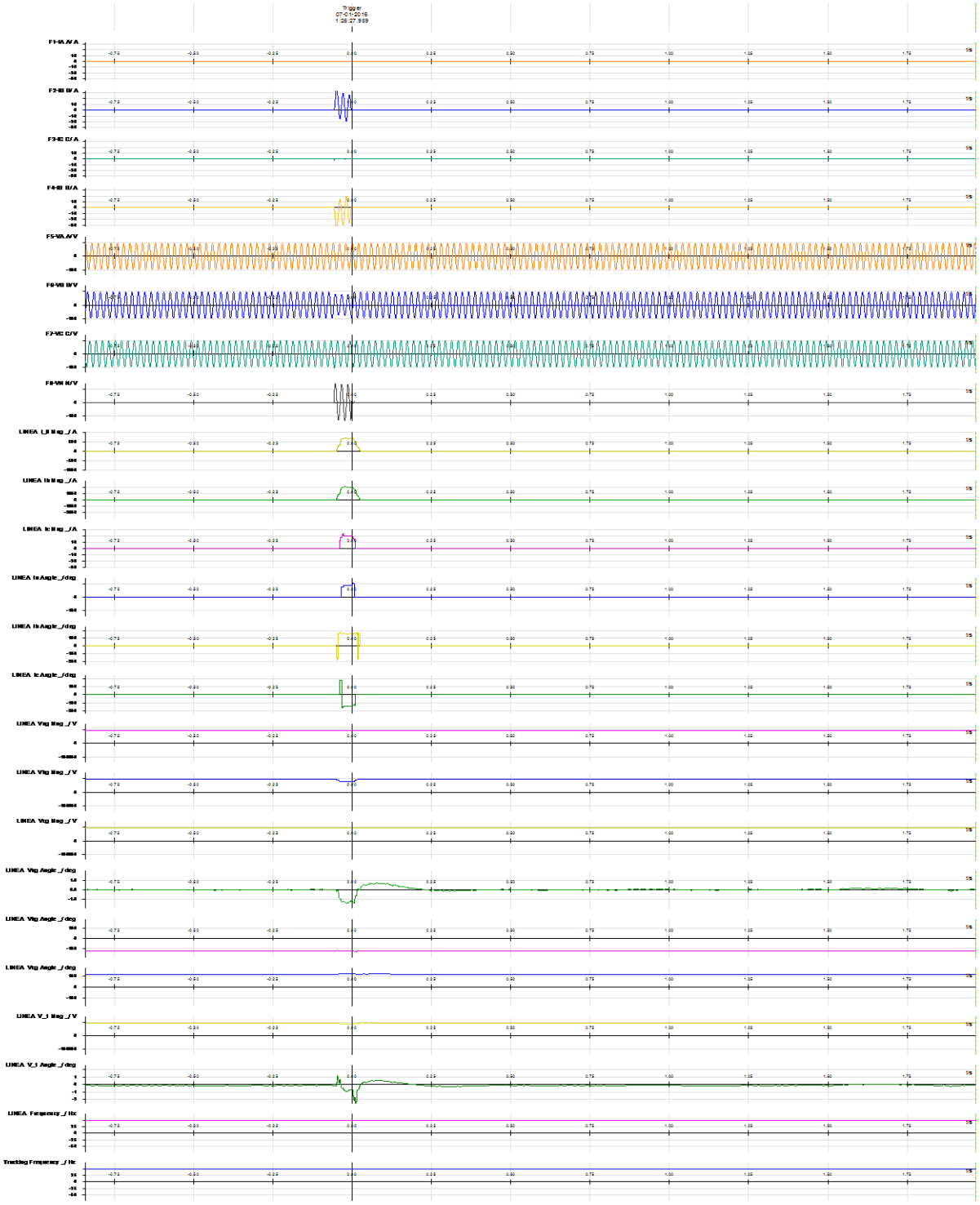
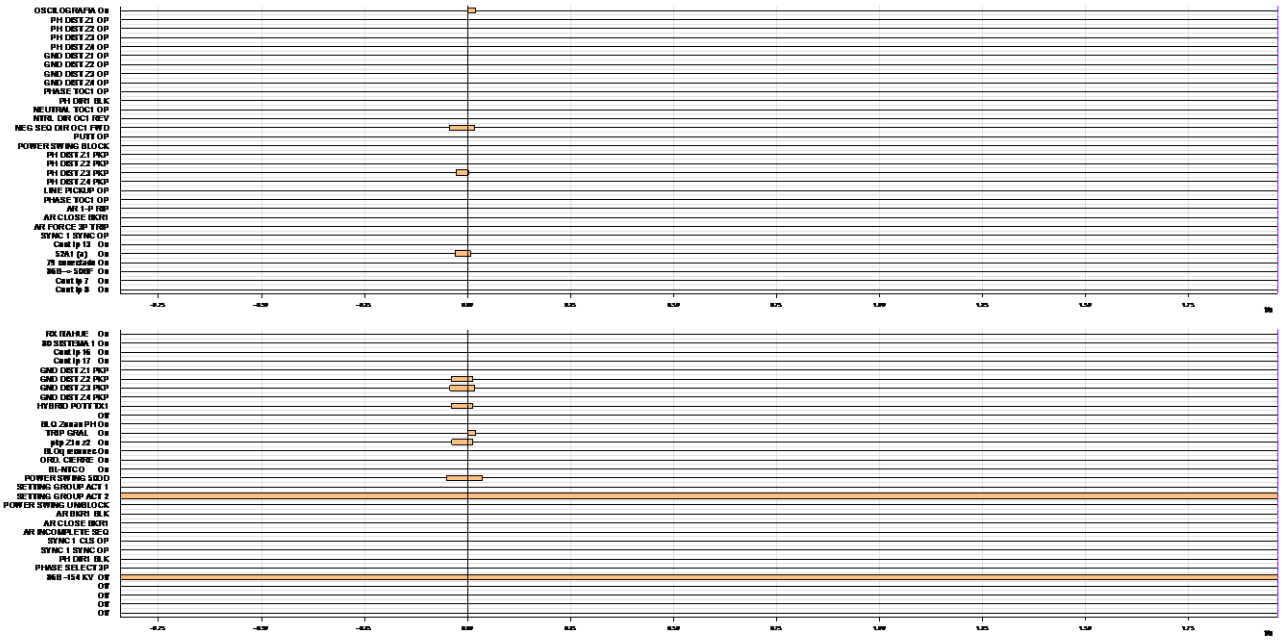

OSCILOGRAFIA 0s
PH DIST Z1 OP
PH DIST Z2 OP
PH DIST Z3 OP
PH DIST Z4 OP
GND DIST Z1 OP
GND DIST Z2 OP
GND DIST Z3 OP
GND DIST Z4 OP
PHASE TOC1 OP
PH DIR1 BLK
NEUTRAL TOC1 OP
NTRL DIR OC1 REV
NTRL DIR OC2 FWD
HYBRID POTT OP
POWER SWING BLOCK
PH DIST Z1 PKP
PH DIST Z2 PKP
PH DIST Z3 PKP
PH DIST Z4 PKP
LINE PICKUP OP
PHASE IOC1 OP
AR 1-P RIP
AR CLOSE BKR1
HYBRID POTT TX1
AR LO
CIERRE MANUA 0s
79 DESCO 0s
79 cerrado 0s
63-FALLA PRE 0s
52A7 (p) 0s
ECHO 3P 0s
-0.3
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
s
RECEP JAHUEL 0s
RECEP ITAHUE 0s
TIE AC FALLA 0s
AUTOR 79 0s
GND DIST Z1 PKP
GND DIST Z2 PKP
GND DIST Z3 PKP
GND DIST Z4 PKP
POTT TX1
POTT TX2
BLQ 2ena PH 0s
TRIP GRAL 0s
pkp Z1 o z2 0s
BLOq remoto 0s
ORD. CIERRE 0s
Alarma T. re 0s
POWER SWING 50DD
POWER SWING INNER
POWER SWING OUTER
POWER SWING UNBLOCK
AR BKR1 BLK
AR CLOSE BKR1
TX MADO 0s
AR 3-P/1 RIP
AR DISABLED
LOAD ENCHR OP
SRC1 50DD OP
BKR FAIL 1 T1 OP
NEUTRAL TOC1 OP
NEUTRAL TOC1 PKP
GND DIST Z5 OP
PH DIST Z5 OP
-0.3
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
s

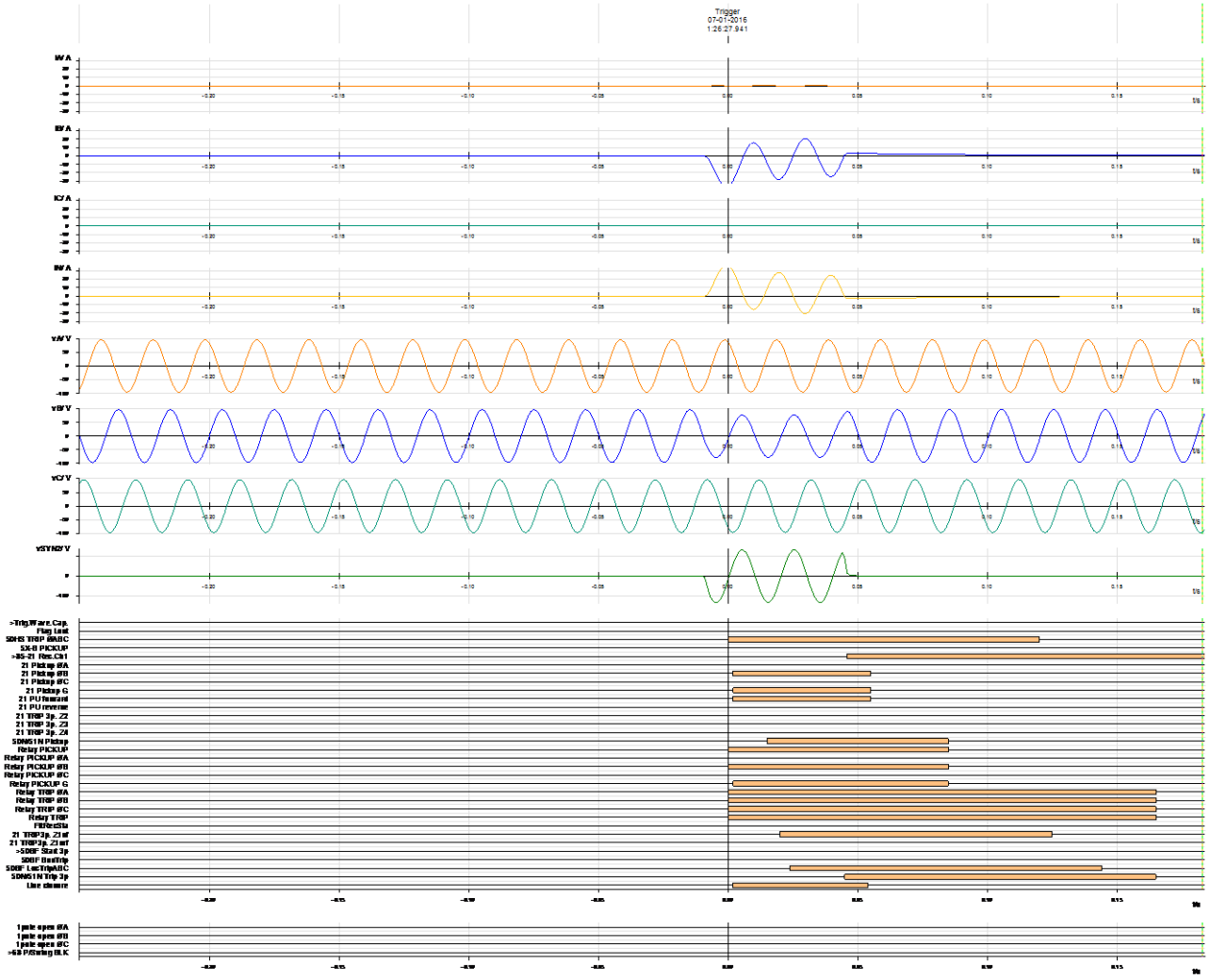
Figura 15: Registro de oscilografías y señales digitales
GE D60, paño A1, S/E Alto Jahuel – Sistema 1 (01:26:27 horas).




OSCILOGRAFIA 0s
PH DIST Z1 OP
PH DIST Z2 OP
PH DIST Z3 OP
PH DIST Z4 OP
GND DIST Z1 OP
GND DIST Z2 OP
GND DIST Z3 OP
GND DIST Z4 OP
PHASE TOC1 OP
PH DIR1 BLK
NEUTRAL TOC1 OP
NTRL DIR OC1 REV
NEG SEQ DIR OC1 FWD
PUTT OP
POWER SWING BLOCK
PH DIST Z1 PKP
PH DIST Z2 PKP
PH DIST Z3 PKP
PH DIST Z4 PKP
LINE PICKUP OP
PHASE TOC1 OP
AR 1-P TRP
AR CLOSE BKR1
AR FORCE 3P TRP
SYNC 1 SYNC OP
Cont Ip 13 0s
52A1 (o) 0s
79 inoperativa 0s
86B-->50BF 0s
Cont Ip 7 0s
Cont Ip 8 0s
-0.25
-0.19
-0.13
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
s

RX ITAHUE 0s
86 SISTEMA 1 0s
Cont Ip 16 0s
Cont Ip 17 0s
GND DIST Z1 PKP
GND DIST Z2 PKP
GND DIST Z3 PKP
GND DIST Z4 PKP
HYBRID POTT TC1
Off
BLQ 2zonas PH 0s
TRIP GRAL 0s
pkp Z1 o z2 0s
BLOq remoto 0s
ORD. CIERRE 0s
BL-NTCO 0s
POWER SWING SBDD
SETTING GROUP ACT 1
SETTING GROUP ACT 2
POWER SWING UNBLOCK
AR BKR1 BLK
AR CLOSE BKR1
AR INCOMPLETE SEQ
SYNC 1 CLS OP
SYNC 1 SYNC OP
PH DIR1 BLK
PHASE SELECT 3P
86B -154 KV Off
Off
Off
Off
Off
-0.25
-0.19
-0.13
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
s

Figura 16: Registro de oscilografías y señales digitales
Siemens 7SA612, paño A1, S/E Alto Jahuel – Sistema 2 (01:26:27 horas).



Anexo 3: Registro de eventos

Figura 17: Registro de eventos

GE D60, paño A2, S/E Alto Jahuel – Sistema 1.

Event Number	Date/Time	Cause	Data
15071931	Jan 07 2016 01:07:26.634130	TRIP PHASE C	
15071930	Jan 07 2016 01:07:26.634130	TRIP PHASE B	
15071929	Jan 07 2016 01:07:26.634130	TRIP PHASE A	
15071928	Jan 07 2016 01:07:26.631631	URT TRIP S1 On	
15071927	Jan 07 2016 01:07:26.631631	PARA PRUEBAS On	
15071926	Jan 07 2016 01:07:26.631631	URT OPE Z1 On	
15071925	Jan 07 2016 01:07:26.631631	TRIP BD1 On	
15071924	Jan 07 2016 01:07:26.631631	OSCILLOGRAPHY TRIG'D	
15071923	Jan 07 2016 01:07:26.631631	Partida 79 On	
15071922	Jan 07 2016 01:07:26.631631	OSCILOGRAFIA On	
15071921	Jan 07 2016 01:07:26.631631	TRIP GRAL On	
15071920	Jan 07 2016 01:07:26.631631	GND DIST Z1 OP A	
15071919	Jan 07 2016 01:07:26.631631	GND DIST Z1 PKP A	
15071918	Jan 07 2016 01:07:26.586664	RECEP ACELER On	
15071917	Jan 07 2016 01:07:26.584579	Rx RANCAGUA On	
15071916	Jan 07 2016 01:07:26.584167	PH DIST Z3 PKP CA	
15071915	Jan 07 2016 01:07:26.581672	PHASE TOC1 PKP A	
15071914	Jan 07 2016 01:07:26.581672	NEUTRAL TOC1 PKP	
15071913	Jan 07 2016 01:07:26.579174	GND DIST Z3 PKP A	
15071912	Jan 07 2016 01:07:26.579174	PH DIST Z5 PKP CA	
15071911	Jan 07 2016 01:07:26.579174	PH DIST Z5 PKP AB	
15071910	Jan 07 2016 01:07:26.579174	PH DIST Z2 PKP CA	
15071909	Jan 07 2016 01:07:26.579174	PH DIST Z2 PKP AB	
15071908	Jan 07 2016 01:07:26.576681	FAULT RPT TRIG	
15071907	Jan 07 2016 01:07:26.576681	RESET OP(OPERAND)	
15071906	Jan 07 2016 01:07:26.574184	Tx RANCAGUA On	
15071905	Jan 07 2016 01:07:26.574184	Tx TINGUI On	
15071904	Jan 07 2016 01:07:26.574184	Tx TINGUI On	
15071903	Jan 07 2016 01:07:26.574184	Tx RANCAGUA On	
15071902	Jan 07 2016 01:07:26.574184	reset led On	
15071901	Jan 07 2016 01:07:26.574184	pkp Z1o z2 On	
15071900	Jan 07 2016 01:07:26.574184	HYBRID POTT TX1	
15071899	Jan 07 2016 01:07:26.574184	GND DIST Z5 PKP A	
15071898	Jan 07 2016 01:07:26.574184	GND DIST Z2 PKP A	
15071897	Jan 07 2016 01:07:26.571689	NEG SEQ DIR OC1 FWD	
15071896	Jan 07 2016 01:07:26.521753	reset led Off	
15071895	Jan 07 2016 01:07:26.521753	NEUTRAL TOC1 DPO	
15071894	Jan 07 2016 01:07:26.373035	Rx TINGUI Off	
15071893	Jan 07 2016 01:07:26.207006	Rx TINGUI On	
15071892	Jan 07 2016 01:07:26.204605	RESET OP(OPERAND)	
15071891	Jan 07 2016 01:07:26.202108	reset led On	
15071890	Jan 07 2016 01:07:26.202108	NEUTRAL TOC1 PKP	

Event Number	Date/Time	Cause	Data
15071973	Jan 07 2016 01:27:15.081284	Tx RANCAGUA On	
15071972	Jan 07 2016 01:27:15.081284	reset led On	
15071971	Jan 07 2016 01:27:15.081284	pkp Z1o z2 On	
15071970	Jan 07 2016 01:27:15.081284	HYBRID POTT TX1	
15071969	Jan 07 2016 01:27:15.081284	GND DIST Z3 PKP A	
15071968	Jan 07 2016 01:27:15.081284	GND DIST Z2 PKP A	
15071967	Jan 07 2016 01:27:15.073778	NEG SEQ DIR OC1 FWD	
15071966	Jan 07 2016 01:27:15.071155	52A2 (a) On	
15071965	Jan 07 2016 01:24:35.756785	RESET OP(PUSHBUTTON)	
15071964	Jan 07 2016 01:13:02.519817	SETTING GROUP ACT 2	
15071963	Jan 07 2016 01:13:02.517306	CAMBIO G1-G2 On	
15071962	Jan 07 2016 01:13:00.512307	CHANGE GRP Off	
15071961	Jan 07 2016 01:07:26.741520	RECEP ACELER Off	
15071960	Jan 07 2016 01:07:26.739119	Rx RANCAGUA Off	
15071959	Jan 07 2016 01:07:26.691591	reset led Off	
15071958	Jan 07 2016 01:07:26.691591	PHASE TOC1 DPO A	
15071957	Jan 07 2016 01:07:26.691591	NEUTRAL TOC1 DPO	
15071956	Jan 07 2016 01:07:26.689109	URT TRIP S1 Off	
15071955	Jan 07 2016 01:07:26.689109	PARA PRUEBAS Off	
15071954	Jan 07 2016 01:07:26.689109	URT OPE Z1 Off	
15071953	Jan 07 2016 01:07:26.689109	RETRIP 50BF Off	
15071952	Jan 07 2016 01:07:26.689109	TRIP BD1 Off	
15071951	Jan 07 2016 01:07:26.689109	Partida 79 Off	
15071950	Jan 07 2016 01:07:26.689109	pkp Z1o z2 Off	
15071949	Jan 07 2016 01:07:26.689109	OSCILOGRAFIA Off	
15071948	Jan 07 2016 01:07:26.689109	TRIP GRAL Off	
15071947	Jan 07 2016 01:07:26.689109	GND DIST Z2 DPO A	
15071946	Jan 07 2016 01:07:26.684113	GND DIST Z5 DPO A	
15071945	Jan 07 2016 01:07:26.679114	GND DIST Z3 DPO A	
15071944	Jan 07 2016 01:07:26.679114	PH DIST Z5 DPO CA	
15071943	Jan 07 2016 01:07:26.679114	PH DIST Z2 DPO CA	
15071942	Jan 07 2016 01:07:26.679114	PH DIST Z2 DPO AB	
15071941	Jan 07 2016 01:07:26.674115	GND DIST Z1 DPO A	
15071940	Jan 07 2016 01:07:26.674115	PH DIST Z5 DPO AB	
15071939	Jan 07 2016 01:07:26.674115	PH DIST Z3 DPO CA	
15071938	Jan 07 2016 01:07:26.662593	52A2 (a) Off	
15071937	Jan 07 2016 01:07:26.646622	Tx RANCAGUA Off	
15071936	Jan 07 2016 01:07:26.646622	Tx TINGUI Off	
15071935	Jan 07 2016 01:07:26.646622	Tx TINGUI Off	
15071934	Jan 07 2016 01:07:26.646622	Tx RANCAGUA Off	
15071933	Jan 07 2016 01:07:26.634130	RETRIP 50BF On	
15071932	Jan 07 2016 01:07:26.634130	TRIP 3-POLE	

Event Number	Date/Time	Cause	Data
15072015	Jan 07 2016 01:27:15.153909	reset led Off	
15072014	Jan 07 2016 01:27:15.153909	NEUTRAL TOC1 DPO	
15072013	Jan 07 2016 01:27:15.148901	RETRIP 50BF Off	
15072012	Jan 07 2016 01:27:15.143891	URT TRIP S1 Off	
15072011	Jan 07 2016 01:27:15.143891	PARA PRUEBAS Off	
15072010	Jan 07 2016 01:27:15.143891	TRIP BD1 Off	
15072009	Jan 07 2016 01:27:15.143891	OSCILOGRAFIA Off	
15072008	Jan 07 2016 01:27:15.143891	TRIP GRAL Off	
15072007	Jan 07 2016 01:27:15.143891	PHASE TOC1 DPO A	
15072006	Jan 07 2016 01:27:15.141386	POTT OP 2T Off	
15072005	Jan 07 2016 01:27:15.141386	pkp Z1o z2 Off	
15072004	Jan 07 2016 01:27:15.141386	GND DIST Z3 DPO A	
15072003	Jan 07 2016 01:27:15.141386	GND DIST Z2 DPO A	
15072002	Jan 07 2016 01:27:15.138883	50-50N Off	
15072001	Jan 07 2016 01:27:15.138883	NEUTRAL IOC1 DPO	
15072000	Jan 07 2016 01:27:15.131367	Tx RANCAGUA Off	
15071999	Jan 07 2016 01:27:15.131367	Tx RANCAGUA Off	
15071998	Jan 07 2016 01:27:15.128863	50-50N On	
15071997	Jan 07 2016 01:27:15.128863	NEUTRAL IOC1 OP	
15071996	Jan 07 2016 01:27:15.123853	ECHO COND 2T On	
15071995	Jan 07 2016 01:27:15.120164	52A2 (a) Off	
15071994	Jan 07 2016 01:27:15.121347	URT TRIP S1 On	
15071993	Jan 07 2016 01:27:15.121347	PARA PRUEBAS On	
15071992	Jan 07 2016 01:27:15.121347	TRIP BD1 On	
15071991	Jan 07 2016 01:27:15.121347	OSCILLOGRAPHY TRIG'D	
15071990	Jan 07 2016 01:27:15.121347	OSCILOGRAFIA On	
15071989	Jan 07 2016 01:27:15.121347	TRIP GRAL On	
15071988	Jan 07 2016 01:27:15.118844	RETRIP 50BF On	
15071987	Jan 07 2016 01:27:15.118844	POTT OP 2T On	
15071986	Jan 07 2016 01:27:15.118844	TRIP 3-POLE	
15071985	Jan 07 2016 01:27:15.118844	TRIP PHASE A	
15071984	Jan 07 2016 01:27:15.116337	URT REC ACEL On	
15071983	Jan 07 2016 01:27:15.116337	RECEPCION On	
15071982	Jan 07 2016 01:27:15.116337	RECEPCION 2T On	
15071981	Jan 07 2016 01:27:15.116337	RECEP ACELER On	
15071980	Jan 07 2016 01:27:15.113661	Rx RANCAGUA On	
15071979	Jan 07 2016 01:27:15.098802	NEUTRAL IOC1 PKP	
15071978	Jan 07 2016 01:27:15.093795	PHASE TOC1 PKP A	
15071977	Jan 07 2016 01:27:15.083786	FAULT RPT TRIG	
15071976	Jan 07 2016 01:27:15.083786	NEUTRAL TOC1 PKP	
15071975	Jan 07 2016 01:27:15.083786	RESET OP(OPERAND)	
15071974	Jan 07 2016 01:27:15.081284	Tx RANCAGUA On	

Event Number	Date/Time	Cause	Data
15072057	Jan 07 2016 01:27:53.247363	GND DIST Z3 DPO A	
15072056	Jan 07 2016 01:27:53.247363	GND DIST Z2 DPO A	
15072055	Jan 07 2016 01:27:53.244862	NEUTRAL IOC1 DPO	
15072054	Jan 07 2016 01:27:53.237360	URT TRIP S1 On	
15072053	Jan 07 2016 01:27:53.237360	PARA PRUEBAS On	
15072052	Jan 07 2016 01:27:53.237360	TRIP BD1 On	
15072051	Jan 07 2016 01:27:53.237360	OSCILLOGRAPHY TRIG'D	
15072050	Jan 07 2016 01:27:53.237360	OSCILOGRAFIA On	
15072049	Jan 07 2016 01:27:53.237360	TRIP GRAL On	
15072048	Jan 07 2016 01:27:53.234859	RETRIP 50BF On	
15072047	Jan 07 2016 01:27:53.234859	POTT OP 2T On	
15072046	Jan 07 2016 01:27:53.234859	TRIP 3-POLE	
15072045	Jan 07 2016 01:27:53.234859	TRIP PHASE A	
15072044	Jan 07 2016 01:27:53.232357	URT REC ACEL On	
15072043	Jan 07 2016 01:27:53.232357	ECHO COND 2T On	
15072042	Jan 07 2016 01:27:53.232357	RECEPCION On	
15072041	Jan 07 2016 01:27:53.232357	RECEPCION 2T On	
15072040	Jan 07 2016 01:27:53.232357	RECEP ACELER On	
15072039	Jan 07 2016 01:27:53.228485	Rx RANCAGUA On	
15072038	Jan 07 2016 01:27:53.227984	52A2 (a) Off	
15072037	Jan 07 2016 01:27:53.212351	PH DIST Z3 DPO CA	
15072036	Jan 07 2016 01:27:53.209851	PHASE TOC1 PKP A	
15072035	Jan 07 2016 01:27:53.209851	NEUTRAL IOC1 PKP	
15072034	Jan 07 2016 01:27:53.207351	PH DIST Z3 PKP CA	
15072033	Jan 07 2016 01:27:53.199858	FAULT RPT TRIG	
15072032	Jan 07 2016 01:27:53.199858	NEUTRAL TOC1 PKP	
15072031	Jan 07 2016 01:27:53.199858	RESET OP(OPERAND)	
15072030	Jan 07 2016 01:27:53.197360	Tx RANCAGUA On	
15072029	Jan 07 2016 01:27:53.197360	Tx RANCAGUA On	
15072028	Jan 07 2016 01:27:53.197360	reset led On	
15072027	Jan 07 2016 01:27:53.197360	pkp Z1o z2 On	
15072026	Jan 07 2016 01:27:53.197360	HYBRID POTT TX1	
15072025	Jan 07 2016 01:27:53.197360	GND DIST Z3 PKP A	
15072024	Jan 07 2016 01:27:53.197360	GND DIST Z2 PKP A	
15072023	Jan 07 2016 01:27:53.189866	NEG SEQ DIR OC1 FWD	
15072022	Jan 07 2016 01:27:53.183474	52A2 (a) On	
15072021	Jan 07 2016 01:27:15.221492	URT REC ACEL Off	
15072020	Jan 07 2016 01:27:15.221492	ECHO COND 2T Off	
15072019	Jan 07 2016 01:27:15.221492	RECEPCION Off	
15072018	Jan 07 2016 01:27:15.221492	RECEPCION 2T Off	
15072017	Jan 07 2016 01:27:15.221492	RECEP ACELER Off	
15072016	Jan 07 2016 01:27:15.219179	Rx RANCAGUA Off	

Event Number	Date/Time	Cause	Data
15072077	Jan 07 2016 01:34:06.440579	RESET OP(PUSHBUTTON)	
15072076	Jan 07 2016 01:27:53.337343	URT REC ACEL Off	
15072075	Jan 07 2016 01:27:53.337343	ECHO COND 2T Off	
15072074	Jan 07 2016 01:27:53.337343	RECEPCION Off	
15072073	Jan 07 2016 01:27:53.337343	RECEPCION 2T Off	
15072072	Jan 07 2016 01:27:53.337343	RECEP ACELER Off	
15072071	Jan 07 2016 01:27:53.332999	Rx RANCAGUA Off	
15072070	Jan 07 2016 01:27:53.259866	reset led Off	
15072069	Jan 07 2016 01:27:53.259866	NEUTRAL TOC1 DPO	
15072068	Jan 07 2016 01:27:53.254865	RETRIP 50BF Off	
15072067	Jan 07 2016 01:27:53.249863	URT TRIP S1 Off	
15072066	Jan 07 2016 01:27:53.249863	PARA PRUEBAS Off	
15072065	Jan 07 2016 01:27:53.249863	TRIP BD1 Off	
15072064	Jan 07 2016 01:27:53.249863	OSCILOGRAFIA Off	
15072063	Jan 07 2016 01:27:53.249863	TRIP GRAL Off	
15072062	Jan 07 2016 01:27:53.249863	PHASE TOC1 DPO A	
15072061	Jan 07 2016 01:27:53.247363	Tx RANCAGUA Off	
15072060	Jan 07 2016 01:27:53.247363	POTT OP 2T Off	
15072059	Jan 07 2016 01:27:53.247363	Tx RANCAGUA Off	
15072058	Jan 07 2016 01:27:53.247363	pkp Z1o z2 Off	

Figura 18: Registro de eventos

Siemens 7SA612, paño A2, S/E Alto Jahuel – Sistema 2.

Event Log - 07-01-2016 9:27:21.328 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahuel / 52A2_C2 / 7SA612 V4.6 Var 1-

Number	Indication	Value	Date and time	Initiator	Cause	St
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:07:26.206	Com.Issued=Aut...	Spontaneous	
04246	ECHO Send SIGNAL	ON	07.01.2016 01:07:26.248	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:07:26.334	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	1468 - ON	07.01.2016 01:07:26.576	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:07:26.576	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:07:26.589	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:07:26.616	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	1468 - OFF	07.01.2016 01:07:26.731	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:07:26.740	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:07:26.816	Com.Issued=Aut...	Spontaneous	
	52A3PsC	ON	07.01.2016 01:13:00.517	Com.Issued=Aut...	Spontaneous	
	Setting Group A is active	OFF	07.01.2016 01:13:03.772	Com.Issued=Aut...	Control Issued	
	Setting Group B is active	ON	07.01.2016 01:13:03.786	Com.Issued=Aut...	Control Issued	
00060	Reset LED	ON	07.01.2016 01:24:39.039	Com.Issued=Aut...	Spontaneous	
00590	Line closure detected	ON	07.01.2016 01:27:15.074	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	1469 - ON	07.01.2016 01:27:15.075	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:27:15.076	Com.Issued=Aut...	Spontaneous	
00060	Reset LED	ON	07.01.2016 01:27:15.089	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:27:15.118	Com.Issued=Aut...	Spontaneous	
00590	Line closure detected	OFF	07.01.2016 01:27:15.137	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:27:15.142	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	1469 - OFF	07.01.2016 01:27:15.210	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:27:15.220	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:27:15.344	Com.Issued=Aut...	Spontaneous	
00060	Reset LED	ON	07.01.2016 01:27:53.182	Com.Issued=Aut...	Spontaneous	
00590	Line closure detected	ON	07.01.2016 01:27:53.186	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	1470 - ON	07.01.2016 01:27:53.186	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:27:53.190	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:27:53.233	Com.Issued=Aut...	Spontaneous	
00590	Line closure detected	OFF	07.01.2016 01:27:53.243	Com.Issued=Aut...	Spontaneous	
00591	Single pole open detected in Phase A	ON	07.01.2016 01:27:53.248	Com.Issued=Aut...	Spontaneous	
01332	50N / 51N Ground O/C is BLOCKED	ON	07.01.2016 01:27:53.248	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:27:53.255	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	1470 - OFF	07.01.2016 01:27:53.289	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:27:53.334	Com.Issued=Aut...	Spontaneous	
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:27:53.455	Com.Issued=Aut...	Spontaneous	
00591	Single pole open detected in Phase A	OFF	07.01.2016 01:27:53.552	Com.Issued=Aut...	Spontaneous	
01332	50N / 51N Ground O/C is BLOCKED	OFF	07.01.2016 01:27:53.592	Com.Issued=Aut...	Spontaneous	

Trip Log - 001468 / 07-01-2016 1:07:26.576 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahuel / 52...

Number	Indication	Value	Date and time
00301	Power System fault	1468 - ON	07.01.2016 01:07:26.576
00302	Fault Event	1475 - ON	07.01.2016 01:07:26.576
03682	21 Pickup AG	ON	0 ms
03701	21 Selected Loop AG forward	ON	0 ms
04056	85-21 Carrier SEND signal	ON	0 ms
01358	67N picked up FORWARD	ON	10 ms
01357	51N PICKED UP	ON	10 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	13 ms
04010	>85-21 Carrier RECEPTION, Channel 2	ON	40 ms
03805	21 TRIP command Phases ABC	ON	40 ms
00533	Primary fault current Ia	1,93 kA	42 ms
00534	Primary fault current Ib	0,54 kA	42 ms
00535	Primary fault current Ic	0,38 kA	42 ms
01461	50BF Breaker failure protection started	ON	43 ms
01476	50BF Local trip - ABC	ON	53 ms
01461	50BF Breaker failure protection started	OFF	98 ms
03671	21 PICKED UP	OFF	108 ms
03701	21 Selected Loop AG forward	OFF	108 ms
01345	50N / 51N PICKED UP	OFF	123 ms
01123	Fault Locator Loop AG	ON	68 ms
01117	Flt Locator: secondary RESISTANCE	0,49 Ohm	68 ms
01118	Flt Locator: secondary REACTANCE	1,53 Ohm	68 ms
01114	Flt Locator: primary RESISTANCE	5,76 Ohm	68 ms
01115	Flt Locator: primary REACTANCE	17,83 Ohm	68 ms
01119	Flt Locator: Distance to fault	43,4 km	68 ms
01120	Flt Locator: Distance [%] to fault	85,8 %	68 ms

Trip Log - 001469 / 07-01-2016 1:27:15.075 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahuel / 52...

Number	Indication	Value	Date and time
00301	Power System fault	1469 - ON	07.01.2016 01:27:15.075
00302	Fault Event	1476 - ON	07.01.2016 01:27:15.075
03682	21 Pickup AG	ON	0 ms
03701	21 Selected Loop AG forward	ON	0 ms
04056	85-21 Carrier SEND signal	ON	1 ms
03805	21 TRIP command Phases ABC	ON	1 ms
00533	Primary fault current Ia	2,00 kA	2 ms
00534	Primary fault current Ib	0,02 kA	2 ms
00535	Primary fault current Ic	0,02 kA	2 ms
01461	50BF Breaker failure protection started	ON	2 ms
04282	50HS Pickup Phase A	ON	4 ms
04295	50HS SOTF-O/C TRIP command Phases ABC	ON	4 ms
01358	67N picked up FORWARD	ON	13 ms
01354	50N-1 PICKED UP	ON	13 ms
01357	51N PICKED UP	ON	13 ms
01476	50BF Local trip - ABC	ON	22 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	43 ms
01365	50N / 51N: Trip 3pole	ON	44 ms
01366	50N-1 TRIP	ON	44 ms
00590	Line closure detected	OFF	62 ms
01461	50BF Breaker failure protection started	OFF	62 ms
03671	21 PICKED UP	OFF	63 ms
03701	21 Selected Loop AG forward	OFF	63 ms
04010	>85-21 Carrier RECEPTION, Channel 2	ON	67 ms
01345	50N / 51N PICKED UP	OFF	83 ms
04281	50HS PICKED UP	OFF	92 ms
01123	Fault Locator Loop AG	ON	53 ms
01117	Flt Locator: secondary RESISTANCE	0,49 Ohm	53 ms
01118	Flt Locator: secondary REACTANCE	1,78 Ohm	53 ms
01114	Flt Locator: primary RESISTANCE	5,73 Ohm	53 ms
01115	Flt Locator: primary REACTANCE	20,74 Ohm	53 ms
01119	Flt Locator: Distance to fault	50,5 km	53 ms
01120	Flt Locator: Distance [%] to fault	83,3 %	53 ms

Trip Log - 001470 / 07-01-2016 1:27:53.186 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahuel / 52...

Number	Indication	Value	Date and time
00301	Power System fault	1470 - ON	07.01.2016 01:27:53.186
00302	Fault Event	1477 - ON	07.01.2016 01:27:53.186
04282	50HS Pickup Phase A	ON	0 ms
04295	50HS SOTF-O/C TRIP command Phases ABC	ON	0 ms
00533	Primary fault current Ia	1,65 kA	2 ms
00534	Primary fault current Ib	0,02 kA	2 ms
00535	Primary fault current Ic	0,02 kA	2 ms
01461	50BF Breaker failure protection started	ON	3 ms
03682	21 Pickup AG	ON	4 ms
03701	21 Selected Loop AG forward	ON	4 ms
04056	85-21 Carrier SEND signal	ON	4 ms
03805	21 TRIP command Phases ABC	ON	4 ms
01370	50N/51N Inrush picked up	ON	13 ms
01358	67N picked up FORWARD	ON	14 ms
01354	50N-1 PICKED UP	ON	14 ms
01357	51N PICKED UP	ON	14 ms
01476	50BF Local trip - ABC	ON	22 ms
01370	50N/51N Inrush picked up	OFF	23 ms
01365	50N / 51N: Trip 3pole	ON	43 ms
01366	50N-1 TRIP	ON	43 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	47 ms
00590	Line closure detected	OFF	57 ms
01461	50BF Breaker failure protection started	OFF	57 ms
03671	21 PICKED UP	OFF	58 ms
03701	21 Selected Loop AG forward	OFF	58 ms
00591	Single pole open detected in Phase A	ON	62 ms
01332	50N / 51N Ground O/C is BLOCKED	ON	62 ms
01345	50N / 51N PICKED UP	OFF	63 ms
04010	>85-21 Carrier RECEPTION, Channel 2	ON	69 ms
04281	50HS PICKED UP	OFF	82 ms
01123	Fault Locator Loop AG	ON	43 ms
01117	Flt Locator: secondary RESISTANCE	0,50 Ohm	43 ms
01118	Flt Locator: secondary REACTANCE	1,76 Ohm	43 ms
01114	Flt Locator: primary RESISTANCE	5,87 Ohm	43 ms
01115	Flt Locator: primary REACTANCE	20,55 Ohm	43 ms
01119	Flt Locator: Distance to fault	50,0 km	43 ms
01120	Flt Locator: Distance [%] to fault	82,6 %	43 ms

Figura 15: Registro de eventos

Siemens 7SA612, paño A1, S/E Rancagua – Sistema 1.

Event Log - 08-01-2016 12:21:09.522 - Fallas / L154kVTing-Ran-Aja070115 / Rancagua / 52A1_C2 / SIEMENS A1 Cto 2 07

Number	Indication	Value	Date and time	Initiator	Cause
00301	Power System fault	7 - ON	07.01.2016 01:07:25.207	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:07:25.214	Com.Issued=Aut...	Spontaneous
04246	ECHO Send SIGNAL	ON	07.01.2016 01:07:25.254	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:07:25.379	Com.Issued=Aut...	Spontaneous
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:07:25.572	Com.Issued=Aut...	Spontaneous
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:07:25.602	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:07:25.625	Com.Issued=Aut...	Spontaneous
00301	Power System fault	7 - OFF	07.01.2016 01:07:25.667	Com.Issued=Aut...	Spontaneous
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:07:25.800	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:07:25.817	Com.Issued=Aut...	Spontaneous
	52 punta a	OFF	07.01.2016 01:13:32.322		Spontaneous
	52 punta b	ON	07.01.2016 01:13:32.325		Spontaneous
	Setting Group A is active	OFF	07.01.2016 01:13:32.979	Com.Issued=Aut...	Control Issued
	Setting Group B is active	ON	07.01.2016 01:13:32.990	Com.Issued=Aut...	Control Issued
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:27:14.100	Com.Issued=Aut...	Spontaneous
04246	ECHO Send SIGNAL	ON	07.01.2016 01:27:14.100	Com.Issued=Aut...	Spontaneous
	echo G B	ON	07.01.2016 01:27:14.100	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:27:14.150	Com.Issued=Aut...	Spontaneous
	echo G B	OFF	07.01.2016 01:27:14.199	Com.Issued=Aut...	Spontaneous
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:27:14.236	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:27:14.344	Com.Issued=Aut...	Spontaneous
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:27:52.215	Com.Issued=Aut...	Spontaneous
04246	ECHO Send SIGNAL	ON	07.01.2016 01:27:52.215	Com.Issued=Aut...	Spontaneous
	echo G B	ON	07.01.2016 01:27:52.215	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	ON	07.01.2016 01:27:52.263	Com.Issued=Aut...	Spontaneous
	echo G B	OFF	07.01.2016 01:27:52.314	Com.Issued=Aut...	Spontaneous
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:27:52.338	Com.Issued=Aut...	Spontaneous
04010	>85-21 Carrier RECEPTION, Channel 2	OFF	07.01.2016 01:27:52.455	Com.Issued=Aut...	Spontaneous

Trip Log - 000007 / 07-01-2016 1:07:25.207 - Fallas / L154kVTing-Ran-Aja070115 / Rancagua ...

Number	Indication	Value	Date and time
00301	Power System fault	7 - ON	07.01.2016 01:07:25.207
00302	Fault Event	7 - ON	07.01.2016 01:07:25.207
01358	67N picked up FORWARD	ON	0 ms
01357	51N PICKED UP	ON	0 ms
04010	>85-21 Carrier RECEPTION, Channel 2	ON	7 ms
04246	ECHO Send SIGNAL	ON	47 ms
01370	50N/51N Inrush picked up	ON	59 ms
01370	50N/51N Inrush picked up	OFF	79 ms
03682	21 Pickup AG	ON	364 ms
03701	21 Selected Loop AG forward	ON	364 ms
03805	21 TRIP command Phases ABC	ON	365 ms
04056	85-21 Carrier SEND signal	ON	365 ms
00533	Primary fault current Ia	1,42 kA	366 ms
00534	Primary fault current Ib	0,68 kA	366 ms
00535	Primary fault current Ic	0,18 kA	366 ms
01461	50BF Breaker failure protection started	ON	366 ms
01476	50BF Local trip - ABC	ON	377 ms
01370	50N/51N Inrush picked up	ON	377 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	395 ms
01370	50N/51N Inrush picked up	OFF	397 ms
01461	50BF Breaker failure protection started	OFF	416 ms
03671	21 PICKED UP	OFF	417 ms
03701	21 Selected Loop AG forward	OFF	417 ms
04010	>85-21 Carrier RECEPTION, Channel 2	ON	418 ms
01345	50N / 51N PICKED UP	OFF	447 ms
01123	Fault Locator Loop AG	ON	404 ms
01117	Flt Locator: secondary RESISTANCE	0,33 Ohm	404 ms
01118	Flt Locator: secondary REACTANCE	0,42 Ohm	404 ms
01114	Flt Locator: primary RESISTANCE	3,81 Ohm	404 ms
01115	Flt Locator: primary REACTANCE	4,95 Ohm	404 ms
01119	Flt Locator: Distance to fault	11,8 km	404 ms
01120	Flt Locator: Distance [%] to fault	23,4 %	404 ms

Figura 20: Registro de eventos

Siemens 7SA612, paño A10, S/E Tinguiririca – Sistema 1.

Event Log - 08-01-2016 10:19:37.455 - Fallas / L154kVTing-Ran-Aja070115 / Tinguiririca / A10_C2 / 52A10 Rancagua-Jah

Number	Indication	Value	Date and time	Initiator	Cause
02975	SYNC voltage Usy2 < U> (P.3503)	OFF	07.01.2016 01:07:27.745	Com.Issued=Aut...	Spontaneous
02977	SYNC voltage Usy1 < U> (P.3503)	OFF	07.01.2016 01:07:27.745	Com.Issued=Aut...	Spontaneous
02783	AR: Auto-reclose is blocked	ON	07.01.2016 01:07:28.243	Com.Issued=Aut...	Spontaneous
	PTACOR CER	OFF	07.01.2016 01:13:45.310		Spontaneous
	PTACOR ABI	ON	07.01.2016 01:13:45.314		Spontaneous
04003	>Distance Teleprotection BLOCK	ON	07.01.2016 01:13:45.316	Com.Issued=Aut...	Spontaneous
04006	>Dis.Tele. Carrier RECEPTION Channel 1	ON	07.01.2016 01:27:15.125	Com.Issued=Aut...	Spontaneous
04006	>Dis.Tele. Carrier RECEPTION Channel 1	OFF	07.01.2016 01:27:15.225	Com.Issued=Aut...	Spontaneous
04006	>Dis.Tele. Carrier RECEPTION Channel 1	ON	07.01.2016 01:27:53.238	Com.Issued=Aut...	Spontaneous

Trip Log - 000053 / 07-01-2016 1:07:26.195 - Fallas / L154kVTing-Ran-Aja070115 / Tinguiririca / ...

Number	Indication	Value	Date and time
00301	Power System fault	53 - ON	07.01.2016 01:07:26.195
00302	Fault Event	53 - ON	07.01.2016 01:07:26.195
03682	Distance Pickup L1E	ON	0 ms
03701	Distance Loop L1E selected forward	ON	0 ms
04056	Dis. Telep. Carrier SEND signal	ON	0 ms
01358	E/F picked up FORWARD	ON	10 ms
01336	E/F phase selector L1 selected	ON	10 ms
01357	E/F 3I0p PICKED UP	ON	10 ms
03802	Distance TRIP command - Only Phase L1	ON	15 ms
02844	AR 1st cycle running	ON	15 ms
02801	AR: Auto-reclose in progress	ON	15 ms
02712	>AR: External trip L1 for AR start	ON	18 ms
02713	>AR: External trip L2 for AR start	ON	18 ms
02714	>AR: External trip L3 for AR start	ON	18 ms
00533	Primary fault current IL1	1,99 kA	19 ms
01461	Breaker failure protection started	ON	19 ms
00560	Single-phase trip was coupled 3phase	ON	20 ms
01476	BF Trip T1 (local trip) - 3pole	ON	29 ms
03805	Distance TRIP command Phases L123	ON	30 ms
00534	Primary fault current IL2	0,30 kA	34 ms
00535	Primary fault current IL3	0,52 kA	34 ms
02840	AR dead time after 3pole trip running	ON	48 ms
01461	Breaker failure protection started	OFF	64 ms
03671	Distance PICKED UP	OFF	70 ms
03701	Distance Loop L1E selected forward	OFF	70 ms
00591	Single pole open detected in L1	ON	99 ms
14083	E/F 3I0p is blocked	ON	99 ms
01332	Earth fault protection is BLOCKED	ON	99 ms
01336	E/F phase selector L1 selected	OFF	100 ms
01345	Earth fault protection PICKED UP	OFF	100 ms
01123	Fault Locator Loop L1E	ON	55 ms
01117	Flt Locator: secondary RESISTANCE	3,75 Ohm	55 ms
01118	Flt Locator: secondary REACTANCE	13,93 Ohm	55 ms
01114	Flt Locator: primary RESISTANCE	5,02 Ohm	55 ms
01115	Flt Locator: primary REACTANCE	18,64 Ohm	55 ms
01119	Flt Locator: Distance to fault	45,7 km	55 ms
01120	Flt Locator: Distance [%] to fault	41,2 %	55 ms
00511	Relay GENERAL TRIP command	OFF	150 ms
04010	>Dis.Tele. Carrier RECEPTION Channel 2	ON	402 ms
04006	>Dis.Tele. Carrier RECEPTION Channel 1	ON	404 ms
02941	Synchronization is running	ON	550 ms
02975	SYNC voltage Usy2 < U> (P.3503)	ON	550 ms
02977	SYNC voltage Usy1 < U> (P.3503)	ON	550 ms
02973	SYNC frequency fsy1 < (fn + 3Hz)	ON	550 ms
00591	Single pole open detected in L1	OFF	564 ms
14083	E/F 3I0p is blocked	OFF	604 ms
01332	Earth fault protection is BLOCKED	OFF	604 ms
02973	SYNC frequency fsy1 < (fn + 3Hz)	OFF	610 ms
02935	Synchro-check supervision time expired	ON	1548 ms
02784	AR: Auto-reclose is not ready	ON	1548 ms
00536	Relay Definitive TRIP	ON	1548 ms

Figura 21: Registro de eventos

GE D60, paño A10, S/E Tinguiririca – Sistema 2.

Event Number	Date/Time	Cause	Data
527651	Jan 07 2016 01:07:26.210187	PH DIST Z5 PKP AB	
527650	Jan 07 2016 01:07:26.210187	PH DIST Z2 PKP AB	
527649	Jan 07 2016 01:07:26.202693	RETRIP C On	
527648	Jan 07 2016 01:07:26.202693	RETRIP B On	
527647	Jan 07 2016 01:07:26.202693	RETRIP A On	
527646	Jan 07 2016 01:07:26.202693	Osc Trigger Off	
527645	Jan 07 2016 01:07:26.202693	FAULT RPT TRIG	
527644	Jan 07 2016 01:07:26.200196	TRIP POLO C On	
527643	Jan 07 2016 01:07:26.200196	TRIP POLO B On	
527642	Jan 07 2016 01:07:26.200196	TRIP POLO A On	
527641	Jan 07 2016 01:07:26.200196	TRIP POLO C On	
527640	Jan 07 2016 01:07:26.200196	TRIP POLO B On	
527639	Jan 07 2016 01:07:26.200196	TRIP POLO A On	
527638	Jan 07 2016 01:07:26.200196	TRIP SCADA On	
527637	Jan 07 2016 01:07:26.200196	OSCILLOGRAPHY TRIG'D	
527636	Jan 07 2016 01:07:26.200196	Osc Trigger On	
527635	Jan 07 2016 01:07:26.200196	AR 3P START On	
527634	Jan 07 2016 01:07:26.200196	Start 50BF On	
527633	Jan 07 2016 01:07:26.200196	GND DIST Z1 OP A	
527632	Jan 07 2016 01:07:26.200196	GND DIST Z1 PKP A	
527631	Jan 07 2016 01:07:26.195200	PKP Z3 EDAG On	
527630	Jan 07 2016 01:07:26.195200	PKP Z3 On	
527629	Jan 07 2016 01:07:26.195200	GND DIST Z3 PKP A	
527628	Jan 07 2016 01:07:26.195200	PH DIST Z3 PKP CA	
527627	Jan 07 2016 01:07:26.190208	PH DIST Z5 PKP CA	
527626	Jan 07 2016 01:07:26.190208	PH DIST Z2 PKP CA	
527625	Jan 07 2016 01:07:26.187709	POWER SWING OUTER	
527624	Jan 07 2016 01:07:26.187709	POWER SWING INNER	
527623	Jan 07 2016 01:07:26.185209	TX. 85A2 On	
527622	Jan 07 2016 01:07:26.185209	TX 85A1 On	
527621	Jan 07 2016 01:07:26.185209	Emision 85A On	
527620	Jan 07 2016 01:07:26.185209	HYBRID POTT TX1	
527619	Jan 07 2016 01:07:26.185209	GND DIST Z5 PKP A	
527618	Jan 07 2016 01:07:26.185209	GND DIST Z2 PKP A	
527617	Jan 07 2016 01:07:26.185209	NEG SEQ DIR OC1 FWD	
527616	Jan 07 2016 01:07:26.182711	POWER SWING MIDDLE	
527615	Jan 07 2016 01:07:25.698201	NEUTRAL TOC2 PKP	

Event Number	Date/Time	Cause	Data
527688	Jan 07 2016 01:07:26.592477	ECHO TX On	
527687	Jan 07 2016 01:07:26.592477	RX. 85A On	
527686	Jan 07 2016 01:07:26.337626	SYNC 1 CLS OP	
527685	Jan 07 2016 01:07:26.337626	SYNC 1 SYNC OP	
527684	Jan 07 2016 01:07:26.312627	TX. 85A2 Off	
527683	Jan 07 2016 01:07:26.312627	TX 85A1 Off	
527682	Jan 07 2016 01:07:26.312627	Emision 85A Off	
527681	Jan 07 2016 01:07:26.280130	TRIP POLO A Off	
527680	Jan 07 2016 01:07:26.280130	TRIP POLO A Off	
527679	Jan 07 2016 01:07:26.280130	TRIP SCADA Off	
527678	Jan 07 2016 01:07:26.280130	Start 50BF Off	
527677	Jan 07 2016 01:07:26.277634	TRIP POLO C Off	
527676	Jan 07 2016 01:07:26.277634	TRIP POLO C Off	
527675	Jan 07 2016 01:07:26.277634	NEUTRAL TOC2 DPO	
527674	Jan 07 2016 01:07:26.270140	TRIP POLO B Off	
527673	Jan 07 2016 01:07:26.270140	TRIP POLO B Off	
527672	Jan 07 2016 01:07:26.257652	RETRIP C Off	
527671	Jan 07 2016 01:07:26.257652	RETRIP B Off	
527670	Jan 07 2016 01:07:26.257652	RETRIP A Off	
527669	Jan 07 2016 01:07:26.237665	SYNC 1 CLS DPO	
527668	Jan 07 2016 01:07:26.237665	SYNC 1 SYNC DPO	
527667	Jan 07 2016 01:07:26.212683	PKP Z3 EDAG Off	
527666	Jan 07 2016 01:07:26.212683	PKP Z3 Off	
527665	Jan 07 2016 01:07:26.212683	AR 3P START Off	
527664	Jan 07 2016 01:07:26.212683	GND DIST Z5 DPO A	
527663	Jan 07 2016 01:07:26.212683	GND DIST Z3 DPO A	
527662	Jan 07 2016 01:07:26.212683	GND DIST Z2 DPO A	
527661	Jan 07 2016 01:07:26.212683	GND DIST Z1 DPO A	
527660	Jan 07 2016 01:07:26.212683	PH DIST Z5 DPO CA	
527659	Jan 07 2016 01:07:26.212683	PH DIST Z5 DPO AB	
527658	Jan 07 2016 01:07:26.212683	PH DIST Z3 DPO CA	
527657	Jan 07 2016 01:07:26.212683	PH DIST Z2 DPO CA	
527656	Jan 07 2016 01:07:26.212683	PH DIST Z2 DPO AB	
527655	Jan 07 2016 01:07:26.210187	Open 3p On	
527654	Jan 07 2016 01:07:26.210187	OPEN POLE OP C	
527653	Jan 07 2016 01:07:26.210187	OPEN POLE OP B	
527652	Jan 07 2016 01:07:26.210187	OPEN POLE OP A	
527651	Jan 07 2016 01:07:26.210187	PH DIST Z5 PKP AB	

Event Number	Date/Time	Cause	Data
527723	Jan 07 2016 01:27:53.436784	TX. 85A2 Off	
527722	Jan 07 2016 01:27:53.436784	TX 85A1 Off	
527721	Jan 07 2016 01:27:53.436784	Emision 85A Off	
527720	Jan 07 2016 01:27:53.336833	ECHO TX Off	
527719	Jan 07 2016 01:27:53.336833	RX. 85A Off	
527718	Jan 07 2016 01:27:53.236837	TX. 85A2 On	
527717	Jan 07 2016 01:27:53.236837	TX 85A1 On	
527716	Jan 07 2016 01:27:53.236837	Emision 85A On	
527715	Jan 07 2016 01:27:53.236837	HYBRID POTT TX1	
527714	Jan 07 2016 01:27:53.234336	ECHO TX On	
527713	Jan 07 2016 01:27:53.234336	RX. 85A On	
527712	Jan 07 2016 01:27:15.322040	TX. 85A2 Off	
527711	Jan 07 2016 01:27:15.322040	TX 85A1 Off	
527710	Jan 07 2016 01:27:15.322040	Emision 85A Off	
527709	Jan 07 2016 01:27:15.221990	ECHO TX Off	
527708	Jan 07 2016 01:27:15.221990	RX. 85A Off	
527707	Jan 07 2016 01:27:15.121941	TX. 85A2 On	
527706	Jan 07 2016 01:27:15.121941	TX 85A1 On	
527705	Jan 07 2016 01:27:15.121941	Emision 85A On	
527704	Jan 07 2016 01:27:15.121941	HYBRID POTT TX1	
527703	Jan 07 2016 01:27:15.119439	ECHO TX On	
527702	Jan 07 2016 01:27:15.119439	RX. 85A On	
527701	Jan 07 2016 01:13:45.307386	BLOCK HYBRID On	
527700	Jan 07 2016 01:07:26.794728	TX. 85A2 Off	
527699	Jan 07 2016 01:07:26.794728	TX 85A1 Off	
527698	Jan 07 2016 01:07:26.794728	Emision 85A Off	
527697	Jan 07 2016 01:07:26.749791	SRC1 VT FF VOL LOSS	
527696	Jan 07 2016 01:07:26.712344	ECHO TX Off	
527695	Jan 07 2016 01:07:26.712344	RX. 85A Off	
527694	Jan 07 2016 01:07:26.677398	SYNC 1 CLS DPO	
527693	Jan 07 2016 01:07:26.677398	SYNC 1 SYNC DPO	
527692	Jan 07 2016 01:07:26.594975	TX. 85A2 On	
527691	Jan 07 2016 01:07:26.594975	TX 85A1 On	
527690	Jan 07 2016 01:07:26.594975	Emision 85A On	
527689	Jan 07 2016 01:07:26.594975	HYBRID POTT TX1	
527688	Jan 07 2016 01:07:26.592477	ECHO TX On	
527687	Jan 07 2016 01:07:26.592477	RX. 85A On	
527686	Jan 07 2016 01:07:26.337626	SYNC 1 CLS OP	

Figura 22: Registro de eventos

GE D60, paño A1, S/E Alto Jahuel – Sistema 1.

Event Number	Date/Time	Cause	Data
5185204	Jan 07 2016 01:18:36.341371	PH DIST Z3 DPO AB	
5185203	Jan 07 2016 01:18:36.338872	PHASE TOC1 DPO A	
5185202	Jan 07 2016 01:18:36.331372	PH DIST Z2 DPO AB	
5185201	Jan 07 2016 01:18:36.303875	TX RANCAGUA Off	
5185200	Jan 07 2016 01:18:36.303875	Tx RANCAGUA Off	
5185199	Jan 07 2016 01:18:36.303875	TX MMOO Off	
5185198	Jan 07 2016 01:18:36.293876	URT TRIP S1 On	
5185197	Jan 07 2016 01:18:36.293876	PRUEBA D60 On	
5185196	Jan 07 2016 01:18:36.293876	TRIP BD1 On	
5185195	Jan 07 2016 01:18:36.293876	OSCILLOGRAPHY TRIG'D	
5185194	Jan 07 2016 01:18:36.293876	OSCILOGRAFIA On	
5185193	Jan 07 2016 01:18:36.293876	TRIP GRAL On	
5185192	Jan 07 2016 01:18:36.291375	RETRIP 50BF On	
5185191	Jan 07 2016 01:18:36.291375	POTT OP 2T On	
5185190	Jan 07 2016 01:18:36.291375	TRIP 3-POLE	
5185189	Jan 07 2016 01:18:36.291375	TRIP PHASE C	
5185188	Jan 07 2016 01:18:36.291375	TRIP PHASE B	
5185187	Jan 07 2016 01:18:36.291375	TRIP PHASE A	
5185186	Jan 07 2016 01:18:36.291375	POTT OP	
5185185	Jan 07 2016 01:18:36.291375	POTT TRIP B	
5185184	Jan 07 2016 01:18:36.291375	PH DIST Z2 PKP AB	
5185183	Jan 07 2016 01:18:36.288877	URT REC ACEL On	
5185182	Jan 07 2016 01:18:36.288877	RECEPCION On	
5185181	Jan 07 2016 01:18:36.288877	RECEPCION 2T On	
5185180	Jan 07 2016 01:18:36.288877	RECEP ACELER On	
5185179	Jan 07 2016 01:18:36.288877	NEUTRAL TOC1 PKP	
5185178	Jan 07 2016 01:18:36.286246	RX RANCAGUA On	
5185177	Jan 07 2016 01:18:36.283876	FAULT RPT TRIG	
5185176	Jan 07 2016 01:18:36.281377	TX RANCAGUA On	
5185175	Jan 07 2016 01:18:36.281377	Tx RANCAGUA On	
5185174	Jan 07 2016 01:18:36.281377	LED Z2 On	
5185173	Jan 07 2016 01:18:36.281377	TX MMOO On	
5185172	Jan 07 2016 01:18:36.281377	pkp Z1o z2 On	
5185171	Jan 07 2016 01:18:36.281377	HYBRID POTT TX1	
5185170	Jan 07 2016 01:18:36.281377	POTT TX1	
5185169	Jan 07 2016 01:18:36.281377	GND DIST Z2 PKP B	
5185168	Jan 07 2016 01:18:36.278878	PHASE TOC1 PKP A	
5185167	Jan 07 2016 01:18:36.276378	GND DIST Z3 PKP B	
5185166	Jan 07 2016 01:18:36.276378	PH DIST Z3 PKP AB	
5185165	Jan 07 2016 01:18:36.271381	RESET OP(OPERAND)	
5185164	Jan 07 2016 01:18:36.268883	reset led On	
5185163	Jan 07 2016 01:18:36.268883	PHASE TOC1 PKP B	
5185162	Jan 07 2016 01:18:36.266384	NEG SEQ DIR OC1 FWD	

Event Number	Date/Time	Cause	Data
5185247	Jan 07 2016 01:26:27.986414	RECEP ACELER On	
5185246	Jan 07 2016 01:26:27.982856	RX RANCAGUA On	
5185245	Jan 07 2016 01:26:27.961370	PH DIST Z3 PKP AB	
5185244	Jan 07 2016 01:26:27.958876	PHASE TOC1 PKP B	
5185243	Jan 07 2016 01:26:27.958876	NEUTRAL TOC1 PKP	
5185242	Jan 07 2016 01:26:27.958876	NEUTRAL IOC1 PKP	
5185241	Jan 07 2016 01:26:27.955350	52A1 (a) On	
5185240	Jan 07 2016 01:26:27.953864	FAULT RPT TRIG	
5185239	Jan 07 2016 01:26:27.951361	TX RANCAGUA On	
5185238	Jan 07 2016 01:26:27.951361	Tx RANCAGUA On	
5185237	Jan 07 2016 01:26:27.951361	LED Z2 On	
5185236	Jan 07 2016 01:26:27.951361	TX MMOO On	
5185235	Jan 07 2016 01:26:27.951361	pkp Z1o z2 On	
5185234	Jan 07 2016 01:26:27.951361	HYBRID POTT TX1	
5185233	Jan 07 2016 01:26:27.951361	POTT TX1	
5185232	Jan 07 2016 01:26:27.951361	GND DIST Z2 PKP B	
5185231	Jan 07 2016 01:26:27.948842	RESET OP(OPERAND)	
5185230	Jan 07 2016 01:26:27.946338	reset led On	
5185229	Jan 07 2016 01:26:27.946338	GND DIST Z3 PKP B	
5185228	Jan 07 2016 01:26:27.946338	NEG SEQ DIR OC1 FWD	
5185227	Jan 07 2016 01:24:29.418739	RESET OP(PUSHBUTTON)	
5185226	Jan 07 2016 01:18:36.541144	URT REC ACEL Off	
5185225	Jan 07 2016 01:18:36.541144	ECHO COND 2T Off	
5185224	Jan 07 2016 01:18:36.541144	RECEPCION Off	
5185223	Jan 07 2016 01:18:36.541144	RECEPCION 2T Off	
5185222	Jan 07 2016 01:18:36.541144	RECEP ACELER Off	
5185221	Jan 07 2016 01:18:36.536794	RX RANCAGUA Off	
5185220	Jan 07 2016 01:18:36.358870	RETRIP 50BF Off	
5185219	Jan 07 2016 01:18:36.358870	reset led Off	
5185218	Jan 07 2016 01:18:36.358870	PHASE TOC1 DPO B	
5185217	Jan 07 2016 01:18:36.358870	NEUTRAL TOC1 DPO	
5185216	Jan 07 2016 01:18:36.353869	URT TRIP S1 Off	
5185215	Jan 07 2016 01:18:36.353869	PRUEBA D60 Off	
5185214	Jan 07 2016 01:18:36.353869	TRIP BD1 Off	
5185213	Jan 07 2016 01:18:36.353869	OSCILOGRAFIA Off	
5185212	Jan 07 2016 01:18:36.353869	TRIP GRAL Off	
5185211	Jan 07 2016 01:18:36.351370	POTT OP 2T Off	
5185210	Jan 07 2016 01:18:36.351370	LED Z2 Off	
5185209	Jan 07 2016 01:18:36.351370	pkp Z1o z2 Off	
5185208	Jan 07 2016 01:18:36.351370	GND DIST Z3 DPO B	
5185207	Jan 07 2016 01:18:36.351370	GND DIST Z2 DPO B	
5185206	Jan 07 2016 01:18:36.346371	ECHO COND 2T On	
5185205	Jan 07 2016 01:18:36.343760	52A1 (a) Off	

Event Number	Date/Time	Cause	Data
5185289	Jan 07 2016 01:26:28.146658	RECEPCION 2T Off	
5185288	Jan 07 2016 01:26:28.146658	RECEP ACELER Off	
5185287	Jan 07 2016 01:26:28.143395	RX RANCAGUA Off	
5185286	Jan 07 2016 01:26:28.018985	reset led Off	
5185285	Jan 07 2016 01:26:28.018985	NEUTRAL TOC1 DPO	
5185284	Jan 07 2016 01:26:28.011469	RETRIP 50BF Off	
5185283	Jan 07 2016 01:26:28.008965	URT TRIP S1 Off	
5185282	Jan 07 2016 01:26:28.008965	PRUEBA D60 Off	
5185281	Jan 07 2016 01:26:28.008965	TRIP BD1 Off	
5185280	Jan 07 2016 01:26:28.008965	50-50N Off	
5185279	Jan 07 2016 01:26:28.008965	OSCILOGRAFIA Off	
5185278	Jan 07 2016 01:26:28.008965	TRIP GRAL Off	
5185277	Jan 07 2016 01:26:28.008965	PHASE TOC1 DPO B	
5185276	Jan 07 2016 01:26:28.008965	NEUTRAL IOC1 DPO	
5185275	Jan 07 2016 01:26:28.006459	GND DIST Z3 DPO B	
5185274	Jan 07 2016 01:26:28.001449	TX RANCAGUA Off	
5185273	Jan 07 2016 01:26:28.001449	POTT OP 2T Off	
5185272	Jan 07 2016 01:26:28.001449	Tx RANCAGUA Off	
5185271	Jan 07 2016 01:26:28.001449	LED Z2 Off	
5185270	Jan 07 2016 01:26:28.001449	TX MMOO Off	
5185269	Jan 07 2016 01:26:28.001449	pkp Z1o z2 Off	
5185268	Jan 07 2016 01:26:28.001449	GND DIST Z2 DPO B	
5185267	Jan 07 2016 01:26:27.996432	ECHO COND 2T On	
5185266	Jan 07 2016 01:26:27.994356	52A1 (a) Off	
5185265	Jan 07 2016 01:26:27.991423	PH DIST Z3 DPO AB	
5185264	Jan 07 2016 01:26:27.988919	URT TRIP S1 On	
5185263	Jan 07 2016 01:26:27.988919	PRUEBA D60 On	
5185262	Jan 07 2016 01:26:27.988919	RETRIP 50BF On	
5185261	Jan 07 2016 01:26:27.988919	TRIP BD1 On	
5185260	Jan 07 2016 01:26:27.988919	OSCILLOGRAPHY TRIG'D	
5185259	Jan 07 2016 01:26:27.988919	POTT OP 2T On	
5185258	Jan 07 2016 01:26:27.988919	50-50N On	
5185257	Jan 07 2016 01:26:27.988919	OSCILOGRAFIA On	
5185256	Jan 07 2016 01:26:27.988919	TRIP GRAL On	
5185255	Jan 07 2016 01:26:27.988919	TRIP 3-POLE	
5185254	Jan 07 2016 01:26:27.988919	TRIP PHASE B	
5185253	Jan 07 2016 01:26:27.988919	POTT OP	
5185252	Jan 07 2016 01:26:27.988919	POTT TRIP B	
5185251	Jan 07 2016 01:26:27.988919	NEUTRAL IOC1 OP	
5185250	Jan 07 2016 01:26:27.986414	URT REC ACEL On	
5185249	Jan 07 2016 01:26:27.986414	RECEPCION On	
5185248	Jan 07 2016 01:26:27.986414	RECEPCION 2T On	
5185247	Jan 07 2016 01:26:27.986414	RECEP ACELER On	

Figura 23: Registro de eventos

Siemens 7SA612, paño A1, S/E Alto Jahuel – Sistema 2.

Event Log - 07-01-2016 8:40:05.790 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahuel / 52A1_C1 / 7SA612 V4.6 Var1-

Number	Indication	Value	Date and time	Initiator	Cause	S
00301	Power System fault	3760 - ON	07.01.2016 01:18:36.273	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:18:36.273	Com.Issued=Aut...	Spontaneous	
30053	Fault recording is running	ON	07.01.2016 01:18:36.276	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:18:36.289	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	3760 - OFF	07.01.2016 01:18:36.403	Com.Issued=Aut...	Spontaneous	
30053	Fault recording is running	OFF	07.01.2016 01:18:36.467	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:18:36.539	Com.Issued=Aut...	Spontaneous	
	Reset LED	ON	07.01.2016 01:24:20.673	Command Issue...	Spontaneous	
00060	Reset LED	ON	07.01.2016 01:24:20.673	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	3761 - ON	07.01.2016 01:26:27.941	Com.Issued=Aut...	Spontaneous	
00590	Line closure detected	ON	07.01.2016 01:26:27.943	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:26:27.944	Com.Issued=Aut...	Spontaneous	
30053	Fault recording is running	ON	07.01.2016 01:26:27.949	Com.Issued=Aut...	Spontaneous	
	Reset LED	ON	07.01.2016 01:26:27.962	Com.Issued=Aut...	Spontaneous	
00060	Reset LED	ON	07.01.2016 01:26:27.962	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:26:27.987	Com.Issued=Aut...	Spontaneous	
00590	Line closure detected	OFF	07.01.2016 01:26:27.995	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	3761 - OFF	07.01.2016 01:26:28.072	Com.Issued=Aut...	Spontaneous	
30053	Fault recording is running	OFF	07.01.2016 01:26:28.127	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:26:28.147	Com.Issued=Aut...	Spontaneous	

Trip Log - 003760 / 07-01-2016 1:18:36.273 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahue...

Number	Indication	Value	Date and time
00301	Power System fault	3760 - ON	07.01.2016 01:18:36.273
00302	Fault Event	3760 - ON	07.01.2016 01:18:36.273
03684	21 Pickup BG	ON	0 ms
03702	21 Selected Loop BG forward	ON	0 ms
04056	85-21 Carrier SEND signal	ON	0 ms
01358	67N picked up FORWARD	ON	6 ms
01357	51N PICKED UP	ON	6 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	16 ms
03805	21 TRIP command Phases ABC	ON	16 ms
00533	Primary fault current Ia	0,91 kA	19 ms
00534	Primary fault current Ib	1,98 kA	19 ms
00535	Primary fault current Ic	0,58 kA	19 ms
01461	50BF Breaker failure protection started	ON	19 ms
01476	50BF Local trip - ABC	ON	39 ms
01461	50BF Breaker failure protection started	OFF	72 ms
03671	21 PICKED UP	OFF	88 ms
03702	21 Selected Loop BG forward	OFF	88 ms
01345	50N / 51N PICKED UP	OFF	93 ms
01124	Fault Locator Loop BG	ON	54 ms
01117	Flt Locator: secondary RESISTANCE	1,50 Ohm	54 ms
01118	Flt Locator: secondary REACTANCE	2,10 Ohm	54 ms
01114	Flt Locator: primary RESISTANCE	17,55 Ohm	54 ms
01115	Flt Locator: primary REACTANCE	24,49 Ohm	54 ms
01119	Flt Locator: Distance to fault	59,7 km	54 ms
01120	Flt Locator: Distance [%] to fault	98,4 %	54 ms

Trip Log - 003761 / 07-01-2016 1:26:27.941 - Fallas / L154kVTing-Ran-Aja070115 / Alto Jahuel / 52...

Number	Indication	Value	Date and time
00301	Power System fault	3761 - ON	07.01.2016 01:26:27.941
00302	Fault Event	3761 - ON	07.01.2016 01:26:27.941
04283	50HS Pickup Phase B	ON	0 ms
04295	50HS SOTF-O/C TRIP command Phases ABC	ON	0 ms
00590	Line closure detected	ON	2 ms
00533	Primary fault current Ia	0,02 kA	2 ms
00534	Primary fault current Ib	1,89 kA	2 ms
00535	Primary fault current Ic	0,02 kA	2 ms
03684	21 Pickup BG	ON	2 ms
03702	21 Selected Loop BG forward	ON	2 ms
04056	85-21 Carrier SEND signal	ON	3 ms
03805	21 TRIP command Phases ABC	ON	3 ms
01461	50BF Breaker failure protection started	ON	4 ms
01358	67N picked up FORWARD	ON	15 ms
01354	50N-1 PICKED UP	ON	15 ms
01357	51N PICKED UP	ON	15 ms
01476	50BF Local trip - ABC	ON	24 ms
01365	50N / 51N: Trip 3pole	ON	45 ms
01366	50N-1 TRIP	ON	45 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	46 ms
00590	Line closure detected	OFF	54 ms
03671	21 PICKED UP	OFF	55 ms
03702	21 Selected Loop BG forward	OFF	55 ms
01461	50BF Breaker failure protection started	OFF	59 ms
04281	50HS PICKED UP	OFF	84 ms
01345	50N / 51N PICKED UP	OFF	85 ms
01124	Fault Locator Loop BG	ON	40 ms
01117	Flt Locator: secondary RESISTANCE	0,46 Ohm	40 ms
01118	Flt Locator: secondary REACTANCE	1,72 Ohm	40 ms
01114	Flt Locator: primary RESISTANCE	5,36 Ohm	40 ms
01115	Flt Locator: primary REACTANCE	20,06 Ohm	40 ms
01119	Flt Locator: Distance to fault	48,9 km	40 ms
01120	Flt Locator: Distance [%] to fault	80,6 %	40 ms

Figura 24: Registro de eventos

Siemens 7SA612, paño A2, S/E Rancagua – Sistema 1.

Event Log - 08-01-2016 12:13:25.069 - Fallas / L154kVTing-Ran-Aja070115 / Rancagua / 52A2_C1 / SIEMENS A2 Cto 1 07

Number	Indication	Value	Date and time	Initiator	Cause	Stat
00301	Power System fault	7 - ON	07.01.2016 01:18:35.271	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	ON	07.01.2016 01:18:35.271	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:18:35.300	Com.Issued=Aut...	Spontaneous	
	tele jahue	ON	07.01.2016 01:18:35.300	Com.Issued=Aut...	Spontaneous	
00301	Power System fault	7 - OFF	07.01.2016 01:18:35.411	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:18:35.461	Com.Issued=Aut...	Spontaneous	
	tele jahue	OFF	07.01.2016 01:18:35.461	Com.Issued=Aut...	Spontaneous	
04056	85-21 Carrier SEND signal	OFF	07.01.2016 01:18:35.474	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	ON	07.01.2016 01:26:26.969	Com.Issued=Aut...	Spontaneous	
04246	ECHO Send SIGNAL	ON	07.01.2016 01:26:26.969	Com.Issued=Aut...	Spontaneous	
	echo G B	ON	07.01.2016 01:26:26.969	Com.Issued=Aut...	Spontaneous	
	tele jahue	ON	07.01.2016 01:26:26.969	Com.Issued=Aut...	Spontaneous	
04006	>85-21 Carrier RECEPTION, Channel 1	OFF	07.01.2016 01:26:27.096	Com.Issued=Aut...	Spontaneous	
	tele jahue	OFF	07.01.2016 01:26:27.096	Com.Issued=Aut...	Spontaneous	
	echo G B	OFF	07.01.2016 01:26:27.117	Com.Issued=Aut...	Spontaneous	

Trip Log - 000007 / 07-01-2016 1:18:35.271 - Fallas / L154kVTing-Ran-Aja070115 / Rancagua / 52A2...

Number	Indication	Value	Date and time
00301	Power System fault	7 - ON	07.01.2016 01:18:35.271
00302	Fault Event	7 - ON	07.01.2016 01:18:35.271
03684	21 Pickup BG	ON	0 ms
03702	21 Selected Loop BG forward	ON	0 ms
04056	85-21 Carrier SEND signal	ON	0 ms
01358	67N picked up FORWARD	ON	9 ms
01354	50N-1 PICKED UP	ON	9 ms
01357	51N PICKED UP	ON	9 ms
03805	21 TRIP command Phases ABC	ON	13 ms
00533	Primary fault current Ia	0,45 kA	17 ms
00534	Primary fault current Ib	1,39 kA	17 ms
00535	Primary fault current Ic	0,41 kA	17 ms
01461	50BF Breaker failure protection started	ON	17 ms
04006	>85-21 Carrier RECEPTION, Channel 1	ON	29 ms
	tele jahue	ON	29 ms
01365	50N / 51N: Trip 3pole	ON	36 ms
01366	50N-1 TRIP	ON	36 ms
01476	50BF Local trip - ABC	ON	38 ms
03671	21 PICKED UP	OFF	53 ms
03702	21 Selected Loop BG forward	OFF	53 ms
01461	50BF Breaker failure protection started	OFF	57 ms
01345	50N / 51N PICKED UP	OFF	88 ms
01124	Fault Locator Loop BG	ON	47 ms
01117	Flt Locator: secondary RESISTANCE	1,07 Ohm	47 ms
01118	Flt Locator: secondary REACTANCE	0,63 Ohm	47 ms
01114	Flt Locator: primary RESISTANCE	12,48 Ohm	47 ms
01115	Flt Locator: primary REACTANCE	7,38 Ohm	47 ms
01119	Flt Locator: Distance to fault	17,5 km	47 ms
01120	Flt Locator: Distance [%] to fault	28,8 %	47 ms

CONTROL DE REVISIÓN DEL CRAP

REVISOR	FECHA	N° EAP	OBSERVACIONES
Max Missene M.	07-09-2015	Nº 75/2015	Cambio de ajustes para evitar que la Z1B actúe de forma instantánea en Sistema 2 protección Siemens 7SA61 .

Razón de TTCC/TTPP

TTCC: 600/5

TTPP: $\frac{161000}{\sqrt{3}}/115/\ \frac{115}{\sqrt{3}}$

Particularidades de Ajustes

- No hay.

ALTO JAHUEL_LIATING-RGUA1_GE D60_110804.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\03_OCC\ALTO JAHUEL
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PRODUCT SETUP

DISPLAY PROPERTIES

Flash Message Time	1.0 s
Default Message Timeout	60 s
Default Message Intensity (VFD Only)	25 %
Screen Saver Feature (LCD Only)	Enabled
Screen Saver Wait Time (LCD Only)	30 min
Current Cutoff Level	0.020 pu
Voltage Cutoff Level	1.0 V

COMMUNICATIONS

SERIAL PORTS

RS485 Com2 Baud Rate	19200
RS485 Com2 Parity	None
RS485 Com2 Response Min Time	0 ms

NETWORK

IP Address	10. 80.153.212
IP Subnet Mask	255.255.255. 0
Gateway IP Address	10. 80.153.210
Ethernet Operation Mode	Full-Duplex

MODBUS PROTOCOL

Modbus Slave Address	254
Modbus TCP Port Number	502

HTTP

HTTP TCP Port Number	80

TFTP

TFTP Main UDP Port Number	69
TFTP Data UDP Port Number 1	0
TFTP Data UDP Port Number 2	0

REAL TIME CLOCK

IRIG-B Signal Type	Amplitude Modulated
Real Time Clock Events	Enabled

FAULT REPORT

Fault Report 1 Source	LINEA (SRC 1)
Fault Report 1 Trigger	pkp Z1o z2 On (VO4)
Fault Report 1 Positive Seq (Z1) Mag	2.04 ohms
Fault Report 1 Positive Seq (Z1) Angle	77 deg
Fault Report 1 Zero Seq (Z0) Mag	7.16 ohms
Fault Report 1 Zero Seq (Z0) Angle	79 deg
Fault Report 1 Line Length Units	km
Fault Report 1 Line Length	50.6

OSCILLOGRAPHY

Number Of Records	5
Trigger Mode	Automatic Overwrite
Trigger Position	30 %
Trigger Source	OSCILOGRAFIA On (VO3)
AC Input Waveforms	32 samples/cycle
Digital Channel 1	PH DIST Z1 OP
Digital Channel 2	PH DIST Z2 OP
Digital Channel 3	PH DIST Z3 OP
Digital Channel 4	PH DIST Z4 OP
Digital Channel 5	GND DIST Z1 OP
Digital Channel 6	GND DIST Z2 OP
Digital Channel 7	GND DIST Z3 OP
Digital Channel 8	GND DIST Z4 OP
Digital Channel 9	PHASE TOC1 OP
Digital Channel 10	PH DIR1 BLK
Digital Channel 11	NEUTRAL TOC1 OP
Digital Channel 12	NTRL DIR OC1 REV
Digital Channel 13	NEG SEQ DIR OC1 FWD
Digital Channel 14	PUTT OP
Digital Channel 15	POWER SWING BLOCK
Digital Channel 16	PH DIST Z1 PKP

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

OSCILLOGRAPHY (continued from last page)

Digital Channel 17	PH DIST Z2 PKP
Digital Channel 18	PH DIST Z3 PKP
Digital Channel 19	PH DIST Z4 PKP
Digital Channel 20	LINE PICKUP OP
Digital Channel 21	PHASE TOC1 OP
Digital Channel 22	AR 1-P RIP
Digital Channel 23	AR CLOSE BKR 1
Digital Channel 24	AR FORCE 3-P TRIP
Digital Channel 25	SYNC 1 SYNC OP
Digital Channel 26	Cont Ip 13 On(W3a)
Digital Channel 27	52A1 (a) On(H7a)
Digital Channel 28	79 conectado On(H7c)
Digital Channel 29	86B--> 50BF On(H8a)
Digital Channel 30	Cont Ip 7 On(U8a)
Digital Channel 31	Cont Ip 8 On(U8c)
Digital Channel 32	RX ITAHUE On(W1a)
Digital Channel 33	80 SISTEMA 1 On(W1c)
Digital Channel 34	Cont Ip 16 On(W4c)
Digital Channel 35	Cont Ip 17 On(W5a)
Digital Channel 36	GND DIST Z1 PKP
Digital Channel 37	GND DIST Z2 PKP
Digital Channel 38	GND DIST Z3 PKP
Digital Channel 39	GND DIST Z4 PKP
Digital Channel 40	HYBRID POTT TX1
Digital Channel 42	BLQ Zonas PH On (VO1)
Digital Channel 43	TRIP GRAL On (VO2)
Digital Channel 44	pkp Z1o z2 On (VO4)
Digital Channel 45	BLOq reconec On (VO5)
Digital Channel 46	ORD. CIERRE On (VO6)
Digital Channel 47	BL-NTCO On (VO7)
Digital Channel 48	POWER SWING 50DD
Digital Channel 49	SETTING GROUP ACT 1
Digital Channel 50	SETTING GROUP ACT 2
Digital Channel 51	POWER SWING UN/BLOCK
Digital Channel 52	AR BKR 1 BLK
Digital Channel 53	AR CLOSE BKR 1
Digital Channel 54	AR INCOMPLETE SEQ
Digital Channel 55	SYNC 1 CLS OP
Digital Channel 56	SYNC 1 SYNC OP
Digital Channel 57	PH DIR1 BLK
Digital Channel 58	PHASE SELECT 3P
Digital Channel 59	86B -154 KV Off(W2c)
Analog Channel 1	SRC1 I_0 Mag
Analog Channel 2	SRC1 Ib Mag
Analog Channel 3	SRC1 Ic Mag
Analog Channel 4	SRC1 Ia Angle
Analog Channel 5	SRC1 Ib Angle
Analog Channel 6	SRC1 Ic Angle
Analog Channel 7	SRC1 Vag Mag
Analog Channel 8	SRC1 Vbg Mag
Analog Channel 9	SRC1 Vcg Mag
Analog Channel 10	SRC1 Vag Angle
Analog Channel 11	SRC1 Vbg Angle
Analog Channel 12	SRC1 Vcg Angle
Analog Channel 13	SRC1 V_1 Mag
Analog Channel 14	SRC1 V_1 Angle
Analog Channel 15	SRC1 Frequency
Analog Channel 16	Tracking Frequency

DATA LOGGER

Data Logger Mode	Continuous
Data Logger Trigger	OFF
Rate	60000 msec

USER-PROGRAMMABLE LEDS

LED TEST

Function	Enabled
Control	CONTROL PUSHBUTTON 3 ON

ALTO JAHUEL_LIATING-RGUA1_GE D60_110804.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\03_OCC\ALTO JAHUEL
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

TRIP AND ALARMS LEDS

Trip LED Input	TRIP GRAL On (VO2)

USER PROGRAMMABLE LEDS

LED 1: OPERAND	RECEPCION On (VO41)
LED 1: TYPE	Latched
LED 2: OPERAND	LED Z1 On (VO13)
LED 2: TYPE	Latched
LED 3: OPERAND	LED Z2 On (VO14)
LED 3: TYPE	Latched
LED 4: OPERAND	LED Z3 On (VO15)
LED 4: TYPE	Latched
LED 5: OPERAND	LED Z4 On (VO16)
LED 5: TYPE	Latched
LED 6: OPERAND	LED Z5 On (VO35)
LED 6: TYPE	Latched
LED 7: OPERAND	79 on On (VO17)
LED 7: TYPE	Self-Reset
LED 8: OPERAND	79 off On (VO18)
LED 8: TYPE	Self-Reset
LED 9: OPERAND	LINE PICKUP OP
LED 9: TYPE	Latched
LED 10: OPERAND	52A1 (a) Off(H7a)
LED 10: TYPE	Self-Reset
LED 11: OPERAND	52A1 (a) On(H7a)
LED 11: TYPE	Self-Reset
LED 12: OPERAND	FALLA RELE On(U7a)
LED 12: TYPE	Self-Reset
LED 13: OPERAND	67N On (VO32)
LED 13: TYPE	Latched
LED 14: OPERAND	51-51N On (VO33)
LED 14: TYPE	Latched
LED 15: OPERAND	50-50N On (VO34)
LED 15: TYPE	Latched
LED 16: OPERAND	AR 3-P/1 RIP
LED 16: TYPE	Self-Reset
LED 17: OPERAND	AR LO
LED 17: TYPE	Self-Reset
LED 18: OPERAND	POWER SWING UN/BLOCK
LED 18: TYPE	Latched
LED 25: OPERAND	SELECTOR 1 POS 1
LED 25: TYPE	Self-Reset
LED 26: OPERAND	SELECTOR 1 POS 2
LED 26: TYPE	Self-Reset
LED 27: OPERAND	SETTING GROUP ACT 1
LED 27: TYPE	Self-Reset
LED 28: OPERAND	SETTING GROUP ACT 2
LED 28: TYPE	Self-Reset
LED 29: OPERAND	SETTING GROUP ACT 3
LED 29: TYPE	Self-Reset

USER-PROGRAMMABLE SELF TESTS

Battery Fail Function	Enabled

CONTROL PUSHBUTTONS

CPB 1: Function	Enabled
CPB 1: Events	Enabled
CPB 2: Function	Enabled
CPB 2: Events	Enabled
CPB 3: Function	Enabled
CPB 3: Events	Disabled

USER-DEFINABLE DISPLAYS

USER DISPLAY 1: Top Line	L 154 KV TINGUIRI 1
USER DISPLAY 1: Bottom Line	SISTEMA 1
USER DISPLAY 1: Item 1	0
USER DISPLAY 1: Item 2	0
USER DISPLAY 1: Item 3	0
USER DISPLAY 1: Item 4	0
USER DISPLAY 1: Item 5	0

ALTO JAHUEL_LIATING-RGUA1_GE D60_110804.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIУN\03_OCC\ALTO JAHUEL
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

USER-DEFINABLE DISPLAYS (continued from last page)

USER DISPLAY 2: Top Line	LOCALIZACION FALLA
USER DISPLAY 2: Bottom Line	~ km
USER DISPLAY 2: Item 1	9061
USER DISPLAY 2: Item 2	0
USER DISPLAY 2: Item 3	0
USER DISPLAY 2: Item 4	0
USER DISPLAY 2: Item 5	0
USER DISPLAY 3: Top Line	IA IB IC
USER DISPLAY 3: Bottom Line	~ ~ ~
USER DISPLAY 3: Item 1	6144
USER DISPLAY 3: Item 2	6146
USER DISPLAY 3: Item 3	6148
USER DISPLAY 3: Item 4	0
USER DISPLAY 3: Item 5	0
USER DISPLAY 4: Top Line	FAULT REPORTS
USER DISPLAY 4: Bottom Line	
USER DISPLAY 4: Item 1	0
USER DISPLAY 4: Item 2	0
USER DISPLAY 4: Item 3	0
USER DISPLAY 4: Item 4	0
USER DISPLAY 4: Item 5	0
USER DISPLAY 5: Top Line	ACTUAL VALUES
USER DISPLAY 5: Bottom Line	PRODUCT INFO
USER DISPLAY 5: Item 1	0
USER DISPLAY 5: Item 2	0
USER DISPLAY 5: Item 3	0
USER DISPLAY 5: Item 4	0
USER DISPLAY 5: Item 5	0
USER DISPLAY 6: Top Line	OPERATING TIME:
USER DISPLAY 6: Bottom Line	~
USER DISPLAY 6: Item 1	61952
USER DISPLAY 6: Item 2	0
USER DISPLAY 6: Item 3	0
USER DISPLAY 6: Item 4	0
USER DISPLAY 6: Item 5	0
Invoke and Scroll	ON

INSTALLATION

Relay Name	AJAA1-TINGUIRIRICA 1

SYSTEM SETUP
AC INPUTS

CURRENT

CT F1: Phase CT Primary	600 A
CT F1: Phase CT Secondary	5 A
CT F1: Ground CT Primary	600 A
CT F1: Ground CT Secondary	5 A

VOLTAGE

VT F5: Phase VT Connection	Wye
VT F5: Phase VT Secondary	63.5 V
VT F5: Phase VT Ratio	1400.00 :1
VT F5: Auxiliary VT Connection	Vbg
VT F5: Auxiliary VT Secondary	63.5 V
VT F5: Auxiliary VT Ratio	1400.00 :1

POWER SYSTEM

Nominal Frequency	50 Hz
Phase Rotation	ABC
Frequency And Phase Reference	LINEA (SRC 1)
Frequency Tracking Function	Enabled

SIGNAL SOURCES

SOURCE 1: Name	LINEA
SOURCE 1: Phase CT	F1
SOURCE 1: Ground CT	F1
SOURCE 1: Phase VT	F5
SOURCE 1: Auxiliary VT	None
SOURCE 2: Name	BARRA

ALTO JAHUEL_LIATING-RGUA1_GE D60_110804.URS
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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

SIGNAL SOURCES (continued from last page)

SOURCE 2: Phase CT	None
SOURCE 2: Ground CT	None
SOURCE 2: Phase VT	None
SOURCE 2: Auxiliary VT	F5

BREAKERS

Breaker 1 Function	Enabled
Breaker 1 Push Button Control	Disabled
Breaker 1 Name	52A1
Breaker 1 Mode	3-Pole
Breaker 1 Open	OFF
Breaker 1 Close	OFF
Breaker 1 Phase A/3-Pole	52A1 (a) On(H7a)
Breaker 1 Phase B	OFF
Breaker 1 Phase C	OFF
Breaker 1 External Alarm	OFF
Breaker 1 Alarm Delay	0.000 s
Breaker 1 Manual Close Recal Time	0.000 s
Breaker 1 Out Of Service	OFF

FLEXLOGIC

FLEXLOGIC EQUATION EDITOR

FlexLogic Entry 1	POWER SWING BLOCK
FlexLogic Entry 2	NEG SEQ DIR OC1 FWD
FlexLogic Entry 3	NOT
FlexLogic Entry 4	AND(2)
FlexLogic Entry 5	= POWER SWING (VO8)
FlexLogic Entry 6	POWER SWING UN/BLOCK
FlexLogic Entry 7	SRC1 VT FUSE FAIL OP
FlexLogic Entry 8	OR(2)
FlexLogic Entry 9	= BLQ Zonas PH (VO1)
FlexLogic Entry 10	PH DIST Z1 OP
FlexLogic Entry 11	PH DIST Z2 OP
FlexLogic Entry 12	PH DIST Z3 OP
FlexLogic Entry 13	PH DIST Z4 OP
FlexLogic Entry 14	GND DIST Z1 OP
FlexLogic Entry 15	GND DIST Z2 OP
FlexLogic Entry 16	GND DIST Z3 OP
FlexLogic Entry 17	GND DIST Z4 OP
FlexLogic Entry 18	PHASE TOC1 OP
FlexLogic Entry 19	NEUTRAL TOC1 OP
FlexLogic Entry 20	PHASE TOC2 OP
FlexLogic Entry 21	NEUTRAL TOC2 OP
FlexLogic Entry 22	PHASE IOC1 OP
FlexLogic Entry 23	NEUTRAL IOC1 OP
FlexLogic Entry 24	HYBRID POTT OP
FlexLogic Entry 25	LINE PICKUP OP
FlexLogic Entry 26	OR(16)
FlexLogic Entry 27	PH DIST Z5 OP
FlexLogic Entry 28	GND DIST Z5 OP
FlexLogic Entry 29	POTT OP 2T On (VO50)
FlexLogic Entry 30	OR(3)
FlexLogic Entry 31	OR(2)
FlexLogic Entry 32	= TRIP GRAL (VO2)
FlexLogic Entry 33	BLQ Zonas PH On (VO1)
FlexLogic Entry 34	TRIP GRAL On (VO2)
FlexLogic Entry 35	86B -154 KV On(W2c)
FlexLogic Entry 36	POWER SWING BLOCK
FlexLogic Entry 37	OR(4)
FlexLogic Entry 38	= OSCILOGRAFIA (VO3)
FlexLogic Entry 39	PH DIST Z1 PKP
FlexLogic Entry 40	GND DIST Z1 PKP
FlexLogic Entry 41	PH DIST Z2 PKP
FlexLogic Entry 42	GND DIST Z2 PKP
FlexLogic Entry 43	OR(4)
FlexLogic Entry 44	= pkp Z1o z2 (VO4)
FlexLogic Entry 45	AR CLOSE BKR 1
FlexLogic Entry 46	SYNC 1 CLS OP
FlexLogic Entry 47	AND(2)

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 48	= ORD. CIERRE (VO6)
FlexLogic Entry 49	AR LO
FlexLogic Entry 50	TIMER 1
FlexLogic Entry 51	= RESET 79 (VO10)
FlexLogic Entry 52	BKR FAIL 1 T1 OP
FlexLogic Entry 53	HYBRID POTT TX2
FlexLogic Entry 54	TIMER 2
FlexLogic Entry 55	OR(2)
FlexLogic Entry 56	= Tx OPLAT (VO11)
FlexLogic Entry 57	BKR FAIL 1 T1 OP
FlexLogic Entry 58	HYBRID POTT TX1
FlexLogic Entry 59	TIMER 3
FlexLogic Entry 60	OR(2)
FlexLogic Entry 61	= TX MMOO (VO12)
FlexLogic Entry 62	GND DIST Z1 OP
FlexLogic Entry 63	PH DIST Z1 OP
FlexLogic Entry 64	OR(2)
FlexLogic Entry 65	= LED Z1 (VO13)
FlexLogic Entry 66	GND DIST Z2 OP
FlexLogic Entry 67	PH DIST Z2 OP
FlexLogic Entry 68	GND DIST Z2 PKP
FlexLogic Entry 69	PH DIST Z2 PKP
FlexLogic Entry 70	OR(4)
FlexLogic Entry 71	= LED Z2 (VO14)
FlexLogic Entry 72	PH DIST Z3 OP
FlexLogic Entry 73	GND DIST Z3 OP
FlexLogic Entry 74	OR(2)
FlexLogic Entry 75	= LED Z3 (VO15)
FlexLogic Entry 76	PH DIST Z4 OP
FlexLogic Entry 77	GND DIST Z4 OP
FlexLogic Entry 78	OR(2)
FlexLogic Entry 79	= LED Z4 (VO16)
FlexLogic Entry 80	79 conectado On(H7c)
FlexLogic Entry 81	SELECTOR 1 POS 1
FlexLogic Entry 82	AND(2)
FlexLogic Entry 83	= 79 on (VO17)
FlexLogic Entry 84	79 on On (VO17)
FlexLogic Entry 85	NOT
FlexLogic Entry 86	= 79 off (VO18)
FlexLogic Entry 87	PH DIST Z1 PKP
FlexLogic Entry 88	PH DIST Z2 PKP
FlexLogic Entry 89	PH DIST Z3 PKP
FlexLogic Entry 90	PH DIST Z4 PKP
FlexLogic Entry 91	GND DIST Z1 PKP
FlexLogic Entry 92	GND DIST Z2 PKP
FlexLogic Entry 93	GND DIST Z3 PKP
FlexLogic Entry 94	GND DIST Z4 PKP
FlexLogic Entry 95	PHASE TOC1 PKP
FlexLogic Entry 96	NEUTRAL TOC1 PKP
FlexLogic Entry 97	LINE PICKUP PKP
FlexLogic Entry 98	OR(11)
FlexLogic Entry 99	= reset led (VO19)
FlexLogic Entry 100	ANY MAJOR ERROR
FlexLogic Entry 101	DSP ERROR
FlexLogic Entry 102	EEPROM DATA ERROR
FlexLogic Entry 103	BATTERY FAIL
FlexLogic Entry 104	NOR(4)
FlexLogic Entry 105	= FALLA RELE (VO21)
FlexLogic Entry 106	RX RANCAGUA On(H8c)
FlexLogic Entry 107	= RECEP ACELER (VO22)
FlexLogic Entry 108	PH DIST Z1 OP
FlexLogic Entry 109	GND DIST Z1 OP
FlexLogic Entry 110	OR(2)
FlexLogic Entry 111	= OPERA ZONA 1 (VO23)
FlexLogic Entry 112	PH DIST Z2 OP
FlexLogic Entry 113	GND DIST Z2 OP
FlexLogic Entry 114	OR(2)
FlexLogic Entry 115	= OPERA ZONA 2 (VO24)
FlexLogic Entry 116	PH DIST Z3 OP

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 117	GND DIST Z3 OP
FlexLogic Entry 118	OR(2)
FlexLogic Entry 119	= OPERA Z3 (VO25)
FlexLogic Entry 120	PHASE TOC1 OP
FlexLogic Entry 121	NEUTRAL TOC1 OP
FlexLogic Entry 122	OR(2)
FlexLogic Entry 123	= 67-67N (VO27)
FlexLogic Entry 124	PHASE TOC2 OP
FlexLogic Entry 125	NEUTRAL TOC2 OP
FlexLogic Entry 126	OR(2)
FlexLogic Entry 127	= 51-51N (VO28)
FlexLogic Entry 128	PHASE IOC1 OP C
FlexLogic Entry 129	NEUTRAL IOC1 OP
FlexLogic Entry 130	OR(2)
FlexLogic Entry 131	= 50-50N (VO29)
FlexLogic Entry 132	PH DIST Z2 OP
FlexLogic Entry 133	GND DIST Z2 OP
FlexLogic Entry 134	OR(2)
FlexLogic Entry 135	RX RANCAGUA On(H8c)
FlexLogic Entry 136	AND(2)
FlexLogic Entry 137	PH DIST Z1 OP
FlexLogic Entry 138	GND DIST Z1 OP
FlexLogic Entry 139	OR(2)
FlexLogic Entry 140	OR(2)
FlexLogic Entry 141	= Partida 79 (VO30)
FlexLogic Entry 142	FALLA RELE On (VO21)
FlexLogic Entry 143	SELECTOR 1 POS 1
FlexLogic Entry 144	OR(2)
FlexLogic Entry 145	= Control 79S2 (VO31)
FlexLogic Entry 146	NEG SEQ DIR OC1 REV
FlexLogic Entry 147	SRC1 VT FUSE FAIL OP
FlexLogic Entry 148	NOT
FlexLogic Entry 149	AND(2)
FlexLogic Entry 150	= BL-NTCO (VO7)
FlexLogic Entry 151	NEUTRAL IOC1 OP
FlexLogic Entry 152	NEUTRAL TOC1 OP
FlexLogic Entry 153	OR(2)
FlexLogic Entry 154	NTRL DIR OC1 FWD
FlexLogic Entry 155	AND(2)
FlexLogic Entry 156	= 67N (VO32)
FlexLogic Entry 157	NEUTRAL TOC1 OP
FlexLogic Entry 158	SRC1 VT FUSE FAIL OP
FlexLogic Entry 159	AND(2)
FlexLogic Entry 160	PHASE TOC1 OP
FlexLogic Entry 161	OR(2)
FlexLogic Entry 162	= 51-51N (VO33)
FlexLogic Entry 163	NEUTRAL IOC1 OP
FlexLogic Entry 164	SRC1 VT FUSE FAIL OP
FlexLogic Entry 165	AND(2)
FlexLogic Entry 166	PHASE IOC1 OP
FlexLogic Entry 167	OR(2)
FlexLogic Entry 168	= 50-50N (VO34)
FlexLogic Entry 169	CHANGE GRP On(W2a)
FlexLogic Entry 170	NOT
FlexLogic Entry 171	86B -154 KV On(W2c)
FlexLogic Entry 172	AND(2)
FlexLogic Entry 173	= PC_OPEN_OK (VO38)
FlexLogic Entry 174	86B -154 KV On(W2c)
FlexLogic Entry 175	NOT
FlexLogic Entry 176	CHANGE GRP On(W2a)
FlexLogic Entry 177	AND(2)
FlexLogic Entry 178	= PC_CLOSE_OK (VO42)
FlexLogic Entry 179	CHANGE GRP On(W2a)
FlexLogic Entry 180	86B -154 KV On(W2c)
FlexLogic Entry 181	AND(2)
FlexLogic Entry 182	CHANGE GRP On(W2a)
FlexLogic Entry 183	NOT
FlexLogic Entry 184	86B -154 KV On(W2c)
FlexLogic Entry 185	NOT

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 186	AND(2)
FlexLogic Entry 187	OR(2)
FlexLogic Entry 188	= PCORTES_DBI (VO39)
FlexLogic Entry 189	PCORTES_DBI On (VO39)
FlexLogic Entry 190	SELECTOR 2 POS 2
FlexLogic Entry 191	SETTING GROUP ACT 1
FlexLogic Entry 192	AND(2)
FlexLogic Entry 193	AND(2)
FlexLogic Entry 194	PCORTES_DBI On (VO39)
FlexLogic Entry 195	NOT
FlexLogic Entry 196	PC_OPEN_OK On (VO38)
FlexLogic Entry 197	AND(2)
FlexLogic Entry 198	OR(2)
FlexLogic Entry 199	= SET_GROUP2 (VO40)
FlexLogic Entry 200	PCORTES_DBI On (VO39)
FlexLogic Entry 201	SELECTOR 2 POS 1
FlexLogic Entry 202	SETTING GROUP ACT 2
FlexLogic Entry 203	AND(2)
FlexLogic Entry 204	AND(2)
FlexLogic Entry 205	PCORTES_DBI On (VO39)
FlexLogic Entry 206	NOT
FlexLogic Entry 207	PC_CLOSE_OK On (VO42)
FlexLogic Entry 208	AND(2)
FlexLogic Entry 209	OR(2)
FlexLogic Entry 210	= RESET_GROUP1 (VO43)
FlexLogic Entry 211	PH DIST Z5 OP
FlexLogic Entry 212	PH DIST Z5 OP
FlexLogic Entry 213	OR(2)
FlexLogic Entry 214	= LED Z5 (VO35)
FlexLogic Entry 215	PH DIST Z4 OP
FlexLogic Entry 216	GND DIST Z4 OP
FlexLogic Entry 217	OR(2)
FlexLogic Entry 218	= OPERA ZONA 4 (VO9)
FlexLogic Entry 219	PH DIST Z5 OP
FlexLogic Entry 220	GND DIST Z5 OP
FlexLogic Entry 221	OR(2)
FlexLogic Entry 222	= OPERA Z5 (VO26)
FlexLogic Entry 223	RX ITAHUE On(W1a)
FlexLogic Entry 224	RX RANCAGUA On(H8c)
FlexLogic Entry 225	SETTING GROUP ACT 1
FlexLogic Entry 226	AND(3)
FlexLogic Entry 227	= RECEPCION 3T (VO36)
FlexLogic Entry 228	RX RANCAGUA On(H8c)
FlexLogic Entry 229	SETTING GROUP ACT 2
FlexLogic Entry 230	AND(2)
FlexLogic Entry 231	= RECEPCION 2T (VO37)
FlexLogic Entry 232	RECEPCION 3T On (VO36)
FlexLogic Entry 233	RECEPCION 2T On (VO37)
FlexLogic Entry 234	OR(2)
FlexLogic Entry 235	= RECEPCION (VO41)
FlexLogic Entry 236	HYBRID POTT TX1
FlexLogic Entry 237	SETTING GROUP ACT 1
FlexLogic Entry 238	AND(2)
FlexLogic Entry 239	POTT TX1
FlexLogic Entry 240	SETTING GROUP ACT 2
FlexLogic Entry 241	AND(2)
FlexLogic Entry 242	OR(2)
FlexLogic Entry 243	= Tx RANCAGUA (VO44)
FlexLogic Entry 244	HYBRID POTT TX1
FlexLogic Entry 245	SETTING GROUP ACT 1
FlexLogic Entry 246	AND(2)
FlexLogic Entry 247	= Tx ITAHUE (VO45)
FlexLogic Entry 248	BLQ Zonas PH On (VO1)
FlexLogic Entry 249	LOAD ENCHR OP
FlexLogic Entry 250	OR(2)
FlexLogic Entry 251	= BLOQ LOAD E (VO46)
FlexLogic Entry 252	CHANGE GRP Off(W2a)
FlexLogic Entry 253	TIMER 4
FlexLogic Entry 254	= CAMBIO G1-G2 (VO47)

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 255	52A1 (a) Off(H7a)
FlexLogic Entry 256	RECEPCION 2T On (VO37)
FlexLogic Entry 257	AND(2)
FlexLogic Entry 258	= ECHO COND 2T (VO48)
FlexLogic Entry 259	52A1 (a) Off(H7a)
FlexLogic Entry 260	RECEPCION 3T On (VO36)
FlexLogic Entry 261	AND(2)
FlexLogic Entry 262	= ECHO COND 3T (VO49)
FlexLogic Entry 263	POTT OP
FlexLogic Entry 264	SETTING GROUP ACT 2
FlexLogic Entry 265	AND(2)
FlexLogic Entry 266	= POTT OP 2T (VO50)
FlexLogic Entry 267	END

FLEXLOGIC TIMERS

Timer 1: Type	millisecond
Timer 1: Pickup Delay	0
Timer 1: Dropout Delay	0
Timer 2: Type	millisecond
Timer 2: Pickup Delay	0
Timer 2: Dropout Delay	0
Timer 3: Type	millisecond
Timer 3: Pickup Delay	0
Timer 3: Dropout Delay	0
Timer 4: Type	second
Timer 4: Pickup Delay	2
Timer 4: Dropout Delay	2

GROUPED ELEMENTS
GROUP 1

LINE PICKUP [GROUP 1]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	1.882 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Enabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 1]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 1]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.86 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	49 deg
PHASE DISTANCE Z1: DIR Comp Limit	71 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.86 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg

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PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z1: Quad Left Blinder	1.86 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.100 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	8.50 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	49 deg
PHASE DISTANCE Z2: DIR Comp Limit	71 deg
PHASE DISTANCE Z2: Quad Right Blinder	8.00 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	8.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.100 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	65.535 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	4.26 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	0.02 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	49 deg
PHASE DISTANCE Z3: DIR Comp Limit	71 deg
PHASE DISTANCE Z3: Quad Right Blinder	4.26 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	4.26 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.100 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.600 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	6.00 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.02 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	49 deg
PHASE DISTANCE Z4: DIR Comp Limit	71 deg
PHASE DISTANCE Z4: Quad Right Blinder	6.00 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	6.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.100 pu

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PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.500 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled
PHASE DISTANCE Z5: Function	Enabled
PHASE DISTANCE Z5: Direction	Forward
PHASE DISTANCE Z5: Shape	Quad
PHASE DISTANCE Z5: Xfmr Vol Connection	None
PHASE DISTANCE Z5: Xfmr Curr Connection	None
PHASE DISTANCE Z5: Reach	6.50 ohms
PHASE DISTANCE Z5: RCA	90 deg
PHASE DISTANCE Z5: Rev Reach	0.02 ohms
PHASE DISTANCE Z5: Rev Reach RCA	79 deg
PHASE DISTANCE Z5: Comp Limit	90 deg
PHASE DISTANCE Z5: DIR RCA	49 deg
PHASE DISTANCE Z5: DIR Comp Limit	71 deg
PHASE DISTANCE Z5: Quad Right Blinder	6.50 ohms
PHASE DISTANCE Z5: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z5: Quad Left Blinder	6.50 ohms
PHASE DISTANCE Z5: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z5: Supervision	0.100 pu
PHASE DISTANCE Z5: Volt Level	0.000 pu
PHASE DISTANCE Z5: Delay	1.500 s
PHASE DISTANCE Z5: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z5: Target	Self-reset
PHASE DISTANCE Z5: Events	Enabled

GROUND DISTANCE [GROUP 1]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.43
GROUND DISTANCE Z1: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	1.86 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	0.02 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	49 deg
GROUND DISTANCE Z1: DIR Comp Limit	71 deg
GROUND DISTANCE Z1: Quad Right Blinder	1.86 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	1.86 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.100 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.43
GROUND DISTANCE Z2: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	8.50 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	0.02 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg

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GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z2: DIR RCA	49 deg
GROUND DISTANCE Z2: DIR Comp Limit	71 deg
GROUND DISTANCE Z2: Quad Right Blinder	8.00 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	8.00 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.535 s
GROUND DISTANCE Z2: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.43
GROUND DISTANCE Z3: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	4.26 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	0.02 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	49 deg
GROUND DISTANCE Z3: DIR Comp Limit	71 deg
GROUND DISTANCE Z3: Quad Right Blinder	4.26 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	4.26 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.600 s
GROUND DISTANCE Z3: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.43
GROUND DISTANCE Z4: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	6.00 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.02 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	49 deg
GROUND DISTANCE Z4: DIR Comp Limit	71 deg
GROUND DISTANCE Z4: Quad Right Blinder	6.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	6.00 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.500 s
GROUND DISTANCE Z4: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.43
GROUND DISTANCE Z5: Z0/Z1 Ang	2 deg

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DEVICE DEFINITION
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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	6.50 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	0.02 ohms
GROUND DISTANCE Z5: Rev Reach RCA	79 deg
GROUND DISTANCE Z5: POL Current	Zero-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg
GROUND DISTANCE Z5: DIR RCA	49 deg
GROUND DISTANCE Z5: DIR Comp Limit	71 deg
GROUND DISTANCE Z5: Quad Right Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z5: Quad Left Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu
GROUND DISTANCE Z5: Delay	1.500 s
GROUND DISTANCE Z5: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	17.50 ohms
Quad Fwd Mid	18.20 ohms
Quad Fwd Out	18.20 ohms
Fwd Rca	79 deg
Rev Reach	8.00 ohms
Quad Rev Mid	8.70 ohms
Quad Rev Out	8.70 ohms
Rev Rca	79 deg
Outer Limit Angle	120 deg
Middle Limit Angle	72 deg
Inner Limit Angle	72 deg
Outer Rgt Bld	15.20 ohms
Outer Lft Bld	12.20 ohms
Midle Rgt Bld	100.00 ohms
Midle Lft Bld	100.00 ohms
Inner Rgt Bld	14.50 ohms
Inner Lft Bld	11.50 ohms
Delay 1 Pickup	0.002 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Early
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Disabled

LOAD ENCROACHMENT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Min Volt	0.800 pu
Reach	9.14 ohms
Angle	35 deg
Pickup Delay	0.000 s
Reset Delay	0.000 s
Block	OFF
Target	Self-reset
Events	Enabled

PHASE CURRENT

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DEVICE DEFINITION
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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE TOC [GROUP 1]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.10
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	PH DIR1 BLK
PHASE TOC1: Block B	PH DIR1 BLK
PHASE TOC1: Block C	PH DIR1 BLK
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE DIRECTIONAL [GROUP 1]

PHASE DIR1: Function	Enabled
PHASE DIR1: Source	LINEA (SRC 1)
PHASE DIR1: Block	OFF
PHASE DIR1: ECA	45 deg
PHASE DIR1: Pol V Threshold	0.700 pu
PHASE DIR1: Block when V Mem Exp	No
PHASE DIR1: Target	Self-reset
PHASE DIR1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 1]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.082 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.30
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	BL-NTCO On (VO7)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	78 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.08 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.08 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 1]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	Yes
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.082 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.200 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s

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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

BREAKER FAILURE [GROUP 1] (continued from last page)

BF1: Breaker Pos1 Phase A/3P	52A1 (a) On(H7a)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	ON
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.082 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.082 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

GROUP 2

LINE PICKUP [GROUP 2]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	2.500 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Disabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 2]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 2]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.72 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	45 deg
PHASE DISTANCE Z1: DIR Comp Limit	79 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.200 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward

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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 2] (continued from last page)

PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	3.60 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	45 deg
PHASE DISTANCE Z2: DIR Comp Limit	79 deg
PHASE DISTANCE Z2: Quad Right Blinder	3.60 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.200 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	0.400 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	4.70 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	4.70 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	45 deg
PHASE DISTANCE Z3: DIR Comp Limit	79 deg
PHASE DISTANCE Z3: Quad Right Blinder	4.70 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.200 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	2.000 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	0.80 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.80 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	45 deg
PHASE DISTANCE Z4: DIR Comp Limit	79 deg
PHASE DISTANCE Z4: Quad Right Blinder	0.80 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.200 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.000 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled

GROUND DISTANCE [GROUP 2]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad

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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 2] (continued from last page)

GROUND DISTANCE Z1: Z0/Z1 Mag	3.36
GROUND DISTANCE Z1: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	1.72 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	1.72 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	45 deg
GROUND DISTANCE Z1: DIR Comp Limit	79 deg
GROUND DISTANCE Z1: Quad Right Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.200 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.36
GROUND DISTANCE Z2: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	3.60 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	3.60 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	45 deg
GROUND DISTANCE Z2: DIR Comp Limit	79 deg
GROUND DISTANCE Z2: Quad Right Blinder	7.20 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	7.20 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	0.400 s
GROUND DISTANCE Z2: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.36
GROUND DISTANCE Z3: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	4.70 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	4.70 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	45 deg
GROUND DISTANCE Z3: DIR Comp Limit	79 deg
GROUND DISTANCE Z3: Quad Right Blinder	9.40 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	9.40 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg

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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 2] (continued from last page)

GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	2.000 s
GROUND DISTANCE Z3: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.36
GROUND DISTANCE Z4: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	0.80 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.80 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	45 deg
GROUND DISTANCE Z4: DIR Comp Limit	79 deg
GROUND DISTANCE Z4: Quad Right Blinder	1.03 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	1.03 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.000 s
GROUND DISTANCE Z4: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled

POWER SWING DETECT [GROUP 2]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	7.00 ohms
Quad Fwd Mid	60.00 ohms
Quad Fwd Out	9.00 ohms
Fwd Rca	79 deg
Rev Reach	3.50 ohms
Quad Rev Mid	60.00 ohms
Quad Rev Out	7.00 ohms
Rev Rca	90 deg
Outer Limit Angle	120 deg
Middle Limit Angle	90 deg
Inner Limit Angle	79 deg
Outer Rgt Bld	9.70 ohms
Outer Lft Bld	8.00 ohms
Midle Rgt Bld	100.00 ohms
Midle Lft Bld	100.00 ohms
Inner Rgt Bld	5.20 ohms
Inner Lft Bld	6.00 ohms
Delay 1 Pickup	0.001 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Disabled

PHASE CURRENT
PHASE TOC [GROUP 2]

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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE TOC [GROUP 2] (continued from last page)

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.21
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	PH DIR1 BLK
PHASE TOC1: Block B	PH DIR1 BLK
PHASE TOC1: Block C	PH DIR1 BLK
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE IOC [GROUP 2]

PHASE IOC1: Function	Enabled
PHASE IOC1: Source	LINEA (SRC 1)
PHASE IOC1: Pickup	4.400 pu
PHASE IOC1: Delay	0.01 s
PHASE IOC1: Reset Delay	0.00 s
PHASE IOC1: Block A	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block B	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block C	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Target	Self-reset
PHASE IOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 2]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.480 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.13
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	BL-NTCO On (VO7)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEUTRAL IOC [GROUP 2]

NEUTRAL IOC1: Function	Enabled
NEUTRAL IOC1: Source	LINEA (SRC 1)
NEUTRAL IOC1: Pickup	2.200 pu
NEUTRAL IOC1: Delay	0.03 s
NEUTRAL IOC1: Reset Delay	0.00 s
NEUTRAL IOC1: Block	BL-NTCO On (VO7)
NEUTRAL IOC1: Target	Self-reset
NEUTRAL IOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 2]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	81 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	81 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 2]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

BREAKER FAILURE [GROUP 2] (continued from last page)

BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.480 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.200 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A1 (a) On(H7a)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.480 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.480 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

GROUP 3

LINE PICKUP [GROUP 3]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	2.500 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Disabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 3]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 3]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.72 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	1.72 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	45 deg
PHASE DISTANCE Z1: DIR Comp Limit	79 deg

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 3] (continued from last page)

PHASE DISTANCE Z1: Quad Right Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.200 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	3.60 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	3.60 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	45 deg
PHASE DISTANCE Z2: DIR Comp Limit	79 deg
PHASE DISTANCE Z2: Quad Right Blinder	3.60 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	3.60 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.200 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	0.600 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	5.20 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	5.20 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	45 deg
PHASE DISTANCE Z3: DIR Comp Limit	79 deg
PHASE DISTANCE Z3: Quad Right Blinder	4.70 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	4.70 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.200 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	2.000 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	4.00 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	4.00 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	45 deg
PHASE DISTANCE Z4: DIR Comp Limit	79 deg
PHASE DISTANCE Z4: Quad Right Blinder	4.00 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	4.00 ohms

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 3] (continued from last page)

PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.200 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.000 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled

GROUND DISTANCE [GROUP 3]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.36
GROUND DISTANCE Z1: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z1: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z1: Reach	1.72 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	1.72 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	45 deg
GROUND DISTANCE Z1: DIR Comp Limit	79 deg
GROUND DISTANCE Z1: Quad Right Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.200 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.36
GROUND DISTANCE Z2: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z2: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z2: Reach	3.60 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	3.60 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	45 deg
GROUND DISTANCE Z2: DIR Comp Limit	79 deg
GROUND DISTANCE Z2: Quad Right Blinder	7.20 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	7.20 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	0.600 s
GROUND DISTANCE Z2: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.36
GROUND DISTANCE Z3: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z3: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z3: Reach	5.20 ohms

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 3] (continued from last page)

GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	5.20 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	45 deg
GROUND DISTANCE Z3: DIR Comp Limit	79 deg
GROUND DISTANCE Z3: Quad Right Blinder	7.20 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	7.20 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	2.000 s
GROUND DISTANCE Z3: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.36
GROUND DISTANCE Z4: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z4: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z4: Reach	4.00 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	4.00 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	45 deg
GROUND DISTANCE Z4: DIR Comp Limit	79 deg
GROUND DISTANCE Z4: Quad Right Blinder	8.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	0.10 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.000 s
GROUND DISTANCE Z4: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled

POWER SWING DETECT [GROUP 3]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	7.00 ohms
Quad Fwd Mid	60.00 ohms
Quad Fwd Out	9.00 ohms
Fwd Rca	79 deg
Rev Reach	3.50 ohms
Quad Rev Mid	60.00 ohms
Quad Rev Out	7.00 ohms
Rev Rca	90 deg
Outer Limit Angle	120 deg
Middle Limit Angle	90 deg
Inner Limit Angle	79 deg
Outer Rgt Bld	9.70 ohms
Outer Lft Bld	8.00 ohms
Midle Rgt Bld	100.00 ohms
Midle Lft Bld	100.00 ohms
Inner Rgt Bld	5.20 ohms
Inner Lft Bld	6.00 ohms
Delay 1 Pickup	0.001 s

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DESCRIPTION: (NONE)
TEXT COLOR

POWER SWING DETECT [GROUP 3] (continued from last page)

Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Disabled

PHASE CURRENT

PHASE TOC [GROUP 3]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.21
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	PH DIR1 BLK
PHASE TOC1: Block B	PH DIR1 BLK
PHASE TOC1: Block C	PH DIR1 BLK
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE IOC [GROUP 3]

PHASE IOC1: Function	Enabled
PHASE IOC1: Source	LINEA (SRC 1)
PHASE IOC1: Pickup	4.400 pu
PHASE IOC1: Delay	0.01 s
PHASE IOC1: Reset Delay	0.00 s
PHASE IOC1: Block A	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block B	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block C	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Target	Self-reset
PHASE IOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 3]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.480 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.13
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	BL-NTCO On (VO7)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEUTRAL IOC [GROUP 3]

NEUTRAL IOC1: Function	Enabled
NEUTRAL IOC1: Source	LINEA (SRC 1)
NEUTRAL IOC1: Pickup	2.200 pu
NEUTRAL IOC1: Delay	0.03 s
NEUTRAL IOC1: Reset Delay	0.00 s
NEUTRAL IOC1: Block	BL-NTCO On (VO7)
NEUTRAL IOC1: Target	Self-reset
NEUTRAL IOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 3]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	81 ° Lag

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DESCRIPTION: (NONE)
TEXT COLOR

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 3] (continued from last page)

NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	81 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 3]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.480 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.200 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A1 (a) On(H7a)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.480 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.480 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

CONTROL ELEMENTS

SETTING GROUPS

Function	Enabled
Block	OFF
Group 2 Activate On	OFF
Group 3 Activate On	ON
Group 4 Activate On	OFF
Group 5 Activate On	OFF
Group 6 Activate On	OFF
Group 1 Name	C/TELEPROT
Group 2 Name	S/TELEPROT
Group 3 Name	C/TELEPROT
Group 4 Name	
Group 5 Name	
Group 6 Name	
Events	Enabled

SELECTOR SWITCHES

SELECTOR SWITCH 1: Function	Enabled
SELECTOR SWITCH 1: Full Range	2
SELECTOR SWITCH 1: Timeout	3.0 s
SELECTOR SWITCH 1: Step-Up	CONTROL PUSHBUTTON 1 ON
SELECTOR SWITCH 1: Step-Up Mode	Time-out
SELECTOR SWITCH 1: Acknowledge	OFF
SELECTOR SWITCH 1: 3Bit A0	OFF
SELECTOR SWITCH 1: 3Bit A1	OFF

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DESCRIPTION: (NONE)
TEXT COLOR

SELECTOR SWITCHES (continued from last page)

SELECTOR SWITCH 1: 3Bit A2	OFF
SELECTOR SWITCH 1: 3Bit Mode	Time-out
SELECTOR SWITCH 1: 3Bit Ack	OFF
SELECTOR SWITCH 1: Power-Up Mode	Restore
SELECTOR SWITCH 1: Targets	Self-reset
SELECTOR SWITCH 1: Events	Disabled
SELECTOR SWITCH 2: Function	Enabled
SELECTOR SWITCH 2: Full Range	2
SELECTOR SWITCH 2: Timeout	3.0 s
SELECTOR SWITCH 2: Step-Up	CONTROL PUSHBUTTON 2 ON
SELECTOR SWITCH 2: Step-Up Mode	Time-out
SELECTOR SWITCH 2: Acknowledge	OFF
SELECTOR SWITCH 2: 3Bit A0	OFF
SELECTOR SWITCH 2: 3Bit A1	OFF
SELECTOR SWITCH 2: 3Bit A2	OFF
SELECTOR SWITCH 2: 3Bit Mode	Time-out
SELECTOR SWITCH 2: 3Bit Ack	OFF
SELECTOR SWITCH 2: Power-Up Mode	Restore
SELECTOR SWITCH 2: Targets	Self-reset
SELECTOR SWITCH 2: Events	Enabled

TRIP OUTPUT

Trip Mode	3 Pole Only
Trip 3-Pole Input1	TRIP GRAL On (VO2)
Trip 3-Pole Input2	OFF
Trip 3-Pole Input3	OFF
Trip 3-Pole Input4	OFF
Trip 3-Pole Input5	OFF
Trip 3-Pole Input6	OFF
Trip 1-Pole Input1	OFF
Trip 1-Pole Input2	OFF
Trip 1-Pole Input3	OFF
Trip 1-Pole Input4	OFF
Trip 1-Pole Input5	OFF
Trip 1-Pole Input6	OFF
Trip Reclose Input1	OFF
Trip Reclose Input2	OFF
Trip Reclose Input3	OFF
Trip Reclose Input4	OFF
Trip Reclose Input5	OFF
Trip Reclose Input6	OFF
BKR Phase A Open	LINE PICKUP I<A
BKR Phase B Open	LINE PICKUP I<B
BKR Phase C Open	LINE PICKUP I<C
Trip Force 3-Pole	OFF
Trip Pilot Priority	0.000 s
Reverse Fault	OFF
Trip Delay On Evolving Faults	0.000 s
Trip Events	Enabled

MONITORING ELEMENTS

VT FUSE FAILURE

VT FUSE FAILURE 1: Function	Enabled
VT FUSE FAILURE 2: Function	Enabled

PILOT SCHEMES

1P POTT SCHEME

Function	Enabled
Permissive Echo	Disabled
Echo Condition	OFF
Rx Pickup Delay	0.000 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.170 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Line End Open Pickup Delay	0.050 s
Seal-In Delay	0.000 s
Gnd Dir OC Fwd	OFF
Comm Bits	1

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DESCRIPTION: (NONE)
TEXT COLOR

1P POTT SCHEME (continued from last page)

Rx1	RECEPCION 2T On (VO37)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset
Event	Enabled

1P HYBRID POTT SCHEME

Function	Enabled
Permissive Echo	Disabled
Echo Condition	OFF
Weak Infeed	Disabled
W/I Condition	OFF
Rx Pickup Delay	0.000 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.150 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Seal-In Delay	0.000 s
Gnd Dir OC Fwd	OFF
Gnd Dir OC Rev	BL-NTCO On (VO7)
No of Comm Bits	1
Rx1	RECEPCION 3T On (VO36)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset
Event	Enabled

INPUTS/OUTPUTS

CONTACT INPUTS

[H7A] Contact Input 1 ID	52A1 (a)
[H7A] Contact Input 1 Debounce Time	2.0 ms
[H7A] Contact Input 1 Events	Enabled
[H7C] Contact Input 2 ID	79 conectado
[H7C] Contact Input 2 Debounce Time	2.0 ms
[H7C] Contact Input 2 Events	Enabled
[H8A] Contact Input 3 ID	86B--> 50BF
[H8A] Contact Input 3 Debounce Time	2.0 ms
[H8A] Contact Input 3 Events	Enabled
[H8C] Contact Input 4 ID	RX RANCAGUA
[H8C] Contact Input 4 Debounce Time	2.0 ms
[H8C] Contact Input 4 Events	Enabled
[U7A] Contact Input 5 ID	FALLA RELE
[U7A] Contact Input 5 Debounce Time	2.0 ms
[U7A] Contact Input 5 Events	Disabled
[U7C] Contact Input 6 ID	Cont Ip 6
[U7C] Contact Input 6 Debounce Time	2.0 ms
[U7C] Contact Input 6 Events	Disabled
[U8A] Contact Input 7 ID	Cont Ip 7
[U8A] Contact Input 7 Debounce Time	2.0 ms
[U8A] Contact Input 7 Events	Disabled
[U8C] Contact Input 8 ID	Cont Ip 8
[U8C] Contact Input 8 Debounce Time	2.0 ms
[U8C] Contact Input 8 Events	Disabled
[W1A] Contact Input 9 ID	RX ITAHUE
[W1A] Contact Input 9 Debounce Time	2.0 ms
[W1A] Contact Input 9 Events	Enabled
[W1C] Contact Input 10 ID	80 SISTEMA 1
[W1C] Contact Input 10 Debounce Time	2.0 ms
[W1C] Contact Input 10 Events	Enabled
[W2A] Contact Input 11 ID	CHANGE GRP
[W2A] Contact Input 11 Debounce Time	2.0 ms
[W2A] Contact Input 11 Events	Enabled
[W2C] Contact Input 12 ID	86B -154 KV
[W2C] Contact Input 12 Debounce Time	2.0 ms
[W2C] Contact Input 12 Events	Enabled
[W3A] Contact Input 13 ID	Cont Ip 13
[W3A] Contact Input 13 Debounce Time	2.0 ms

ALTO JAHUEL_LIATING-RGUA1_GE D60_110804.URS
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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT INPUTS (continued from last page)

[W3A] Contact Input 13 Events	Disabled
[W3C] Contact Input 14 ID	Cont Ip 14
[W3C] Contact Input 14 Debounce Time	2.0 ms
[W3C] Contact Input 14 Events	Disabled
[W4A] Contact Input 15 ID	Cont Ip 15
[W4A] Contact Input 15 Debounce Time	2.0 ms
[W4A] Contact Input 15 Events	Disabled
[W4C] Contact Input 16 ID	Cont Ip 16
[W4C] Contact Input 16 Debounce Time	2.0 ms
[W4C] Contact Input 16 Events	Disabled
[W5A] Contact Input 17 ID	Cont Ip 17
[W5A] Contact Input 17 Debounce Time	2.0 ms
[W5A] Contact Input 17 Events	Disabled
[W5C] Contact Input 18 ID	Cont Ip 18
[W5C] Contact Input 18 Debounce Time	2.0 ms
[W5C] Contact Input 18 Events	Disabled
[W6A] Contact Input 19 ID	Cont Ip 19
[W6A] Contact Input 19 Debounce Time	2.0 ms
[W6A] Contact Input 19 Events	Disabled
[W6C] Contact Input 20 ID	Cont Ip 20
[W6C] Contact Input 20 Debounce Time	2.0 ms
[W6C] Contact Input 20 Events	Disabled
[W7A] Contact Input 21 ID	Cont Ip 21
[W7A] Contact Input 21 Debounce Time	2.0 ms
[W7A] Contact Input 21 Events	Disabled
[W7C] Contact Input 22 ID	Cont Ip 22
[W7C] Contact Input 22 Debounce Time	2.0 ms
[W7C] Contact Input 22 Events	Disabled
[W8A] Contact Input 23 ID	Cont Ip 23
[W8A] Contact Input 23 Debounce Time	2.0 ms
[W8A] Contact Input 23 Events	Disabled
[W8C] Contact Input 24 ID	Cont Ip 24
[W8C] Contact Input 24 Debounce Time	2.0 ms
[W8C] Contact Input 24 Events	Disabled

CONTACT INPUT THRESHOLDS

52A1 (a), 79 conectado, 86B--> 50BF, RX RANCAGUA(H7a, H7c, H8a, H8c)	84 Vdc
FALLA RELE, Cont Ip 6, Cont Ip 7, Cont Ip 8(U7a, U7c, U8a, U8c)	84 Vdc
RX ITAHUE, 80 SISTEMA 1, CHANGE GRP, 86B -154 KV(W1a, W1c, W2a, W2	84 Vdc
Cont Ip 13, Cont Ip 14, Cont Ip 15, Cont Ip 16(W3a, W3c, W4a, W4c)	84 Vdc
Cont Ip 17, Cont Ip 18, Cont Ip 19, Cont Ip 20(W5a, W5c, W6a, W6c)	84 Vdc
Cont Ip 21, Cont Ip 22, Cont Ip 23, Cont Ip 24(W7a, W7c, W8a, W8c)	84 Vdc

CONTACT OUTPUTS

[H1] Contact Output 1 ID	TRIP BD1
[H1] Contact Output 1 Operate	TRIP GRAL On (VO2)
[H1] Contact Output 1 Seal-In	OFF
[H1] Contact Output 1 Events	Enabled
[H2] Contact Output 2 ID	RETRIP 50BF
[H2] Contact Output 2 Operate	BKR FAIL 1 RETRIP
[H2] Contact Output 2 Seal-In	OFF
[H2] Contact Output 2 Events	Enabled
[H3] Contact Output 3 ID	50BF --> 86B
[H3] Contact Output 3 Operate	BKR FAIL 1 T1 OP
[H3] Contact Output 3 Seal-In	OFF
[H3] Contact Output 3 Events	Enabled
[H4] Contact Output 4 ID	OPERACION 79
[H4] Contact Output 4 Operate	ORD. CIERRE On (VO6)
[H4] Contact Output 4 Seal-In	OFF
[H4] Contact Output 4 Events	Enabled
[M1] Contact Output 7 ID	CONT 79 S2
[M1] Contact Output 7 Operate	SELECTOR 1 POS 1
[M1] Contact Output 7 Seal-In	OFF
[M1] Contact Output 7 Events	Enabled
[M2] Contact Output 8 ID	TX ITAHUE
[M2] Contact Output 8 Operate	Tx ITAHUE On (VO45)
[M2] Contact Output 8 Seal-In	OFF
[M2] Contact Output 8 Events	Enabled
[M3] Contact Output 9 ID	URT REC ACEL

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DEVICE DEFINITION
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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[M3] Contact Output 9 Operate	RECEPCION On (VO41)
[M3] Contact Output 9 Seal-In	OFF
[M3] Contact Output 9 Events	Enabled
[M4] Contact Output 10 ID	URT OPE Z1
[M4] Contact Output 10 Operate	OPERA ZONA 1 On (VO23)
[M4] Contact Output 10 Seal-In	OFF
[M4] Contact Output 10 Events	Enabled
[M5] Contact Output 11 ID	URT OPE Z4
[M5] Contact Output 11 Operate	OPERA ZONA 4 On (VO9)
[M5] Contact Output 11 Seal-In	OFF
[M5] Contact Output 11 Events	Enabled
[M6] Contact Output 12 ID	URT OPE Z5
[M6] Contact Output 12 Operate	OPERA Z5 On (VO26)
[M6] Contact Output 12 Seal-In	OFF
[M6] Contact Output 12 Events	Enabled
[M8] Contact Output 14 ID	PRUEBA D60
[M8] Contact Output 14 Operate	TRIP GRAL On (VO2)
[M8] Contact Output 14 Seal-In	OFF
[M8] Contact Output 14 Events	Enabled
[P1] Contact Output 15 ID	URT Z2 OPER
[P1] Contact Output 15 Operate	OPERA ZONA 2 On (VO24)
[P1] Contact Output 15 Seal-In	OFF
[P1] Contact Output 15 Events	Enabled
[P2] Contact Output 16 ID	URT Z3 OP
[P2] Contact Output 16 Operate	OPERA Z3 On (VO25)
[P2] Contact Output 16 Seal-In	OFF
[P2] Contact Output 16 Events	Enabled
[P3] Contact Output 17 ID	URT OPER 79
[P3] Contact Output 17 Operate	ORD. CIERRE On (VO6)
[P3] Contact Output 17 Seal-In	OFF
[P3] Contact Output 17 Events	Enabled
[P4] Contact Output 18 ID	URT SOTF OP
[P4] Contact Output 18 Operate	LINE PICKUP OP
[P4] Contact Output 18 Seal-In	OFF
[P4] Contact Output 18 Events	Enabled
[P5] Contact Output 19 ID	URT 50 BF OP
[P5] Contact Output 19 Operate	BKR FAIL 1 T2 OP
[P5] Contact Output 19 Seal-In	OFF
[P5] Contact Output 19 Events	Enabled
[P6] Contact Output 20 ID	URT TRIP S1
[P6] Contact Output 20 Operate	TRIP GRAL On (VO2)
[P6] Contact Output 20 Seal-In	OFF
[P6] Contact Output 20 Events	Enabled
[P7] Contact Output 21 ID	URT FA RELE
[P7] Contact Output 21 Operate	FALLA RELE On (VO21)
[P7] Contact Output 21 Seal-In	OFF
[P7] Contact Output 21 Events	Enabled
[P8] Contact Output 22 ID	TX RANCAGUA
[P8] Contact Output 22 Operate	Tx RANCAGUA On (VO44)
[P8] Contact Output 22 Seal-In	OFF
[P8] Contact Output 22 Events	Enabled
[U1] Contact Output 23 ID	80 SISTEMA 1
[U1] Contact Output 23 Operate	80 SISTEMA 1 On(W1c)
[U1] Contact Output 23 Seal-In	OFF
[U1] Contact Output 23 Events	Enabled

VIRTUAL OUTPUTS

Virtual Output 1 ID	BLQ Zonas PH
Virtual Output 1 Events	Enabled
Virtual Output 2 ID	TRIP GRAL
Virtual Output 2 Events	Enabled
Virtual Output 3 ID	OSCILOGRAFIA
Virtual Output 3 Events	Enabled
Virtual Output 4 ID	pkp Z1o z2
Virtual Output 4 Events	Enabled
Virtual Output 6 ID	ORD. CIERRE
Virtual Output 6 Events	Enabled
Virtual Output 7 ID	BL-NTCO
Virtual Output 7 Events	Enabled

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 8 ID	POWER SWING
Virtual Output 8 Events	Enabled
Virtual Output 9 ID	OPERA ZONA 4
Virtual Output 9 Events	Enabled
Virtual Output 10 ID	RESET 79
Virtual Output 10 Events	Enabled
Virtual Output 11 ID	Tx OPLAT
Virtual Output 11 Events	Disabled
Virtual Output 12 ID	TX MMOO
Virtual Output 12 Events	Enabled
Virtual Output 13 ID	LED Z1
Virtual Output 13 Events	Enabled
Virtual Output 14 ID	LED Z2
Virtual Output 14 Events	Enabled
Virtual Output 15 ID	LED Z3
Virtual Output 15 Events	Enabled
Virtual Output 16 ID	LED Z4
Virtual Output 16 Events	Enabled
Virtual Output 17 ID	79 on
Virtual Output 17 Events	Enabled
Virtual Output 18 ID	79 off
Virtual Output 18 Events	Enabled
Virtual Output 19 ID	reset led
Virtual Output 19 Events	Enabled
Virtual Output 21 ID	FALLA RELE
Virtual Output 21 Events	Enabled
Virtual Output 22 ID	RECEP ACELER
Virtual Output 22 Events	Enabled
Virtual Output 23 ID	OPERA ZONA 1
Virtual Output 23 Events	Enabled
Virtual Output 24 ID	OPERA ZONA 2
Virtual Output 24 Events	Enabled
Virtual Output 25 ID	OPERA Z3
Virtual Output 25 Events	Enabled
Virtual Output 26 ID	OPERA Z5
Virtual Output 26 Events	Enabled
Virtual Output 27 ID	67-67N
Virtual Output 27 Events	Disabled
Virtual Output 28 ID	51-51N
Virtual Output 28 Events	Enabled
Virtual Output 29 ID	50-50N
Virtual Output 29 Events	Enabled
Virtual Output 30 ID	Partida 79
Virtual Output 30 Events	Enabled
Virtual Output 31 ID	Control 79S2
Virtual Output 31 Events	Enabled
Virtual Output 32 ID	67N
Virtual Output 32 Events	Enabled
Virtual Output 33 ID	51-51N
Virtual Output 33 Events	Enabled
Virtual Output 34 ID	50-50N
Virtual Output 34 Events	Enabled
Virtual Output 35 ID	LED Z5
Virtual Output 35 Events	Enabled
Virtual Output 36 ID	RECEPCION 3T
Virtual Output 36 Events	Enabled
Virtual Output 37 ID	RECEPCION 2T
Virtual Output 37 Events	Enabled
Virtual Output 38 ID	PC_OPEN_OK
Virtual Output 38 Events	Enabled
Virtual Output 39 ID	PCORTES_DBI
Virtual Output 39 Events	Enabled
Virtual Output 40 ID	SET_GROUP2
Virtual Output 40 Events	Enabled
Virtual Output 41 ID	RECEPCION
Virtual Output 41 Events	Enabled
Virtual Output 42 ID	PC_CLOSE_OK
Virtual Output 42 Events	Enabled
Virtual Output 43 ID	RESET_GROUP1

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 43 Events	Enabled
Virtual Output 44 ID	Tx RANCAGUA
Virtual Output 44 Events	Enabled
Virtual Output 45 ID	Tx ITAHUE
Virtual Output 45 Events	Enabled
Virtual Output 46 ID	BLOQ LOAD E
Virtual Output 46 Events	Disabled
Virtual Output 47 ID	CAMBIO G1-G2
Virtual Output 47 Events	Enabled
Virtual Output 48 ID	ECHO COND 2T
Virtual Output 48 Events	Enabled
Virtual Output 49 ID	ECHO COND 3T
Virtual Output 49 Events	Enabled
Virtual Output 50 ID	POTT OP 2T
Virtual Output 50 Events	Enabled

RESETTING

Operand	reset led On (VO19)

Max / Centro / Alto Jahuel / 154kV / 7SA612V4.6 070915 Var_A1

MLFB:	7SA61255AE217PR4
Versión del juego de parámetros:	V04.60.10
Ruta del equipo:	C:\Siemens\Digsi4\D4PROJ\Max\P7DI\GV\ST\0000004c
Autor:	
Creado el:	21.10.15 15:47:28
Mod. por última vez el:	21.10.15 16:25:44
Modo de operación:	Sin línea
Comentario:	
Valores de ajuste en:	Presentación secundaria de los valores

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4.1 Grupo Change Group 46

1 Device Configuration

Nº	Función	Volumen
0103	Setting Group Change Option	Enabled
0110	Trip mode	3pole only
0114	21 Distance protection pickup program	Z< (quadrilateral)
0120	68 Power Swing detection	Enabled
0121	85-21 Pilot Protection for Distance prot	POTT
0122	DTT Direct Transfer Trip	Disabled
0124	50HS Instantaneous SOTF	Enabled
0125	Weak Infeed (Trip and/or Echo)	Enabled
0126	50(N)/51(N) Backup OverCurrent	Time Overcurrent Curve IEC
0131	50N/51N Ground OverCurrent	Time Overcurrent Curve IEC
0132	85-67N Pilot Protection Gnd. OverCurrent	Disabled
0133	79 Auto-Reclose Function	Disabled
0134	Auto-Reclose control mode	with Trip and Action time
0135	25 Synchronism and Voltage Check	Enabled
0136	81 Over/Underfrequency Protection	Disabled
0137	27, 59 Under/Overvoltage Protection	Disabled
0138	Fault Locator	Enabled
0139	50BF Breaker Failure Protection	Enabled
0140	74TC Trip Circuit Supervision	Disabled
0142	49 Thermal Overload Protection	Disabled

2 Power System Data 1

2.1 Grupo Power System Data 1; Grupo Transformers

Grupo Power System Data 1; Grupo Transformers

Nº	Parámetro	Valor	Grupo
0201	CT Starpoint	towards Line	todo
0203	Rated Primary Voltage	154,0 kV	todo
0204	Rated Secondary Voltage (Ph-Ph)	110 V	todo
0205	CT Rated Primary Current	600 A	todo
0206	CT Rated Secondary Current	5A	todo
0210	V4 voltage transformer is	Vsy2 transformer	todo
0211	Matching ratio Phase-VT To Open-Delta-VT	0,58	todo
0212	VT connection for Vsy2	B-G	todo
0214A	Angle adjustment Vsy2-Vsy1	0 °	todo
0215	Matching ratio Vsy1 / Vsy2	1,00	todo
0220	I4 current transformer is	Neutral Current (of the protected line)	todo
0221	Matching ratio I4/Iph for CT's	1,000	todo

2.2 Grupo Power System Data 1; Grupo Power System

Grupo Power System Data 1; Grupo Power System

Nº	Parámetro	Valor	Grupo
0207	System Starpoint is	Solid Grounded	todo
0230	Rated Frequency	50 Hz	todo
0235	Phase Sequence	A B C	todo
0236	Distance measurement unit	km	todo
0237	Setting format for zero seq.comp. format	Zero seq. comp. factor K0 and angle(K0)	todo

2.3 Grupo Power System Data 1; Grupo Breaker

Grupo Power System Data 1; Grupo Breaker

Nº	Parámetro	Valor	Grupo
0239	Closing (operating) time of 52 (CB)	0,06 sec	todo
0240A	Minimum TRIP Command Duration	0,12 sec	todo
0241A	Maximum Close Command Duration	0,25 sec	todo
0242	Dead Time for CB test-autoreclosure	0,10 sec	todo

3 Grupos de parámetros

3.1 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	A
1104	Measurement: Full Scale Current (100%)	600 A	A
1105	Line Angle	79 °	A
1211	Angle of inclination, distance charact.	79 °	A
1107	P,Q operational measured values sign	not reversed	A
1110	x' - Line Reactance per length unit	0,0352 Ohm / km	A
1111	Line Length	50,6 km	A
1120	Zero seq. comp. factor K0 for zone Z1	0,809	A
1121	Zero seq. comp. angle for zone Z1	3,02 °	A
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	A
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	A

3.2 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	A
1131A	Pole Open Voltage Threshold	11 V	A
1132A	Seal-in Time after ALL closures	0,20 sec	A
1133A	minimal time for line open before SOTF	0,25 sec	A
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	A
1135	RESET of Trip Command	with CB(52a) AND I < PoleOpenCurrent	A
1140A	CT Saturation Threshold	100,0 A	A
1150A	Seal-in Time after MANUAL closures	0,20 sec	A
1151	Manual CLOSE COMMAND generation	NO	A
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.3 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	A
1202	Phase Current threshold for dist. meas.	0,25 A	A
1211	Angle of inclination, distance charact.	79 °	A
1208	Series compensated line	NO	A
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	A
1241	R load, minimum Load Impedance (ph-g)	9,140 Ohm	A
1242	PHI load, maximum Load Angle (ph-g)	35 °	A
1243	R load, minimum Load Impedance (ph-ph)	9,140 Ohm	A
1244	PHI load, maximum Load Angle (ph-ph)	35 °	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.4 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,25 A	A
1204	3V0 threshold zero seq. voltage pickup	2 V	A
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	A
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	A
1221A	Loop selection with 2Ph-G faults	all loops	A

3.5 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1325	T3 delay	2,50 sec	A
1335	T4 delay	1,50 sec	A
1345	T5 delay	oo sec	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A

3.6 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	A
1302	R(Z1), Resistance for ph-ph-faults	1,860 Ohm	A
1303	X(Z1), Reactance	1,860 Ohm	A
1304	RG(Z1), Resistance for ph-gnd faults	1,860 Ohm	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1307	Zone Reduction Angle (load compensation)	0 °	A

3.7 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	A
1352	R(Z1B), Resistance for ph-ph-faults	8,000 Ohm	A
1353	X(Z1B), Reactance	8,500 Ohm	A
1354	RG(Z1B), Resistance for ph-gnd faults	8,000 Ohm	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.8 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	A
1312	R(Z2), Resistance for ph-ph-faults	4,266 Ohm	A
1313	X(Z2), Reactance	4,266 Ohm	A
1314	RG(Z2), Resistance for ph-gnd faults	4,266 Ohm	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A

3.9 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	A
1322	R(Z3), Resistance for ph-ph-faults	6,000 Ohm	A
1323	X(Z3), Reactance	6,000 Ohm	A
1324	RG(Z3), Resistance for ph-gnd faults	6,000 Ohm	A
1325	T3 delay	2,50 sec	A

3.10 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	A
1332	R(Z4), Resistance for ph-ph-faults	6,500 Ohm	A
1333	X(Z4), Reactance	6,500 Ohm	A
1334	RG(Z4), Resistance for ph-gnd faults	13,000 Ohm	A
1335	T4 delay	1,50 sec	A

3.11 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	A
1342	R(Z5), Resistance for ph-ph-faults	14,528 Ohm	A
1343	X(Z5)+, Reactance for Forward direction	14,528 Ohm	A
1344	RG(Z5), Resistance for ph-gnd faults	14,528 Ohm	A
1345	T5 delay	oo sec	A
1346	X(Z5)-, Reactance for Reverse direction	7,000 Ohm	A

3.12 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	A
2006	68T Power swing trip	NO	A
2007	68 Trip delay after Power Swing Blocking	0,08 sec	A

3.13 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	A
2102	Type of Line	Three Terminals	A
2103A	Time for send signal prolongation	0,10 sec	A
2109A	Transient Block.: Duration external flt.	0,03 sec	A
2110A	Transient Block.: Blk.T. after ext. flt.	0,17 sec	A

3.14 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	A

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	9,41 A	A

3.15 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	A
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	A
2503A	Trip Extension / Echo Impulse time	0,05 sec	A
2504A	Echo Block Time	0,50 sec	A
2505	Undervoltage (ph-g)	25 V	A
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.16 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	A
2680	Trip time delay after SOTF	0,00 sec	A

3.17 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	oo A	A
2611	50-B1 Delay	oo sec	A
2612	50N-B1 Pickup	oo A	A
2613	50N-B1 Delay	oo sec	A
2614	Instantaneous trip via BI	NO	A
2615	Instantaneous trip after SwitchOnToFault	NO	A

3.18 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	A
2621	50-B2 Delay	oo sec	A
2622	50N-B2 Pickup	oo A	A
2623	50N-B2 Delay	oo sec	A
2624	Instantaneous trip via Pilot Prot./BI	NO	A
2625	Instantaneous trip after SwitchOnToFault	NO	A

3.19 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	A
2642	51-B Time Dial	0,10 sec	A
2646	51-B Additional Time Delay	0,00 sec	A
2650	51N-B Pickup	0,41 A	A
2652	51N-B Time Dial	0,30 sec	A
2656	51N-B Additional Time Delay	0,00 sec	A
2660	IEC Curve	Normal Inverse	A
2670	Instantaneous trip via Pilot Prot./BI	NO	A
2671	Instantaneous trip after SwitchOnToFault	NO	A

3.20 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	A
2631	50-STUB Delay	oo sec	A
2632	50N-STUB Pickup	oo A	A
2633	50N-STUB Delay	oo sec	A
2634	Instantaneous trip via Pilot Prot./BI	NO	A
2635	Instantaneous trip after SwitchOnToFault	NO	A

3.21 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	A
2902A	Voltage Threshold for Balance Monitoring	50 V	A
2903A	Balance Factor for Voltage Monitor	0,75	A
2904A	Current Threshold for Balance Monitoring	0,50 A	A
2905A	Balance Factor for Current Monitor	0,50	A
2906A	Summated Current Monitoring Threshold	0,50 A	A
2907A	Summated Current Monitoring Factor	0,10	A
2908A	T Balance Factor for Voltage Monitor	5 sec	A
2909A	T Current Balance Monitor	5 sec	A

3.22 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	A
2911A	Minimum Voltage Threshold V>	30 V	A
2912A	Maximum Current Threshold I<	0,50 A	A
2913A	Maximum Voltage Threshold V< (3phase)	5 V	A
2914A	Differential Current Threshold (3phase)	0,50 A	A
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	A
2916A	Delay Voltage Failure Supervision	3,00 sec	A

3.23 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	A

3.24 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	A
2942	Limit setting PhiB	340 °	A
2943	Minimum value I1>	0,25 A	A
2944	Minimum value U1>	20 V	A

3.25 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	A
3102	Block 50N/51N for Distance protection	NO	A
3174	Block 50N/51N for Pickup 21	in each zone	A
3104A	Stabilisation Slope with Iphase	10 %	A
3170	2nd harmonic ratio for inrush restraint	20 %	A
3171	Max.Current, overriding inrush restraint	37,50 A	A
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	A
3173	Trip time delay after SOTF	0,00 sec	A

3.26 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Inactive	A
3111	Pickup	6,50 A	A
3112	Time Delay	0,30 sec	A
3113	Instantaneous trip via Pilot Prot./BI	NO	A
3114	Instantaneous trip after SwitchOnToFault	NO	A
3115	Inrush Blocking	NO	A

3.27 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	A
3121	Pickup	0,83 A	A
3122	Time Delay	0,60 sec	A
3123	Instantaneous trip via Pilot Prot./BI	NO	A
3124	Instantaneous trip after SwitchOnToFault	NO	A
3125	Inrush Blocking	NO	A

3.28 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	A
3131	Pickup	0,83 A	A
3132	Time Delay	0,90 sec	A
3133	Instantaneous trip via Pilot Prot./BI	NO	A
3134	Instantaneous trip after SwitchOnToFault	NO	A
3135	Inrush Blocking	NO	A

3.29 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	A
3141	Pickup	0,41 A	A
3143	Time Dial	0,30 sec	A
3147	Additional Time Delay	0,00 sec	A
3148	Instantaneous trip via Pilot Prot./BI	NO	A
3149	Instantaneous trip after SwitchOnToFault	NO	A
3150	Inrush Blocking	NO	A
3151	IEC Curve	Normal Inverse	A

3.30 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	A
3162A	ALPHA, lower angle for forward direction	338 °	A
3163A	BETA, upper angle for forward direction	122 °	A
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	A
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	A
3167	Min. neg. seq. polarizing current 3I2	0,25 A	A
3168	Compensation angle PHI comp. for Sr	255 °	A
3169	Forward direction power threshold	1,5 VA	A

3.31 Grupo 25 Synchronism and Voltage Check; Grupo General

Grupo 25 Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	25 Synchronism and Voltage Check	OFF	A
3502	Voltage threshold dead line / bus	10 V	A
3503	Voltage threshold live line / bus	44 V	A
3504	Maximum permissible voltage	70 V	A
3507	Maximum duration of synchronism-check	1,00 sec	A
3508	Synchronous condition stability timer	0,00 sec	A
3509	Synchronizable circuit breaker	<none>	todo

3.32 Grupo 25 Synchronism and Voltage Check; Grupo with AR

Grupo 25 Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of 52 closing time	A
3511	Maximum voltage difference	10,0 V	A
3512	Maximum frequency difference	0,10 Hz	A
3513	Maximum angle difference	10 °	A
3515A	79 at Vsy2>, Vsy1>, and Synchr.	YES	A
3516	79 at Vsy1< and Vsy2>	NO	A
3517	79 at Vsy1> and Vsy2<	NO	A
3518	79 at Vsy1< and Vsy2<	NO	A
3519	Override of any check before 79	NO	A

3.33 Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of 52 closing time	A
3531	Maximum voltage difference	5,0 V	A
3532	Maximum frequency difference	0,10 Hz	A
3533	Maximum angle difference	10 °	A
3535A	Manual Close at Vsy2>, Vsy1>, and Synchr	NO	A
3536	Manual Close at Vsy1< and Vsy2>	NO	A
3537	Manual Close at Vsy1> and Vsy2<	NO	A
3538	Manual Close at Vsy1< and Vsy2<	NO	A
3539	Override of any check before Man.Cl	NO	A

3.34 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	A
3806	Load Compensation	NO	A

3.35 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	A
3902	50BF Pickup current threshold	1,67 A	A
3904	Delay after 1pole start for local trip	0,01 sec	A
3905	Delay after 3pole start for local trip	0,01 sec	A
3906	Delay of 2nd element for busbar trip	0,20 sec	A
3907	Delay for start with defective bkr.	0,00 sec	A
3908	Trip output selection with defective bkr	NO	A
3909	Check Breaker contacts	YES	A

3.36 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	A
3922	Trip delay of end fault element	2,00 sec	A

3.37 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	A
3932	Trip delay with pole discrepancy	2,00 sec	A

3.38 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	B
1104	Measurement: Full Scale Current (100%)	600 A	B
1105	Line Angle	79 °	B
1211	Angle of inclination, distance charact.	79 °	B
1107	P,Q operational measured values sign	not reversed	B
1110	x' - Line Reactance per length unit	0,0352 Ohm / km	B
1111	Line Length	60,6 km	B
1120	Zero seq. comp. factor K0 for zone Z1	0,809	B
1121	Zero seq. comp. angle for zone Z1	3,02 °	B
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	B
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	B

3.39 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,50 A	B
1131A	Pole Open Voltage Threshold	11 V	B
1132A	Seal-in Time after ALL closures	0,20 sec	B
1133A	minimal time for line open before SOTF	0,25 sec	B
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	B
1135	RESET of Trip Command	with CB(52a) AND I < PoleOpenCurrent	B
1140A	CT Saturation Threshold	100,0 A	B
1150A	Seal-in Time after MANUAL closures	0,20 sec	B
1151	Manual CLOSE COMMAND generation	NO	B
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.40 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	B
1202	Phase Current threshold for dist. meas.	0,50 A	B
1211	Angle of inclination, distance charact.	79 °	B
1208	Series compensated line	NO	B
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	B
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	B
1242	PHI load, maximum Load Angle (ph-g)	30 °	B
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	B
1244	PHI load, maximum Load Angle (ph-ph)	30 °	B
1357	Z1B enabled before 1st AR (int. or ext.)	NO	B

3.41 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,50 A	B
1204	3V0 threshold zero seq. voltage pickup	oo V	B
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	B
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	B
1221A	Loop selection with 2Ph-G faults	all loops	B

3.42 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B
1325	T3 delay	2,00 sec	B
1335	T4 delay	2,00 sec	B
1345	T5 delay	oo sec	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B

3.43 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	B
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	B
1303	X(Z1), Reactance	1,720 Ohm	B
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1307	Zone Reduction Angle (load compensation)	0 °	B

3.44 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	B
1352	R(Z1B), Resistance for ph-ph-faults	3,600 Ohm	B
1353	X(Z1B), Reactance	3,600 Ohm	B
1354	RG(Z1B), Resistance for ph-gnd faults	7,200 Ohm	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B
1357	Z1B enabled before 1st AR (int. or ext.)	NO	B

3.45 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	B
1312	R(Z2), Resistance for ph-ph-faults	3,600 Ohm	B
1313	X(Z2), Reactance	3,600 Ohm	B
1314	RG(Z2), Resistance for ph-gnd faults	7,200 Ohm	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B

3.46 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	B
1322	R(Z3), Resistance for ph-ph-faults	0,800 Ohm	B
1323	X(Z3), Reactance	0,800 Ohm	B
1324	RG(Z3), Resistance for ph-gnd faults	1,300 Ohm	B
1325	T3 delay	2,00 sec	B

3.47 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	B
1332	R(Z4), Resistance for ph-ph-faults	4,700 Ohm	B
1333	X(Z4), Reactance	4,700 Ohm	B
1334	RG(Z4), Resistance for ph-gnd faults	9,400 Ohm	B
1335	T4 delay	2,00 sec	B

3.48 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	B
1342	R(Z5), Resistance for ph-ph-faults	4,720 Ohm	B
1343	X(Z5)+, Reactance for Forward direction	4,720 Ohm	B
1344	RG(Z5), Resistance for ph-gnd faults	9,420 Ohm	B
1345	T5 delay	oo sec	B
1346	X(Z5)-, Reactance for Reverse direction	3,500 Ohm	B

3.49 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	B
2006	68T Power swing trip	NO	B
2007	68 Trip delay after Power Swing Blocking	0,08 sec	B

3.50 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	B
2102	Type of Line	Two Terminals	B
2103A	Time for send signal prolongation	0,08 sec	B
2109A	Transient Block.: Duration external flt.	0,03 sec	B
2110A	Transient Block.: Blk.T. after ext. flt.	0,15 sec	B

3.51 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	B
2404	50HS SOTF-O/C PICKUP	12,50 A	B

3.52 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	B
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	B
2503A	Trip Extension / Echo Impulse time	0,05 sec	B
2504A	Echo Block Time	0,50 sec	B
2505	Undervoltage (ph-g)	25 V	B
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.53 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	B
2680	Trip time delay after SOTF	0,00 sec	B

3.54 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	22,00 A	B
2611	50-B1 Delay	0,01 sec	B
2612	50N-B1 Pickup	11,00 A	B
2613	50N-B1 Delay	0,02 sec	B
2614	Instantaneous trip via BI	NO	B
2615	Instantaneous trip after SwitchOnToFault	NO	B

3.55 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	B
2621	50-B2 Delay	oo sec	B
2622	50N-B2 Pickup	oo A	B
2623	50N-B2 Delay	oo sec	B
2624	Instantaneous trip via Pilot Prot./BI	NO	B
2625	Instantaneous trip after SwitchOnToFault	NO	B

3.56 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	B
2642	51-B Time Dial	0,21 sec	B
2646	51-B Additional Time Delay	0,00 sec	B
2650	51N-B Pickup	2,40 A	B
2652	51N-B Time Dial	0,12 sec	B
2656	51N-B Additional Time Delay	0,00 sec	B
2660	IEC Curve	Normal Inverse	B
2670	Instantaneous trip via Pilot Prot./BI	NO	B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B(2)

Nº	Parámetro	Valor	Grupo
2671	Instantaneous trip after SwitchOnToFault	NO	B

3.57 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	B
2631	50-STUB Delay	oo sec	B
2632	50N-STUB Pickup	oo A	B
2633	50N-STUB Delay	oo sec	B
2634	Instantaneous trip via Pilot Prot./BI	NO	B
2635	Instantaneous trip after SwitchOnToFault	NO	B

3.58 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	B
2902A	Voltage Threshold for Balance Monitoring	50 V	B
2903A	Balance Factor for Voltage Monitor	0,75	B
2904A	Current Threshold for Balance Monitoring	0,50 A	B
2905A	Balance Factor for Current Monitor	0,50	B
2906A	Summated Current Monitoring Threshold	0,50 A	B
2907A	Summated Current Monitoring Factor	0,10	B
2908A	T Balance Factor for Voltage Monitor	5 sec	B
2909A	T Current Balance Monitor	5 sec	B

3.59 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	B
2911A	Minimum Voltage Threshold V>	30 V	B
2912A	Maximum Current Threshold I<	0,50 A	B
2913A	Maximum Voltage Threshold V< (3phase)	5 V	B
2914A	Differential Current Threshold (3phase)	0,50 A	B
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	B
2916A	Delay Voltage Failure Supervision	3,00 sec	B

3.60 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	B

3.61 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	B
2942	Limit setting PhiB	340 °	B
2943	Minimum value I1>	0,25 A	B
2944	Minimum value U1>	20 V	B

3.62 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	B
3102	Block 50N/51N for Distance protection	NO	B
3174	Block 50N/51N for Pickup 21	in each zone	B
3104A	Stabilisation Slope with Iphase	10 %	B
3170	2nd harmonic ratio for inrush restraint	15 %	B
3171	Max.Current, overriding inrush restraint	37,50 A	B
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	B
3173	Trip time delay after SOTF	0,00 sec	B

3.63 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	B
3111	Pickup	11,00 A	B
3112	Time Delay	0,03 sec	B
3113	Instantaneous trip via Pilot Prot./BI	NO	B
3114	Instantaneous trip after SwitchOnToFault	NO	B
3115	Inrush Blocking	NO	B

3.64 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	B
3121	Pickup	0,83 A	B
3122	Time Delay	0,60 sec	B
3123	Instantaneous trip via Pilot Prot./BI	NO	B
3124	Instantaneous trip after SwitchOnToFault	NO	B
3125	Inrush Blocking	NO	B

3.65 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	B
3131	Pickup	0,83 A	B
3132	Time Delay	0,90 sec	B
3133	Instantaneous trip via Pilot Prot./BI	NO	B
3134	Instantaneous trip after SwitchOnToFault	NO	B
3135	Inrush Blocking	NO	B

3.66 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	B
3141	Pickup	2,40 A	B
3143	Time Dial	0,13 sec	B
3147	Additional Time Delay	0,00 sec	B
3148	Instantaneous trip via Pilot Prot./BI	NO	B
3149	Instantaneous trip after SwitchOnToFault	NO	B
3150	Inrush Blocking	NO	B
3151	IEC Curve	Normal Inverse	B

3.67 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	B
3162A	ALPHA, lower angle for forward direction	338 °	B
3163A	BETA, upper angle for forward direction	122 °	B
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	B
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	B
3167	Min. neg. seq. polarizing current 3I2	0,25 A	B
3168	Compensation angle PHI comp. for Sr	255 °	B
3169	Forward direction power threshold	1,5 VA	B

3.68 Grupo 25 Synchronism and Voltage Check; Grupo General

Grupo 25 Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	25 Synchronism and Voltage Check	ON	B
3502	Voltage threshold dead line / bus	10 V	B
3503	Voltage threshold live line / bus	44 V	B
3504	Maximum permissible voltage	70 V	B
3507	Maximum duration of synchronism-check	1,00 sec	B
3508	Synchronous condition stability timer	0,00 sec	B
3509	Synchronizable circuit breaker	<none>	todo

3.69 Grupo 25 Synchronism and Voltage Check; Grupo with AR

Grupo 25 Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of 52 closing time	B
3511	Maximum voltage difference	10,0 V	B
3512	Maximum frequency difference	0,10 Hz	B
3513	Maximum angle difference	10 °	B
3515A	79 at Vsy2>, Vsy1>, and Synchr.	YES	B
3516	79 at Vsy1< and Vsy2>	NO	B
3517	79 at Vsy1> and Vsy2<	NO	B
3518	79 at Vsy1< and Vsy2<	NO	B
3519	Override of any check before 79	NO	B

3.70 Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of 52 closing time	B
3531	Maximum voltage difference	10,0 V	B
3532	Maximum frequency difference	0,10 Hz	B
3533	Maximum angle difference	10 °	B
3535A	Manual Close at Vsy2>, Vsy1>, and Synchr	NO	B
3536	Manual Close at Vsy1< and Vsy2>	NO	B
3537	Manual Close at Vsy1> and Vsy2<	NO	B
3538	Manual Close at Vsy1< and Vsy2<	NO	B
3539	Override of any check before Man.Cl	NO	B

3.71 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	B
3806	Load Compensation	NO	B

3.72 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	B
3902	50BF Pickup current threshold	6,00 A	B
3904	Delay after 1pole start for local trip	0,02 sec	B
3905	Delay after 3pole start for local trip	0,02 sec	B
3906	Delay of 2nd element for busbar trip	0,20 sec	B
3907	Delay for start with defective bkr.	0,00 sec	B
3908	Trip output selection with defective bkr	NO	B
3909	Check Breaker contacts	YES	B

3.73 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	B
3922	Trip delay of end fault element	2,00 sec	B

3.74 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	B
3932	Trip delay with pole discrepancy	2,00 sec	B

3.75 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	C
1104	Measurement: Full Scale Current (100%)	600 A	C
1105	Line Angle	79 °	C
1211	Angle of inclination, distance charact.	79 °	C
1107	P,Q operational measured values sign	not reversed	C
1110	x' - Line Reactance per length unit	0,0352 Ohm / km	C
1111	Line Length	60,6 km	C
1120	Zero seq. comp. factor K0 for zone Z1	0,809	C
1121	Zero seq. comp. angle for zone Z1	3,02 °	C
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	C
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	C

3.76 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,50 A	C
1131A	Pole Open Voltage Threshold	11 V	C
1132A	Seal-in Time after ALL closures	0,20 sec	C
1133A	minimal time for line open before SOTF	0,25 sec	C
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	C
1135	RESET of Trip Command	with CB(52a) AND I < PoleOpenCurrent	C
1140A	CT Saturation Threshold	100,0 A	C
1150A	Seal-in Time after MANUAL closures	0,20 sec	C
1151	Manual CLOSE COMMAND generation	NO	C
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.77 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	C
1202	Phase Current threshold for dist. meas.	0,50 A	C
1211	Angle of inclination, distance charact.	79 °	C
1208	Series compensated line	NO	C
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	C
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	C
1242	PHI load, maximum Load Angle (ph-g)	30 °	C
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	C
1244	PHI load, maximum Load Angle (ph-ph)	30 °	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.78 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,50 A	C
1204	3V0 threshold zero seq. voltage pickup	oo V	C
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	C
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	C
1221A	Loop selection with 2Ph-G faults	all loops	C

3.79 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1315	T2-1phase, delay for single phase faults	0,60 sec	C
1316	T2multi-ph, delay for multi phase faults	0,60 sec	C
1325	T3 delay	2,00 sec	C
1335	T4 delay	2,00 sec	C
1345	T5 delay	oo sec	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C

3.80 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	C
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	C
1303	X(Z1), Reactance	1,720 Ohm	C
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1307	Zone Reduction Angle (load compensation)	0 °	C

3.81 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	C
1352	R(Z1B), Resistance for ph-ph-faults	4,700 Ohm	C
1353	X(Z1B), Reactance	5,200 Ohm	C
1354	RG(Z1B), Resistance for ph-gnd faults	7,200 Ohm	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.82 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	C
1312	R(Z2), Resistance for ph-ph-faults	3,600 Ohm	C
1313	X(Z2), Reactance	3,600 Ohm	C
1314	RG(Z2), Resistance for ph-gnd faults	7,200 Ohm	C
1315	T2-1phase, delay for single phase faults	0,60 sec	C
1316	T2multi-ph, delay for multi phase faults	0,60 sec	C

3.83 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	C
1322	R(Z3), Resistance for ph-ph-faults	4,000 Ohm	C
1323	X(Z3), Reactance	4,000 Ohm	C
1324	RG(Z3), Resistance for ph-gnd faults	8,000 Ohm	C
1325	T3 delay	2,00 sec	C

3.84 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	C
1332	R(Z4), Resistance for ph-ph-faults	4,700 Ohm	C
1333	X(Z4), Reactance	4,700 Ohm	C
1334	RG(Z4), Resistance for ph-gnd faults	9,400 Ohm	C
1335	T4 delay	2,00 sec	C

3.85 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	C
1342	R(Z5), Resistance for ph-ph-faults	4,720 Ohm	C
1343	X(Z5)+, Reactance for Forward direction	4,720 Ohm	C
1344	RG(Z5), Resistance for ph-gnd faults	9,420 Ohm	C
1345	T5 delay	oo sec	C
1346	X(Z5)-, Reactance for Reverse direction	3,500 Ohm	C

3.86 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	C
2006	68T Power swing trip	NO	C
2007	68 Trip delay after Power Swing Blocking	0,08 sec	C

3.87 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	C
2102	Type of Line	Two Terminals	C
2103A	Time for send signal prolongation	0,08 sec	C
2109A	Transient Block.: Duration external flt.	0,03 sec	C
2110A	Transient Block.: Blk.T. after ext. flt.	0,15 sec	C

3.88 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	C
2404	50HS SOTF-O/C PICKUP	12,50 A	C

3.89 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	C
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	C
2503A	Trip Extension / Echo Impulse time	0,05 sec	C
2504A	Echo Block Time	0,50 sec	C
2505	Undervoltage (ph-g)	25 V	C
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.90 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	C
2680	Trip time delay after SOTF	0,00 sec	C

3.91 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	22,00 A	C
2611	50-B1 Delay	0,01 sec	C
2612	50N-B1 Pickup	11,00 A	C
2613	50N-B1 Delay	0,02 sec	C
2614	Instantaneous trip via BI	NO	C
2615	Instantaneous trip after SwitchOnToFault	NO	C

3.92 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	C
2621	50-B2 Delay	oo sec	C
2622	50N-B2 Pickup	oo A	C
2623	50N-B2 Delay	oo sec	C
2624	Instantaneous trip via Pilot Prot./BI	NO	C
2625	Instantaneous trip after SwitchOnToFault	NO	C

3.93 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	C
2642	51-B Time Dial	0,21 sec	C
2646	51-B Additional Time Delay	0,00 sec	C
2650	51N-B Pickup	2,40 A	C
2652	51N-B Time Dial	0,12 sec	C
2656	51N-B Additional Time Delay	0,00 sec	C
2660	IEC Curve	Normal Inverse	C
2670	Instantaneous trip via Pilot Prot./BI	NO	C

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B(2)

Nº	Parámetro	Valor	Grupo
2671	Instantaneous trip after SwitchOnToFault	NO	C

3.94 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	C
2631	50-STUB Delay	oo sec	C
2632	50N-STUB Pickup	oo A	C
2633	50N-STUB Delay	oo sec	C
2634	Instantaneous trip via Pilot Prot./BI	NO	C
2635	Instantaneous trip after SwitchOnToFault	NO	C

3.95 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	C
2902A	Voltage Threshold for Balance Monitoring	50 V	C
2903A	Balance Factor for Voltage Monitor	0,75	C
2904A	Current Threshold for Balance Monitoring	0,50 A	C
2905A	Balance Factor for Current Monitor	0,50	C
2906A	Summated Current Monitoring Threshold	0,50 A	C
2907A	Summated Current Monitoring Factor	0,10	C
2908A	T Balance Factor for Voltage Monitor	5 sec	C
2909A	T Current Balance Monitor	5 sec	C

3.96 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	C
2911A	Minimum Voltage Threshold V>	30 V	C
2912A	Maximum Current Threshold I<	0,50 A	C
2913A	Maximum Voltage Threshold V< (3phase)	5 V	C
2914A	Differential Current Threshold (3phase)	0,50 A	C
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	C
2916A	Delay Voltage Failure Supervision	3,00 sec	C

3.97 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	C

3.98 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	C
2942	Limit setting PhiB	340 °	C
2943	Minimum value I1>	0,25 A	C
2944	Minimum value U1>	20 V	C

3.99 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	C
3102	Block 50N/51N for Distance protection	NO	C
3174	Block 50N/51N for Pickup 21	in each zone	C
3104A	Stabilisation Slope with Iphase	10 %	C
3170	2nd harmonic ratio for inrush restraint	15 %	C
3171	Max.Current, overriding inrush restraint	37,50 A	C
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	C
3173	Trip time delay after SOTF	0,00 sec	C

3.100 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	C
3111	Pickup	11,00 A	C
3112	Time Delay	0,03 sec	C
3113	Instantaneous trip via Pilot Prot./BI	NO	C
3114	Instantaneous trip after SwitchOnToFault	NO	C
3115	Inrush Blocking	NO	C

3.101 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	C
3121	Pickup	0,83 A	C
3122	Time Delay	0,60 sec	C
3123	Instantaneous trip via Pilot Prot./BI	NO	C
3124	Instantaneous trip after SwitchOnToFault	NO	C
3125	Inrush Blocking	NO	C

3.102 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	C
3131	Pickup	0,83 A	C
3132	Time Delay	0,90 sec	C
3133	Instantaneous trip via Pilot Prot./BI	NO	C
3134	Instantaneous trip after SwitchOnToFault	NO	C
3135	Inrush Blocking	NO	C

3.103 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	C
3141	Pickup	2,40 A	C
3143	Time Dial	0,13 sec	C
3147	Additional Time Delay	0,00 sec	C
3148	Instantaneous trip via Pilot Prot./BI	NO	C
3149	Instantaneous trip after SwitchOnToFault	NO	C
3150	Inrush Blocking	NO	C
3151	IEC Curve	Normal Inverse	C

3.104 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	C
3162A	ALPHA, lower angle for forward direction	338 °	C
3163A	BETA, upper angle for forward direction	122 °	C
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	C
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	C
3167	Min. neg. seq. polarizing current 3I2	0,25 A	C
3168	Compensation angle PHI comp. for Sr	255 °	C
3169	Forward direction power threshold	1,5 VA	C

3.105 Grupo 25 Synchronism and Voltage Check; Grupo General

Grupo 25 Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	25 Synchronism and Voltage Check	ON	C
3502	Voltage threshold dead line / bus	10 V	C
3503	Voltage threshold live line / bus	44 V	C
3504	Maximum permissible voltage	70 V	C
3507	Maximum duration of synchronism-check	1,00 sec	C
3508	Synchronous condition stability timer	0,00 sec	C
3509	Synchronizable circuit breaker	<none>	todo

3.106 Grupo 25 Synchronism and Voltage Check; Grupo with AR

Grupo 25 Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of 52 closing time	C
3511	Maximum voltage difference	10,0 V	C
3512	Maximum frequency difference	0,10 Hz	C
3513	Maximum angle difference	10 °	C
3515A	79 at Vsy2>, Vsy1>, and Synchr.	YES	C
3516	79 at Vsy1< and Vsy2>	NO	C
3517	79 at Vsy1> and Vsy2<	NO	C
3518	79 at Vsy1< and Vsy2<	NO	C
3519	Override of any check before 79	NO	C

3.107 Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of 52 closing time	C
3531	Maximum voltage difference	10,0 V	C
3532	Maximum frequency difference	0,10 Hz	C
3533	Maximum angle difference	10 °	C
3535A	Manual Close at Vsy2>, Vsy1>, and Synchr	NO	C
3536	Manual Close at Vsy1< and Vsy2>	NO	C
3537	Manual Close at Vsy1> and Vsy2<	NO	C
3538	Manual Close at Vsy1< and Vsy2<	NO	C
3539	Override of any check before Man.Cl	NO	C

3.108 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	C
3806	Load Compensation	NO	C

3.109 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	C
3902	50BF Pickup current threshold	6,00 A	C
3904	Delay after 1pole start for local trip	0,02 sec	C
3905	Delay after 3pole start for local trip	0,02 sec	C
3906	Delay of 2nd element for busbar trip	0,20 sec	C
3907	Delay for start with defective bkr.	0,00 sec	C
3908	Trip output selection with defective bkr	NO	C
3909	Check Breaker contacts	YES	C

3.110 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	C
3922	Trip delay of end fault element	2,00 sec	C

3.111 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	C
3932	Trip delay with pole discrepancy	2,00 sec	C

4 Change Group

4.1 Grupo Change Group

Grupo Change Group

Nº	Parámetro	Valor	Grupo
0302	Change to Another Setting Group	Binary Input	todo

CONTROL DE REVISIÓN DEL CRAP

REVISOR	FECHA	N° EAP	OBSERVACIONES
Max Missene M.	07-09-2015	Nº 75/2015	Cambio de ajustes para evitar que la Z1B actúe de forma instantánea en Sistema 2 protección Siemens 7SA61 .

Razón de TTCC/TTPP

TTCC: 600/5

TTPP: $\frac{154000}{\sqrt{3}}/110/\ \frac{110}{\sqrt{3}}$

Particularidades de Ajustes

- No hay.

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PRODUCT SETUP

DISPLAY PROPERTIES

Flash Message Time	1.0 s
Default Message Timeout	60 s
Default Message Intensity (VFD Only)	25 %
Screen Saver Feature (LCD Only)	Enabled
Screen Saver Wait Time (LCD Only)	30 min
Current Cutoff Level	0.020 pu
Voltage Cutoff Level	1.0 V

COMMUNICATIONS

SERIAL PORTS

RS485 Com2 Baud Rate	19200
RS485 Com2 Parity	None
RS485 Com2 Response Min Time	0 ms

NETWORK

IP Address	10. 80.153.213
IP Subnet Mask	255.255.255. 0
Gateway IP Address	10. 80.153.210
Ethernet Operation Mode	Full-Duplex

MODBUS PROTOCOL

Modbus Slave Address	254
Modbus TCP Port Number	502

HTTP

HTTP TCP Port Number	80

TFTP

TFTP Main UDP Port Number	69
TFTP Data UDP Port Number 1	0
TFTP Data UDP Port Number 2	0

REAL TIME CLOCK

IRIG-B Signal Type	DC Shift
Real Time Clock Events	Enabled

FAULT REPORT

Fault Report 1 Source	LINEA (SRC 1)
Fault Report 1 Trigger	pkp Z1o z2 On (VO4)
Fault Report 1 Positive Seq (Z1) Mag	6.73 ohms
Fault Report 1 Positive Seq (Z1) Angle	75 deg
Fault Report 1 Zero Seq (Z0) Mag	23.38 ohms
Fault Report 1 Zero Seq (Z0) Angle	80 deg
Fault Report 1 Line Length Units	km
Fault Report 1 Line Length	50.6

OSCILLOGRAPHY

Number Of Records	5
Trigger Mode	Automatic Overwrite
Trigger Position	30 %
Trigger Source	OSCILOGRAFIA On (VO3)
AC Input Waveforms	32 samples/cycle
Digital Channel 1	PH DIST Z1 OP
Digital Channel 2	PH DIST Z2 OP
Digital Channel 3	PH DIST Z3 OP
Digital Channel 4	PH DIST Z4 OP
Digital Channel 5	GND DIST Z1 OP
Digital Channel 6	GND DIST Z2 OP
Digital Channel 7	GND DIST Z3 OP
Digital Channel 8	GND DIST Z4 OP
Digital Channel 9	PHASE TOC1 OP
Digital Channel 10	PH DIR1 BLK
Digital Channel 11	NEUTRAL TOC1 OP
Digital Channel 12	NTRL DIR OC1 REV
Digital Channel 13	NEG SEQ DIR OC1 FWD
Digital Channel 14	PUTT OP
Digital Channel 15	POWER SWING BLOCK
Digital Channel 16	PH DIST Z1 PKP

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DESCRIPTION: (NONE)
TEXT COLOR

OSCILLOGRAPHY (continued from last page)

Digital Channel 17	PH DIST Z2 PKP
Digital Channel 18	PH DIST Z3 PKP
Digital Channel 19	PH DIST Z4 PKP
Digital Channel 20	LINE PICKUP OP
Digital Channel 21	PHASE TOC1 OP
Digital Channel 22	AR 1-P RIP
Digital Channel 23	AR CLOSE BKR 1
Digital Channel 24	AR FORCE 3-P TRIP
Digital Channel 25	SYNC 1 SYNC OP
Digital Channel 26	Cont Ip 13 On(W3a)
Digital Channel 27	52A2 (a) On(H7a)
Digital Channel 28	79 conectado On(H7c)
Digital Channel 29	86B--> 50BF On(H8a)
Digital Channel 30	Cont Ip 7 On(U8a)
Digital Channel 31	Cont Ip 8 On(U8c)
Digital Channel 32	Rx TINGUI On(W1a)
Digital Channel 33	80 SISTEMA 1 On(W1c)
Digital Channel 34	Cont Ip 16 On(W4c)
Digital Channel 35	Cont Ip 17 On(W5a)
Digital Channel 36	GND DIST Z1 PKP
Digital Channel 37	GND DIST Z2 PKP
Digital Channel 38	GND DIST Z3 PKP
Digital Channel 39	GND DIST Z4 PKP
Digital Channel 40	PUTT TX1
Digital Channel 41	PUTT TX2
Digital Channel 42	BLQ Zonas PH On (VO1)
Digital Channel 43	TRIP GRAL On (VO2)
Digital Channel 44	pkp Z1o z2 On (VO4)
Digital Channel 45	BLOq reconec On (VO5)
Digital Channel 46	ORD. CIERRE On (VO6)
Digital Channel 47	BL-NTCO-NIOC On (VO7)
Digital Channel 48	POWER SWING 50DD
Digital Channel 49	POWER SWING INNER
Digital Channel 50	POWER SWING OUTER
Digital Channel 51	POWER SWING UN/BLOCK
Digital Channel 52	AR BKR 1 BLK
Digital Channel 53	AR CLOSE BKR 1
Digital Channel 54	AR INCOMPLETE SEQ
Digital Channel 55	SYNC 1 CLS OP
Digital Channel 56	SYNC 1 SYNC OP
Digital Channel 57	PH DIR1 BLK
Digital Channel 58	PHASE SELECT 3P
Digital Channel 59	Tx RANCAGUA On (VO44)
Digital Channel 60	Rx RANCAGUA On(H8c)
Digital Channel 61	Tx TINGUI On (VO45)
Digital Channel 62	Rx TINGUI On(W1a)
Analog Channel 1	SRC1 I_0 Mag
Analog Channel 2	SRC1 Ib Mag
Analog Channel 3	SRC1 Ic Mag
Analog Channel 4	SRC1 Ia Angle
Analog Channel 5	SRC1 Ib Angle
Analog Channel 6	SRC1 Ic Angle
Analog Channel 7	SRC1 Vag Mag
Analog Channel 8	SRC1 Vbg Mag
Analog Channel 9	SRC1 Vcg Mag
Analog Channel 10	SRC1 Vag Angle
Analog Channel 11	SRC1 Vbg Angle
Analog Channel 12	SRC1 Vcg Angle
Analog Channel 13	SRC1 V_1 Mag
Analog Channel 14	SRC1 V_1 Angle
Analog Channel 15	SRC1 Frequency
Analog Channel 16	Tracking Frequency

DATA LOGGER

Data Logger Mode	Continuous
Data Logger Trigger	OFF
Rate	60000 msec

USER-PROGRAMMABLE LEDS

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DEVICE DEFINITION
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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

LED TEST	
Function	Enabled
Control	CONTROL PUSHBUTTON 3 ON
TRIP AND ALARMS LEDS	
Trip LED Input	TRIP GRAL On (VO2)
USER PROGRAMMABLE LEDS	
LED 1: OPERAND	RECEPCION On (VO41)
LED 1: TYPE	Latched
LED 2: OPERAND	OPERA ZONA 1 On (VO12)
LED 2: TYPE	Latched
LED 3: OPERAND	OPERA ZONA 2 On (VO13)
LED 3: TYPE	Latched
LED 4: OPERAND	OPERA ZONA 3 On (VO14)
LED 4: TYPE	Latched
LED 5: OPERAND	OPERA ZONA 4 On (VO15)
LED 5: TYPE	Latched
LED 6: OPERAND	OPERA ZONA 5 On (VO16)
LED 6: TYPE	Latched
LED 7: OPERAND	79 on On (VO17)
LED 7: TYPE	Self-Reset
LED 8: OPERAND	79 off On (VO18)
LED 8: TYPE	Self-Reset
LED 9: OPERAND	LINE PICKUP OP
LED 9: TYPE	Latched
LED 10: OPERAND	52A2 (a) Off(H7a)
LED 10: TYPE	Self-Reset
LED 11: OPERAND	52A2 (a) On(H7a)
LED 11: TYPE	Self-Reset
LED 12: OPERAND	FALLA RELE On(U7a)
LED 12: TYPE	Self-Reset
LED 13: OPERAND	67N On (VO32)
LED 13: TYPE	Latched
LED 14: OPERAND	51-51N On (VO33)
LED 14: TYPE	Latched
LED 15: OPERAND	50-50N On (VO34)
LED 15: TYPE	Latched
LED 16: OPERAND	AR 3-P/1 RIP
LED 16: TYPE	Self-Reset
LED 17: OPERAND	AR LO
LED 17: TYPE	Self-Reset
LED 18: OPERAND	POWER SWING UN/BLOCK
LED 18: TYPE	Self-Reset
LED 25: OPERAND	SELECTOR 1 POS 1
LED 25: TYPE	Self-Reset
LED 26: OPERAND	SELECTOR 1 POS 2
LED 26: TYPE	Self-Reset
LED 27: OPERAND	SETTING GROUP ACT 1
LED 27: TYPE	Self-Reset
LED 28: OPERAND	SETTING GROUP ACT 2
LED 28: TYPE	Self-Reset
LED 29: OPERAND	SETTING GROUP ACT 3
LED 29: TYPE	Self-Reset
USER-PROGRAMMABLE SELF TESTS	
Battery Fail Function	Enabled
CONTROL PUSHBUTTONS	
CPB 1: Function	Enabled
CPB 1: Events	Enabled
USER-DEFINABLE DISPLAYS	
USER DISPLAY 1: Top Line	LINEA TINGUIRIRICA 2
USER DISPLAY 1: Bottom Line	SISTEMA 1
USER DISPLAY 1: Item 1	0
USER DISPLAY 1: Item 2	0
USER DISPLAY 1: Item 3	0
USER DISPLAY 1: Item 4	0
USER DISPLAY 1: Item 5	0

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

USER-DEFINABLE DISPLAYS (continued from last page)

USER DISPLAY 2: Top Line	COMMANDS
USER DISPLAY 2: Bottom Line	CLEAR RECORDS
USER DISPLAY 2: Item 1	0
USER DISPLAY 2: Item 2	0
USER DISPLAY 2: Item 3	0
USER DISPLAY 2: Item 4	0
USER DISPLAY 2: Item 5	0
USER DISPLAY 3: Top Line	IA IB IC
USER DISPLAY 3: Bottom Line	~ ~ ~
USER DISPLAY 3: Item 1	6144
USER DISPLAY 3: Item 2	6146
USER DISPLAY 3: Item 3	6148
USER DISPLAY 3: Item 4	0
USER DISPLAY 3: Item 5	0
USER DISPLAY 4: Top Line	EVENT RECORDS
USER DISPLAY 4: Bottom Line	
USER DISPLAY 4: Item 1	0
USER DISPLAY 4: Item 2	0
USER DISPLAY 4: Item 3	0
USER DISPLAY 4: Item 4	0
USER DISPLAY 4: Item 5	0
USER DISPLAY 5: Top Line	ACTUAL VALUES
USER DISPLAY 5: Bottom Line	RECORDS
USER DISPLAY 5: Item 1	0
USER DISPLAY 5: Item 2	0
USER DISPLAY 5: Item 3	0
USER DISPLAY 5: Item 4	0
USER DISPLAY 5: Item 5	0
Invoke and Scroll	ON

INSTALLATION

Relay Name	AJAA2 SISTEMA 1

SYSTEM SETUP
AC INPUTS

CURRENT

CT F1: Phase CT Primary	600 A
CT F1: Phase CT Secondary	5 A
CT F1: Ground CT Primary	600 A
CT F1: Ground CT Secondary	5 A

VOLTAGE

VT F5: Phase VT Connection	Wye
VT F5: Phase VT Secondary	63.5 V
VT F5: Phase VT Ratio	1400.00 :1
VT F5: Auxiliary VT Connection	Vbg
VT F5: Auxiliary VT Secondary	63.5 V
VT F5: Auxiliary VT Ratio	1400.00 :1

POWER SYSTEM

Nominal Frequency	50 Hz
Phase Rotation	ABC
Frequency And Phase Reference	LINEA (SRC 1)
Frequency Tracking Function	Enabled

SIGNAL SOURCES

SOURCE 1: Name	LINEA
SOURCE 1: Phase CT	F1
SOURCE 1: Ground CT	F1
SOURCE 1: Phase VT	F5
SOURCE 1: Auxiliary VT	None
SOURCE 2: Name	BARRA
SOURCE 2: Phase CT	None
SOURCE 2: Ground CT	None
SOURCE 2: Phase VT	None
SOURCE 2: Auxiliary VT	F5

BREAKERS

Breaker 1 Function	Enabled

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

BREAKERS (continued from last page)

Breaker 1 Push Button Control	Disabled
Breaker 1 Name	52A2
Breaker 1 Mode	3-Pole
Breaker 1 Open	OFF
Breaker 1 Close	OFF
Breaker 1 Phase A/3-Pole	52A2 (a) On(H7a)
Breaker 1 Phase B	OFF
Breaker 1 Phase C	OFF
Breaker 1 External Alarm	OFF
Breaker 1 Alarm Delay	0.000 s
Breaker 1 Manual Close Recal Time	0.000 s
Breaker 1 Out Of Service	OFF

FLEXLOGIC

FLEXLOGIC EQUATION EDITOR

FlexLogic Entry 1	POWER SWING UN/BLOCK
FlexLogic Entry 2	SRC1 VT FUSE FAIL OP
FlexLogic Entry 3	OR(2)
FlexLogic Entry 4	= BLQ Zonas PH (VO1)
FlexLogic Entry 5	PH DIST Z1 OP
FlexLogic Entry 6	PH DIST Z2 OP
FlexLogic Entry 7	PH DIST Z3 OP
FlexLogic Entry 8	PH DIST Z4 OP
FlexLogic Entry 9	GND DIST Z1 OP
FlexLogic Entry 10	GND DIST Z2 OP
FlexLogic Entry 11	GND DIST Z3 OP
FlexLogic Entry 12	GND DIST Z4 OP
FlexLogic Entry 13	PHASE TOC1 OP
FlexLogic Entry 14	NEUTRAL TOC1 OP
FlexLogic Entry 15	PHASE TOC2 OP
FlexLogic Entry 16	NEUTRAL TOC2 OP
FlexLogic Entry 17	PHASE IOC1 OP
FlexLogic Entry 18	NEUTRAL IOC1 OP
FlexLogic Entry 19	HYBRID POTT OP
FlexLogic Entry 20	LINE PICKUP OP
FlexLogic Entry 21	OR(16)
FlexLogic Entry 22	PH DIST Z5 OP
FlexLogic Entry 23	GND DIST Z5 OP
FlexLogic Entry 24	POTT OP 2T On (VO50)
FlexLogic Entry 25	OR(3)
FlexLogic Entry 26	OR(2)
FlexLogic Entry 27	= TRIP GRAL (VO2)
FlexLogic Entry 28	BLQ Zonas PH On (VO1)
FlexLogic Entry 29	TRIP GRAL On (VO2)
FlexLogic Entry 30	POWER SWING BLOCK
FlexLogic Entry 31	OR(3)
FlexLogic Entry 32	= OSCILOGRAFIA (VO3)
FlexLogic Entry 33	PH DIST Z1 PKP
FlexLogic Entry 34	GND DIST Z1 PKP
FlexLogic Entry 35	PH DIST Z2 PKP
FlexLogic Entry 36	GND DIST Z2 PKP
FlexLogic Entry 37	OR(4)
FlexLogic Entry 38	= pkp Z1o z2 (VO4)
FlexLogic Entry 39	AR CLOSE BKR 1
FlexLogic Entry 40	SYNC 1 CLS OP
FlexLogic Entry 41	AND(2)
FlexLogic Entry 42	= ORD. CIERRE (VO6)
FlexLogic Entry 43	AR LO
FlexLogic Entry 44	TIMER 1
FlexLogic Entry 45	= RESET 79 (VO10)
FlexLogic Entry 46	GND DIST Z1 OP
FlexLogic Entry 47	PH DIST Z1 OP
FlexLogic Entry 48	OR(2)
FlexLogic Entry 49	= OPERA ZONA 1 (VO12)
FlexLogic Entry 50	GND DIST Z2 OP
FlexLogic Entry 51	PH DIST Z2 OP
FlexLogic Entry 52	OR(2)
FlexLogic Entry 53	= OPERA ZONA 2 (VO13)
FlexLogic Entry 54	PH DIST Z3 OP

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 55	GND DIST Z3 OP
FlexLogic Entry 56	OR(2)
FlexLogic Entry 57	= OPERA ZONA 3 (VO14)
FlexLogic Entry 58	PH DIST Z4 OP
FlexLogic Entry 59	GND DIST Z4 OP
FlexLogic Entry 60	OR(2)
FlexLogic Entry 61	= OPERA ZONA 4 (VO15)
FlexLogic Entry 62	PH DIST Z5 OP
FlexLogic Entry 63	GND DIST Z5 OP
FlexLogic Entry 64	OR(2)
FlexLogic Entry 65	= OPERA ZONA 5 (VO16)
FlexLogic Entry 66	79 conectado On(H7c)
FlexLogic Entry 67	SELECTOR 1 POS 1
FlexLogic Entry 68	AND(2)
FlexLogic Entry 69	= 79 on (VO17)
FlexLogic Entry 70	79 on On (VO17)
FlexLogic Entry 71	NOT
FlexLogic Entry 72	= 79 off (VO18)
FlexLogic Entry 73	PH DIST Z1 PKP
FlexLogic Entry 74	PH DIST Z2 PKP
FlexLogic Entry 75	PH DIST Z3 PKP
FlexLogic Entry 76	PH DIST Z4 PKP
FlexLogic Entry 77	PH DIST Z5 PKP
FlexLogic Entry 78	GND DIST Z1 PKP
FlexLogic Entry 79	GND DIST Z2 PKP
FlexLogic Entry 80	GND DIST Z3 PKP
FlexLogic Entry 81	GND DIST Z4 PKP
FlexLogic Entry 82	GND DIST Z5 PKP
FlexLogic Entry 83	PHASE TOC1 PKP
FlexLogic Entry 84	NEUTRAL TOC1 PKP
FlexLogic Entry 85	LINE PICKUP PKP
FlexLogic Entry 86	OR(13)
FlexLogic Entry 87	= reset led (VO19)
FlexLogic Entry 88	ANY MAJOR ERROR
FlexLogic Entry 89	DSP ERROR
FlexLogic Entry 90	EEPROM DATA ERROR
FlexLogic Entry 91	BATTERY FAIL
FlexLogic Entry 92	NOR(4)
FlexLogic Entry 93	= FALLA RELE (VO21)
FlexLogic Entry 94	Rx RANCAGUA On(H8c)
FlexLogic Entry 95	= RECEP ACELER (VO22)
FlexLogic Entry 96	PHASE TOC1 OP
FlexLogic Entry 97	NEUTRAL TOC1 OP
FlexLogic Entry 98	OR(2)
FlexLogic Entry 99	= 67-67N (VO27)
FlexLogic Entry 100	PHASE TOC2 OP
FlexLogic Entry 101	NEUTRAL TOC2 OP
FlexLogic Entry 102	OR(2)
FlexLogic Entry 103	= 51-51N (VO28)
FlexLogic Entry 104	PHASE IOC1 OP C
FlexLogic Entry 105	NEUTRAL IOC1 OP
FlexLogic Entry 106	OR(2)
FlexLogic Entry 107	= 50-50N (VO29)
FlexLogic Entry 108	PH DIST Z2 OP
FlexLogic Entry 109	GND DIST Z2 OP
FlexLogic Entry 110	OR(2)
FlexLogic Entry 111	Rx RANCAGUA On(H8c)
FlexLogic Entry 112	AND(2)
FlexLogic Entry 113	PH DIST Z1 OP
FlexLogic Entry 114	GND DIST Z1 OP
FlexLogic Entry 115	OR(2)
FlexLogic Entry 116	OR(2)
FlexLogic Entry 117	= Partida 79 (VO30)
FlexLogic Entry 118	FALLA RELE On (VO21)
FlexLogic Entry 119	SELECTOR 1 POS 1
FlexLogic Entry 120	OR(2)
FlexLogic Entry 121	= Control 79S2 (VO31)
FlexLogic Entry 122	NEG SEQ DIR OC1 REV
FlexLogic Entry 123	SRC1 VT FUSE FAIL OP

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 124	NOT
FlexLogic Entry 125	AND(2)
FlexLogic Entry 126	= BL-NTCO-NIOC (VO7)
FlexLogic Entry 127	NEUTRAL IOC1 OP
FlexLogic Entry 128	NEUTRAL TOC1 OP
FlexLogic Entry 129	OR(2)
FlexLogic Entry 130	NTRL DIR OC1 FWD
FlexLogic Entry 131	AND(2)
FlexLogic Entry 132	= 67N (VO32)
FlexLogic Entry 133	NEUTRAL TOC1 OP
FlexLogic Entry 134	SRC1 VT FUSE FAIL OP
FlexLogic Entry 135	AND(2)
FlexLogic Entry 136	PHASE TOC1 OP
FlexLogic Entry 137	OR(2)
FlexLogic Entry 138	= 51-51N (VO33)
FlexLogic Entry 139	NEUTRAL IOC1 OP
FlexLogic Entry 140	SRC1 VT FUSE FAIL OP
FlexLogic Entry 141	AND(2)
FlexLogic Entry 142	PHASE IOC1 OP
FlexLogic Entry 143	OR(2)
FlexLogic Entry 144	= 50-50N (VO34)
FlexLogic Entry 145	Rx TINGUI On(W1a)
FlexLogic Entry 146	Rx RANCAGUA On(H8c)
FlexLogic Entry 147	SETTING GROUP ACT 1
FlexLogic Entry 148	AND(3)
FlexLogic Entry 149	= RECEPCION 3T (VO36)
FlexLogic Entry 150	Rx RANCAGUA On(H8c)
FlexLogic Entry 151	SETTING GROUP ACT 2
FlexLogic Entry 152	AND(2)
FlexLogic Entry 153	= RECEPCION 2T (VO37)
FlexLogic Entry 154	RECEPCION 3T On (VO36)
FlexLogic Entry 155	RECEPCION 2T On (VO37)
FlexLogic Entry 156	OR(2)
FlexLogic Entry 157	= RECEPCION (VO41)
FlexLogic Entry 158	HYBRID POTT TX1
FlexLogic Entry 159	SETTING GROUP ACT 1
FlexLogic Entry 160	AND(2)
FlexLogic Entry 161	POTT TX1
FlexLogic Entry 162	SETTING GROUP ACT 2
FlexLogic Entry 163	AND(2)
FlexLogic Entry 164	OR(2)
FlexLogic Entry 165	= Tx RANCAGUA (VO44)
FlexLogic Entry 166	HYBRID POTT TX1
FlexLogic Entry 167	SETTING GROUP ACT 1
FlexLogic Entry 168	AND(2)
FlexLogic Entry 169	= Tx TINGUI (VO45)
FlexLogic Entry 170	CHANGE GRP Off(W2a)
FlexLogic Entry 171	TIMER 4
FlexLogic Entry 172	= CAMBIO G1-G2 (VO47)
FlexLogic Entry 173	52A2 (a) Off(H7a)
FlexLogic Entry 174	RECEPCION 2T On (VO37)
FlexLogic Entry 175	AND(2)
FlexLogic Entry 176	= ECHO COND 2T (VO48)
FlexLogic Entry 177	POTT OP
FlexLogic Entry 178	SETTING GROUP ACT 2
FlexLogic Entry 179	AND(2)
FlexLogic Entry 180	= POTT OP 2T (VO50)
FlexLogic Entry 181	END

FLEXLOGIC TIMERS

Timer 1: Type	millisecond
Timer 1: Pickup Delay	0
Timer 1: Dropout Delay	0
Timer 4: Type	second
Timer 4: Pickup Delay	2
Timer 4: Dropout Delay	2

GROUPED ELEMENTS
GROUP 1

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

LINE PICKUP [GROUP 1]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	1.882 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Enabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 1]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 1]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.86 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	49 deg
PHASE DISTANCE Z1: DIR Comp Limit	71 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.86 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	1.86 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.100 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	8.50 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	49 deg
PHASE DISTANCE Z2: DIR Comp Limit	71 deg
PHASE DISTANCE Z2: Quad Right Blinder	8.00 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	8.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.100 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	65.535 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	4.26 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	0.02 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	49 deg
PHASE DISTANCE Z3: DIR Comp Limit	71 deg
PHASE DISTANCE Z3: Quad Right Blinder	4.26 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	4.26 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.100 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.600 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	6.00 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.02 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	49 deg
PHASE DISTANCE Z4: DIR Comp Limit	71 deg
PHASE DISTANCE Z4: Quad Right Blinder	6.00 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	6.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.100 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.500 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled
PHASE DISTANCE Z5: Function	Enabled
PHASE DISTANCE Z5: Direction	Forward
PHASE DISTANCE Z5: Shape	Quad
PHASE DISTANCE Z5: Xfmr Vol Connection	None
PHASE DISTANCE Z5: Xfmr Curr Connection	None
PHASE DISTANCE Z5: Reach	6.50 ohms
PHASE DISTANCE Z5: RCA	90 deg
PHASE DISTANCE Z5: Rev Reach	0.02 ohms
PHASE DISTANCE Z5: Rev Reach RCA	79 deg
PHASE DISTANCE Z5: Comp Limit	90 deg
PHASE DISTANCE Z5: DIR RCA	49 deg
PHASE DISTANCE Z5: DIR Comp Limit	71 deg
PHASE DISTANCE Z5: Quad Right Blinder	6.50 ohms
PHASE DISTANCE Z5: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z5: Quad Left Blinder	6.50 ohms
PHASE DISTANCE Z5: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z5: Supervision	0.100 pu
PHASE DISTANCE Z5: Volt Level	0.000 pu
PHASE DISTANCE Z5: Delay	1.500 s
PHASE DISTANCE Z5: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z5: Target	Self-reset
PHASE DISTANCE Z5: Events	Enabled

GROUND DISTANCE [GROUP 1]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.43
GROUND DISTANCE Z1: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	1.86 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	0.02 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	49 deg
GROUND DISTANCE Z1: DIR Comp Limit	71 deg
GROUND DISTANCE Z1: Quad Right Blinder	1.86 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	1.86 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.100 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.43
GROUND DISTANCE Z2: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	8.50 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	0.02 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	49 deg
GROUND DISTANCE Z2: DIR Comp Limit	71 deg
GROUND DISTANCE Z2: Quad Right Blinder	8.00 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	8.00 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.535 s
GROUND DISTANCE Z2: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.43
GROUND DISTANCE Z3: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	4.26 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	0.02 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	49 deg
GROUND DISTANCE Z3: DIR Comp Limit	71 deg
GROUND DISTANCE Z3: Quad Right Blinder	4.26 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	4.26 ohms

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.600 s
GROUND DISTANCE Z3: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.43
GROUND DISTANCE Z4: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	6.00 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.02 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	49 deg
GROUND DISTANCE Z4: DIR Comp Limit	71 deg
GROUND DISTANCE Z4: Quad Right Blinder	6.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	6.00 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.500 s
GROUND DISTANCE Z4: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.43
GROUND DISTANCE Z5: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	6.50 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	0.02 ohms
GROUND DISTANCE Z5: Rev Reach RCA	79 deg
GROUND DISTANCE Z5: POL Current	Zero-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg
GROUND DISTANCE Z5: DIR RCA	49 deg
GROUND DISTANCE Z5: DIR Comp Limit	71 deg
GROUND DISTANCE Z5: Quad Right Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z5: Quad Left Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu
GROUND DISTANCE Z5: Delay	1.500 s
GROUND DISTANCE Z5: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	17.50 ohms
Quad Fwd Mid	18.20 ohms
Quad Fwd Out	18.20 ohms

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DESCRIPTION: (NONE)
TEXT COLOR

POWER SWING DETECT [GROUP 1] (continued from last page)

Fwd Rca	79 deg
Rev Reach	8.00 ohms
Quad Rev Mid	8.70 ohms
Quad Rev Out	8.70 ohms
Rev Rca	79 deg
Outer Limit Angle	120 deg
Middle Limit Angle	72 deg
Inner Limit Angle	72 deg
Outer Rgt Bld	15.20 ohms
Outer Lft Bld	12.20 ohms
Midle Rgt Bld	100.00 ohms
Midle Lft Bld	100.00 ohms
Inner Rgt Bld	14.50 ohms
Inner Lft Bld	11.50 ohms
Delay 1 Pickup	0.002 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Early
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Disabled

LOAD ENCROACHMENT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Min Volt	0.800 pu
Reach	9.14 ohms
Angle	35 deg
Pickup Delay	0.000 s
Reset Delay	0.000 s
Block	OFF
Target	Self-reset
Events	Enabled

PHASE CURRENT

PHASE TOC [GROUP 1]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.10
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	PH DIR1 BLK
PHASE TOC1: Block B	PH DIR1 BLK
PHASE TOC1: Block C	PH DIR1 BLK
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE DIRECTIONAL [GROUP 1]

PHASE DIR1: Function	Enabled
PHASE DIR1: Source	LINEA (SRC 1)
PHASE DIR1: Block	OFF
PHASE DIR1: ECA	45 deg
PHASE DIR1: Pol V Threshold	0.700 pu
PHASE DIR1: Block when V Mem Exp	No
PHASE DIR1: Target	Self-reset
PHASE DIR1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 1]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.082 pu

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

NEUTRAL TOC [GROUP 1] (continued from last page)

NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.30
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	BL-NTCO-NIOC On (VO7)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	78 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.08 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.08 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 1]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	Yes
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.082 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.200 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A2 (a) On(H7a)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	ON
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.082 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.082 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

GROUP 2

LINE PICKUP [GROUP 2]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	2.500 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Disabled
Autoreclose Coordination Pickup Delay	0.045 s

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

LINE PICKUP [GROUP 2] (continued from last page)

Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 2]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 2]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.72 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	1.72 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	45 deg
PHASE DISTANCE Z1: DIR Comp Limit	79 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.200 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	3.20 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	3.20 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	45 deg
PHASE DISTANCE Z2: DIR Comp Limit	79 deg
PHASE DISTANCE Z2: Quad Right Blinder	3.20 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.200 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	0.400 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	4.40 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	4.40 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg

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DEVICE DEFINITION
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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 2] (continued from last page)

PHASE DISTANCE Z3: DIR RCA	45 deg
PHASE DISTANCE Z3: DIR Comp Limit	79 deg
PHASE DISTANCE Z3: Quad Right Blinder	4.40 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.200 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	2.000 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	0.80 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.80 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	45 deg
PHASE DISTANCE Z4: DIR Comp Limit	79 deg
PHASE DISTANCE Z4: Quad Right Blinder	0.80 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.200 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.000 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled

GROUND DISTANCE [GROUP 2]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.36
GROUND DISTANCE Z1: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	1.72 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	1.72 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	45 deg
GROUND DISTANCE Z1: DIR Comp Limit	79 deg
GROUND DISTANCE Z1: Quad Right Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.200 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.36
GROUND DISTANCE Z2: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 2] (continued from last page)

GROUND DISTANCE Z2: Reach	3.20 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	3.20 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	45 deg
GROUND DISTANCE Z2: DIR Comp Limit	79 deg
GROUND DISTANCE Z2: Quad Right Blinder	6.40 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	6.40 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	0.400 s
GROUND DISTANCE Z2: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.36
GROUND DISTANCE Z3: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	4.40 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	4.40 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	45 deg
GROUND DISTANCE Z3: DIR Comp Limit	79 deg
GROUND DISTANCE Z3: Quad Right Blinder	9.40 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	9.40 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	2.000 s
GROUND DISTANCE Z3: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.36
GROUND DISTANCE Z4: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	0.80 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.80 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	45 deg
GROUND DISTANCE Z4: DIR Comp Limit	79 deg
GROUND DISTANCE Z4: Quad Right Blinder	1.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	1.00 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.000 s
GROUND DISTANCE Z4: Block	SRC1 VT FUSE FAIL OP

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 2] (continued from last page)

GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled

POWER SWING DETECT [GROUP 2]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	6.50 ohms
Quad Fwd Mid	60.00 ohms
Quad Fwd Out	8.50 ohms
Fwd Rca	79 deg
Rev Reach	3.50 ohms
Quad Rev Mid	60.00 ohms
Quad Rev Out	5.50 ohms
Rev Rca	90 deg
Outer Limit Angle	120 deg
Middle Limit Angle	90 deg
Inner Limit Angle	79 deg
Outer Rgt Bld	7.80 ohms
Outer Lft Bld	6.97 ohms
Midle Rgt Bld	100.00 ohms
Midle Lft Bld	100.00 ohms
Inner Rgt Bld	5.80 ohms
Inner Lft Bld	4.97 ohms
Delay 1 Pickup	0.001 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Disabled

PHASE CURRENT

PHASE TOC [GROUP 2]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.22
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	PH DIR1 BLK
PHASE TOC1: Block B	PH DIR1 BLK
PHASE TOC1: Block C	PH DIR1 BLK
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE IOC [GROUP 2]

PHASE IOC1: Function	Enabled
PHASE IOC1: Source	LINEA (SRC 1)
PHASE IOC1: Pickup	4.600 pu
PHASE IOC1: Delay	0.01 s
PHASE IOC1: Reset Delay	0.00 s
PHASE IOC1: Block A	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block B	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block C	SRC2 VT FUSE FAIL DPO
PHASE IOC1: Target	Self-reset
PHASE IOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 2]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)

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DESCRIPTION: (NONE)
TEXT COLOR

NEUTRAL TOC [GROUP 2] (continued from last page)

NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.480 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.13
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	BL-NTCO-NIOC On (VO7)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEUTRAL IOC [GROUP 2]

NEUTRAL IOC1: Function	Enabled
NEUTRAL IOC1: Source	LINEA (SRC 1)
NEUTRAL IOC1: Pickup	3.000 pu
NEUTRAL IOC1: Delay	0.03 s
NEUTRAL IOC1: Reset Delay	0.00 s
NEUTRAL IOC1: Block	BL-NTCO-NIOC On (VO7)
NEUTRAL IOC1: Target	Self-reset
NEUTRAL IOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT
NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 2]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	81 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	81 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 2]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.480 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.000 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A2 (a) On(H7a)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.480 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.480 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

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ORDER CODE: D60-G00-HCH-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUP 3

LINE PICKUP [GROUP 3]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	2.500 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Disabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 3]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 3]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.72 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	1.72 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	45 deg
PHASE DISTANCE Z1: DIR Comp Limit	79 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.200 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	3.60 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	3.60 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	45 deg
PHASE DISTANCE Z2: DIR Comp Limit	79 deg
PHASE DISTANCE Z2: Quad Right Blinder	3.60 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	3.60 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.200 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	0.600 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 3] (continued from last page)

PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	5.40 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	5.40 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	45 deg
PHASE DISTANCE Z3: DIR Comp Limit	79 deg
PHASE DISTANCE Z3: Quad Right Blinder	5.40 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	5.40 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.200 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	2.000 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	2.00 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	2.00 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	45 deg
PHASE DISTANCE Z4: DIR Comp Limit	79 deg
PHASE DISTANCE Z4: Quad Right Blinder	2.00 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	2.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.200 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.000 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled

GROUND DISTANCE [GROUP 3]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.36
GROUND DISTANCE Z1: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z1: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z1: Reach	1.72 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	1.72 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	45 deg
GROUND DISTANCE Z1: DIR Comp Limit	79 deg
GROUND DISTANCE Z1: Quad Right Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.200 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 3] (continued from last page)

GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.36
GROUND DISTANCE Z2: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z2: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z2: Reach	3.60 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	3.60 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	45 deg
GROUND DISTANCE Z2: DIR Comp Limit	79 deg
GROUND DISTANCE Z2: Quad Right Blinder	6.40 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	6.40 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	0.600 s
GROUND DISTANCE Z2: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.36
GROUND DISTANCE Z3: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z3: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z3: Reach	5.40 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	5.40 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	45 deg
GROUND DISTANCE Z3: DIR Comp Limit	79 deg
GROUND DISTANCE Z3: Quad Right Blinder	6.40 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	6.40 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	2.000 s
GROUND DISTANCE Z3: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.36
GROUND DISTANCE Z4: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	2.25
GROUND DISTANCE Z4: Z0M/Z1 Ang	2 deg
GROUND DISTANCE Z4: Reach	2.00 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	2.00 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 3] (continued from last page)

GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	45 deg
GROUND DISTANCE Z4: DIR Comp Limit	79 deg
GROUND DISTANCE Z4: Quad Right Blinder	2.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	2.00 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.000 s
GROUND DISTANCE Z4: Block	SRC1 VT FUSE FAIL OP
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled

POWER SWING DETECT [GROUP 3]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	6.50 ohms
Quad Fwd Mid	60.00 ohms
Quad Fwd Out	8.50 ohms
Fwd Rca	79 deg
Rev Reach	3.50 ohms
Quad Rev Mid	60.00 ohms
Quad Rev Out	5.50 ohms
Rev Rca	90 deg
Outer Limit Angle	120 deg
Middle Limit Angle	90 deg
Inner Limit Angle	79 deg
Outer Rgt Bld	7.80 ohms
Outer Lft Bld	6.97 ohms
Midle Rgt Bld	100.00 ohms
Midle Lft Bld	100.00 ohms
Inner Rgt Bld	5.80 ohms
Inner Lft Bld	4.97 ohms
Delay 1 Pickup	0.001 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Disabled

PHASE CURRENT

PHASE TOC [GROUP 3]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.22
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	PH DIR1 BLK
PHASE TOC1: Block B	PH DIR1 BLK
PHASE TOC1: Block C	PH DIR1 BLK
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE IOC [GROUP 3]

PHASE IOC1: Function	Enabled
PHASE IOC1: Source	LINEA (SRC 1)
PHASE IOC1: Pickup	4.600 pu
PHASE IOC1: Delay	0.01 s

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE IOC [GROUP 3] (continued from last page)

PHASE IOC1: Reset Delay	0.00 s
PHASE IOC1: Block A	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block B	SRC1 VT FUSE FAIL DPO
PHASE IOC1: Block C	SRC2 VT FUSE FAIL DPO
PHASE IOC1: Target	Self-reset
PHASE IOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 3]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.480 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.13
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	BL-NTCO-NIOC On (VO7)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEUTRAL IOC [GROUP 3]

NEUTRAL IOC1: Function	Enabled
NEUTRAL IOC1: Source	LINEA (SRC 1)
NEUTRAL IOC1: Pickup	3.000 pu
NEUTRAL IOC1: Delay	0.03 s
NEUTRAL IOC1: Reset Delay	0.00 s
NEUTRAL IOC1: Block	BL-NTCO-NIOC On (VO7)
NEUTRAL IOC1: Target	Self-reset
NEUTRAL IOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 3]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	81 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	81 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 3]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.480 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.000 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A2 (a) On(H7a)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.480 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.480 pu

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DESCRIPTION: (NONE)
TEXT COLOR

BREAKER FAILURE [GROUP 3] (continued from last page)

BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

CONTROL ELEMENTS

SETTING GROUPS

Function	Enabled
Block	OFF
Group 2 Activate On	OFF
Group 3 Activate On	ON
Group 4 Activate On	OFF
Group 5 Activate On	OFF
Group 6 Activate On	OFF
Group 1 Name	AJA-RGUA
Group 2 Name	AJA-RGUA-TIN
Group 3 Name	AJA-RGUA CAMB CO
Group 4 Name	
Group 5 Name	
Group 6 Name	
Events	Enabled

SELECTOR SWITCHES

SELECTOR SWITCH 1: Function	Enabled
SELECTOR SWITCH 1: Full Range	2
SELECTOR SWITCH 1: Timeout	3.0 s
SELECTOR SWITCH 1: Step-Up	CONTROL PUSHBUTTON 1 ON
SELECTOR SWITCH 1: Step-Up Mode	Time-out
SELECTOR SWITCH 1: Acknowledge	OFF
SELECTOR SWITCH 1: 3Bit A0	OFF
SELECTOR SWITCH 1: 3Bit A1	OFF
SELECTOR SWITCH 1: 3Bit A2	OFF
SELECTOR SWITCH 1: 3Bit Mode	Time-out
SELECTOR SWITCH 1: 3Bit Ack	OFF
SELECTOR SWITCH 1: Power-Up Mode	Restore
SELECTOR SWITCH 1: Targets	Self-reset
SELECTOR SWITCH 1: Events	Disabled

TRIP OUTPUT

Trip Mode	3 Pole Only
Trip 3-Pole Input1	TRIP GRAL On (VO2)
Trip 3-Pole Input2	OFF
Trip 3-Pole Input3	OFF
Trip 3-Pole Input4	OFF
Trip 3-Pole Input5	OFF
Trip 3-Pole Input6	OFF
Trip 1-Pole Input1	OFF
Trip 1-Pole Input2	OFF
Trip 1-Pole Input3	OFF
Trip 1-Pole Input4	OFF
Trip 1-Pole Input5	OFF
Trip 1-Pole Input6	OFF
Trip Reclose Input1	OFF
Trip Reclose Input2	OFF
Trip Reclose Input3	OFF
Trip Reclose Input4	OFF
Trip Reclose Input5	OFF
Trip Reclose Input6	OFF
BKR Phase A Open	LINE PICKUP I<A
BKR Phase B Open	LINE PICKUP I<B
BKR Phase C Open	LINE PICKUP I<C
Trip Force 3-Pole	OFF

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DESCRIPTION: (NONE)
TEXT COLOR

TRIP OUTPUT (continued from last page)

Trip Pilot Priority	0.000 s
Reverse Fault	OFF
Trip Delay On Evolving Faults	0.000 s
Trip Events	Enabled

MONITORING ELEMENTS

VT FUSE FAILURE

VT FUSE FAILURE 1: Function	Enabled
VT FUSE FAILURE 2: Function	Enabled

PILOT SCHEMES

1P POTT SCHEME

Function	Enabled
Permissive Echo	Disabled
Echo Condition	OFF
Rx Pickup Delay	0.000 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.170 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Line End Open Pickup Delay	0.050 s
Seal-In Delay	0.000 s
Gnd Dir OC Fwd	OFF
Comm Bits	1
Rx1	RECEPCION 2T On (VO37)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset
Event	Disabled

1P HYBRID POTT SCHEME

Function	Enabled
Permissive Echo	Disabled
Echo Condition	OFF
Weak Infeed	Disabled
W/I Condition	OFF
Rx Pickup Delay	0.000 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.150 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Seal-In Delay	0.000 s
Gnd Dir OC Fwd	OFF
Gnd Dir OC Rev	BL-NTCO-NIOC On (VO7)
No of Comm Bits	1
Rx1	RECEPCION 3T On (VO36)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset
Event	Enabled

INPUTS/OUTPUTS

CONTACT INPUTS

[H7A] Contact Input 1 ID	52A2 (a)
[H7A] Contact Input 1 Debounce Time	2.0 ms
[H7A] Contact Input 1 Events	Enabled
[H7C] Contact Input 2 ID	79 conectado
[H7C] Contact Input 2 Debounce Time	2.0 ms
[H7C] Contact Input 2 Events	Enabled
[H8A] Contact Input 3 ID	86B--> 50BF
[H8A] Contact Input 3 Debounce Time	2.0 ms
[H8A] Contact Input 3 Events	Enabled
[H8C] Contact Input 4 ID	Rx RANCAGUA
[H8C] Contact Input 4 Debounce Time	2.0 ms
[H8C] Contact Input 4 Events	Enabled
[U7A] Contact Input 5 ID	FALLA RELE
[U7A] Contact Input 5 Debounce Time	2.0 ms

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT INPUTS (continued from last page)

[U7A] Contact Input 5 Events	Disabled
[U7C] Contact Input 6 ID	Cont Ip 6
[U7C] Contact Input 6 Debounce Time	2.0 ms
[U7C] Contact Input 6 Events	Disabled
[U8A] Contact Input 7 ID	Cont Ip 7
[U8A] Contact Input 7 Debounce Time	2.0 ms
[U8A] Contact Input 7 Events	Disabled
[U8C] Contact Input 8 ID	Cont Ip 8
[U8C] Contact Input 8 Debounce Time	2.0 ms
[U8C] Contact Input 8 Events	Disabled
[W1A] Contact Input 9 ID	Rx TINGUI
[W1A] Contact Input 9 Debounce Time	2.0 ms
[W1A] Contact Input 9 Events	Enabled
[W1C] Contact Input 10 ID	80 SISTEMA 1
[W1C] Contact Input 10 Debounce Time	2.0 ms
[W1C] Contact Input 10 Events	Enabled
[W2A] Contact Input 11 ID	CHANGE GRP
[W2A] Contact Input 11 Debounce Time	2.0 ms
[W2A] Contact Input 11 Events	Enabled
[W2C] Contact Input 12 ID	Cont Ip 12
[W2C] Contact Input 12 Debounce Time	2.0 ms
[W2C] Contact Input 12 Events	Enabled
[W3A] Contact Input 13 ID	Cont Ip 13
[W3A] Contact Input 13 Debounce Time	2.0 ms
[W3A] Contact Input 13 Events	Disabled
[W3C] Contact Input 14 ID	Cont Ip 14
[W3C] Contact Input 14 Debounce Time	2.0 ms
[W3C] Contact Input 14 Events	Disabled
[W4A] Contact Input 15 ID	Cont Ip 15
[W4A] Contact Input 15 Debounce Time	2.0 ms
[W4A] Contact Input 15 Events	Disabled
[W4C] Contact Input 16 ID	Cont Ip 16
[W4C] Contact Input 16 Debounce Time	2.0 ms
[W4C] Contact Input 16 Events	Disabled
[W5A] Contact Input 17 ID	Cont Ip 17
[W5A] Contact Input 17 Debounce Time	2.0 ms
[W5A] Contact Input 17 Events	Disabled
[W5C] Contact Input 18 ID	Cont Ip 18
[W5C] Contact Input 18 Debounce Time	2.0 ms
[W5C] Contact Input 18 Events	Disabled
[W6A] Contact Input 19 ID	Cont Ip 19
[W6A] Contact Input 19 Debounce Time	2.0 ms
[W6A] Contact Input 19 Events	Disabled
[W6C] Contact Input 20 ID	Cont Ip 20
[W6C] Contact Input 20 Debounce Time	2.0 ms
[W6C] Contact Input 20 Events	Disabled
[W7A] Contact Input 21 ID	Cont Ip 21
[W7A] Contact Input 21 Debounce Time	2.0 ms
[W7A] Contact Input 21 Events	Disabled
[W7C] Contact Input 22 ID	Cont Ip 22
[W7C] Contact Input 22 Debounce Time	2.0 ms
[W7C] Contact Input 22 Events	Disabled
[W8A] Contact Input 23 ID	Cont Ip 23
[W8A] Contact Input 23 Debounce Time	2.0 ms
[W8A] Contact Input 23 Events	Disabled
[W8C] Contact Input 24 ID	Cont Ip 24
[W8C] Contact Input 24 Debounce Time	2.0 ms
[W8C] Contact Input 24 Events	Disabled

CONTACT INPUT THRESHOLDS

52A2 (a), 79 conectado, 86B--> 50BF, Rx RANCAGUA(H7a, H7c, H8a, H8c)	84 Vdc
FALLA RELE, Cont Ip 6, Cont Ip 7, Cont Ip 8(U7a, U7c, U8a, U8c)	84 Vdc
Rx TINGUI, 80 SISTEMA 1, CHANGE GRP, Cont Ip 12(W1a, W1c, W2a, W2c)	84 Vdc
Cont Ip 13, Cont Ip 14, Cont Ip 15, Cont Ip 16(W3a, W3c, W4a, W4c)	84 Vdc
Cont Ip 17, Cont Ip 18, Cont Ip 19, Cont Ip 20(W5a, W5c, W6a, W6c)	84 Vdc
Cont Ip 21, Cont Ip 22, Cont Ip 23, Cont Ip 24(W7a, W7c, W8a, W8c)	84 Vdc

CONTACT OUTPUTS

[H1] Contact Output 1 ID	TRIP BD1

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[H1] Contact Output 1 Operate	TRIP GRAL On (VO2)
[H1] Contact Output 1 Seal-In	OFF
[H1] Contact Output 1 Events	Enabled
[H2] Contact Output 2 ID	RETRIP 50BF
[H2] Contact Output 2 Operate	BKR FAIL 1 RETRIP
[H2] Contact Output 2 Seal-In	OFF
[H2] Contact Output 2 Events	Enabled
[H3] Contact Output 3 ID	50BF --> 86B
[H3] Contact Output 3 Operate	BKR FAIL 1 T1 OP
[H3] Contact Output 3 Seal-In	OFF
[H3] Contact Output 3 Events	Enabled
[H4] Contact Output 4 ID	OPERACION 79
[H4] Contact Output 4 Operate	ORD. CIERRE On (VO6)
[H4] Contact Output 4 Seal-In	OFF
[H4] Contact Output 4 Events	Enabled
[M1] Contact Output 7 ID	CONT 79 S2
[M1] Contact Output 7 Operate	SELECTOR 1 POS 1
[M1] Contact Output 7 Seal-In	OFF
[M1] Contact Output 7 Events	Enabled
[M2] Contact Output 8 ID	Tx TINGUI
[M2] Contact Output 8 Operate	Tx TINGUI On (VO45)
[M2] Contact Output 8 Seal-In	OFF
[M2] Contact Output 8 Events	Enabled
[M3] Contact Output 9 ID	URT REC ACEL
[M3] Contact Output 9 Operate	RECEPCION On (VO41)
[M3] Contact Output 9 Seal-In	OFF
[M3] Contact Output 9 Events	Enabled
[M4] Contact Output 10 ID	URT OPE Z1
[M4] Contact Output 10 Operate	OPERA ZONA 1 On (VO12)
[M4] Contact Output 10 Seal-In	OFF
[M4] Contact Output 10 Events	Enabled
[M5] Contact Output 11 ID	URT OPE Z4
[M5] Contact Output 11 Operate	OPERA ZONA 4 On (VO15)
[M5] Contact Output 11 Seal-In	OFF
[M5] Contact Output 11 Events	Enabled
[M6] Contact Output 12 ID	URT OPE Z5
[M6] Contact Output 12 Operate	OPERA ZONA 5 On (VO16)
[M6] Contact Output 12 Seal-In	OFF
[M6] Contact Output 12 Events	Enabled
[M8] Contact Output 14 ID	PARA PRUEBAS
[M8] Contact Output 14 Operate	TRIP GRAL On (VO2)
[M8] Contact Output 14 Seal-In	OFF
[M8] Contact Output 14 Events	Enabled
[P1] Contact Output 15 ID	URT Z2 OPER
[P1] Contact Output 15 Operate	OPERA ZONA 2 On (VO13)
[P1] Contact Output 15 Seal-In	OFF
[P1] Contact Output 15 Events	Enabled
[P2] Contact Output 16 ID	URT Z3 OP
[P2] Contact Output 16 Operate	OPERA ZONA 3 On (VO14)
[P2] Contact Output 16 Seal-In	OFF
[P2] Contact Output 16 Events	Enabled
[P3] Contact Output 17 ID	URT OPER 79
[P3] Contact Output 17 Operate	ORD. CIERRE On (VO6)
[P3] Contact Output 17 Seal-In	OFF
[P3] Contact Output 17 Events	Enabled
[P4] Contact Output 18 ID	URT SOTF OP
[P4] Contact Output 18 Operate	LINE PICKUP OP
[P4] Contact Output 18 Seal-In	OFF
[P4] Contact Output 18 Events	Enabled
[P5] Contact Output 19 ID	URT 50 BF OP
[P5] Contact Output 19 Operate	BKR FAIL 1 T2 OP
[P5] Contact Output 19 Seal-In	OFF
[P5] Contact Output 19 Events	Enabled
[P6] Contact Output 20 ID	URT TRIP S1
[P6] Contact Output 20 Operate	TRIP GRAL On (VO2)
[P6] Contact Output 20 Seal-In	OFF
[P6] Contact Output 20 Events	Enabled
[P7] Contact Output 21 ID	URT FA RELE
[P7] Contact Output 21 Operate	FALLA RELE On (VO21)

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DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[P7] Contact Output 21 Seal-In	OFF
[P7] Contact Output 21 Events	Enabled
[P8] Contact Output 22 ID	Tx RANCAGUA
[P8] Contact Output 22 Operate	Tx RANCAGUA On (VO44)
[P8] Contact Output 22 Seal-In	OFF
[P8] Contact Output 22 Events	Enabled
[U1] Contact Output 23 ID	80 SISTEMA 1
[U1] Contact Output 23 Operate	80 SISTEMA 1 VOn (U1)
[U1] Contact Output 23 Seal-In	OFF
[U1] Contact Output 23 Events	Enabled

VIRTUAL OUTPUTS

Virtual Output 1 ID	BLQ Zonas PH
Virtual Output 1 Events	Enabled
Virtual Output 2 ID	TRIP GRAL
Virtual Output 2 Events	Enabled
Virtual Output 3 ID	OSCILOGRAFIA
Virtual Output 3 Events	Enabled
Virtual Output 4 ID	pkp Z1o z2
Virtual Output 4 Events	Enabled
Virtual Output 6 ID	ORD. CIERRE
Virtual Output 6 Events	Enabled
Virtual Output 7 ID	BL-NTCO-NIOC
Virtual Output 7 Events	Enabled
Virtual Output 10 ID	RESET 79
Virtual Output 10 Events	Enabled
Virtual Output 12 ID	OPERA ZONA 1
Virtual Output 12 Events	Disabled
Virtual Output 13 ID	OPERA ZONA 2
Virtual Output 13 Events	Enabled
Virtual Output 14 ID	OPERA ZONA 3
Virtual Output 14 Events	Enabled
Virtual Output 15 ID	OPERA ZONA 4
Virtual Output 15 Events	Enabled
Virtual Output 16 ID	OPERA ZONA 5
Virtual Output 16 Events	Enabled
Virtual Output 17 ID	79 on
Virtual Output 17 Events	Enabled
Virtual Output 18 ID	79 off
Virtual Output 18 Events	Enabled
Virtual Output 19 ID	reset led
Virtual Output 19 Events	Enabled
Virtual Output 21 ID	FALLA RELE
Virtual Output 21 Events	Enabled
Virtual Output 22 ID	RECEP ACELER
Virtual Output 22 Events	Enabled
Virtual Output 27 ID	67-67N
Virtual Output 27 Events	Disabled
Virtual Output 28 ID	51-51N
Virtual Output 28 Events	Enabled
Virtual Output 29 ID	50-50N
Virtual Output 29 Events	Enabled
Virtual Output 30 ID	Partida 79
Virtual Output 30 Events	Enabled
Virtual Output 31 ID	Control 79S2
Virtual Output 31 Events	Enabled
Virtual Output 32 ID	67N
Virtual Output 32 Events	Enabled
Virtual Output 33 ID	51-51N
Virtual Output 33 Events	Enabled
Virtual Output 34 ID	50-50N
Virtual Output 34 Events	Enabled
Virtual Output 36 ID	RECEPCION 3T
Virtual Output 36 Events	Enabled
Virtual Output 37 ID	RECEPCION 2T
Virtual Output 37 Events	Enabled
Virtual Output 41 ID	RECEPCION
Virtual Output 41 Events	Enabled
Virtual Output 44 ID	Tx RANCAGUA

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DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 44 Events	Enabled
Virtual Output 45 ID	Tx TINGUI
Virtual Output 45 Events	Enabled
Virtual Output 47 ID	CAMBIO G1-G2
Virtual Output 47 Events	Enabled
Virtual Output 48 ID	ECHO COND 2T
Virtual Output 48 Events	Enabled
Virtual Output 50 ID	POTT OP 2T
Virtual Output 50 Events	Enabled

RESETTING

Operand	reset led On (VO19)

Max / Centro / Alto Jahuel / 154kV / 7SA612 V4.3 AJA-A2 Var V

MLFB:	7SA61255AE227PR4
Versión del juego de parámetros:	V04.34.03
Ruta del equipo:	C:\Siemens\Digsi4\D4PROJ\Max\P7DI\GV\ST\0000004d
Autor:	
Creado el:	21.10.15 15:48:05
Mod. por última vez el:	21.10.15 16:13:43
Modo de operación:	Sin línea
Comentario:	
Valores de ajuste en:	Presentación secundaria de los valores

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4.1 Grupo Change Group 45

1 Device Configuration

Nº	Función	Volumen
0103	Setting Group Change Option	Enabled
0110	Trip mode	3pole only
0114	21 Distance protection pickup program	Z< (quadrilateral)
0120	68 Power Swing detection	Enabled
0121	85-21 Pilot Protection for Distance prot	POTT
0122	DTT Direct Transfer Trip	Disabled
0124	50HS Instantaneous SOTF	Enabled
0125	Weak Infeed (Trip and/or Echo)	Enabled
0126	50(N)/51(N) Backup OverCurrent	Time Overcurrent Curve IEC
0131	50N/51N Ground OverCurrent	Time Overcurrent Curve IEC
0132	85-67N Pilot Protection Gnd. OverCurrent	Disabled
0133	79 Auto-Reclose Function	Disabled
0134	Auto-Reclose control mode	with Trip and Action time
0135	25 Synchronism and Voltage Check	Enabled
0136	81 Over/Underfrequency Protection	Disabled
0137	27, 59 Under/Overvoltage Protection	Disabled
0138	Fault Locator	Enabled
0139	50BF Breaker Failure Protection	Enabled
0140	74TC Trip Circuit Supervision	Disabled
0142	49 Thermal Overload Protection	Disabled

2 Power System Data 1

2.1 Grupo Power System Data 1; Grupo Transformers

Grupo Power System Data 1; Grupo Transformers

Nº	Parámetro	Valor	Grupo
0201	CT Starpoint	towards Line	todo
0203	Rated Primary Voltage	154,0 kV	todo
0204	Rated Secondary Voltage (Ph-Ph)	110 V	todo
0205	CT Rated Primary Current	600 A	todo
0206	CT Rated Secondary Current	5A	todo
0210	V4 voltage transformer is	Vsy2 transformer	todo
0211	Matching ratio Phase-VT To Open-Delta-VT	0,58	todo
0212	VT connection for Vsy2	B-G	todo
0214A	Angle adjustment Vsy2-Vsy1	0 °	todo
0215	Matching ratio Vsy1 / Vsy2	1,00	todo
0220	I4 current transformer is	Neutral Current (of the protected line)	todo
0221	Matching ratio I4/Iph for CT's	1,000	todo

2.2 Grupo Power System Data 1; Grupo Power System

Grupo Power System Data 1; Grupo Power System

Nº	Parámetro	Valor	Grupo
0207	System Starpoint is	Solid Grounded	todo
0230	Rated Frequency	50 Hz	todo
0235	Phase Sequence	A B C	todo
0236	Distance measurement unit	km	todo
0237	Setting format for zero seq.comp. format	Zero seq. comp. factor K0 and angle(K0)	todo

2.3 Grupo Power System Data 1; Grupo Breaker

Grupo Power System Data 1; Grupo Breaker

Nº	Parámetro	Valor	Grupo
0239	Closing (operating) time of 52 (CB)	0,06 sec	todo
0240A	Minimum TRIP Command Duration	0,12 sec	todo
0241A	Maximum Close Command Duration	0,25 sec	todo
0242	Dead Time for CB test-autoreclosure	0,10 sec	todo

3 Grupos de parámetros

3.1 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	A
1104	Measurement: Full Scale Current (100%)	600 A	A
1105	Line Angle	79 °	A
1211	Angle of inclination, distance charact.	79 °	A
1107	P,Q operational measured values sign	not reversed	A
1110	x' - Line Reactance per length unit	0,0352 Ohm / km	A
1111	Line Length	50,6 km	A
1120	Zero seq. comp. factor K0 for zone Z1	0,809	A
1121	Zero seq. comp. angle for zone Z1	3,02 °	A
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	A
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	A

3.2 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	A
1131A	Pole Open Voltage Threshold	11 V	A
1132A	Seal-in Time after ALL closures	0,20 sec	A
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	A
1135	RESET of Trip Command	with CB(52a) AND I < PoleOpenCurrent	A
1140A	CT Saturation Threshold	100,0 A	A
1150A	Seal-in Time after MANUAL closures	0,20 sec	A
1151	Manual CLOSE COMMAND generation	NO	A
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.3 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	A
1202	Phase Current threshold for dist. meas.	0,25 A	A
1211	Angle of inclination, distance charact.	79 °	A
1208	Series compensated line	NO	A
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	A
1241	R load, minimum Load Impedance (ph-g)	9,140 Ohm	A
1242	PHI load, maximum Load Angle (ph-g)	35 °	A
1243	R load, minimum Load Impedance (ph-ph)	9,140 Ohm	A
1244	PHI load, maximum Load Angle (ph-ph)	35 °	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.4 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,25 A	A
1204	3V0 threshold zero seq. voltage pickup	2 V	A
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	A
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	A
1221A	Loop selection with 2Ph-G faults	all loops	A

3.5 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1325	T3 delay	2,50 sec	A
1335	T4 delay	1,50 sec	A
1345	T5 delay	oo sec	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A

3.6 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	A
1302	R(Z1), Resistance for ph-ph-faults	1,860 Ohm	A
1303	X(Z1), Reactance	1,860 Ohm	A
1304	RG(Z1), Resistance for ph-gnd faults	1,860 Ohm	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1307	Zone Reduction Angle (load compensation)	0 °	A

3.7 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	A
1352	R(Z1B), Resistance for ph-ph-faults	8,000 Ohm	A
1353	X(Z1B), Reactance	8,500 Ohm	A
1354	RG(Z1B), Resistance for ph-gnd faults	8,000 Ohm	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.8 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	A
1312	R(Z2), Resistance for ph-ph-faults	4,266 Ohm	A
1313	X(Z2), Reactance	4,266 Ohm	A
1314	RG(Z2), Resistance for ph-gnd faults	4,266 Ohm	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A

3.9 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	A
1322	R(Z3), Resistance for ph-ph-faults	6,000 Ohm	A
1323	X(Z3), Reactance	6,000 Ohm	A
1324	RG(Z3), Resistance for ph-gnd faults	6,000 Ohm	A
1325	T3 delay	2,50 sec	A

3.10 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	A
1332	R(Z4), Resistance for ph-ph-faults	6,500 Ohm	A
1333	X(Z4), Reactance	6,500 Ohm	A
1334	RG(Z4), Resistance for ph-gnd faults	13,000 Ohm	A
1335	T4 delay	1,50 sec	A

3.11 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	A
1342	R(Z5), Resistance for ph-ph-faults	14,528 Ohm	A
1343	X(Z5)+, Reactance for Forward direction	14,528 Ohm	A
1344	RG(Z5), Resistance for ph-gnd faults	14,528 Ohm	A
1345	T5 delay	oo sec	A
1346	X(Z5)-, Reactance for Reverse direction	7,000 Ohm	A

3.12 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	A
2006	68T Power swing trip	NO	A
2007	68 Trip delay after Power Swing Blocking	0,08 sec	A

3.13 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	A
2102	Type of Line	Three Terminals	A
2103A	Time for send signal prolongation	0,10 sec	A
2109A	Transient Block.: Duration external flt.	0,03 sec	A
2110A	Transient Block.: Blk.T. after ext. flt.	0,17 sec	A

3.14 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	A

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	9,41 A	A

3.15 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	A
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	A
2503A	Trip Extension / Echo Impulse time	0,05 sec	A
2504A	Echo Block Time	0,50 sec	A
2505	Undervoltage (ph-g)	25 V	A
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.16 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	A
2680	Trip time delay after SOTF	0,00 sec	A

3.17 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	oo A	A
2611	50-B1 Delay	oo sec	A
2612	50N-B1 Pickup	oo A	A
2613	50N-B1 Delay	oo sec	A
2614	Instantaneous trip via BI	NO	A
2615	Instantaneous trip after SwitchOnToFault	NO	A

3.18 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	A
2621	50-B2 Delay	oo sec	A
2622	50N-B2 Pickup	oo A	A
2623	50N-B2 Delay	oo sec	A
2624	Instantaneous trip via Pilot Prot./BI	NO	A
2625	Instantaneous trip after SwitchOnToFault	NO	A

3.19 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	A
2642	51-B Time Dial	0,10 sec	A
2646	51-B Additional Time Delay	0,00 sec	A
2650	51N-B Pickup	0,41 A	A
2652	51N-B Time Dial	0,30 sec	A
2656	51N-B Additional Time Delay	0,00 sec	A
2660	IEC Curve	Normal Inverse	A
2670	Instantaneous trip via Pilot Prot./BI	NO	A
2671	Instantaneous trip after SwitchOnToFault	NO	A

3.20 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	A
2631	50-STUB Delay	oo sec	A
2632	50N-STUB Pickup	oo A	A
2633	50N-STUB Delay	oo sec	A
2634	Instantaneous trip via Pilot Prot./BI	NO	A
2635	Instantaneous trip after SwitchOnToFault	NO	A

3.21 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	A
2902A	Voltage Threshold for Balance Monitoring	50 V	A
2903A	Balance Factor for Voltage Monitor	0,75	A
2904A	Current Threshold for Balance Monitoring	0,50 A	A
2905A	Balance Factor for Current Monitor	0,50	A
2906A	Summated Current Monitoring Threshold	0,50 A	A
2907A	Summated Current Monitoring Factor	0,10	A
2908A	T Balance Factor for Voltage Monitor	5 sec	A
2909A	T Current Balance Monitor	5 sec	A

3.22 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	A
2911A	Minimum Voltage Threshold V>	30 V	A
2912A	Maximum Current Threshold I<	0,50 A	A
2913A	Maximum Voltage Threshold V< (3phase)	5 V	A
2914A	Differential Current Threshold (3phase)	0,50 A	A
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	A
2916A	Delay Voltage Failure Supervision	3,00 sec	A

3.23 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	A

3.24 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	A
3102	Block 50N/51N for Distance protection	NO	A
3174	Block 50N/51N for Pickup 21	in each zone	A
3104A	Stabilisation Slope with Iphase	10 %	A
3170	2nd harmonic ratio for inrush restraint	20 %	A
3171	Max.Current, overriding inrush restraint	37,50 A	A
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	A
3173	Trip time delay after SOTF	0,00 sec	A

3.25 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Inactive	A
3111	Pickup	6,50 A	A
3112	Time Delay	0,30 sec	A
3113	Instantaneous trip via Pilot Prot./BI	NO	A
3114	Instantaneous trip after SwitchOnToFault	NO	A
3115	Inrush Blocking	NO	A

3.26 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	A
3121	Pickup	0,83 A	A
3122	Time Delay	0,60 sec	A
3123	Instantaneous trip via Pilot Prot./BI	NO	A
3124	Instantaneous trip after SwitchOnToFault	NO	A
3125	Inrush Blocking	NO	A

3.27 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	A
3131	Pickup	0,83 A	A
3132	Time Delay	0,90 sec	A
3133	Instantaneous trip via Pilot Prot./BI	NO	A
3134	Instantaneous trip after SwitchOnToFault	NO	A
3135	Inrush Blocking	NO	A

3.28 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	A
3141	Pickup	0,41 A	A
3143	Time Dial	0,30 sec	A
3147	Additional Time Delay	0,00 sec	A
3148	Instantaneous trip via Pilot Prot./BI	NO	A
3149	Instantaneous trip after SwitchOnToFault	NO	A
3150	Inrush Blocking	NO	A
3151	IEC Curve	Normal Inverse	A

3.29 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	A
3162A	ALPHA, lower angle for forward direction	338 °	A
3163A	BETA, upper angle for forward direction	122 °	A
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	A
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	A
3167	Min. neg. seq. polarizing current 3I2	0,25 A	A
3168	Compensation angle PHI comp. for Sr	255 °	A
3169	Forward direction power threshold	1,5 VA	A

3.30 Grupo 25 Synchronism and Voltage Check; Grupo General

Grupo 25 Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	25 Synchronism and Voltage Check	ON	A
3502	Voltage threshold dead line / bus	10 V	A
3503	Voltage threshold live line / bus	44 V	A
3504	Maximum permissible voltage	70 V	A
3507	Maximum duration of synchronism-check	1,00 sec	A
3508	Synchronous condition stability timer	0,00 sec	A
3509	Synchronizable circuit breaker	<none>	todo

3.31 Grupo 25 Synchronism and Voltage Check; Grupo with AR

Grupo 25 Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of 52 closing time	A
3511	Maximum voltage difference	10,0 V	A
3512	Maximum frequency difference	0,10 Hz	A
3513	Maximum angle difference	10 °	A
3515A	79 at Vsy2>, Vsy1>, and Synchr.	YES	A
3516	79 at Vsy1< and Vsy2>	NO	A
3517	79 at Vsy1> and Vsy2<	NO	A
3518	79 at Vsy1< and Vsy2<	NO	A
3519	Override of any check before 79	NO	A

3.32 Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of 52 closing time	A
3531	Maximum voltage difference	5,0 V	A
3532	Maximum frequency difference	0,10 Hz	A
3533	Maximum angle difference	10 °	A
3535A	Manual Close at Vsy2>, Vsy1>, and Synchr	NO	A
3536	Manual Close at Vsy1< and Vsy2>	NO	A
3537	Manual Close at Vsy1> and Vsy2<	NO	A
3538	Manual Close at Vsy1< and Vsy2<	NO	A
3539	Override of any check before Man.Cl	NO	A

3.33 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	A
3806	Load Compensation	NO	A

3.34 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	A
3902	50BF Pickup current threshold	1,67 A	A
3904	Delay after 1pole start for local trip	0,01 sec	A
3905	Delay after 3pole start for local trip	0,01 sec	A
3906	Delay of 2nd element for busbar trip	0,20 sec	A
3907	Delay for start with defective bkr.	0,00 sec	A
3908	Trip output selection with defective bkr	NO	A
3909	Check Breaker contacts	YES	A

3.35 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	A
3922	Trip delay of end fault element	2,00 sec	A

3.36 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	A
3932	Trip delay with pole discrepancy	2,00 sec	A

3.37 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	B
1104	Measurement: Full Scale Current (100%)	600 A	B
1105	Line Angle	79 °	B
1211	Angle of inclination, distance charact.	79 °	B
1107	P,Q operational measured values sign	not reversed	B
1110	x' - Line Reactance per length unit	0,0352 Ohm / km	B
1111	Line Length	60,6 km	B
1120	Zero seq. comp. factor K0 for zone Z1	0,809	B
1121	Zero seq. comp. angle for zone Z1	3,02 °	B
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	B
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	B

3.38 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,50 A	B
1131A	Pole Open Voltage Threshold	11 V	B
1132A	Seal-in Time after ALL closures	0,20 sec	B
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	B
1135	RESET of Trip Command	with CB(52a) AND I < PoleOpenCurrent	B
1140A	CT Saturation Threshold	100,0 A	B
1150A	Seal-in Time after MANUAL closures	0,20 sec	B
1151	Manual CLOSE COMMAND generation	NO	B
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.39 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	B
1202	Phase Current threshold for dist. meas.	0,50 A	B
1211	Angle of inclination, distance charact.	79 °	B
1208	Series compensated line	NO	B
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	B
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	B
1242	PHI load, maximum Load Angle (ph-g)	30 °	B
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	B
1244	PHI load, maximum Load Angle (ph-ph)	30 °	B
1357	Z1B enabled before 1st AR (int. or ext.)	NO	B

3.40 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,50 A	B
1204	3V0 threshold zero seq. voltage pickup	oo V	B
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	B
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	B
1221A	Loop selection with 2Ph-G faults	all loops	B

3.41 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B
1325	T3 delay	2,00 sec	B
1335	T4 delay	2,00 sec	B
1345	T5 delay	oo sec	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B

3.42 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	B
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	B
1303	X(Z1), Reactance	1,720 Ohm	B
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1307	Zone Reduction Angle (load compensation)	0 °	B

3.43 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	B
1352	R(Z1B), Resistance for ph-ph-faults	3,200 Ohm	B
1353	X(Z1B), Reactance	3,200 Ohm	B
1354	RG(Z1B), Resistance for ph-gnd faults	6,400 Ohm	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B
1357	Z1B enabled before 1st AR (int. or ext.)	NO	B

3.44 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	B
1312	R(Z2), Resistance for ph-ph-faults	3,200 Ohm	B
1313	X(Z2), Reactance	3,200 Ohm	B
1314	RG(Z2), Resistance for ph-gnd faults	6,400 Ohm	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B

3.45 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	B
1322	R(Z3), Resistance for ph-ph-faults	0,800 Ohm	B
1323	X(Z3), Reactance	0,800 Ohm	B
1324	RG(Z3), Resistance for ph-gnd faults	1,300 Ohm	B
1325	T3 delay	2,00 sec	B

3.46 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	B
1332	R(Z4), Resistance for ph-ph-faults	4,400 Ohm	B
1333	X(Z4), Reactance	4,400 Ohm	B
1334	RG(Z4), Resistance for ph-gnd faults	8,800 Ohm	B
1335	T4 delay	2,00 sec	B

3.47 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	B
1342	R(Z5), Resistance for ph-ph-faults	4,420 Ohm	B
1343	X(Z5)+, Reactance for Forward direction	4,420 Ohm	B
1344	RG(Z5), Resistance for ph-gnd faults	8,820 Ohm	B
1345	T5 delay	oo sec	B
1346	X(Z5)-, Reactance for Reverse direction	3,200 Ohm	B

3.48 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	B
2006	68T Power swing trip	NO	B
2007	68 Trip delay after Power Swing Blocking	0,08 sec	B

3.49 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	B
2102	Type of Line	Two Terminals	B
2103A	Time for send signal prolongation	0,08 sec	B
2109A	Transient Block.: Duration external flt.	0,03 sec	B
2110A	Transient Block.: Blk.T. after ext. flt.	0,15 sec	B

3.50 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	B
2404	50HS SOTF-O/C PICKUP	12,50 A	B

3.51 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	B
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	B
2503A	Trip Extension / Echo Impulse time	0,05 sec	B
2504A	Echo Block Time	0,50 sec	B
2505	Undervoltage (ph-g)	25 V	B
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.52 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	B
2680	Trip time delay after SOTF	0,00 sec	B

3.53 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	23,00 A	B
2611	50-B1 Delay	0,01 sec	B
2612	50N-B1 Pickup	15,00 A	B
2613	50N-B1 Delay	0,02 sec	B
2614	Instantaneous trip via BI	NO	B
2615	Instantaneous trip after SwitchOnToFault	NO	B

3.54 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	6,15 A	B
2621	50-B2 Delay	oo sec	B
2622	50N-B2 Pickup	11,67 A	B
2623	50N-B2 Delay	oo sec	B
2624	Instantaneous trip via Pilot Prot./BI	NO	B
2625	Instantaneous trip after SwitchOnToFault	NO	B

3.55 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	B
2642	51-B Time Dial	0,22 sec	B
2646	51-B Additional Time Delay	0,00 sec	B
2650	51N-B Pickup	2,40 A	B
2652	51N-B Time Dial	0,12 sec	B
2656	51N-B Additional Time Delay	0,00 sec	B
2660	IEC Curve	Normal Inverse	B
2670	Instantaneous trip via Pilot Prot./BI	NO	B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B(2)

Nº	Parámetro	Valor	Grupo
2671	Instantaneous trip after SwitchOnToFault	NO	B

3.56 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	15,00 A	B
2631	50-STUB Delay	oo sec	B
2632	50N-STUB Pickup	11,67 A	B
2633	50N-STUB Delay	oo sec	B
2634	Instantaneous trip via Pilot Prot./BI	NO	B
2635	Instantaneous trip after SwitchOnToFault	NO	B

3.57 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	B
2902A	Voltage Threshold for Balance Monitoring	50 V	B
2903A	Balance Factor for Voltage Monitor	0,75	B
2904A	Current Threshold for Balance Monitoring	0,50 A	B
2905A	Balance Factor for Current Monitor	0,50	B
2906A	Summated Current Monitoring Threshold	0,50 A	B
2907A	Summated Current Monitoring Factor	0,10	B
2908A	T Balance Factor for Voltage Monitor	5 sec	B
2909A	T Current Balance Monitor	5 sec	B

3.58 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	B
2911A	Minimum Voltage Threshold V>	30 V	B
2912A	Maximum Current Threshold I<	0,50 A	B
2913A	Maximum Voltage Threshold V< (3phase)	5 V	B
2914A	Differential Current Threshold (3phase)	0,50 A	B
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	B
2916A	Delay Voltage Failure Supervision	3,00 sec	B

3.59 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	B

3.60 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	B
3102	Block 50N/51N for Distance protection	NO	B
3174	Block 50N/51N for Pickup 21	in each zone	B
3104A	Stabilisation Slope with Iphase	10 %	B
3170	2nd harmonic ratio for inrush restraint	15 %	B
3171	Max.Current, overriding inrush restraint	37,50 A	B
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	B
3173	Trip time delay after SOTF	0,00 sec	B

3.61 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	B
3111	Pickup	15,00 A	B
3112	Time Delay	0,03 sec	B
3113	Instantaneous trip via Pilot Prot./BI	NO	B
3114	Instantaneous trip after SwitchOnToFault	NO	B
3115	Inrush Blocking	NO	B

3.62 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	B
3121	Pickup	0,83 A	B
3122	Time Delay	0,60 sec	B
3123	Instantaneous trip via Pilot Prot./BI	NO	B
3124	Instantaneous trip after SwitchOnToFault	NO	B
3125	Inrush Blocking	NO	B

3.63 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	B
3131	Pickup	0,83 A	B
3132	Time Delay	0,90 sec	B
3133	Instantaneous trip via Pilot Prot./BI	NO	B
3134	Instantaneous trip after SwitchOnToFault	NO	B
3135	Inrush Blocking	NO	B

3.64 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	B
3141	Pickup	2,40 A	B
3143	Time Dial	0,13 sec	B
3147	Additional Time Delay	0,00 sec	B
3148	Instantaneous trip via Pilot Prot./BI	NO	B
3149	Instantaneous trip after SwitchOnToFault	NO	B
3150	Inrush Blocking	NO	B
3151	IEC Curve	Normal Inverse	B

3.65 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	B
3162A	ALPHA, lower angle for forward direction	338 °	B
3163A	BETA, upper angle for forward direction	122 °	B
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	B
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	B
3167	Min. neg. seq. polarizing current 3I2	0,25 A	B
3168	Compensation angle PHI comp. for Sr	255 °	B
3169	Forward direction power threshold	1,5 VA	B

3.66 Grupo 25 Synchronism and Voltage Check; Grupo General

Grupo 25 Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	25 Synchronism and Voltage Check	ON	B
3502	Voltage threshold dead line / bus	10 V	B
3503	Voltage threshold live line / bus	44 V	B
3504	Maximum permissible voltage	70 V	B
3507	Maximum duration of synchronism-check	1,00 sec	B
3508	Synchronous condition stability timer	0,00 sec	B
3509	Synchronizable circuit breaker	<none>	todo

3.67 Grupo 25 Synchronism and Voltage Check; Grupo with AR

Grupo 25 Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of 52 closing time	B
3511	Maximum voltage difference	10,0 V	B
3512	Maximum frequency difference	0,10 Hz	B
3513	Maximum angle difference	10 °	B
3515A	79 at Vsy2>, Vsy1>, and Synchr.	YES	B
3516	79 at Vsy1< and Vsy2>	NO	B
3517	79 at Vsy1> and Vsy2<	NO	B
3518	79 at Vsy1< and Vsy2<	NO	B
3519	Override of any check before 79	NO	B

3.68 Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of 52 closing time	B
3531	Maximum voltage difference	10,0 V	B
3532	Maximum frequency difference	0,10 Hz	B
3533	Maximum angle difference	10 °	B
3535A	Manual Close at Vsy2>, Vsy1>, and Synchr	NO	B
3536	Manual Close at Vsy1< and Vsy2>	NO	B
3537	Manual Close at Vsy1> and Vsy2<	NO	B
3538	Manual Close at Vsy1< and Vsy2<	NO	B
3539	Override of any check before Man.Cl	NO	B

3.69 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	B
3806	Load Compensation	NO	B

3.70 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	B
3902	50BF Pickup current threshold	6,00 A	B
3904	Delay after 1pole start for local trip	0,02 sec	B
3905	Delay after 3pole start for local trip	0,02 sec	B
3906	Delay of 2nd element for busbar trip	0,20 sec	B
3907	Delay for start with defective bkr.	0,00 sec	B
3908	Trip output selection with defective bkr	NO	B
3909	Check Breaker contacts	YES	B

3.71 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	B
3922	Trip delay of end fault element	2,00 sec	B

3.72 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	B
3932	Trip delay with pole discrepancy	2,00 sec	B

3.73 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	C
1104	Measurement: Full Scale Current (100%)	600 A	C
1105	Line Angle	79 °	C
1211	Angle of inclination, distance charact.	79 °	C
1107	P,Q operational measured values sign	not reversed	C
1110	x' - Line Reactance per length unit	0,0352 Ohm / km	C
1111	Line Length	60,6 km	C
1120	Zero seq. comp. factor K0 for zone Z1	0,809	C
1121	Zero seq. comp. angle for zone Z1	3,02 °	C
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	C
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	C

3.74 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,50 A	C
1131A	Pole Open Voltage Threshold	11 V	C
1132A	Seal-in Time after ALL closures	0,20 sec	C
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	C
1135	RESET of Trip Command	with CB(52a) AND I < PoleOpenCurrent	C
1140A	CT Saturation Threshold	100,0 A	C
1150A	Seal-in Time after MANUAL closures	0,20 sec	C
1151	Manual CLOSE COMMAND generation	NO	C
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.75 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	C
1202	Phase Current threshold for dist. meas.	0,50 A	C
1211	Angle of inclination, distance charact.	79 °	C
1208	Series compensated line	NO	C
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	C
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	C
1242	PHI load, maximum Load Angle (ph-g)	30 °	C
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	C
1244	PHI load, maximum Load Angle (ph-ph)	30 °	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.76 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,50 A	C
1204	3V0 threshold zero seq. voltage pickup	oo V	C
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	C
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	C
1221A	Loop selection with 2Ph-G faults	all loops	C

3.77 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1315	T2-1phase, delay for single phase faults	0,60 sec	C
1316	T2multi-ph, delay for multi phase faults	0,60 sec	C
1325	T3 delay	2,00 sec	C
1335	T4 delay	2,00 sec	C
1345	T5 delay	oo sec	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C

3.78 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	C
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	C
1303	X(Z1), Reactance	1,720 Ohm	C
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1307	Zone Reduction Angle (load compensation)	0 °	C

3.79 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	C
1352	R(Z1B), Resistance for ph-ph-faults	5,400 Ohm	C
1353	X(Z1B), Reactance	5,400 Ohm	C
1354	RG(Z1B), Resistance for ph-gnd faults	6,400 Ohm	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.80 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	C
1312	R(Z2), Resistance for ph-ph-faults	3,600 Ohm	C
1313	X(Z2), Reactance	3,600 Ohm	C
1314	RG(Z2), Resistance for ph-gnd faults	6,400 Ohm	C
1315	T2-1phase, delay for single phase faults	0,60 sec	C
1316	T2multi-ph, delay for multi phase faults	0,60 sec	C

3.81 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	C
1322	R(Z3), Resistance for ph-ph-faults	2,000 Ohm	C
1323	X(Z3), Reactance	2,000 Ohm	C
1324	RG(Z3), Resistance for ph-gnd faults	2,000 Ohm	C
1325	T3 delay	2,00 sec	C

3.82 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	C
1332	R(Z4), Resistance for ph-ph-faults	4,400 Ohm	C
1333	X(Z4), Reactance	4,400 Ohm	C
1334	RG(Z4), Resistance for ph-gnd faults	8,800 Ohm	C
1335	T4 delay	2,00 sec	C

3.83 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	C
1342	R(Z5), Resistance for ph-ph-faults	4,420 Ohm	C
1343	X(Z5)+, Reactance for Forward direction	4,420 Ohm	C
1344	RG(Z5), Resistance for ph-gnd faults	8,820 Ohm	C
1345	T5 delay	oo sec	C
1346	X(Z5)-, Reactance for Reverse direction	3,200 Ohm	C

3.84 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	C
2006	68T Power swing trip	NO	C
2007	68 Trip delay after Power Swing Blocking	0,08 sec	C

3.85 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	C
2102	Type of Line	Two Terminals	C
2103A	Time for send signal prolongation	0,08 sec	C
2109A	Transient Block.: Duration external flt.	0,03 sec	C
2110A	Transient Block.: Blk.T. after ext. flt.	0,15 sec	C

3.86 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	C

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	12,50 A	C

3.87 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	C
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	C
2503A	Trip Extension / Echo Impulse time	0,05 sec	C
2504A	Echo Block Time	0,50 sec	C
2505	Undervoltage (ph-g)	25 V	C
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.88 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	C
2680	Trip time delay after SOTF	0,00 sec	C

3.89 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	23,00 A	C
2611	50-B1 Delay	0,01 sec	C
2612	50N-B1 Pickup	15,00 A	C
2613	50N-B1 Delay	0,02 sec	C
2614	Instantaneous trip via BI	NO	C
2615	Instantaneous trip after SwitchOnToFault	NO	C

3.90 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	6,15 A	C
2621	50-B2 Delay	oo sec	C
2622	50N-B2 Pickup	11,67 A	C
2623	50N-B2 Delay	oo sec	C
2624	Instantaneous trip via Pilot Prot./BI	NO	C
2625	Instantaneous trip after SwitchOnToFault	NO	C

3.91 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	C
2642	51-B Time Dial	0,22 sec	C
2646	51-B Additional Time Delay	0,00 sec	C
2650	51N-B Pickup	2,40 A	C
2652	51N-B Time Dial	0,12 sec	C
2656	51N-B Additional Time Delay	0,00 sec	C
2660	IEC Curve	Normal Inverse	C
2670	Instantaneous trip via Pilot Prot./BI	NO	C
2671	Instantaneous trip after SwitchOnToFault	NO	C

3.92 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	15,00 A	C
2631	50-STUB Delay	oo sec	C
2632	50N-STUB Pickup	11,67 A	C
2633	50N-STUB Delay	oo sec	C
2634	Instantaneous trip via Pilot Prot./BI	NO	C
2635	Instantaneous trip after SwitchOnToFault	NO	C

3.93 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	C
2902A	Voltage Threshold for Balance Monitoring	50 V	C
2903A	Balance Factor for Voltage Monitor	0,75	C
2904A	Current Threshold for Balance Monitoring	0,50 A	C
2905A	Balance Factor for Current Monitor	0,50	C
2906A	Summated Current Monitoring Threshold	0,50 A	C
2907A	Summated Current Monitoring Factor	0,10	C
2908A	T Balance Factor for Voltage Monitor	5 sec	C
2909A	T Current Balance Monitor	5 sec	C

3.94 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	C
2911A	Minimum Voltage Threshold V>	30 V	C
2912A	Maximum Current Threshold I<	0,50 A	C
2913A	Maximum Voltage Threshold V< (3phase)	5 V	C
2914A	Differential Current Threshold (3phase)	0,50 A	C
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	C
2916A	Delay Voltage Failure Supervision	3,00 sec	C

3.95 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	C

3.96 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	C
3102	Block 50N/51N for Distance protection	NO	C
3174	Block 50N/51N for Pickup 21	in each zone	C
3104A	Stabilisation Slope with Iphase	10 %	C
3170	2nd harmonic ratio for inrush restraint	15 %	C
3171	Max.Current, overriding inrush restraint	37,50 A	C
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	C
3173	Trip time delay after SOTF	0,00 sec	C

3.97 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	C
3111	Pickup	15,00 A	C
3112	Time Delay	0,03 sec	C
3113	Instantaneous trip via Pilot Prot./BI	NO	C
3114	Instantaneous trip after SwitchOnToFault	NO	C
3115	Inrush Blocking	NO	C

3.98 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	C
3121	Pickup	0,83 A	C
3122	Time Delay	0,60 sec	C
3123	Instantaneous trip via Pilot Prot./BI	NO	C
3124	Instantaneous trip after SwitchOnToFault	NO	C
3125	Inrush Blocking	NO	C

3.99 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	C
3131	Pickup	0,83 A	C
3132	Time Delay	0,90 sec	C
3133	Instantaneous trip via Pilot Prot./BI	NO	C
3134	Instantaneous trip after SwitchOnToFault	NO	C
3135	Inrush Blocking	NO	C

3.100 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	C
3141	Pickup	2,40 A	C
3143	Time Dial	0,13 sec	C
3147	Additional Time Delay	0,00 sec	C
3148	Instantaneous trip via Pilot Prot./BI	NO	C
3149	Instantaneous trip after SwitchOnToFault	NO	C
3150	Inrush Blocking	NO	C
3151	IEC Curve	Normal Inverse	C

3.101 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	C
3162A	ALPHA, lower angle for forward direction	338 °	C
3163A	BETA, upper angle for forward direction	122 °	C
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	C
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	C
3167	Min. neg. seq. polarizing current 3I2	0,25 A	C
3168	Compensation angle PHI comp. for Sr	255 °	C
3169	Forward direction power threshold	1,5 VA	C

3.102 Grupo 25 Synchronism and Voltage Check; Grupo General

Grupo 25 Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	25 Synchronism and Voltage Check	ON	C
3502	Voltage threshold dead line / bus	10 V	C
3503	Voltage threshold live line / bus	44 V	C
3504	Maximum permissible voltage	70 V	C
3507	Maximum duration of synchronism-check	1,00 sec	C
3508	Synchronous condition stability timer	0,00 sec	C
3509	Synchronizable circuit breaker	<none>	todo

3.103 Grupo 25 Synchronism and Voltage Check; Grupo with AR

Grupo 25 Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of 52 closing time	C
3511	Maximum voltage difference	10,0 V	C
3512	Maximum frequency difference	0,10 Hz	C
3513	Maximum angle difference	10 °	C
3515A	79 at Vsy2>, Vsy1>, and Synchr.	YES	C
3516	79 at Vsy1< and Vsy2>	NO	C
3517	79 at Vsy1> and Vsy2<	NO	C
3518	79 at Vsy1< and Vsy2<	NO	C
3519	Override of any check before 79	NO	C

3.104 Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo 25 Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of 52 closing time	C
3531	Maximum voltage difference	10,0 V	C
3532	Maximum frequency difference	0,10 Hz	C
3533	Maximum angle difference	10 °	C
3535A	Manual Close at Vsy2>, Vsy1>, and Synchr	NO	C
3536	Manual Close at Vsy1< and Vsy2>	NO	C
3537	Manual Close at Vsy1> and Vsy2<	NO	C
3538	Manual Close at Vsy1< and Vsy2<	NO	C
3539	Override of any check before Man.Cl	NO	C

3.105 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	C
3806	Load Compensation	NO	C

3.106 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	C
3902	50BF Pickup current threshold	6,00 A	C
3904	Delay after 1pole start for local trip	0,02 sec	C
3905	Delay after 3pole start for local trip	0,02 sec	C
3906	Delay of 2nd element for busbar trip	0,20 sec	C
3907	Delay for start with defective bkr.	0,00 sec	C
3908	Trip output selection with defective bkr	NO	C
3909	Check Breaker contacts	YES	C

3.107 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	C
3922	Trip delay of end fault element	2,00 sec	C

3.108 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	C
3932	Trip delay with pole discrepancy	2,00 sec	C

4 Change Group

4.1 Grupo Change Group

Grupo Change Group

Nº	Parámetro	Valor	Grupo
0302	Change to Another Setting Group	Binary Input	todo

CONTROL DE REVISIÓN DEL CRAP

REVISOR	FECHA	N° EAP	OBSERVACIONES
Max Missene M.	07-09-2015	Nº 75/2015	Cambio de ajustes para evitar que la Z1B actúe de forma instantánea en Sistema 2 protección Siemens 7SA61 .

Razón de TTCC/TTPP

TTCC: 600/5

TTPP: $\frac{161000}{\sqrt{3}}/115/\ \frac{115}{\sqrt{3}}$

Particularidades de Ajustes

- No hay.

Max / Centro Sur / Rancagua / A2 Rancagua Var

MLFB:	7SA61255AE227PR4
Versión del juego de parámetros:	V04.34.03
Ruta del equipo:	C:\Siemens\Digsi4\D4PROJ\Max\P7DI\GV\ST\00000050
Autor:	
Creado el:	23.10.15 10:59:27
Mod. por última vez el:	23.10.15 10:59:58
Modo de operación:	Sin línea
Comentario:	
Valores de ajuste en:	Presentación secundaria de los valores

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1 Device Configuration

Nº	Función	Volumen
0103	Setting Group Change Option	Enabled
0110	Trip mode	3pole only
0114	21 Distance protection pickup program	Z< (quadrilateral)
0120	68 Power Swing detection	Enabled
0121	85-21 Pilot Protection for Distance prot	POTT
0122	DTT Direct Transfer Trip	Disabled
0124	50HS Instantaneous SOTF	Enabled
0125	Weak Infeed (Trip and/or Echo)	Enabled
0126	50(N)/51(N) Backup OverCurrent	Time Overcurrent Curve IEC
0131	50N/51N Ground OverCurrent	Time Overcurrent Curve IEC
0132	85-67N Pilot Protection Gnd. OverCurrent	Disabled
0133	79 Auto-Reclose Function	Disabled
0134	Auto-Reclose control mode	with Trip and Action time
0135	25 Synchronism and Voltage Check	Disabled
0136	81 Over/Underfrequency Protection	Disabled
0137	27, 59 Under/Overvoltage Protection	Disabled
0138	Fault Locator	Enabled
0139	50BF Breaker Failure Protection	Enabled
0140	74TC Trip Circuit Supervision	Disabled
0142	49 Thermal Overload Protection	Disabled

2 Power System Data 1

2.1 Grupo Power System Data 1; Grupo Transformers

Grupo Power System Data 1; Grupo Transformers

Nº	Parámetro	Valor	Grupo
0201	CT Starpoint	towards Line	todo
0203	Rated Primary Voltage	161,0 kV	todo
0204	Rated Secondary Voltage (Ph-Ph)	115 V	todo
0205	CT Rated Primary Current	600 A	todo
0206	CT Rated Secondary Current	5A	todo
0210	V4 voltage transformer is	not connected	todo
0211	Matching ratio Phase-VT To Open-Delta-VT	1,73	todo
0215	Matching ratio Vsy1 / Vsy2	0,58	todo
0220	I4 current transformer is	Neutral Current (of the protected line)	todo
0221	Matching ratio I4/Iph for CT's	1,000	todo

2.2 Grupo Power System Data 1; Grupo Power System

Grupo Power System Data 1; Grupo Power System

Nº	Parámetro	Valor	Grupo
0207	System Starpoint is	Solid Grounded	todo
0230	Rated Frequency	50 Hz	todo
0235	Phase Sequence	A B C	todo
0236	Distance measurement unit	km	todo
0237	Setting format for zero seq.comp. format	Zero seq. comp. factor K0 and angle(K0)	todo

2.3 Grupo Power System Data 1; Grupo Breaker

Grupo Power System Data 1; Grupo Breaker

Nº	Parámetro	Valor	Grupo
0240A	Minimum TRIP Command Duration	0,12 sec	todo
0241A	Maximum Close Command Duration	0,25 sec	todo
0242	Dead Time for CB test-autoreclosure	0,10 sec	todo

3 Grupos de parámetros

3.1 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	161,0 kV	A
1104	Measurement: Full Scale Current (100%)	600 A	A
1105	Line Angle	79 °	A
1211	Angle of inclination, distance charact.	79 °	A
1107	P,Q operational measured values sign	not reversed	A
1110	x' - Line Reactance per length unit	0,0359 Ohm / km	A
1111	Line Length	50,6 km	A
1120	Zero seq. comp. factor K0 for zone Z1	0,809	A
1121	Zero seq. comp. angle for zone Z1	3,02 °	A
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	A
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	A

3.2 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	A
1131A	Pole Open Voltage Threshold	11 V	A
1132A	Seal-in Time after ALL closures	0,20 sec	A
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	A
1135	RESET of Trip Command	with Pole Open Current Threshold only	A
1140A	CT Saturation Threshold	100,0 A	A
1150A	Seal-in Time after MANUAL closures	0,20 sec	A
1151	Manual CLOSE COMMAND generation	NO	A
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.3 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	A
1202	Phase Current threshold for dist. meas.	0,25 A	A
1211	Angle of inclination, distance charact.	79 °	A
1208	Series compensated line	NO	A
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	A
1241	R load, minimum Load Impedance (ph-g)	9,140 Ohm	A
1242	PHI load, maximum Load Angle (ph-g)	35 °	A
1243	R load, minimum Load Impedance (ph-ph)	9,140 Ohm	A
1244	PHI load, maximum Load Angle (ph-ph)	35 °	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.4 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,25 A	A
1204	3V0 threshold zero seq. voltage pickup	2 V	A
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	A
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	A
1221A	Loop selection with 2Ph-G faults	all loops	A

3.5 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1325	T3 delay	2,50 sec	A
1335	T4 delay	1,50 sec	A
1345	T5 delay	oo sec	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A

3.6 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	A
1302	R(Z1), Resistance for ph-ph-faults	2,740 Ohm	A
1303	X(Z1), Reactance	2,740 Ohm	A
1304	RG(Z1), Resistance for ph-gnd faults	2,740 Ohm	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1307	Zone Reduction Angle (load compensation)	0 °	A

3.7 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	A
1352	R(Z1B), Resistance for ph-ph-faults	21,000 Ohm	A
1353	X(Z1B), Reactance	25,689 Ohm	A
1354	RG(Z1B), Resistance for ph-gnd faults	21,000 Ohm	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.8 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	A
1312	R(Z2), Resistance for ph-ph-faults	5,520 Ohm	A
1313	X(Z2), Reactance	5,520 Ohm	A
1314	RG(Z2), Resistance for ph-gnd faults	5,520 Ohm	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A

3.9 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	A
1322	R(Z3), Resistance for ph-ph-faults	12,500 Ohm	A
1323	X(Z3), Reactance	12,500 Ohm	A
1324	RG(Z3), Resistance for ph-gnd faults	12,500 Ohm	A
1325	T3 delay	2,50 sec	A

3.10 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	A
1332	R(Z4), Resistance for ph-ph-faults	13,000 Ohm	A
1333	X(Z4), Reactance	13,000 Ohm	A
1334	RG(Z4), Resistance for ph-gnd faults	13,000 Ohm	A
1335	T4 delay	1,50 sec	A

3.11 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	A
1342	R(Z5), Resistance for ph-ph-faults	14,000 Ohm	A
1343	X(Z5)+, Reactance for Forward direction	14,000 Ohm	A
1344	RG(Z5), Resistance for ph-gnd faults	14,000 Ohm	A
1345	T5 delay	oo sec	A
1346	X(Z5)-, Reactance for Reverse direction	13,500 Ohm	A

3.12 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	A
2006	68T Power swing trip	NO	A
2007	68 Trip delay after Power Swing Blocking	0,08 sec	A

3.13 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	A
2102	Type of Line	Three Terminals	A
2103A	Time for send signal prolongation	0,10 sec	A
2109A	Transient Block.: Duration external flt.	0,03 sec	A
2110A	Transient Block.: Blk.T. after ext. flt.	0,17 sec	A

3.14 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	A

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	6,67 A	A

3.15 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	A
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	A
2503A	Trip Extension / Echo Impulse time	0,10 sec	A
2504A	Echo Block Time	0,50 sec	A
2505	Undervoltage (ph-g)	25 V	A
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.16 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	A
2680	Trip time delay after SOTF	0,00 sec	A

3.17 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	oo A	A
2611	50-B1 Delay	oo sec	A
2612	50N-B1 Pickup	oo A	A
2613	50N-B1 Delay	oo sec	A
2614	Instantaneous trip via BI	NO	A
2615	Instantaneous trip after SwitchOnToFault	NO	A

3.18 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	A
2621	50-B2 Delay	oo sec	A
2622	50N-B2 Pickup	oo A	A
2623	50N-B2 Delay	oo sec	A
2624	Instantaneous trip via Pilot Prot./BI	NO	A
2625	Instantaneous trip after SwitchOnToFault	NO	A

3.19 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	A
2642	51-B Time Dial	0,15 sec	A
2646	51-B Additional Time Delay	0,00 sec	A
2650	51N-B Pickup	0,25 A	A
2652	51N-B Time Dial	0,40 sec	A
2656	51N-B Additional Time Delay	0,00 sec	A
2660	IEC Curve	Normal Inverse	A
2670	Instantaneous trip via Pilot Prot./BI	NO	A
2671	Instantaneous trip after SwitchOnToFault	NO	A

3.20 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	0,50 A	A
2631	50-STUB Delay	oo sec	A
2632	50N-STUB Pickup	0,50 A	A
2633	50N-STUB Delay	oo sec	A
2634	Instantaneous trip via Pilot Prot./BI	NO	A
2635	Instantaneous trip after SwitchOnToFault	NO	A

3.21 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	A
2902A	Voltage Threshold for Balance Monitoring	50 V	A
2903A	Balance Factor for Voltage Monitor	0,75	A
2904A	Current Threshold for Balance Monitoring	0,50 A	A
2905A	Balance Factor for Current Monitor	0,50	A
2906A	Summated Current Monitoring Threshold	0,50 A	A
2907A	Summated Current Monitoring Factor	0,10	A
2908A	T Balance Factor for Voltage Monitor	5 sec	A
2909A	T Current Balance Monitor	5 sec	A

3.22 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	A
2911A	Minimum Voltage Threshold V>	30 V	A
2912A	Maximum Current Threshold I<	0,50 A	A
2913A	Maximum Voltage Threshold V< (3phase)	5 V	A
2914A	Differential Current Threshold (3phase)	0,50 A	A
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	A
2916A	Delay Voltage Failure Supervision	3,00 sec	A

3.23 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	A

3.24 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	A
3102	Block 50N/51N for Distance protection	NO	A
3174	Block 50N/51N for Pickup 21	in each zone	A
3104A	Stabilisation Slope with Iphase	10 %	A
3170	2nd harmonic ratio for inrush restraint	20 %	A
3171	Max.Current, overriding inrush restraint	37,50 A	A
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	A
3173	Trip time delay after SOTF	0,00 sec	A

3.25 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Inactive	A
3111	Pickup	9,50 A	A
3112	Time Delay	0,30 sec	A
3113	Instantaneous trip via Pilot Prot./BI	NO	A
3114	Instantaneous trip after SwitchOnToFault	NO	A
3115	Inrush Blocking	NO	A

3.26 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	A
3121	Pickup	0,83 A	A
3122	Time Delay	0,60 sec	A
3123	Instantaneous trip via Pilot Prot./BI	NO	A
3124	Instantaneous trip after SwitchOnToFault	NO	A
3125	Inrush Blocking	NO	A

3.27 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	A
3131	Pickup	0,83 A	A
3132	Time Delay	0,90 sec	A
3133	Instantaneous trip via Pilot Prot./BI	NO	A
3134	Instantaneous trip after SwitchOnToFault	NO	A
3135	Inrush Blocking	NO	A

3.28 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	A
3141	Pickup	0,25 A	A
3143	Time Dial	0,40 sec	A
3147	Additional Time Delay	0,00 sec	A
3148	Instantaneous trip via Pilot Prot./BI	NO	A
3149	Instantaneous trip after SwitchOnToFault	NO	A
3150	Inrush Blocking	NO	A
3151	IEC Curve	Normal Inverse	A

3.29 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	A
3162A	ALPHA, lower angle for forward direction	338 °	A
3163A	BETA, upper angle for forward direction	122 °	A
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	A
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	A
3167	Min. neg. seq. polarizing current 3I2	0,25 A	A
3168	Compensation angle PHI comp. for Sr	255 °	A
3169	Forward direction power threshold	1,5 VA	A

3.30 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	A
3806	Load Compensation	NO	A

3.31 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	A
3902	50BF Pickup current threshold	2,08 A	A
3904	Delay after 1pole start for local trip	0,01 sec	A
3905	Delay after 3pole start for local trip	0,01 sec	A
3906	Delay of 2nd element for busbar trip	0,20 sec	A
3907	Delay for start with defective bkr.	0,00 sec	A
3908	Trip output selection with defective bkr	NO	A
3909	Check Breaker contacts	YES	A

3.32 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	A
3922	Trip delay of end fault element	2,00 sec	A

3.33 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	A

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy(2)

Nº	Parámetro	Valor	Grupo
3932	Trip delay with pole discrepancy	2,00 sec	A

3.34 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	161,0 kV	B
1104	Measurement: Full Scale Current (100%)	600 A	B
1105	Line Angle	79 °	B
1211	Angle of inclination, distance charact.	79 °	B
1107	P,Q operational measured values sign	not reversed	B
1110	x' - Line Reactance per length unit	0,0362 Ohm / km	B
1111	Line Length	60,6 km	B
1120	Zero seq. comp. factor K0 for zone Z1	0,800	B
1121	Zero seq. comp. angle for zone Z1	3,02 °	B
1122	Zero seq.comp.factor K0,higher zones >Z1	0,800	B
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	B

3.35 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	B
1131A	Pole Open Voltage Threshold	11 V	B
1132A	Seal-in Time after ALL closures	0,20 sec	B
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	B
1135	RESET of Trip Command	with Pole Open Current Threshold only	B
1140A	CT Saturation Threshold	oo A	B
1150A	Seal-in Time after MANUAL closures	0,20 sec	B
1151	Manual CLOSE COMMAND generation	NO	B
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.36 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	B
1202	Phase Current threshold for dist. meas.	0,50 A	B
1211	Angle of inclination, distance charact.	79 °	B
1208	Series compensated line	NO	B
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	B
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	B
1242	PHI load, maximum Load Angle (ph-g)	30 °	B
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	B
1244	PHI load, maximum Load Angle (ph-ph)	30 °	B
1357	Z1B enabled before 1st AR (int. or ext.)	YES	B

3.37 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,50 A	B
1204	3V0 threshold zero seq. voltage pickup	oo V	B
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	B
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	B
1221A	Loop selection with 2Ph-G faults	all loops	B

3.38 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B
1325	T3 delay	2,00 sec	B
1335	T4 delay	2,00 sec	B
1345	T5 delay	oo sec	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B

3.39 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	B
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	B
1303	X(Z1), Reactance	1,720 Ohm	B
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1307	Zone Reduction Angle (load compensation)	0 °	B

3.40 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	B
1352	R(Z1B), Resistance for ph-ph-faults	4,000 Ohm	B
1353	X(Z1B), Reactance	4,000 Ohm	B
1354	RG(Z1B), Resistance for ph-gnd faults	8,000 Ohm	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B
1357	Z1B enabled before 1st AR (int. or ext.)	YES	B

3.41 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	B
1312	R(Z2), Resistance for ph-ph-faults	4,000 Ohm	B
1313	X(Z2), Reactance	4,000 Ohm	B
1314	RG(Z2), Resistance for ph-gnd faults	8,000 Ohm	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B

3.42 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	B
1322	R(Z3), Resistance for ph-ph-faults	2,000 Ohm	B
1323	X(Z3), Reactance	2,000 Ohm	B
1324	RG(Z3), Resistance for ph-gnd faults	4,000 Ohm	B
1325	T3 delay	2,00 sec	B

3.43 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	B
1332	R(Z4), Resistance for ph-ph-faults	8,900 Ohm	B
1333	X(Z4), Reactance	8,900 Ohm	B
1334	RG(Z4), Resistance for ph-gnd faults	17,800 Ohm	B
1335	T4 delay	2,00 sec	B

3.44 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	B
1342	R(Z5), Resistance for ph-ph-faults	9,100 Ohm	B
1343	X(Z5)+, Reactance for Forward direction	9,100 Ohm	B
1344	RG(Z5), Resistance for ph-gnd faults	18,000 Ohm	B
1345	T5 delay	oo sec	B
1346	X(Z5)-, Reactance for Reverse direction	6,500 Ohm	B

3.45 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	B
2006	68T Power swing trip	NO	B
2007	68 Trip delay after Power Swing Blocking	0,08 sec	B

3.46 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	B
2102	Type of Line	Two Terminals	B
2103A	Time for send signal prolongation	0,15 sec	B
2109A	Transient Block.: Duration external flt.	0,04 sec	B
2110A	Transient Block.: Blk.T. after ext. flt.	0,20 sec	B

3.47 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	B

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	12,50 A	B

3.48 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	B
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	B
2503A	Trip Extension / Echo Impulse time	0,15 sec	B
2504A	Echo Block Time	0,50 sec	B
2505	Undervoltage (ph-g)	25 V	B
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.49 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	B
2680	Trip time delay after SOTF	0,00 sec	B

3.50 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	9,00 A	B
2611	50-B1 Delay	0,01 sec	B
2612	50N-B1 Pickup	10,00 A	B
2613	50N-B1 Delay	0,02 sec	B
2614	Instantaneous trip via BI	NO	B
2615	Instantaneous trip after SwitchOnToFault	NO	B

3.51 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	B
2621	50-B2 Delay	oo sec	B
2622	50N-B2 Pickup	oo A	B
2623	50N-B2 Delay	oo sec	B
2624	Instantaneous trip via Pilot Prot./BI	NO	B
2625	Instantaneous trip after SwitchOnToFault	NO	B

3.52 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	3,46 A	B
2642	51-B Time Dial	0,15 sec	B
2646	51-B Additional Time Delay	0,00 sec	B
2650	51N-B Pickup	0,30 A	B
2652	51N-B Time Dial	0,74 sec	B
2656	51N-B Additional Time Delay	0,00 sec	B
2660	IEC Curve	Normal Inverse	B
2670	Instantaneous trip via Pilot Prot./BI	NO	B
2671	Instantaneous trip after SwitchOnToFault	NO	B

3.53 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	B
2631	50-STUB Delay	oo sec	B
2632	50N-STUB Pickup	oo A	B
2633	50N-STUB Delay	oo sec	B
2634	Instantaneous trip via Pilot Prot./BI	NO	B
2635	Instantaneous trip after SwitchOnToFault	NO	B

3.54 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	B
2902A	Voltage Threshold for Balance Monitoring	50 V	B
2903A	Balance Factor for Voltage Monitor	0,75	B
2904A	Current Threshold for Balance Monitoring	0,50 A	B
2905A	Balance Factor for Current Monitor	0,50	B
2906A	Summated Current Monitoring Threshold	0,50 A	B
2907A	Summated Current Monitoring Factor	0,10	B
2908A	T Balance Factor for Voltage Monitor	5 sec	B
2909A	T Current Balance Monitor	5 sec	B

3.55 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	B
2911A	Minimum Voltage Threshold V>	30 V	B
2912A	Maximum Current Threshold I<	0,50 A	B
2913A	Maximum Voltage Threshold V< (3phase)	5 V	B
2914A	Differential Current Threshold (3phase)	0,50 A	B
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	B
2916A	Delay Voltage Failure Supervision	3,00 sec	B

3.56 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	B

3.57 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	B
3102	Block 50N/51N for Distance protection	NO	B
3174	Block 50N/51N for Pickup 21	in each zone	B
3104A	Stabilisation Slope with Iphase	10 %	B
3170	2nd harmonic ratio for inrush restraint	15 %	B
3171	Max.Current, overriding inrush restraint	37,50 A	B
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	B
3173	Trip time delay after SOTF	0,00 sec	B

3.58 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	B
3111	Pickup	10,00 A	B
3112	Time Delay	0,03 sec	B
3113	Instantaneous trip via Pilot Prot./BI	NO	B
3114	Instantaneous trip after SwitchOnToFault	NO	B
3115	Inrush Blocking	NO	B

3.59 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	B
3121	Pickup	10,00 A	B
3122	Time Delay	0,60 sec	B
3123	Instantaneous trip via Pilot Prot./BI	NO	B
3124	Instantaneous trip after SwitchOnToFault	NO	B
3125	Inrush Blocking	NO	B

3.60 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	B
3131	Pickup	5,00 A	B
3132	Time Delay	0,90 sec	B
3133	Instantaneous trip via Pilot Prot./BI	NO	B
3134	Instantaneous trip after SwitchOnToFault	NO	B
3135	Inrush Blocking	NO	B

3.61 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	B
3141	Pickup	0,30 A	B
3143	Time Dial	0,75 sec	B
3147	Additional Time Delay	0,00 sec	B
3148	Instantaneous trip via Pilot Prot./BI	NO	B
3149	Instantaneous trip after SwitchOnToFault	NO	B
3150	Inrush Blocking	NO	B
3151	IEC Curve	Normal Inverse	B

3.62 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	B
3162A	ALPHA, lower angle for forward direction	338 °	B
3163A	BETA, upper angle for forward direction	122 °	B
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	B
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	B
3167	Min. neg. seq. polarizing current 3I2	0,25 A	B
3168	Compensation angle PHI comp. for Sr	255 °	B
3169	Forward direction power threshold	1,5 VA	B

3.63 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	Pickup	B
3806	Load Compensation	NO	B

3.64 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	B
3902	50BF Pickup current threshold	6,00 A	B
3904	Delay after 1pole start for local trip	0,02 sec	B
3905	Delay after 3pole start for local trip	0,02 sec	B
3906	Delay of 2nd element for busbar trip	2,00 sec	B
3907	Delay for start with defective bkr.	0,00 sec	B
3908	Trip output selection with defective bkr	NO	B
3909	Check Breaker contacts	YES	B

3.65 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	B
3922	Trip delay of end fault element	2,00 sec	B

3.66 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	B

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy(2)

Nº	Parámetro	Valor	Grupo
3932	Trip delay with pole discrepancy	2,00 sec	B

3.67 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	161,0 kV	C
1104	Measurement: Full Scale Current (100%)	600 A	C
1105	Line Angle	79 °	C
1211	Angle of inclination, distance charact.	79 °	C
1107	P,Q operational measured values sign	not reversed	C
1110	x' - Line Reactance per length unit	0,0362 Ohm / km	C
1111	Line Length	60,6 km	C
1120	Zero seq. comp. factor K0 for zone Z1	0,800	C
1121	Zero seq. comp. angle for zone Z1	3,02 °	C
1122	Zero seq.comp.factor K0,higher zones >Z1	0,800	C
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	C

3.68 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	C
1131A	Pole Open Voltage Threshold	11 V	C
1132A	Seal-in Time after ALL closures	0,20 sec	C
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	C
1135	RESET of Trip Command	with Pole Open Current Threshold only	C
1140A	CT Saturation Threshold	oo A	C
1150A	Seal-in Time after MANUAL closures	0,20 sec	C
1151	Manual CLOSE COMMAND generation	NO	C
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.69 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	C
1202	Phase Current threshold for dist. meas.	0,50 A	C
1211	Angle of inclination, distance charact.	79 °	C
1208	Series compensated line	NO	C
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	C
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	C
1242	PHI load, maximum Load Angle (ph-g)	30 °	C
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	C
1244	PHI load, maximum Load Angle (ph-ph)	30 °	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.70 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,50 A	C
1204	3V0 threshold zero seq. voltage pickup	oo V	C
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	C
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	C
1221A	Loop selection with 2Ph-G faults	all loops	C

3.71 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1315	T2-1phase, delay for single phase faults	0,40 sec	C
1316	T2multi-ph, delay for multi phase faults	0,40 sec	C
1325	T3 delay	2,00 sec	C
1335	T4 delay	2,00 sec	C
1345	T5 delay	oo sec	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C

3.72 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	C
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	C
1303	X(Z1), Reactance	1,720 Ohm	C
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1307	Zone Reduction Angle (load compensation)	0 °	C

3.73 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	C
1352	R(Z1B), Resistance for ph-ph-faults	4,000 Ohm	C
1353	X(Z1B), Reactance	4,000 Ohm	C
1354	RG(Z1B), Resistance for ph-gnd faults	8,000 Ohm	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.74 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	C
1312	R(Z2), Resistance for ph-ph-faults	4,000 Ohm	C
1313	X(Z2), Reactance	4,000 Ohm	C
1314	RG(Z2), Resistance for ph-gnd faults	8,000 Ohm	C
1315	T2-1phase, delay for single phase faults	0,40 sec	C
1316	T2multi-ph, delay for multi phase faults	0,40 sec	C

3.75 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	C
1322	R(Z3), Resistance for ph-ph-faults	5,000 Ohm	C
1323	X(Z3), Reactance	5,000 Ohm	C
1324	RG(Z3), Resistance for ph-gnd faults	5,000 Ohm	C
1325	T3 delay	2,00 sec	C

3.76 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	C
1332	R(Z4), Resistance for ph-ph-faults	8,900 Ohm	C
1333	X(Z4), Reactance	8,900 Ohm	C
1334	RG(Z4), Resistance for ph-gnd faults	17,800 Ohm	C
1335	T4 delay	2,00 sec	C

3.77 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	C
1342	R(Z5), Resistance for ph-ph-faults	9,100 Ohm	C
1343	X(Z5)+, Reactance for Forward direction	9,100 Ohm	C
1344	RG(Z5), Resistance for ph-gnd faults	18,000 Ohm	C
1345	T5 delay	oo sec	C
1346	X(Z5)-, Reactance for Reverse direction	6,500 Ohm	C

3.78 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	C
2006	68T Power swing trip	NO	C
2007	68 Trip delay after Power Swing Blocking	0,08 sec	C

3.79 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	C
2102	Type of Line	Two Terminals	C
2103A	Time for send signal prolongation	0,15 sec	C
2109A	Transient Block.: Duration external flt.	0,04 sec	C
2110A	Transient Block.: Blk.T. after ext. flt.	0,20 sec	C

3.80 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	C

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	12,50 A	C

3.81 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	C
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	C
2503A	Trip Extension / Echo Impulse time	0,15 sec	C
2504A	Echo Block Time	0,50 sec	C
2505	Undervoltage (ph-g)	25 V	C
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.82 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	C
2680	Trip time delay after SOTF	0,00 sec	C

3.83 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	9,00 A	C
2611	50-B1 Delay	0,01 sec	C
2612	50N-B1 Pickup	10,00 A	C
2613	50N-B1 Delay	0,02 sec	C
2614	Instantaneous trip via BI	NO	C
2615	Instantaneous trip after SwitchOnToFault	NO	C

3.84 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	C
2621	50-B2 Delay	oo sec	C
2622	50N-B2 Pickup	oo A	C
2623	50N-B2 Delay	oo sec	C
2624	Instantaneous trip via Pilot Prot./BI	NO	C
2625	Instantaneous trip after SwitchOnToFault	NO	C

3.85 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	3,46 A	C
2642	51-B Time Dial	0,15 sec	C
2646	51-B Additional Time Delay	0,00 sec	C
2650	51N-B Pickup	0,30 A	C
2652	51N-B Time Dial	0,74 sec	C
2656	51N-B Additional Time Delay	0,00 sec	C
2660	IEC Curve	Normal Inverse	C
2670	Instantaneous trip via Pilot Prot./BI	NO	C
2671	Instantaneous trip after SwitchOnToFault	NO	C

3.86 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	C
2631	50-STUB Delay	oo sec	C
2632	50N-STUB Pickup	oo A	C
2633	50N-STUB Delay	oo sec	C
2634	Instantaneous trip via Pilot Prot./BI	NO	C
2635	Instantaneous trip after SwitchOnToFault	NO	C

3.87 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	C
2902A	Voltage Threshold for Balance Monitoring	50 V	C
2903A	Balance Factor for Voltage Monitor	0,75	C
2904A	Current Threshold for Balance Monitoring	0,50 A	C
2905A	Balance Factor for Current Monitor	0,50	C
2906A	Summated Current Monitoring Threshold	0,50 A	C
2907A	Summated Current Monitoring Factor	0,10	C
2908A	T Balance Factor for Voltage Monitor	5 sec	C
2909A	T Current Balance Monitor	5 sec	C

3.88 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	C
2911A	Minimum Voltage Threshold V>	30 V	C
2912A	Maximum Current Threshold I<	0,50 A	C
2913A	Maximum Voltage Threshold V< (3phase)	5 V	C
2914A	Differential Current Threshold (3phase)	0,50 A	C
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	C
2916A	Delay Voltage Failure Supervision	3,00 sec	C

3.89 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	C

3.90 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	C
3102	Block 50N/51N for Distance protection	NO	C
3174	Block 50N/51N for Pickup 21	in each zone	C
3104A	Stabilisation Slope with Iphase	10 %	C
3170	2nd harmonic ratio for inrush restraint	15 %	C
3171	Max.Current, overriding inrush restraint	37,50 A	C
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	C
3173	Trip time delay after SOTF	0,00 sec	C

3.91 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	C
3111	Pickup	10,00 A	C
3112	Time Delay	0,03 sec	C
3113	Instantaneous trip via Pilot Prot./BI	NO	C
3114	Instantaneous trip after SwitchOnToFault	NO	C
3115	Inrush Blocking	NO	C

3.92 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	C
3121	Pickup	10,00 A	C
3122	Time Delay	0,60 sec	C
3123	Instantaneous trip via Pilot Prot./BI	NO	C
3124	Instantaneous trip after SwitchOnToFault	NO	C
3125	Inrush Blocking	NO	C

3.93 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	C
3131	Pickup	5,00 A	C
3132	Time Delay	0,90 sec	C
3133	Instantaneous trip via Pilot Prot./BI	NO	C
3134	Instantaneous trip after SwitchOnToFault	NO	C
3135	Inrush Blocking	NO	C

3.94 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	C
3141	Pickup	0,30 A	C
3143	Time Dial	0,75 sec	C
3147	Additional Time Delay	0,00 sec	C
3148	Instantaneous trip via Pilot Prot./BI	NO	C
3149	Instantaneous trip after SwitchOnToFault	NO	C
3150	Inrush Blocking	NO	C
3151	IEC Curve	Normal Inverse	C

3.95 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	C
3162A	ALPHA, lower angle for forward direction	338 °	C
3163A	BETA, upper angle for forward direction	122 °	C
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	C
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	C
3167	Min. neg. seq. polarizing current 3I2	0,25 A	C
3168	Compensation angle PHI comp. for Sr	255 °	C
3169	Forward direction power threshold	1,5 VA	C

3.96 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	Pickup	C
3806	Load Compensation	NO	C

3.97 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	C
3902	50BF Pickup current threshold	6,00 A	C
3904	Delay after 1pole start for local trip	0,02 sec	C
3905	Delay after 3pole start for local trip	0,02 sec	C
3906	Delay of 2nd element for busbar trip	2,00 sec	C
3907	Delay for start with defective bkr.	0,00 sec	C
3908	Trip output selection with defective bkr	NO	C
3909	Check Breaker contacts	YES	C

3.98 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	C
3922	Trip delay of end fault element	2,00 sec	C

3.99 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	C

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy(2)

Nº	Parámetro	Valor	Grupo
3932	Trip delay with pole discrepancy	2,00 sec	C

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DEVICE DEFINITION
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ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PRODUCT SETUP

DISPLAY PROPERTIES

Flash Message Time	2.0 s
Default Message Timeout	15 s
Default Message Intensity (VFD Only)	25 %
Screen Saver Feature (LCD Only)	Enabled
Screen Saver Wait Time (LCD Only)	10 min
Current Cutoff Level	0.010 pu
Voltage Cutoff Level	1.0 V

COMMUNICATIONS

SERIAL PORTS

RS485 Com2 Baud Rate	19200
RS485 Com2 Parity	None
RS485 Com2 Response Min Time	0 ms

NETWORK

IP Address	10. 80.143.186
IP Subnet Mask	255.255.255. 0
Gateway IP Address	10. 80.143. 1
Ethernet Operation Mode	Full-Duplex

MODBUS PROTOCOL

Modbus Slave Address	254
Modbus TCP Port Number	502

DNP PROTOCOL

DNP Channel 1 Port	NETWORK
DNP Channel 2 Port	NONE
DNP Address	2
DNP Client Address 1	10. 80.143.200
DNP Client Address 2	10. 80.143.201
DNP Client Address 3	0. 0. 0. 0
DNP Client Address 4	0. 0. 0. 0
DNP Client Address 5	0. 0. 0. 0
DNP TCP/UDP Port Number	20000
DNP Unsol Resp Function	Disabled
DNP Unsol Resp Timeout	5 s
DNP Unsol Resp Max Retries	10
DNP Unsol Resp Dest Addr	10
DNP Current Scale Factor	1
DNP Voltage Scale Factor	1
DNP Power Scale Factor	1
DNP Energy Scale Factor	1
DNP Other Scale Factor	1
DNP Current Default Deadband	30000
DNP Voltage Default Deadband	30000
DNP Power Default Deadband	30000
DNP Energy Default Deadband	30000
DNP Other Default Deadband	30000
DNP Time Sync IIN Period	1440 min
DNP Message Fragment Size	240
DNP Object 1 Default Variation	2
DNP Object 2 Default Variation	2
DNP Object 20 Default Variation	1
DNP Object 21 Default Variation	1
DNP Object 22 Default Variation	1
DNP Object 23 Default Variation	1
DNP Object 30 Default Variation	1
DNP Object 32 Default Variation	1
DNP Number of Paired Controls	0

DNP - IEC104 POINTS LISTS

DNP Binary Input Point 0	LED NEUTRAL/GROUND
DNP Binary Input Point 1	LED PHASE A
DNP Binary Input Point 2	LED PHASE B
DNP Binary Input Point 3	LED PHASE C
DNP Binary Input Point 4	LED TRIP
DNP Binary Input Point 5	PH DIST Z1 OP
DNP Binary Input Point 6	PH DIST Z2 OP

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TEXT COLOR

DNP - IEC104 POINTS LISTS (continued from last page)

DNP Binary Input Point 7	PH DIST Z3 OP
DNP Binary Input Point 8	PH DIST Z4 OP
DNP Binary Input Point 9	PH DIST Z5 OP
DNP Binary Input Point 10	LINE PICKUP OP
DNP Binary Input Point 11	SETTING GROUP ACT 1
DNP Binary Input Point 12	SETTING GROUP ACT 2
DNP Binary Input Point 13	PHASE TOC1 OP
DNP Binary Input Point 14	POWER SWING UN/BLOCK
DNP Binary Input Point 15	NEUTRAL TOC1 OP
DNP Binary Input Point 16	GND DIST Z1 OP
DNP Binary Input Point 17	GND DIST Z2 OP
DNP Binary Input Point 18	GND DIST Z3 OP
DNP Binary Input Point 19	GND DIST Z5 OP
DNP Binary Input Point 20	GND DIST Z4 OP
DNP Binary Input Point 21	AR 3-P/1 RIP
DNP Binary Input Point 22	AR CLOSE BKR 1
DNP Binary Input Point 23	AR BKR 1 BLK
DNP Binary Input Point 24	AR DISABLED
DNP Binary Input Point 25	AR ENABLED
DNP Analog Input Point 0	Fault Location [1]
DNP Analog Input Point 1	Fault Type [1]

HTTP

HTTP TCP Port Number	80

TFTP

TFTP Main UDP Port Number	69
TFTP Data UDP Port Number 1	0
TFTP Data UDP Port Number 2	0

REAL TIME CLOCK

IRIG-B Signal Type	DC Shift
Real Time Clock Events	Disabled

FAULT REPORT

Fault Report 1 Source	LINEA (SRC 1)
Fault Report 1 Trigger	pkp Z1o z2 On (VO4)
Fault Report 1 Positive Seq (Z1) Mag	2.19 ohms
Fault Report 1 Positive Seq (Z1) Angle	79 deg
Fault Report 1 Zero Seq (Z0) Mag	7.35 ohms
Fault Report 1 Zero Seq (Z0) Angle	81 deg
Fault Report 1 Line Length Units	km
Fault Report 1 Line Length	60.6

OSCILLOGRAPHY

Number Of Records	10
Trigger Mode	Automatic Overwrite
Trigger Position	20 %
Trigger Source	OSCILOGRAFIA On (VO3)
AC Input Waveforms	32 samples/cycle
Digital Channel 1	PH DIST Z1 OP
Digital Channel 2	PH DIST Z2 OP
Digital Channel 3	PH DIST Z3 OP
Digital Channel 4	PH DIST Z4 OP
Digital Channel 5	GND DIST Z1 OP
Digital Channel 6	GND DIST Z2 OP
Digital Channel 7	GND DIST Z3 OP
Digital Channel 8	GND DIST Z4 OP
Digital Channel 9	PHASE TOC1 OP
Digital Channel 10	PH DIR1 BLK
Digital Channel 11	NEUTRAL TOC1 OP
Digital Channel 12	NTRL DIR OC1 REV
Digital Channel 13	NTRL DIR OC2 FWD
Digital Channel 14	HYBRID POTT OP
Digital Channel 15	POWER SWING BLOCK
Digital Channel 16	PH DIST Z1 PKP
Digital Channel 17	PH DIST Z2 PKP
Digital Channel 18	PH DIST Z3 PKP
Digital Channel 19	PH DIST Z4 PKP

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TEXT COLOR

OSCILLOGRAPHY (continued from last page)

Digital Channel 20	LINE PICKUP OP
Digital Channel 21	PHASE IOC1 OP
Digital Channel 22	AR 1-P RIP
Digital Channel 23	AR CLOSE BKR 1
Digital Channel 24	HYBRID POTT TX1
Digital Channel 25	AR LO
Digital Channel 26	CIERRE MANUA On(W3a)
Digital Channel 27	79 DESCO On(H7a)
Digital Channel 28	79 conectado On(H7c)
Digital Channel 29	63-FALLA PRE On(H8a)
Digital Channel 30	52A2 (a) On(H8c)
Digital Channel 31	ECHO 3P On (VO37)
Digital Channel 32	RECEP JAHUEL On(W1a)
Digital Channel 33	RECEP ITAHUE On(W1c)
Digital Channel 34	ITE AC FALLA On(W4a)
Digital Channel 35	AUTORI 79 On(W5a)
Digital Channel 36	GND DIST Z1 PKP
Digital Channel 37	GND DIST Z2 PKP
Digital Channel 38	GND DIST Z3 PKP
Digital Channel 39	GND DIST Z4 PKP
Digital Channel 40	PUTT TX1
Digital Channel 41	PUTT TX2
Digital Channel 42	BLQ Zonas PH On (VO1)
Digital Channel 43	TRIP GRAL On (VO2)
Digital Channel 44	pkp Z1o z2 On (VO4)
Digital Channel 45	BLOq reconec On (VO5)
Digital Channel 46	ORD. CIERRE On (VO6)
Digital Channel 47	Alarma f. re On (VO7)
Digital Channel 48	POWER SWING 50DD
Digital Channel 49	POWER SWING INNER
Digital Channel 50	POWER SWING OUTER
Digital Channel 51	POWER SWING UN/BLOCK
Digital Channel 52	AR BKR 1 BLK
Digital Channel 53	AR CLOSE BKR 1
Digital Channel 54	TX MMOO On (VO12)
Digital Channel 55	AR 3-P/1 RIP
Digital Channel 56	AR DISABLED
Digital Channel 57	LOAD ENCHR OP
Digital Channel 58	SRC1 50DD OP
Digital Channel 59	BKR FAIL 1 T1 OP
Digital Channel 60	NEUTRAL IOC1 OP
Digital Channel 61	NEUTRAL TOC1 PKP
Digital Channel 62	GND DIST Z5 OP
Digital Channel 63	PH DIST Z5 OP
Analog Channel 1	SRC1 I_0 Mag
Analog Channel 2	SRC1 V_0 Mag
Analog Channel 3	SRC1 I_0 Angle
Analog Channel 4	SRC1 V_0 Angle
Analog Channel 5	SRC1 P
Analog Channel 6	Fault Location [1]
Analog Channel 7	SRC1 Frequency
Analog Channel 8	SRC1 In Mag
Analog Channel 9	SRC1 In Angle
Analog Channel 10	Brk 1 Op Time
Analog Channel 11	Fault Type [1]
Analog Channel 12	Tracking Frequency
Analog Channel 13	SRC1 S

DATA LOGGER

Data Logger Mode	Continuous
Data Logger Trigger	OFF
Rate	60000 msec

USER-PROGRAMMABLE LEDS

TRIP AND ALARMS LEDS

Trip LED Input	TRIP 3-POLE

USER PROGRAMMABLE LEDS

LED 1: OPERAND	RECEP ACELER On (VO22)

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DESCRIPTION: (NONE)
TEXT COLOR

USER PROGRAMMABLE LEDS (continued from last page)

LED 1: TYPE	Latched
LED 2: OPERAND	LED Z1 On (VO13)
LED 2: TYPE	Latched
LED 3: OPERAND	LED Z2 On (VO14)
LED 3: TYPE	Latched
LED 4: OPERAND	LED Z3 On (VO15)
LED 4: TYPE	Latched
LED 5: OPERAND	LED Z4 On (VO16)
LED 5: TYPE	Latched
LED 6: OPERAND	79 off On (VO18)
LED 6: TYPE	Self-Reset
LED 7: OPERAND	79 on On (VO17)
LED 7: TYPE	Self-Reset
LED 8: OPERAND	LINE PICKUP OP
LED 8: TYPE	Latched
LED 9: OPERAND	52A2 (a) Off(H8c)
LED 9: TYPE	Self-Reset
LED 10: OPERAND	52A2 (a) On(H8c)
LED 10: TYPE	Self-Reset
LED 11: OPERAND	RECEP JAHUEL On(W1a)
LED 11: TYPE	Self-Reset
LED 12: OPERAND	67-67N On (VO27)
LED 12: TYPE	Latched
LED 13: OPERAND	51-51N On (VO28)
LED 13: TYPE	Latched
LED 14: OPERAND	50-50N On (VO29)
LED 14: TYPE	Latched
LED 15: OPERAND	AR 3-P/1 RIP
LED 15: TYPE	Self-Reset
LED 16: OPERAND	AR LO
LED 16: TYPE	Self-Reset
LED 17: OPERAND	POWER SWING UN/BLOCK
LED 17: TYPE	Latched
LED 18: OPERAND	SRC1 VT FUSE FAIL OP
LED 18: TYPE	Self-Reset
LED 19: OPERAND	BKR FAIL 1 T2 OP
LED 19: TYPE	Latched
LED 20: OPERAND	TX MMOO On (VO12)
LED 20: TYPE	Latched
LED 21: OPERAND	BLQ Zonas PH On (VO1)
LED 21: TYPE	Self-Reset
LED 22: OPERAND	ORD. CIERRE On (VO6)
LED 22: TYPE	Latched
LED 23: OPERAND	Z5 operada On (VO35)
LED 23: TYPE	Latched
LED 25: OPERAND	SETTING GROUP ACT 1
LED 25: TYPE	Self-Reset
LED 26: OPERAND	SETTING GROUP ACT 2
LED 26: TYPE	Self-Reset
LED 27: OPERAND	SETTING GROUP ACT 3
LED 27: TYPE	Self-Reset

USER-PROGRAMMABLE SELF TESTS

Battery Fail Function	Enabled

CONTROL PUSHBUTTONS

CPB 1: Function	Enabled
CPB 1: Events	Enabled
CPB 3: Function	Enabled
CPB 3: Events	Disabled

USER-DEFINABLE DISPLAYS

USER DISPLAY 1: Top Line	LINEA JAHUEL 154KV
USER DISPLAY 1: Bottom Line	SISTEMA 2
USER DISPLAY 1: Item 1	0
USER DISPLAY 1: Item 2	0
USER DISPLAY 1: Item 3	0
USER DISPLAY 1: Item 4	0
USER DISPLAY 1: Item 5	0

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

USER-DEFINABLE DISPLAYS (continued from last page)

USER DISPLAY 2: Top Line	LOCALIZACION FALLA
USER DISPLAY 2: Bottom Line	~ km
USER DISPLAY 2: Item 1	9061
USER DISPLAY 2: Item 2	0
USER DISPLAY 2: Item 3	0
USER DISPLAY 2: Item 4	0
USER DISPLAY 2: Item 5	0
USER DISPLAY 3: Top Line	IA IB IC
USER DISPLAY 3: Bottom Line	~ ~ ~
USER DISPLAY 3: Item 1	6144
USER DISPLAY 3: Item 2	6146
USER DISPLAY 3: Item 3	6148
USER DISPLAY 3: Item 4	0
USER DISPLAY 3: Item 5	0
USER DISPLAY 4: Top Line	P 3FASE
USER DISPLAY 4: Bottom Line	~
USER DISPLAY 4: Item 1	7168
USER DISPLAY 4: Item 2	0
USER DISPLAY 4: Item 3	0
USER DISPLAY 4: Item 4	0
USER DISPLAY 4: Item 5	0
USER DISPLAY 5: Top Line	Q 3FASE
USER DISPLAY 5: Bottom Line	~
USER DISPLAY 5: Item 1	7176
USER DISPLAY 5: Item 2	0
USER DISPLAY 5: Item 3	0
USER DISPLAY 5: Item 4	0
USER DISPLAY 5: Item 5	0
USER DISPLAY 6: Top Line	S 3FASE
USER DISPLAY 6: Bottom Line	~
USER DISPLAY 6: Item 1	7184
USER DISPLAY 6: Item 2	0
USER DISPLAY 6: Item 3	0
USER DISPLAY 6: Item 4	0
USER DISPLAY 6: Item 5	0
USER DISPLAY 7: Top Line	VOLTAJE BARRA
USER DISPLAY 7: Bottom Line	~
USER DISPLAY 7: Item 1	6673
USER DISPLAY 7: Item 2	0
USER DISPLAY 7: Item 3	0
USER DISPLAY 7: Item 4	0
USER DISPLAY 7: Item 5	0
USER DISPLAY 8: Top Line	COMMANDS
USER DISPLAY 8: Bottom Line	CLEAR RECORDS
USER DISPLAY 8: Item 1	0
USER DISPLAY 8: Item 2	0
USER DISPLAY 8: Item 3	0
USER DISPLAY 8: Item 4	0
USER DISPLAY 8: Item 5	0
Invoke and Scroll	ON

INSTALLATION

Relay Name	SISTEMA 2 JAHUEL

SYSTEM SETUP
AC INPUTS

CURRENT

CT F1: Phase CT Primary	600 A
CT F1: Phase CT Secondary	5 A
CT F1: Ground CT Primary	600 A
CT F1: Ground CT Secondary	5 A

VOLTAGE

VT F5: Phase VT Connection	Wye
VT F5: Phase VT Secondary	66.4 V
VT F5: Phase VT Ratio	1400.00 :1
VT F5: Auxiliary VT Connection	Vag
VT F5: Auxiliary VT Secondary	66.4 V
VT F5: Auxiliary VT Ratio	1400.00 :1

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

POWER SYSTEM

Nominal Frequency	50 Hz
Phase Rotation	ABC
Frequency And Phase Reference	LINEA (SRC 1)
Frequency Tracking Function	Enabled

SIGNAL SOURCES

SOURCE 1: Name	LINEA
SOURCE 1: Phase CT	F1
SOURCE 1: Ground CT	F1
SOURCE 1: Phase VT	F5
SOURCE 1: Auxiliary VT	None
SOURCE 2: Name	BARRA
SOURCE 2: Phase CT	None
SOURCE 2: Ground CT	None
SOURCE 2: Phase VT	None
SOURCE 2: Auxiliary VT	F5

BREAKERS

Breaker 1 Function	Enabled
Breaker 1 Push Button Control	Disabled
Breaker 1 Name	52A2
Breaker 1 Mode	3-Pole
Breaker 1 Open	OFF
Breaker 1 Close	CIERRE MANUA Off(W3a)
Breaker 1 Phase A/3-Pole	52A2 (a) On(H8c)
Breaker 1 Phase B	OFF
Breaker 1 Phase C	OFF
Breaker 1 External Alarm	OFF
Breaker 1 Alarm Delay	0.000 s
Breaker 1 Manual Close Recal Time	0.000 s
Breaker 1 Out Of Service	63-FALLA PRE On(H8a)

FLEXLOGIC

FLEXLOGIC EQUATION EDITOR

FlexLogic Entry 1	POWER SWING BLOCK
FlexLogic Entry 2	NEUTRAL TOC1 PKP
FlexLogic Entry 3	NOT
FlexLogic Entry 4	AND(2)
FlexLogic Entry 5	= POWER SWING (VO8)
FlexLogic Entry 6	ITE AC FALLA On(W4a)
FlexLogic Entry 7	POWER SWING UN/BLOCK
FlexLogic Entry 8	SRC1 VT FUSE FAIL OP
FlexLogic Entry 9	OR(3)
FlexLogic Entry 10	= BLQ Zonas PH (VO1)
FlexLogic Entry 11	PH DIST Z1 OP
FlexLogic Entry 12	PH DIST Z2 OP
FlexLogic Entry 13	PH DIST Z3 OP
FlexLogic Entry 14	PH DIST Z4 OP
FlexLogic Entry 15	PH DIST Z5 OP
FlexLogic Entry 16	GND DIST Z1 OP
FlexLogic Entry 17	GND DIST Z2 OP
FlexLogic Entry 18	GND DIST Z3 OP
FlexLogic Entry 19	GND DIST Z4 OP
FlexLogic Entry 20	GND DIST Z5 OP
FlexLogic Entry 21	OR(10)
FlexLogic Entry 22	PHASE TOC1 OP
FlexLogic Entry 23	NEUTRAL TOC1 OP
FlexLogic Entry 24	PHASE TOC2 OP
FlexLogic Entry 25	NEUTRAL TOC2 OP
FlexLogic Entry 26	PHASE IOC1 OP
FlexLogic Entry 27	NEUTRAL IOC1 OP
FlexLogic Entry 28	HYBRID POTT OP
FlexLogic Entry 29	LINE PICKUP OP
FlexLogic Entry 30	OR(8)
FlexLogic Entry 31	OR(2)
FlexLogic Entry 32	= TRIP GRAL (VO2)
FlexLogic Entry 33	BLQ Zonas PH On (VO1)
FlexLogic Entry 34	POWER SWING On (VO8)

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DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 35	TRIP GRAL On (VO2)
FlexLogic Entry 36	OR(3)
FlexLogic Entry 37	= OSCILOGRAFIA (VO3)
FlexLogic Entry 38	PH DIST Z1 PKP
FlexLogic Entry 39	GND DIST Z1 PKP
FlexLogic Entry 40	PH DIST Z2 PKP
FlexLogic Entry 41	GND DIST Z2 PKP
FlexLogic Entry 42	OR(4)
FlexLogic Entry 43	= pkp Z1o z2 (VO4)
FlexLogic Entry 44	AR CLOSE BKR 1
FlexLogic Entry 45	= ORD. CIERRE (VO6)
FlexLogic Entry 46	TRIP 3-POLE
FlexLogic Entry 47	TIMER 1
FlexLogic Entry 48	= Alarma trip (VO10)
FlexLogic Entry 49	HYBRID POTT TX1
FlexLogic Entry 50	TIMER 2
FlexLogic Entry 51	= TX OPLAT (VO11)
FlexLogic Entry 52	HYBRID POTT TX1
FlexLogic Entry 53	TIMER 3
FlexLogic Entry 54	= TX MMOO (VO12)
FlexLogic Entry 55	GND DIST Z1 OP
FlexLogic Entry 56	PH DIST Z1 OP
FlexLogic Entry 57	OR(2)
FlexLogic Entry 58	= LED Z1 (VO13)
FlexLogic Entry 59	GND DIST Z2 OP
FlexLogic Entry 60	PH DIST Z2 OP
FlexLogic Entry 61	OR(2)
FlexLogic Entry 62	= LED Z2 (VO14)
FlexLogic Entry 63	PH DIST Z3 OP
FlexLogic Entry 64	GND DIST Z3 OP
FlexLogic Entry 65	OR(2)
FlexLogic Entry 66	= LED Z3 (VO15)
FlexLogic Entry 67	PH DIST Z4 OP
FlexLogic Entry 68	GND DIST Z4 OP
FlexLogic Entry 69	OR(2)
FlexLogic Entry 70	= LED Z4 (VO16)
FlexLogic Entry 71	79 conectado On(H7c)
FlexLogic Entry 72	AUTORI 79 On(W5a)
FlexLogic Entry 73	AND(2)
FlexLogic Entry 74	= 79 on (VO17)
FlexLogic Entry 75	79 on On (VO17)
FlexLogic Entry 76	NOT
FlexLogic Entry 77	= 79 off (VO18)
FlexLogic Entry 78	PH DIST Z1 PKP
FlexLogic Entry 79	PH DIST Z2 PKP
FlexLogic Entry 80	PH DIST Z3 PKP
FlexLogic Entry 81	PH DIST Z4 PKP
FlexLogic Entry 82	GND DIST Z1 PKP
FlexLogic Entry 83	GND DIST Z2 PKP
FlexLogic Entry 84	GND DIST Z3 PKP
FlexLogic Entry 85	GND DIST Z4 PKP
FlexLogic Entry 86	PHASE TOC1 PKP
FlexLogic Entry 87	NEUTRAL TOC1 PKP
FlexLogic Entry 88	LINE PICKUP PKP
FlexLogic Entry 89	OR(11)
FlexLogic Entry 90	= reset led (VO19)
FlexLogic Entry 91	RECEP JAHUEL On(W1a)
FlexLogic Entry 92	RECEP ITAHUE On(W1c)
FlexLogic Entry 93	OR(2)
FlexLogic Entry 94	= RECEP ACELER (VO22)
FlexLogic Entry 95	PH DIST Z1 OP
FlexLogic Entry 96	GND DIST Z1 OP
FlexLogic Entry 97	OR(2)
FlexLogic Entry 98	= OPERA ZONA 1 (VO23)
FlexLogic Entry 99	PH DIST Z2 OP
FlexLogic Entry 100	GND DIST Z2 OP
FlexLogic Entry 101	OR(2)
FlexLogic Entry 102	= OPERA ZONA 2 (VO24)
FlexLogic Entry 103	PH DIST Z3 OP

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TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 104	PH DIST Z4 OP
FlexLogic Entry 105	GND DIST Z3 OP
FlexLogic Entry 106	GND DIST Z4 OP
FlexLogic Entry 107	OR(4)
FlexLogic Entry 108	= OPERA Z3/Z4 (VO25)
FlexLogic Entry 109	PHASE TOC1 OP
FlexLogic Entry 110	NEUTRAL IOC1 OP
FlexLogic Entry 111	NEUTRAL TOC1 OP
FlexLogic Entry 112	OR(3)
FlexLogic Entry 113	BLQ Zonas PH On (VO1)
FlexLogic Entry 114	NOT
FlexLogic Entry 115	AND(2)
FlexLogic Entry 116	= 67-67N (VO27)
FlexLogic Entry 117	PHASE TOC1 OP
FlexLogic Entry 118	NEUTRAL IOC1 OP
FlexLogic Entry 119	NEUTRAL TOC1 OP
FlexLogic Entry 120	OR(3)
FlexLogic Entry 121	BLQ Zonas PH On (VO1)
FlexLogic Entry 122	AND(2)
FlexLogic Entry 123	= 51-51N (VO28)
FlexLogic Entry 124	PHASE IOC1 OP
FlexLogic Entry 125	NEUTRAL IOC1 OP
FlexLogic Entry 126	OR(2)
FlexLogic Entry 127	= 50-50N (VO29)
FlexLogic Entry 128	ITE AC FALLA On(W4a)
FlexLogic Entry 129	ANY MAJOR ERROR
FlexLogic Entry 130	SRC1 VT FUSE FAIL OP
FlexLogic Entry 131	OR(3)
FlexLogic Entry 132	= Alarma f. re (VO7)
FlexLogic Entry 133	BLQ Zonas PH On (VO1)
FlexLogic Entry 134	LOAD ENCHR OP
FlexLogic Entry 135	OR(2)
FlexLogic Entry 136	= Load encroch (VO30)
FlexLogic Entry 137	Alarma f. re On (VO7)
FlexLogic Entry 138	NOT
FlexLogic Entry 139	= BLOQ 51 (VO31)
FlexLogic Entry 140	NTRL DIR OC1 REV
FlexLogic Entry 141	= REVERSE (VO32)
FlexLogic Entry 142	NTRL DIR OC1 FWD
FlexLogic Entry 143	= FORWARD (VO33)
FlexLogic Entry 144	BREAKER 1 OPEN
FlexLogic Entry 145	= BRK OPEN (VO34)
FlexLogic Entry 146	PH DIST Z5 OP
FlexLogic Entry 147	GND DIST Z5 OP
FlexLogic Entry 148	OR(2)
FlexLogic Entry 149	= Z5 operada (VO35)
FlexLogic Entry 150	RECEP JAHUEL On(W1a)
FlexLogic Entry 151	RECEP ITAHUE On(W1c)
FlexLogic Entry 152	SETTING GROUP ACT 1
FlexLogic Entry 153	AND(3)
FlexLogic Entry 154	RECEP JAHUEL On(W1a)
FlexLogic Entry 155	SETTING GROUP ACT 2
FlexLogic Entry 156	AND(2)
FlexLogic Entry 157	OR(2)
FlexLogic Entry 158	= RECEP 3P (VO36)
FlexLogic Entry 159	RECEP 3P On (VO36)
FlexLogic Entry 160	BREAKER 1 OPEN
FlexLogic Entry 161	AND(2)
FlexLogic Entry 162	= ECHO 3P (VO37)
FlexLogic Entry 163	52AP.CORTE On(W2c)
FlexLogic Entry 164	NOT
FlexLogic Entry 165	52B P. CORTE On(W2a)
FlexLogic Entry 166	SETTING GROUP ACT 1
FlexLogic Entry 167	AND(3)
FlexLogic Entry 168	CONTROL PUSHBUTTON 3 ON
FlexLogic Entry 169	POSITIVE ONE SHOT
FlexLogic Entry 170	SETTING GROUP ACT 1
FlexLogic Entry 171	AND(2)
FlexLogic Entry 172	OR(2)

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 173	= set grupo (VO38)
FlexLogic Entry 174	52AP.CORTE On(W2c)
FlexLogic Entry 175	52B P. CORTE On(W2a)
FlexLogic Entry 176	NOT
FlexLogic Entry 177	SETTING GROUP ACT 2
FlexLogic Entry 178	AND(3)
FlexLogic Entry 179	CONTROL PUSHBUTTON 3 ON
FlexLogic Entry 180	POSITIVE ONE SHOT
FlexLogic Entry 181	SETTING GROUP ACT 2
FlexLogic Entry 182	AND(2)
FlexLogic Entry 183	OR(2)
FlexLogic Entry 184	= reset grupo (VO39)
FlexLogic Entry 185	END

FLEXLOGIC TIMERS

Timer 1: Type	second
Timer 1: Pickup Delay	0
Timer 1: Dropout Delay	7
Timer 2: Type	millisecond
Timer 2: Pickup Delay	0
Timer 2: Dropout Delay	50
Timer 3: Type	millisecond
Timer 3: Pickup Delay	0
Timer 3: Dropout Delay	50

NON-VOLATILE LATCHES

LATCH 1: Function	Enabled
LATCH 1: Type	Reset Dominant
LATCH 1: Set	set grupo On (VO38)
LATCH 1: Reset	reset grupo On (VO39)
LATCH 1: Target	Disabled
LATCH 1: Events	Enabled

GROUPED ELEMENTS
GROUP 1

LINE PICKUP [GROUP 1]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	1.250 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Enabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 1]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 1]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	2.74 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	78 deg

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	49 deg
PHASE DISTANCE Z1: DIR Comp Limit	71 deg
PHASE DISTANCE Z1: Quad Right Blinder	2.74 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z1: Quad Left Blinder	2.74 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z1: Supervision	0.100 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	25.68 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	78 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	49 deg
PHASE DISTANCE Z2: DIR Comp Limit	71 deg
PHASE DISTANCE Z2: Quad Right Blinder	21.00 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z2: Quad Left Blinder	21.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z2: Supervision	0.100 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	65.000 s
PHASE DISTANCE Z2: Block	Load encroch On (VO30)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	5.52 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	0.02 ohms
PHASE DISTANCE Z3: Rev Reach RCA	78 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	49 deg
PHASE DISTANCE Z3: DIR Comp Limit	71 deg
PHASE DISTANCE Z3: Quad Right Blinder	5.52 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z3: Quad Left Blinder	5.52 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z3: Supervision	0.100 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.600 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	12.50 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.02 ohms
PHASE DISTANCE Z4: Rev Reach RCA	78 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	49 deg
PHASE DISTANCE Z4: DIR Comp Limit	71 deg

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z4: Quad Right Blinder	12.50 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z4: Quad Left Blinder	12.50 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z4: Supervision	0.100 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.500 s
PHASE DISTANCE Z4: Block	Load encroch On (VO30)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled

GROUND DISTANCE [GROUP 1]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.21
GROUND DISTANCE Z1: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	2.74 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	0.02 ohms
GROUND DISTANCE Z1: Rev Reach RCA	78 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	49 deg
GROUND DISTANCE Z1: DIR Comp Limit	70 deg
GROUND DISTANCE Z1: Quad Right Blinder	2.74 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z1: Quad Left Blinder	2.74 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.100 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.21
GROUND DISTANCE Z2: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	25.68 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	0.02 ohms
GROUND DISTANCE Z2: Rev Reach RCA	78 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	49 deg
GROUND DISTANCE Z2: DIR Comp Limit	71 deg
GROUND DISTANCE Z2: Quad Right Blinder	21.00 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z2: Quad Left Blinder	21.00 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.000 s
GROUND DISTANCE Z2: Block	Load encroch On (VO30)
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.21
GROUND DISTANCE Z3: Z0/Z1 Ang	2 deg

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	5.52 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	0.02 ohms
GROUND DISTANCE Z3: Rev Reach RCA	78 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	49 deg
GROUND DISTANCE Z3: DIR Comp Limit	71 deg
GROUND DISTANCE Z3: Quad Right Blinder	5.52 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z3: Quad Left Blinder	5.52 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.600 s
GROUND DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.21
GROUND DISTANCE Z4: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	12.50 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.02 ohms
GROUND DISTANCE Z4: Rev Reach RCA	78 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	49 deg
GROUND DISTANCE Z4: DIR Comp Limit	71 deg
GROUND DISTANCE Z4: Quad Right Blinder	12.50 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z4: Quad Left Blinder	12.50 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.500 s
GROUND DISTANCE Z4: Block	Load encroch On (VO30)
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.21
GROUND DISTANCE Z5: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	13.00 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	0.02 ohms
GROUND DISTANCE Z5: Rev Reach RCA	78 deg
GROUND DISTANCE Z5: POL Current	Zero-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg
GROUND DISTANCE Z5: DIR RCA	49 deg
GROUND DISTANCE Z5: DIR Comp Limit	71 deg
GROUND DISTANCE Z5: Quad Right Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z5: Quad Left Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z5: Delay	1.500 s
GROUND DISTANCE Z5: Block	Load encroch On (VO30)
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	17.50 ohms
Quad Fwd Mid	18.20 ohms
Quad Fwd Out	18.20 ohms
Fwd Rca	78 deg
Rev Reach	16.50 ohms
Quad Rev Mid	17.20 ohms
Quad Rev Out	17.20 ohms
Rev Rca	78 deg
Outer Limit Angle	85 deg
Middle Limit Angle	90 deg
Inner Limit Angle	60 deg
Outer Rgt Bld	15.20 ohms
Outer Lft Bld	14.20 ohms
Midle Rgt Bld	15.20 ohms
Midle Lft Bld	14.20 ohms
Inner Rgt Bld	14.50 ohms
Inner Lft Bld	13.50 ohms
Delay 1 Pickup	0.020 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.000 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Enabled

LOAD ENCROACHMENT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Min Volt	0.800 pu
Reach	9.14 ohms
Angle	35 deg
Pickup Delay	0.000 s
Reset Delay	0.000 s
Block	OFF
Target	Disabled
Events	Disabled

PHASE CURRENT
PHASE TOC [GROUP 1]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.15
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	BLOQ 51 On (VO31)
PHASE TOC1: Block B	BLOQ 51 On (VO31)
PHASE TOC1: Block C	BLOQ 51 On (VO31)
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE DIRECTIONAL [GROUP 1]

PHASE DIR1: Function	Enabled

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DIRECTIONAL [GROUP 1] (continued from last page)

PHASE DIR1: Source	LINEA (SRC 1)
PHASE DIR1: Block	OFF
PHASE DIR1: ECA	45 deg
PHASE DIR1: Pol V Threshold	0.700 pu
PHASE DIR1: Block when V Mem Exp	No
PHASE DIR1: Target	Disabled
PHASE DIR1: Events	Disabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 1]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.050 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.40
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	NEG SEQ DIR OC1 REV
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	80 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 1]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	Yes
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.416 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.200 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A2 (a) On(H8c)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.416 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.416 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Latched
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF

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DESCRIPTION: (NONE)
TEXT COLOR

BREAKER FAILURE [GROUP 1] (continued from last page)

BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

GROUP 2

LINE PICKUP [GROUP 2]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	2.500 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.000 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Disabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 2]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 2]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.72 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	1.72 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	45 deg
PHASE DISTANCE Z1: DIR Comp Limit	79 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.200 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	4.00 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	4.00 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	45 deg
PHASE DISTANCE Z2: DIR Comp Limit	79 deg
PHASE DISTANCE Z2: Quad Right Blinder	4.00 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.200 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 2] (continued from last page)

PHASE DISTANCE Z2: Delay	65.535 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	2.95 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	2.95 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	45 deg
PHASE DISTANCE Z3: DIR Comp Limit	79 deg
PHASE DISTANCE Z3: Quad Right Blinder	2.95 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.200 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.400 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	2.00 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	2.00 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	45 deg
PHASE DISTANCE Z4: DIR Comp Limit	79 deg
PHASE DISTANCE Z4: Quad Right Blinder	2.00 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.200 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.000 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled
PHASE DISTANCE Z5: Function	Enabled
PHASE DISTANCE Z5: Direction	Forward
PHASE DISTANCE Z5: Shape	Quad
PHASE DISTANCE Z5: Xfmr Vol Connection	None
PHASE DISTANCE Z5: Xfmr Curr Connection	None
PHASE DISTANCE Z5: Reach	8.90 ohms
PHASE DISTANCE Z5: RCA	90 deg
PHASE DISTANCE Z5: Rev Reach	8.90 ohms
PHASE DISTANCE Z5: Rev Reach RCA	79 deg
PHASE DISTANCE Z5: Comp Limit	90 deg
PHASE DISTANCE Z5: DIR RCA	45 deg
PHASE DISTANCE Z5: DIR Comp Limit	79 deg
PHASE DISTANCE Z5: Quad Right Blinder	8.90 ohms
PHASE DISTANCE Z5: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z5: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z5: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z5: Supervision	0.200 pu
PHASE DISTANCE Z5: Volt Level	0.000 pu
PHASE DISTANCE Z5: Delay	2.000 s
PHASE DISTANCE Z5: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z5: Target	Self-reset

RANCAGUA_LIAAJAH1_A2_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 2] (continued from last page)

PHASE DISTANCE Z5: Events	Enabled

GROUND DISTANCE [GROUP 2]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.36
GROUND DISTANCE Z1: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	1.72 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	1.72 ohms
GROUND DISTANCE Z1: Rev Reach RCA	79 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	45 deg
GROUND DISTANCE Z1: DIR Comp Limit	79 deg
GROUND DISTANCE Z1: Quad Right Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z1: Quad Left Blinder	3.44 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z1: Supervision	0.200 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.36
GROUND DISTANCE Z2: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	4.00 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	4.00 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	45 deg
GROUND DISTANCE Z2: DIR Comp Limit	79 deg
GROUND DISTANCE Z2: Quad Right Blinder	8.00 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	8.00 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.535 s
GROUND DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z2: Target	Latched
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.36
GROUND DISTANCE Z3: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	4.00 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	4.00 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg

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DEVICE DEFINITION
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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 2] (continued from last page)

GROUND DISTANCE Z3: DIR RCA	45 deg
GROUND DISTANCE Z3: DIR Comp Limit	79 deg
GROUND DISTANCE Z3: Quad Right Blinder	8.00 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	8.00 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.400 s
GROUND DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z3: Target	Latched
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.36
GROUND DISTANCE Z4: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	2.00 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	2.00 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	45 deg
GROUND DISTANCE Z4: DIR Comp Limit	79 deg
GROUND DISTANCE Z4: Quad Right Blinder	4.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	4.00 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.000 s
GROUND DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.36
GROUND DISTANCE Z5: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	8.90 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	8.90 ohms
GROUND DISTANCE Z5: Rev Reach RCA	79 deg
GROUND DISTANCE Z5: POL Current	Zero-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg
GROUND DISTANCE Z5: DIR RCA	45 deg
GROUND DISTANCE Z5: DIR Comp Limit	79 deg
GROUND DISTANCE Z5: Quad Right Blinder	17.00 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z5: Quad Left Blinder	17.00 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu
GROUND DISTANCE Z5: Delay	2.000 s
GROUND DISTANCE Z5: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 2]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

POWER SWING DETECT [GROUP 2] (continued from last page)

Mode	Two Step
Supv	0.200 pu
Fwd Reach	11.00 ohms
Quad Fwd Mid	13.00 ohms
Quad Fwd Out	13.00 ohms
Fwd Rca	79 deg
Rev Reach	5.50 ohms
Quad Rev Mid	7.50 ohms
Quad Rev Out	7.50 ohms
Rev Rca	90 deg
Outer Limit Angle	120 deg
Middle Limit Angle	79 deg
Inner Limit Angle	74 deg
Outer Rgt Bld	12.20 ohms
Outer Lft Bld	10.00 ohms
Midle Rgt Bld	12.20 ohms
Midle Lft Bld	10.00 ohms
Inner Rgt Bld	10.20 ohms
Inner Lft Bld	8.00 ohms
Delay 1 Pickup	0.001 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Enabled

PHASE CURRENT

PHASE TOC [GROUP 2]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	0.690 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.15
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	BLOQ 51 On (VO31)
PHASE TOC1: Block B	BLOQ 51 On (VO31)
PHASE TOC1: Block C	BLOQ 51 On (VO31)
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE IOC [GROUP 2]

PHASE IOC1: Function	Enabled
PHASE IOC1: Source	LINEA (SRC 1)
PHASE IOC1: Pickup	1.800 pu
PHASE IOC1: Delay	0.01 s
PHASE IOC1: Reset Delay	0.00 s
PHASE IOC1: Block A	BLOQ 51 On (VO31)
PHASE IOC1: Block B	BLOQ 51 On (VO31)
PHASE IOC1: Block C	BLOQ 51 On (VO31)
PHASE IOC1: Target	Self-reset
PHASE IOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 2]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.060 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.75
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	NEG SEQ DIR OC1 REV
NEUTRAL TOC1: Target	Self-reset

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

NEUTRAL TOC [GROUP 2] (continued from last page)

NEUTRAL TOC1: Events	Enabled

NEUTRAL IOC [GROUP 2]

NEUTRAL IOC1: Function	Enabled
NEUTRAL IOC1: Source	LINEA (SRC 1)
NEUTRAL IOC1: Pickup	2.000 pu
NEUTRAL IOC1: Delay	0.03 s
NEUTRAL IOC1: Reset Delay	0.00 s
NEUTRAL IOC1: Block	NTRL DIR OC1 REV
NEUTRAL IOC1: Target	Self-reset
NEUTRAL IOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 2]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	81 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	81 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 2]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.060 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.000 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A2 (a) On(H8c)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.060 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.060 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

CONTROL ELEMENTS

SETTING GROUPS

Function	Enabled
Block	OFF
Group 2 Activate On	LATCH 1 ON
Group 3 Activate On	OFF

RANCAGUA_LIAAJAH1_A2_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIУN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

SETTING GROUPS (continued from last page)

Group 4 Activate On	OFF
Group 5 Activate On	OFF
Group 6 Activate On	OFF
Group 1 Name	
Group 2 Name	
Group 3 Name	
Group 4 Name	
Group 5 Name	
Group 6 Name	
Events	Disabled

TRIP OUTPUT

Trip Mode	3 Pole Only
Trip 3-Pole Input1	TRIP GRAL On (VO2)
Trip 3-Pole Input2	OFF
Trip 3-Pole Input3	OFF
Trip 3-Pole Input4	OFF
Trip 3-Pole Input5	OFF
Trip 3-Pole Input6	OFF
Trip 1-Pole Input1	OFF
Trip 1-Pole Input2	OFF
Trip 1-Pole Input3	OFF
Trip 1-Pole Input4	OFF
Trip 1-Pole Input5	OFF
Trip 1-Pole Input6	OFF
Trip Reclose Input1	GND DIST Z1 OP
Trip Reclose Input2	PH DIST Z1 OP
Trip Reclose Input3	PUTT OP
Trip Reclose Input4	OFF
Trip Reclose Input5	OFF
Trip Reclose Input6	OFF
BKR Phase A Open	LINE PICKUP I<A
BKR Phase B Open	LINE PICKUP I<B
BKR Phase C Open	LINE PICKUP I<C
Trip Force 3-Pole	OFF
Trip Pilot Priority	0.000 s
Reverse Fault	OFF
Trip Delay On Evolving Faults	0.000 s
Trip Events	Enabled

MONITORING ELEMENTS

VT FUSE FAILURE

VT FUSE FAILURE 1: Function	Enabled

PILOT SCHEMES

1P HYBRID POTT SCHEME

Function	Enabled
Permissive Echo	Custom
Echo Condition	ECHO 3P On (VO37)
Weak Infeed	Disabled
W/I Condition	OFF
Rx Pickup Delay	0.001 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.150 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Seal-In Delay	0.000 s
Gnd Dir OC Fwd	OFF
Gnd Dir OC Rev	NTRL DIR OC1 REV
No of Comm Bits	1
Rx1	RECEP 3P On (VO36)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Latched
Event	Enabled

AUTORECLOSE 1P

Function	Enabled

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Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
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ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

AUTORECLOSE 1P (continued from last page)

Mode	3 Pole - B
Max Number Of Shots	1
Block BKR1	OFF
Close Time BKR1	0.40 s
BKR Man Close	CIERRE MANUA On(W3a)
Blk Time Upon Man Cls	8.00 s
1-P Init	OFF
3-P Init	OFF
3-P TD Init	OFF
Multi P Fault	OFF
BKR 1 Pole Open	OFF
BKR 3 Pole Open	OFF
3-P Dead Time 1	0.40 s
3-P Dead Time 2	0.45 s
3-P Dead Time 3	2.00 s
3-P Dead Time 4	4.00 s
Extend Dead T1	OFF
Dead T1 Extension	0.15 s
Reset	OFF
Reset Time	10.00 s
BKR Closed	OFF
Block	79 off On (VO18)
Pause	OFF
Inc Seq Time	5.00 s
Block BKR2	OFF
Close Time BKR2	0.10 s
Transfer 1 to 2	No
Transfer 2 to 1	No
BKR1 Fail Option	Continue
BKR2 Fail Option	Continue
1-P Dead Time	1.00 s
BKR Sequence	1
Transfer Time	4.00 s
Event	Enabled

INPUTS/OUTPUTS

CONTACT INPUTS

[H7A] Contact Input 1 ID	79 DESCO
[H7A] Contact Input 1 Debounce Time	2.0 ms
[H7A] Contact Input 1 Events	Enabled
[H7C] Contact Input 2 ID	79 conectado
[H7C] Contact Input 2 Debounce Time	2.0 ms
[H7C] Contact Input 2 Events	Enabled
[H8A] Contact Input 3 ID	63-FALLA PRE
[H8A] Contact Input 3 Debounce Time	2.0 ms
[H8A] Contact Input 3 Events	Enabled
[H8C] Contact Input 4 ID	52A2 (a)
[H8C] Contact Input 4 Debounce Time	2.0 ms
[H8C] Contact Input 4 Events	Enabled
[U7A] Contact Input 5 ID	Cont Ip 5
[U7A] Contact Input 5 Debounce Time	2.0 ms
[U7A] Contact Input 5 Events	Disabled
[U7C] Contact Input 6 ID	Cont Ip 6
[U7C] Contact Input 6 Debounce Time	2.0 ms
[U7C] Contact Input 6 Events	Disabled
[U8A] Contact Input 7 ID	Cont Ip 7
[U8A] Contact Input 7 Debounce Time	2.0 ms
[U8A] Contact Input 7 Events	Disabled
[U8C] Contact Input 8 ID	Cont Ip 8
[U8C] Contact Input 8 Debounce Time	2.0 ms
[U8C] Contact Input 8 Events	Disabled
[W1A] Contact Input 9 ID	RECEP JAHUEL
[W1A] Contact Input 9 Debounce Time	2.0 ms
[W1A] Contact Input 9 Events	Enabled
[W1C] Contact Input 10 ID	RECEP ITAHUE
[W1C] Contact Input 10 Debounce Time	2.0 ms
[W1C] Contact Input 10 Events	Enabled
[W2A] Contact Input 11 ID	52B P. CORTE
[W2A] Contact Input 11 Debounce Time	2.0 ms

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DEVICE DEFINITION
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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT INPUTS (continued from last page)

[W2A] Contact Input 11 Events	Enabled
[W2C] Contact Input 12 ID	52AP.CORTE
[W2C] Contact Input 12 Debounce Time	2.0 ms
[W2C] Contact Input 12 Events	Enabled
[W3A] Contact Input 13 ID	CIERRE MANUA
[W3A] Contact Input 13 Debounce Time	2.0 ms
[W3A] Contact Input 13 Events	Enabled
[W3C] Contact Input 14 ID	TELE DESCONE
[W3C] Contact Input 14 Debounce Time	2.0 ms
[W3C] Contact Input 14 Events	Disabled
[W4A] Contact Input 15 ID	ITE AC FALLA
[W4A] Contact Input 15 Debounce Time	2.0 ms
[W4A] Contact Input 15 Events	Disabled
[W4C] Contact Input 16 ID	Cont Ip 16
[W4C] Contact Input 16 Debounce Time	2.0 ms
[W4C] Contact Input 16 Events	Disabled
[W5A] Contact Input 17 ID	AUTORI 79
[W5A] Contact Input 17 Debounce Time	2.0 ms
[W5A] Contact Input 17 Events	Disabled
[W5C] Contact Input 18 ID	Cont Ip 18
[W5C] Contact Input 18 Debounce Time	2.0 ms
[W5C] Contact Input 18 Events	Disabled
[W6A] Contact Input 19 ID	Cont Ip 19
[W6A] Contact Input 19 Debounce Time	2.0 ms
[W6A] Contact Input 19 Events	Disabled
[W6C] Contact Input 20 ID	Cont Ip 20
[W6C] Contact Input 20 Debounce Time	2.0 ms
[W6C] Contact Input 20 Events	Disabled
[W7A] Contact Input 21 ID	Cont Ip 21
[W7A] Contact Input 21 Debounce Time	2.0 ms
[W7A] Contact Input 21 Events	Disabled
[W7C] Contact Input 22 ID	Cont Ip 22
[W7C] Contact Input 22 Debounce Time	2.0 ms
[W7C] Contact Input 22 Events	Disabled
[W8A] Contact Input 23 ID	Cont Ip 23
[W8A] Contact Input 23 Debounce Time	2.0 ms
[W8A] Contact Input 23 Events	Disabled
[W8C] Contact Input 24 ID	Cont Ip 24
[W8C] Contact Input 24 Debounce Time	2.0 ms
[W8C] Contact Input 24 Events	Disabled

CONTACT INPUT THRESHOLDS

79 DESCO, 79 conectado, 63-FALLA PRE, 52A2 (a)(H7a, H7c, H8a, H8c)	33 Vdc
Cont Ip 5, Cont Ip 6, Cont Ip 7, Cont Ip 8(U7a, U7c, U8a, U8c)	33 Vdc
RECEP JAHUEL, RECEP ITAHUE, 52B P. CORTE, 52AP.CORTE(W1a, W1c, W	33 Vdcc)
CIERRE MANUA, TELE DESCONE, ITE AC FALLA, Cont Ip 16(W3a, W3c, W4	33 Vdc)
AUTORI 79, Cont Ip 18, Cont Ip 19, Cont Ip 20(W5a, W5c, W6a, W6c)	33 Vdc
Cont Ip 21, Cont Ip 22, Cont Ip 23, Cont Ip 24(W7a, W7c, W8a, W8c)	33 Vdc

CONTACT OUTPUTS

[H1] Contact Output 1 ID	TRIP FASE A
[H1] Contact Output 1 Operate	TRIP 3-POLE
[H1] Contact Output 1 Seal-In	OFF
[H1] Contact Output 1 Events	Enabled
[H2] Contact Output 2 ID	TRIP FASE B
[H2] Contact Output 2 Operate	TRIP 3-POLE
[H2] Contact Output 2 Seal-In	OFF
[H2] Contact Output 2 Events	Enabled
[H3] Contact Output 3 ID	TRIP FASE C
[H3] Contact Output 3 Operate	TRIP 3-POLE
[H3] Contact Output 3 Seal-In	OFF
[H3] Contact Output 3 Events	Enabled
[H4] Contact Output 4 ID	RETRIP A
[H4] Contact Output 4 Operate	BKR FAIL 1 RETRIP
[H4] Contact Output 4 Seal-In	OFF
[H4] Contact Output 4 Events	Enabled
[H5] Contact Output 5 ID	RETRIP B
[H5] Contact Output 5 Operate	BKR FAIL 1 RETRIP
[H5] Contact Output 5 Seal-In	OFF

RANCAGUA_LIAAJAH1_A2_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[H5] Contact Output 5 Events	Enabled
[H6] Contact Output 6 ID	RETRIP C
[H6] Contact Output 6 Operate	BKR FAIL 1 RETRIP
[H6] Contact Output 6 Seal-In	OFF
[H6] Contact Output 6 Events	Enabled
[M1] Contact Output 7 ID	Alarma trip
[M1] Contact Output 7 Operate	Alarma trip On (VO10)
[M1] Contact Output 7 Seal-In	OFF
[M1] Contact Output 7 Events	Enabled
[M2] Contact Output 8 ID	FALLA RELE
[M2] Contact Output 8 Operate	Alarma f. re On (VO7)
[M2] Contact Output 8 Seal-In	OFF
[M2] Contact Output 8 Events	Enabled
[M4] Contact Output 10 ID	PARAR CAJA
[M4] Contact Output 10 Operate	TRIP 3-POLE
[M4] Contact Output 10 Seal-In	OFF
[M4] Contact Output 10 Events	Enabled
[P1] Contact Output 15 ID	79 cierre
[P1] Contact Output 15 Operate	ORD. CIERRE On (VO6)
[P1] Contact Output 15 Seal-In	OFF
[P1] Contact Output 15 Events	Enabled
[P2] Contact Output 16 ID	EMISION JAHU
[P2] Contact Output 16 Operate	TX MMOO On (VO12)
[P2] Contact Output 16 Seal-In	OFF
[P2] Contact Output 16 Events	Enabled
[P3] Contact Output 17 ID	EMISION ITAH
[P3] Contact Output 17 Operate	TX MMOO On (VO12)
[P3] Contact Output 17 Seal-In	OFF
[P3] Contact Output 17 Events	Enabled
[P4] Contact Output 18 ID	50BF-->barra
[P4] Contact Output 18 Operate	BKR FAIL 1 T1 OP
[P4] Contact Output 18 Seal-In	OFF
[P4] Contact Output 18 Events	Enabled
[P6] Contact Output 20 ID	Parada Caja
[P6] Contact Output 20 Operate	TRIP 3-POLE
[P6] Contact Output 20 Seal-In	OFF
[P6] Contact Output 20 Events	Disabled

VIRTUAL OUTPUTS

Virtual Output 1 ID	BLQ Zonas PH
Virtual Output 1 Events	Enabled
Virtual Output 2 ID	TRIP GRAL
Virtual Output 2 Events	Enabled
Virtual Output 3 ID	OSCILOGRAFIA
Virtual Output 3 Events	Enabled
Virtual Output 4 ID	pkp Z1o z2
Virtual Output 4 Events	Enabled
Virtual Output 6 ID	ORD. CIERRE
Virtual Output 6 Events	Enabled
Virtual Output 7 ID	Alarma f. re
Virtual Output 7 Events	Disabled
Virtual Output 8 ID	POWER SWING
Virtual Output 8 Events	Enabled
Virtual Output 10 ID	Alarma trip
Virtual Output 10 Events	Enabled
Virtual Output 11 ID	TX OPLAT
Virtual Output 11 Events	Enabled
Virtual Output 12 ID	TX MMOO
Virtual Output 12 Events	Disabled
Virtual Output 13 ID	LED Z1
Virtual Output 13 Events	Enabled
Virtual Output 14 ID	LED Z2
Virtual Output 14 Events	Enabled
Virtual Output 15 ID	LED Z3
Virtual Output 15 Events	Enabled
Virtual Output 16 ID	LED Z4
Virtual Output 16 Events	Enabled
Virtual Output 17 ID	79 on
Virtual Output 17 Events	Enabled

RANCAGUA_LIAAJAH1_A2_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIƯN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 18 ID	79 off
Virtual Output 18 Events	Enabled
Virtual Output 19 ID	reset led
Virtual Output 19 Events	Enabled
Virtual Output 22 ID	RECEP ACELER
Virtual Output 22 Events	Enabled
Virtual Output 23 ID	OPERA ZONA 1
Virtual Output 23 Events	Enabled
Virtual Output 24 ID	OPERA ZONA 2
Virtual Output 24 Events	Enabled
Virtual Output 25 ID	OPERA Z3/Z4
Virtual Output 25 Events	Enabled
Virtual Output 27 ID	67-67N
Virtual Output 27 Events	Enabled
Virtual Output 28 ID	51-51N
Virtual Output 28 Events	Enabled
Virtual Output 29 ID	50-50N
Virtual Output 29 Events	Enabled
Virtual Output 30 ID	Load encroch
Virtual Output 30 Events	Disabled
Virtual Output 31 ID	BLOQ 51
Virtual Output 31 Events	Enabled
Virtual Output 32 ID	REVERSE
Virtual Output 32 Events	Disabled
Virtual Output 33 ID	FORWARD
Virtual Output 33 Events	Disabled
Virtual Output 34 ID	BRK OPEN
Virtual Output 34 Events	Disabled
Virtual Output 35 ID	Z5 operada
Virtual Output 35 Events	Disabled
Virtual Output 36 ID	RECEP 3P
Virtual Output 36 Events	Enabled
Virtual Output 37 ID	ECHO 3P
Virtual Output 37 Events	Enabled
Virtual Output 38 ID	set grupo
Virtual Output 38 Events	Enabled
Virtual Output 39 ID	reset grupo
Virtual Output 39 Events	Enabled

RESETTING

Operand	reset led On (VO19)

CONTROL DE REVISIÓN DEL CRAP

REVISOR	FECHA	N° EAP	OBSERVACIONES
Max Missene M.	07-09-2015	Nº 75/2015	Cambio de ajustes para evitar que la Z1B actúe de forma instantánea en Sistema 2 protección Siemens 7SA61 .

Razón de TTCC/TTPP

TTCC: 600/5

TTPP: $\frac{161000}{\sqrt{3}}/115/\ \frac{115}{\sqrt{3}}$

Particularidades de Ajustes

- No hay.

Max / Centro Sur / Rancagua / A1 Rancagua Var

MLFB:	7SA61255AE217PR4
Versión del juego de parámetros:	V04.60.10
Ruta del equipo:	C:\Siemens\Digsi4\D4PROJ\Max\P7DI\GV\ST\00000051
Autor:	
Creado el:	23.10.15 11:03:02
Mod. por última vez el:	23.10.15 11:03:23
Modo de operación:	Sin línea
Comentario:	
Valores de ajuste en:	Presentación secundaria de los valores

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1 Device Configuration

Nº	Función	Volumen
0103	Setting Group Change Option	Enabled
0110	Trip mode	3pole only
0114	21 Distance protection pickup program	Z< (quadrilateral)
0120	68 Power Swing detection	Enabled
0121	85-21 Pilot Protection for Distance prot	POTT
0122	DTT Direct Transfer Trip	Disabled
0124	50HS Instantaneous SOTF	Enabled
0125	Weak Infeed (Trip and/or Echo)	Enabled
0126	50(N)/51(N) Backup OverCurrent	Time Overcurrent Curve IEC
0131	50N/51N Ground OverCurrent	Time Overcurrent Curve IEC
0132	85-67N Pilot Protection Gnd. OverCurrent	Disabled
0133	79 Auto-Reclose Function	Disabled
0134	Auto-Reclose control mode	with Trip and Action time
0135	25 Synchronism and Voltage Check	Disabled
0136	81 Over/Underfrequency Protection	Disabled
0137	27, 59 Under/Overvoltage Protection	Disabled
0138	Fault Locator	Enabled
0139	50BF Breaker Failure Protection	Enabled
0140	74TC Trip Circuit Supervision	Disabled
0142	49 Thermal Overload Protection	Disabled

2 Power System Data 1

2.1 Grupo Power System Data 1; Grupo Transformers

Grupo Power System Data 1; Grupo Transformers

Nº	Parámetro	Valor	Grupo
0201	CT Starpoint	towards Line	todo
0203	Rated Primary Voltage	161,0 kV	todo
0204	Rated Secondary Voltage (Ph-Ph)	115 V	todo
0205	CT Rated Primary Current	600 A	todo
0206	CT Rated Secondary Current	5A	todo
0210	V4 voltage transformer is	not connected	todo
0211	Matching ratio Phase-VT To Open-Delta-VT	1,73	todo
0215	Matching ratio Vsy1 / Vsy2	0,58	todo
0220	I4 current transformer is	Neutral Current (of the protected line)	todo
0221	Matching ratio I4/Iph for CT's	1,000	todo

2.2 Grupo Power System Data 1; Grupo Power System

Grupo Power System Data 1; Grupo Power System

Nº	Parámetro	Valor	Grupo
0207	System Starpoint is	Solid Grounded	todo
0230	Rated Frequency	50 Hz	todo
0235	Phase Sequence	A B C	todo
0236	Distance measurement unit	km	todo
0237	Setting format for zero seq.comp. format	Zero seq. comp. factor K0 and angle(K0)	todo

2.3 Grupo Power System Data 1; Grupo Breaker

Grupo Power System Data 1; Grupo Breaker

Nº	Parámetro	Valor	Grupo
0240A	Minimum TRIP Command Duration	0,12 sec	todo
0241A	Maximum Close Command Duration	0,25 sec	todo
0242	Dead Time for CB test-autoreclosure	0,10 sec	todo

3 Grupos de parámetros

3.1 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	161,0 kV	A
1104	Measurement: Full Scale Current (100%)	600 A	A
1105	Line Angle	79 °	A
1211	Angle of inclination, distance charact.	79 °	A
1107	P,Q operational measured values sign	not reversed	A
1110	x' - Line Reactance per length unit	0,0359 Ohm / km	A
1111	Line Length	50,6 km	A
1120	Zero seq. comp. factor K0 for zone Z1	0,809	A
1121	Zero seq. comp. angle for zone Z1	3,02 °	A
1122	Zero seq.comp.factor K0,higher zones >Z1	0,809	A
1123	Zero seq. comp. angle, higher zones >Z1	3,02 °	A

3.2 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	A
1131A	Pole Open Voltage Threshold	11 V	A
1132A	Seal-in Time after ALL closures	0,20 sec	A
1133A	minimal time for line open before SOTF	0,25 sec	A
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	A
1135	RESET of Trip Command	with Pole Open Current Threshold only	A
1140A	CT Saturation Threshold	100,0 A	A
1150A	Seal-in Time after MANUAL closures	0,20 sec	A
1151	Manual CLOSE COMMAND generation	NO	A
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.3 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	A
1202	Phase Current threshold for dist. meas.	0,25 A	A
1211	Angle of inclination, distance charact.	79 °	A
1208	Series compensated line	NO	A
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	A
1241	R load, minimum Load Impedance (ph-g)	9,140 Ohm	A
1242	PHI load, maximum Load Angle (ph-g)	35 °	A
1243	R load, minimum Load Impedance (ph-ph)	9,140 Ohm	A
1244	PHI load, maximum Load Angle (ph-ph)	35 °	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.4 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,25 A	A
1204	3V0 threshold zero seq. voltage pickup	2 V	A
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	A
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	A
1221A	Loop selection with 2Ph-G faults	all loops	A

3.5 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1325	T3 delay	2,50 sec	A
1335	T4 delay	1,50 sec	A
1345	T5 delay	oo sec	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A

3.6 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	A
1302	R(Z1), Resistance for ph-ph-faults	2,740 Ohm	A
1303	X(Z1), Reactance	2,740 Ohm	A
1304	RG(Z1), Resistance for ph-gnd faults	2,740 Ohm	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1307	Zone Reduction Angle (load compensation)	0 °	A

3.7 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	A
1352	R(Z1B), Resistance for ph-ph-faults	21,000 Ohm	A
1353	X(Z1B), Reactance	25,689 Ohm	A
1354	RG(Z1B), Resistance for ph-gnd faults	21,000 Ohm	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.8 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	A
1312	R(Z2), Resistance for ph-ph-faults	5,520 Ohm	A
1313	X(Z2), Reactance	5,520 Ohm	A
1314	RG(Z2), Resistance for ph-gnd faults	5,520 Ohm	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A

3.9 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	A
1322	R(Z3), Resistance for ph-ph-faults	12,500 Ohm	A
1323	X(Z3), Reactance	12,500 Ohm	A
1324	RG(Z3), Resistance for ph-gnd faults	12,500 Ohm	A
1325	T3 delay	2,50 sec	A

3.10 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	A
1332	R(Z4), Resistance for ph-ph-faults	13,000 Ohm	A
1333	X(Z4), Reactance	13,000 Ohm	A
1334	RG(Z4), Resistance for ph-gnd faults	13,000 Ohm	A
1335	T4 delay	1,50 sec	A

3.11 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	A
1342	R(Z5), Resistance for ph-ph-faults	14,000 Ohm	A
1343	X(Z5)+, Reactance for Forward direction	14,000 Ohm	A
1344	RG(Z5), Resistance for ph-gnd faults	14,000 Ohm	A
1345	T5 delay	oo sec	A
1346	X(Z5)-, Reactance for Reverse direction	13,500 Ohm	A

3.12 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	A
2006	68T Power swing trip	NO	A
2007	68 Trip delay after Power Swing Blocking	0,08 sec	A

3.13 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	A
2102	Type of Line	Three Terminals	A
2103A	Time for send signal prolongation	0,10 sec	A
2109A	Transient Block.: Duration external flt.	0,03 sec	A
2110A	Transient Block.: Blk.T. after ext. flt.	0,17 sec	A

3.14 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	A

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	6,67 A	A

3.15 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	A
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	A
2503A	Trip Extension / Echo Impulse time	0,10 sec	A
2504A	Echo Block Time	0,50 sec	A
2505	Undervoltage (ph-g)	25 V	A
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.16 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	A
2680	Trip time delay after SOTF	0,00 sec	A

3.17 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	oo A	A
2611	50-B1 Delay	oo sec	A
2612	50N-B1 Pickup	oo A	A
2613	50N-B1 Delay	oo sec	A
2614	Instantaneous trip via BI	NO	A
2615	Instantaneous trip after SwitchOnToFault	NO	A

3.18 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	A
2621	50-B2 Delay	oo sec	A
2622	50N-B2 Pickup	oo A	A
2623	50N-B2 Delay	oo sec	A
2624	Instantaneous trip via Pilot Prot./BI	NO	A
2625	Instantaneous trip after SwitchOnToFault	NO	A

3.19 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	6,00 A	A
2642	51-B Time Dial	0,15 sec	A
2646	51-B Additional Time Delay	0,00 sec	A
2650	51N-B Pickup	0,25 A	A
2652	51N-B Time Dial	0,40 sec	A
2656	51N-B Additional Time Delay	0,00 sec	A
2660	IEC Curve	Normal Inverse	A
2670	Instantaneous trip via Pilot Prot./BI	NO	A
2671	Instantaneous trip after SwitchOnToFault	NO	A

3.20 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	A
2631	50-STUB Delay	oo sec	A
2632	50N-STUB Pickup	oo A	A
2633	50N-STUB Delay	oo sec	A
2634	Instantaneous trip via Pilot Prot./BI	NO	A
2635	Instantaneous trip after SwitchOnToFault	NO	A

3.21 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	A
2902A	Voltage Threshold for Balance Monitoring	50 V	A
2903A	Balance Factor for Voltage Monitor	0,75	A
2904A	Current Threshold for Balance Monitoring	0,50 A	A
2905A	Balance Factor for Current Monitor	0,50	A
2906A	Summated Current Monitoring Threshold	0,50 A	A
2907A	Summated Current Monitoring Factor	0,10	A
2908A	T Balance Factor for Voltage Monitor	5 sec	A
2909A	T Current Balance Monitor	5 sec	A

3.22 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	A
2911A	Minimum Voltage Threshold V>	30 V	A
2912A	Maximum Current Threshold I<	0,50 A	A
2913A	Maximum Voltage Threshold V< (3phase)	5 V	A
2914A	Differential Current Threshold (3phase)	0,50 A	A
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	A
2916A	Delay Voltage Failure Supervision	3,00 sec	A

3.23 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	A

3.24 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	A
2942	Limit setting PhiB	340 °	A
2943	Minimum value I1>	0,25 A	A
2944	Minimum value U1>	20 V	A

3.25 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	A
3102	Block 50N/51N for Distance protection	NO	A
3174	Block 50N/51N for Pickup 21	in each zone	A
3104A	Stabilisation Slope with Iphase	10 %	A
3170	2nd harmonic ratio for inrush restraint	20 %	A
3171	Max.Current, overriding inrush restraint	37,50 A	A
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	A
3173	Trip time delay after SOTF	0,00 sec	A

3.26 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Inactive	A
3111	Pickup	9,50 A	A
3112	Time Delay	0,30 sec	A
3113	Instantaneous trip via Pilot Prot./BI	NO	A
3114	Instantaneous trip after SwitchOnToFault	NO	A
3115	Inrush Blocking	NO	A

3.27 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	A
3121	Pickup	0,83 A	A
3122	Time Delay	0,60 sec	A
3123	Instantaneous trip via Pilot Prot./BI	NO	A
3124	Instantaneous trip after SwitchOnToFault	NO	A
3125	Inrush Blocking	NO	A

3.28 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	A
3131	Pickup	0,83 A	A
3132	Time Delay	0,90 sec	A
3133	Instantaneous trip via Pilot Prot./BI	NO	A
3134	Instantaneous trip after SwitchOnToFault	NO	A
3135	Inrush Blocking	NO	A

3.29 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	A
3141	Pickup	0,25 A	A
3143	Time Dial	0,40 sec	A
3147	Additional Time Delay	0,00 sec	A
3148	Instantaneous trip via Pilot Prot./BI	NO	A
3149	Instantaneous trip after SwitchOnToFault	NO	A
3150	Inrush Blocking	NO	A
3151	IEC Curve	Normal Inverse	A

3.30 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	A
3162A	ALPHA, lower angle for forward direction	338 °	A
3163A	BETA, upper angle for forward direction	122 °	A
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	A
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	A
3167	Min. neg. seq. polarizing current 3I2	0,25 A	A
3168	Compensation angle PHI comp. for Sr	255 °	A
3169	Forward direction power threshold	1,5 VA	A

3.31 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	A
3806	Load Compensation	NO	A

3.32 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	A
3902	50BF Pickup current threshold	2,08 A	A
3904	Delay after 1pole start for local trip	0,01 sec	A
3905	Delay after 3pole start for local trip	0,01 sec	A
3906	Delay of 2nd element for busbar trip	0,20 sec	A
3907	Delay for start with defective bkr.	0,00 sec	A
3908	Trip output selection with defective bkr	NO	A
3909	Check Breaker contacts	YES	A

3.33 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	A
3922	Trip delay of end fault element	2,00 sec	A

3.34 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	A
3932	Trip delay with pole discrepancy	2,00 sec	A

3.35 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	161,0 kV	B
1104	Measurement: Full Scale Current (100%)	600 A	B
1105	Line Angle	79 °	B
1211	Angle of inclination, distance charact.	79 °	B
1107	P,Q operational measured values sign	not reversed	B
1110	x' - Line Reactance per length unit	0,0362 Ohm / km	B
1111	Line Length	60,6 km	B
1120	Zero seq. comp. factor K0 for zone Z1	1,000	B
1121	Zero seq. comp. angle for zone Z1	0,00 °	B
1122	Zero seq.comp.factor K0,higher zones >Z1	1,000	B
1123	Zero seq. comp. angle, higher zones >Z1	0,00 °	B

3.36 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	B
1131A	Pole Open Voltage Threshold	11 V	B
1132A	Seal-in Time after ALL closures	0,20 sec	B
1133A	minimal time for line open before SOTF	0,25 sec	B
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	B
1135	RESET of Trip Command	with Pole Open Current Threshold only	B
1140A	CT Saturation Threshold	oo A	B
1150A	Seal-in Time after MANUAL closures	0,20 sec	B
1151	Manual CLOSE COMMAND generation	NO	B
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.37 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	B
1202	Phase Current threshold for dist. meas.	0,50 A	B
1211	Angle of inclination, distance charact.	79 °	B
1208	Series compensated line	NO	B
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	B
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	B
1242	PHI load, maximum Load Angle (ph-g)	30 °	B
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	B
1244	PHI load, maximum Load Angle (ph-ph)	30 °	B
1357	Z1B enabled before 1st AR (int. or ext.)	YES	B

3.38 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,25 A	B
1204	3V0 threshold zero seq. voltage pickup	oo V	B
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	B
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	B
1221A	Loop selection with 2Ph-G faults	all loops	B

3.39 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B
1325	T3 delay	2,00 sec	B
1335	T4 delay	2,00 sec	B
1345	T5 delay	oo sec	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B

3.40 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	B
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	B
1303	X(Z1), Reactance	1,720 Ohm	B
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	B
1305	T1-1phase, delay for single phase faults	0,00 sec	B
1306	T1multi-ph, delay for multi phase faults	0,00 sec	B
1307	Zone Reduction Angle (load compensation)	0 °	B

3.41 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	B
1352	R(Z1B), Resistance for ph-ph-faults	2,900 Ohm	B
1353	X(Z1B), Reactance	2,900 Ohm	B
1354	RG(Z1B), Resistance for ph-gnd faults	5,800 Ohm	B
1355	T1B-1phase, delay for single ph. faults	0,00 sec	B
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	B
1357	Z1B enabled before 1st AR (int. or ext.)	YES	B

3.42 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	B
1312	R(Z2), Resistance for ph-ph-faults	2,900 Ohm	B
1313	X(Z2), Reactance	2,900 Ohm	B
1314	RG(Z2), Resistance for ph-gnd faults	5,800 Ohm	B
1315	T2-1phase, delay for single phase faults	0,40 sec	B
1316	T2multi-ph, delay for multi phase faults	0,40 sec	B

3.43 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	B
1322	R(Z3), Resistance for ph-ph-faults	2,000 Ohm	B
1323	X(Z3), Reactance	2,000 Ohm	B
1324	RG(Z3), Resistance for ph-gnd faults	4,000 Ohm	B
1325	T3 delay	2,00 sec	B

3.44 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	B
1332	R(Z4), Resistance for ph-ph-faults	5,500 Ohm	B
1333	X(Z4), Reactance	5,500 Ohm	B
1334	RG(Z4), Resistance for ph-gnd faults	11,000 Ohm	B
1335	T4 delay	2,00 sec	B

3.45 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	B
1342	R(Z5), Resistance for ph-ph-faults	5,520 Ohm	B
1343	X(Z5)+, Reactance for Forward direction	5,520 Ohm	B
1344	RG(Z5), Resistance for ph-gnd faults	11,200 Ohm	B
1345	T5 delay	oo sec	B
1346	X(Z5)-, Reactance for Reverse direction	4,000 Ohm	B

3.46 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	B
2006	68T Power swing trip	NO	B
2007	68 Trip delay after Power Swing Blocking	0,08 sec	B

3.47 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	B
2102	Type of Line	Two Terminals	B
2103A	Time for send signal prolongation	0,10 sec	B
2109A	Transient Block.: Duration external flt.	0,04 sec	B
2110A	Transient Block.: Blk.T. after ext. flt.	0,20 sec	B

3.48 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	B
2404	50HS SOTF-O/C PICKUP	12,50 A	B

3.49 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	B
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	B
2503A	Trip Extension / Echo Impulse time	0,10 sec	B
2504A	Echo Block Time	0,50 sec	B
2505	Undervoltage (ph-g)	25 V	B
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.50 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	B
2680	Trip time delay after SOTF	0,00 sec	B

3.51 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	9,00 A	B
2611	50-B1 Delay	0,10 sec	B
2612	50N-B1 Pickup	9,00 A	B
2613	50N-B1 Delay	0,02 sec	B
2614	Instantaneous trip via BI	NO	B
2615	Instantaneous trip after SwitchOnToFault	NO	B

3.52 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	B
2621	50-B2 Delay	oo sec	B
2622	50N-B2 Pickup	oo A	B
2623	50N-B2 Delay	oo sec	B
2624	Instantaneous trip via Pilot Prot./BI	NO	B
2625	Instantaneous trip after SwitchOnToFault	NO	B

3.53 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	3,46 A	B
2642	51-B Time Dial	0,15 sec	B
2646	51-B Additional Time Delay	0,00 sec	B
2650	51N-B Pickup	1,40 A	B
2652	51N-B Time Dial	0,13 sec	B
2656	51N-B Additional Time Delay	0,00 sec	B
2660	IEC Curve	Normal Inverse	B
2670	Instantaneous trip via Pilot Prot./BI	NO	B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B(2)

Nº	Parámetro	Valor	Grupo
2671	Instantaneous trip after SwitchOnToFault	NO	B

3.54 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	B
2631	50-STUB Delay	0,30 sec	B
2632	50N-STUB Pickup	oo A	B
2633	50N-STUB Delay	2,00 sec	B
2634	Instantaneous trip via Pilot Prot./BI	NO	B
2635	Instantaneous trip after SwitchOnToFault	NO	B

3.55 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	B
2902A	Voltage Threshold for Balance Monitoring	50 V	B
2903A	Balance Factor for Voltage Monitor	0,75	B
2904A	Current Threshold for Balance Monitoring	0,50 A	B
2905A	Balance Factor for Current Monitor	0,50	B
2906A	Summated Current Monitoring Threshold	0,50 A	B
2907A	Summated Current Monitoring Factor	0,10	B
2908A	T Balance Factor for Voltage Monitor	5 sec	B
2909A	T Current Balance Monitor	5 sec	B

3.56 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	B
2911A	Minimum Voltage Threshold V>	30 V	B
2912A	Maximum Current Threshold I<	0,50 A	B
2913A	Maximum Voltage Threshold V< (3phase)	5 V	B
2914A	Differential Current Threshold (3phase)	0,50 A	B
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	B
2916A	Delay Voltage Failure Supervision	3,00 sec	B

3.57 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	B

3.58 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	B
2942	Limit setting PhiB	340 °	B
2943	Minimum value I1>	0,25 A	B
2944	Minimum value U1>	20 V	B

3.59 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	B
3102	Block 50N/51N for Distance protection	NO	B
3174	Block 50N/51N for Pickup 21	in each zone	B
3104A	Stabilisation Slope with Iphase	10 %	B
3170	2nd harmonic ratio for inrush restraint	15 %	B
3171	Max.Current, overriding inrush restraint	37,50 A	B
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	B
3173	Trip time delay after SOTF	0,00 sec	B

3.60 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	B
3111	Pickup	9,00 A	B
3112	Time Delay	0,03 sec	B
3113	Instantaneous trip via Pilot Prot./BI	NO	B
3114	Instantaneous trip after SwitchOnToFault	NO	B
3115	Inrush Blocking	NO	B

3.61 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	B
3121	Pickup	2,00 A	B
3122	Time Delay	0,60 sec	B
3123	Instantaneous trip via Pilot Prot./BI	NO	B
3124	Instantaneous trip after SwitchOnToFault	NO	B
3125	Inrush Blocking	NO	B

3.62 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	B
3131	Pickup	1,00 A	B
3132	Time Delay	0,90 sec	B
3133	Instantaneous trip via Pilot Prot./BI	NO	B
3134	Instantaneous trip after SwitchOnToFault	NO	B
3135	Inrush Blocking	NO	B

3.63 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	B
3141	Pickup	1,40 A	B
3143	Time Dial	0,14 sec	B
3147	Additional Time Delay	0,00 sec	B
3148	Instantaneous trip via Pilot Prot./BI	NO	B
3149	Instantaneous trip after SwitchOnToFault	NO	B
3150	Inrush Blocking	NO	B
3151	IEC Curve	Normal Inverse	B

3.64 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	B
3162A	ALPHA, lower angle for forward direction	338 °	B
3163A	BETA, upper angle for forward direction	122 °	B
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	B
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	B
3167	Min. neg. seq. polarizing current 3I2	0,25 A	B
3168	Compensation angle PHI comp. for Sr	255 °	B
3169	Forward direction power threshold	1,5 VA	B

3.65 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	B
3806	Load Compensation	NO	B

3.66 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	B
3902	50BF Pickup current threshold	6,00 A	B
3904	Delay after 1pole start for local trip	0,02 sec	B
3905	Delay after 3pole start for local trip	0,02 sec	B
3906	Delay of 2nd element for busbar trip	0,20 sec	B
3907	Delay for start with defective bkr.	0,00 sec	B
3908	Trip output selection with defective bkr	NO	B
3909	Check Breaker contacts	YES	B

3.67 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	B
3922	Trip delay of end fault element	2,00 sec	B

3.68 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	B

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy(2)

Nº	Parámetro	Valor	Grupo
3932	Trip delay with pole discrepancy	2,00 sec	B

3.69 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	161,0 kV	C
1104	Measurement: Full Scale Current (100%)	600 A	C
1105	Line Angle	79 °	C
1211	Angle of inclination, distance charact.	79 °	C
1107	P,Q operational measured values sign	not reversed	C
1110	x' - Line Reactance per length unit	0,0362 Ohm / km	C
1111	Line Length	60,6 km	C
1120	Zero seq. comp. factor K0 for zone Z1	1,000	C
1121	Zero seq. comp. angle for zone Z1	0,00 °	C
1122	Zero seq.comp.factor K0,higher zones >Z1	1,000	C
1123	Zero seq. comp. angle, higher zones >Z1	0,00 °	C

3.70 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,25 A	C
1131A	Pole Open Voltage Threshold	11 V	C
1132A	Seal-in Time after ALL closures	0,20 sec	C
1133A	minimal time for line open before SOTF	0,25 sec	C
1134	Recognition of Line Closures with	CBpos(52a) OR Current or Manual close BI	C
1135	RESET of Trip Command	with Pole Open Current Threshold only	C
1140A	CT Saturation Threshold	oo A	C
1150A	Seal-in Time after MANUAL closures	0,20 sec	C
1151	Manual CLOSE COMMAND generation	NO	C
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.71 Grupo 21 Distance protection, general settings; Grupo General

Grupo 21 Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	21 Distance protection is	ON	C
1202	Phase Current threshold for dist. meas.	0,50 A	C
1211	Angle of inclination, distance charact.	79 °	C
1208	Series compensated line	NO	C
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	C
1241	R load, minimum Load Impedance (ph-g)	oo Ohm	C
1242	PHI load, maximum Load Angle (ph-g)	30 °	C
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	C
1244	PHI load, maximum Load Angle (ph-ph)	30 °	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.72 Grupo 21 Distance protection, general settings; Grupo Ground faults

Grupo 21 Distance protection, general settings; Grupo Ground faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,25 A	C
1204	3V0 threshold zero seq. voltage pickup	oo V	C
1207A	3I0>-pickup-stabilisation (3I0>/ Iphmax)	0,10	C
1209A	Criterion of ground fault recognition	3I0> OR 3V0>	C
1221A	Loop selection with 2Ph-G faults	all loops	C

3.73 Grupo 21 Distance protection, general settings; Grupo Time Delays

Grupo 21 Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	21 Condition for zone timer start	with distance pickup	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1315	T2-1phase, delay for single phase faults	0,40 sec	C
1316	T2multi-ph, delay for multi phase faults	0,40 sec	C
1325	T3 delay	2,00 sec	C
1335	T4 delay	2,00 sec	C
1345	T5 delay	oo sec	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C

3.74 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	C
1302	R(Z1), Resistance for ph-ph-faults	1,720 Ohm	C
1303	X(Z1), Reactance	1,720 Ohm	C
1304	RG(Z1), Resistance for ph-gnd faults	3,440 Ohm	C
1305	T1-1phase, delay for single phase faults	0,00 sec	C
1306	T1multi-ph, delay for multi phase faults	0,00 sec	C
1307	Zone Reduction Angle (load compensation)	0 °	C

3.75 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	C
1352	R(Z1B), Resistance for ph-ph-faults	2,900 Ohm	C
1353	X(Z1B), Reactance	3,500 Ohm	C
1354	RG(Z1B), Resistance for ph-gnd faults	5,800 Ohm	C
1355	T1B-1phase, delay for single ph. faults	0,00 sec	C
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	C
1357	Z1B enabled before 1st AR (int. or ext.)	YES	C

3.76 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	C
1312	R(Z2), Resistance for ph-ph-faults	2,900 Ohm	C
1313	X(Z2), Reactance	3,500 Ohm	C
1314	RG(Z2), Resistance for ph-gnd faults	5,800 Ohm	C
1315	T2-1phase, delay for single phase faults	0,40 sec	C
1316	T2multi-ph, delay for multi phase faults	0,40 sec	C

3.77 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	C
1322	R(Z3), Resistance for ph-ph-faults	4,000 Ohm	C
1323	X(Z3), Reactance	4,000 Ohm	C
1324	RG(Z3), Resistance for ph-gnd faults	4,000 Ohm	C
1325	T3 delay	2,00 sec	C

3.78 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	C
1332	R(Z4), Resistance for ph-ph-faults	5,500 Ohm	C
1333	X(Z4), Reactance	5,500 Ohm	C
1334	RG(Z4), Resistance for ph-gnd faults	11,000 Ohm	C
1335	T4 delay	2,00 sec	C

3.79 Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Grupo 21 Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	C
1342	R(Z5), Resistance for ph-ph-faults	5,520 Ohm	C
1343	X(Z5)+, Reactance for Forward direction	5,520 Ohm	C
1344	RG(Z5), Resistance for ph-gnd faults	11,200 Ohm	C
1345	T5 delay	oo sec	C
1346	X(Z5)-, Reactance for Reverse direction	4,000 Ohm	C

3.80 Grupo 68 Power Swing detection

Grupo 68 Power Swing detection

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	C
2006	68T Power swing trip	NO	C
2007	68 Trip delay after Power Swing Blocking	0,08 sec	C

3.81 Grupo 85-21 Pilot Prot. for Distance prot.

Grupo 85-21 Pilot Prot. for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	85-21 Pilot Prot. for Distance prot.	ON	C
2102	Type of Line	Two Terminals	C
2103A	Time for send signal prolongation	0,10 sec	C
2109A	Transient Block.: Duration external flt.	0,04 sec	C
2110A	Transient Block.: Blk.T. after ext. flt.	0,20 sec	C

3.82 Grupo 50HS Instantaneous SOTF

Grupo 50HS Instantaneous SOTF

Nº	Parámetro	Valor	Grupo
2401	50HS Instantaneous SOTF-O/C is	ON	C

Grupo 50HS Instantaneous SOTF(2)

Nº	Parámetro	Valor	Grupo
2404	50HS SOTF-O/C PICKUP	12,50 A	C

3.83 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed option	Echo only	C
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	C
2503A	Trip Extension / Echo Impulse time	0,10 sec	C
2504A	Echo Block Time	0,50 sec	C
2505	Undervoltage (ph-g)	25 V	C
2509	Echo logic: 21 and 67N on common channel	NO	todo

3.84 Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Grupo 50(N)/51(N) Backup OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	C
2680	Trip time delay after SOTF	0,00 sec	C

3.85 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B1

Nº	Parámetro	Valor	Grupo
2610	50-B1 Pickup	9,00 A	C
2611	50-B1 Delay	0,10 sec	C
2612	50N-B1 Pickup	9,00 A	C
2613	50N-B1 Delay	0,02 sec	C
2614	Instantaneous trip via BI	NO	C
2615	Instantaneous trip after SwitchOnToFault	NO	C

3.86 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-B2

Nº	Parámetro	Valor	Grupo
2620	50-B2 Pickup	oo A	C
2621	50-B2 Delay	oo sec	C
2622	50N-B2 Pickup	oo A	C
2623	50N-B2 Delay	oo sec	C
2624	Instantaneous trip via Pilot Prot./BI	NO	C
2625	Instantaneous trip after SwitchOnToFault	NO	C

3.87 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 51(N)-B

Nº	Parámetro	Valor	Grupo
2640	51-B Pickup	3,46 A	C
2642	51-B Time Dial	0,15 sec	C
2646	51-B Additional Time Delay	0,00 sec	C
2650	51N-B Pickup	1,40 A	C
2652	51N-B Time Dial	0,13 sec	C
2656	51N-B Additional Time Delay	0,00 sec	C
2660	IEC Curve	Normal Inverse	C
2670	Instantaneous trip via Pilot Prot./BI	NO	C
2671	Instantaneous trip after SwitchOnToFault	NO	C

3.88 Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Grupo 50(N)/51(N) Backup OverCurrent; Grupo 50(N)-STUB

Nº	Parámetro	Valor	Grupo
2630	50-STUB Pickup	oo A	C
2631	50-STUB Delay	0,30 sec	C
2632	50N-STUB Pickup	oo A	C
2633	50N-STUB Delay	2,00 sec	C
2634	Instantaneous trip via Pilot Prot./BI	NO	C
2635	Instantaneous trip after SwitchOnToFault	NO	C

3.89 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	C
2902A	Voltage Threshold for Balance Monitoring	50 V	C
2903A	Balance Factor for Voltage Monitor	0,75	C
2904A	Current Threshold for Balance Monitoring	0,50 A	C
2905A	Balance Factor for Current Monitor	0,50	C
2906A	Summated Current Monitoring Threshold	0,50 A	C
2907A	Summated Current Monitoring Factor	0,10	C
2908A	T Balance Factor for Voltage Monitor	5 sec	C
2909A	T Current Balance Monitor	5 sec	C

3.90 Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Grupo Measurement Supervision; Grupo Meas.Volt.Fail

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	C
2911A	Minimum Voltage Threshold V>	30 V	C
2912A	Maximum Current Threshold I<	0,50 A	C
2913A	Maximum Voltage Threshold V< (3phase)	5 V	C
2914A	Differential Current Threshold (3phase)	0,50 A	C
2915	Voltage Failure Supervision	with current superv. and CBpos(52a)	C
2916A	Delay Voltage Failure Supervision	3,00 sec	C

3.91 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	C

3.92 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	C
2942	Limit setting PhiB	340 °	C
2943	Minimum value I1>	0,25 A	C
2944	Minimum value U1>	20 V	C

3.93 Grupo 50N/51N Ground OverCurrent; Grupo General

Grupo 50N/51N Ground OverCurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	50N/51N Ground Overcurrent	ON	C
3102	Block 50N/51N for Distance protection	NO	C
3174	Block 50N/51N for Pickup 21	in each zone	C
3104A	Stabilisation Slope with Iphase	10 %	C
3170	2nd harmonic ratio for inrush restraint	15 %	C
3171	Max.Current, overriding inrush restraint	37,50 A	C
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	C
3173	Trip time delay after SOTF	0,00 sec	C

3.94 Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Grupo 50N/51N Ground OverCurrent; Grupo 50N-1

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Forward	C
3111	Pickup	9,00 A	C
3112	Time Delay	0,03 sec	C
3113	Instantaneous trip via Pilot Prot./BI	NO	C
3114	Instantaneous trip after SwitchOnToFault	NO	C
3115	Inrush Blocking	NO	C

3.95 Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Grupo 50N/51N Ground OverCurrent; Grupo 50N-2

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	C
3121	Pickup	2,00 A	C
3122	Time Delay	0,60 sec	C
3123	Instantaneous trip via Pilot Prot./BI	NO	C
3124	Instantaneous trip after SwitchOnToFault	NO	C
3125	Inrush Blocking	NO	C

3.96 Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Grupo 50N/51N Ground OverCurrent; Grupo 50N-3

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	C
3131	Pickup	1,00 A	C
3132	Time Delay	0,90 sec	C
3133	Instantaneous trip via Pilot Prot./BI	NO	C
3134	Instantaneous trip after SwitchOnToFault	NO	C
3135	Inrush Blocking	NO	C

3.97 Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Grupo 50N/51N Ground OverCurrent; Grupo 51N InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	C
3141	Pickup	1,40 A	C
3143	Time Dial	0,14 sec	C
3147	Additional Time Delay	0,00 sec	C
3148	Instantaneous trip via Pilot Prot./BI	NO	C
3149	Instantaneous trip after SwitchOnToFault	NO	C
3150	Inrush Blocking	NO	C
3151	IEC Curve	Normal Inverse	C

3.98 Grupo 50N/51N Ground OverCurrent; Grupo Direction

Grupo 50N/51N Ground OverCurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with Vo + Ig or V2	C
3162A	ALPHA, lower angle for forward direction	338 °	C
3163A	BETA, upper angle for forward direction	122 °	C
3164	Min. zero seq.voltage 3Vo for polarizing	3,0 V	C
3166	Min. neg. seq. polarizing voltage 3V2	3,0 V	C
3167	Min. neg. seq. polarizing current 3I2	0,25 A	C
3168	Compensation angle PHI comp. for Sr	255 °	C
3169	Forward direction power threshold	1,5 VA	C

3.99 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	C
3806	Load Compensation	NO	C

3.100 Grupo 50BF Breaker Failure; Grupo 50BF

Grupo 50BF Breaker Failure; Grupo 50BF

Nº	Parámetro	Valor	Grupo
3901	50BF Breaker Failure Protection	ON	C
3902	50BF Pickup current threshold	6,00 A	C
3904	Delay after 1pole start for local trip	0,02 sec	C
3905	Delay after 3pole start for local trip	0,02 sec	C
3906	Delay of 2nd element for busbar trip	0,20 sec	C
3907	Delay for start with defective bkr.	0,00 sec	C
3908	Trip output selection with defective bkr	NO	C
3909	Check Breaker contacts	YES	C

3.101 Grupo 50BF Breaker Failure; Grupo End fault prot.

Grupo 50BF Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault element	OFF	C
3922	Trip delay of end fault element	2,00 sec	C

3.102 Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Grupo 50BF Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	C
3932	Trip delay with pole discrepancy	2,00 sec	C

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PRODUCT SETUP

DISPLAY PROPERTIES

Flash Message Time	2.0 s
Default Message Timeout	15 s
Default Message Intensity (VFD Only)	25 %
Screen Saver Feature (LCD Only)	Enabled
Screen Saver Wait Time (LCD Only)	10 min
Current Cutoff Level	0.010 pu
Voltage Cutoff Level	1.0 V

COMMUNICATIONS

SERIAL PORTS

RS485 Com2 Baud Rate	19200
RS485 Com2 Parity	None
RS485 Com2 Response Min Time	0 ms

NETWORK

IP Address	10. 80.143.187
IP Subnet Mask	255.255.255. 0
Gateway IP Address	10. 80.143. 1
Ethernet Operation Mode	Full-Duplex

MODBUS PROTOCOL

Modbus Slave Address	254
Modbus TCP Port Number	502

DNP PROTOCOL

DNP Channel 1 Port	NETWORK
DNP Channel 2 Port	NONE
DNP Address	3
DNP Client Address 1	10. 80.143.200
DNP Client Address 2	10. 80.143.201
DNP Client Address 3	0. 0. 0. 0
DNP Client Address 4	0. 0. 0. 0
DNP Client Address 5	0. 0. 0. 0
DNP TCP/UDP Port Number	20000
DNP Unsol Resp Function	Disabled
DNP Unsol Resp Timeout	5 s
DNP Unsol Resp Max Retries	10
DNP Unsol Resp Dest Addr	10
DNP Current Scale Factor	1
DNP Voltage Scale Factor	1
DNP Power Scale Factor	1
DNP Energy Scale Factor	1
DNP Other Scale Factor	1
DNP Current Default Deadband	30000
DNP Voltage Default Deadband	30000
DNP Power Default Deadband	30000
DNP Energy Default Deadband	30000
DNP Other Default Deadband	30000
DNP Time Sync IIN Period	1440 min
DNP Message Fragment Size	240
DNP Object 1 Default Variation	2
DNP Object 2 Default Variation	2
DNP Object 20 Default Variation	1
DNP Object 21 Default Variation	1
DNP Object 22 Default Variation	1
DNP Object 23 Default Variation	1
DNP Object 30 Default Variation	1
DNP Object 32 Default Variation	1
DNP Number of Paired Controls	0

DNP - IEC104 POINTS LISTS

DNP Binary Input Point 0	LED NEUTRAL/GROUND
DNP Binary Input Point 1	LED PHASE A
DNP Binary Input Point 2	LED PHASE B
DNP Binary Input Point 3	LED PHASE C
DNP Binary Input Point 4	LED TRIP
DNP Binary Input Point 5	PH DIST Z1 OP
DNP Binary Input Point 6	PH DIST Z2 OP

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

DNP - IEC104 POINTS LISTS (continued from last page)

DNP Binary Input Point 7	PH DIST Z3 OP
DNP Binary Input Point 8	PH DIST Z4 OP
DNP Binary Input Point 9	PH DIST Z5 OP
DNP Binary Input Point 10	LINE PICKUP OP
DNP Binary Input Point 11	SETTING GROUP ACT 1
DNP Binary Input Point 12	SETTING GROUP ACT 2
DNP Binary Input Point 13	PHASE TOC1 OP
DNP Binary Input Point 14	POWER SWING UN/BLOCK
DNP Binary Input Point 15	NEUTRAL TOC1 OP
DNP Binary Input Point 16	GND DIST Z1 OP
DNP Binary Input Point 17	GND DIST Z2 OP
DNP Binary Input Point 18	GND DIST Z3 OP
DNP Binary Input Point 19	GND DIST Z5 OP
DNP Binary Input Point 20	GND DIST Z4 OP
DNP Binary Input Point 21	AR 3-P/1 RIP
DNP Binary Input Point 22	AR CLOSE BKR 1
DNP Binary Input Point 23	AR BKR 1 BLK
DNP Binary Input Point 24	AR DISABLED
DNP Binary Input Point 25	AR ENABLED
DNP Analog Input Point 0	Fault Location [1]
DNP Analog Input Point 1	Fault Type [1]

HTTP

HTTP TCP Port Number	80

TFTP

TFTP Main UDP Port Number	69
TFTP Data UDP Port Number 1	0
TFTP Data UDP Port Number 2	0

REAL TIME CLOCK

IRIG-B Signal Type	DC Shift
Real Time Clock Events	Disabled

FAULT REPORT

Fault Report 1 Source	LINEA (SRC 1)
Fault Report 1 Trigger	pkp Z1o z2 On (VO4)
Fault Report 1 Positive Seq (Z1) Mag	2.19 ohms
Fault Report 1 Positive Seq (Z1) Angle	79 deg
Fault Report 1 Zero Seq (Z0) Mag	7.36 ohms
Fault Report 1 Zero Seq (Z0) Angle	81 deg
Fault Report 1 Line Length Units	km
Fault Report 1 Line Length	60.6

OSCILLOGRAPHY

Number Of Records	10
Trigger Mode	Automatic Overwrite
Trigger Position	20 %
Trigger Source	OSCILOGRAFIA On (VO3)
AC Input Waveforms	32 samples/cycle
Digital Channel 1	PH DIST Z1 OP
Digital Channel 2	PH DIST Z2 OP
Digital Channel 3	PH DIST Z3 OP
Digital Channel 4	PH DIST Z4 OP
Digital Channel 5	GND DIST Z1 OP
Digital Channel 6	GND DIST Z2 OP
Digital Channel 7	GND DIST Z3 OP
Digital Channel 8	GND DIST Z4 OP
Digital Channel 9	PHASE TOC1 OP
Digital Channel 10	PH DIR1 BLK
Digital Channel 11	NEUTRAL TOC1 OP
Digital Channel 12	NTRL DIR OC1 REV
Digital Channel 13	NTRL DIR OC2 FWD
Digital Channel 14	HYBRID POTT OP
Digital Channel 15	POWER SWING BLOCK
Digital Channel 16	PH DIST Z1 PKP
Digital Channel 17	PH DIST Z2 PKP
Digital Channel 18	PH DIST Z3 PKP
Digital Channel 19	PH DIST Z4 PKP

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ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

OSCILLOGRAPHY (continued from last page)

Digital Channel 20	LINE PICKUP OP
Digital Channel 21	PHASE IOC1 OP
Digital Channel 22	AR 1-P RIP
Digital Channel 23	AR CLOSE BKR 1
Digital Channel 24	HYBRID POTT TX1
Digital Channel 25	AR LO
Digital Channel 26	CIERRE MANUA On(W3a)
Digital Channel 27	79 DESCO On(H7a)
Digital Channel 28	79 conectado On(H7c)
Digital Channel 29	63-FALLA PRE On(H8a)
Digital Channel 30	52A1 (a) On(H8c)
Digital Channel 31	ECHO 3P On (VO37)
Digital Channel 32	RECEP JAHUEL On(W1a)
Digital Channel 33	RECEP ITAHUE On(W1c)
Digital Channel 34	ITE AC FALLA On(W4a)
Digital Channel 35	AUTORI 79 On(W5a)
Digital Channel 36	GND DIST Z1 PKP
Digital Channel 37	GND DIST Z2 PKP
Digital Channel 38	GND DIST Z3 PKP
Digital Channel 39	GND DIST Z4 PKP
Digital Channel 40	PUTT TX1
Digital Channel 41	PUTT TX2
Digital Channel 42	BLQ Zonas PH On (VO1)
Digital Channel 43	TRIP GRAL On (VO2)
Digital Channel 44	pkp Z1o z2 On (VO4)
Digital Channel 45	BLOq reconec On (VO5)
Digital Channel 46	ORD. CIERRE On (VO6)
Digital Channel 47	Alarma f. re On (VO7)
Digital Channel 48	POWER SWING 50DD
Digital Channel 49	POWER SWING INNER
Digital Channel 50	POWER SWING OUTER
Digital Channel 51	POWER SWING UN/BLOCK
Digital Channel 52	AR BKR 1 BLK
Digital Channel 53	AR CLOSE BKR 1
Digital Channel 54	TX MMOO On (VO12)
Digital Channel 55	AR 3-P/1 RIP
Digital Channel 56	AR DISABLED
Digital Channel 57	LOAD ENCHR OP
Digital Channel 58	SRC1 50DD OP
Digital Channel 59	BKR FAIL 1 T1 OP
Digital Channel 60	NEUTRAL IOC1 OP
Digital Channel 61	NEUTRAL TOC1 PKP
Digital Channel 62	GND DIST Z5 OP
Digital Channel 63	PH DIST Z5 OP
Analog Channel 1	SRC1 I_0 Mag
Analog Channel 2	SRC1 V_0 Mag
Analog Channel 3	SRC1 I_0 Angle
Analog Channel 4	SRC1 V_0 Angle
Analog Channel 5	SRC1 P
Analog Channel 6	Fault Location [1]
Analog Channel 7	SRC1 Frequency
Analog Channel 8	SRC1 In Mag
Analog Channel 9	SRC1 In Angle
Analog Channel 10	Brk 1 Op Time
Analog Channel 11	Fault Type [1]
Analog Channel 12	Tracking Frequency
Analog Channel 13	SRC1 S

DATA LOGGER

Data Logger Mode	Continuous
Data Logger Trigger	OFF
Rate	60000 msec

USER-PROGRAMMABLE LEDS

TRIP AND ALARMS LEDS

Trip LED Input	TRIP 3-POLE

USER PROGRAMMABLE LEDS

LED 1: OPERAND	RECEP ACELER On (VO22)

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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

USER PROGRAMMABLE LEDS (continued from last page)

LED 1: TYPE	Latched
LED 2: OPERAND	LED Z1 On (VO13)
LED 2: TYPE	Latched
LED 3: OPERAND	LED Z2 On (VO14)
LED 3: TYPE	Latched
LED 4: OPERAND	LED Z3 On (VO15)
LED 4: TYPE	Latched
LED 5: OPERAND	LED Z4 On (VO16)
LED 5: TYPE	Latched
LED 6: OPERAND	79 off On (VO18)
LED 6: TYPE	Self-Reset
LED 7: OPERAND	79 on On (VO17)
LED 7: TYPE	Self-Reset
LED 8: OPERAND	LINE PICKUP OP
LED 8: TYPE	Latched
LED 9: OPERAND	52A1 (a) Off(H8c)
LED 9: TYPE	Self-Reset
LED 10: OPERAND	52A1 (a) On(H8c)
LED 10: TYPE	Self-Reset
LED 11: OPERAND	Alarma f. re On (VO7)
LED 11: TYPE	Self-Reset
LED 12: OPERAND	67-67N On (VO27)
LED 12: TYPE	Latched
LED 13: OPERAND	51-51N On (VO28)
LED 13: TYPE	Latched
LED 14: OPERAND	50-50N On (VO29)
LED 14: TYPE	Latched
LED 15: OPERAND	AR 3-P/1 RIP
LED 15: TYPE	Self-Reset
LED 16: OPERAND	AR LO
LED 16: TYPE	Self-Reset
LED 17: OPERAND	POWER SWING UN/BLOCK
LED 17: TYPE	Latched
LED 18: OPERAND	SRC1 VT FUSE FAIL OP
LED 18: TYPE	Self-Reset
LED 19: OPERAND	BKR FAIL 1 T2 OP
LED 19: TYPE	Latched
LED 20: OPERAND	TX MMOO On (VO12)
LED 20: TYPE	Latched
LED 21: OPERAND	BLQ Zonas PH On (VO1)
LED 21: TYPE	Self-Reset
LED 22: OPERAND	ORD. CIERRE On (VO6)
LED 22: TYPE	Latched
LED 23: OPERAND	Z5 operada On (VO35)
LED 23: TYPE	Latched
LED 25: OPERAND	SETTING GROUP ACT 1
LED 25: TYPE	Self-Reset
LED 26: OPERAND	SETTING GROUP ACT 2
LED 26: TYPE	Self-Reset
LED 27: OPERAND	SETTING GROUP ACT 3
LED 27: TYPE	Self-Reset

USER-PROGRAMMABLE SELF TESTS

Battery Fail Function	Enabled

CONTROL PUSHBUTTONS

CPB 1: Function	Enabled
CPB 1: Events	Enabled
CPB 3: Function	Enabled
CPB 3: Events	Enabled

USER-DEFINABLE DISPLAYS

USER DISPLAY 1: Top Line	LINEA ITAHUE 154 kV
USER DISPLAY 1: Bottom Line	SISTEMA 2
USER DISPLAY 1: Item 1	0
USER DISPLAY 1: Item 2	0
USER DISPLAY 1: Item 3	0
USER DISPLAY 1: Item 4	0
USER DISPLAY 1: Item 5	0

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

USER-DEFINABLE DISPLAYS (continued from last page)

USER DISPLAY 2: Top Line	LOCALIZACION FALLA
USER DISPLAY 2: Bottom Line	~ km
USER DISPLAY 2: Item 1	9061
USER DISPLAY 2: Item 2	0
USER DISPLAY 2: Item 3	0
USER DISPLAY 2: Item 4	0
USER DISPLAY 2: Item 5	0
USER DISPLAY 3: Top Line	IA IB IC
USER DISPLAY 3: Bottom Line	~ ~ ~
USER DISPLAY 3: Item 1	6144
USER DISPLAY 3: Item 2	6146
USER DISPLAY 3: Item 3	6148
USER DISPLAY 3: Item 4	0
USER DISPLAY 3: Item 5	0
USER DISPLAY 4: Top Line	P 3FASE
USER DISPLAY 4: Bottom Line	~
USER DISPLAY 4: Item 1	7168
USER DISPLAY 4: Item 2	0
USER DISPLAY 4: Item 3	0
USER DISPLAY 4: Item 4	0
USER DISPLAY 4: Item 5	0
USER DISPLAY 5: Top Line	Q 3FASE
USER DISPLAY 5: Bottom Line	~
USER DISPLAY 5: Item 1	7176
USER DISPLAY 5: Item 2	0
USER DISPLAY 5: Item 3	0
USER DISPLAY 5: Item 4	0
USER DISPLAY 5: Item 5	0
USER DISPLAY 6: Top Line	S 3FASE
USER DISPLAY 6: Bottom Line	~
USER DISPLAY 6: Item 1	7184
USER DISPLAY 6: Item 2	0
USER DISPLAY 6: Item 3	0
USER DISPLAY 6: Item 4	0
USER DISPLAY 6: Item 5	0
Invoke and Scroll	ON

INSTALLATION

Relay Name	SISTEMA 1 ITAHUE

SYSTEM SETUP
AC INPUTS

CURRENT

CT F1: Phase CT Primary	600 A
CT F1: Phase CT Secondary	5 A
CT F1: Ground CT Primary	600 A
CT F1: Ground CT Secondary	5 A

VOLTAGE

VT F5: Phase VT Connection	Wye
VT F5: Phase VT Secondary	66.4 V
VT F5: Phase VT Ratio	1400.00 :1
VT F5: Auxiliary VT Connection	Vbg
VT F5: Auxiliary VT Secondary	66.4 V
VT F5: Auxiliary VT Ratio	1400.00 :1

POWER SYSTEM

Nominal Frequency	50 Hz
Phase Rotation	ABC
Frequency And Phase Reference	LINEA (SRC 1)
Frequency Tracking Function	Enabled

SIGNAL SOURCES

SOURCE 1: Name	LINEA
SOURCE 1: Phase CT	F1
SOURCE 1: Ground CT	F1
SOURCE 1: Phase VT	F5
SOURCE 1: Auxiliary VT	None
SOURCE 2: Name	BARRA

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

SIGNAL SOURCES (continued from last page)

SOURCE 2: Phase CT	None
SOURCE 2: Ground CT	None
SOURCE 2: Phase VT	None
SOURCE 2: Auxiliary VT	F5

BREAKERS

Breaker 1 Function	Enabled
Breaker 1 Push Button Control	Disabled
Breaker 1 Name	52A2
Breaker 1 Mode	3-Pole
Breaker 1 Open	OFF
Breaker 1 Close	CIERRE MANUA Off(W3a)
Breaker 1 Phase A/3-Pole	52A1 (a) On(H8c)
Breaker 1 Phase B	OFF
Breaker 1 Phase C	OFF
Breaker 1 External Alarm	OFF
Breaker 1 Alarm Delay	0.000 s
Breaker 1 Manual Close Recal Time	0.000 s
Breaker 1 Out Of Service	63-FALLA PRE On(H8a)

FLEXLOGIC

FLEXLOGIC EQUATION EDITOR

FlexLogic Entry 1	POWER SWING BLOCK
FlexLogic Entry 2	NEUTRAL TOC1 PKP
FlexLogic Entry 3	NOT
FlexLogic Entry 4	AND(2)
FlexLogic Entry 5	= POWER SWING (VO8)
FlexLogic Entry 6	ITE AC FALLA On(W4a)
FlexLogic Entry 7	POWER SWING UN/BLOCK
FlexLogic Entry 8	SRC1 VT FUSE FAIL OP
FlexLogic Entry 9	OR(3)
FlexLogic Entry 10	= BLQ Zonas PH (VO1)
FlexLogic Entry 11	PH DIST Z1 OP
FlexLogic Entry 12	PH DIST Z2 OP
FlexLogic Entry 13	PH DIST Z3 OP
FlexLogic Entry 14	PH DIST Z4 OP
FlexLogic Entry 15	PH DIST Z5 OP
FlexLogic Entry 16	GND DIST Z1 OP
FlexLogic Entry 17	GND DIST Z2 OP
FlexLogic Entry 18	GND DIST Z3 OP
FlexLogic Entry 19	GND DIST Z4 OP
FlexLogic Entry 20	GND DIST Z5 OP
FlexLogic Entry 21	OR(10)
FlexLogic Entry 22	PHASE TOC1 OP
FlexLogic Entry 23	NEUTRAL TOC1 OP
FlexLogic Entry 24	PHASE TOC2 OP
FlexLogic Entry 25	NEUTRAL TOC2 OP
FlexLogic Entry 26	PHASE IOC1 OP
FlexLogic Entry 27	NEUTRAL IOC1 OP
FlexLogic Entry 28	HYBRID POTT OP
FlexLogic Entry 29	LINE PICKUP OP
FlexLogic Entry 30	OR(8)
FlexLogic Entry 31	OR(2)
FlexLogic Entry 32	= TRIP GRAL (VO2)
FlexLogic Entry 33	BLQ Zonas PH On (VO1)
FlexLogic Entry 34	POWER SWING On (VO8)
FlexLogic Entry 35	TRIP GRAL On (VO2)
FlexLogic Entry 36	OR(3)
FlexLogic Entry 37	= OSCILOGRAFIA (VO3)
FlexLogic Entry 38	PH DIST Z1 PKP
FlexLogic Entry 39	GND DIST Z1 PKP
FlexLogic Entry 40	PH DIST Z2 PKP
FlexLogic Entry 41	GND DIST Z2 PKP
FlexLogic Entry 42	OR(4)
FlexLogic Entry 43	= pkp Z1o z2 (VO4)
FlexLogic Entry 44	AR CLOSE BKR 1
FlexLogic Entry 45	= ORD. CIERRE (VO6)
FlexLogic Entry 46	TRIP 3-POLE
FlexLogic Entry 47	TIMER 1

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 48	= Alarma trip (VO10)
FlexLogic Entry 49	HYBRID POTT TX1
FlexLogic Entry 50	TIMER 2
FlexLogic Entry 51	= TX OPLAT (VO11)
FlexLogic Entry 52	HYBRID POTT TX1
FlexLogic Entry 53	TIMER 3
FlexLogic Entry 54	= TX MMOO (VO12)
FlexLogic Entry 55	GND DIST Z1 OP
FlexLogic Entry 56	PH DIST Z1 OP
FlexLogic Entry 57	OR(2)
FlexLogic Entry 58	= LED Z1 (VO13)
FlexLogic Entry 59	GND DIST Z2 OP
FlexLogic Entry 60	PH DIST Z2 OP
FlexLogic Entry 61	OR(2)
FlexLogic Entry 62	= LED Z2 (VO14)
FlexLogic Entry 63	PH DIST Z3 OP
FlexLogic Entry 64	GND DIST Z3 OP
FlexLogic Entry 65	OR(2)
FlexLogic Entry 66	= LED Z3 (VO15)
FlexLogic Entry 67	PH DIST Z4 OP
FlexLogic Entry 68	GND DIST Z4 OP
FlexLogic Entry 69	OR(2)
FlexLogic Entry 70	= LED Z4 (VO16)
FlexLogic Entry 71	79 conectado On(H7c)
FlexLogic Entry 72	AUTORI 79 On(W5a)
FlexLogic Entry 73	AND(2)
FlexLogic Entry 74	= 79 on (VO17)
FlexLogic Entry 75	79 on On (VO17)
FlexLogic Entry 76	NOT
FlexLogic Entry 77	= 79 off (VO18)
FlexLogic Entry 78	PH DIST Z1 PKP
FlexLogic Entry 79	PH DIST Z2 PKP
FlexLogic Entry 80	PH DIST Z3 PKP
FlexLogic Entry 81	PH DIST Z4 PKP
FlexLogic Entry 82	GND DIST Z1 PKP
FlexLogic Entry 83	GND DIST Z2 PKP
FlexLogic Entry 84	GND DIST Z3 PKP
FlexLogic Entry 85	GND DIST Z4 PKP
FlexLogic Entry 86	PHASE TOC1 PKP
FlexLogic Entry 87	NEUTRAL TOC1 PKP
FlexLogic Entry 88	LINE PICKUP PKP
FlexLogic Entry 89	OR(11)
FlexLogic Entry 90	= reset led (VO19)
FlexLogic Entry 91	RECEP JAHUEL On(W1a)
FlexLogic Entry 92	RECEP ITAHUE On(W1c)
FlexLogic Entry 93	OR(2)
FlexLogic Entry 94	= RECEP ACELER (VO22)
FlexLogic Entry 95	PH DIST Z1 OP
FlexLogic Entry 96	GND DIST Z1 OP
FlexLogic Entry 97	OR(2)
FlexLogic Entry 98	= OPERA ZONA 1 (VO23)
FlexLogic Entry 99	PH DIST Z2 OP
FlexLogic Entry 100	GND DIST Z2 OP
FlexLogic Entry 101	OR(2)
FlexLogic Entry 102	= OPERA ZONA 2 (VO24)
FlexLogic Entry 103	PH DIST Z3 OP
FlexLogic Entry 104	PH DIST Z4 OP
FlexLogic Entry 105	GND DIST Z3 OP
FlexLogic Entry 106	GND DIST Z4 OP
FlexLogic Entry 107	OR(4)
FlexLogic Entry 108	= OPERA Z3/Z4 (VO25)
FlexLogic Entry 109	PHASE TOC1 OP
FlexLogic Entry 110	NEUTRAL IOC1 OP
FlexLogic Entry 111	NEUTRAL TOC1 OP
FlexLogic Entry 112	OR(3)
FlexLogic Entry 113	BLQ Zonas PH On (VO1)
FlexLogic Entry 114	NOT
FlexLogic Entry 115	AND(2)
FlexLogic Entry 116	= 67-67N (VO27)

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 117	PHASE TOC1 OP
FlexLogic Entry 118	NEUTRAL IOC1 OP
FlexLogic Entry 119	NEUTRAL TOC1 OP
FlexLogic Entry 120	OR(3)
FlexLogic Entry 121	BLQ Zonas PH On (VO1)
FlexLogic Entry 122	AND(2)
FlexLogic Entry 123	= 51-51N (VO28)
FlexLogic Entry 124	PHASE IOC1 OP
FlexLogic Entry 125	NEUTRAL IOC1 OP
FlexLogic Entry 126	OR(2)
FlexLogic Entry 127	= 50-50N (VO29)
FlexLogic Entry 128	ITE AC FALLA On(W4a)
FlexLogic Entry 129	ANY MAJOR ERROR
FlexLogic Entry 130	SRC1 VT FUSE FAIL OP
FlexLogic Entry 131	OR(3)
FlexLogic Entry 132	= Alarma f. re (VO7)
FlexLogic Entry 133	BLQ Zonas PH On (VO1)
FlexLogic Entry 134	LOAD ENCHR OP
FlexLogic Entry 135	OR(2)
FlexLogic Entry 136	= Load encroch (VO30)
FlexLogic Entry 137	Alarma f. re On (VO7)
FlexLogic Entry 138	NOT
FlexLogic Entry 139	= BLOQ 51 (VO31)
FlexLogic Entry 140	NTRL DIR OC1 REV
FlexLogic Entry 141	= REVERSE (VO32)
FlexLogic Entry 142	NTRL DIR OC1 FWD
FlexLogic Entry 143	= FORWARD (VO33)
FlexLogic Entry 144	BREAKER 1 OPEN
FlexLogic Entry 145	= BRK OPEN (VO34)
FlexLogic Entry 146	PH DIST Z5 OP
FlexLogic Entry 147	GND DIST Z5 OP
FlexLogic Entry 148	OR(2)
FlexLogic Entry 149	= Z5 operada (VO35)
FlexLogic Entry 150	RECEP JAHUEL On(W1a)
FlexLogic Entry 151	RECEP ITAHUE On(W1c)
FlexLogic Entry 152	SETTING GROUP ACT 1
FlexLogic Entry 153	AND(3)
FlexLogic Entry 154	RECEP JAHUEL On(W1a)
FlexLogic Entry 155	SETTING GROUP ACT 2
FlexLogic Entry 156	AND(2)
FlexLogic Entry 157	OR(2)
FlexLogic Entry 158	= RECEP 3P (VO36)
FlexLogic Entry 159	RECEP 3P On (VO36)
FlexLogic Entry 160	BREAKER 1 OPEN
FlexLogic Entry 161	AND(2)
FlexLogic Entry 162	= ECHO 3P (VO37)
FlexLogic Entry 163	52aP.CORTE On(W2c)
FlexLogic Entry 164	NOT
FlexLogic Entry 165	52b P. CORTE On(W2a)
FlexLogic Entry 166	SETTING GROUP ACT 1
FlexLogic Entry 167	AND(3)
FlexLogic Entry 168	CONTROL PUSHBUTTON 3 ON
FlexLogic Entry 169	POSITIVE ONE SHOT
FlexLogic Entry 170	SETTING GROUP ACT 1
FlexLogic Entry 171	AND(2)
FlexLogic Entry 172	OR(2)
FlexLogic Entry 173	= set grupo (VO38)
FlexLogic Entry 174	52aP.CORTE On(W2c)
FlexLogic Entry 175	52b P. CORTE On(W2a)
FlexLogic Entry 176	NOT
FlexLogic Entry 177	SETTING GROUP ACT 2
FlexLogic Entry 178	AND(3)
FlexLogic Entry 179	CONTROL PUSHBUTTON 3 ON
FlexLogic Entry 180	POSITIVE ONE SHOT
FlexLogic Entry 181	SETTING GROUP ACT 2
FlexLogic Entry 182	AND(2)
FlexLogic Entry 183	OR(2)
FlexLogic Entry 184	= reset grupo (VO39)
FlexLogic Entry 185	END

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC TIMERS

Timer 1: Type	second
Timer 1: Pickup Delay	0
Timer 1: Dropout Delay	7
Timer 2: Type	millisecond
Timer 2: Pickup Delay	0
Timer 2: Dropout Delay	50
Timer 3: Type	millisecond
Timer 3: Pickup Delay	0
Timer 3: Dropout Delay	50

NON-VOLATILE LATCHES

LATCH 1: Function	Enabled
LATCH 1: Type	Reset Dominant
LATCH 1: Set	set grupo On (VO38)
LATCH 1: Reset	reset grupo On (VO39)
LATCH 1: Target	Disabled
LATCH 1: Events	Enabled

GROUPED ELEMENTS
GROUP 1
LINE PICKUP [GROUP 1]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	1.250 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Enabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE
DISTANCE [GROUP 1]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 1]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	2.74 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	78 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	49 deg
PHASE DISTANCE Z1: DIR Comp Limit	71 deg
PHASE DISTANCE Z1: Quad Right Blinder	2.74 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z1: Quad Left Blinder	2.74 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z1: Supervision	0.100 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled

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FILES
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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	25.68 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	78 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	49 deg
PHASE DISTANCE Z2: DIR Comp Limit	71 deg
PHASE DISTANCE Z2: Quad Right Blinder	21.00 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z2: Quad Left Blinder	21.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z2: Supervision	0.100 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	65.535 s
PHASE DISTANCE Z2: Block	Load encroch On (VO30)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	5.52 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	0.02 ohms
PHASE DISTANCE Z3: Rev Reach RCA	78 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	49 deg
PHASE DISTANCE Z3: DIR Comp Limit	71 deg
PHASE DISTANCE Z3: Quad Right Blinder	5.52 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z3: Quad Left Blinder	5.52 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z3: Supervision	0.100 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.600 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	12.50 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.02 ohms
PHASE DISTANCE Z4: Rev Reach RCA	78 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	49 deg
PHASE DISTANCE Z4: DIR Comp Limit	71 deg
PHASE DISTANCE Z4: Quad Right Blinder	12.50 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z4: Quad Left Blinder	12.50 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z4: Supervision	0.100 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.500 s
PHASE DISTANCE Z4: Block	Load encroch On (VO30)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled
PHASE DISTANCE Z5: Function	Enabled
PHASE DISTANCE Z5: Direction	Forward
PHASE DISTANCE Z5: Shape	Quad
PHASE DISTANCE Z5: Xfmr Vol Connection	None

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z5: Xfmr Curr Connection	None
PHASE DISTANCE Z5: Reach	13.00 ohms
PHASE DISTANCE Z5: RCA	90 deg
PHASE DISTANCE Z5: Rev Reach	0.02 ohms
PHASE DISTANCE Z5: Rev Reach RCA	78 deg
PHASE DISTANCE Z5: Comp Limit	90 deg
PHASE DISTANCE Z5: DIR RCA	49 deg
PHASE DISTANCE Z5: DIR Comp Limit	71 deg
PHASE DISTANCE Z5: Quad Right Blinder	13.00 ohms
PHASE DISTANCE Z5: Quad Right Blinder RCA	78 deg
PHASE DISTANCE Z5: Quad Left Blinder	13.00 ohms
PHASE DISTANCE Z5: Quad Left Blinder RCA	78 deg
PHASE DISTANCE Z5: Supervision	0.100 pu
PHASE DISTANCE Z5: Volt Level	0.000 pu
PHASE DISTANCE Z5: Delay	1.500 s
PHASE DISTANCE Z5: Block	Load encroch On (VO30)
PHASE DISTANCE Z5: Target	Self-reset
PHASE DISTANCE Z5: Events	Enabled

GROUND DISTANCE [GROUP 1]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.21
GROUND DISTANCE Z1: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	2.74 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	0.02 ohms
GROUND DISTANCE Z1: Rev Reach RCA	78 deg
GROUND DISTANCE Z1: POL Current	Zero-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	49 deg
GROUND DISTANCE Z1: DIR Comp Limit	71 deg
GROUND DISTANCE Z1: Quad Right Blinder	2.74 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z1: Quad Left Blinder	2.74 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z1: Supervision	0.100 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.21
GROUND DISTANCE Z2: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	25.68 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	0.02 ohms
GROUND DISTANCE Z2: Rev Reach RCA	78 deg
GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	49 deg
GROUND DISTANCE Z2: DIR Comp Limit	71 deg
GROUND DISTANCE Z2: Quad Right Blinder	21.00 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z2: Quad Left Blinder	21.00 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.535 s

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z2: Block	Load encroch On (VO30)
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.21
GROUND DISTANCE Z3: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	5.52 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	0.02 ohms
GROUND DISTANCE Z3: Rev Reach RCA	78 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	49 deg
GROUND DISTANCE Z3: DIR Comp Limit	71 deg
GROUND DISTANCE Z3: Quad Right Blinder	5.52 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z3: Quad Left Blinder	5.52 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.600 s
GROUND DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.21
GROUND DISTANCE Z4: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	12.50 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.02 ohms
GROUND DISTANCE Z4: Rev Reach RCA	78 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	49 deg
GROUND DISTANCE Z4: DIR Comp Limit	71 deg
GROUND DISTANCE Z4: Quad Right Blinder	12.50 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z4: Quad Left Blinder	12.50 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.500 s
GROUND DISTANCE Z4: Block	Load encroch On (VO30)
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.21
GROUND DISTANCE Z5: Z0/Z1 Ang	2 deg
GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	13.00 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	0.02 ohms
GROUND DISTANCE Z5: Rev Reach RCA	78 deg
GROUND DISTANCE Z5: POL Current	Zero-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z5: DIR RCA	49 deg
GROUND DISTANCE Z5: DIR Comp Limit	71 deg
GROUND DISTANCE Z5: Quad Right Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	78 deg
GROUND DISTANCE Z5: Quad Left Blinder	13.00 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	78 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu
GROUND DISTANCE Z5: Delay	1.500 s
GROUND DISTANCE Z5: Block	Load encroch On (VO30)
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	17.50 ohms
Quad Fwd Mid	18.20 ohms
Quad Fwd Out	18.20 ohms
Fwd Rca	78 deg
Rev Reach	16.50 ohms
Quad Rev Mid	17.20 ohms
Quad Rev Out	17.20 ohms
Rev Rca	78 deg
Outer Limit Angle	85 deg
Middle Limit Angle	90 deg
Inner Limit Angle	60 deg
Outer Rgt Bld	15.20 ohms
Outer Lft Bld	14.20 ohms
Midle Rgt Bld	15.20 ohms
Midle Lft Bld	14.20 ohms
Inner Rgt Bld	14.50 ohms
Inner Lft Bld	13.50 ohms
Delay 1 Pickup	0.020 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.000 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Enabled

LOAD ENCROACHMENT [GROUP 1]

Function	Enabled
Source	LINEA (SRC 1)
Min Volt	0.800 pu
Reach	9.14 ohms
Angle	35 deg
Pickup Delay	0.000 s
Reset Delay	0.000 s
Block	OFF
Target	Disabled
Events	Enabled

PHASE CURRENT
PHASE TOC [GROUP 1]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	1.200 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.15
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE TOC [GROUP 1] (continued from last page)

PHASE TOC1: Block A	BLOQ 51 On (VO31)
PHASE TOC1: Block B	BLOQ 51 On (VO31)
PHASE TOC1: Block C	BLOQ 51 On (VO31)
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE DIRECTIONAL [GROUP 1]

PHASE DIR1: Function	Enabled
PHASE DIR1: Source	LINEA (SRC 1)
PHASE DIR1: Block	OFF
PHASE DIR1: ECA	45 deg
PHASE DIR1: Pol V Threshold	0.700 pu
PHASE DIR1: Block when V Mem Exp	No
PHASE DIR1: Target	Self-reset
PHASE DIR1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 1]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.050 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.40
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	NEG SEQ DIR OC1 REV
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	80 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 1]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	Yes
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.416 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.200 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A1 (a) On(H8c)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.416 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.416 pu
BF1: LoSet Time Delay	0.000 s

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
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DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

BREAKER FAILURE [GROUP 1] (continued from last page)

BF1: Trip Dropout Delay	0.000 s
BF1: Target	Latched
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

GROUP 2

LINE PICKUP [GROUP 2]

Function	Enabled
Signal Source	LINEA (SRC 1)
Phase IOC Line Pickup	2.500 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.000 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Disabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 2]

Source	LINEA (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 2]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	1.72 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	1.72 ohms
PHASE DISTANCE Z1: Rev Reach RCA	79 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	45 deg
PHASE DISTANCE Z1: DIR Comp Limit	79 deg
PHASE DISTANCE Z1: Quad Right Blinder	1.72 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z1: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z1: Supervision	0.200 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	2.90 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	2.90 ohms
PHASE DISTANCE Z2: Rev Reach RCA	79 deg
PHASE DISTANCE Z2: Comp Limit	90 deg

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 2] (continued from last page)

PHASE DISTANCE Z2: DIR RCA	45 deg
PHASE DISTANCE Z2: DIR Comp Limit	79 deg
PHASE DISTANCE Z2: Quad Right Blinder	2.90 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z2: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z2: Supervision	0.200 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	0.400 s
PHASE DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	5.50 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	5.50 ohms
PHASE DISTANCE Z3: Rev Reach RCA	79 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	45 deg
PHASE DISTANCE Z3: DIR Comp Limit	79 deg
PHASE DISTANCE Z3: Quad Right Blinder	5.50 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z3: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z3: Supervision	0.200 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	2.000 s
PHASE DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	2.00 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	2.00 ohms
PHASE DISTANCE Z4: Rev Reach RCA	79 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	45 deg
PHASE DISTANCE Z4: DIR Comp Limit	79 deg
PHASE DISTANCE Z4: Quad Right Blinder	2.00 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	79 deg
PHASE DISTANCE Z4: Quad Left Blinder	10.00 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	79 deg
PHASE DISTANCE Z4: Supervision	0.200 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.000 s
PHASE DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled

GROUND DISTANCE [GROUP 2]

GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.36
GROUND DISTANCE Z2: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	2.90 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	2.90 ohms
GROUND DISTANCE Z2: Rev Reach RCA	79 deg

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 2] (continued from last page)

GROUND DISTANCE Z2: POL Current	Zero-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	45 deg
GROUND DISTANCE Z2: DIR Comp Limit	79 deg
GROUND DISTANCE Z2: Quad Right Blinder	5.80 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z2: Quad Left Blinder	5.80 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	0.400 s
GROUND DISTANCE Z2: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.36
GROUND DISTANCE Z3: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	5.50 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	5.50 ohms
GROUND DISTANCE Z3: Rev Reach RCA	79 deg
GROUND DISTANCE Z3: POL Current	Zero-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	45 deg
GROUND DISTANCE Z3: DIR Comp Limit	79 deg
GROUND DISTANCE Z3: Quad Right Blinder	11.00 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z3: Quad Left Blinder	11.00 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	2.000 s
GROUND DISTANCE Z3: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.36
GROUND DISTANCE Z4: Z0/Z1 Ang	1 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	2.00 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	2.00 ohms
GROUND DISTANCE Z4: Rev Reach RCA	79 deg
GROUND DISTANCE Z4: POL Current	Zero-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	45 deg
GROUND DISTANCE Z4: DIR Comp Limit	79 deg
GROUND DISTANCE Z4: Quad Right Blinder	4.00 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	79 deg
GROUND DISTANCE Z4: Quad Left Blinder	4.00 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	79 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.000 s
GROUND DISTANCE Z4: Block	BLQ Zonas PH On (VO1)
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled

POWER SWING DETECT [GROUP 2]

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

POWER SWING DETECT [GROUP 2] (continued from last page)

Function	Enabled
Source	LINEA (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	7.50 ohms
Quad Fwd Mid	9.50 ohms
Quad Fwd Out	9.50 ohms
Fwd Rca	79 deg
Rev Reach	4.30 ohms
Quad Rev Mid	6.30 ohms
Quad Rev Out	6.30 ohms
Rev Rca	90 deg
Outer Limit Angle	120 deg
Middle Limit Angle	120 deg
Inner Limit Angle	79 deg
Outer Rgt Bld	9.20 ohms
Outer Lft Bld	7.71 ohms
Midle Rgt Bld	9.20 ohms
Midle Lft Bld	7.71 ohms
Inner Rgt Bld	7.20 ohms
Inner Lft Bld	5.71 ohms
Delay 1 Pickup	0.001 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Enabled

PHASE CURRENT

PHASE TOC [GROUP 2]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	LINEA (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	0.690 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.15
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	BLOQ 51 On (VO31)
PHASE TOC1: Block B	BLOQ 51 On (VO31)
PHASE TOC1: Block C	BLOQ 51 On (VO31)
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

PHASE IOC [GROUP 2]

PHASE IOC1: Function	Enabled
PHASE IOC1: Source	LINEA (SRC 1)
PHASE IOC1: Pickup	1.800 pu
PHASE IOC1: Delay	0.01 s
PHASE IOC1: Reset Delay	0.00 s
PHASE IOC1: Block A	BLOQ 51 On (VO31)
PHASE IOC1: Block B	BLOQ 51 On (VO31)
PHASE IOC1: Block C	BLOQ 51 On (VO31)
PHASE IOC1: Target	Self-reset
PHASE IOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 2]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	LINEA (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.280 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.14

RANCAGUA_LIAAJAH2_A1_S2_140527.URS
Y:\CRAP\ARCHIVOS DE CONFIGURACIÝN\04_OCS\RANCAGUA
DEVICE DEFINITION
FILES
ORDER CODE: D60-G00-HCL-F8F-H6H-M6C-P6C-U6H-W6D
VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

NEUTRAL TOC [GROUP 2] (continued from last page)

NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	NEG SEQ DIR OC1 REV
NEUTRAL TOC1: Target	Latched
NEUTRAL TOC1: Events	Enabled

NEUTRAL IOC [GROUP 2]

NEUTRAL IOC1: Function	Enabled
NEUTRAL IOC1: Source	LINEA (SRC 1)
NEUTRAL IOC1: Pickup	1.800 pu
NEUTRAL IOC1: Delay	0.03 s
NEUTRAL IOC1: Reset Delay	0.00 s
NEUTRAL IOC1: Block	NTRL DIR OC1 REV
NEUTRAL IOC1: Target	Self-reset
NEUTRAL IOC1: Events	Enabled

NEGATIVE SEQUENCE CURRENT
NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 2]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	LINEA (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	81 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	81 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.10 pu
NEGATIVE SEQ DIR OC1: Block	SRC1 VT FUSE FAIL OP
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 2]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	LINEA (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	TRIP 3-POLE
BF1: Block	OFF
BF1: Phase Current Supv Pickup	1.200 pu
BF1: Neutral Current Supv Pickup	0.280 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.000 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	52A1 (a) On(H8c)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	OFF
BF1: Phase Current HiSet Pickup	1.200 pu
BF1: Neutral Current HiSet Pickup	0.280 pu
BF1: Phase Current LoSet Pickup	1.200 pu
BF1: Neutral Current LoSet Pickup	0.280 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	OFF
BF1: Phase B Initiate	OFF
BF1: Phase C Initiate	OFF
BF1: Breaker Pos1 Phase B	OFF
BF1: Breaker Pos1 Phase C	OFF
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

CONTROL ELEMENTS
SETTING GROUPS

Function	Enabled

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DESCRIPTION: (NONE)
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SETTING GROUPS (continued from last page)

Block	OFF
Group 2 Activate On	LATCH 1 ON
Group 3 Activate On	OFF
Group 4 Activate On	OFF
Group 5 Activate On	OFF
Group 6 Activate On	OFF
Group 1 Name	
Group 2 Name	
Group 3 Name	
Group 4 Name	
Group 5 Name	
Group 6 Name	
Events	Disabled

TRIP OUTPUT

Trip Mode	3 Pole Only
Trip 3-Pole Input1	TRIP GRAL On (VO2)
Trip 3-Pole Input2	OFF
Trip 3-Pole Input3	OFF
Trip 3-Pole Input4	OFF
Trip 3-Pole Input5	OFF
Trip 3-Pole Input6	OFF
Trip 1-Pole Input1	OFF
Trip 1-Pole Input2	OFF
Trip 1-Pole Input3	OFF
Trip 1-Pole Input4	OFF
Trip 1-Pole Input5	OFF
Trip 1-Pole Input6	OFF
Trip Reclose Input1	GND DIST Z1 OP
Trip Reclose Input2	PH DIST Z1 OP
Trip Reclose Input3	HYBRID POTT OP
Trip Reclose Input4	OFF
Trip Reclose Input5	OFF
Trip Reclose Input6	OFF
BKR Phase A Open	LINE PICKUP I<A
BKR Phase B Open	LINE PICKUP I<B
BKR Phase C Open	LINE PICKUP I<C
Trip Force 3-Pole	OFF
Trip Pilot Priority	0.000 s
Reverse Fault	OFF
Trip Delay On Evolving Faults	0.000 s
Trip Events	Enabled

MONITORING ELEMENTS

BREAKER ARCING CURRENT

BREAKER 1 ARC: Function	Enabled
BREAKER 1 ARC: Source	LINEA (SRC 1)
BREAKER 1 ARC: Init A	TRIP 3-POLE
BREAKER 1 ARC: Init B	TRIP 3-POLE
BREAKER 1 ARC: Init C	TRIP 3-POLE
BREAKER 1 ARC: Delay	0.000 s
BREAKER 1 ARC: Limit	1000 kA2-cyc
BREAKER 1 ARC: Block	OFF
BREAKER 1 ARC: Target	Disabled
BREAKER 1 ARC: Events	Disabled

VT FUSE FAILURE

VT FUSE FAILURE 1: Function	Enabled

PILOT SCHEMES

1P HYBRID POTT SCHEME

Function	Enabled
Permissive Echo	Custom
Echo Condition	ECHO 3P On (VO37)
Weak Infeed	Disabled
W/I Condition	OFF
Rx Pickup Delay	0.001 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.150 s

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TEXT COLOR

1P HYBRID POTT SCHEME (continued from last page)

Echo Duration	0.100 s
Echo Lockout	0.250 s
Seal-In Delay	0.000 s
Gnd Dir OC Fwd	OFF
Gnd Dir OC Rev	NTRL DIR OC1 REV
No of Comm Bits	1
Rx1	RECEP 3P On (VO36)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset
Event	Enabled

AUTORECLOSE 1P

Function	Enabled
Mode	3 Pole - B
Max Number Of Shots	1
Block BKR1	OFF
Close Time BKR1	0.40 s
BKR Man Close	CIERRE MANUA On(W3a)
Blk Time Upon Man Cls	8.00 s
1-P Init	OFF
3-P Init	OFF
3-P TD Init	OFF
Multi P Fault	OFF
BKR 1 Pole Open	OFF
BKR 3 Pole Open	OFF
3-P Dead Time 1	0.40 s
3-P Dead Time 2	0.45 s
3-P Dead Time 3	2.00 s
3-P Dead Time 4	4.00 s
Extend Dead T1	OFF
Dead T1 Extension	0.15 s
Reset	OFF
Reset Time	10.00 s
BKR Closed	OFF
Block	79 off On (VO18)
Pause	OFF
Inc Seq Time	5.00 s
Block BKR2	OFF
Close Time BKR2	0.10 s
Transfer 1 to 2	No
Transfer 2 to 1	No
BKR1 Fail Option	Continue
BKR2 Fail Option	Continue
1-P Dead Time	1.00 s
BKR Sequence	1
Transfer Time	4.00 s
Event	Enabled

INPUTS/OUTPUTS

CONTACT INPUTS

[H7A] Contact Input 1 ID	79 DESCO
[H7A] Contact Input 1 Debounce Time	2.0 ms
[H7A] Contact Input 1 Events	Enabled
[H7C] Contact Input 2 ID	79 conectado
[H7C] Contact Input 2 Debounce Time	2.0 ms
[H7C] Contact Input 2 Events	Enabled
[H8A] Contact Input 3 ID	63-FALLA PRE
[H8A] Contact Input 3 Debounce Time	2.0 ms
[H8A] Contact Input 3 Events	Enabled
[H8C] Contact Input 4 ID	52A1 (a)
[H8C] Contact Input 4 Debounce Time	2.0 ms
[H8C] Contact Input 4 Events	Enabled
[U7A] Contact Input 5 ID	Cont Ip 5
[U7A] Contact Input 5 Debounce Time	2.0 ms
[U7A] Contact Input 5 Events	Disabled
[U7C] Contact Input 6 ID	Cont Ip 6
[U7C] Contact Input 6 Debounce Time	2.0 ms

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DESCRIPTION: (NONE)
TEXT COLOR

CONTACT INPUTS (continued from last page)

[U7C] Contact Input 6 Events	Disabled
[U8A] Contact Input 7 ID	Cont Ip 7
[U8A] Contact Input 7 Debounce Time	2.0 ms
[U8A] Contact Input 7 Events	Disabled
[U8C] Contact Input 8 ID	Cont Ip 8
[U8C] Contact Input 8 Debounce Time	2.0 ms
[U8C] Contact Input 8 Events	Disabled
[W1A] Contact Input 9 ID	RECEP JAHUEL
[W1A] Contact Input 9 Debounce Time	2.0 ms
[W1A] Contact Input 9 Events	Enabled
[W1C] Contact Input 10 ID	RECEP ITAHUE
[W1C] Contact Input 10 Debounce Time	2.0 ms
[W1C] Contact Input 10 Events	Enabled
[W2A] Contact Input 11 ID	52b P. CORTE
[W2A] Contact Input 11 Debounce Time	2.0 ms
[W2A] Contact Input 11 Events	Enabled
[W2C] Contact Input 12 ID	52aP.CORTE
[W2C] Contact Input 12 Debounce Time	2.0 ms
[W2C] Contact Input 12 Events	Enabled
[W3A] Contact Input 13 ID	CIERRE MANUA
[W3A] Contact Input 13 Debounce Time	2.0 ms
[W3A] Contact Input 13 Events	Enabled
[W3C] Contact Input 14 ID	TELE DESCONE
[W3C] Contact Input 14 Debounce Time	2.0 ms
[W3C] Contact Input 14 Events	Disabled
[W4A] Contact Input 15 ID	ITE AC FALLA
[W4A] Contact Input 15 Debounce Time	2.0 ms
[W4A] Contact Input 15 Events	Disabled
[W4C] Contact Input 16 ID	Cont Ip 16
[W4C] Contact Input 16 Debounce Time	2.0 ms
[W4C] Contact Input 16 Events	Disabled
[W5A] Contact Input 17 ID	AUTORI 79
[W5A] Contact Input 17 Debounce Time	2.0 ms
[W5A] Contact Input 17 Events	Disabled
[W5C] Contact Input 18 ID	Cont Ip 18
[W5C] Contact Input 18 Debounce Time	2.0 ms
[W5C] Contact Input 18 Events	Disabled
[W6A] Contact Input 19 ID	Cont Ip 19
[W6A] Contact Input 19 Debounce Time	2.0 ms
[W6A] Contact Input 19 Events	Disabled
[W6C] Contact Input 20 ID	Cont Ip 20
[W6C] Contact Input 20 Debounce Time	2.0 ms
[W6C] Contact Input 20 Events	Disabled
[W7A] Contact Input 21 ID	Cont Ip 21
[W7A] Contact Input 21 Debounce Time	2.0 ms
[W7A] Contact Input 21 Events	Disabled
[W7C] Contact Input 22 ID	Cont Ip 22
[W7C] Contact Input 22 Debounce Time	2.0 ms
[W7C] Contact Input 22 Events	Disabled
[W8A] Contact Input 23 ID	Cont Ip 23
[W8A] Contact Input 23 Debounce Time	2.0 ms
[W8A] Contact Input 23 Events	Disabled
[W8C] Contact Input 24 ID	Cont Ip 24
[W8C] Contact Input 24 Debounce Time	2.0 ms
[W8C] Contact Input 24 Events	Disabled

CONTACT INPUT THRESHOLDS

79 DESCO, 79 conectado, 63-FALLA PRE, 52A1 (a)(H7a, H7c, H8a, H8c)	33 Vdc
Cont Ip 5, Cont Ip 6, Cont Ip 7, Cont Ip 8(U7a, U7c, U8a, U8c)	33 Vdc
RECEP JAHUEL, RECEP ITAHUE, 52b P. CORTE, 52aP.CORTE(W1a, W1c, W2	33 Vdc)
CIERRE MANUA, TELE DESCONE, ITE AC FALLA, Cont Ip 16(W3a, W3c, W4	33 Vdc)
AUTORI 79, Cont Ip 18, Cont Ip 19, Cont Ip 20(W5a, W5c, W6a, W6c)	33 Vdc
Cont Ip 21, Cont Ip 22, Cont Ip 23, Cont Ip 24(W7a, W7c, W8a, W8c)	33 Vdc

CONTACT OUTPUTS

[H1] Contact Output 1 ID	TRIP FASE A
[H1] Contact Output 1 Operate	TRIP 3-POLE
[H1] Contact Output 1 Seal-In	OFF
[H1] Contact Output 1 Events	Enabled

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[H2] Contact Output 2 ID	TRIP FASE B
[H2] Contact Output 2 Operate	TRIP 3-POLE
[H2] Contact Output 2 Seal-In	OFF
[H2] Contact Output 2 Events	Enabled
[H3] Contact Output 3 ID	TRIP FASE C
[H3] Contact Output 3 Operate	TRIP 3-POLE
[H3] Contact Output 3 Seal-In	OFF
[H3] Contact Output 3 Events	Enabled
[H4] Contact Output 4 ID	RETRIP A
[H4] Contact Output 4 Operate	BKR FAIL 1 RETRIP
[H4] Contact Output 4 Seal-In	OFF
[H4] Contact Output 4 Events	Enabled
[H5] Contact Output 5 ID	RETRIP B
[H5] Contact Output 5 Operate	BKR FAIL 1 RETRIP
[H5] Contact Output 5 Seal-In	OFF
[H5] Contact Output 5 Events	Enabled
[H6] Contact Output 6 ID	RETRIP C
[H6] Contact Output 6 Operate	BKR FAIL 1 RETRIP
[H6] Contact Output 6 Seal-In	OFF
[H6] Contact Output 6 Events	Enabled
[M1] Contact Output 7 ID	Alarma trip
[M1] Contact Output 7 Operate	Alarma trip On (VO10)
[M1] Contact Output 7 Seal-In	OFF
[M1] Contact Output 7 Events	Enabled
[M2] Contact Output 8 ID	FALLA RELE
[M2] Contact Output 8 Operate	Alarma f. re On (VO7)
[M2] Contact Output 8 Seal-In	OFF
[M2] Contact Output 8 Events	Enabled
[M4] Contact Output 10 ID	PARAR CAJA
[M4] Contact Output 10 Operate	TRIP 3-POLE
[M4] Contact Output 10 Seal-In	OFF
[M4] Contact Output 10 Events	Enabled
[P1] Contact Output 15 ID	79 cierre
[P1] Contact Output 15 Operate	ORD. CIERRE On (VO6)
[P1] Contact Output 15 Seal-In	OFF
[P1] Contact Output 15 Events	Enabled
[P2] Contact Output 16 ID	EMISION JAHU
[P2] Contact Output 16 Operate	TX MMOO On (VO12)
[P2] Contact Output 16 Seal-In	OFF
[P2] Contact Output 16 Events	Enabled
[P3] Contact Output 17 ID	EMISION ITAH
[P3] Contact Output 17 Operate	TX MMOO On (VO12)
[P3] Contact Output 17 Seal-In	OFF
[P3] Contact Output 17 Events	Enabled
[P4] Contact Output 18 ID	50BF-->barra
[P4] Contact Output 18 Operate	BKR FAIL 1 T1 OP
[P4] Contact Output 18 Seal-In	OFF
[P4] Contact Output 18 Events	Enabled
[P6] Contact Output 20 ID	Parada Caja
[P6] Contact Output 20 Operate	TRIP 3-POLE
[P6] Contact Output 20 Seal-In	OFF
[P6] Contact Output 20 Events	Disabled

VIRTUAL OUTPUTS

Virtual Output 1 ID	BLQ Zonas PH
Virtual Output 1 Events	Enabled
Virtual Output 2 ID	TRIP GRAL
Virtual Output 2 Events	Enabled
Virtual Output 3 ID	OSCILOGRAFIA
Virtual Output 3 Events	Enabled
Virtual Output 4 ID	pkp Z1o z2
Virtual Output 4 Events	Enabled
Virtual Output 6 ID	ORD. CIERRE
Virtual Output 6 Events	Enabled
Virtual Output 7 ID	Alarma f. re
Virtual Output 7 Events	Disabled
Virtual Output 8 ID	POWER SWING
Virtual Output 8 Events	Enabled
Virtual Output 10 ID	Alarma trip

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VERSION: 4.8X
DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 10 Events	Enabled
Virtual Output 11 ID	TX OPLAT
Virtual Output 11 Events	Enabled
Virtual Output 12 ID	TX MMOO
Virtual Output 12 Events	Disabled
Virtual Output 13 ID	LED Z1
Virtual Output 13 Events	Enabled
Virtual Output 14 ID	LED Z2
Virtual Output 14 Events	Enabled
Virtual Output 15 ID	LED Z3
Virtual Output 15 Events	Enabled
Virtual Output 16 ID	LED Z4
Virtual Output 16 Events	Enabled
Virtual Output 17 ID	79 on
Virtual Output 17 Events	Enabled
Virtual Output 18 ID	79 off
Virtual Output 18 Events	Enabled
Virtual Output 19 ID	reset led
Virtual Output 19 Events	Enabled
Virtual Output 22 ID	RECEP ACELER
Virtual Output 22 Events	Enabled
Virtual Output 23 ID	OPERA ZONA 1
Virtual Output 23 Events	Enabled
Virtual Output 24 ID	OPERA ZONA 2
Virtual Output 24 Events	Enabled
Virtual Output 25 ID	OPERA Z3/Z4
Virtual Output 25 Events	Enabled
Virtual Output 27 ID	67-67N
Virtual Output 27 Events	Enabled
Virtual Output 28 ID	51-51N
Virtual Output 28 Events	Enabled
Virtual Output 29 ID	50-50N
Virtual Output 29 Events	Enabled
Virtual Output 30 ID	Load encroch
Virtual Output 30 Events	Disabled
Virtual Output 31 ID	BLOQ 51
Virtual Output 31 Events	Enabled
Virtual Output 32 ID	REVERSE
Virtual Output 32 Events	Disabled
Virtual Output 33 ID	FORWARD
Virtual Output 33 Events	Disabled
Virtual Output 34 ID	BRK OPEN
Virtual Output 34 Events	Disabled
Virtual Output 35 ID	Z5 operada
Virtual Output 35 Events	Disabled
Virtual Output 36 ID	RECEP 3P
Virtual Output 36 Events	Enabled
Virtual Output 37 ID	ECHO 3P
Virtual Output 37 Events	Enabled
Virtual Output 38 ID	set grupo
Virtual Output 38 Events	Enabled
Virtual Output 39 ID	reset grupo
Virtual Output 39 Events	Enabled

RESETTING

Operand	reset led On (VO19)

CONTROL DE REVISIÓN DEL CRAP

REVISOR	FECHA	N° EAP	OBSERVACIONES
Max Missene M.	26-03-2015	Nº 02/2015	Normalización de ajustes con respecto al esquema de Teleprotecciones en el Sistema 2 protección GED60.
Max Missene M.	07-09-2015	Nº 75/2015	Cambio de ajustes para evitar que la Z1B actúe de forma instantánea en Sistema 1 protección Siemens 7SA61 .

Razón de TTCC/TTPP

TTCC: 1000/1

TTPP: $\frac{154000}{\sqrt{3}}/115/\ \frac{115}{\sqrt{3}}$

Particularidades de Ajustes

- No hay.

Max / Centro Sur / Tinguiririca / A9 TinguiV4.

MLFB:	7SA61215AB927PR4
Versión del juego de parámetros:	V04.63.04
Ruta del equipo:	C:\Siemens\Digsi4\D4PROJ\Max\P7DI\GV\ST\00000052
Autor:	
Creado el:	23.10.15 11:56:07
Mod. por última vez el:	23.10.15 12:05:13
Modo de operación:	Sin línea
Comentario:	
Valores de ajuste en:	Presentación secundaria de los valores

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1 Device Configuration

Nº	Función	Volumen
0103	Setting Group Change Option	Disabled
0110	Trip mode	1-/3pole
0114	Distance protection pickup program	Z< (quadrilateral)
0120	Power Swing detection	Enabled
0121	Teleprotection for Distance prot.	POTT
0122	DTT Direct Transfer Trip	Disabled
0124	Instantaneous HighSpeed SOTF Overcurrent	Enabled
0125	Weak Infeed (Trip and/or Echo)	Enabled
0126	Backup overcurrent	Time Overcurrent Curve IEC
0131	Earth fault overcurrent	Time Overcurrent Curve IEC
0132	Teleprotection for Earth fault overcurr.	Disabled
0133	Auto-Reclose Function	1 AR-cycle
0134	Auto-Reclose control mode	with Trip and Action time
0135	Synchronism and Voltage Check	Enabled
0136	Over / Underfrequency Protection	Disabled
0137	Under / Overvoltage Protection	Disabled
0138	Fault Locator	Enabled
0139	Breaker Failure Protection	Enabled
0140	Trip Circuit Supervision	Disabled
0142	Thermal overload protection	Disabled

2 Power System Data 1

2.1 Grupo Power System Data 1; Grupo Transformers

Grupo Power System Data 1; Grupo Transformers

Nº	Parámetro	Valor	Grupo
0201	CT Starpoint	towards Line	todo
0203	Rated Primary Voltage	154,0 kV	todo
0204	Rated Secondary Voltage (Ph-Ph)	115 V	todo
0205	CT Rated Primary Current	1000 A	todo
0206	CT Rated Secondary Current	1A	todo
0210	U4 voltage transformer is	Usy2 transformer	todo
0211	Matching ratio Phase-VT To Open-Delta-VT	0,58	todo
0212	VT connection for Usy2	L2-E	todo
0214A	Angle adjustment Usy2-Usy1	0 °	todo
0215	Matching ratio Usy1 / Usy2	1,00	todo
0220	I4 current transformer is	Neutral Current (of the protected line)	todo
0221	Matching ratio I4/Iph for CT's	1,000	todo

2.2 Grupo Power System Data 1; Grupo Power System

Grupo Power System Data 1; Grupo Power System

Nº	Parámetro	Valor	Grupo
0207	System Starpoint is	Solid Earthed	todo
0230	Rated Frequency	50 Hz	todo
0235	Phase Sequence	L1 L2 L3	todo
0236	Distance measurement unit	km	todo
0237	Setting format for zero seq.comp. format	Zero seq. comp. factor K0 and angle(K0)	todo
0238A	Earth Fault O/C: setting for 1pole AR	all stages together	todo

2.3 Grupo Power System Data 1; Grupo Breaker

Grupo Power System Data 1; Grupo Breaker

Nº	Parámetro	Valor	Grupo
0239	Closing (operating) time of CB	0,06 sec	todo
0240A	Minimum TRIP Command Duration	0,12 sec	todo
0241A	Maximum Close Command Duration	0,25 sec	todo
0242	Dead Time for CB test-autoreclosure	0,10 sec	todo

3 Grupos de parámetros

3.1 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	A
1104	Measurement: Full Scale Current (100%)	1000 A	A
1105	Line Angle	77 °	A
1211	Angle of inclination, distance charact.	77 °	A
1107	P,Q operational measured values sign	not reversed	A
1110	x' - Line Reactance per length unit	0,3050 Ohm / km	A
1111	Line Length	110,9 km	A
1120	Zero seq. comp. factor K0 for zone Z1	0,804	A
1121	Zero seq. comp. angle for zone Z1	4,64 °	A
1122	Zero seq.comp.factor K0,higher zones >Z1	0,804	A
1123	Zero seq. comp. angle, higher zones >Z1	4,64 °	A

3.2 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,05 A	A
1131A	Pole Open Voltage Threshold	11 V	A
1132A	Seal-in Time after ALL closures	0,20 sec	A
1133A	minimal time for line open before SOTF	0,25 sec	A
1134	Recognition of Line Closures with	CBaux OR Current or Manual close BI	A
1135	RESET of Trip Command	with Pole Open Current Threshold only	A
1136	open pole detector	with measurement (U/I,trip,pickup,CBaux)	A
1140A	CT Saturation Threshold	oo A	A
1150A	Seal-in Time after MANUAL closures	0,20 sec	A
1151	Manual CLOSE COMMAND generation	NO	A
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.3 Grupo Power System Data 2; Grupo Trip 1-/3-pole

Grupo Power System Data 2; Grupo Trip 1-/3-pole

Nº	Parámetro	Valor	Grupo
1155	3 pole coupling	with Trip	A
1156A	Trip type with 2phase faults	3pole	A

3.4 Grupo Distance protection, general settings; Grupo General

Grupo Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	Distance protection	ON	A
1202	Phase Current threshold for dist. meas.	0,05 A	A
1211	Angle of inclination, distance charact.	77 °	A
1208	Series compensated line	NO	A
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	A
1241	R load, minimum Load Impedance (ph-e)	oo Ohm	A
1242	PHI load, maximum Load Angle (ph-e)	35 °	A
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	A
1244	PHI load, maximum Load Angle (ph-ph)	35 °	A
1317A	Single pole trip for faults in Z2	NO	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.5 Grupo Distance protection, general settings; Grupo Earth faults

Grupo Distance protection, general settings; Grupo Earth faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,05 A	A
1204	3U0 threshold zero seq. voltage pickup	2 V	A
1207A	3I0>-pickup-stabilisation (3I0> /Iphmax)	0,10	A
1209A	criterion of earth fault recognition	3I0> OR 3U0>	A
1221A	Loop selection with 2Ph-E faults	all loops	A

3.6 Grupo Distance protection, general settings; Grupo Time Delays

Grupo Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	Condition for zone timer start	with distance pickup	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1325	T3 delay	2,50 sec	A
1335	T4 delay	1,50 sec	A
1345	T5 delay	oo sec	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A

3.7 Grupo Distance zones (quadrilateral); Grupo Zone Z1

Grupo Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	A
1302	R(Z1), Resistance for ph-ph-faults	19,494 Ohm	A
1303	X(Z1), Reactance	19,494 Ohm	A
1304	RE(Z1), Resistance for ph-e faults	19,494 Ohm	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1307	Zone Reduction Angle (load compensation)	0 °	A

3.8 Grupo Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	A
1352	R(Z1B), Resistance for ph-ph-faults	68,181 Ohm	A
1353	X(Z1B), Reactance	68,181 Ohm	A
1354	RE(Z1B), Resistance for ph-e faults	68,181 Ohm	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.9 Grupo Distance zones (quadrilateral); Grupo Zone Z2

Grupo Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	A
1312	R(Z2), Resistance for ph-ph-faults	34,798 Ohm	A
1313	X(Z2), Reactance	34,798 Ohm	A
1314	RE(Z2), Resistance for ph-e faults	34,798 Ohm	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1317A	Single pole trip for faults in Z2	NO	A

3.10 Grupo Distance zones (quadrilateral); Grupo Zone Z3

Grupo Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	A
1322	R(Z3), Resistance for ph-ph-faults	67,750 Ohm	A
1323	X(Z3), Reactance	67,750 Ohm	A
1324	RE(Z3), Resistance for ph-e faults	67,750 Ohm	A
1325	T3 delay	2,50 sec	A

3.11 Grupo Distance zones (quadrilateral); Grupo Zone Z4

Grupo Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	A
1332	R(Z4), Resistance for ph-ph-faults	66,957 Ohm	A
1333	X(Z4), Reactance	66,957 Ohm	A
1334	RE(Z4), Resistance for ph-e faults	66,957 Ohm	A
1335	T4 delay	1,50 sec	A

3.12 Grupo Distance zones (quadrilateral); Grupo Zone Z5

Grupo Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	A
1342	R(Z5), Resistance for ph-ph-faults	70,000 Ohm	A
1343	X(Z5)+, Reactance for Forward direction	70,000 Ohm	A
1344	RE(Z5), Resistance for ph-e faults	70,000 Ohm	A
1345	T5 delay	oo sec	A
1346	X(Z5)-, Reactance for Reverse direction	70,000 Ohm	A

3.13 Grupo Power Swing

Grupo Power Swing

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	A
2006	Power swing trip	NO	A
2007	Trip delay after Power Swing Blocking	0,10 sec	A

3.14 Grupo Teleprotection for Distance prot.

Grupo Teleprotection for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	Teleprotection for Distance protection	ON	A
2102	Type of Line	Three Terminals	A
2103A	Time for send signal prolongation	0,10 sec	A
2109A	Transient Block.: Duration external flt.	0,03 sec	A
2110A	Transient Block.: Blk.T. after ext. flt.	0,17 sec	A

3.15 Grupo Instantaneous HighSpeed SOTF Overcurrent

Grupo Instantaneous HighSpeed SOTF Overcurrent

Nº	Parámetro	Valor	Grupo
2401	Inst. High Speed SOTF-O/C is	ON	A

Grupo Instantaneous HighSpeed SOTF Overcurrent(2)

Nº	Parámetro	Valor	Grupo
2404	I>>> Pickup	0,80 A	A

3.16 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed function	Echo only	A
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	A
2503A	Trip Extension / Echo Impulse time	0,10 sec	A
2504A	Echo Block Time	0,50 sec	A
2505	Undervoltage (ph-e)	24 V	A
2509	Echo logic: Dis and EF on common channel	NO	todo

3.17 Grupo Backup overcurrent; Grupo General

Grupo Backup overcurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	A
2680	Trip time delay after SOTF	0,00 sec	A

3.18 Grupo Backup overcurrent; Grupo I>>

Grupo Backup overcurrent; Grupo I>>

Nº	Parámetro	Valor	Grupo
2610	Iph>> Pickup	oo A	A
2611	T Iph>> Time delay	oo sec	A
2612	3I0>> Pickup	oo A	A
2613	T 3I0>> Time delay	oo sec	A
2614	Instantaneous trip via BI	NO	A
2615	Instantaneous trip after SwitchOnToFault	NO	A

3.19 Grupo Backup overcurrent; Grupo I>

Grupo Backup overcurrent; Grupo I>

Nº	Parámetro	Valor	Grupo
2620	Iph> Pickup	oo A	A
2621	T Iph> Time delay	oo sec	A
2622	3I0> Pickup	oo A	A
2623	T 3I0> Time delay	oo sec	A
2624	Instantaneous trip via Teleprot./BI	NO	A
2625	Instantaneous trip after SwitchOnToFault	NO	A

3.20 Grupo Backup overcurrent; Grupo Inverse

Grupo Backup overcurrent; Grupo Inverse

Nº	Parámetro	Valor	Grupo
2640	Ip> Pickup	0,72 A	A
2642	T Ip Time Dial	0,10 sec	A
2646	T Ip Additional Time Delay	0,00 sec	A
2650	3I0p Pickup	0,05 A	A
2652	T 3I0p Time Dial	0,30 sec	A
2656	T 3I0p Additional Time Delay	0,00 sec	A
2660	IEC Curve	Normal Inverse	A
2670	Instantaneous trip via Teleprot./BI	NO	A
2671	Instantaneous trip after SwitchOnToFault	NO	A

3.21 Grupo Backup overcurrent; Grupo I - STUB

Grupo Backup overcurrent; Grupo I - STUB

Nº	Parámetro	Valor	Grupo
2630	Iph> STUB Pickup	oo A	A
2631	T Iph STUB Time delay	oo sec	A
2632	3I0> STUB Pickup	oo A	A
2633	T 3I0 STUB Time delay	oo sec	A
2634	Instantaneous trip via Teleprot./BI	NO	A
2635	Instantaneous trip after SwitchOnToFault	NO	A

3.22 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	A
2902A	Voltage Threshold for Balance Monitoring	48 V	A
2903A	Balance Factor for Voltage Monitor	0,75	A
2904A	Current Balance Monitor	0,10 A	A
2905A	Balance Factor for Current Monitor	0,50	A
2906A	Summated Current Monitoring Threshold	0,06 A	A
2907A	Summated Current Monitoring Factor	0,10	A
2908A	T Balance Factor for Voltage Monitor	5 sec	A
2909A	T Current Balance Monitor	5 sec	A

3.23 Grupo Measurement Supervision; Grupo Fuse Fail. Mon.

Grupo Measurement Supervision; Grupo Fuse Fail. Mon.

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	A
2911A	Minimum Voltage Threshold U>	29 V	A
2912A	Maximum Current Threshold I<	0,10 A	A
2913A	Maximum Voltage Threshold U< (3phase)	5 V	A
2914A	Delta Current Threshold (3phase)	0,06 A	A
2915	Voltage Failure Supervision	with current superv. and CBaux	A
2916A	Delay Voltage Failure Supervision	3,00 sec	A

3.24 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	A

3.25 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	A
2942	Limit setting PhiB	340 °	A
2943	Minimum value I1>	0,05 A	A
2944	Minimum value U1>	19 V	A

3.26 Grupo Earth fault overcurrent; Grupo General

Grupo Earth fault overcurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	Earth Fault overcurrent function	ON	A
3102	Block E/F for Distance protection	NO	A
3174	Block E/F for Distance Protection Pickup	in each zone	A
3103	Block E/F for 1pole Dead time	YES	A
3104A	Stabilisation Slope with Iphase	10 %	A
3109	Single pole trip with earth flt.prot.	YES	A
3170	2nd harmonic ratio for inrush restraint	20 %	A
3171	Max.Current, overriding inrush restraint	4,50 A	A
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	A
3173	Trip time delay after SOTF	0,00 sec	A

3.27 Grupo Earth fault overcurrent; Grupo 3I0>>>

Grupo Earth fault overcurrent; Grupo 3I0>>>

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Inactive	A
3111	3I0>>> Pickup	4,00 A	A
3112	T 3I0>>> Time delay	0,30 sec	A
3113	Instantaneous trip via Teleprot./BI	NO	A
3114	Instantaneous trip after SwitchOnToFault	NO	A
3115	Inrush Blocking	NO	A

3.28 Grupo Earth fault overcurrent; Grupo 3I0>>

Grupo Earth fault overcurrent; Grupo 3I0>>

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	A
3121	3I0>> Pickup	2,00 A	A
3122	T 3I0>> Time Delay	0,60 sec	A
3123	Instantaneous trip via Teleprot./BI	NO	A
3124	Instantaneous trip after SwitchOnToFault	NO	A
3125	Inrush Blocking	NO	A

3.29 Grupo Earth fault overcurrent; Grupo 3I0>

Grupo Earth fault overcurrent; Grupo 3I0>

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	A
3131	3I0> Pickup	1,00 A	A
3132	T 3I0> Time Delay	0,90 sec	A
3133	Instantaneous trip via Teleprot./BI	NO	A
3134	Instantaneous trip after SwitchOnToFault	NO	A
3135	Inrush Blocking	NO	A

3.30 Grupo Earth fault overcurrent; Grupo 3I0 InverseTime

Grupo Earth fault overcurrent; Grupo 3I0 InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	A
3141	3I0p Pickup	0,05 A	A
3143	3I0p Time Dial	0,30 sec	A
3147	Additional Time Delay	0,00 sec	A
3148	Instantaneous trip via Teleprot./BI	NO	A
3149	Instantaneous trip after SwitchOnToFault	NO	A
3150	Inrush Blocking	NO	A
3151	IEC Curve	Normal Inverse	A

3.31 Grupo Earth fault overcurrent; Grupo Direction

Grupo Earth fault overcurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with U0 + IY or U2	A
3162A	ALPHA, lower angle for forward direction	338 °	A
3163A	BETA, upper angle for forward direction	122 °	A
3164	Min. zero seq.voltage 3U0 for polarizing	3,0 V	A
3166	Min. neg. seq. polarizing voltage 3U2	3,0 V	A
3167	Min. neg. seq. polarizing current 3I2	0,05 A	A
3168	Compensation angle PHI comp. for Sr	255 °	A
3169	Forward direction power threshold	0,9 VA	A

3.32 Grupo Automatic Reclosure; Grupo General

Grupo Automatic Reclosure; Grupo General

Nº	Parámetro	Valor	Grupo
3401	Auto-Reclose function	ON	A
3402	CB ready interrogation at 1st trip	YES	A
3403	Reclaim time after successful AR cycle	8,00 sec	A
3404	AR blocking duration after manual close	8,00 sec	A
3406	Evolving fault recognition	with Trip	A
3407	Evolving fault (during the dead time)	blocks AR	A
3408	AR start-signal monitoring time	0,20 sec	A
3409	Circuit Breaker (CB) Supervision Time	3,00 sec	A
3410	Send delay for remote close command	oo sec	A
3411A	Maximum dead time extension	oo sec	A

3.33 Grupo Automatic Reclosure; Grupo 1st AR-cyle

Grupo Automatic Reclosure; Grupo 1st AR-cyle

Nº	Parámetro	Valor	Grupo
3450	Start of AR allowed in this cycle	YES	A
3451	Action time	0,20 sec	A
3456	Dead time after 1pole trip	1,20 sec	A
3457	Dead time after 3pole trip	0,50 sec	A
3458	Dead time after evolving fault	1,00 sec	A
3459	CB ready interrogation before reclosing	YES	A
3460	Request for synchro-check after 3pole AR	YES	A

3.34 Grupo Automatic Reclosure; Grupo 3pTRIP/DLC/RDT

Grupo Automatic Reclosure; Grupo 3pTRIP/DLC/RDT

Nº	Parámetro	Valor	Grupo
3430	3pole TRIP by AR	YES	A
3431	Dead Line Check or Reduced Dead Time	Without	A
3438	Supervision time for dead/ live voltage	0,10 sec	A
3440	Voltage threshold for live line or bus	46 V	A
3441	Voltage threshold for dead line or bus	27 V	A

3.35 Grupo Automatic Reclosure; Grupo Start AR with..

Grupo Automatic Reclosure; Grupo Start AR with..

Nº	Parámetro	Valor	Grupo
3420	AR with distance protection	YES	A
3421	AR with switch-onto-fault overcurrent	NO	A
3422	AR with weak infeed tripping	NO	A
3423	AR with earth fault overcurrent prot.	NO	A
3425	AR with back-up overcurrent	NO	A

3.36 Grupo Synchronism and Voltage Check; Grupo General

Grupo Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	Synchronism and Voltage Check function	ON	A
3502	Voltage threshold dead line / bus	23 V	A
3503	Voltage threshold live line / bus	81 V	A
3504	Maximum permissible voltage	138 V	A
3507	Maximum duration of synchronism-check	1,00 sec	A
3508	Synchronous condition stability timer	0,10 sec	A
3509	Synchronizable circuit breaker	<none>	todo

3.37 Grupo Synchronism and Voltage Check; Grupo with AR

Grupo Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of CB closing time	A
3511	Maximum voltage difference	30,0 V	A
3512	Maximum frequency difference	0,10 Hz	A
3513	Maximum angle difference	30 °	A
3515A	AR at Usy2>, Usy1>, and Synchr.	YES	A
3516	AR at Usy1< and Usy2>	NO	A
3517	AR at Usy1> and Usy2<	NO	A
3518	AR at Usy1< and Usy2<	NO	A
3519	Override of any check before AR	NO	A

3.38 Grupo Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of CB closing time	A
3531	Maximum voltage difference	9,5 V	A
3532	Maximum frequency difference	0,10 Hz	A
3533	Maximum angle difference	10 °	A
3535A	Manual Close at Usy2>, Usy1>, and Synchr	NO	A
3536	Manual Close at Usy1< and Usy2>	NO	A
3537	Manual Close at Usy1> and Usy2<	NO	A
3538	Manual Close at Usy1< and Usy2<	NO	A
3539	Override of any check before Man.Cl	NO	A

3.39 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	A
3806	Load Compensation	YES	A

3.40 Grupo Breaker Failure; Grupo Breaker Failure

Grupo Breaker Failure; Grupo Breaker Failure

Nº	Parámetro	Valor	Grupo
3901	Breaker Failure Protection	ON	A
3902	Pick-up threshold I>	0,15 A	A
3903	1pole retrip with stage T1 (local trip)	NO	A
3904	T1, Delay after 1pole start (local trip)	0,01 sec	A
3905	T1, Delay after 3pole start (local trip)	0,01 sec	A
3906	T2, Delay of 2nd stage (busbar trip)	0,20 sec	A
3907	T3, Delay for start with defective bkr.	0,00 sec	A
3908	Trip output selection with defective bkr	NO	A
3909	Check Breaker contacts	YES	A

3.41 Grupo Breaker Failure; Grupo End fault prot.

Grupo Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault protection	OFF	A
3922	Trip delay of end fault protection	2,00 sec	A

3.42 Grupo Breaker Failure; Grupo PoleDiscrepancy

Grupo Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	A
3932	Trip delay with pole discrepancy	2,00 sec	A

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

RELAY INFORMATION

Main Firmware:	570
Boot Firmware:	301
Relay Serial Number:	AE5C09000046
CPU Serial Number:	A9KC09002060
F8L Module Serial Number	A8LC08003420
H6U Module Serial Number	A6UC08001774
M6U Module Serial Number	A6UC08001807
P6U Module Serial Number	A6UC08001790
U6U Module Serial Number	A6UC08001801
W6T Module Serial Number	A6TC08000982
Settings Send to Relay	Saturday, February 07, 2015 08:50:11

PRODUCT SETUP

SECURITY

Command Password	0
Setting Password	0
Command Password Access Timeout	5 min
Setting Password Access Timeout	30 min
Invalid Password Attempts	3
Password Lockout Duration	5 min
Password Access Events	Disabled
Local Setting Authorized	ON
Remote Setting Authorized	ON
Access Authorized Timeout	30 min

DISPLAY PROPERTIES

Flash Message Time	1.0 s
Default Message Timeout	300 s
Default Message Intensity (VFD Only)	25 %
Screen Saver Feature (LCD Only)	Enabled
Screen Saver Wait Time (LCD Only)	30 min
Current Cutoff Level	0.020 pu
Voltage Cutoff Level	1.0 V

COMMUNICATIONS

SERIAL PORTS

RS485 Com2 Baud Rate	19200
RS485 Com2 Parity	None
RS485 Com2 Response Min Time	0 ms

NETWORK

IP Address	192.168.104. 40
IP Subnet Mask	0. 0. 0. 0
Gateway IP Address	127. 0. 0. 1
Ethernet Operation Mode	Full-Duplex
OSI Network Address (NSAP)	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

MODBUS PROTOCOL

Modbus Slave Address	40
Modbus TCP Port Number	502

DNP PROTOCOL

DNP Channel 1 Port	NETWORK - TCP
DNP Channel 2 Port	NONE
DNP Address	40
DNP Client Address 1	192.168.104.101
DNP Client Address 2	0. 0. 0. 0
DNP Client Address 3	0. 0. 0. 0
DNP Client Address 4	0. 0. 0. 0
DNP Client Address 5	0. 0. 0. 0
DNP TCP/UDP Port Number	20000
DNP Unsol Resp Function	Disabled
DNP Unsol Resp Timeout	5 s
DNP Unsol Resp Max Retries	10
DNP Unsol Resp Dest Addr	1

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

DNP PROTOCOL (continued from last page)

DNP Current Scale Factor	0.1
DNP Voltage Scale Factor	100
DNP Power Scale Factor	100000
DNP Energy Scale Factor	1
DNP Power Factor Scale Factor	1
DNP Other Scale Factor	0.1
DNP Current Default Deadband	30000
DNP Voltage Default Deadband	30000
DNP Power Default Deadband	30000
DNP Energy Default Deadband	30000
DNP Power Factor Default Deadband	30000
DNP Other Default Deadband	30000
DNP Time Sync IIN Period	1440 min
DNP Message Fragment Size	240
DNP Object 1 Default Variation	2
DNP Object 2 Default Variation	2
DNP Object 20 Default Variation	1
DNP Object 21 Default Variation	1
DNP Object 22 Default Variation	1
DNP Object 23 Default Variation	1
DNP Object 30 Default Variation	2
DNP Object 32 Default Variation	1
DNP Number of Paired Controls	0
DNP TCP Connection Timeout	120 s

DNP - IEC104 POINTS LISTS

DNP Binary Input Point 0	DNP 79 BLOQ On (VO30)
DNP Binary Input Point 1	DNP 79 ON On (VO31)
DNP Binary Input Point 2	DNP TP LINEA On (VO32)
DNP Binary Input Point 3	DNP TP BARRA On (VO33)
DNP Binary Input Point 4	DNP RX RAN On (VO34)
DNP Binary Input Point 5	DNP TX 85A On (VO35)
DNP Binary Input Point 6	DNP RX JAH On (VO36)
DNP Binary Input Point 7	DNP ECHO On (VO37)
DNP Binary Input Point 8	DNP 79 CLOSE On (VO38)
DNP Binary Input Point 9	DNP 21/21N On (VO39)
DNP Binary Input Point 10	DNP 67N On (VO40)
DNP Binary Input Point 11	DNP 50BF On (VO41)
DNP Binary Input Point 12	DNP Z1B On (VO42)
DNP Binary Input Point 13	DNP Z1 On (VO43)
DNP Binary Input Point 14	DNP Z2 On (VO44)
DNP Binary Input Point 15	DNP Z3 On (VO45)
DNP Binary Input Point 16	DNP Z4 On (VO46)
DNP Binary Input Point 17	DNP 51/51N On (VO47)
DNP Binary Input Point 18	DNP TRIP A On (VO48)
DNP Binary Input Point 19	DNP TRIP B On (VO49)
DNP Binary Input Point 20	DNP TRIP C On (VO50)
DNP Binary Input Point 21	DNP TRIP GND On (VO51)
DNP Binary Input Point 22	DNP TRIP S1 On (VO52)
DNP Binary Input Point 23	DNP PICKUP On (VO53)
DNP Binary Input Point 24	DNP MOD EMER On (VO54)
DNP Binary Input Point 25	DNP SOTF On (VO55)
DNP Binary Input Point 26	DNP VT FAIL On (VO56)
DNP Binary Input Point 27	DNP PSWING On (VO57)
DNP Binary Input Point 28	DNP 79BLQ EX On (VO58)
DNP Binary Input Point 29	DNP RX85D On (VO59)
DNP Binary Input Point 30	DNP TX85D On (VO60)
DNP Binary Input Point 31	DNP INC PCOR On (VO61)
DNP Analog Input Point 0	Fault Location [1]

IEC 61850
GSSE / GOOSE CONFIGURATION
TRANSMISSION
GENERAL

Default GSSE/GOOSE Update Time	60 s

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

GSSE

Function	Enabled
ID	GSSEOut
Destination MAC	00 00 00 00 00 00

TX CONFIGURABLE GOOSE

GOOSEOut 1 Function	Enabled
GOOSEOut 1 ID	GOOSEOut_1
GOOSEOut 1 Destination MAC	00 00 00 00 00 00
GOOSEOut 1 VLAN Priority	4
GOOSEOut 1 VLAN ID	0
GOOSEOut 1 ETYPE APPID	0
GOOSEOut 1 ConfRev	1
GOOSEOut 1 Retransmission Curve	Relaxed
GOOSEOut 2 Function	Enabled
GOOSEOut 2 ID	GOOSEOut_2
GOOSEOut 2 Destination MAC	00 00 00 00 00 00
GOOSEOut 2 VLAN Priority	4
GOOSEOut 2 VLAN ID	0
GOOSEOut 2 ETYPE APPID	0
GOOSEOut 2 ConfRev	1
GOOSEOut 2 Retransmission Curve	Relaxed
GOOSEOut 3 Function	Enabled
GOOSEOut 3 ID	GOOSEOut_3
GOOSEOut 3 Destination MAC	00 00 00 00 00 00
GOOSEOut 3 VLAN Priority	4
GOOSEOut 3 VLAN ID	0
GOOSEOut 3 ETYPE APPID	0
GOOSEOut 3 ConfRev	1
GOOSEOut 3 Retransmission Curve	Relaxed
GOOSEOut 4 Function	Enabled
GOOSEOut 4 ID	GOOSEOut_4
GOOSEOut 4 Destination MAC	00 00 00 00 00 00
GOOSEOut 4 VLAN Priority	4
GOOSEOut 4 VLAN ID	0
GOOSEOut 4 ETYPE APPID	0
GOOSEOut 4 ConfRev	1
GOOSEOut 4 Retransmission Curve	Relaxed
GOOSEOut 5 Function	Enabled
GOOSEOut 5 ID	GOOSEOut_5
GOOSEOut 5 Destination MAC	00 00 00 00 00 00
GOOSEOut 5 VLAN Priority	4
GOOSEOut 5 VLAN ID	0
GOOSEOut 5 ETYPE APPID	0
GOOSEOut 5 ConfRev	1
GOOSEOut 5 Retransmission Curve	Relaxed
GOOSEOut 6 Function	Enabled
GOOSEOut 6 ID	GOOSEOut_6
GOOSEOut 6 Destination MAC	00 00 00 00 00 00
GOOSEOut 6 VLAN Priority	4
GOOSEOut 6 VLAN ID	0
GOOSEOut 6 ETYPE APPID	0
GOOSEOut 6 ConfRev	1
GOOSEOut 6 Retransmission Curve	Relaxed
GOOSEOut 7 Function	Enabled
GOOSEOut 7 ID	GOOSEOut_7
GOOSEOut 7 Destination MAC	00 00 00 00 00 00
GOOSEOut 7 VLAN Priority	4
GOOSEOut 7 VLAN ID	0
GOOSEOut 7 ETYPE APPID	0
GOOSEOut 7 ConfRev	1
GOOSEOut 7 Retransmission Curve	Relaxed
GOOSEOut 8 Function	Enabled
GOOSEOut 8 ID	GOOSEOut_8
GOOSEOut 8 Destination MAC	00 00 00 00 00 00

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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

TX CONFIGURABLE GOOSE (continued from last page)

GOOSEOut 8 VLAN Priority	4
GOOSEOut 8 VLAN ID	0
GOOSEOut 8 ETYPE APPID	0
GOOSEOut 8 ConfRev	1
GOOSEOut 8 Retransmission Curve	Relaxed

SERVER CONFIGURATION

IEDName	IEDName
Logical Device Instance	LDInst
MMS TCP Port Number	102
LPHD DC PhyNam location	Location

MMXU DEADBANDS

MMXU1: TotW Deadband	10.000 %
MMXU1: TotVAr Deadband	10.000 %
MMXU1: TotVA Deadband	10.000 %
MMXU1: TotPF Deadband	10.000 %
MMXU1: Hz Deadband	10.000 %
MMXU1: PPV phsAB Deadband	10.000 %
MMXU1: PPV phsBC Deadband	10.000 %
MMXU1: PPV phsCA Deadband	10.000 %
MMXU1: PhV phsA Deadband	10.000 %
MMXU1: PhV phsB Deadband	10.000 %
MMXU1: PhV phsC Deadband	10.000 %
MMXU1: A phsA Deadband	10.000 %
MMXU1: A phsB Deadband	10.000 %
MMXU1: A phsC Deadband	10.000 %
MMXU1: A neut Deadband	10.000 %
MMXU1: W phsA Deadband	10.000 %
MMXU1: W phsB Deadband	10.000 %
MMXU1: W phsC Deadband	10.000 %
MMXU1: VAr phsA Deadband	10.000 %
MMXU1: VAr phsB Deadband	10.000 %
MMXU1: VAr phsC Deadband	10.000 %
MMXU1: VA phsA Deadband	10.000 %
MMXU1: VA phsB Deadband	10.000 %
MMXU1: VA phsC Deadband	10.000 %
MMXU1: PF phsA Deadband	10.000 %
MMXU1: PF phsB Deadband	10.000 %
MMXU1: PF phsC Deadband	10.000 %
MMXU2: TotW Deadband	10.000 %
MMXU2: TotVAr Deadband	10.000 %
MMXU2: TotVA Deadband	10.000 %
MMXU2: TotPF Deadband	10.000 %
MMXU2: Hz Deadband	10.000 %
MMXU2: PPV phsAB Deadband	10.000 %
MMXU2: PPV phsBC Deadband	10.000 %
MMXU2: PPV phsCA Deadband	10.000 %
MMXU2: PhV phsA Deadband	10.000 %
MMXU2: PhV phsB Deadband	10.000 %
MMXU2: PhV phsC Deadband	10.000 %
MMXU2: A phsA Deadband	10.000 %
MMXU2: A phsB Deadband	10.000 %
MMXU2: A phsC Deadband	10.000 %
MMXU2: A neut Deadband	10.000 %
MMXU2: W phsA Deadband	10.000 %
MMXU2: W phsB Deadband	10.000 %
MMXU2: W phsC Deadband	10.000 %
MMXU2: VAr phsA Deadband	10.000 %
MMXU2: VAr phsB Deadband	10.000 %
MMXU2: VAr phsC Deadband	10.000 %
MMXU2: VA phsA Deadband	10.000 %
MMXU2: VA phsB Deadband	10.000 %
MMXU2: VA phsC Deadband	10.000 %
MMXU2: PF phsA Deadband	10.000 %

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DEVICE DEFINITION
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VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

MMXU DEADBANDS (continued from last page)

MMXU2: PF phsB Deadband	10.000 %
MMXU2: PF phsC Deadband	10.000 %

GGIO1 STATUS CONFIGURATION

Number of Status Points	8

GGIO2 CONTROL CONFIGURATION

SPCSO 1 ctlModel	1
SPCSO 2 ctlModel	1
SPCSO 3 ctlModel	1
SPCSO 4 ctlModel	1
SPCSO 5 ctlModel	1
SPCSO 6 ctlModel	1
SPCSO 7 ctlModel	1
SPCSO 8 ctlModel	1
SPCSO 9 ctlModel	1
SPCSO 10 ctlModel	1
SPCSO 11 ctlModel	1
SPCSO 12 ctlModel	1
SPCSO 13 ctlModel	1
SPCSO 14 ctlModel	1
SPCSO 15 ctlModel	1
SPCSO 16 ctlModel	1
SPCSO 17 ctlModel	1
SPCSO 18 ctlModel	1
SPCSO 19 ctlModel	1
SPCSO 20 ctlModel	1
SPCSO 21 ctlModel	1
SPCSO 22 ctlModel	1
SPCSO 23 ctlModel	1
SPCSO 24 ctlModel	1
SPCSO 25 ctlModel	1
SPCSO 26 ctlModel	1
SPCSO 27 ctlModel	1
SPCSO 28 ctlModel	1
SPCSO 29 ctlModel	1
SPCSO 30 ctlModel	1
SPCSO 31 ctlModel	1
SPCSO 32 ctlModel	1
SPCSO 33 ctlModel	1
SPCSO 34 ctlModel	1
SPCSO 35 ctlModel	1
SPCSO 36 ctlModel	1
SPCSO 37 ctlModel	1
SPCSO 38 ctlModel	1
SPCSO 39 ctlModel	1
SPCSO 40 ctlModel	1
SPCSO 41 ctlModel	1
SPCSO 42 ctlModel	1
SPCSO 43 ctlModel	1
SPCSO 44 ctlModel	1
SPCSO 45 ctlModel	1
SPCSO 46 ctlModel	1
SPCSO 47 ctlModel	1
SPCSO 48 ctlModel	1
SPCSO 49 ctlModel	1
SPCSO 50 ctlModel	1
SPCSO 51 ctlModel	1
SPCSO 52 ctlModel	1
SPCSO 53 ctlModel	1
SPCSO 54 ctlModel	1
SPCSO 55 ctlModel	1
SPCSO 56 ctlModel	1
SPCSO 57 ctlModel	1
SPCSO 58 ctlModel	1

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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

GGIO2 CONTROL CONFIGURATION (continued from last page)

SPCSO 59 ctlModel	1
SPCSO 60 ctlModel	1
SPCSO 61 ctlModel	1
SPCSO 62 ctlModel	1
SPCSO 63 ctlModel	1
SPCSO 64 ctlModel	1

GGIO4 ANALOG CONFIGURATION

IEC61850 GGIO4 Analogs	4
IEC61850 GGIO4 Analog 1 Value	OFF
IEC61850 GGIO4 Analog 1 db	100.000 %
IEC61850 GGIO4 Analog 1 min	0.000
IEC61850 GGIO4 Analog 1 max	1000000.000
IEC61850 GGIO4 Analog 2 Value	OFF
IEC61850 GGIO4 Analog 2 db	100.000 %
IEC61850 GGIO4 Analog 2 min	0.000
IEC61850 GGIO4 Analog 2 max	1000000.000
IEC61850 GGIO4 Analog 3 Value	OFF
IEC61850 GGIO4 Analog 3 db	100.000 %
IEC61850 GGIO4 Analog 3 min	0.000
IEC61850 GGIO4 Analog 3 max	1000000.000
IEC61850 GGIO4 Analog 4 Value	OFF
IEC61850 GGIO4 Analog 4 db	100.000 %
IEC61850 GGIO4 Analog 4 min	0.000
IEC61850 GGIO4 Analog 4 max	1000000.000
IEC61850 GGIO4 Analog 5 Value	OFF
IEC61850 GGIO4 Analog 5 db	100.000 %
IEC61850 GGIO4 Analog 5 min	0.000
IEC61850 GGIO4 Analog 5 max	1000000.000
IEC61850 GGIO4 Analog 6 Value	OFF
IEC61850 GGIO4 Analog 6 db	100.000 %
IEC61850 GGIO4 Analog 6 min	0.000
IEC61850 GGIO4 Analog 6 max	1000000.000
IEC61850 GGIO4 Analog 7 Value	OFF
IEC61850 GGIO4 Analog 7 db	100.000 %
IEC61850 GGIO4 Analog 7 min	0.000
IEC61850 GGIO4 Analog 7 max	1000000.000
IEC61850 GGIO4 Analog 8 Value	OFF
IEC61850 GGIO4 Analog 8 db	100.000 %
IEC61850 GGIO4 Analog 8 min	0.000
IEC61850 GGIO4 Analog 8 max	1000000.000
IEC61850 GGIO4 Analog 9 Value	OFF
IEC61850 GGIO4 Analog 9 db	100.000 %
IEC61850 GGIO4 Analog 9 min	0.000
IEC61850 GGIO4 Analog 9 max	1000000.000
IEC61850 GGIO4 Analog 10 Value	OFF
IEC61850 GGIO4 Analog 10 db	100.000 %
IEC61850 GGIO4 Analog 10 min	0.000
IEC61850 GGIO4 Analog 10 max	1000000.000
IEC61850 GGIO4 Analog 11 Value	OFF
IEC61850 GGIO4 Analog 11 db	100.000 %
IEC61850 GGIO4 Analog 11 min	0.000
IEC61850 GGIO4 Analog 11 max	1000000.000
IEC61850 GGIO4 Analog 12 Value	OFF
IEC61850 GGIO4 Analog 12 db	100.000 %
IEC61850 GGIO4 Analog 12 min	0.000
IEC61850 GGIO4 Analog 12 max	1000000.000
IEC61850 GGIO4 Analog 13 Value	OFF
IEC61850 GGIO4 Analog 13 db	100.000 %
IEC61850 GGIO4 Analog 13 min	0.000
IEC61850 GGIO4 Analog 13 max	1000000.000
IEC61850 GGIO4 Analog 14 Value	OFF
IEC61850 GGIO4 Analog 14 db	100.000 %
IEC61850 GGIO4 Analog 14 min	0.000
IEC61850 GGIO4 Analog 14 max	1000000.000

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

GGIO4 ANALOG CONFIGURATION (continued from last page)

IEC61850 GGIO4 Analog 15 Value	OFF
IEC61850 GGIO4 Analog 15 db	100.000 %
IEC61850 GGIO4 Analog 15 min	0.000
IEC61850 GGIO4 Analog 15 max	1000000.000
IEC61850 GGIO4 Analog 16 Value	OFF
IEC61850 GGIO4 Analog 16 db	100.000 %
IEC61850 GGIO4 Analog 16 min	0.000
IEC61850 GGIO4 Analog 16 max	1000000.000
IEC61850 GGIO4 Analog 17 Value	OFF
IEC61850 GGIO4 Analog 17 db	100.000 %
IEC61850 GGIO4 Analog 17 min	0.000
IEC61850 GGIO4 Analog 17 max	1000000.000
IEC61850 GGIO4 Analog 18 Value	OFF
IEC61850 GGIO4 Analog 18 db	100.000 %
IEC61850 GGIO4 Analog 18 min	0.000
IEC61850 GGIO4 Analog 18 max	1000000.000
IEC61850 GGIO4 Analog 19 Value	OFF
IEC61850 GGIO4 Analog 19 db	100.000 %
IEC61850 GGIO4 Analog 19 min	0.000
IEC61850 GGIO4 Analog 19 max	1000000.000
IEC61850 GGIO4 Analog 20 Value	OFF
IEC61850 GGIO4 Analog 20 db	100.000 %
IEC61850 GGIO4 Analog 20 min	0.000
IEC61850 GGIO4 Analog 20 max	1000000.000
IEC61850 GGIO4 Analog 21 Value	OFF
IEC61850 GGIO4 Analog 21 db	100.000 %
IEC61850 GGIO4 Analog 21 min	0.000
IEC61850 GGIO4 Analog 21 max	1000000.000
IEC61850 GGIO4 Analog 22 Value	OFF
IEC61850 GGIO4 Analog 22 db	100.000 %
IEC61850 GGIO4 Analog 22 min	0.000
IEC61850 GGIO4 Analog 22 max	1000000.000
IEC61850 GGIO4 Analog 23 Value	OFF
IEC61850 GGIO4 Analog 23 db	100.000 %
IEC61850 GGIO4 Analog 23 min	0.000
IEC61850 GGIO4 Analog 23 max	1000000.000
IEC61850 GGIO4 Analog 24 Value	OFF
IEC61850 GGIO4 Analog 24 db	100.000 %
IEC61850 GGIO4 Analog 24 min	0.000
IEC61850 GGIO4 Analog 24 max	1000000.000
IEC61850 GGIO4 Analog 25 Value	OFF
IEC61850 GGIO4 Analog 25 db	100.000 %
IEC61850 GGIO4 Analog 25 min	0.000
IEC61850 GGIO4 Analog 25 max	1000000.000
IEC61850 GGIO4 Analog 26 Value	OFF
IEC61850 GGIO4 Analog 26 db	100.000 %
IEC61850 GGIO4 Analog 26 min	0.000
IEC61850 GGIO4 Analog 26 max	1000000.000
IEC61850 GGIO4 Analog 27 Value	OFF
IEC61850 GGIO4 Analog 27 db	100.000 %
IEC61850 GGIO4 Analog 27 min	0.000
IEC61850 GGIO4 Analog 27 max	1000000.000
IEC61850 GGIO4 Analog 28 Value	OFF
IEC61850 GGIO4 Analog 28 db	100.000 %
IEC61850 GGIO4 Analog 28 min	0.000
IEC61850 GGIO4 Analog 28 max	1000000.000
IEC61850 GGIO4 Analog 29 Value	OFF
IEC61850 GGIO4 Analog 29 db	100.000 %
IEC61850 GGIO4 Analog 29 min	0.000
IEC61850 GGIO4 Analog 29 max	1000000.000
IEC61850 GGIO4 Analog 30 Value	OFF
IEC61850 GGIO4 Analog 30 db	100.000 %
IEC61850 GGIO4 Analog 30 min	0.000
IEC61850 GGIO4 Analog 30 max	1000000.000
IEC61850 GGIO4 Analog 31 Value	OFF

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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

GGIO4 ANALOG CONFIGURATION (continued from last page)

IEC61850 GGIO4 Analog 31 db	100.000 %
IEC61850 GGIO4 Analog 31 min	0.000
IEC61850 GGIO4 Analog 31 max	1000000.000
IEC61850 GGIO4 Analog 32 Value	OFF
IEC61850 GGIO4 Analog 32 db	100.000 %
IEC61850 GGIO4 Analog 32 min	0.000
IEC61850 GGIO4 Analog 32 max	1000000.000

REPORT CONTROL CONFIGURATION

REPORT 1 (GGIO1.BR): RptID	
REPORT 1 (GGIO1.BR): OptFlds	0
REPORT 1 (GGIO1.BR): BufTm	0
REPORT 1 (GGIO1.BR): TrgOps	0
REPORT 1 (GGIO1.BR): IntgPd	0
REPORT 2 (GGIO1.BR01): RptID	
REPORT 2 (GGIO1.BR01): OptFlds	0
REPORT 2 (GGIO1.BR01): BufTm	0
REPORT 2 (GGIO1.BR01): TrgOps	0
REPORT 2 (GGIO1.BR01): IntgPd	0
REPORT 3 (GGIO1.RP): RptID	
REPORT 3 (GGIO1.RP): OptFlds	0
REPORT 3 (GGIO1.RP): BufTm	0
REPORT 3 (GGIO1.RP): TrgOps	0
REPORT 3 (GGIO1.RP): IntgPd	0
REPORT 4 (GGIO4.RP): RptID	
REPORT 4 (GGIO4.RP): OptFlds	0
REPORT 4 (GGIO4.RP): BufTm	0
REPORT 4 (GGIO4.RP): TrgOps	0
REPORT 4 (GGIO4.RP): IntgPd	0
REPORT 5 (MMXU1.BR): RptID	
REPORT 5 (MMXU1.BR): OptFlds	0
REPORT 5 (MMXU1.BR): BufTm	0
REPORT 5 (MMXU1.BR): TrgOps	0
REPORT 5 (MMXU1.BR): IntgPd	0
REPORT 6 (MMXU1.RP): RptID	
REPORT 6 (MMXU1.RP): OptFlds	0
REPORT 6 (MMXU1.RP): BufTm	0
REPORT 6 (MMXU1.RP): TrgOps	0
REPORT 6 (MMXU1.RP): IntgPd	0
REPORT 7 (MMXU2.BR): RptID	
REPORT 7 (MMXU2.BR): OptFlds	0
REPORT 7 (MMXU2.BR): BufTm	0
REPORT 7 (MMXU2.BR): TrgOps	0
REPORT 7 (MMXU2.BR): IntgPd	0
REPORT 8 (MMXU2.RP): RptID	
REPORT 8 (MMXU2.RP): OptFlds	0
REPORT 8 (MMXU2.RP): BufTm	0
REPORT 8 (MMXU2.RP): TrgOps	0
REPORT 8 (MMXU2.RP): IntgPd	0

XCBR CONFIGURATION

XCBR1 ST.Loc Operand	OFF
Clear XCBR1 OpCnt	No
XCBR2 ST.Loc Operand	OFF
Clear XCBR2 OpCnt	No

XSWI CONFIGURATION

XSWI1 ST.Loc Operand	OFF
XSWI2 ST.Loc Operand	OFF
XSWI3 ST.Loc Operand	OFF
XSWI4 ST.Loc Operand	OFF
XSWI5 ST.Loc Operand	OFF
XSWI6 ST.Loc Operand	OFF
XSWI7 ST.Loc Operand	OFF
XSWI8 ST.Loc Operand	OFF

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

XSWI CONFIGURATION (continued from last page)

Clear XSWI1 OpCnt	No
Clear XSWI2 OpCnt	No
Clear XSWI3 OpCnt	No
Clear XSWI4 OpCnt	No
Clear XSWI5 OpCnt	No
Clear XSWI6 OpCnt	No
Clear XSWI7 OpCnt	No
Clear XSWI8 OpCnt	No

HTTP

HTTP TCP Port Number	80

TFTP

TFTP Main UDP Port Number	69
TFTP Data UDP Port Number 1	0
TFTP Data UDP Port Number 2	0

SNTP

Function	Enabled
Server IP Address	192.168.104.105
UDP Port Number	123

REAL TIME CLOCK

IRIG-B Signal Type	None
Real Time Clock Events	Disabled
Time Zone Offset	-4.0 hr
DST Function	Enabled
DST Start Month	October
DST Start Day	Saturday
DST Start Day Instance	Second
DST Start Hour	0
DST Stop Month	March
DST Stop Day	Saturday
DST Stop Day Instance	Second
DST Stop Hour	0

FAULT REPORT

Fault Report 1 Source	SRC 1 (SRC 1)
Fault Report 1 Trigger	TRIP OUTPUT OP
Fault Report 1 Positive Seq (Z1) Mag	33.82 ohms
Fault Report 1 Positive Seq (Z1) Angle	77 deg
Fault Report 1 Zero Seq (Z0) Mag	33.82 ohms
Fault Report 1 Zero Seq (Z0) Angle	77 deg
Fault Report 1 Line Length Units	km
Fault Report 1 Line Length	110.9
Fault Report 1 VT Substitution	None
Fault Report 1 System Z0 Mag	2.00 ohms
Fault Report 1 System Z0 Angle	75 deg

OSCILLOGRAPHY

Number Of Records	5
Trigger Mode	Automatic Overwrite
Trigger Position	30 %
Trigger Source	Osc Trigger On (VO64)
AC Input Waveforms	32 samples/cycle
Digital Channel 1	PH DIR1 BLK
Digital Channel 2	PH DIST Z1 OP
Digital Channel 3	GND DIST Z1 OP
Digital Channel 4	PH DIST Z2 OP
Digital Channel 5	GND DIST Z2 OP
Digital Channel 6	PH DIST Z3 OP
Digital Channel 7	GND DIST Z3 OP
Digital Channel 8	PH DIST Z4 OP
Digital Channel 9	GND DIST Z4 OP
Digital Channel 10	PH DIST Z5 OP

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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
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DESCRIPTION: (NONE)
TEXT COLOR

OSCILLOGRAPHY (continued from last page)

Digital Channel 11	GND DIST Z5 OP
Digital Channel 12	LINE PICKUP OP
Digital Channel 13	POWER SWING BLOCK
Digital Channel 14	NEUTRAL TOC1 OP
Digital Channel 15	PHASE TOC1 OP
Digital Channel 16	NEUTRAL TOC2 OP
Digital Channel 17	52A9 Abierto On(M7a)
Digital Channel 18	Falla TP Lin On(U7a)
Digital Channel 19	Rx. 85A1 On(U8a)
Digital Channel 20	POTT TX1
Digital Channel 21	Rx. 85D On(U8c)
Digital Channel 22	BKR FAIL 1 T1 OP
Digital Channel 23	BKR FAIL 1 RETRIP
Digital Channel 24	AR CLOSE BKR 1
Digital Channel 25	AR DISABLED
Digital Channel 26	OPEN POLE OP A
Digital Channel 27	OPEN POLE OP B
Digital Channel 28	OPEN POLE OP C
Digital Channel 29	OPEN POLE OP
Digital Channel 30	LED ECHO On (VO15)
Digital Channel 31	NEG SEQ DIR OC1 FWD
Digital Channel 32	NEG SEQ DIR OC1 REV
Digital Channel 33	TRIP OUTPUT OP
Digital Channel 34	TRIP PHASE A
Digital Channel 35	TRIP PHASE B
Digital Channel 36	TRIP PHASE C
Digital Channel 38	SRC1 VT FUSE FAIL OP
Digital Channel 39	Rx. 85A2 On(W7c)
Digital Channel 40	Emision 85A On (VO24)
Analog Channel 1	SRC1 Ia RMS
Analog Channel 2	SRC1 Ib RMS
Analog Channel 3	SRC1 Ic RMS
Analog Channel 4	SRC1 In RMS
Analog Channel 5	SRC1 Vag RMS
Analog Channel 6	SRC1 Vbg RMS
Analog Channel 7	SRC1 Vcg RMS
Analog Channel 8	SRC1 Frequency
Analog Channel 9	SRC1 V_0 Mag
Analog Channel 10	SRC1 I_0 Mag
Analog Channel 11	SRC1 V_2 Mag
Analog Channel 12	SRC1 I_2 Mag
Analog Channel 13	SRC1 V_1 Mag
Analog Channel 14	SRC1 I_1 Mag
Analog Channel 15	SRC2 Vx RMS
Analog Channel 16	Tracking Frequency

DATA LOGGER

Data Logger Mode	Continuous
Data Logger Trigger	OFF
Rate	60000 msec

USER-PROGRAMMABLE LEDS

USER PROGRAMMABLE LEDS

LED 1: OPERAND	LED Z1 Op. On (VO9)
LED 1: TYPE	Latched
LED 2: OPERAND	LED Z1B Op. On (VO10)
LED 2: TYPE	Latched
LED 3: OPERAND	LED Z2 Op. On (VO11)
LED 3: TYPE	Latched
LED 4: OPERAND	LED Z3 Op. On (VO12)
LED 4: TYPE	Latched
LED 5: OPERAND	LED Z4 Op. On (VO13)
LED 5: TYPE	Latched
LED 6: OPERAND	LINE PICKUP OP
LED 6: TYPE	Latched

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USER PROGRAMMABLE LEDS (continued from last page)

LED 7: OPERAND	LED 67N On (VO16)
LED 7: TYPE	Latched
LED 8: OPERAND	LED 51-51N On (VO14)
LED 8: TYPE	Latched
LED 9: OPERAND	BKR FAIL 1 T1 OP
LED 9: TYPE	Latched
LED 10: OPERAND	POWER SWING BLOCK
LED 10: TYPE	Latched
LED 11: OPERAND	LED ECHO On (VO15)
LED 11: TYPE	Latched
LED 12: OPERAND	52A9 Abierto On(M7a)
LED 12: TYPE	Self-Reset
LED 13: OPERAND	Rx. 85A1 On(U8a)
LED 13: TYPE	Latched
LED 14: OPERAND	Rx. 85A2 On(W7c)
LED 14: TYPE	Latched
LED 15: OPERAND	HYBRID POTT TX1
LED 15: TYPE	Latched
LED 16: OPERAND	Tx. 85D On (VO22)
LED 16: TYPE	Latched
LED 17: OPERAND	Blq.21Z1 21N On (VO2)
LED 17: TYPE	Self-Reset
LED 18: OPERAND	Start 50BF On (VO4)
LED 18: TYPE	Latched
LED 19: OPERAND	AR CLOSE BKR 1
LED 19: TYPE	Latched
LED 20: OPERAND	Bloq. 79 On (VO6)
LED 20: TYPE	Self-Reset
LED 21: OPERAND	P.Cort. Abie On(M8a)
LED 21: TYPE	Self-Reset
LED 22: OPERAND	DNP INC PCOR On (VO61)
LED 22: TYPE	Self-Reset

USER-PROGRAMMABLE SELF TESTS

Remote Device Off Function	Enabled
Battery Fail Function	Enabled
SNTP Fail Function	Enabled
IRIG B Fail Function	Enabled

USER-DEFINABLE DISPLAYS

USER DISPLAY 1: Top Line	LIN. PTA CORTES 1 A9
USER DISPLAY 1: Bottom Line	SISTEMA 2
USER DISPLAY 1: Item 1	0
USER DISPLAY 1: Item 2	0
USER DISPLAY 1: Item 3	0
USER DISPLAY 1: Item 4	0
USER DISPLAY 1: Item 5	0
USER DISPLAY 2: Top Line	POTENCIA ACTIVA
USER DISPLAY 2: Bottom Line	~1
USER DISPLAY 2: Item 1	7168
USER DISPLAY 2: Item 2	0
USER DISPLAY 2: Item 3	0
USER DISPLAY 2: Item 4	0
USER DISPLAY 2: Item 5	0
USER DISPLAY 3: Top Line	POTENCIA REACTIVA
USER DISPLAY 3: Bottom Line	~1
USER DISPLAY 3: Item 1	7176
USER DISPLAY 3: Item 2	0
USER DISPLAY 3: Item 3	0
USER DISPLAY 3: Item 4	0
USER DISPLAY 3: Item 5	0
USER DISPLAY 4: Top Line	CORRIENTE FASE A
USER DISPLAY 4: Bottom Line	~1
USER DISPLAY 4: Item 1	6144
USER DISPLAY 4: Item 2	0

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USER-DEFINABLE DISPLAYS (continued from last page)

USER DISPLAY 4: Item 3	0
USER DISPLAY 4: Item 4	0
USER DISPLAY 4: Item 5	0
USER DISPLAY 5: Top Line	CORRIENTE FASE B
USER DISPLAY 5: Bottom Line	~1
USER DISPLAY 5: Item 1	6146
USER DISPLAY 5: Item 2	0
USER DISPLAY 5: Item 3	0
USER DISPLAY 5: Item 4	0
USER DISPLAY 5: Item 5	0
USER DISPLAY 6: Top Line	CORRIENTE FASE C
USER DISPLAY 6: Bottom Line	~1
USER DISPLAY 6: Item 1	6148
USER DISPLAY 6: Item 2	0
USER DISPLAY 6: Item 3	0
USER DISPLAY 6: Item 4	0
USER DISPLAY 6: Item 5	0
USER DISPLAY 7: Top Line	TENSION VAB
USER DISPLAY 7: Bottom Line	~1
USER DISPLAY 7: Item 1	6671
USER DISPLAY 7: Item 2	0
USER DISPLAY 7: Item 3	0
USER DISPLAY 7: Item 4	0
USER DISPLAY 7: Item 5	0
USER DISPLAY 8: Top Line	TENSION VBC
USER DISPLAY 8: Bottom Line	~1
USER DISPLAY 8: Item 1	6673
USER DISPLAY 8: Item 2	0
USER DISPLAY 8: Item 3	0
USER DISPLAY 8: Item 4	0
USER DISPLAY 8: Item 5	0
USER DISPLAY 9: Top Line	TENSION VCA
USER DISPLAY 9: Bottom Line	~1
USER DISPLAY 9: Item 1	6675
USER DISPLAY 9: Item 2	0
USER DISPLAY 9: Item 3	0
USER DISPLAY 9: Item 4	0
USER DISPLAY 9: Item 5	0
USER DISPLAY 10: Top Line	DISTANCIA DE FALLA
USER DISPLAY 10: Bottom Line	~1 ~2
USER DISPLAY 10: Item 1	9061
USER DISPLAY 10: Item 2	37382
USER DISPLAY 10: Item 3	0
USER DISPLAY 10: Item 4	0
USER DISPLAY 10: Item 5	0
Invoke and Scroll	ON

INSTALLATION

Relay Name	52A9_D60

SYSTEM SETUP
AC INPUTS

CURRENT

CT F1: Phase CT Primary	1000 A
CT F1: Phase CT Secondary	1 A
CT F1: Ground CT Primary	1000 A
CT F1: Ground CT Secondary	1 A

VOLTAGE

VT F5: Phase VT Connection	Wye
VT F5: Phase VT Secondary	66.4 V
VT F5: Phase VT Ratio	1339.13 :1
VT F5: Auxiliary VT Connection	Vbg
VT F5: Auxiliary VT Secondary	66.4 V
VT F5: Auxiliary VT Ratio	1339.13 :1

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TEXT COLOR

POWER SYSTEM

Nominal Frequency	50 Hz
Phase Rotation	ABC
Frequency And Phase Reference	SRC 1 (SRC 1)
Frequency Tracking Function	Enabled

SIGNAL SOURCES

SOURCE 1: Name	SRC 1
SOURCE 1: Phase CT	F1
SOURCE 1: Ground CT	F1
SOURCE 1: Phase VT	F5
SOURCE 1: Auxiliary VT	None
SOURCE 2: Name	SRC 2
SOURCE 2: Phase CT	None
SOURCE 2: Ground CT	None
SOURCE 2: Phase VT	None
SOURCE 2: Auxiliary VT	F5

BREAKERS

Breaker 1 Function	Enabled
Breaker 1 Push Button Control	Disabled
Breaker 1 Name	52A9
Breaker 1 Mode	1-Pole
Breaker 1 Open	OFF
Breaker 1 Block Open	OFF
Breaker 1 Close	OFF
Breaker 1 Block Close	OFF
Breaker 1 Phase A/3-Pole Closed	Polo 1 cerr On(H7c)
Breaker 1 Phase A/3-Pole Opened	52A9 Abierto On(M7a)
Breaker 1 Phase B Closed	Polo 2 cerr On(H8a)
Breaker 1 Phase B Opened	OFF
Breaker 1 Phase C Closed	Polo 3 cerr On(H8c)
Breaker 1 Phase C Opened	OFF
Breaker 1 Toperate	0.070 s
Breaker 1 External Alarm	OFF
Breaker 1 Alarm Delay	0.000 s
Breaker 1 Manual Close Recal Time	0.000 s
Breaker 1 Out Of Service	OFF
Breaker 1 Events	Disabled

FLEXLOGIC

FLEXLOGIC EQUATION EDITOR

FlexLogic Entry 1	AR CLOSE BKR 1
FlexLogic Entry 2	POSITIVE ONE SHOT
FlexLogic Entry 3	BKR FAIL 1 T1 OP
FlexLogic Entry 4	POSITIVE ONE SHOT
FlexLogic Entry 5	POWER SWING BLOCK
FlexLogic Entry 6	POSITIVE ONE SHOT
FlexLogic Entry 7	TRIP OUTPUT OP
FlexLogic Entry 8	POSITIVE ONE SHOT
FlexLogic Entry 9	OR(4)
FlexLogic Entry 10	= Osc Trigger (VO64)
FlexLogic Entry 11	LINE PICKUP OP
FlexLogic Entry 12	PHASE TOC1 OP
FlexLogic Entry 13	PH DIST Z1 OP
FlexLogic Entry 14	PH DIST Z3 OP
FlexLogic Entry 15	PH DIST Z4 OP
FlexLogic Entry 16	PH DIST Z5 OP
FlexLogic Entry 17	GND DIST Z3 OP
FlexLogic Entry 18	GND DIST Z4 OP
FlexLogic Entry 19	GND DIST Z5 OP
FlexLogic Entry 20	NEUTRAL TOC1 OP
FlexLogic Entry 21	NEUTRAL TOC2 OP
FlexLogic Entry 22	HYBRID POTT OP
FlexLogic Entry 23	Trip 85D On (VO5)

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 24	OR(13)
FlexLogic Entry 25	= Trip 3p (VO1)
FlexLogic Entry 26	SRC1 VT FUSE FAIL OP
FlexLogic Entry 27	Falla TP Lin On(U7a)
FlexLogic Entry 28	OR(2)
FlexLogic Entry 29	= Blq.21Z1 21N (VO2)
FlexLogic Entry 30	Blq.21Z1 21N On (VO2)
FlexLogic Entry 31	POWER SWING BLOCK
FlexLogic Entry 32	OR(2)
FlexLogic Entry 33	= Blq.21Z2-Z5 (VO3)
FlexLogic Entry 34	TRIP OUTPUT OP
FlexLogic Entry 35	Op. 86B On(P8c)
FlexLogic Entry 36	Trip 85D On (VO5)
FlexLogic Entry 37	Start BF 87B On(W7a)
FlexLogic Entry 38	OR(4)
FlexLogic Entry 39	= Start 50BF (VO4)
FlexLogic Entry 40	P.Cort. Abie On(M8a)
FlexLogic Entry 41	NOT
FlexLogic Entry 42	P.Cort. Cerr On(M8c)
FlexLogic Entry 43	Rx. 85D On(U8c)
FlexLogic Entry 44	AND(3)
FlexLogic Entry 45	= Trip 85D (VO5)
FlexLogic Entry 46	52 apto On(H7a)
FlexLogic Entry 47	NOT
FlexLogic Entry 48	Hab. Reconex On(W5a)
FlexLogic Entry 49	NOT
FlexLogic Entry 50	Rec. en prog On(P7a)
FlexLogic Entry 51	Bloq. 79 p43 On(P7c)
FlexLogic Entry 52	Op. 86B On(P8c)
FlexLogic Entry 53	OR(5)
FlexLogic Entry 54	= Bloq. 79 (VO6)
FlexLogic Entry 55	OPEN POLE OP A
FlexLogic Entry 56	OPEN POLE OP B
FlexLogic Entry 57	OPEN POLE OP C
FlexLogic Entry 58	AND(3)
FlexLogic Entry 59	= Open 3p (VO7)
FlexLogic Entry 60	SRC1 VT FUSE FAIL OP
FlexLogic Entry 61	Falla TP Lin On(U7a)
FlexLogic Entry 62	OR(2)
FlexLogic Entry 63	NOT
FlexLogic Entry 64	= VT ok (VO8)
FlexLogic Entry 65	PH DIST Z1 OP
FlexLogic Entry 66	GND DIST Z1 OP
FlexLogic Entry 67	OR(2)
FlexLogic Entry 68	= LED Z1 Op. (VO9)
FlexLogic Entry 69	PH DIST Z2 OP
FlexLogic Entry 70	GND DIST Z2 OP
FlexLogic Entry 71	OR(2)
FlexLogic Entry 72	= LED Z1B Op. (VO10)
FlexLogic Entry 73	PH DIST Z3 OP
FlexLogic Entry 74	GND DIST Z3 OP
FlexLogic Entry 75	OR(2)
FlexLogic Entry 76	= LED Z2 Op. (VO11)
FlexLogic Entry 77	PH DIST Z4 OP
FlexLogic Entry 78	GND DIST Z4 OP
FlexLogic Entry 79	OR(2)
FlexLogic Entry 80	= LED Z3 Op. (VO12)
FlexLogic Entry 81	PH DIST Z5 OP
FlexLogic Entry 82	GND DIST Z5 OP
FlexLogic Entry 83	OR(2)
FlexLogic Entry 84	= LED Z4 Op. (VO13)
FlexLogic Entry 85	PHASE TOC1 OP
FlexLogic Entry 86	NEUTRAL TOC1 OP
FlexLogic Entry 87	OR(2)
FlexLogic Entry 88	= LED 51-51N (VO14)

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 89	Rx. 85A2 On(W7c)
FlexLogic Entry 90	Rx. 85A1 On(U8a)
FlexLogic Entry 91	AND(2)
FlexLogic Entry 92	Open 3p On (VO7)
FlexLogic Entry 93	HYBRID POTT TX1
FlexLogic Entry 94	AND(3)
FlexLogic Entry 95	= LED ECHO (VO15)
FlexLogic Entry 96	NEUTRAL TOC2 OP
FlexLogic Entry 97	VT ok On (VO8)
FlexLogic Entry 98	AND(2)
FlexLogic Entry 99	= LED 67N (VO16)
FlexLogic Entry 100	PH DIST Z1 OP
FlexLogic Entry 101	HYBRID POTT OP
FlexLogic Entry 102	GND DIST Z1 OP
FlexLogic Entry 103	OR(3)
FlexLogic Entry 104	= AR 3P START (VO17)
FlexLogic Entry 105	Rx. 85A1 On(U8a)
FlexLogic Entry 106	Rx. 85A2 On(W7c)
FlexLogic Entry 107	AND(2)
FlexLogic Entry 108	= RX. 85A (VO21)
FlexLogic Entry 109	P.Cort. Abie On(M8a)
FlexLogic Entry 110	NOT
FlexLogic Entry 111	P.Cort. Cerr On(M8c)
FlexLogic Entry 112	BKR FAIL 1 T1 OP
FlexLogic Entry 113	AND(3)
FlexLogic Entry 114	= Tx. 85D (VO22)
FlexLogic Entry 115	DNP INC PCOR On (VO61)
FlexLogic Entry 116	P.Cort. Abie On(M8a)
FlexLogic Entry 117	OR(2)
FlexLogic Entry 118	= BLOCK HYBRID (VO23)
FlexLogic Entry 119	AR DISABLED
FlexLogic Entry 120	= DNP 79 BLOQ (VO30)
FlexLogic Entry 121	AR ENABLED
FlexLogic Entry 122	= DNP 79 ON (VO31)
FlexLogic Entry 123	Falla TP Lin On(U7a)
FlexLogic Entry 124	= DNP TP LINEA (VO32)
FlexLogic Entry 125	Falla TP Bar On(U7c)
FlexLogic Entry 126	= DNP TP BARRA (VO33)
FlexLogic Entry 127	Rx. 85A1 On(U8a)
FlexLogic Entry 128	= DNP RX RAN (VO34)
FlexLogic Entry 129	HYBRID POTT TX1
FlexLogic Entry 130	= DNP TX 85A (VO35)
FlexLogic Entry 131	Rx. 85A2 On(W7c)
FlexLogic Entry 132	= DNP RX JAH (VO36)
FlexLogic Entry 133	Rx. 85A1 On(U8a)
FlexLogic Entry 134	Rx. 85A2 On(W7c)
FlexLogic Entry 135	AND(2)
FlexLogic Entry 136	Open 3p On (VO7)
FlexLogic Entry 137	HYBRID POTT TX1
FlexLogic Entry 138	AND(3)
FlexLogic Entry 139	= DNP ECHO (VO37)
FlexLogic Entry 140	AR CLOSE BKR 1
FlexLogic Entry 141	= DNP 79 CLOSE (VO38)
FlexLogic Entry 142	PH DIST Z1 OP
FlexLogic Entry 143	PH DIST Z2 OP
FlexLogic Entry 144	PH DIST Z3 OP
FlexLogic Entry 145	PH DIST Z4 OP
FlexLogic Entry 146	GND DIST Z1 OP
FlexLogic Entry 147	GND DIST Z2 OP
FlexLogic Entry 148	GND DIST Z3 OP
FlexLogic Entry 149	GND DIST Z4 OP
FlexLogic Entry 150	OR(8)
FlexLogic Entry 151	= DNP 21/21N (VO39)
FlexLogic Entry 152	NEUTRAL TOC2 OP
FlexLogic Entry 153	= DNP 67N (VO40)

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 154	BKR FAIL 1 T1 OP
FlexLogic Entry 155	= DNP 50BF (VO41)
FlexLogic Entry 156	PH DIST Z2 OP
FlexLogic Entry 157	GND DIST Z2 OP
FlexLogic Entry 158	OR(2)
FlexLogic Entry 159	= DNP Z1B (VO42)
FlexLogic Entry 160	PH DIST Z1 OP
FlexLogic Entry 161	GND DIST Z1 OP
FlexLogic Entry 162	OR(2)
FlexLogic Entry 163	= DNP Z1 (VO43)
FlexLogic Entry 164	PH DIST Z3 OP
FlexLogic Entry 165	GND DIST Z3 OP
FlexLogic Entry 166	OR(2)
FlexLogic Entry 167	= DNP Z2 (VO44)
FlexLogic Entry 168	PH DIST Z4 OP
FlexLogic Entry 169	GND DIST Z4 OP
FlexLogic Entry 170	OR(2)
FlexLogic Entry 171	= DNP Z3 (VO45)
FlexLogic Entry 172	PH DIST Z5 OP
FlexLogic Entry 173	GND DIST Z5 OP
FlexLogic Entry 174	OR(2)
FlexLogic Entry 175	= DNP Z4 (VO46)
FlexLogic Entry 176	PHASE TOC1 OP
FlexLogic Entry 177	NEUTRAL TOC1 OP
FlexLogic Entry 178	OR(2)
FlexLogic Entry 179	= DNP 51/51N (VO47)
FlexLogic Entry 180	TRIP PHASE A
FlexLogic Entry 181	= DNP TRIP A (VO48)
FlexLogic Entry 182	TRIP PHASE B
FlexLogic Entry 183	= DNP TRIP B (VO49)
FlexLogic Entry 184	TRIP PHASE C
FlexLogic Entry 185	= DNP TRIP C (VO50)
FlexLogic Entry 186	NEUTRAL TOC1 OP
FlexLogic Entry 187	NEUTRAL TOC2 OP
FlexLogic Entry 188	GND DIST Z1 OP
FlexLogic Entry 189	GND DIST Z2 OP
FlexLogic Entry 190	GND DIST Z3 OP
FlexLogic Entry 191	GND DIST Z4 OP
FlexLogic Entry 192	OR(6)
FlexLogic Entry 193	= DNP TRIP GND (VO51)
FlexLogic Entry 194	Trip polo 1 On(W5c)
FlexLogic Entry 195	Trip polo 2 On(W6a)
FlexLogic Entry 196	Trip polo 3 On(W6c)
FlexLogic Entry 197	OR(3)
FlexLogic Entry 198	= DNP TRIP S1 (VO52)
FlexLogic Entry 199	LED PICKUP
FlexLogic Entry 200	= DNP PICKUP (VO53)
FlexLogic Entry 201	SRC1 VT FUSE FAIL OP
FlexLogic Entry 202	Falla TP Lin On(U7a)
FlexLogic Entry 203	OR(2)
FlexLogic Entry 204	= DNP MOD EMER (VO54)
FlexLogic Entry 205	LINE PICKUP OP
FlexLogic Entry 206	= DNP SOTF (VO55)
FlexLogic Entry 207	SRC1 VT FUSE FAIL OP
FlexLogic Entry 208	= DNP VT FAIL (VO56)
FlexLogic Entry 209	POWER SWING BLOCK
FlexLogic Entry 210	= DNP PSWING (VO57)
FlexLogic Entry 211	52 apto On(H7a)
FlexLogic Entry 212	NOT
FlexLogic Entry 213	Hab. Reconex On(W5a)
FlexLogic Entry 214	NOT
FlexLogic Entry 215	Rec. en prog On(P7a)
FlexLogic Entry 216	Bloq. 79 p43 On(P7c)
FlexLogic Entry 217	Op. 86B On(P8c)
FlexLogic Entry 218	OR(5)

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FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 219	= DNP 79BLQ EX (VO58)
FlexLogic Entry 220	Rx. 85D On(U8c)
FlexLogic Entry 221	= DNP RX85D (VO59)
FlexLogic Entry 222	BKR FAIL 1 T1 OP
FlexLogic Entry 223	= DNP TX85D (VO60)
FlexLogic Entry 224	P.Cort. Abie On(M8a)
FlexLogic Entry 225	P.Cort. Cerr On(M8c)
FlexLogic Entry 226	AND(2)
FlexLogic Entry 227	P.Cort. Abie Off(M8a)
FlexLogic Entry 228	P.Cort. Cerr Off(M8c)
FlexLogic Entry 229	AND(2)
FlexLogic Entry 230	OR(2)
FlexLogic Entry 231	= DNP INC PCOR (VO61)
FlexLogic Entry 232	HYBRID POTT TX1
FlexLogic Entry 233	TIMER 1
FlexLogic Entry 234	= Emision 85A (VO24)
FlexLogic Entry 235	GND DIST Z5 OP
FlexLogic Entry 236	PH DIST Z5 OP
FlexLogic Entry 237	OR(2)
FlexLogic Entry 238	= EDAG Z5 (VO65)
FlexLogic Entry 239	PH DIST Z3 PKP
FlexLogic Entry 240	= PKP Z3 (VO66)
FlexLogic Entry 241	RX. 85A On (VO21)
FlexLogic Entry 242	Open 3p On (VO7)
FlexLogic Entry 243	AND(2)
FlexLogic Entry 244	= ECHO TX (VO67)
FlexLogic Entry 245	END

FLEXLOGIC TIMERS

Timer 1: Type	millisecond
Timer 1: Pickup Delay	0
Timer 1: Dropout Delay	100

GROUPED ELEMENTS
GROUP 1

LINE PICKUP [GROUP 1]

Function	Enabled
Signal Source	SRC 1 (SRC 1)
Phase IOC Line Pickup	0.800 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Enabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Distance Trip	Enabled
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 1]

Source	SRC 1 (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 1]

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	19.49 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	77 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	49 deg
PHASE DISTANCE Z1: DIR Comp Limit	71 deg
PHASE DISTANCE Z1: Quad Right Blinder	19.49 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z1: Quad Left Blinder	19.49 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z1: Supervision	0.100 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	Blq.21Z1 21N On (VO2)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	68.18 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	77 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	49 deg
PHASE DISTANCE Z2: DIR Comp Limit	71 deg
PHASE DISTANCE Z2: Quad Right Blinder	68.18 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z2: Quad Left Blinder	68.18 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z2: Supervision	0.100 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	65.000 s
PHASE DISTANCE Z2: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	34.79 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	0.02 ohms
PHASE DISTANCE Z3: Rev Reach RCA	77 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	49 deg
PHASE DISTANCE Z3: DIR Comp Limit	71 deg
PHASE DISTANCE Z3: Quad Right Blinder	34.79 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z3: Quad Left Blinder	34.79 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z3: Supervision	0.100 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.600 s
PHASE DISTANCE Z3: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z3: Target	Self-reset
PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	67.75 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.02 ohms
PHASE DISTANCE Z4: Rev Reach RCA	77 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	49 deg
PHASE DISTANCE Z4: DIR Comp Limit	71 deg
PHASE DISTANCE Z4: Quad Right Blinder	67.75 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z4: Quad Left Blinder	67.75 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z4: Supervision	0.100 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.500 s
PHASE DISTANCE Z4: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled
PHASE DISTANCE Z5: Function	Enabled
PHASE DISTANCE Z5: Direction	Forward
PHASE DISTANCE Z5: Shape	Quad
PHASE DISTANCE Z5: Xfmr Vol Connection	None
PHASE DISTANCE Z5: Xfmr Curr Connection	None
PHASE DISTANCE Z5: Reach	66.95 ohms
PHASE DISTANCE Z5: RCA	90 deg
PHASE DISTANCE Z5: Rev Reach	0.02 ohms
PHASE DISTANCE Z5: Rev Reach RCA	77 deg
PHASE DISTANCE Z5: Comp Limit	90 deg
PHASE DISTANCE Z5: DIR RCA	49 deg
PHASE DISTANCE Z5: DIR Comp Limit	71 deg
PHASE DISTANCE Z5: Quad Right Blinder	66.95 ohms
PHASE DISTANCE Z5: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z5: Quad Left Blinder	66.95 ohms
PHASE DISTANCE Z5: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z5: Supervision	0.100 pu
PHASE DISTANCE Z5: Volt Level	0.000 pu
PHASE DISTANCE Z5: Delay	1.500 s
PHASE DISTANCE Z5: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z5: Target	Self-reset
PHASE DISTANCE Z5: Events	Enabled

GROUND DISTANCE [GROUP 1]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.41
GROUND DISTANCE Z1: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	19.49 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	0.02 ohms
GROUND DISTANCE Z1: Rev Reach RCA	77 deg
GROUND DISTANCE Z1: POL Current	Neg-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	49 deg
GROUND DISTANCE Z1: DIR Comp Limit	71 deg
GROUND DISTANCE Z1: Quad Right Blinder	19.49 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z1: Quad Left Blinder	19.49 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z1: Supervision	0.100 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.41
GROUND DISTANCE Z2: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	68.18 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	0.02 ohms
GROUND DISTANCE Z2: Rev Reach RCA	77 deg
GROUND DISTANCE Z2: POL Current	Neg-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	49 deg
GROUND DISTANCE Z2: DIR Comp Limit	71 deg
GROUND DISTANCE Z2: Quad Right Blinder	68.18 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z2: Quad Left Blinder	68.18 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.000 s
GROUND DISTANCE Z2: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.41
GROUND DISTANCE Z3: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	34.79 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	0.02 ohms
GROUND DISTANCE Z3: Rev Reach RCA	77 deg
GROUND DISTANCE Z3: POL Current	Neg-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	49 deg
GROUND DISTANCE Z3: DIR Comp Limit	71 deg
GROUND DISTANCE Z3: Quad Right Blinder	34.79 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z3: Quad Left Blinder	34.79 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.600 s
GROUND DISTANCE Z3: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.41
GROUND DISTANCE Z4: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	67.75 ohms
GROUND DISTANCE Z4: RCA	90 deg

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DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z4: Rev Reach	0.02 ohms
GROUND DISTANCE Z4: Rev Reach RCA	77 deg
GROUND DISTANCE Z4: POL Current	Neg-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	49 deg
GROUND DISTANCE Z4: DIR Comp Limit	71 deg
GROUND DISTANCE Z4: Quad Right Blinder	67.75 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z4: Quad Left Blinder	67.75 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.500 s
GROUND DISTANCE Z4: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.41
GROUND DISTANCE Z5: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	66.95 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	0.02 ohms
GROUND DISTANCE Z5: Rev Reach RCA	77 deg
GROUND DISTANCE Z5: POL Current	Neg-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg
GROUND DISTANCE Z5: DIR RCA	49 deg
GROUND DISTANCE Z5: DIR Comp Limit	71 deg
GROUND DISTANCE Z5: Quad Right Blinder	66.95 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z5: Quad Left Blinder	66.95 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu
GROUND DISTANCE Z5: Delay	1.500 s
GROUND DISTANCE Z5: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 1]

Function	Enabled
Source	SRC 1 (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	157.25 ohms
Quad Fwd Mid	161.17 ohms
Quad Fwd Out	162.92 ohms
Fwd Rca	77 deg
Rev Reach	122.40 ohms
Quad Rev Mid	126.32 ohms
Quad Rev Out	128.06 ohms
Rev Rca	77 deg
Outer Limit Angle	120 deg
Middle Limit Angle	80 deg
Inner Limit Angle	74 deg
Outer Rgt Bld	128.06 ohms
Outer Lft Bld	110.64 ohms
Midle Rgt Bld	160.65 ohms
Midle Lft Bld	69.44 ohms

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TEXT COLOR

POWER SWING DETECT [GROUP 1] (continued from last page)

Inner Rgt Bld	122.40 ohms
Inner Lft Bld	104.72 ohms
Delay 1 Pickup	0.002 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Enabled

PHASE CURRENT

PHASE TOC [GROUP 1]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	SRC 1 (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	0.720 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.10
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	VT ok On (VO8)
PHASE TOC1: Block B	VT ok On (VO8)
PHASE TOC1: Block C	VT ok On (VO8)
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 1]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	SRC 1 (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.050 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.30
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	VT ok On (VO8)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled
NEUTRAL TOC2: Function	Enabled
NEUTRAL TOC2: Source	SRC 1 (SRC 1)
NEUTRAL TOC2: Input	Phasor
NEUTRAL TOC2: Pickup	0.050 pu
NEUTRAL TOC2: Curve	IEC Curve A
NEUTRAL TOC2: TD Multiplier	0.30
NEUTRAL TOC2: Reset	Instantaneous
NEUTRAL TOC2: Block	NEG SEQ DIR OC1 REV
NEUTRAL TOC2: Target	Self-reset
NEUTRAL TOC2: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	SRC 1 (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	78 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Forward Pickup	0.050 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.015 pu
NEGATIVE SEQ DIR OC1: Block	Blq.21Z1 21N On (VO2)

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DESCRIPTION: (NONE)
TEXT COLOR

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1] (continued from last page)

NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 1]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	SRC 1 (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	Start 50BF On (VO4)
BF1: Block	OFF
BF1: Phase Current Supv Pickup	0.150 pu
BF1: Neutral Current Supv Pickup	0.150 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.000 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	Polo 1 cerr On(H7c)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	ON
BF1: Phase Current HiSet Pickup	0.150 pu
BF1: Neutral Current HiSet Pickup	0.150 pu
BF1: Phase Current LoSet Pickup	0.150 pu
BF1: Neutral Current LoSet Pickup	0.150 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	Trip polo 1 On(W5c)
BF1: Phase B Initiate	Trip polo 2 On(W6a)
BF1: Phase C Initiate	Trip polo 3 On(W6c)
BF1: Breaker Pos1 Phase B	Polo 2 cerr On(H8a)
BF1: Breaker Pos1 Phase C	Polo 3 cerr On(H8c)
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

CONTROL ELEMENTS

TRIP OUTPUT

Trip Mode	3 Pole & 1 Pole
Trip 3-Pole Input1	Trip 3p On (VO1)
Trip 3-Pole Input2	OFF
Trip 3-Pole Input3	OFF
Trip 3-Pole Input4	OFF
Trip 3-Pole Input5	OFF
Trip 3-Pole Input6	OFF
Trip 1-Pole Input1	GND DIST Z1 OP
Trip 1-Pole Input2	OFF
Trip 1-Pole Input3	OFF
Trip 1-Pole Input4	OFF
Trip 1-Pole Input5	OFF
Trip 1-Pole Input6	OFF
Trip Reclose Input1	GND DIST Z1 OP
Trip Reclose Input2	AR 3P START On (VO17)
Trip Reclose Input3	OFF
Trip Reclose Input4	OFF
Trip Reclose Input5	OFF
Trip Reclose Input6	OFF
Trip Seal in Delay	0.000 s
Trip Reset	Pole Curr OR Custom
Start Timer Z2Ph In1	OFF
Start Timer Z2Ph In2	OFF
Start Timer Z2Gr In1	OFF
Start Timer Z2Gr In2	OFF

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DESCRIPTION: (NONE)
TEXT COLOR

TRIP OUTPUT (continued from last page)

BKR Phase A Open	OFF
BKR Phase B Open	OFF
BKR Phase C Open	OFF
Trip Force 3-Pole	OFF
Trip Pilot Priority	0.000 s
Reverse Fault	OFF
Trip Delay On Evolving Faults	0.000 s
Trip Events	Disabled

SYNCHROCHECK

SYNCHROCHECK1: Function	Enabled
SYNCHROCHECK1: Block	OFF
SYNCHROCHECK1: V1 Source	SRC 1 (SRC 1)
SYNCHROCHECK1: V2 Source	SRC 2 (SRC 2)
SYNCHROCHECK1: Max Volt Diff	40173 V
SYNCHROCHECK1: Max Angle Diff	30 deg
SYNCHROCHECK1: Max Freq Diff	0.10 Hz
SYNCHROCHECK1: Freq Hysteresis	0.06 Hz
SYNCHROCHECK1: Dead Source Select	None
SYNCHROCHECK1: Dead V1 Max Volt	0.20 pu
SYNCHROCHECK1: Dead V2 Max Volt	0.20 pu
SYNCHROCHECK1: Live V1 Min Volt	0.70 pu
SYNCHROCHECK1: Live V2 Min Volt	0.70 pu
SYNCHROCHECK1: Target	Self-reset
SYNCHROCHECK1: Events	Enabled

MONITORING ELEMENTS

VT FUSE FAILURE

VT FUSE FAILURE 1: Function	Enabled

OPEN POLE

Function	Enabled
Block	OFF
Voltage SUPV	Disabled
Current Pickup	0.030 pu
Open Pole Line XC1	9999.9 ohms
Open Pole Line XC0	9999.9 ohms
Open Pole REM Current PKP	0.050 pu
Open Pole Mode	Accelerated
Open Pole Detection	I AND V AND CBaux
Target	Latched
Events	Enabled

PILOT SCHEMES

1P HYBRID POTT SCHEME

Function	Enabled
Block	OFF
Permissive Echo	Custom
Echo Condition	ECHO TX On (VO67)
Weak Infeed	Disabled
W/I Condition	OFF
Rx Pickup Delay	0.001 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.170 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Seal-In Delay	0.100 s
Gnd Dir OC Fwd	OFF
Gnd Dir OC Rev	OFF
No of Comm Bits	1
Rx1	RX. 85A On (VO21)
Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset

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DESCRIPTION: (NONE)
TEXT COLOR

1P HYBRID POTT SCHEME (continued from last page)

Event	Enabled

AUTORECLOSE 1P

Function	Enabled
Mode	3 Pole - B
Max Number Of Shots	1
AR Initiate Mode	Protection only
Block BKR1	Bloq. 79 On (VO6)
Close Time BKR1	0.10 s
BKR Man Close	OFF
Blk Time Upon Man Cls	8.00 s
1-P Init	OFF
3-P Init	AR 3P START On (VO17)
3-P TD Init	OFF
Multi P Fault	OFF
BKR 1 Pole Open	OFF
BKR 3 Pole Open	52A9 Abierto On(M7a)
3-P Dead Time 1	0.50 s
3-P Dead Time 2	1.20 s
3-P Dead Time 3	2.00 s
3-P Dead Time 4	4.00 s
Extend Dead T1	OFF
Dead T1 Extension	0.00 s
Reset	BREAKER 1 CLOSED
Reset Time	8.00 s
BKR Closed	OFF
Block	Bloq. 79 On (VO6)
Pause	OFF
Inc Seq Time	5.00 s
Block BKR2	OFF
Close Time BKR2	0.10 s
Transfer 1 to 2	No
Transfer 2 to 1	No
BKR1 Fail Option	Continue
BKR2 Fail Option	Continue
1-P Dead Time	1.00 s
BKR Sequence	1
Transfer Time	4.00 s
BUS FLT Init	OFF
Event	Enabled

INPUTS/OUTPUTS

CONTACT INPUTS

[H7A] Contact Input 1 ID	52 apto
[H7A] Contact Input 1 Debounce Time	2.0 ms
[H7A] Contact Input 1 Events	Disabled
[H7C] Contact Input 2 ID	Polo 1 cerr
[H7C] Contact Input 2 Debounce Time	2.0 ms
[H7C] Contact Input 2 Events	Disabled
[H8A] Contact Input 3 ID	Polo 2 cerr
[H8A] Contact Input 3 Debounce Time	2.0 ms
[H8A] Contact Input 3 Events	Disabled
[H8C] Contact Input 4 ID	Polo 3 cerr
[H8C] Contact Input 4 Debounce Time	2.0 ms
[H8C] Contact Input 4 Events	Disabled
[M7A] Contact Input 5 ID	52A9 Abierto
[M7A] Contact Input 5 Debounce Time	2.0 ms
[M7A] Contact Input 5 Events	Disabled
[M7C] Contact Input 6 ID	Cont Ip 6
[M7C] Contact Input 6 Debounce Time	2.0 ms
[M7C] Contact Input 6 Events	Disabled
[M8A] Contact Input 7 ID	P.Cort. Abie
[M8A] Contact Input 7 Debounce Time	2.0 ms
[M8A] Contact Input 7 Events	Disabled
[M8C] Contact Input 8 ID	P.Cort. Cerr

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

CONTACT INPUTS (continued from last page)

[M8C] Contact Input 8 Debounce Time	2.0 ms
[M8C] Contact Input 8 Events	Disabled
[P7A] Contact Input 9 ID	Rec. en prog
[P7A] Contact Input 9 Debounce Time	2.0 ms
[P7A] Contact Input 9 Events	Disabled
[P7C] Contact Input 10 ID	Bloq. 79 p43
[P7C] Contact Input 10 Debounce Time	2.0 ms
[P7C] Contact Input 10 Events	Disabled
[P8A] Contact Input 11 ID	Aviso Cierre
[P8A] Contact Input 11 Debounce Time	2.0 ms
[P8A] Contact Input 11 Events	Disabled
[P8C] Contact Input 12 ID	Op. 86B
[P8C] Contact Input 12 Debounce Time	2.0 ms
[P8C] Contact Input 12 Events	Disabled
[U7A] Contact Input 13 ID	Falla TP Lin
[U7A] Contact Input 13 Debounce Time	2.0 ms
[U7A] Contact Input 13 Events	Disabled
[U7C] Contact Input 14 ID	Falla TP Bar
[U7C] Contact Input 14 Debounce Time	2.0 ms
[U7C] Contact Input 14 Events	Disabled
[U8A] Contact Input 15 ID	Rx. 85A1
[U8A] Contact Input 15 Debounce Time	2.0 ms
[U8A] Contact Input 15 Events	Disabled
[U8C] Contact Input 16 ID	Rx. 85D
[U8C] Contact Input 16 Debounce Time	2.0 ms
[U8C] Contact Input 16 Events	Disabled
[W5A] Contact Input 17 ID	Hab. Reconex
[W5A] Contact Input 17 Debounce Time	2.0 ms
[W5A] Contact Input 17 Events	Disabled
[W5C] Contact Input 18 ID	Trip polo 1
[W5C] Contact Input 18 Debounce Time	2.0 ms
[W5C] Contact Input 18 Events	Disabled
[W6A] Contact Input 19 ID	Trip polo 2
[W6A] Contact Input 19 Debounce Time	2.0 ms
[W6A] Contact Input 19 Events	Disabled
[W6C] Contact Input 20 ID	Trip polo 3
[W6C] Contact Input 20 Debounce Time	2.0 ms
[W6C] Contact Input 20 Events	Disabled
[W7A] Contact Input 21 ID	Start BF 87B
[W7A] Contact Input 21 Debounce Time	2.0 ms
[W7A] Contact Input 21 Events	Disabled
[W7C] Contact Input 22 ID	Rx. 85A2
[W7C] Contact Input 22 Debounce Time	2.0 ms
[W7C] Contact Input 22 Events	Disabled
[W8A] Contact Input 23 ID	Rx. 85C 1
[W8A] Contact Input 23 Debounce Time	2.0 ms
[W8A] Contact Input 23 Events	Disabled
[W8C] Contact Input 24 ID	Rx.85C 2
[W8C] Contact Input 24 Debounce Time	2.0 ms
[W8C] Contact Input 24 Events	Disabled

CONTACT INPUT THRESHOLDS

52 apto, Polo 1 cerr, Polo 2 cerr, Polo 3 cerr(H7a, H7c, H8a, H8c)	33 Vdc
52A9 Abierto, Cont Ip 6, P.Cort. Abie, P.Cort. Cerr(M7a, M7c, M8a, M8c)	33 Vdc
Rec. en prog, Bloq. 79 p43, Aviso Cierre, Op. 86B(P7a, P7c, P8a, P8c)	33 Vdc
Falla TP Lin, Falla TP Bar, Rx. 85A1, Rx. 85D(U7a, U7c, U8a, U8c)	33 Vdc
Hab. Reconex, Trip polo 1, Trip polo 2, Trip polo 3(W5a, W5c, W6a, W6c)	33 Vdc
Start BF 87B, Rx. 85A2, Rx. 85C 1, Rx.85C 2(W7a, W7c, W8a, W8c)	33 Vdc

CONTACT OUTPUTS

[H1] Contact Output 1 ID	50BF
[H1] Contact Output 1 Operate	BKR FAIL 1 T1 OP
[H1] Contact Output 1 Seal-In	OFF
[H1] Contact Output 1 Events	Enabled
[H2] Contact Output 2 ID	79 52AR

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TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[H2] Contact Output 2 Operate	AR CLOSE BKR 1
[H2] Contact Output 2 Seal-In	OFF
[H2] Contact Output 2 Events	Enabled
[H3] Contact Output 3 ID	PKP Z3 EDAG
[H3] Contact Output 3 Operate	PKP Z3 On (VO66)
[H3] Contact Output 3 Seal-In	ON
[H3] Contact Output 3 Events	Enabled
[H6] Contact Output 6 ID	TRIP SCADA
[H6] Contact Output 6 Operate	TRIP OUTPUT OP
[H6] Contact Output 6 Seal-In	OFF
[H6] Contact Output 6 Events	Enabled
[M3] Contact Output 9 ID	TX 85A1
[M3] Contact Output 9 Operate	Emision 85A On (VO24)
[M3] Contact Output 9 Seal-In	OFF
[M3] Contact Output 9 Events	Enabled
[M4] Contact Output 10 ID	TX 85D
[M4] Contact Output 10 Operate	Tx. 85D On (VO22)
[M4] Contact Output 10 Seal-In	OFF
[M4] Contact Output 10 Events	Enabled
[M5] Contact Output 11 ID	TRIP 86B
[M5] Contact Output 11 Operate	BKR FAIL 1 T1 OP
[M5] Contact Output 11 Seal-In	OFF
[M5] Contact Output 11 Events	Enabled
[M6] Contact Output 12 ID	Rec. en prog
[M6] Contact Output 12 Operate	AR RIP
[M6] Contact Output 12 Seal-In	OFF
[M6] Contact Output 12 Events	Enabled
[P1] Contact Output 13 ID	Prueba HPOTT
[P1] Contact Output 13 Operate	HYBRID POTT OP
[P1] Contact Output 13 Seal-In	OFF
[P1] Contact Output 13 Events	Enabled
[P2] Contact Output 14 ID	TRIP POLO A
[P2] Contact Output 14 Operate	TRIP PHASE A
[P2] Contact Output 14 Seal-In	OFF
[P2] Contact Output 14 Events	Enabled
[P3] Contact Output 15 ID	TRIP POLO B
[P3] Contact Output 15 Operate	TRIP PHASE B
[P3] Contact Output 15 Seal-In	OFF
[P3] Contact Output 15 Events	Enabled
[P4] Contact Output 16 ID	TRIP POLO C
[P4] Contact Output 16 Operate	TRIP PHASE C
[P4] Contact Output 16 Seal-In	OFF
[P4] Contact Output 16 Events	Enabled
[P5] Contact Output 17 ID	TRIP POLO A
[P5] Contact Output 17 Operate	TRIP PHASE A
[P5] Contact Output 17 Seal-In	OFF
[P5] Contact Output 17 Events	Enabled
[P6] Contact Output 18 ID	TRIP POLO B
[P6] Contact Output 18 Operate	TRIP PHASE B
[P6] Contact Output 18 Seal-In	OFF
[P6] Contact Output 18 Events	Enabled
[U1] Contact Output 19 ID	TRIP POLO C
[U1] Contact Output 19 Operate	TRIP PHASE C
[U1] Contact Output 19 Seal-In	OFF
[U1] Contact Output 19 Events	Enabled
[U2] Contact Output 20 ID	orden 79
[U2] Contact Output 20 Operate	AR CLOSE BKR 1
[U2] Contact Output 20 Seal-In	OFF
[U2] Contact Output 20 Events	Enabled
[U3] Contact Output 21 ID	RETRIP A
[U3] Contact Output 21 Operate	BKR FAIL 1 RETRIP
[U3] Contact Output 21 Seal-In	OFF
[U3] Contact Output 21 Events	Enabled
[U4] Contact Output 22 ID	RETRIP B
[U4] Contact Output 22 Operate	BKR FAIL 1 RETRIP

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
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DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[U4] Contact Output 22 Seal-In	OFF
[U4] Contact Output 22 Events	Enabled
[U5] Contact Output 23 ID	RETRIP C
[U5] Contact Output 23 Operate	BKR FAIL 1 RETRIP
[U5] Contact Output 23 Seal-In	OFF
[U5] Contact Output 23 Events	Enabled
[W1] Contact Output 25 ID	TX. 85A2
[W1] Contact Output 25 Operate	Emision 85A On (VO24)
[W1] Contact Output 25 Seal-In	OFF
[W1] Contact Output 25 Events	Enabled
[W2] Contact Output 26 ID	TX. 85D
[W2] Contact Output 26 Operate	Tx. 85D On (VO22)
[W2] Contact Output 26 Seal-In	OFF
[W2] Contact Output 26 Events	Enabled

VIRTUAL OUTPUTS

Virtual Output 1 ID	Trip 3p
Virtual Output 1 Events	Enabled
Virtual Output 2 ID	Blq.21Z1 21N
Virtual Output 2 Events	Enabled
Virtual Output 3 ID	Blq.21Z2-Z5
Virtual Output 3 Events	Disabled
Virtual Output 4 ID	Start 50BF
Virtual Output 4 Events	Enabled
Virtual Output 5 ID	Trip 85D
Virtual Output 5 Events	Enabled
Virtual Output 6 ID	Bloq. 79
Virtual Output 6 Events	Enabled
Virtual Output 7 ID	Open 3p
Virtual Output 7 Events	Enabled
Virtual Output 8 ID	VT ok
Virtual Output 8 Events	Enabled
Virtual Output 9 ID	LED Z1 Op.
Virtual Output 9 Events	Disabled
Virtual Output 10 ID	LED Z1B Op.
Virtual Output 10 Events	Disabled
Virtual Output 11 ID	LED Z2 Op.
Virtual Output 11 Events	Disabled
Virtual Output 12 ID	LED Z3 Op.
Virtual Output 12 Events	Disabled
Virtual Output 13 ID	LED Z4 Op.
Virtual Output 13 Events	Disabled
Virtual Output 14 ID	LED 51-51N
Virtual Output 14 Events	Disabled
Virtual Output 15 ID	LED ECHO
Virtual Output 15 Events	Disabled
Virtual Output 16 ID	LED 67N
Virtual Output 16 Events	Disabled
Virtual Output 17 ID	AR 3P START
Virtual Output 17 Events	Enabled
Virtual Output 21 ID	RX. 85A
Virtual Output 21 Events	Enabled
Virtual Output 22 ID	Tx. 85D
Virtual Output 22 Events	Disabled
Virtual Output 23 ID	BLOCK HYBRID
Virtual Output 23 Events	Disabled
Virtual Output 24 ID	Emision 85A
Virtual Output 24 Events	Enabled
Virtual Output 30 ID	DNP 79 BLOQ
Virtual Output 30 Events	Disabled
Virtual Output 31 ID	DNP 79 ON
Virtual Output 31 Events	Disabled
Virtual Output 32 ID	DNP TP LINEA
Virtual Output 32 Events	Disabled
Virtual Output 33 ID	DNP TP BARRA

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DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 33 Events	Disabled
Virtual Output 34 ID	DNP RX RAN
Virtual Output 34 Events	Disabled
Virtual Output 35 ID	DNP TX 85A
Virtual Output 35 Events	Disabled
Virtual Output 36 ID	DNP RX JAH
Virtual Output 36 Events	Disabled
Virtual Output 37 ID	DNP ECHO
Virtual Output 37 Events	Disabled
Virtual Output 38 ID	DNP 79 CLOSE
Virtual Output 38 Events	Disabled
Virtual Output 39 ID	DNP 21/21N
Virtual Output 39 Events	Disabled
Virtual Output 40 ID	DNP 67N
Virtual Output 40 Events	Disabled
Virtual Output 41 ID	DNP 50BF
Virtual Output 41 Events	Disabled
Virtual Output 42 ID	DNP Z1B
Virtual Output 42 Events	Disabled
Virtual Output 43 ID	DNP Z1
Virtual Output 43 Events	Disabled
Virtual Output 44 ID	DNP Z2
Virtual Output 44 Events	Disabled
Virtual Output 45 ID	DNP Z3
Virtual Output 45 Events	Disabled
Virtual Output 46 ID	DNP Z4
Virtual Output 46 Events	Disabled
Virtual Output 47 ID	DNP 51/51N
Virtual Output 47 Events	Disabled
Virtual Output 48 ID	DNP TRIP A
Virtual Output 48 Events	Disabled
Virtual Output 49 ID	DNP TRIP B
Virtual Output 49 Events	Disabled
Virtual Output 50 ID	DNP TRIP C
Virtual Output 50 Events	Disabled
Virtual Output 51 ID	DNP TRIP GND
Virtual Output 51 Events	Disabled
Virtual Output 52 ID	DNP TRIP S1
Virtual Output 52 Events	Disabled
Virtual Output 53 ID	DNP PICKUP
Virtual Output 53 Events	Disabled
Virtual Output 54 ID	DNP MOD EMER
Virtual Output 54 Events	Disabled
Virtual Output 55 ID	DNP SOTF
Virtual Output 55 Events	Disabled
Virtual Output 56 ID	DNP VT FAIL
Virtual Output 56 Events	Disabled
Virtual Output 57 ID	DNP PSWING
Virtual Output 57 Events	Disabled
Virtual Output 58 ID	DNP 79BLQ EX
Virtual Output 58 Events	Disabled
Virtual Output 59 ID	DNP RX85D
Virtual Output 59 Events	Disabled
Virtual Output 60 ID	DNP TX85D
Virtual Output 60 Events	Disabled
Virtual Output 61 ID	DNP INC PCOR
Virtual Output 61 Events	Disabled
Virtual Output 64 ID	Osc Trigger
Virtual Output 64 Events	Enabled
Virtual Output 65 ID	EDAG Z5
Virtual Output 65 Events	Enabled
Virtual Output 66 ID	PKP Z3
Virtual Output 66 Events	Enabled
Virtual Output 67 ID	ECHO TX
Virtual Output 67 Events	Enabled

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DESCRIPTION: (NONE)
TEXT COLOR

REMOTE DEVICES

Remote Device 1 ID	Remote Device 1
Remote Device 1 ETYPE APPID	0
Remote Device 1 DATASET	Fixed
Remote Device 2 ID	Remote Device 2
Remote Device 2 ETYPE APPID	0
Remote Device 2 DATASET	Fixed
Remote Device 3 ID	Remote Device 3
Remote Device 3 ETYPE APPID	0
Remote Device 3 DATASET	Fixed
Remote Device 4 ID	Remote Device 4
Remote Device 4 ETYPE APPID	0
Remote Device 4 DATASET	Fixed
Remote Device 5 ID	Remote Device 5
Remote Device 5 ETYPE APPID	0
Remote Device 5 DATASET	Fixed
Remote Device 6 ID	Remote Device 6
Remote Device 6 ETYPE APPID	0
Remote Device 6 DATASET	Fixed
Remote Device 7 ID	Remote Device 7
Remote Device 7 ETYPE APPID	0
Remote Device 7 DATASET	Fixed
Remote Device 8 ID	Remote Device 8
Remote Device 8 ETYPE APPID	0
Remote Device 8 DATASET	Fixed
Remote Device 9 ID	Remote Device 9
Remote Device 9 ETYPE APPID	0
Remote Device 9 DATASET	Fixed
Remote Device 10 ID	Remote Device 10
Remote Device 10 ETYPE APPID	0
Remote Device 10 DATASET	Fixed
Remote Device 11 ID	Remote Device 11
Remote Device 11 ETYPE APPID	0
Remote Device 11 DATASET	Fixed
Remote Device 12 ID	Remote Device 12
Remote Device 12 ETYPE APPID	0
Remote Device 12 DATASET	Fixed
Remote Device 13 ID	Remote Device 13
Remote Device 13 ETYPE APPID	0
Remote Device 13 DATASET	Fixed
Remote Device 14 ID	Remote Device 14
Remote Device 14 ETYPE APPID	0
Remote Device 14 DATASET	Fixed
Remote Device 15 ID	Remote Device 15
Remote Device 15 ETYPE APPID	0
Remote Device 15 DATASET	Fixed
Remote Device 16 ID	Remote Device 16
Remote Device 16 ETYPE APPID	0
Remote Device 16 DATASET	Fixed

IEC 61850 GOOSE ANALOGS INPUTS

IEC61850 GOOSE Analog Input 1 Default Value	1000.000
IEC61850 GOOSE Analog Input 1 Mode	Default Value
IEC61850 GOOSE Analog Input 1 Units	
IEC61850 GOOSE Analog Input 1 PU Base	1.000
IEC61850 GOOSE Analog Input 2 Default Value	1000.000
IEC61850 GOOSE Analog Input 2 Mode	Default Value
IEC61850 GOOSE Analog Input 2 Units	
IEC61850 GOOSE Analog Input 2 PU Base	1.000
IEC61850 GOOSE Analog Input 3 Default Value	1000.000
IEC61850 GOOSE Analog Input 3 Mode	Default Value
IEC61850 GOOSE Analog Input 3 Units	
IEC61850 GOOSE Analog Input 3 PU Base	1.000
IEC61850 GOOSE Analog Input 4 Default Value	1000.000
IEC61850 GOOSE Analog Input 4 Mode	Default Value

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
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DEVICE DEFINITION
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DESCRIPTION: (NONE)
TEXT COLOR

IEC 61850 GOOSE ANALOGS INPUTS (continued from last page)

IEC61850 GOOSE Analog Input 4 Units	
IEC61850 GOOSE Analog Input 4 PU Base	1.000
IEC61850 GOOSE Analog Input 5 Default Value	1000.000
IEC61850 GOOSE Analog Input 5 Mode	Default Value
IEC61850 GOOSE Analog Input 5 Units	
IEC61850 GOOSE Analog Input 5 PU Base	1.000
IEC61850 GOOSE Analog Input 6 Default Value	1000.000
IEC61850 GOOSE Analog Input 6 Mode	Default Value
IEC61850 GOOSE Analog Input 6 Units	
IEC61850 GOOSE Analog Input 6 PU Base	1.000
IEC61850 GOOSE Analog Input 7 Default Value	1000.000
IEC61850 GOOSE Analog Input 7 Mode	Default Value
IEC61850 GOOSE Analog Input 7 Units	
IEC61850 GOOSE Analog Input 7 PU Base	1.000
IEC61850 GOOSE Analog Input 8 Default Value	1000.000
IEC61850 GOOSE Analog Input 8 Mode	Default Value
IEC61850 GOOSE Analog Input 8 Units	
IEC61850 GOOSE Analog Input 8 PU Base	1.000
IEC61850 GOOSE Analog Input 9 Default Value	1000.000
IEC61850 GOOSE Analog Input 9 Mode	Default Value
IEC61850 GOOSE Analog Input 9 Units	
IEC61850 GOOSE Analog Input 9 PU Base	1.000
IEC61850 GOOSE Analog Input 10 Default Value	1000.000
IEC61850 GOOSE Analog Input 10 Mode	Default Value
IEC61850 GOOSE Analog Input 10 Units	
IEC61850 GOOSE Analog Input 10 PU Base	1.000
IEC61850 GOOSE Analog Input 11 Default Value	1000.000
IEC61850 GOOSE Analog Input 11 Mode	Default Value
IEC61850 GOOSE Analog Input 11 Units	
IEC61850 GOOSE Analog Input 11 PU Base	1.000
IEC61850 GOOSE Analog Input 12 Default Value	1000.000
IEC61850 GOOSE Analog Input 12 Mode	Default Value
IEC61850 GOOSE Analog Input 12 Units	
IEC61850 GOOSE Analog Input 12 PU Base	1.000
IEC61850 GOOSE Analog Input 13 Default Value	1000.000
IEC61850 GOOSE Analog Input 13 Mode	Default Value
IEC61850 GOOSE Analog Input 13 Units	
IEC61850 GOOSE Analog Input 13 PU Base	1.000
IEC61850 GOOSE Analog Input 14 Default Value	1000.000
IEC61850 GOOSE Analog Input 14 Mode	Default Value
IEC61850 GOOSE Analog Input 14 Units	
IEC61850 GOOSE Analog Input 14 PU Base	1.000
IEC61850 GOOSE Analog Input 15 Default Value	1000.000
IEC61850 GOOSE Analog Input 15 Mode	Default Value
IEC61850 GOOSE Analog Input 15 Units	
IEC61850 GOOSE Analog Input 15 PU Base	1.000
IEC61850 GOOSE Analog Input 16 Default Value	1000.000
IEC61850 GOOSE Analog Input 16 Mode	Default Value
IEC61850 GOOSE Analog Input 16 Units	
IEC61850 GOOSE Analog Input 16 PU Base	1.000
IEC61850 GOOSE Analog Input 17 Default Value	1000.000
IEC61850 GOOSE Analog Input 17 Mode	Default Value
IEC61850 GOOSE Analog Input 17 Units	
IEC61850 GOOSE Analog Input 17 PU Base	1.000
IEC61850 GOOSE Analog Input 18 Default Value	1000.000
IEC61850 GOOSE Analog Input 18 Mode	Default Value
IEC61850 GOOSE Analog Input 18 Units	
IEC61850 GOOSE Analog Input 18 PU Base	1.000
IEC61850 GOOSE Analog Input 19 Default Value	1000.000
IEC61850 GOOSE Analog Input 19 Mode	Default Value
IEC61850 GOOSE Analog Input 19 Units	
IEC61850 GOOSE Analog Input 19 PU Base	1.000
IEC61850 GOOSE Analog Input 20 Default Value	1000.000
IEC61850 GOOSE Analog Input 20 Mode	Default Value
IEC61850 GOOSE Analog Input 20 Units	

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TEXT COLOR

IEC 61850 GOOSE ANALOGS INPUTS (continued from last page)

IEC61850 GOOSE Analog Input 20 PU Base	1.000
IEC61850 GOOSE Analog Input 21 Default Value	1000.000
IEC61850 GOOSE Analog Input 21 Mode	Default Value
IEC61850 GOOSE Analog Input 21 Units	
IEC61850 GOOSE Analog Input 21 PU Base	1.000
IEC61850 GOOSE Analog Input 22 Default Value	1000.000
IEC61850 GOOSE Analog Input 22 Mode	Default Value
IEC61850 GOOSE Analog Input 22 Units	
IEC61850 GOOSE Analog Input 22 PU Base	1.000
IEC61850 GOOSE Analog Input 23 Default Value	1000.000
IEC61850 GOOSE Analog Input 23 Mode	Default Value
IEC61850 GOOSE Analog Input 23 Units	
IEC61850 GOOSE Analog Input 23 PU Base	1.000
IEC61850 GOOSE Analog Input 24 Default Value	1000.000
IEC61850 GOOSE Analog Input 24 Mode	Default Value
IEC61850 GOOSE Analog Input 24 Units	
IEC61850 GOOSE Analog Input 24 PU Base	1.000
IEC61850 GOOSE Analog Input 25 Default Value	1000.000
IEC61850 GOOSE Analog Input 25 Mode	Default Value
IEC61850 GOOSE Analog Input 25 Units	
IEC61850 GOOSE Analog Input 25 PU Base	1.000
IEC61850 GOOSE Analog Input 26 Default Value	1000.000
IEC61850 GOOSE Analog Input 26 Mode	Default Value
IEC61850 GOOSE Analog Input 26 Units	
IEC61850 GOOSE Analog Input 26 PU Base	1.000
IEC61850 GOOSE Analog Input 27 Default Value	1000.000
IEC61850 GOOSE Analog Input 27 Mode	Default Value
IEC61850 GOOSE Analog Input 27 Units	
IEC61850 GOOSE Analog Input 27 PU Base	1.000
IEC61850 GOOSE Analog Input 28 Default Value	1000.000
IEC61850 GOOSE Analog Input 28 Mode	Default Value
IEC61850 GOOSE Analog Input 28 Units	
IEC61850 GOOSE Analog Input 28 PU Base	1.000
IEC61850 GOOSE Analog Input 29 Default Value	1000.000
IEC61850 GOOSE Analog Input 29 Mode	Default Value
IEC61850 GOOSE Analog Input 29 Units	
IEC61850 GOOSE Analog Input 29 PU Base	1.000
IEC61850 GOOSE Analog Input 30 Default Value	1000.000
IEC61850 GOOSE Analog Input 30 Mode	Default Value
IEC61850 GOOSE Analog Input 30 Units	
IEC61850 GOOSE Analog Input 30 PU Base	1.000
IEC61850 GOOSE Analog Input 31 Default Value	1000.000
IEC61850 GOOSE Analog Input 31 Mode	Default Value
IEC61850 GOOSE Analog Input 31 Units	
IEC61850 GOOSE Analog Input 31 PU Base	1.000
IEC61850 GOOSE Analog Input 32 Default Value	1000.000
IEC61850 GOOSE Analog Input 32 Mode	Default Value
IEC61850 GOOSE Analog Input 32 Units	
IEC61850 GOOSE Analog Input 32 PU Base	1.000

IEC 61850 GOOSE UINTEGERS INPUTS

IEC61850 GOOSE UInteger Input 1 Default Value	1000
IEC61850 GOOSE UInteger Input 1 Mode	Default Value
IEC61850 GOOSE UInteger Input 2 Default Value	1000
IEC61850 GOOSE UInteger Input 2 Mode	Default Value
IEC61850 GOOSE UInteger Input 3 Default Value	1000
IEC61850 GOOSE UInteger Input 3 Mode	Default Value
IEC61850 GOOSE UInteger Input 4 Default Value	1000
IEC61850 GOOSE UInteger Input 4 Mode	Default Value
IEC61850 GOOSE UInteger Input 5 Default Value	1000
IEC61850 GOOSE UInteger Input 5 Mode	Default Value
IEC61850 GOOSE UInteger Input 6 Default Value	1000
IEC61850 GOOSE UInteger Input 6 Mode	Default Value
IEC61850 GOOSE UInteger Input 7 Default Value	1000
IEC61850 GOOSE UInteger Input 7 Mode	Default Value

URS A9 DESPUЙS DE CAMBIO DE AJUSTES 26.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A9
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000046
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 08:50:11
DESCRIPTION: (NONE)
TEXT COLOR

IEC 61850 GOOSE UINTEGERS INPUTS (continued from last page)

IEC61850 GOOSE UInteger Input 8 Default Value	1000
IEC61850 GOOSE UInteger Input 8 Mode	Default Value
IEC61850 GOOSE UInteger Input 9 Default Value	1000
IEC61850 GOOSE UInteger Input 9 Mode	Default Value
IEC61850 GOOSE UInteger Input 10 Default Value	1000
IEC61850 GOOSE UInteger Input 10 Mode	Default Value
IEC61850 GOOSE UInteger Input 11 Default Value	1000
IEC61850 GOOSE UInteger Input 11 Mode	Default Value
IEC61850 GOOSE UInteger Input 12 Default Value	1000
IEC61850 GOOSE UInteger Input 12 Mode	Default Value
IEC61850 GOOSE UInteger Input 13 Default Value	1000
IEC61850 GOOSE UInteger Input 13 Mode	Default Value
IEC61850 GOOSE UInteger Input 14 Default Value	1000
IEC61850 GOOSE UInteger Input 14 Mode	Default Value
IEC61850 GOOSE UInteger Input 15 Default Value	1000
IEC61850 GOOSE UInteger Input 15 Mode	Default Value
IEC61850 GOOSE UInteger Input 16 Default Value	1000
IEC61850 GOOSE UInteger Input 16 Mode	Default Value

CONTROL DE REVISIÓN DEL CRAP

REVISOR	FECHA	N° EAP	OBSERVACIONES
Max Missene M.	26-03-2015	Nº 02/2015	Normalización de ajustes con respecto al esquema de Teleprotecciones en el Sistema 2 protección GED60.
Max Missene M.	07-09-2015	Nº 75/2015	Cambio de ajustes para evitar que la Z1B actúe de forma instantánea en Sistema 1 protección Siemens 7SA61 .

Razón de TTCC/TTPP

TTCC: 1000/1

TTPP: $\frac{154000}{\sqrt{3}}/115/\ \frac{115}{\sqrt{3}}$

Particularidades de Ajustes

- No hay.

Max / Centro Sur / Tinguiririca / A10 Tingui V4.6 Var Var

MLFB:	7SA61215AB927PR4
Versión del juego de parámetros:	V04.63.04
Ruta del equipo:	C:\Siemens\Digsi4\D4PROJ\Max\P7DI\GV\ST\00000053
Autor:	
Creado el:	23.10.15 11:59:40
Mod. por última vez el:	23.10.15 12:06:42
Modo de operación:	Sin línea
Comentario:	
Valores de ajuste en:	Presentación secundaria de los valores

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1 Device Configuration

Nº	Función	Volumen
0103	Setting Group Change Option	Disabled
0110	Trip mode	1-/3pole
0114	Distance protection pickup program	Z< (quadrilateral)
0120	Power Swing detection	Enabled
0121	Teleprotection for Distance prot.	POTT
0122	DTT Direct Transfer Trip	Disabled
0124	Instantaneous HighSpeed SOTF Overcurrent	Enabled
0125	Weak Infeed (Trip and/or Echo)	Enabled
0126	Backup overcurrent	Time Overcurrent Curve IEC
0131	Earth fault overcurrent	Time Overcurrent Curve IEC
0132	Teleprotection for Earth fault overcurr.	Disabled
0133	Auto-Reclose Function	1 AR-cycle
0134	Auto-Reclose control mode	with Trip and Action time
0135	Synchronism and Voltage Check	Enabled
0136	Over / Underfrequency Protection	Disabled
0137	Under / Overvoltage Protection	Disabled
0138	Fault Locator	Enabled
0139	Breaker Failure Protection	Enabled
0140	Trip Circuit Supervision	Disabled
0142	Thermal overload protection	Disabled

2 Power System Data 1

2.1 Grupo Power System Data 1; Grupo Transformers

Grupo Power System Data 1; Grupo Transformers

Nº	Parámetro	Valor	Grupo
0201	CT Starpoint	towards Line	todo
0203	Rated Primary Voltage	154,0 kV	todo
0204	Rated Secondary Voltage (Ph-Ph)	115 V	todo
0205	CT Rated Primary Current	1000 A	todo
0206	CT Rated Secondary Current	1A	todo
0210	U4 voltage transformer is	Usy2 transformer	todo
0211	Matching ratio Phase-VT To Open-Delta-VT	0,58	todo
0212	VT connection for Usy2	L2-E	todo
0214A	Angle adjustment Usy2-Usy1	0 °	todo
0215	Matching ratio Usy1 / Usy2	1,00	todo
0220	I4 current transformer is	Neutral Current (of the protected line)	todo
0221	Matching ratio I4/Iph for CT's	1,000	todo

2.2 Grupo Power System Data 1; Grupo Power System

Grupo Power System Data 1; Grupo Power System

Nº	Parámetro	Valor	Grupo
0207	System Starpoint is	Solid Earthed	todo
0230	Rated Frequency	50 Hz	todo
0235	Phase Sequence	L1 L2 L3	todo
0236	Distance measurement unit	km	todo
0237	Setting format for zero seq.comp. format	Zero seq. comp. factor K0 and angle(K0)	todo
0238A	Earth Fault O/C: setting for 1pole AR	all stages together	todo

2.3 Grupo Power System Data 1; Grupo Breaker

Grupo Power System Data 1; Grupo Breaker

Nº	Parámetro	Valor	Grupo
0239	Closing (operating) time of CB	0,06 sec	todo
0240A	Minimum TRIP Command Duration	0,12 sec	todo
0241A	Maximum Close Command Duration	0,25 sec	todo
0242	Dead Time for CB test-autoreclosure	0,10 sec	todo

3 Grupos de parámetros

3.1 Grupo Power System Data 2; Grupo Power System

Grupo Power System Data 2; Grupo Power System

Nº	Parámetro	Valor	Grupo
1103	Measurement: Full Scale Voltage (100%)	154,0 kV	A
1104	Measurement: Full Scale Current (100%)	1000 A	A
1105	Line Angle	77 °	A
1211	Angle of inclination, distance charact.	77 °	A
1107	P,Q operational measured values sign	not reversed	A
1110	x' - Line Reactance per length unit	0,3050 Ohm / km	A
1111	Line Length	110,9 km	A
1120	Zero seq. comp. factor K0 for zone Z1	0,804	A
1121	Zero seq. comp. angle for zone Z1	4,64 °	A
1122	Zero seq.comp.factor K0,higher zones >Z1	0,804	A
1123	Zero seq. comp. angle, higher zones >Z1	4,64 °	A

3.2 Grupo Power System Data 2; Grupo Line Status

Grupo Power System Data 2; Grupo Line Status

Nº	Parámetro	Valor	Grupo
1130A	Pole Open Current Threshold	0,05 A	A
1131A	Pole Open Voltage Threshold	11 V	A
1132A	Seal-in Time after ALL closures	0,20 sec	A
1133A	minimal time for line open before SOTF	0,25 sec	A
1134	Recognition of Line Closures with	CBaux OR Current or Manual close BI	A
1135	RESET of Trip Command	with Pole Open Current Threshold only	A
1136	open pole detector	with measurement (U/I,trip,pickup,CBaux)	A
1140A	CT Saturation Threshold	oo A	A
1150A	Seal-in Time after MANUAL closures	0,20 sec	A
1151	Manual CLOSE COMMAND generation	NO	A
1152	MANUAL Closure Impulse after CONTROL	<none>	todo

3.3 Grupo Power System Data 2; Grupo Trip 1-/3-pole

Grupo Power System Data 2; Grupo Trip 1-/3-pole

Nº	Parámetro	Valor	Grupo
1155	3 pole coupling	with Trip	A
1156A	Trip type with 2phase faults	3pole	A

3.4 Grupo Distance protection, general settings; Grupo General

Grupo Distance protection, general settings; Grupo General

Nº	Parámetro	Valor	Grupo
1201	Distance protection	ON	A
1202	Phase Current threshold for dist. meas.	0,05 A	A
1211	Angle of inclination, distance charact.	77 °	A
1208	Series compensated line	NO	A
1232	Instantaneous trip after SwitchOnToFault	with Zone Z1B	A
1241	R load, minimum Load Impedance (ph-e)	oo Ohm	A
1242	PHI load, maximum Load Angle (ph-e)	35 °	A
1243	R load, minimum Load Impedance (ph-ph)	oo Ohm	A
1244	PHI load, maximum Load Angle (ph-ph)	35 °	A
1317A	Single pole trip for faults in Z2	NO	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.5 Grupo Distance protection, general settings; Grupo Earth faults

Grupo Distance protection, general settings; Grupo Earth faults

Nº	Parámetro	Valor	Grupo
1203	3I0 threshold for neutral current pickup	0,05 A	A
1204	3U0 threshold zero seq. voltage pickup	2 V	A
1207A	3I0>-pickup-stabilisation (3I0> /Iphmax)	0,10	A
1209A	criterion of earth fault recognition	3I0> OR 3U0>	A
1221A	Loop selection with 2Ph-E faults	all loops	A

3.6 Grupo Distance protection, general settings; Grupo Time Delays

Grupo Distance protection, general settings; Grupo Time Delays

Nº	Parámetro	Valor	Grupo
1210	Condition for zone timer start	with distance pickup	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1325	T3 delay	2,50 sec	A
1335	T4 delay	1,50 sec	A
1345	T5 delay	oo sec	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A

3.7 Grupo Distance zones (quadrilateral); Grupo Zone Z1

Grupo Distance zones (quadrilateral); Grupo Zone Z1

Nº	Parámetro	Valor	Grupo
1301	Operating mode Z1	Forward	A
1302	R(Z1), Resistance for ph-ph-faults	19,494 Ohm	A
1303	X(Z1), Reactance	19,494 Ohm	A
1304	RE(Z1), Resistance for ph-e faults	19,494 Ohm	A
1305	T1-1phase, delay for single phase faults	0,00 sec	A
1306	T1multi-ph, delay for multi phase faults	0,00 sec	A
1307	Zone Reduction Angle (load compensation)	0 °	A

3.8 Grupo Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Grupo Distance zones (quadrilateral); Grupo Zone Z1B-exten.

Nº	Parámetro	Valor	Grupo
1351	Operating mode Z1B (overrreach zone)	Forward	A
1352	R(Z1B), Resistance for ph-ph-faults	68,181 Ohm	A
1353	X(Z1B), Reactance	68,181 Ohm	A
1354	RE(Z1B), Resistance for ph-e faults	68,181 Ohm	A
1355	T1B-1phase, delay for single ph. faults	0,00 sec	A
1356	T1B-multi-ph, delay for multi ph. faults	0,00 sec	A
1357	Z1B enabled before 1st AR (int. or ext.)	NO	A

3.9 Grupo Distance zones (quadrilateral); Grupo Zone Z2

Grupo Distance zones (quadrilateral); Grupo Zone Z2

Nº	Parámetro	Valor	Grupo
1311	Operating mode Z2	Forward	A
1312	R(Z2), Resistance for ph-ph-faults	34,798 Ohm	A
1313	X(Z2), Reactance	34,798 Ohm	A
1314	RE(Z2), Resistance for ph-e faults	34,798 Ohm	A
1315	T2-1phase, delay for single phase faults	0,60 sec	A
1316	T2multi-ph, delay for multi phase faults	0,60 sec	A
1317A	Single pole trip for faults in Z2	NO	A

3.10 Grupo Distance zones (quadrilateral); Grupo Zone Z3

Grupo Distance zones (quadrilateral); Grupo Zone Z3

Nº	Parámetro	Valor	Grupo
1321	Operating mode Z3	Reverse	A
1322	R(Z3), Resistance for ph-ph-faults	67,750 Ohm	A
1323	X(Z3), Reactance	67,750 Ohm	A
1324	RE(Z3), Resistance for ph-e faults	67,750 Ohm	A
1325	T3 delay	2,50 sec	A

3.11 Grupo Distance zones (quadrilateral); Grupo Zone Z4

Grupo Distance zones (quadrilateral); Grupo Zone Z4

Nº	Parámetro	Valor	Grupo
1331	Operating mode Z4	Forward	A
1332	R(Z4), Resistance for ph-ph-faults	66,957 Ohm	A
1333	X(Z4), Reactance	66,957 Ohm	A
1334	RE(Z4), Resistance for ph-e faults	66,957 Ohm	A
1335	T4 delay	1,50 sec	A

3.12 Grupo Distance zones (quadrilateral); Grupo Zone Z5

Grupo Distance zones (quadrilateral); Grupo Zone Z5

Nº	Parámetro	Valor	Grupo
1341	Operating mode Z5	Non-Directional	A
1342	R(Z5), Resistance for ph-ph-faults	70,000 Ohm	A
1343	X(Z5)+, Reactance for Forward direction	70,000 Ohm	A
1344	RE(Z5), Resistance for ph-e faults	70,000 Ohm	A
1345	T5 delay	oo sec	A
1346	X(Z5)-, Reactance for Reverse direction	70,000 Ohm	A

3.13 Grupo Power Swing

Grupo Power Swing

Nº	Parámetro	Valor	Grupo
2002	Power Swing Operating mode	all zones blocked	A
2006	Power swing trip	NO	A
2007	Trip delay after Power Swing Blocking	0,10 sec	A

3.14 Grupo Teleprotection for Distance prot.

Grupo Teleprotection for Distance prot.

Nº	Parámetro	Valor	Grupo
2101	Teleprotection for Distance protection	ON	A
2102	Type of Line	Three Terminals	A
2103A	Time for send signal prolongation	0,10 sec	A
2109A	Transient Block.: Duration external flt.	0,03 sec	A
2110A	Transient Block.: Blk.T. after ext. flt.	0,17 sec	A

3.15 Grupo Instantaneous HighSpeed SOTF Overcurrent

Grupo Instantaneous HighSpeed SOTF Overcurrent

Nº	Parámetro	Valor	Grupo
2401	Inst. High Speed SOTF-O/C is	ON	A

Grupo Instantaneous HighSpeed SOTF Overcurrent(2)

Nº	Parámetro	Valor	Grupo
2404	I>>> Pickup	0,80 A	A

3.16 Grupo Weak Infeed (Trip and/or Echo)

Grupo Weak Infeed (Trip and/or Echo)

Nº	Parámetro	Valor	Grupo
2501	Weak Infeed function	Echo only	A
2502A	Trip / Echo Delay after carrier receipt	0,04 sec	A
2503A	Trip Extension / Echo Impulse time	0,10 sec	A
2504A	Echo Block Time	0,50 sec	A
2505	Undervoltage (ph-e)	24 V	A
2509	Echo logic: Dis and EF on common channel	NO	todo

3.17 Grupo Backup overcurrent; Grupo General

Grupo Backup overcurrent; Grupo General

Nº	Parámetro	Valor	Grupo
2601	Operating mode	ON:only active with Loss of VT sec. cir.	A
2680	Trip time delay after SOTF	0,00 sec	A

3.18 Grupo Backup overcurrent; Grupo I>>

Grupo Backup overcurrent; Grupo I>>

Nº	Parámetro	Valor	Grupo
2610	Iph>> Pickup	oo A	A
2611	T Iph>> Time delay	oo sec	A
2612	3I0>> Pickup	oo A	A
2613	T 3I0>> Time delay	oo sec	A
2614	Instantaneous trip via BI	NO	A
2615	Instantaneous trip after SwitchOnToFault	NO	A

3.19 Grupo Backup overcurrent; Grupo I>

Grupo Backup overcurrent; Grupo I>

Nº	Parámetro	Valor	Grupo
2620	Iph> Pickup	oo A	A
2621	T Iph> Time delay	oo sec	A
2622	3I0> Pickup	oo A	A
2623	T 3I0> Time delay	oo sec	A
2624	Instantaneous trip via Teleprot./BI	NO	A
2625	Instantaneous trip after SwitchOnToFault	NO	A

3.20 Grupo Backup overcurrent; Grupo Inverse

Grupo Backup overcurrent; Grupo Inverse

Nº	Parámetro	Valor	Grupo
2640	Ip> Pickup	0,72 A	A
2642	T Ip Time Dial	0,10 sec	A
2646	T Ip Additional Time Delay	0,00 sec	A
2650	3I0p Pickup	0,05 A	A
2652	T 3I0p Time Dial	0,30 sec	A
2656	T 3I0p Additional Time Delay	0,00 sec	A
2660	IEC Curve	Normal Inverse	A
2670	Instantaneous trip via Teleprot./BI	NO	A
2671	Instantaneous trip after SwitchOnToFault	NO	A

3.21 Grupo Backup overcurrent; Grupo I - STUB

Grupo Backup overcurrent; Grupo I - STUB

Nº	Parámetro	Valor	Grupo
2630	Iph> STUB Pickup	oo A	A
2631	T Iph STUB Time delay	oo sec	A
2632	3I0> STUB Pickup	oo A	A
2633	T 3I0 STUB Time delay	oo sec	A
2634	Instantaneous trip via Teleprot./BI	NO	A
2635	Instantaneous trip after SwitchOnToFault	NO	A

3.22 Grupo Measurement Supervision; Grupo Balance / Summ.

Grupo Measurement Supervision; Grupo Balance / Summ.

Nº	Parámetro	Valor	Grupo
2901	Measurement Supervision	ON	A
2902A	Voltage Threshold for Balance Monitoring	48 V	A
2903A	Balance Factor for Voltage Monitor	0,75	A
2904A	Current Balance Monitor	0,10 A	A
2905A	Balance Factor for Current Monitor	0,50	A
2906A	Summated Current Monitoring Threshold	0,06 A	A
2907A	Summated Current Monitoring Factor	0,10	A
2908A	T Balance Factor for Voltage Monitor	5 sec	A
2909A	T Current Balance Monitor	5 sec	A

3.23 Grupo Measurement Supervision; Grupo Fuse Fail. Mon.

Grupo Measurement Supervision; Grupo Fuse Fail. Mon.

Nº	Parámetro	Valor	Grupo
2910	Fuse Failure Monitor	ON	A
2911A	Minimum Voltage Threshold U>	29 V	A
2912A	Maximum Current Threshold I<	0,10 A	A
2913A	Maximum Voltage Threshold U< (3phase)	5 V	A
2914A	Delta Current Threshold (3phase)	0,06 A	A
2915	Voltage Failure Supervision	with current superv. and CBaux	A
2916A	Delay Voltage Failure Supervision	3,00 sec	A

3.24 Grupo Measurement Supervision; Grupo VT mcb

Grupo Measurement Supervision; Grupo VT mcb

Nº	Parámetro	Valor	Grupo
2921	VT mcb operating time	5 ms	A

3.25 Grupo Measurement Supervision; Grupo Load Angle

Grupo Measurement Supervision; Grupo Load Angle

Nº	Parámetro	Valor	Grupo
2941	Limit setting PhiA	200 °	A
2942	Limit setting PhiB	340 °	A
2943	Minimum value I1>	0,05 A	A
2944	Minimum value U1>	19 V	A

3.26 Grupo Earth fault overcurrent; Grupo General

Grupo Earth fault overcurrent; Grupo General

Nº	Parámetro	Valor	Grupo
3101	Earth Fault overcurrent function	ON	A
3102	Block E/F for Distance protection	NO	A
3174	Block E/F for Distance Protection Pickup	in each zone	A
3103	Block E/F for 1pole Dead time	YES	A
3104A	Stabilisation Slope with Iphase	10 %	A
3109	Single pole trip with earth flt.prot.	YES	A
3170	2nd harmonic ratio for inrush restraint	20 %	A
3171	Max.Current, overriding inrush restraint	4,50 A	A
3172	Instantaneous mode after SwitchOnToFault	with Pickup and direction	A
3173	Trip time delay after SOTF	0,00 sec	A

3.27 Grupo Earth fault overcurrent; Grupo 3I0>>>

Grupo Earth fault overcurrent; Grupo 3I0>>>

Nº	Parámetro	Valor	Grupo
3110	Operating mode	Inactive	A
3111	3I0>>> Pickup	4,00 A	A
3112	T 3I0>>> Time delay	0,30 sec	A
3113	Instantaneous trip via Teleprot./BI	NO	A
3114	Instantaneous trip after SwitchOnToFault	NO	A
3115	Inrush Blocking	NO	A

3.28 Grupo Earth fault overcurrent; Grupo 3I0>>

Grupo Earth fault overcurrent; Grupo 3I0>>

Nº	Parámetro	Valor	Grupo
3120	Operating mode	Inactive	A
3121	3I0>> Pickup	2,00 A	A
3122	T 3I0>> Time Delay	0,60 sec	A
3123	Instantaneous trip via Teleprot./BI	NO	A
3124	Instantaneous trip after SwitchOnToFault	NO	A
3125	Inrush Blocking	NO	A

3.29 Grupo Earth fault overcurrent; Grupo 3I0>

Grupo Earth fault overcurrent; Grupo 3I0>

Nº	Parámetro	Valor	Grupo
3130	Operating mode	Inactive	A
3131	3I0> Pickup	1,00 A	A
3132	T 3I0> Time Delay	0,90 sec	A
3133	Instantaneous trip via Teleprot./BI	NO	A
3134	Instantaneous trip after SwitchOnToFault	NO	A
3135	Inrush Blocking	NO	A

3.30 Grupo Earth fault overcurrent; Grupo 3I0 InverseTime

Grupo Earth fault overcurrent; Grupo 3I0 InverseTime

Nº	Parámetro	Valor	Grupo
3140	Operating mode	Forward	A
3141	3I0p Pickup	0,05 A	A
3143	3I0p Time Dial	0,30 sec	A
3147	Additional Time Delay	0,00 sec	A
3148	Instantaneous trip via Teleprot./BI	NO	A
3149	Instantaneous trip after SwitchOnToFault	NO	A
3150	Inrush Blocking	NO	A
3151	IEC Curve	Normal Inverse	A

3.31 Grupo Earth fault overcurrent; Grupo Direction

Grupo Earth fault overcurrent; Grupo Direction

Nº	Parámetro	Valor	Grupo
3160	Polarization	with U0 + IY or U2	A
3162A	ALPHA, lower angle for forward direction	338 °	A
3163A	BETA, upper angle for forward direction	122 °	A
3164	Min. zero seq.voltage 3U0 for polarizing	3,0 V	A
3166	Min. neg. seq. polarizing voltage 3U2	3,0 V	A
3167	Min. neg. seq. polarizing current 3I2	0,05 A	A
3168	Compensation angle PHI comp. for Sr	255 °	A
3169	Forward direction power threshold	0,9 VA	A

3.32 Grupo Automatic Reclosure; Grupo General

Grupo Automatic Reclosure; Grupo General

Nº	Parámetro	Valor	Grupo
3401	Auto-Reclose function	ON	A
3402	CB ready interrogation at 1st trip	YES	A
3403	Reclaim time after successful AR cycle	8,00 sec	A
3404	AR blocking duration after manual close	8,00 sec	A
3406	Evolving fault recognition	with Trip	A
3407	Evolving fault (during the dead time)	blocks AR	A
3408	AR start-signal monitoring time	0,20 sec	A
3409	Circuit Breaker (CB) Supervision Time	3,00 sec	A
3410	Send delay for remote close command	oo sec	A
3411A	Maximum dead time extension	oo sec	A

3.33 Grupo Automatic Reclosure; Grupo 1st AR-cyle

Grupo Automatic Reclosure; Grupo 1st AR-cyle

Nº	Parámetro	Valor	Grupo
3450	Start of AR allowed in this cycle	YES	A
3451	Action time	0,20 sec	A
3456	Dead time after 1pole trip	1,20 sec	A
3457	Dead time after 3pole trip	0,50 sec	A
3458	Dead time after evolving fault	1,00 sec	A
3459	CB ready interrogation before reclosing	YES	A
3460	Request for synchro-check after 3pole AR	YES	A

3.34 Grupo Automatic Reclosure; Grupo 3pTRIP/DLC/RDT

Grupo Automatic Reclosure; Grupo 3pTRIP/DLC/RDT

Nº	Parámetro	Valor	Grupo
3430	3pole TRIP by AR	YES	A
3431	Dead Line Check or Reduced Dead Time	Without	A
3438	Supervision time for dead/ live voltage	0,10 sec	A
3440	Voltage threshold for live line or bus	46 V	A
3441	Voltage threshold for dead line or bus	27 V	A

3.35 Grupo Automatic Reclosure; Grupo Start AR with..

Grupo Automatic Reclosure; Grupo Start AR with..

Nº	Parámetro	Valor	Grupo
3420	AR with distance protection	YES	A
3421	AR with switch-onto-fault overcurrent	NO	A
3422	AR with weak infeed tripping	NO	A
3423	AR with earth fault overcurrent prot.	NO	A
3425	AR with back-up overcurrent	NO	A

3.36 Grupo Synchronism and Voltage Check; Grupo General

Grupo Synchronism and Voltage Check; Grupo General

Nº	Parámetro	Valor	Grupo
3501	Synchronism and Voltage Check function	ON	A
3502	Voltage threshold dead line / bus	23 V	A
3503	Voltage threshold live line / bus	81 V	A
3504	Maximum permissible voltage	138 V	A
3507	Maximum duration of synchronism-check	1,00 sec	A
3508	Synchronous condition stability timer	0,10 sec	A
3509	Synchronizable circuit breaker	<none>	todo

3.37 Grupo Synchronism and Voltage Check; Grupo with AR

Grupo Synchronism and Voltage Check; Grupo with AR

Nº	Parámetro	Valor	Grupo
3510	Operating mode with AR	without consideration of CB closing time	A
3511	Maximum voltage difference	30,0 V	A
3512	Maximum frequency difference	0,10 Hz	A
3513	Maximum angle difference	30 °	A
3515A	AR at Usy2>, Usy1>, and Synchr.	YES	A
3516	AR at Usy1< and Usy2>	NO	A
3517	AR at Usy1> and Usy2<	NO	A
3518	AR at Usy1< and Usy2<	NO	A
3519	Override of any check before AR	NO	A

3.38 Grupo Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Grupo Synchronism and Voltage Check; Grupo Man.Close+CNTRL

Nº	Parámetro	Valor	Grupo
3530	Operating mode with Man.Cl	without consideration of CB closing time	A
3531	Maximum voltage difference	9,5 V	A
3532	Maximum frequency difference	0,10 Hz	A
3533	Maximum angle difference	10 °	A
3535A	Manual Close at Usy2>, Usy1>, and Synchr	NO	A
3536	Manual Close at Usy1< and Usy2>	NO	A
3537	Manual Close at Usy1> and Usy2<	NO	A
3538	Manual Close at Usy1< and Usy2<	NO	A
3539	Override of any check before Man.Cl	NO	A

3.39 Grupo Fault Locator

Grupo Fault Locator

Nº	Parámetro	Valor	Grupo
3802	Start fault locator with	TRIP	A
3806	Load Compensation	YES	A

3.40 Grupo Breaker Failure; Grupo Breaker Failure

Grupo Breaker Failure; Grupo Breaker Failure

Nº	Parámetro	Valor	Grupo
3901	Breaker Failure Protection	ON	A
3902	Pick-up threshold I>	0,15 A	A
3903	1pole retrip with stage T1 (local trip)	NO	A
3904	T1, Delay after 1pole start (local trip)	0,01 sec	A
3905	T1, Delay after 3pole start (local trip)	0,01 sec	A
3906	T2, Delay of 2nd stage (busbar trip)	0,20 sec	A
3907	T3, Delay for start with defective bkr.	0,00 sec	A
3908	Trip output selection with defective bkr	NO	A
3909	Check Breaker contacts	YES	A

3.41 Grupo Breaker Failure; Grupo End fault prot.

Grupo Breaker Failure; Grupo End fault prot.

Nº	Parámetro	Valor	Grupo
3921	End fault protection	OFF	A
3922	Trip delay of end fault protection	2,00 sec	A

3.42 Grupo Breaker Failure; Grupo PoleDiscrepancy

Grupo Breaker Failure; Grupo PoleDiscrepancy

Nº	Parámetro	Valor	Grupo
3931	Pole Discrepancy supervision	OFF	A
3932	Trip delay with pole discrepancy	2,00 sec	A

URS A10 DESPUЙS DE CAMBIO DE AJUSTES 27.03.2015.URS
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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

RELAY INFORMATION

Main Firmware:	570
Boot Firmware:	301
Relay Serial Number:	AE5C09000045
CPU Serial Number:	A9KC09002059
F8L Module Serial Number	A8LC08003401
H6U Module Serial Number	A6UC08001818
M6U Module Serial Number	A6UC08001830
P6U Module Serial Number	A6UC08001831
U6U Module Serial Number	A6UC08001814
W6T Module Serial Number	A6TC08000923
Settings Send to Relay	Saturday, February 07, 2015 09:58:17

PRODUCT SETUP

SECURITY

Command Password	0
Setting Password	0
Command Password Access Timeout	5 min
Setting Password Access Timeout	30 min
Invalid Password Attempts	3
Password Lockout Duration	5 min
Password Access Events	Disabled
Local Setting Authorized	ON
Remote Setting Authorized	ON
Access Authorized Timeout	30 min

DISPLAY PROPERTIES

Flash Message Time	1.0 s
Default Message Timeout	300 s
Default Message Intensity (VFD Only)	25 %
Screen Saver Feature (LCD Only)	Enabled
Screen Saver Wait Time (LCD Only)	30 min
Current Cutoff Level	0.020 pu
Voltage Cutoff Level	1.0 V

COMMUNICATIONS

SERIAL PORTS

RS485 Com2 Baud Rate	19200
RS485 Com2 Parity	None
RS485 Com2 Response Min Time	0 ms

NETWORK

IP Address	192.168.104. 46
IP Subnet Mask	0. 0. 0. 0
Gateway IP Address	192.168.104. 1
Ethernet Operation Mode	Full-Duplex
OSI Network Address (NSAP)	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

MODBUS PROTOCOL

Modbus Slave Address	46
Modbus TCP Port Number	502

DNP PROTOCOL

DNP Channel 1 Port	NETWORK - TCP
DNP Channel 2 Port	NONE
DNP Address	46
DNP Client Address 1	192.168.104.101
DNP Client Address 2	0. 0. 0. 0
DNP Client Address 3	0. 0. 0. 0
DNP Client Address 4	0. 0. 0. 0
DNP Client Address 5	0. 0. 0. 0
DNP TCP/UDP Port Number	20000
DNP Unsol Resp Function	Disabled
DNP Unsol Resp Timeout	5 s
DNP Unsol Resp Max Retries	10
DNP Unsol Resp Dest Addr	1

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DNP PROTOCOL (continued from last page)

DNP Current Scale Factor	1
DNP Voltage Scale Factor	1
DNP Power Scale Factor	1
DNP Energy Scale Factor	1
DNP Power Factor Scale Factor	1
DNP Other Scale Factor	1
DNP Current Default Deadband	30000
DNP Voltage Default Deadband	30000
DNP Power Default Deadband	30000
DNP Energy Default Deadband	30000
DNP Power Factor Default Deadband	30000
DNP Other Default Deadband	30000
DNP Time Sync IIN Period	1440 min
DNP Message Fragment Size	240
DNP Object 1 Default Variation	2
DNP Object 2 Default Variation	2
DNP Object 20 Default Variation	1
DNP Object 21 Default Variation	1
DNP Object 22 Default Variation	1
DNP Object 23 Default Variation	1
DNP Object 30 Default Variation	1
DNP Object 32 Default Variation	1
DNP Number of Paired Controls	0
DNP TCP Connection Timeout	120 s

DNP - IEC104 POINTS LISTS

DNP Binary Input Point 0	DNP 79 BLOQ On (VO30)
DNP Binary Input Point 1	DNP 79 ON On (VO31)
DNP Binary Input Point 2	DNP TP LINEA On (VO32)
DNP Binary Input Point 3	DNP TP BARRA On (VO33)
DNP Binary Input Point 4	DNP RX RAN On (VO34)
DNP Binary Input Point 5	DNP TX 85A On (VO35)
DNP Binary Input Point 6	DNP RX JAH On (VO36)
DNP Binary Input Point 7	DNP ECHO On (VO37)
DNP Binary Input Point 8	DNP 79 CLOSE On (VO38)
DNP Binary Input Point 9	DNP 21/21N On (VO39)
DNP Binary Input Point 10	DNP 67N On (VO40)
DNP Binary Input Point 11	DNP 50BF On (VO41)
DNP Binary Input Point 12	DNP Z1B On (VO42)
DNP Binary Input Point 13	DNP Z1 On (VO43)
DNP Binary Input Point 14	DNP Z2 On (VO44)
DNP Binary Input Point 15	DNP Z3 On (VO45)
DNP Binary Input Point 16	DNP Z4 On (VO46)
DNP Binary Input Point 17	DNP 51/51N On (VO47)
DNP Binary Input Point 18	DNP TRIP A On (VO48)
DNP Binary Input Point 19	DNP TRIP B On (VO49)
DNP Binary Input Point 20	DNP TRIP C On (VO50)
DNP Binary Input Point 21	DNP TRIP GND On (VO51)
DNP Binary Input Point 22	DNP TRIP S1 On (VO52)
DNP Binary Input Point 23	DNP PICKUP On (VO53)
DNP Binary Input Point 24	DNP MOD EMER On (VO54)
DNP Binary Input Point 25	DNP SOTF On (VO55)
DNP Binary Input Point 26	DNP VT FAIL On (VO56)
DNP Binary Input Point 27	DNP PSWING On (VO57)
DNP Binary Input Point 28	DNP 79BLQ EX On (VO58)
DNP Binary Input Point 29	DNP RX85D On (VO59)
DNP Binary Input Point 30	DNP TX85D On (VO60)
DNP Binary Input Point 31	DNP INC PCOR On (VO61)
DNP Analog Input Point 0	Fault Location [1]

IEC 61850
GSSE / GOOSE CONFIGURATION
TRANSMISSION
GENERAL

Default GSSE/GOOSE Update Time	60 s

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GSSE

Function	Enabled
ID	GSSEOut
Destination MAC	00 00 00 00 00 00

TX CONFIGURABLE GOOSE

GOOSEOut 1 Function	Enabled
GOOSEOut 1 ID	GOOSEOut_1
GOOSEOut 1 Destination MAC	00 00 00 00 00 00
GOOSEOut 1 VLAN Priority	4
GOOSEOut 1 VLAN ID	0
GOOSEOut 1 ETYPE APPID	0
GOOSEOut 1 ConfRev	1
GOOSEOut 1 Retransmission Curve	Relaxed
GOOSEOut 2 Function	Enabled
GOOSEOut 2 ID	GOOSEOut_2
GOOSEOut 2 Destination MAC	00 00 00 00 00 00
GOOSEOut 2 VLAN Priority	4
GOOSEOut 2 VLAN ID	0
GOOSEOut 2 ETYPE APPID	0
GOOSEOut 2 ConfRev	1
GOOSEOut 2 Retransmission Curve	Relaxed
GOOSEOut 3 Function	Enabled
GOOSEOut 3 ID	GOOSEOut_3
GOOSEOut 3 Destination MAC	00 00 00 00 00 00
GOOSEOut 3 VLAN Priority	4
GOOSEOut 3 VLAN ID	0
GOOSEOut 3 ETYPE APPID	0
GOOSEOut 3 ConfRev	1
GOOSEOut 3 Retransmission Curve	Relaxed
GOOSEOut 4 Function	Enabled
GOOSEOut 4 ID	GOOSEOut_4
GOOSEOut 4 Destination MAC	00 00 00 00 00 00
GOOSEOut 4 VLAN Priority	4
GOOSEOut 4 VLAN ID	0
GOOSEOut 4 ETYPE APPID	0
GOOSEOut 4 ConfRev	1
GOOSEOut 4 Retransmission Curve	Relaxed
GOOSEOut 5 Function	Enabled
GOOSEOut 5 ID	GOOSEOut_5
GOOSEOut 5 Destination MAC	00 00 00 00 00 00
GOOSEOut 5 VLAN Priority	4
GOOSEOut 5 VLAN ID	0
GOOSEOut 5 ETYPE APPID	0
GOOSEOut 5 ConfRev	1
GOOSEOut 5 Retransmission Curve	Relaxed
GOOSEOut 6 Function	Enabled
GOOSEOut 6 ID	GOOSEOut_6
GOOSEOut 6 Destination MAC	00 00 00 00 00 00
GOOSEOut 6 VLAN Priority	4
GOOSEOut 6 VLAN ID	0
GOOSEOut 6 ETYPE APPID	0
GOOSEOut 6 ConfRev	1
GOOSEOut 6 Retransmission Curve	Relaxed
GOOSEOut 7 Function	Enabled
GOOSEOut 7 ID	GOOSEOut_7
GOOSEOut 7 Destination MAC	00 00 00 00 00 00
GOOSEOut 7 VLAN Priority	4
GOOSEOut 7 VLAN ID	0
GOOSEOut 7 ETYPE APPID	0
GOOSEOut 7 ConfRev	1
GOOSEOut 7 Retransmission Curve	Relaxed
GOOSEOut 8 Function	Enabled
GOOSEOut 8 ID	GOOSEOut_8
GOOSEOut 8 Destination MAC	00 00 00 00 00 00

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ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
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DESCRIPTION: (NONE)
TEXT COLOR

TX CONFIGURABLE GOOSE (continued from last page)

GOOSEOut 8 VLAN Priority	4
GOOSEOut 8 VLAN ID	0
GOOSEOut 8 ETYPE APPID	0
GOOSEOut 8 ConfRev	1
GOOSEOut 8 Retransmission Curve	Relaxed

SERVER CONFIGURATION

IEDName	IEDName
Logical Device Instance	LDInst
MMS TCP Port Number	102
LPHD DC PhyNam location	Location

MMXU DEADBANDS

MMXU1: TotW Deadband	10.000 %
MMXU1: TotVAr Deadband	10.000 %
MMXU1: TotVA Deadband	10.000 %
MMXU1: TotPF Deadband	10.000 %
MMXU1: Hz Deadband	10.000 %
MMXU1: PPV phsAB Deadband	10.000 %
MMXU1: PPV phsBC Deadband	10.000 %
MMXU1: PPV phsCA Deadband	10.000 %
MMXU1: PhV phsA Deadband	10.000 %
MMXU1: PhV phsB Deadband	10.000 %
MMXU1: PhV phsC Deadband	10.000 %
MMXU1: A phsA Deadband	10.000 %
MMXU1: A phsB Deadband	10.000 %
MMXU1: A phsC Deadband	10.000 %
MMXU1: A neut Deadband	10.000 %
MMXU1: W phsA Deadband	10.000 %
MMXU1: W phsB Deadband	10.000 %
MMXU1: W phsC Deadband	10.000 %
MMXU1: VAr phsA Deadband	10.000 %
MMXU1: VAr phsB Deadband	10.000 %
MMXU1: VAr phsC Deadband	10.000 %
MMXU1: VA phsA Deadband	10.000 %
MMXU1: VA phsB Deadband	10.000 %
MMXU1: VA phsC Deadband	10.000 %
MMXU1: PF phsA Deadband	10.000 %
MMXU1: PF phsB Deadband	10.000 %
MMXU1: PF phsC Deadband	10.000 %
MMXU2: TotW Deadband	10.000 %
MMXU2: TotVAr Deadband	10.000 %
MMXU2: TotVA Deadband	10.000 %
MMXU2: TotPF Deadband	10.000 %
MMXU2: Hz Deadband	10.000 %
MMXU2: PPV phsAB Deadband	10.000 %
MMXU2: PPV phsBC Deadband	10.000 %
MMXU2: PPV phsCA Deadband	10.000 %
MMXU2: PhV phsA Deadband	10.000 %
MMXU2: PhV phsB Deadband	10.000 %
MMXU2: PhV phsC Deadband	10.000 %
MMXU2: A phsA Deadband	10.000 %
MMXU2: A phsB Deadband	10.000 %
MMXU2: A phsC Deadband	10.000 %
MMXU2: A neut Deadband	10.000 %
MMXU2: W phsA Deadband	10.000 %
MMXU2: W phsB Deadband	10.000 %
MMXU2: W phsC Deadband	10.000 %
MMXU2: VAr phsA Deadband	10.000 %
MMXU2: VAr phsB Deadband	10.000 %
MMXU2: VAr phsC Deadband	10.000 %
MMXU2: VA phsA Deadband	10.000 %
MMXU2: VA phsB Deadband	10.000 %
MMXU2: VA phsC Deadband	10.000 %
MMXU2: PF phsA Deadband	10.000 %

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VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

MMXU DEADBANDS (continued from last page)

MMXU2: PF phsB Deadband	10.000 %
MMXU2: PF phsC Deadband	10.000 %

GGIO1 STATUS CONFIGURATION

Number of Status Points	8

GGIO2 CONTROL CONFIGURATION

SPCSO 1 ctlModel	1
SPCSO 2 ctlModel	1
SPCSO 3 ctlModel	1
SPCSO 4 ctlModel	1
SPCSO 5 ctlModel	1
SPCSO 6 ctlModel	1
SPCSO 7 ctlModel	1
SPCSO 8 ctlModel	1
SPCSO 9 ctlModel	1
SPCSO 10 ctlModel	1
SPCSO 11 ctlModel	1
SPCSO 12 ctlModel	1
SPCSO 13 ctlModel	1
SPCSO 14 ctlModel	1
SPCSO 15 ctlModel	1
SPCSO 16 ctlModel	1
SPCSO 17 ctlModel	1
SPCSO 18 ctlModel	1
SPCSO 19 ctlModel	1
SPCSO 20 ctlModel	1
SPCSO 21 ctlModel	1
SPCSO 22 ctlModel	1
SPCSO 23 ctlModel	1
SPCSO 24 ctlModel	1
SPCSO 25 ctlModel	1
SPCSO 26 ctlModel	1
SPCSO 27 ctlModel	1
SPCSO 28 ctlModel	1
SPCSO 29 ctlModel	1
SPCSO 30 ctlModel	1
SPCSO 31 ctlModel	1
SPCSO 32 ctlModel	1
SPCSO 33 ctlModel	1
SPCSO 34 ctlModel	1
SPCSO 35 ctlModel	1
SPCSO 36 ctlModel	1
SPCSO 37 ctlModel	1
SPCSO 38 ctlModel	1
SPCSO 39 ctlModel	1
SPCSO 40 ctlModel	1
SPCSO 41 ctlModel	1
SPCSO 42 ctlModel	1
SPCSO 43 ctlModel	1
SPCSO 44 ctlModel	1
SPCSO 45 ctlModel	1
SPCSO 46 ctlModel	1
SPCSO 47 ctlModel	1
SPCSO 48 ctlModel	1
SPCSO 49 ctlModel	1
SPCSO 50 ctlModel	1
SPCSO 51 ctlModel	1
SPCSO 52 ctlModel	1
SPCSO 53 ctlModel	1
SPCSO 54 ctlModel	1
SPCSO 55 ctlModel	1
SPCSO 56 ctlModel	1
SPCSO 57 ctlModel	1
SPCSO 58 ctlModel	1

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DEVICE DEFINITION
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VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

GGIO2 CONTROL CONFIGURATION (continued from last page)

SPCSO 59 ctlModel	1
SPCSO 60 ctlModel	1
SPCSO 61 ctlModel	1
SPCSO 62 ctlModel	1
SPCSO 63 ctlModel	1
SPCSO 64 ctlModel	1

GGIO4 ANALOG CONFIGURATION

IEC61850 GGIO4 Analogs	4
IEC61850 GGIO4 Analog 1 Value	OFF
IEC61850 GGIO4 Analog 1 db	100.000 %
IEC61850 GGIO4 Analog 1 min	0.000
IEC61850 GGIO4 Analog 1 max	1000000.000
IEC61850 GGIO4 Analog 2 Value	OFF
IEC61850 GGIO4 Analog 2 db	100.000 %
IEC61850 GGIO4 Analog 2 min	0.000
IEC61850 GGIO4 Analog 2 max	1000000.000
IEC61850 GGIO4 Analog 3 Value	OFF
IEC61850 GGIO4 Analog 3 db	100.000 %
IEC61850 GGIO4 Analog 3 min	0.000
IEC61850 GGIO4 Analog 3 max	1000000.000
IEC61850 GGIO4 Analog 4 Value	OFF
IEC61850 GGIO4 Analog 4 db	100.000 %
IEC61850 GGIO4 Analog 4 min	0.000
IEC61850 GGIO4 Analog 4 max	1000000.000
IEC61850 GGIO4 Analog 5 Value	OFF
IEC61850 GGIO4 Analog 5 db	100.000 %
IEC61850 GGIO4 Analog 5 min	0.000
IEC61850 GGIO4 Analog 5 max	1000000.000
IEC61850 GGIO4 Analog 6 Value	OFF
IEC61850 GGIO4 Analog 6 db	100.000 %
IEC61850 GGIO4 Analog 6 min	0.000
IEC61850 GGIO4 Analog 6 max	1000000.000
IEC61850 GGIO4 Analog 7 Value	OFF
IEC61850 GGIO4 Analog 7 db	100.000 %
IEC61850 GGIO4 Analog 7 min	0.000
IEC61850 GGIO4 Analog 7 max	1000000.000
IEC61850 GGIO4 Analog 8 Value	OFF
IEC61850 GGIO4 Analog 8 db	100.000 %
IEC61850 GGIO4 Analog 8 min	0.000
IEC61850 GGIO4 Analog 8 max	1000000.000
IEC61850 GGIO4 Analog 9 Value	OFF
IEC61850 GGIO4 Analog 9 db	100.000 %
IEC61850 GGIO4 Analog 9 min	0.000
IEC61850 GGIO4 Analog 9 max	1000000.000
IEC61850 GGIO4 Analog 10 Value	OFF
IEC61850 GGIO4 Analog 10 db	100.000 %
IEC61850 GGIO4 Analog 10 min	0.000
IEC61850 GGIO4 Analog 10 max	1000000.000
IEC61850 GGIO4 Analog 11 Value	OFF
IEC61850 GGIO4 Analog 11 db	100.000 %
IEC61850 GGIO4 Analog 11 min	0.000
IEC61850 GGIO4 Analog 11 max	1000000.000
IEC61850 GGIO4 Analog 12 Value	OFF
IEC61850 GGIO4 Analog 12 db	100.000 %
IEC61850 GGIO4 Analog 12 min	0.000
IEC61850 GGIO4 Analog 12 max	1000000.000
IEC61850 GGIO4 Analog 13 Value	OFF
IEC61850 GGIO4 Analog 13 db	100.000 %
IEC61850 GGIO4 Analog 13 min	0.000
IEC61850 GGIO4 Analog 13 max	1000000.000
IEC61850 GGIO4 Analog 14 Value	OFF
IEC61850 GGIO4 Analog 14 db	100.000 %
IEC61850 GGIO4 Analog 14 min	0.000
IEC61850 GGIO4 Analog 14 max	1000000.000

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UR SERIAL NUMBER: AE5C09000045
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DESCRIPTION: (NONE)
TEXT COLOR

GGIO4 ANALOG CONFIGURATION (continued from last page)

IEC61850 GGIO4 Analog 15 Value	OFF
IEC61850 GGIO4 Analog 15 db	100.000 %
IEC61850 GGIO4 Analog 15 min	0.000
IEC61850 GGIO4 Analog 15 max	1000000.000
IEC61850 GGIO4 Analog 16 Value	OFF
IEC61850 GGIO4 Analog 16 db	100.000 %
IEC61850 GGIO4 Analog 16 min	0.000
IEC61850 GGIO4 Analog 16 max	1000000.000
IEC61850 GGIO4 Analog 17 Value	OFF
IEC61850 GGIO4 Analog 17 db	100.000 %
IEC61850 GGIO4 Analog 17 min	0.000
IEC61850 GGIO4 Analog 17 max	1000000.000
IEC61850 GGIO4 Analog 18 Value	OFF
IEC61850 GGIO4 Analog 18 db	100.000 %
IEC61850 GGIO4 Analog 18 min	0.000
IEC61850 GGIO4 Analog 18 max	1000000.000
IEC61850 GGIO4 Analog 19 Value	OFF
IEC61850 GGIO4 Analog 19 db	100.000 %
IEC61850 GGIO4 Analog 19 min	0.000
IEC61850 GGIO4 Analog 19 max	1000000.000
IEC61850 GGIO4 Analog 20 Value	OFF
IEC61850 GGIO4 Analog 20 db	100.000 %
IEC61850 GGIO4 Analog 20 min	0.000
IEC61850 GGIO4 Analog 20 max	1000000.000
IEC61850 GGIO4 Analog 21 Value	OFF
IEC61850 GGIO4 Analog 21 db	100.000 %
IEC61850 GGIO4 Analog 21 min	0.000
IEC61850 GGIO4 Analog 21 max	1000000.000
IEC61850 GGIO4 Analog 22 Value	OFF
IEC61850 GGIO4 Analog 22 db	100.000 %
IEC61850 GGIO4 Analog 22 min	0.000
IEC61850 GGIO4 Analog 22 max	1000000.000
IEC61850 GGIO4 Analog 23 Value	OFF
IEC61850 GGIO4 Analog 23 db	100.000 %
IEC61850 GGIO4 Analog 23 min	0.000
IEC61850 GGIO4 Analog 23 max	1000000.000
IEC61850 GGIO4 Analog 24 Value	OFF
IEC61850 GGIO4 Analog 24 db	100.000 %
IEC61850 GGIO4 Analog 24 min	0.000
IEC61850 GGIO4 Analog 24 max	1000000.000
IEC61850 GGIO4 Analog 25 Value	OFF
IEC61850 GGIO4 Analog 25 db	100.000 %
IEC61850 GGIO4 Analog 25 min	0.000
IEC61850 GGIO4 Analog 25 max	1000000.000
IEC61850 GGIO4 Analog 26 Value	OFF
IEC61850 GGIO4 Analog 26 db	100.000 %
IEC61850 GGIO4 Analog 26 min	0.000
IEC61850 GGIO4 Analog 26 max	1000000.000
IEC61850 GGIO4 Analog 27 Value	OFF
IEC61850 GGIO4 Analog 27 db	100.000 %
IEC61850 GGIO4 Analog 27 min	0.000
IEC61850 GGIO4 Analog 27 max	1000000.000
IEC61850 GGIO4 Analog 28 Value	OFF
IEC61850 GGIO4 Analog 28 db	100.000 %
IEC61850 GGIO4 Analog 28 min	0.000
IEC61850 GGIO4 Analog 28 max	1000000.000
IEC61850 GGIO4 Analog 29 Value	OFF
IEC61850 GGIO4 Analog 29 db	100.000 %
IEC61850 GGIO4 Analog 29 min	0.000
IEC61850 GGIO4 Analog 29 max	1000000.000
IEC61850 GGIO4 Analog 30 Value	OFF
IEC61850 GGIO4 Analog 30 db	100.000 %
IEC61850 GGIO4 Analog 30 min	0.000
IEC61850 GGIO4 Analog 30 max	1000000.000
IEC61850 GGIO4 Analog 31 Value	OFF

URS A10 DESPUЙS DE CAMBIO DE AJUSTES 27.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A10
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

GGIO4 ANALOG CONFIGURATION (continued from last page)

IEC61850 GGIO4 Analog 31 db	100.000 %
IEC61850 GGIO4 Analog 31 min	0.000
IEC61850 GGIO4 Analog 31 max	1000000.000
IEC61850 GGIO4 Analog 32 Value	OFF
IEC61850 GGIO4 Analog 32 db	100.000 %
IEC61850 GGIO4 Analog 32 min	0.000
IEC61850 GGIO4 Analog 32 max	1000000.000

REPORT CONTROL CONFIGURATION

REPORT 1 (GGIO1.BR): RptID	
REPORT 1 (GGIO1.BR): OptFlds	0
REPORT 1 (GGIO1.BR): BufTm	0
REPORT 1 (GGIO1.BR): TrgOps	0
REPORT 1 (GGIO1.BR): IntgPd	0
REPORT 2 (GGIO1.BR01): RptID	
REPORT 2 (GGIO1.BR01): OptFlds	0
REPORT 2 (GGIO1.BR01): BufTm	0
REPORT 2 (GGIO1.BR01): TrgOps	0
REPORT 2 (GGIO1.BR01): IntgPd	0
REPORT 3 (GGIO1.RP): RptID	
REPORT 3 (GGIO1.RP): OptFlds	0
REPORT 3 (GGIO1.RP): BufTm	0
REPORT 3 (GGIO1.RP): TrgOps	0
REPORT 3 (GGIO1.RP): IntgPd	0
REPORT 4 (GGIO4.RP): RptID	
REPORT 4 (GGIO4.RP): OptFlds	0
REPORT 4 (GGIO4.RP): BufTm	0
REPORT 4 (GGIO4.RP): TrgOps	0
REPORT 4 (GGIO4.RP): IntgPd	0
REPORT 5 (MMXU1.BR): RptID	
REPORT 5 (MMXU1.BR): OptFlds	0
REPORT 5 (MMXU1.BR): BufTm	0
REPORT 5 (MMXU1.BR): TrgOps	0
REPORT 5 (MMXU1.BR): IntgPd	0
REPORT 6 (MMXU1.RP): RptID	
REPORT 6 (MMXU1.RP): OptFlds	0
REPORT 6 (MMXU1.RP): BufTm	0
REPORT 6 (MMXU1.RP): TrgOps	0
REPORT 6 (MMXU1.RP): IntgPd	0
REPORT 7 (MMXU2.BR): RptID	
REPORT 7 (MMXU2.BR): OptFlds	0
REPORT 7 (MMXU2.BR): BufTm	0
REPORT 7 (MMXU2.BR): TrgOps	0
REPORT 7 (MMXU2.BR): IntgPd	0
REPORT 8 (MMXU2.RP): RptID	
REPORT 8 (MMXU2.RP): OptFlds	0
REPORT 8 (MMXU2.RP): BufTm	0
REPORT 8 (MMXU2.RP): TrgOps	0
REPORT 8 (MMXU2.RP): IntgPd	0

XCBR CONFIGURATION

XCBR1 ST.Loc Operand	OFF
Clear XCBR1 OpCnt	No
XCBR2 ST.Loc Operand	OFF
Clear XCBR2 OpCnt	No

XSWI CONFIGURATION

XSWI1 ST.Loc Operand	OFF
XSWI2 ST.Loc Operand	OFF
XSWI3 ST.Loc Operand	OFF
XSWI4 ST.Loc Operand	OFF
XSWI5 ST.Loc Operand	OFF
XSWI6 ST.Loc Operand	OFF
XSWI7 ST.Loc Operand	OFF
XSWI8 ST.Loc Operand	OFF

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VERSION: 5.7X
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DESCRIPTION: (NONE)
TEXT COLOR

XSWI CONFIGURATION (continued from last page)

Clear XSWI1 OpCnt	No
Clear XSWI2 OpCnt	No
Clear XSWI3 OpCnt	No
Clear XSWI4 OpCnt	No
Clear XSWI5 OpCnt	No
Clear XSWI6 OpCnt	No
Clear XSWI7 OpCnt	No
Clear XSWI8 OpCnt	No

HTTP

HTTP TCP Port Number	80

TFTP

TFTP Main UDP Port Number	69
TFTP Data UDP Port Number 1	0
TFTP Data UDP Port Number 2	0

SNTP

Function	Enabled
Server IP Address	192.168.104.105
UDP Port Number	123

REAL TIME CLOCK

IRIG-B Signal Type	None
Real Time Clock Events	Disabled
Time Zone Offset	-4.0 hr
DST Function	Enabled
DST Start Month	October
DST Start Day	Saturday
DST Start Day Instance	Second
DST Start Hour	0
DST Stop Month	March
DST Stop Day	Saturday
DST Stop Day Instance	Second
DST Stop Hour	0

FAULT REPORT

Fault Report 1 Source	SRC 1 (SRC 1)
Fault Report 1 Trigger	TRIP OUTPUT OP
Fault Report 1 Positive Seq (Z1) Mag	33.82 ohms
Fault Report 1 Positive Seq (Z1) Angle	77 deg
Fault Report 1 Zero Seq (Z0) Mag	33.82 ohms
Fault Report 1 Zero Seq (Z0) Angle	77 deg
Fault Report 1 Line Length Units	km
Fault Report 1 Line Length	110.9
Fault Report 1 VT Substitution	None
Fault Report 1 System Z0 Mag	2.00 ohms
Fault Report 1 System Z0 Angle	75 deg

OSCILLOGRAPHY

Number Of Records	5
Trigger Mode	Automatic Overwrite
Trigger Position	30 %
Trigger Source	Osc Trigger On (VO64)
AC Input Waveforms	32 samples/cycle
Digital Channel 1	PH DIR1 BLK
Digital Channel 2	PH DIST Z1 OP
Digital Channel 3	GND DIST Z1 OP
Digital Channel 4	PH DIST Z2 OP
Digital Channel 5	GND DIST Z2 OP
Digital Channel 6	PH DIST Z3 OP
Digital Channel 7	GND DIST Z3 OP
Digital Channel 8	PH DIST Z4 OP
Digital Channel 9	GND DIST Z4 OP
Digital Channel 10	PH DIST Z5 OP

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SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

OSCILLOGRAPHY (continued from last page)

Digital Channel 11	GND DIST Z5 OP
Digital Channel 12	LINE PICKUP OP
Digital Channel 13	POWER SWING BLOCK
Digital Channel 14	NEUTRAL TOC1 OP
Digital Channel 15	PHASE TOC1 OP
Digital Channel 16	NEUTRAL TOC2 OP
Digital Channel 17	52A10 Abiert On(M7a)
Digital Channel 18	Falla TP Lin On(U7a)
Digital Channel 19	Rx. 85A1 On(U8a)
Digital Channel 20	POTT TX1
Digital Channel 21	Rx. 85D On(U8c)
Digital Channel 22	BKR FAIL 1 T1 OP
Digital Channel 23	BKR FAIL 1 RETRIP
Digital Channel 24	AR CLOSE BKR 1
Digital Channel 25	AR DISABLED
Digital Channel 26	OPEN POLE OP A
Digital Channel 27	OPEN POLE OP B
Digital Channel 28	OPEN POLE OP C
Digital Channel 29	OPEN POLE OP
Digital Channel 30	LED ECHO On (VO15)
Digital Channel 31	NEG SEQ DIR OC1 FWD
Digital Channel 32	NEG SEQ DIR OC1 REV
Digital Channel 33	TRIP OUTPUT OP
Digital Channel 34	TRIP PHASE A
Digital Channel 35	TRIP PHASE B
Digital Channel 36	TRIP PHASE C
Digital Channel 38	SRC1 VT FUSE FAIL OP
Digital Channel 39	Rx. 85A2 On(W7c)
Digital Channel 40	Emision 85A On (VO24)
Analog Channel 1	SRC1 Ia RMS
Analog Channel 2	SRC1 Ib RMS
Analog Channel 3	SRC1 Ic RMS
Analog Channel 4	SRC1 In RMS
Analog Channel 5	SRC1 Vag RMS
Analog Channel 6	SRC1 Vbg RMS
Analog Channel 7	SRC1 Vcg RMS
Analog Channel 8	SRC1 Frequency
Analog Channel 9	SRC1 V_0 Mag
Analog Channel 10	SRC1 I_0 Mag
Analog Channel 11	SRC1 V_2 Mag
Analog Channel 12	SRC1 I_2 Mag
Analog Channel 13	SRC1 V_1 Mag
Analog Channel 14	SRC1 I_1 Mag
Analog Channel 15	SRC2 Vx RMS
Analog Channel 16	Tracking Frequency

DATA LOGGER

Data Logger Mode	Continuous
Data Logger Trigger	OFF
Rate	60000 msec

USER-PROGRAMMABLE LEDS

USER PROGRAMMABLE LEDS

LED 1: OPERAND	LED Z1 Op. On (VO9)
LED 1: TYPE	Latched
LED 2: OPERAND	LED Z1B Op. On (VO10)
LED 2: TYPE	Latched
LED 3: OPERAND	LED Z2 Op. On (VO11)
LED 3: TYPE	Latched
LED 4: OPERAND	LED Z3 Op. On (VO12)
LED 4: TYPE	Latched
LED 5: OPERAND	LED Z4 Op. On (VO13)
LED 5: TYPE	Latched
LED 6: OPERAND	LINE PICKUP OP
LED 6: TYPE	Latched

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VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

USER PROGRAMMABLE LEDS (continued from last page)

LED 7: OPERAND	LED 67N On (VO16)
LED 7: TYPE	Latched
LED 8: OPERAND	LED 51-51N On (VO14)
LED 8: TYPE	Latched
LED 9: OPERAND	BKR FAIL 1 T1 OP
LED 9: TYPE	Latched
LED 10: OPERAND	POWER SWING BLOCK
LED 10: TYPE	Latched
LED 11: OPERAND	LED ECHO On (VO15)
LED 11: TYPE	Latched
LED 12: OPERAND	52A10 Abiert On(M7a)
LED 12: TYPE	Self-Reset
LED 13: OPERAND	Rx. 85A1 On(U8a)
LED 13: TYPE	Latched
LED 14: OPERAND	Rx. 85A2 On(W7c)
LED 14: TYPE	Latched
LED 15: OPERAND	HYBRID POTT TX1
LED 15: TYPE	Latched
LED 16: OPERAND	Tx. 85D On (VO22)
LED 16: TYPE	Latched
LED 17: OPERAND	Blq.21Z1 21N On (VO2)
LED 17: TYPE	Self-Reset
LED 18: OPERAND	Start 50BF On (VO4)
LED 18: TYPE	Latched
LED 19: OPERAND	AR CLOSE BKR 1
LED 19: TYPE	Latched
LED 20: OPERAND	Bloq. 79 On (VO6)
LED 20: TYPE	Self-Reset
LED 21: OPERAND	P.Cort. Abie On(M8a)
LED 21: TYPE	Self-Reset
LED 22: OPERAND	DNP INC PCOR On (VO61)
LED 22: TYPE	Self-Reset

USER-PROGRAMMABLE SELF TESTS

Remote Device Off Function	Enabled
Battery Fail Function	Enabled
SNTP Fail Function	Enabled
IRIG B Fail Function	Enabled

USER-DEFINABLE DISPLAYS

USER DISPLAY 1: Top Line	LIN PTA CORTES 2 A10
USER DISPLAY 1: Bottom Line	SISTEMA 2
USER DISPLAY 1: Item 1	0
USER DISPLAY 1: Item 2	0
USER DISPLAY 1: Item 3	0
USER DISPLAY 1: Item 4	0
USER DISPLAY 1: Item 5	0
USER DISPLAY 2: Top Line	POTENCIA ACTIVA
USER DISPLAY 2: Bottom Line	~1
USER DISPLAY 2: Item 1	7168
USER DISPLAY 2: Item 2	0
USER DISPLAY 2: Item 3	0
USER DISPLAY 2: Item 4	0
USER DISPLAY 2: Item 5	0
USER DISPLAY 3: Top Line	POTENCIA REACTIVA
USER DISPLAY 3: Bottom Line	~1
USER DISPLAY 3: Item 1	7176
USER DISPLAY 3: Item 2	0
USER DISPLAY 3: Item 3	0
USER DISPLAY 3: Item 4	0
USER DISPLAY 3: Item 5	0
USER DISPLAY 4: Top Line	CORRIENTE FASE A
USER DISPLAY 4: Bottom Line	~1
USER DISPLAY 4: Item 1	6144
USER DISPLAY 4: Item 2	0

URS A10 DESPUЙS DE CAMBIO DE AJUSTES 27.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A10
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

USER-DEFINABLE DISPLAYS (continued from last page)

USER DISPLAY 4: Item 3	0
USER DISPLAY 4: Item 4	0
USER DISPLAY 4: Item 5	0
USER DISPLAY 5: Top Line	CORRIENTE FASE B
USER DISPLAY 5: Bottom Line	~1
USER DISPLAY 5: Item 1	6146
USER DISPLAY 5: Item 2	0
USER DISPLAY 5: Item 3	0
USER DISPLAY 5: Item 4	0
USER DISPLAY 5: Item 5	0
USER DISPLAY 6: Top Line	CORRIENTE FASE C
USER DISPLAY 6: Bottom Line	~1
USER DISPLAY 6: Item 1	6148
USER DISPLAY 6: Item 2	0
USER DISPLAY 6: Item 3	0
USER DISPLAY 6: Item 4	0
USER DISPLAY 6: Item 5	0
USER DISPLAY 7: Top Line	TENSION VAB
USER DISPLAY 7: Bottom Line	~1
USER DISPLAY 7: Item 1	6671
USER DISPLAY 7: Item 2	0
USER DISPLAY 7: Item 3	0
USER DISPLAY 7: Item 4	0
USER DISPLAY 7: Item 5	0
USER DISPLAY 8: Top Line	TENSION VBC
USER DISPLAY 8: Bottom Line	~1
USER DISPLAY 8: Item 1	6673
USER DISPLAY 8: Item 2	0
USER DISPLAY 8: Item 3	0
USER DISPLAY 8: Item 4	0
USER DISPLAY 8: Item 5	0
USER DISPLAY 9: Top Line	TENSION VCA
USER DISPLAY 9: Bottom Line	~1
USER DISPLAY 9: Item 1	6675
USER DISPLAY 9: Item 2	0
USER DISPLAY 9: Item 3	0
USER DISPLAY 9: Item 4	0
USER DISPLAY 9: Item 5	0
USER DISPLAY 10: Top Line	DISTANCIA DE FALLA
USER DISPLAY 10: Bottom Line	~1 ~2
USER DISPLAY 10: Item 1	9061
USER DISPLAY 10: Item 2	37382
USER DISPLAY 10: Item 3	0
USER DISPLAY 10: Item 4	0
USER DISPLAY 10: Item 5	0
Invoke and Scroll	OFF

INSTALLATION

Relay Name	52A10_D60

SYSTEM SETUP
AC INPUTS

CURRENT

CT F1: Phase CT Primary	1000 A
CT F1: Phase CT Secondary	1 A
CT F1: Ground CT Primary	1000 A
CT F1: Ground CT Secondary	1 A

VOLTAGE

VT F5: Phase VT Connection	Wye
VT F5: Phase VT Secondary	66.4 V
VT F5: Phase VT Ratio	1339.13 :1
VT F5: Auxiliary VT Connection	Vbg
VT F5: Auxiliary VT Secondary	66.4 V
VT F5: Auxiliary VT Ratio	1339.13 :1

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DESCRIPTION: (NONE)
TEXT COLOR

POWER SYSTEM

Nominal Frequency	50 Hz
Phase Rotation	ABC
Frequency And Phase Reference	SRC 1 (SRC 1)
Frequency Tracking Function	Enabled

SIGNAL SOURCES

SOURCE 1: Name	SRC 1
SOURCE 1: Phase CT	F1
SOURCE 1: Ground CT	F1
SOURCE 1: Phase VT	F5
SOURCE 1: Auxiliary VT	None
SOURCE 2: Name	SRC 2
SOURCE 2: Phase CT	None
SOURCE 2: Ground CT	None
SOURCE 2: Phase VT	None
SOURCE 2: Auxiliary VT	F5

BREAKERS

Breaker 1 Function	Enabled
Breaker 1 Push Button Control	Disabled
Breaker 1 Name	52A10
Breaker 1 Mode	1-Pole
Breaker 1 Open	OFF
Breaker 1 Block Open	OFF
Breaker 1 Close	OFF
Breaker 1 Block Close	OFF
Breaker 1 Phase A/3-Pole Closed	Polo 1 cerr On(H7c)
Breaker 1 Phase A/3-Pole Opened	52A10 Abiert On(M7a)
Breaker 1 Phase B Closed	Polo 2 cerr On(H8a)
Breaker 1 Phase B Opened	OFF
Breaker 1 Phase C Closed	Polo 3 cerr On(H8c)
Breaker 1 Phase C Opened	OFF
Breaker 1 Toperate	0.070 s
Breaker 1 External Alarm	OFF
Breaker 1 Alarm Delay	0.000 s
Breaker 1 Manual Close Recal Time	0.000 s
Breaker 1 Out Of Service	OFF
Breaker 1 Events	Disabled

FLEXLOGIC

FLEXLOGIC EQUATION EDITOR

FlexLogic Entry 1	AR CLOSE BKR 1
FlexLogic Entry 2	POSITIVE ONE SHOT
FlexLogic Entry 3	BKR FAIL 1 T1 OP
FlexLogic Entry 4	POSITIVE ONE SHOT
FlexLogic Entry 5	POWER SWING BLOCK
FlexLogic Entry 6	POSITIVE ONE SHOT
FlexLogic Entry 7	TRIP OUTPUT OP
FlexLogic Entry 8	POSITIVE ONE SHOT
FlexLogic Entry 9	OR(4)
FlexLogic Entry 10	= Osc Trigger (VO64)
FlexLogic Entry 11	LINE PICKUP OP
FlexLogic Entry 12	PHASE TOC1 OP
FlexLogic Entry 13	PH DIST Z1 OP
FlexLogic Entry 14	PH DIST Z3 OP
FlexLogic Entry 15	PH DIST Z4 OP
FlexLogic Entry 16	PH DIST Z5 OP
FlexLogic Entry 17	GND DIST Z3 OP
FlexLogic Entry 18	GND DIST Z4 OP
FlexLogic Entry 19	GND DIST Z5 OP
FlexLogic Entry 20	NEUTRAL TOC1 OP
FlexLogic Entry 21	NEUTRAL TOC2 OP
FlexLogic Entry 22	HYBRID POTT OP
FlexLogic Entry 23	Trip 85D On (VO5)

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DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 24	OR(13)
FlexLogic Entry 25	= Trip 3p (VO1)
FlexLogic Entry 26	SRC1 VT FUSE FAIL OP
FlexLogic Entry 27	Falla TP Lin On(U7a)
FlexLogic Entry 28	OR(2)
FlexLogic Entry 29	= Blq.21Z1 21N (VO2)
FlexLogic Entry 30	Blq.21Z1 21N On (VO2)
FlexLogic Entry 31	POWER SWING BLOCK
FlexLogic Entry 32	OR(2)
FlexLogic Entry 33	= Blq.21Z2-Z5 (VO3)
FlexLogic Entry 34	TRIP OUTPUT OP
FlexLogic Entry 35	Op. 86B On(P8c)
FlexLogic Entry 36	Trip 85D On (VO5)
FlexLogic Entry 37	Start BF 87B On(W7a)
FlexLogic Entry 38	OR(4)
FlexLogic Entry 39	= Start 50BF (VO4)
FlexLogic Entry 40	P.Cort. Abie On(M8a)
FlexLogic Entry 41	NOT
FlexLogic Entry 42	P.Cort. Cerr On(M8c)
FlexLogic Entry 43	Rx. 85D On(U8c)
FlexLogic Entry 44	AND(3)
FlexLogic Entry 45	= Trip 85D (VO5)
FlexLogic Entry 46	52 apto On(H7a)
FlexLogic Entry 47	NOT
FlexLogic Entry 48	Hab. Reconex On(W5a)
FlexLogic Entry 49	NOT
FlexLogic Entry 50	Rec. en prog On(P7a)
FlexLogic Entry 51	Bloq. 79 p43 On(P7c)
FlexLogic Entry 52	Op. 86B On(P8c)
FlexLogic Entry 53	OR(5)
FlexLogic Entry 54	= Bloq. 79 (VO6)
FlexLogic Entry 55	OPEN POLE OP A
FlexLogic Entry 56	OPEN POLE OP B
FlexLogic Entry 57	OPEN POLE OP C
FlexLogic Entry 58	AND(3)
FlexLogic Entry 59	= Open 3p (VO7)
FlexLogic Entry 60	SRC1 VT FUSE FAIL OP
FlexLogic Entry 61	Falla TP Lin On(U7a)
FlexLogic Entry 62	OR(2)
FlexLogic Entry 63	NOT
FlexLogic Entry 64	= VT ok (VO8)
FlexLogic Entry 65	PH DIST Z1 OP
FlexLogic Entry 66	GND DIST Z1 OP
FlexLogic Entry 67	OR(2)
FlexLogic Entry 68	= LED Z1 Op. (VO9)
FlexLogic Entry 69	PH DIST Z2 OP
FlexLogic Entry 70	GND DIST Z2 OP
FlexLogic Entry 71	OR(2)
FlexLogic Entry 72	= LED Z1B Op. (VO10)
FlexLogic Entry 73	PH DIST Z3 OP
FlexLogic Entry 74	GND DIST Z3 OP
FlexLogic Entry 75	OR(2)
FlexLogic Entry 76	= LED Z2 Op. (VO11)
FlexLogic Entry 77	PH DIST Z4 OP
FlexLogic Entry 78	GND DIST Z4 OP
FlexLogic Entry 79	OR(2)
FlexLogic Entry 80	= LED Z3 Op. (VO12)
FlexLogic Entry 81	PH DIST Z5 OP
FlexLogic Entry 82	GND DIST Z5 OP
FlexLogic Entry 83	OR(2)
FlexLogic Entry 84	= LED Z4 Op. (VO13)
FlexLogic Entry 85	PHASE TOC1 OP
FlexLogic Entry 86	NEUTRAL TOC1 OP
FlexLogic Entry 87	OR(2)
FlexLogic Entry 88	= LED 51-51N (VO14)

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DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 89	Rx. 85A2 On(W7c)
FlexLogic Entry 90	Rx. 85A1 On(U8a)
FlexLogic Entry 91	AND(2)
FlexLogic Entry 92	Open 3p On (VO7)
FlexLogic Entry 93	HYBRID POTT TX1
FlexLogic Entry 94	AND(3)
FlexLogic Entry 95	= LED ECHO (VO15)
FlexLogic Entry 96	NEUTRAL TOC2 OP
FlexLogic Entry 97	VT ok On (VO8)
FlexLogic Entry 98	AND(2)
FlexLogic Entry 99	= LED 67N (VO16)
FlexLogic Entry 100	PH DIST Z1 OP
FlexLogic Entry 101	HYBRID POTT OP
FlexLogic Entry 102	GND DIST Z1 OP
FlexLogic Entry 103	OR(3)
FlexLogic Entry 104	= AR 3P START (VO17)
FlexLogic Entry 105	Rx. 85A1 On(U8a)
FlexLogic Entry 106	Rx. 85A2 On(W7c)
FlexLogic Entry 107	AND(2)
FlexLogic Entry 108	= RX. 85A (VO21)
FlexLogic Entry 109	P.Cort. Abie On(M8a)
FlexLogic Entry 110	NOT
FlexLogic Entry 111	P.Cort. Cerr On(M8c)
FlexLogic Entry 112	BKR FAIL 1 T1 OP
FlexLogic Entry 113	AND(3)
FlexLogic Entry 114	= Tx. 85D (VO22)
FlexLogic Entry 115	DNP INC PCOR On (VO61)
FlexLogic Entry 116	P.Cort. Abie On(M8a)
FlexLogic Entry 117	OR(2)
FlexLogic Entry 118	= BLOCK HYBRID (VO23)
FlexLogic Entry 119	AR DISABLED
FlexLogic Entry 120	= DNP 79 BLOQ (VO30)
FlexLogic Entry 121	AR ENABLED
FlexLogic Entry 122	= DNP 79 ON (VO31)
FlexLogic Entry 123	Falla TP Lin On(U7a)
FlexLogic Entry 124	= DNP TP LINEA (VO32)
FlexLogic Entry 125	Falla TP Bar On(U7c)
FlexLogic Entry 126	= DNP TP BARRA (VO33)
FlexLogic Entry 127	Rx. 85A1 On(U8a)
FlexLogic Entry 128	= DNP RX RAN (VO34)
FlexLogic Entry 129	HYBRID POTT TX1
FlexLogic Entry 130	= DNP TX 85A (VO35)
FlexLogic Entry 131	Rx. 85A2 On(W7c)
FlexLogic Entry 132	= DNP RX JAH (VO36)
FlexLogic Entry 133	Rx. 85A1 On(U8a)
FlexLogic Entry 134	Rx. 85A2 On(W7c)
FlexLogic Entry 135	AND(2)
FlexLogic Entry 136	Open 3p On (VO7)
FlexLogic Entry 137	HYBRID POTT TX1
FlexLogic Entry 138	AND(3)
FlexLogic Entry 139	= DNP ECHO (VO37)
FlexLogic Entry 140	AR CLOSE BKR 1
FlexLogic Entry 141	= DNP 79 CLOSE (VO38)
FlexLogic Entry 142	PH DIST Z1 OP
FlexLogic Entry 143	PH DIST Z2 OP
FlexLogic Entry 144	PH DIST Z3 OP
FlexLogic Entry 145	PH DIST Z4 OP
FlexLogic Entry 146	GND DIST Z1 OP
FlexLogic Entry 147	GND DIST Z2 OP
FlexLogic Entry 148	GND DIST Z3 OP
FlexLogic Entry 149	GND DIST Z4 OP
FlexLogic Entry 150	OR(8)
FlexLogic Entry 151	= DNP 21/21N (VO39)
FlexLogic Entry 152	NEUTRAL TOC2 OP
FlexLogic Entry 153	= DNP 67N (VO40)

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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
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DESCRIPTION: (NONE)
TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 154	BKR FAIL 1 T1 OP
FlexLogic Entry 155	= DNP 50BF (VO41)
FlexLogic Entry 156	PH DIST Z2 OP
FlexLogic Entry 157	GND DIST Z2 OP
FlexLogic Entry 158	OR(2)
FlexLogic Entry 159	= DNP Z1B (VO42)
FlexLogic Entry 160	PH DIST Z1 OP
FlexLogic Entry 161	GND DIST Z1 OP
FlexLogic Entry 162	OR(2)
FlexLogic Entry 163	= DNP Z1 (VO43)
FlexLogic Entry 164	PH DIST Z3 OP
FlexLogic Entry 165	GND DIST Z3 OP
FlexLogic Entry 166	OR(2)
FlexLogic Entry 167	= DNP Z2 (VO44)
FlexLogic Entry 168	PH DIST Z4 OP
FlexLogic Entry 169	GND DIST Z4 OP
FlexLogic Entry 170	OR(2)
FlexLogic Entry 171	= DNP Z3 (VO45)
FlexLogic Entry 172	PH DIST Z5 OP
FlexLogic Entry 173	GND DIST Z5 OP
FlexLogic Entry 174	OR(2)
FlexLogic Entry 175	= DNP Z4 (VO46)
FlexLogic Entry 176	PHASE TOC1 OP
FlexLogic Entry 177	NEUTRAL TOC1 OP
FlexLogic Entry 178	OR(2)
FlexLogic Entry 179	= DNP 51/51N (VO47)
FlexLogic Entry 180	TRIP PHASE A
FlexLogic Entry 181	= DNP TRIP A (VO48)
FlexLogic Entry 182	TRIP PHASE B
FlexLogic Entry 183	= DNP TRIP B (VO49)
FlexLogic Entry 184	TRIP PHASE C
FlexLogic Entry 185	= DNP TRIP C (VO50)
FlexLogic Entry 186	NEUTRAL TOC1 OP
FlexLogic Entry 187	NEUTRAL TOC2 OP
FlexLogic Entry 188	GND DIST Z1 OP
FlexLogic Entry 189	GND DIST Z2 OP
FlexLogic Entry 190	GND DIST Z3 OP
FlexLogic Entry 191	GND DIST Z4 OP
FlexLogic Entry 192	OR(6)
FlexLogic Entry 193	= DNP TRIP GND (VO51)
FlexLogic Entry 194	Trip polo 1 On(W5c)
FlexLogic Entry 195	Trip polo 2 On(W6a)
FlexLogic Entry 196	Trip polo 3 On(W6c)
FlexLogic Entry 197	OR(3)
FlexLogic Entry 198	= DNP TRIP S1 (VO52)
FlexLogic Entry 199	LED PICKUP
FlexLogic Entry 200	= DNP PICKUP (VO53)
FlexLogic Entry 201	SRC1 VT FUSE FAIL OP
FlexLogic Entry 202	Falla TP Lin On(U7a)
FlexLogic Entry 203	OR(2)
FlexLogic Entry 204	= DNP MOD EMER (VO54)
FlexLogic Entry 205	LINE PICKUP OP
FlexLogic Entry 206	= DNP SOTF (VO55)
FlexLogic Entry 207	SRC1 VT FUSE FAIL OP
FlexLogic Entry 208	= DNP VT FAIL (VO56)
FlexLogic Entry 209	POWER SWING BLOCK
FlexLogic Entry 210	= DNP PSWING (VO57)
FlexLogic Entry 211	52 apto On(H7a)
FlexLogic Entry 212	NOT
FlexLogic Entry 213	Hab. Reconex On(W5a)
FlexLogic Entry 214	NOT
FlexLogic Entry 215	Rec. en prog On(P7a)
FlexLogic Entry 216	Bloq. 79 p43 On(P7c)
FlexLogic Entry 217	Op. 86B On(P8c)
FlexLogic Entry 218	OR(5)

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TEXT COLOR

FLEXLOGIC EQUATION EDITOR (continued from last page)

FlexLogic Entry 219	= DNP 79BLQ EX (VO58)
FlexLogic Entry 220	Rx. 85D On(U8c)
FlexLogic Entry 221	= DNP RX85D (VO59)
FlexLogic Entry 222	BKR FAIL 1 T1 OP
FlexLogic Entry 223	= DNP TX85D (VO60)
FlexLogic Entry 224	P.Cort. Abie On(M8a)
FlexLogic Entry 225	P.Cort. Cerr On(M8c)
FlexLogic Entry 226	AND(2)
FlexLogic Entry 227	P.Cort. Abie Off(M8a)
FlexLogic Entry 228	P.Cort. Cerr Off(M8c)
FlexLogic Entry 229	AND(2)
FlexLogic Entry 230	OR(2)
FlexLogic Entry 231	= DNP INC PCOR (VO61)
FlexLogic Entry 232	HYBRID POTT TX1
FlexLogic Entry 233	TIMER 1
FlexLogic Entry 234	= Emision 85A (VO24)
FlexLogic Entry 235	GND DIST Z5 OP
FlexLogic Entry 236	PH DIST Z5 OP
FlexLogic Entry 237	OR(2)
FlexLogic Entry 238	TIMER 2
FlexLogic Entry 239	= Z5 EDAG (VO65)
FlexLogic Entry 240	PH DIST Z3 PKP
FlexLogic Entry 241	= PKP Z3 (VO66)
FlexLogic Entry 242	RX. 85A On (VO21)
FlexLogic Entry 243	Open 3p On (VO7)
FlexLogic Entry 244	AND(2)
FlexLogic Entry 245	= ECHO TX (VO67)
FlexLogic Entry 246	END

FLEXLOGIC TIMERS

Timer 1: Type	millisecond
Timer 1: Pickup Delay	0
Timer 1: Dropout Delay	100
Timer 2: Type	second
Timer 2: Pickup Delay	0
Timer 2: Dropout Delay	1

GROUPED ELEMENTS
GROUP 1

LINE PICKUP [GROUP 1]

Function	Enabled
Signal Source	SRC 1 (SRC 1)
Phase IOC Line Pickup	0.800 pu
UV Pickup	0.800 pu
Line End Open Pickup Delay	0.200 s
Line End Open Reset Delay	0.200 s
OV Pickup Delay	0.200 s
Autoreclose Coordination Bypass	Enabled
Autoreclose Coordination Pickup Delay	0.045 s
Autoreclose Coordination Reset Delay	0.005 s
Terminal Open	BREAKER 1 OPEN
AR Accelerate	OFF
Distance Trip	Enabled
Block	OFF
Target	Self-reset
Events	Enabled

DISTANCE

DISTANCE [GROUP 1]

Source	SRC 1 (SRC 1)
Memory Duration	10 cycles
Force Self-Polar	OFF
Force Mem-Polar	OFF

PHASE DISTANCE [GROUP 1]

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DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z1: Function	Enabled
PHASE DISTANCE Z1: Direction	Forward
PHASE DISTANCE Z1: Shape	Quad
PHASE DISTANCE Z1: Xfmr Vol Connection	None
PHASE DISTANCE Z1: Xfmr Curr Connection	None
PHASE DISTANCE Z1: Reach	19.49 ohms
PHASE DISTANCE Z1: RCA	90 deg
PHASE DISTANCE Z1: Rev Reach	0.02 ohms
PHASE DISTANCE Z1: Rev Reach RCA	77 deg
PHASE DISTANCE Z1: Comp Limit	90 deg
PHASE DISTANCE Z1: DIR RCA	49 deg
PHASE DISTANCE Z1: DIR Comp Limit	71 deg
PHASE DISTANCE Z1: Quad Right Blinder	19.49 ohms
PHASE DISTANCE Z1: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z1: Quad Left Blinder	19.49 ohms
PHASE DISTANCE Z1: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z1: Supervision	0.100 pu
PHASE DISTANCE Z1: Volt Level	0.000 pu
PHASE DISTANCE Z1: Delay	0.000 s
PHASE DISTANCE Z1: Block	Blq.21Z1 21N On (VO2)
PHASE DISTANCE Z1: Target	Self-reset
PHASE DISTANCE Z1: Events	Enabled
PHASE DISTANCE Z2: Function	Enabled
PHASE DISTANCE Z2: Direction	Forward
PHASE DISTANCE Z2: Shape	Quad
PHASE DISTANCE Z2: Xfmr Vol Connection	None
PHASE DISTANCE Z2: Xfmr Curr Connection	None
PHASE DISTANCE Z2: Reach	68.18 ohms
PHASE DISTANCE Z2: RCA	90 deg
PHASE DISTANCE Z2: Rev Reach	0.02 ohms
PHASE DISTANCE Z2: Rev Reach RCA	77 deg
PHASE DISTANCE Z2: Comp Limit	90 deg
PHASE DISTANCE Z2: DIR RCA	49 deg
PHASE DISTANCE Z2: DIR Comp Limit	71 deg
PHASE DISTANCE Z2: Quad Right Blinder	68.18 ohms
PHASE DISTANCE Z2: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z2: Quad Left Blinder	68.18 ohms
PHASE DISTANCE Z2: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z2: Supervision	0.100 pu
PHASE DISTANCE Z2: Volt Level	0.000 pu
PHASE DISTANCE Z2: Delay	65.000 s
PHASE DISTANCE Z2: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z2: Target	Self-reset
PHASE DISTANCE Z2: Events	Enabled
PHASE DISTANCE Z3: Function	Enabled
PHASE DISTANCE Z3: Direction	Forward
PHASE DISTANCE Z3: Shape	Quad
PHASE DISTANCE Z3: Xfmr Vol Connection	None
PHASE DISTANCE Z3: Xfmr Curr Connection	None
PHASE DISTANCE Z3: Reach	34.79 ohms
PHASE DISTANCE Z3: RCA	90 deg
PHASE DISTANCE Z3: Rev Reach	0.02 ohms
PHASE DISTANCE Z3: Rev Reach RCA	77 deg
PHASE DISTANCE Z3: Comp Limit	90 deg
PHASE DISTANCE Z3: DIR RCA	49 deg
PHASE DISTANCE Z3: DIR Comp Limit	71 deg
PHASE DISTANCE Z3: Quad Right Blinder	34.79 ohms
PHASE DISTANCE Z3: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z3: Quad Left Blinder	34.79 ohms
PHASE DISTANCE Z3: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z3: Supervision	0.100 pu
PHASE DISTANCE Z3: Volt Level	0.000 pu
PHASE DISTANCE Z3: Delay	0.600 s
PHASE DISTANCE Z3: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z3: Target	Self-reset

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UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

PHASE DISTANCE [GROUP 1] (continued from last page)

PHASE DISTANCE Z3: Events	Enabled
PHASE DISTANCE Z4: Function	Enabled
PHASE DISTANCE Z4: Direction	Reverse
PHASE DISTANCE Z4: Shape	Quad
PHASE DISTANCE Z4: Xfmr Vol Connection	None
PHASE DISTANCE Z4: Xfmr Curr Connection	None
PHASE DISTANCE Z4: Reach	67.75 ohms
PHASE DISTANCE Z4: RCA	90 deg
PHASE DISTANCE Z4: Rev Reach	0.02 ohms
PHASE DISTANCE Z4: Rev Reach RCA	77 deg
PHASE DISTANCE Z4: Comp Limit	90 deg
PHASE DISTANCE Z4: DIR RCA	49 deg
PHASE DISTANCE Z4: DIR Comp Limit	71 deg
PHASE DISTANCE Z4: Quad Right Blinder	67.75 ohms
PHASE DISTANCE Z4: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z4: Quad Left Blinder	67.75 ohms
PHASE DISTANCE Z4: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z4: Supervision	0.100 pu
PHASE DISTANCE Z4: Volt Level	0.000 pu
PHASE DISTANCE Z4: Delay	2.500 s
PHASE DISTANCE Z4: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z4: Target	Self-reset
PHASE DISTANCE Z4: Events	Enabled
PHASE DISTANCE Z5: Function	Enabled
PHASE DISTANCE Z5: Direction	Forward
PHASE DISTANCE Z5: Shape	Quad
PHASE DISTANCE Z5: Xfmr Vol Connection	None
PHASE DISTANCE Z5: Xfmr Curr Connection	None
PHASE DISTANCE Z5: Reach	66.95 ohms
PHASE DISTANCE Z5: RCA	90 deg
PHASE DISTANCE Z5: Rev Reach	0.02 ohms
PHASE DISTANCE Z5: Rev Reach RCA	77 deg
PHASE DISTANCE Z5: Comp Limit	90 deg
PHASE DISTANCE Z5: DIR RCA	49 deg
PHASE DISTANCE Z5: DIR Comp Limit	71 deg
PHASE DISTANCE Z5: Quad Right Blinder	66.95 ohms
PHASE DISTANCE Z5: Quad Right Blinder RCA	77 deg
PHASE DISTANCE Z5: Quad Left Blinder	66.95 ohms
PHASE DISTANCE Z5: Quad Left Blinder RCA	77 deg
PHASE DISTANCE Z5: Supervision	0.100 pu
PHASE DISTANCE Z5: Volt Level	0.000 pu
PHASE DISTANCE Z5: Delay	1.500 s
PHASE DISTANCE Z5: Block	Blq.21Z2-Z5 On (VO3)
PHASE DISTANCE Z5: Target	Self-reset
PHASE DISTANCE Z5: Events	Enabled

GROUND DISTANCE [GROUP 1]

GROUND DISTANCE Z1: Function	Enabled
GROUND DISTANCE Z1: Direction	Forward
GROUND DISTANCE Z1: Shape	Quad
GROUND DISTANCE Z1: Z0/Z1 Mag	3.41
GROUND DISTANCE Z1: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z1: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z1: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z1: Reach	19.49 ohms
GROUND DISTANCE Z1: RCA	90 deg
GROUND DISTANCE Z1: Rev Reach	0.02 ohms
GROUND DISTANCE Z1: Rev Reach RCA	77 deg
GROUND DISTANCE Z1: POL Current	Neg-seq
GROUND DISTANCE Z1: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z1: Comp Limit	90 deg
GROUND DISTANCE Z1: DIR RCA	49 deg
GROUND DISTANCE Z1: DIR Comp Limit	71 deg
GROUND DISTANCE Z1: Quad Right Blinder	19.49 ohms
GROUND DISTANCE Z1: Quad Right Blinder RCA	77 deg

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VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z1: Quad Left Blinder	19.49 ohms
GROUND DISTANCE Z1: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z1: Supervision	0.100 pu
GROUND DISTANCE Z1: Volt Level	0.000 pu
GROUND DISTANCE Z1: Delay	0.000 s
GROUND DISTANCE Z1: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z1: Target	Self-reset
GROUND DISTANCE Z1: Events	Enabled
GROUND DISTANCE Z2: Function	Enabled
GROUND DISTANCE Z2: Direction	Forward
GROUND DISTANCE Z2: Shape	Quad
GROUND DISTANCE Z2: Z0/Z1 Mag	3.41
GROUND DISTANCE Z2: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z2: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z2: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z2: Reach	68.18 ohms
GROUND DISTANCE Z2: RCA	90 deg
GROUND DISTANCE Z2: Rev Reach	0.02 ohms
GROUND DISTANCE Z2: Rev Reach RCA	77 deg
GROUND DISTANCE Z2: POL Current	Neg-seq
GROUND DISTANCE Z2: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z2: Comp Limit	90 deg
GROUND DISTANCE Z2: DIR RCA	49 deg
GROUND DISTANCE Z2: DIR Comp Limit	71 deg
GROUND DISTANCE Z2: Quad Right Blinder	68.18 ohms
GROUND DISTANCE Z2: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z2: Quad Left Blinder	68.18 ohms
GROUND DISTANCE Z2: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z2: Supervision	0.100 pu
GROUND DISTANCE Z2: Volt Level	0.000 pu
GROUND DISTANCE Z2: Delay	65.000 s
GROUND DISTANCE Z2: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z2: Target	Self-reset
GROUND DISTANCE Z2: Events	Enabled
GROUND DISTANCE Z3: Function	Enabled
GROUND DISTANCE Z3: Direction	Forward
GROUND DISTANCE Z3: Shape	Quad
GROUND DISTANCE Z3: Z0/Z1 Mag	3.41
GROUND DISTANCE Z3: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z3: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z3: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z3: Reach	34.79 ohms
GROUND DISTANCE Z3: RCA	90 deg
GROUND DISTANCE Z3: Rev Reach	0.02 ohms
GROUND DISTANCE Z3: Rev Reach RCA	77 deg
GROUND DISTANCE Z3: POL Current	Neg-seq
GROUND DISTANCE Z3: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z3: Comp Limit	90 deg
GROUND DISTANCE Z3: DIR RCA	49 deg
GROUND DISTANCE Z3: DIR Comp Limit	71 deg
GROUND DISTANCE Z3: Quad Right Blinder	34.79 ohms
GROUND DISTANCE Z3: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z3: Quad Left Blinder	34.79 ohms
GROUND DISTANCE Z3: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z3: Supervision	0.100 pu
GROUND DISTANCE Z3: Volt Level	0.000 pu
GROUND DISTANCE Z3: Delay	0.600 s
GROUND DISTANCE Z3: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z3: Target	Self-reset
GROUND DISTANCE Z3: Events	Enabled
GROUND DISTANCE Z4: Function	Enabled
GROUND DISTANCE Z4: Direction	Reverse
GROUND DISTANCE Z4: Shape	Quad
GROUND DISTANCE Z4: Z0/Z1 Mag	3.41
GROUND DISTANCE Z4: Z0/Z1 Ang	3 deg

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SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

GROUND DISTANCE [GROUP 1] (continued from last page)

GROUND DISTANCE Z4: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z4: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z4: Reach	67.75 ohms
GROUND DISTANCE Z4: RCA	90 deg
GROUND DISTANCE Z4: Rev Reach	0.02 ohms
GROUND DISTANCE Z4: Rev Reach RCA	77 deg
GROUND DISTANCE Z4: POL Current	Neg-seq
GROUND DISTANCE Z4: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z4: Comp Limit	90 deg
GROUND DISTANCE Z4: DIR RCA	49 deg
GROUND DISTANCE Z4: DIR Comp Limit	71 deg
GROUND DISTANCE Z4: Quad Right Blinder	67.75 ohms
GROUND DISTANCE Z4: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z4: Quad Left Blinder	67.75 ohms
GROUND DISTANCE Z4: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z4: Supervision	0.100 pu
GROUND DISTANCE Z4: Volt Level	0.000 pu
GROUND DISTANCE Z4: Delay	2.500 s
GROUND DISTANCE Z4: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z4: Target	Self-reset
GROUND DISTANCE Z4: Events	Enabled
GROUND DISTANCE Z5: Function	Enabled
GROUND DISTANCE Z5: Direction	Forward
GROUND DISTANCE Z5: Shape	Quad
GROUND DISTANCE Z5: Z0/Z1 Mag	3.41
GROUND DISTANCE Z5: Z0/Z1 Ang	3 deg
GROUND DISTANCE Z5: Z0M/Z1 Mag	0.00
GROUND DISTANCE Z5: Z0M/Z1 Ang	0 deg
GROUND DISTANCE Z5: Reach	66.95 ohms
GROUND DISTANCE Z5: RCA	90 deg
GROUND DISTANCE Z5: Rev Reach	0.02 ohms
GROUND DISTANCE Z5: Rev Reach RCA	77 deg
GROUND DISTANCE Z5: POL Current	Neg-seq
GROUND DISTANCE Z5: Non-Homogen Ang	0.0 deg
GROUND DISTANCE Z5: Comp Limit	90 deg
GROUND DISTANCE Z5: DIR RCA	49 deg
GROUND DISTANCE Z5: DIR Comp Limit	71 deg
GROUND DISTANCE Z5: Quad Right Blinder	66.95 ohms
GROUND DISTANCE Z5: Quad Right Blinder RCA	77 deg
GROUND DISTANCE Z5: Quad Left Blinder	66.95 ohms
GROUND DISTANCE Z5: Quad Left Blinder RCA	77 deg
GROUND DISTANCE Z5: Supervision	0.100 pu
GROUND DISTANCE Z5: Volt Level	0.000 pu
GROUND DISTANCE Z5: Delay	1.500 s
GROUND DISTANCE Z5: Block	Blq.21Z1 21N On (VO2)
GROUND DISTANCE Z5: Target	Self-reset
GROUND DISTANCE Z5: Events	Enabled

POWER SWING DETECT [GROUP 1]

Function	Enabled
Source	SRC 1 (SRC 1)
Shape	Quad Shape
Mode	Two Step
Supv	0.200 pu
Fwd Reach	157.25 ohms
Quad Fwd Mid	161.17 ohms
Quad Fwd Out	162.92 ohms
Fwd Rca	77 deg
Rev Reach	122.40 ohms
Quad Rev Mid	126.32 ohms
Quad Rev Out	128.06 ohms
Rev Rca	77 deg
Outer Limit Angle	120 deg
Middle Limit Angle	80 deg
Inner Limit Angle	74 deg

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TEXT COLOR

POWER SWING DETECT [GROUP 1] (continued from last page)

Outer Rgt Bld	128.06 ohms
Outer Lft Bld	110.64 ohms
Midle Rgt Bld	160.65 ohms
Midle Lft Bld	69.44 ohms
Inner Rgt Bld	122.40 ohms
Inner Lft Bld	104.72 ohms
Delay 1 Pickup	0.002 s
Delay 1 Reset	0.050 s
Delay 2 Pickup	0.017 s
Delay 3 Pickup	0.009 s
Delay 4 Pickup	0.017 s
Seal-In Delay	0.400 s
Trip Mode	Delayed
Block	NEUTRAL TOC1 PKP
Target	Self-reset
Event	Enabled

PHASE CURRENT

PHASE TOC [GROUP 1]

PHASE TOC1: Function	Enabled
PHASE TOC1: Signal Source	SRC 1 (SRC 1)
PHASE TOC1: Input	Phasor
PHASE TOC1: Pickup	0.720 pu
PHASE TOC1: Curve	IEC Curve A
PHASE TOC1: TD Multiplier	0.10
PHASE TOC1: Reset	Instantaneous
PHASE TOC1: Voltage Restraint	Disabled
PHASE TOC1: Block A	VT ok On (VO8)
PHASE TOC1: Block B	VT ok On (VO8)
PHASE TOC1: Block C	VT ok On (VO8)
PHASE TOC1: Target	Self-reset
PHASE TOC1: Events	Enabled

NEUTRAL CURRENT

NEUTRAL TOC [GROUP 1]

NEUTRAL TOC1: Function	Enabled
NEUTRAL TOC1: Source	SRC 1 (SRC 1)
NEUTRAL TOC1: Input	Phasor
NEUTRAL TOC1: Pickup	0.050 pu
NEUTRAL TOC1: Curve	IEC Curve A
NEUTRAL TOC1: TD Multiplier	0.30
NEUTRAL TOC1: Reset	Instantaneous
NEUTRAL TOC1: Block	VT ok On (VO8)
NEUTRAL TOC1: Target	Self-reset
NEUTRAL TOC1: Events	Enabled
NEUTRAL TOC2: Function	Enabled
NEUTRAL TOC2: Source	SRC 1 (SRC 1)
NEUTRAL TOC2: Input	Phasor
NEUTRAL TOC2: Pickup	0.050 pu
NEUTRAL TOC2: Curve	IEC Curve A
NEUTRAL TOC2: TD Multiplier	0.30
NEUTRAL TOC2: Reset	Instantaneous
NEUTRAL TOC2: Block	NEG SEQ DIR OC1 REV
NEUTRAL TOC2: Target	Self-reset
NEUTRAL TOC2: Events	Enabled

NEGATIVE SEQUENCE CURRENT

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1]

NEGATIVE SEQ DIR OC1: Function	Enabled
NEGATIVE SEQ DIR OC1: Source	SRC 1 (SRC 1)
NEGATIVE SEQ DIR OC1: Offset	0.00 ohms
NEGATIVE SEQ DIR OC1: Type	Neg Sequence
NEGATIVE SEQ DIR OC1: POS SEQ Restraint	0.000
NEGATIVE SEQ DIR OC1: Forward ECA	78 ° Lag
NEGATIVE SEQ DIR OC1: Forward Limit Angle	80 deg

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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
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DESCRIPTION: (NONE)
TEXT COLOR

NEGATIVE SEQUENCE DIRECTIONAL OC [GROUP 1] (continued from last page)

NEGATIVE SEQ DIR OC1: Forward Pickup	0.050 pu
NEGATIVE SEQ DIR OC1: Reverse Limit Angle	80 deg
NEGATIVE SEQ DIR OC1: Reverse Pickup	0.015 pu
NEGATIVE SEQ DIR OC1: Block	Blq.21Z1 21N On (VO2)
NEGATIVE SEQ DIR OC1: Target	Self-reset
NEGATIVE SEQ DIR OC1: Events	Enabled

BREAKER FAILURE [GROUP 1]

BF1: Function	Enabled
BF1: Mode	3-Pole
BF1: Source	SRC 1 (SRC 1)
BF1: Current Supervision	Yes
BF1: Use Seal-In	No
BF1: Three Pole Initiate	Start 50BF On (VO4)
BF1: Block	OFF
BF1: Phase Current Supv Pickup	0.150 pu
BF1: Neutral Current Supv Pickup	0.150 pu
BF1: Use Timer 1	Yes
BF1: Timer 1 Pickup Delay	0.200 s
BF1: Use Timer 2	No
BF1: Timer 2 Pickup Delay	0.000 s
BF1: Use Timer 3	No
BF1: Timer 3 Pickup Delay	0.000 s
BF1: Breaker Pos1 Phase A/3P	Polo 1 cerr On(H7c)
BF1: Breaker Pos2 Phase A/3P	OFF
BF1: Breaker Test On	ON
BF1: Phase Current HiSet Pickup	0.150 pu
BF1: Neutral Current HiSet Pickup	0.150 pu
BF1: Phase Current LoSet Pickup	0.150 pu
BF1: Neutral Current LoSet Pickup	0.150 pu
BF1: LoSet Time Delay	0.000 s
BF1: Trip Dropout Delay	0.000 s
BF1: Target	Self-reset
BF1: Events	Enabled
BF1: Phase A Initiate	Trip polo 1 On(W5c)
BF1: Phase B Initiate	Trip polo 2 On(W6a)
BF1: Phase C Initiate	Trip polo 3 On(W6c)
BF1: Breaker Pos1 Phase B	Polo 2 cerr On(H8a)
BF1: Breaker Pos1 Phase C	Polo 3 cerr On(H8c)
BF1: Breaker Pos2 Phase B	OFF
BF1: Breaker Pos2 Phase C	OFF

CONTROL ELEMENTS

TRIP OUTPUT

Trip Mode	3 Pole & 1 Pole
Trip 3-Pole Input1	Trip 3p On (VO1)
Trip 3-Pole Input2	OFF
Trip 3-Pole Input3	OFF
Trip 3-Pole Input4	OFF
Trip 3-Pole Input5	OFF
Trip 3-Pole Input6	OFF
Trip 1-Pole Input1	GND DIST Z1 OP
Trip 1-Pole Input2	OFF
Trip 1-Pole Input3	OFF
Trip 1-Pole Input4	OFF
Trip 1-Pole Input5	OFF
Trip 1-Pole Input6	OFF
Trip Reclose Input1	GND DIST Z1 OP
Trip Reclose Input2	AR 3P START On (VO17)
Trip Reclose Input3	OFF
Trip Reclose Input4	OFF
Trip Reclose Input5	OFF
Trip Reclose Input6	OFF
Trip Seal in Delay	0.000 s
Trip Reset	Pole Curr OR Custom

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TRIP OUTPUT (continued from last page)

Start Timer Z2Ph In1	OFF
Start Timer Z2Ph In2	OFF
Start Timer Z2Gr In1	OFF
Start Timer Z2Gr In2	OFF
BKR Phase A Open	OFF
BKR Phase B Open	OFF
BKR Phase C Open	OFF
Trip Force 3-Pole	OFF
Trip Pilot Priority	0.000 s
Reverse Fault	OFF
Trip Delay On Evolving Faults	0.000 s
Trip Events	Disabled

SYNCHROCHECK

SYNCHROCHECK1: Function	Enabled
SYNCHROCHECK1: Block	OFF
SYNCHROCHECK1: V1 Source	SRC 1 (SRC 1)
SYNCHROCHECK1: V2 Source	SRC 2 (SRC 2)
SYNCHROCHECK1: Max Volt Diff	40173 V
SYNCHROCHECK1: Max Angle Diff	30 deg
SYNCHROCHECK1: Max Freq Diff	0.10 Hz
SYNCHROCHECK1: Freq Hysteresis	0.06 Hz
SYNCHROCHECK1: Dead Source Select	None
SYNCHROCHECK1: Dead V1 Max Volt	0.20 pu
SYNCHROCHECK1: Dead V2 Max Volt	0.20 pu
SYNCHROCHECK1: Live V1 Min Volt	0.70 pu
SYNCHROCHECK1: Live V2 Min Volt	0.70 pu
SYNCHROCHECK1: Target	Self-reset
SYNCHROCHECK1: Events	Enabled

MONITORING ELEMENTS

VT FUSE FAILURE

VT FUSE FAILURE 1: Function	Enabled

OPEN POLE

Function	Enabled
Block	OFF
Voltage SUPV	Disabled
Current Pickup	0.030 pu
Open Pole Line XC1	9999.9 ohms
Open Pole Line XC0	9999.9 ohms
Open Pole REM Current PKP	0.050 pu
Open Pole Mode	Accelerated
Open Pole Detection	I AND V AND CBaux
Target	Latched
Events	Enabled

PILOT SCHEMES

1P HYBRID POTT SCHEME

Function	Enabled
Block	OFF
Permissive Echo	Custom
Echo Condition	ECHO TX On (VO67)
Weak Infeed	Disabled
W/I Condition	OFF
Rx Pickup Delay	0.001 s
Trans Block Pickup Delay	0.030 s
Trans Block Reset Delay	0.170 s
Echo Duration	0.100 s
Echo Lockout	0.250 s
Seal-In Delay	0.100 s
Gnd Dir OC Fwd	OFF
Gnd Dir OC Rev	OFF
No of Comm Bits	1
Rx1	RX. 85A On (VO21)

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DESCRIPTION: (NONE)
TEXT COLOR

1P HYBRID POTT SCHEME (continued from last page)

Rx2	OFF
Rx3	OFF
Rx4	OFF
Target	Self-reset
Event	Enabled

AUTORECLOSE 1P

Function	Enabled
Mode	3 Pole - B
Max Number Of Shots	1
AR Initiate Mode	Protection only
Block BKR1	Bloq. 79 On (VO6)
Close Time BKR1	0.10 s
BKR Man Close	OFF
Blk Time Upon Man Cls	8.00 s
1-P Init	OFF
3-P Init	AR 3P START On (VO17)
3-P TD Init	OFF
Multi P Fault	OFF
BKR 1 Pole Open	OFF
BKR 3 Pole Open	52A10 Abiert On(M7a)
3-P Dead Time 1	0.50 s
3-P Dead Time 2	1.20 s
3-P Dead Time 3	2.00 s
3-P Dead Time 4	4.00 s
Extend Dead T1	OFF
Dead T1 Extension	0.00 s
Reset	BREAKER 1 CLOSED
Reset Time	8.00 s
BKR Closed	OFF
Block	Bloq. 79 On (VO6)
Pause	OFF
Inc Seq Time	5.00 s
Block BKR2	OFF
Close Time BKR2	0.10 s
Transfer 1 to 2	No
Transfer 2 to 1	No
BKR1 Fail Option	Continue
BKR2 Fail Option	Continue
1-P Dead Time	1.00 s
BKR Sequence	1
Transfer Time	4.00 s
BUS FLT Init	OFF
Event	Enabled

INPUTS/OUTPUTS

CONTACT INPUTS

[H7A] Contact Input 1 ID	52 apto
[H7A] Contact Input 1 Debounce Time	2.0 ms
[H7A] Contact Input 1 Events	Disabled
[H7C] Contact Input 2 ID	Polo 1 cerr
[H7C] Contact Input 2 Debounce Time	2.0 ms
[H7C] Contact Input 2 Events	Disabled
[H8A] Contact Input 3 ID	Polo 2 cerr
[H8A] Contact Input 3 Debounce Time	2.0 ms
[H8A] Contact Input 3 Events	Disabled
[H8C] Contact Input 4 ID	Polo 3 cerr
[H8C] Contact Input 4 Debounce Time	2.0 ms
[H8C] Contact Input 4 Events	Disabled
[M7A] Contact Input 5 ID	52A10 Abiert
[M7A] Contact Input 5 Debounce Time	2.0 ms
[M7A] Contact Input 5 Events	Disabled
[M7C] Contact Input 6 ID	Cont Ip 6
[M7C] Contact Input 6 Debounce Time	2.0 ms
[M7C] Contact Input 6 Events	Disabled

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DESCRIPTION: (NONE)
TEXT COLOR

CONTACT INPUTS (continued from last page)

[M8A] Contact Input 7 ID	P.Cort. Abie
[M8A] Contact Input 7 Debounce Time	2.0 ms
[M8A] Contact Input 7 Events	Disabled
[M8C] Contact Input 8 ID	P.Cort. Cerr
[M8C] Contact Input 8 Debounce Time	2.0 ms
[M8C] Contact Input 8 Events	Disabled
[P7A] Contact Input 9 ID	Rec. en prog
[P7A] Contact Input 9 Debounce Time	2.0 ms
[P7A] Contact Input 9 Events	Disabled
[P7C] Contact Input 10 ID	Bloq. 79 p43
[P7C] Contact Input 10 Debounce Time	2.0 ms
[P7C] Contact Input 10 Events	Disabled
[P8A] Contact Input 11 ID	Aviso Cierre
[P8A] Contact Input 11 Debounce Time	2.0 ms
[P8A] Contact Input 11 Events	Disabled
[P8C] Contact Input 12 ID	Op. 86B
[P8C] Contact Input 12 Debounce Time	2.0 ms
[P8C] Contact Input 12 Events	Disabled
[U7A] Contact Input 13 ID	Falla TP Lin
[U7A] Contact Input 13 Debounce Time	2.0 ms
[U7A] Contact Input 13 Events	Disabled
[U7C] Contact Input 14 ID	Falla TP Bar
[U7C] Contact Input 14 Debounce Time	2.0 ms
[U7C] Contact Input 14 Events	Disabled
[U8A] Contact Input 15 ID	Rx. 85A1
[U8A] Contact Input 15 Debounce Time	2.0 ms
[U8A] Contact Input 15 Events	Disabled
[U8C] Contact Input 16 ID	Rx. 85D
[U8C] Contact Input 16 Debounce Time	2.0 ms
[U8C] Contact Input 16 Events	Disabled
[W5A] Contact Input 17 ID	Hab. Reconex
[W5A] Contact Input 17 Debounce Time	2.0 ms
[W5A] Contact Input 17 Events	Disabled
[W5C] Contact Input 18 ID	Trip polo 1
[W5C] Contact Input 18 Debounce Time	2.0 ms
[W5C] Contact Input 18 Events	Disabled
[W6A] Contact Input 19 ID	Trip polo 2
[W6A] Contact Input 19 Debounce Time	2.0 ms
[W6A] Contact Input 19 Events	Disabled
[W6C] Contact Input 20 ID	Trip polo 3
[W6C] Contact Input 20 Debounce Time	2.0 ms
[W6C] Contact Input 20 Events	Disabled
[W7A] Contact Input 21 ID	Start BF 87B
[W7A] Contact Input 21 Debounce Time	2.0 ms
[W7A] Contact Input 21 Events	Disabled
[W7C] Contact Input 22 ID	Rx. 85A2
[W7C] Contact Input 22 Debounce Time	2.0 ms
[W7C] Contact Input 22 Events	Disabled
[W8A] Contact Input 23 ID	Rx. 85C 1
[W8A] Contact Input 23 Debounce Time	2.0 ms
[W8A] Contact Input 23 Events	Disabled
[W8C] Contact Input 24 ID	Rx.85C 2
[W8C] Contact Input 24 Debounce Time	2.0 ms
[W8C] Contact Input 24 Events	Disabled

CONTACT INPUT THRESHOLDS

52 apto, Polo 1 cerr, Polo 2 cerr, Polo 3 cerr(H7a, H7c, H8a, H8c)	33 Vdc
52A10 Abiert, Cont Ip 6, P.Cort. Abie, P.Cort. Cerr(M7a, M7c, M8a, M8c)	33 Vdc
Rec. en prog, Bloq. 79 p43, Aviso Cierre, Op. 86B(P7a, P7c, P8a, P8c)	33 Vdc
Falla TP Lin, Falla TP Bar, Rx. 85A1, Rx. 85D(U7a, U7c, U8a, U8c)	33 Vdc
Hab. Reconex, Trip polo 1, Trip polo 2, Trip polo 3(W5a, W5c, W6a, W6c)	33 Vdc
Start BF 87B, Rx. 85A2, Rx. 85C 1, Rx.85C 2(W7a, W7c, W8a, W8c)	33 Vdc

CONTACT OUTPUTS

[H1] Contact Output 1 ID	50BF

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TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[H1] Contact Output 1 Operate	BKR FAIL 1 T1 OP
[H1] Contact Output 1 Seal-In	OFF
[H1] Contact Output 1 Events	Enabled
[H2] Contact Output 2 ID	79 52AR
[H2] Contact Output 2 Operate	AR CLOSE BKR 1
[H2] Contact Output 2 Seal-In	OFF
[H2] Contact Output 2 Events	Enabled
[H3] Contact Output 3 ID	PKP Z3 EDAG
[H3] Contact Output 3 Operate	PKP Z3 On (VO66)
[H3] Contact Output 3 Seal-In	OFF
[H3] Contact Output 3 Events	Enabled
[H6] Contact Output 6 ID	TRIP SCADA
[H6] Contact Output 6 Operate	TRIP OUTPUT OP
[H6] Contact Output 6 Seal-In	OFF
[H6] Contact Output 6 Events	Enabled
[M3] Contact Output 9 ID	TX 85A1
[M3] Contact Output 9 Operate	Emision 85A On (VO24)
[M3] Contact Output 9 Seal-In	OFF
[M3] Contact Output 9 Events	Enabled
[M4] Contact Output 10 ID	TX 85D
[M4] Contact Output 10 Operate	Tx. 85D On (VO22)
[M4] Contact Output 10 Seal-In	OFF
[M4] Contact Output 10 Events	Enabled
[M5] Contact Output 11 ID	TRIP
[M5] Contact Output 11 Operate	BKR FAIL 1 T1 OP
[M5] Contact Output 11 Seal-In	OFF
[M5] Contact Output 11 Events	Enabled
[M6] Contact Output 12 ID	Rec. en prog
[M6] Contact Output 12 Operate	AR RIP
[M6] Contact Output 12 Seal-In	OFF
[M6] Contact Output 12 Events	Enabled
[P1] Contact Output 13 ID	Prueba HPOTT
[P1] Contact Output 13 Operate	HYBRID POTT OP
[P1] Contact Output 13 Seal-In	OFF
[P1] Contact Output 13 Events	Enabled
[P2] Contact Output 14 ID	TRIP POLO A
[P2] Contact Output 14 Operate	TRIP PHASE A
[P2] Contact Output 14 Seal-In	OFF
[P2] Contact Output 14 Events	Enabled
[P3] Contact Output 15 ID	TRIP POLO B
[P3] Contact Output 15 Operate	TRIP PHASE B
[P3] Contact Output 15 Seal-In	OFF
[P3] Contact Output 15 Events	Enabled
[P4] Contact Output 16 ID	TRIP POLO C
[P4] Contact Output 16 Operate	TRIP PHASE C
[P4] Contact Output 16 Seal-In	OFF
[P4] Contact Output 16 Events	Enabled
[P5] Contact Output 17 ID	TRIP POLO A
[P5] Contact Output 17 Operate	TRIP PHASE A
[P5] Contact Output 17 Seal-In	OFF
[P5] Contact Output 17 Events	Enabled
[P6] Contact Output 18 ID	TRIP POLO B
[P6] Contact Output 18 Operate	TRIP PHASE B
[P6] Contact Output 18 Seal-In	OFF
[P6] Contact Output 18 Events	Enabled
[U1] Contact Output 19 ID	TRIP POLO C
[U1] Contact Output 19 Operate	TRIP PHASE C
[U1] Contact Output 19 Seal-In	OFF
[U1] Contact Output 19 Events	Enabled
[U2] Contact Output 20 ID	orden 79
[U2] Contact Output 20 Operate	AR CLOSE BKR 1
[U2] Contact Output 20 Seal-In	OFF
[U2] Contact Output 20 Events	Enabled
[U3] Contact Output 21 ID	RETRIP A
[U3] Contact Output 21 Operate	BKR FAIL 1 RETRIP

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DESCRIPTION: (NONE)
TEXT COLOR

CONTACT OUTPUTS (continued from last page)

[U3] Contact Output 21 Seal-In	OFF
[U3] Contact Output 21 Events	Enabled
[U4] Contact Output 22 ID	RETRIP B
[U4] Contact Output 22 Operate	BKR FAIL 1 RETRIP
[U4] Contact Output 22 Seal-In	OFF
[U4] Contact Output 22 Events	Enabled
[U5] Contact Output 23 ID	RETRIP C
[U5] Contact Output 23 Operate	BKR FAIL 1 RETRIP
[U5] Contact Output 23 Seal-In	OFF
[U5] Contact Output 23 Events	Enabled
[W1] Contact Output 25 ID	TX. 85A2
[W1] Contact Output 25 Operate	Emision 85A On (VO24)
[W1] Contact Output 25 Seal-In	OFF
[W1] Contact Output 25 Events	Enabled
[W2] Contact Output 26 ID	TX. 85D
[W2] Contact Output 26 Operate	Tx. 85D On (VO22)
[W2] Contact Output 26 Seal-In	OFF
[W2] Contact Output 26 Events	Enabled

VIRTUAL OUTPUTS

Virtual Output 1 ID	Trip 3p
Virtual Output 1 Events	Enabled
Virtual Output 2 ID	Blq.21Z1 21N
Virtual Output 2 Events	Enabled
Virtual Output 3 ID	Blq.21Z2-Z5
Virtual Output 3 Events	Enabled
Virtual Output 4 ID	Start 50BF
Virtual Output 4 Events	Enabled
Virtual Output 5 ID	Trip 85D
Virtual Output 5 Events	Enabled
Virtual Output 6 ID	Bloq. 79
Virtual Output 6 Events	Enabled
Virtual Output 7 ID	Open 3p
Virtual Output 7 Events	Enabled
Virtual Output 8 ID	VT ok
Virtual Output 8 Events	Enabled
Virtual Output 9 ID	LED Z1 Op.
Virtual Output 9 Events	Disabled
Virtual Output 10 ID	LED Z1B Op.
Virtual Output 10 Events	Disabled
Virtual Output 11 ID	LED Z2 Op.
Virtual Output 11 Events	Disabled
Virtual Output 12 ID	LED Z3 Op.
Virtual Output 12 Events	Disabled
Virtual Output 13 ID	LED Z4 Op.
Virtual Output 13 Events	Disabled
Virtual Output 14 ID	LED 51-51N
Virtual Output 14 Events	Disabled
Virtual Output 15 ID	LED ECHO
Virtual Output 15 Events	Disabled
Virtual Output 16 ID	LED 67N
Virtual Output 16 Events	Disabled
Virtual Output 17 ID	AR 3P START
Virtual Output 17 Events	Enabled
Virtual Output 21 ID	RX. 85A
Virtual Output 21 Events	Enabled
Virtual Output 22 ID	Tx. 85D
Virtual Output 22 Events	Enabled
Virtual Output 23 ID	BLOCK HYBRID
Virtual Output 23 Events	Enabled
Virtual Output 24 ID	Emision 85A
Virtual Output 24 Events	Enabled
Virtual Output 30 ID	DNP 79 BLOQ
Virtual Output 30 Events	Disabled
Virtual Output 31 ID	DNP 79 ON

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DESCRIPTION: (NONE)
TEXT COLOR

VIRTUAL OUTPUTS (continued from last page)

Virtual Output 31 Events	Disabled
Virtual Output 32 ID	DNP TP LINEA
Virtual Output 32 Events	Disabled
Virtual Output 33 ID	DNP TP BARRA
Virtual Output 33 Events	Disabled
Virtual Output 34 ID	DNP RX RAN
Virtual Output 34 Events	Disabled
Virtual Output 35 ID	DNP TX 85A
Virtual Output 35 Events	Disabled
Virtual Output 36 ID	DNP RX JAH
Virtual Output 36 Events	Disabled
Virtual Output 37 ID	DNP ECHO
Virtual Output 37 Events	Disabled
Virtual Output 38 ID	DNP 79 CLOSE
Virtual Output 38 Events	Disabled
Virtual Output 39 ID	DNP 21/21N
Virtual Output 39 Events	Disabled
Virtual Output 40 ID	DNP 67N
Virtual Output 40 Events	Disabled
Virtual Output 41 ID	DNP 50BF
Virtual Output 41 Events	Disabled
Virtual Output 42 ID	DNP Z1B
Virtual Output 42 Events	Disabled
Virtual Output 43 ID	DNP Z1
Virtual Output 43 Events	Disabled
Virtual Output 44 ID	DNP Z2
Virtual Output 44 Events	Disabled
Virtual Output 45 ID	DNP Z3
Virtual Output 45 Events	Disabled
Virtual Output 46 ID	DNP Z4
Virtual Output 46 Events	Disabled
Virtual Output 47 ID	DNP 51/51N
Virtual Output 47 Events	Disabled
Virtual Output 48 ID	DNP TRIP A
Virtual Output 48 Events	Disabled
Virtual Output 49 ID	DNP TRIP B
Virtual Output 49 Events	Disabled
Virtual Output 50 ID	DNP TRIP C
Virtual Output 50 Events	Disabled
Virtual Output 51 ID	DNP TRIP GND
Virtual Output 51 Events	Disabled
Virtual Output 52 ID	DNP TRIP S1
Virtual Output 52 Events	Disabled
Virtual Output 53 ID	DNP PICKUP
Virtual Output 53 Events	Disabled
Virtual Output 54 ID	DNP MOD EMER
Virtual Output 54 Events	Disabled
Virtual Output 55 ID	DNP SOTF
Virtual Output 55 Events	Disabled
Virtual Output 56 ID	DNP VT FAIL
Virtual Output 56 Events	Disabled
Virtual Output 57 ID	DNP PSWING
Virtual Output 57 Events	Disabled
Virtual Output 58 ID	DNP 79BLQ EX
Virtual Output 58 Events	Disabled
Virtual Output 59 ID	DNP RX85D
Virtual Output 59 Events	Disabled
Virtual Output 60 ID	DNP TX85D
Virtual Output 60 Events	Disabled
Virtual Output 61 ID	DNP INC PCOR
Virtual Output 61 Events	Disabled
Virtual Output 64 ID	Osc Trigger
Virtual Output 64 Events	Enabled
Virtual Output 65 ID	Z5 EDAG
Virtual Output 65 Events	Disabled

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VIRTUAL OUTPUTS (continued from last page)

Virtual Output 66 ID	PKP Z3
Virtual Output 66 Events	Enabled
Virtual Output 67 ID	ECHO TX
Virtual Output 67 Events	Enabled

REMOTE DEVICES

Remote Device 1 ID	Remote Device 1
Remote Device 1 ETYPE APPID	0
Remote Device 1 DATASET	Fixed
Remote Device 2 ID	Remote Device 2
Remote Device 2 ETYPE APPID	0
Remote Device 2 DATASET	Fixed
Remote Device 3 ID	Remote Device 3
Remote Device 3 ETYPE APPID	0
Remote Device 3 DATASET	Fixed
Remote Device 4 ID	Remote Device 4
Remote Device 4 ETYPE APPID	0
Remote Device 4 DATASET	Fixed
Remote Device 5 ID	Remote Device 5
Remote Device 5 ETYPE APPID	0
Remote Device 5 DATASET	Fixed
Remote Device 6 ID	Remote Device 6
Remote Device 6 ETYPE APPID	0
Remote Device 6 DATASET	Fixed
Remote Device 7 ID	Remote Device 7
Remote Device 7 ETYPE APPID	0
Remote Device 7 DATASET	Fixed
Remote Device 8 ID	Remote Device 8
Remote Device 8 ETYPE APPID	0
Remote Device 8 DATASET	Fixed
Remote Device 9 ID	Remote Device 9
Remote Device 9 ETYPE APPID	0
Remote Device 9 DATASET	Fixed
Remote Device 10 ID	Remote Device 10
Remote Device 10 ETYPE APPID	0
Remote Device 10 DATASET	Fixed
Remote Device 11 ID	Remote Device 11
Remote Device 11 ETYPE APPID	0
Remote Device 11 DATASET	Fixed
Remote Device 12 ID	Remote Device 12
Remote Device 12 ETYPE APPID	0
Remote Device 12 DATASET	Fixed
Remote Device 13 ID	Remote Device 13
Remote Device 13 ETYPE APPID	0
Remote Device 13 DATASET	Fixed
Remote Device 14 ID	Remote Device 14
Remote Device 14 ETYPE APPID	0
Remote Device 14 DATASET	Fixed
Remote Device 15 ID	Remote Device 15
Remote Device 15 ETYPE APPID	0
Remote Device 15 DATASET	Fixed
Remote Device 16 ID	Remote Device 16
Remote Device 16 ETYPE APPID	0
Remote Device 16 DATASET	Fixed

IEC 61850 GOOSE ANALOGS INPUTS

IEC61850 GOOSE Analog Input 1 Default Value	1000.000
IEC61850 GOOSE Analog Input 1 Mode	Default Value
IEC61850 GOOSE Analog Input 1 Units	
IEC61850 GOOSE Analog Input 1 PU Base	1.000
IEC61850 GOOSE Analog Input 2 Default Value	1000.000
IEC61850 GOOSE Analog Input 2 Mode	Default Value
IEC61850 GOOSE Analog Input 2 Units	
IEC61850 GOOSE Analog Input 2 PU Base	1.000
IEC61850 GOOSE Analog Input 3 Default Value	1000.000

URS A10 DESPUЙS DE CAMBIO DE AJUSTES 27.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A10
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

IEC 61850 GOOSE ANALOGS INPUTS (continued from last page)

IEC61850 GOOSE Analog Input 3 Mode	Default Value
IEC61850 GOOSE Analog Input 3 Units	
IEC61850 GOOSE Analog Input 3 PU Base	1.000
IEC61850 GOOSE Analog Input 4 Default Value	1000.000
IEC61850 GOOSE Analog Input 4 Mode	Default Value
IEC61850 GOOSE Analog Input 4 Units	
IEC61850 GOOSE Analog Input 4 PU Base	1.000
IEC61850 GOOSE Analog Input 5 Default Value	1000.000
IEC61850 GOOSE Analog Input 5 Mode	Default Value
IEC61850 GOOSE Analog Input 5 Units	
IEC61850 GOOSE Analog Input 5 PU Base	1.000
IEC61850 GOOSE Analog Input 6 Default Value	1000.000
IEC61850 GOOSE Analog Input 6 Mode	Default Value
IEC61850 GOOSE Analog Input 6 Units	
IEC61850 GOOSE Analog Input 6 PU Base	1.000
IEC61850 GOOSE Analog Input 7 Default Value	1000.000
IEC61850 GOOSE Analog Input 7 Mode	Default Value
IEC61850 GOOSE Analog Input 7 Units	
IEC61850 GOOSE Analog Input 7 PU Base	1.000
IEC61850 GOOSE Analog Input 8 Default Value	1000.000
IEC61850 GOOSE Analog Input 8 Mode	Default Value
IEC61850 GOOSE Analog Input 8 Units	
IEC61850 GOOSE Analog Input 8 PU Base	1.000
IEC61850 GOOSE Analog Input 9 Default Value	1000.000
IEC61850 GOOSE Analog Input 9 Mode	Default Value
IEC61850 GOOSE Analog Input 9 Units	
IEC61850 GOOSE Analog Input 9 PU Base	1.000
IEC61850 GOOSE Analog Input 10 Default Value	1000.000
IEC61850 GOOSE Analog Input 10 Mode	Default Value
IEC61850 GOOSE Analog Input 10 Units	
IEC61850 GOOSE Analog Input 10 PU Base	1.000
IEC61850 GOOSE Analog Input 11 Default Value	1000.000
IEC61850 GOOSE Analog Input 11 Mode	Default Value
IEC61850 GOOSE Analog Input 11 Units	
IEC61850 GOOSE Analog Input 11 PU Base	1.000
IEC61850 GOOSE Analog Input 12 Default Value	1000.000
IEC61850 GOOSE Analog Input 12 Mode	Default Value
IEC61850 GOOSE Analog Input 12 Units	
IEC61850 GOOSE Analog Input 12 PU Base	1.000
IEC61850 GOOSE Analog Input 13 Default Value	1000.000
IEC61850 GOOSE Analog Input 13 Mode	Default Value
IEC61850 GOOSE Analog Input 13 Units	
IEC61850 GOOSE Analog Input 13 PU Base	1.000
IEC61850 GOOSE Analog Input 14 Default Value	1000.000
IEC61850 GOOSE Analog Input 14 Mode	Default Value
IEC61850 GOOSE Analog Input 14 Units	
IEC61850 GOOSE Analog Input 14 PU Base	1.000
IEC61850 GOOSE Analog Input 15 Default Value	1000.000
IEC61850 GOOSE Analog Input 15 Mode	Default Value
IEC61850 GOOSE Analog Input 15 Units	
IEC61850 GOOSE Analog Input 15 PU Base	1.000
IEC61850 GOOSE Analog Input 16 Default Value	1000.000
IEC61850 GOOSE Analog Input 16 Mode	Default Value
IEC61850 GOOSE Analog Input 16 Units	
IEC61850 GOOSE Analog Input 16 PU Base	1.000
IEC61850 GOOSE Analog Input 17 Default Value	1000.000
IEC61850 GOOSE Analog Input 17 Mode	Default Value
IEC61850 GOOSE Analog Input 17 Units	
IEC61850 GOOSE Analog Input 17 PU Base	1.000
IEC61850 GOOSE Analog Input 18 Default Value	1000.000
IEC61850 GOOSE Analog Input 18 Mode	Default Value
IEC61850 GOOSE Analog Input 18 Units	
IEC61850 GOOSE Analog Input 18 PU Base	1.000
IEC61850 GOOSE Analog Input 19 Default Value	1000.000
IEC61850 GOOSE Analog Input 19 Mode	Default Value

URS A10 DESPUЙS DE CAMBIO DE AJUSTES 27.03.2015.URS
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DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

IEC 61850 GOOSE ANALOGS INPUTS (continued from last page)

IEC61850 GOOSE Analog Input 19 Units	
IEC61850 GOOSE Analog Input 19 PU Base	1.000
IEC61850 GOOSE Analog Input 20 Default Value	1000.000
IEC61850 GOOSE Analog Input 20 Mode	Default Value
IEC61850 GOOSE Analog Input 20 Units	
IEC61850 GOOSE Analog Input 20 PU Base	1.000
IEC61850 GOOSE Analog Input 21 Default Value	1000.000
IEC61850 GOOSE Analog Input 21 Mode	Default Value
IEC61850 GOOSE Analog Input 21 Units	
IEC61850 GOOSE Analog Input 21 PU Base	1.000
IEC61850 GOOSE Analog Input 22 Default Value	1000.000
IEC61850 GOOSE Analog Input 22 Mode	Default Value
IEC61850 GOOSE Analog Input 22 Units	
IEC61850 GOOSE Analog Input 22 PU Base	1.000
IEC61850 GOOSE Analog Input 23 Default Value	1000.000
IEC61850 GOOSE Analog Input 23 Mode	Default Value
IEC61850 GOOSE Analog Input 23 Units	
IEC61850 GOOSE Analog Input 23 PU Base	1.000
IEC61850 GOOSE Analog Input 24 Default Value	1000.000
IEC61850 GOOSE Analog Input 24 Mode	Default Value
IEC61850 GOOSE Analog Input 24 Units	
IEC61850 GOOSE Analog Input 24 PU Base	1.000
IEC61850 GOOSE Analog Input 25 Default Value	1000.000
IEC61850 GOOSE Analog Input 25 Mode	Default Value
IEC61850 GOOSE Analog Input 25 Units	
IEC61850 GOOSE Analog Input 25 PU Base	1.000
IEC61850 GOOSE Analog Input 26 Default Value	1000.000
IEC61850 GOOSE Analog Input 26 Mode	Default Value
IEC61850 GOOSE Analog Input 26 Units	
IEC61850 GOOSE Analog Input 26 PU Base	1.000
IEC61850 GOOSE Analog Input 27 Default Value	1000.000
IEC61850 GOOSE Analog Input 27 Mode	Default Value
IEC61850 GOOSE Analog Input 27 Units	
IEC61850 GOOSE Analog Input 27 PU Base	1.000
IEC61850 GOOSE Analog Input 28 Default Value	1000.000
IEC61850 GOOSE Analog Input 28 Mode	Default Value
IEC61850 GOOSE Analog Input 28 Units	
IEC61850 GOOSE Analog Input 28 PU Base	1.000
IEC61850 GOOSE Analog Input 29 Default Value	1000.000
IEC61850 GOOSE Analog Input 29 Mode	Default Value
IEC61850 GOOSE Analog Input 29 Units	
IEC61850 GOOSE Analog Input 29 PU Base	1.000
IEC61850 GOOSE Analog Input 30 Default Value	1000.000
IEC61850 GOOSE Analog Input 30 Mode	Default Value
IEC61850 GOOSE Analog Input 30 Units	
IEC61850 GOOSE Analog Input 30 PU Base	1.000
IEC61850 GOOSE Analog Input 31 Default Value	1000.000
IEC61850 GOOSE Analog Input 31 Mode	Default Value
IEC61850 GOOSE Analog Input 31 Units	
IEC61850 GOOSE Analog Input 31 PU Base	1.000
IEC61850 GOOSE Analog Input 32 Default Value	1000.000
IEC61850 GOOSE Analog Input 32 Mode	Default Value
IEC61850 GOOSE Analog Input 32 Units	
IEC61850 GOOSE Analog Input 32 PU Base	1.000

IEC 61850 GOOSE UINTEGERS INPUTS

IEC61850 GOOSE UInteger Input 1 Default Value	1000
IEC61850 GOOSE UInteger Input 1 Mode	Default Value
IEC61850 GOOSE UInteger Input 2 Default Value	1000
IEC61850 GOOSE UInteger Input 2 Mode	Default Value
IEC61850 GOOSE UInteger Input 3 Default Value	1000
IEC61850 GOOSE UInteger Input 3 Mode	Default Value
IEC61850 GOOSE UInteger Input 4 Default Value	1000
IEC61850 GOOSE UInteger Input 4 Mode	Default Value
IEC61850 GOOSE UInteger Input 5 Default Value	1000

URS A10 DESPUЙS DE CAMBIO DE AJUSTES 27.03.2015.URS
C:\USERS\MMISSENE\DESKTOP\MMM\ACTUALIZACIУN CRAPS\TINGU\A10
DEVICE DEFINITION
FILES
ORDER CODE: D60-K03-HCH-F8L-H6U-M6U-P6U-U6U-W6T
VERSION: 5.7X
UR SERIAL NUMBER: AE5C09000045
SETTINGS SEND TO RELAY: SATURDAY, FEBRUARY 07, 2015 09:58:17
DESCRIPTION: (NONE)
TEXT COLOR

IEC 61850 GOOSE UINTEGERS INPUTS (continued from last page)

IEC61850 GOOSE UInteger Input 5 Mode	Default Value
IEC61850 GOOSE UInteger Input 6 Default Value	1000
IEC61850 GOOSE UInteger Input 6 Mode	Default Value
IEC61850 GOOSE UInteger Input 7 Default Value	1000
IEC61850 GOOSE UInteger Input 7 Mode	Default Value
IEC61850 GOOSE UInteger Input 8 Default Value	1000
IEC61850 GOOSE UInteger Input 8 Mode	Default Value
IEC61850 GOOSE UInteger Input 9 Default Value	1000
IEC61850 GOOSE UInteger Input 9 Mode	Default Value
IEC61850 GOOSE UInteger Input 10 Default Value	1000
IEC61850 GOOSE UInteger Input 10 Mode	Default Value
IEC61850 GOOSE UInteger Input 11 Default Value	1000
IEC61850 GOOSE UInteger Input 11 Mode	Default Value
IEC61850 GOOSE UInteger Input 12 Default Value	1000
IEC61850 GOOSE UInteger Input 12 Mode	Default Value
IEC61850 GOOSE UInteger Input 13 Default Value	1000
IEC61850 GOOSE UInteger Input 13 Mode	Default Value
IEC61850 GOOSE UInteger Input 14 Default Value	1000
IEC61850 GOOSE UInteger Input 14 Mode	Default Value
IEC61850 GOOSE UInteger Input 15 Default Value	1000
IEC61850 GOOSE UInteger Input 15 Mode	Default Value
IEC61850 GOOSE UInteger Input 16 Default Value	1000
IEC61850 GOOSE UInteger Input 16 Mode	Default Value

INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	

1. CAUSA U ORIGEN DE LA FALLA:

1.1. Fecha y hora de la Falla:

Fecha	**07 Enero 2015**
Hora	01:18

1.2. Localización de la falla:

Externa a las instalaciones de Transnet, que de acuerdo a lo informado por medios oficiales del CDEC-SIC, las fallas se localizó en la LT154 kV Alto Jahuel– Rancagua- Tinguiririca N°1, propiedad de Transelec (Ver Novedades Relevantes del CDEC-SIC en Anexo N°1 respectivamente).

1.3. Causa de la Falla:

Falla externa, que de acuerdo a lo informado por medios oficiales del CDEC-SIC se origina por la desconexión de la línea de 154 kV Alto Jahuel– Rancagua- Tinguiririca N°1 de propiedad de Transelec S.A. a causa de robo de conductor en dicha línea (Ver Novedades relevantes del CDEC-SIC en Anexo N°1).

1.4. Código falla:

Causas de Falla	**Código**	**Descripción**
Fenómeno Físico	(*)	-
Elemento del Sistema Eléctrico	(*)	-
Fenómeno Eléctrico	(**)	-
Modo	(**)	-

(*) La falla se produjo en la línea 154 kV Alto Jahuel – Rancagua – Tinguiririca N°2, de propiedad de TRASNELEC.
(**) Correctamente no existen protecciones operadas en esta falla externa.

1.5. Comuna donde se originó la falla:

Código	**Nombre la comuna**
13404	Paine

1.6. Reiteración:

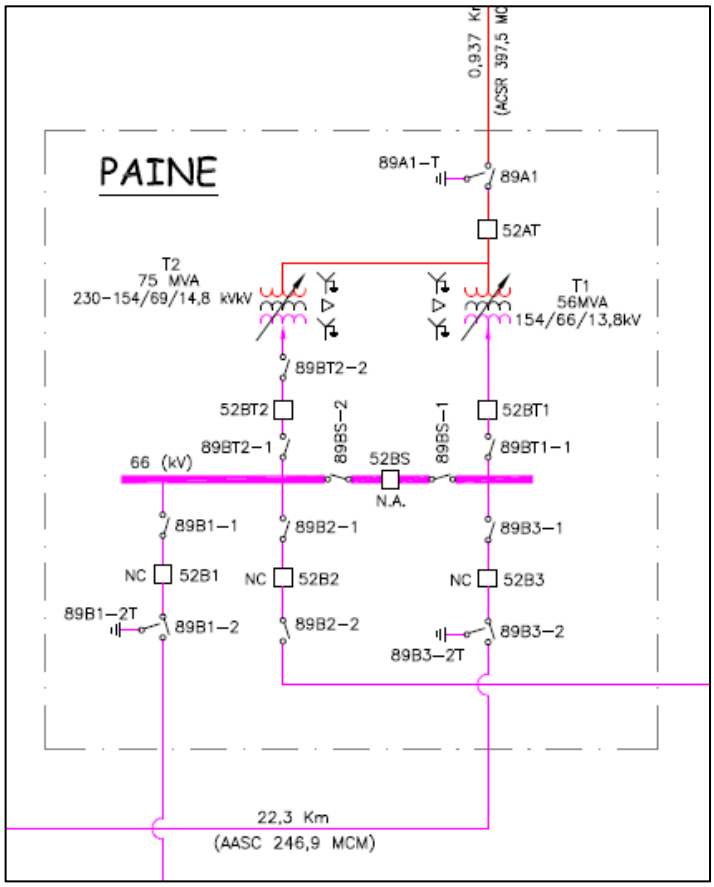
IF N°	Fecha falla	Hora falla
IF 02947 – 02948/2015	20/11/2015	03:20
IF 00626/2015	13/03/2015	01:13
IF 00681/2015	20/03/2015	02:54
IF 00751 - 00753/2015	24/03/2015	07:18

INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	

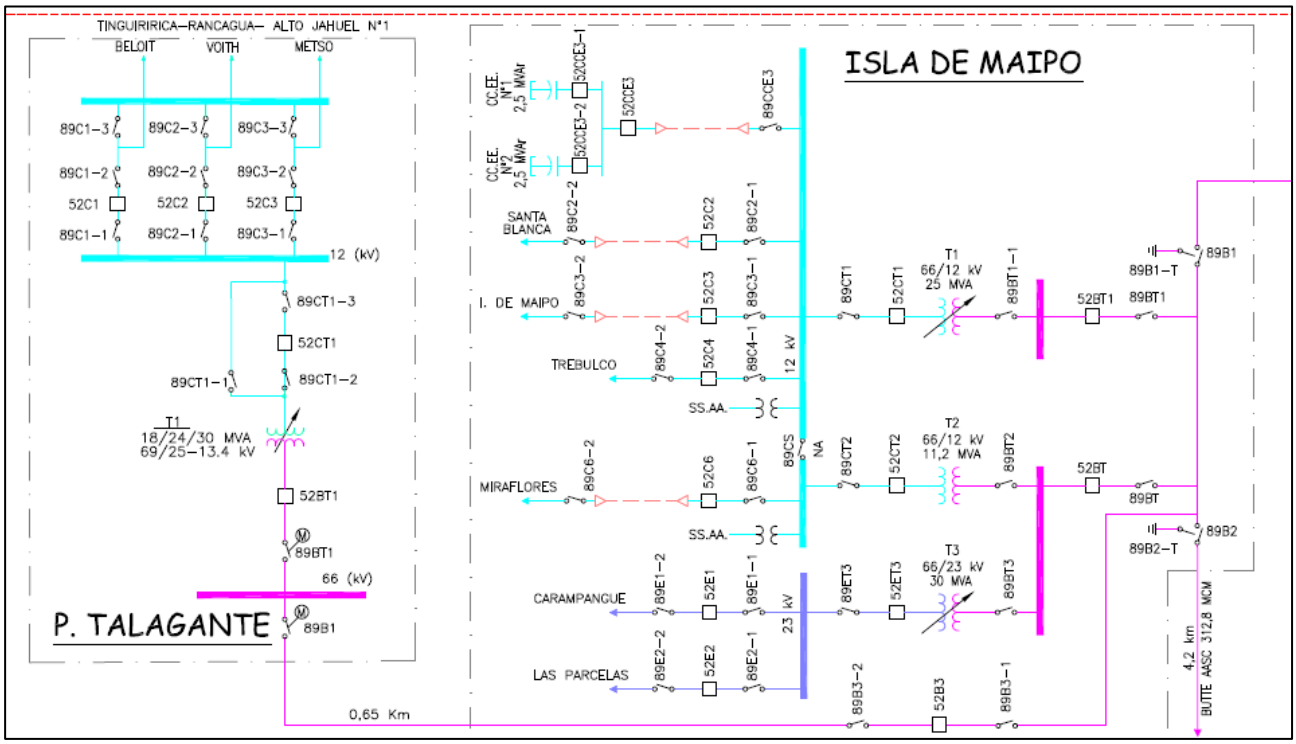
2. INSTALACIONES AFECTADAS.

SUBESTACIÓN	INSTALACIÓN	HORA DESCONEXIÓN	HORA NORMALIZACIÓN
Paine	*S/E Completa.*	*01:18*	*08:47*
Hospital	*S/E Completa*	*01:18*	*02:57*
Buín	*Transformador 2*	*01:18*	*01:21*
Fátima	*S/E Completa*	*01:18*	*03:18*
San Francisco Mostazal	*Transformador 2*	*01:18*	*02:54*
Papelera Talagante	*S/E Completa*	*01:18*	*04:04*
Isla de Maipo	*Transformador N°1*	*01:18*	*02:50*
Isla de Maipo	*Transformador N°2*	*01:18*	*03:08*

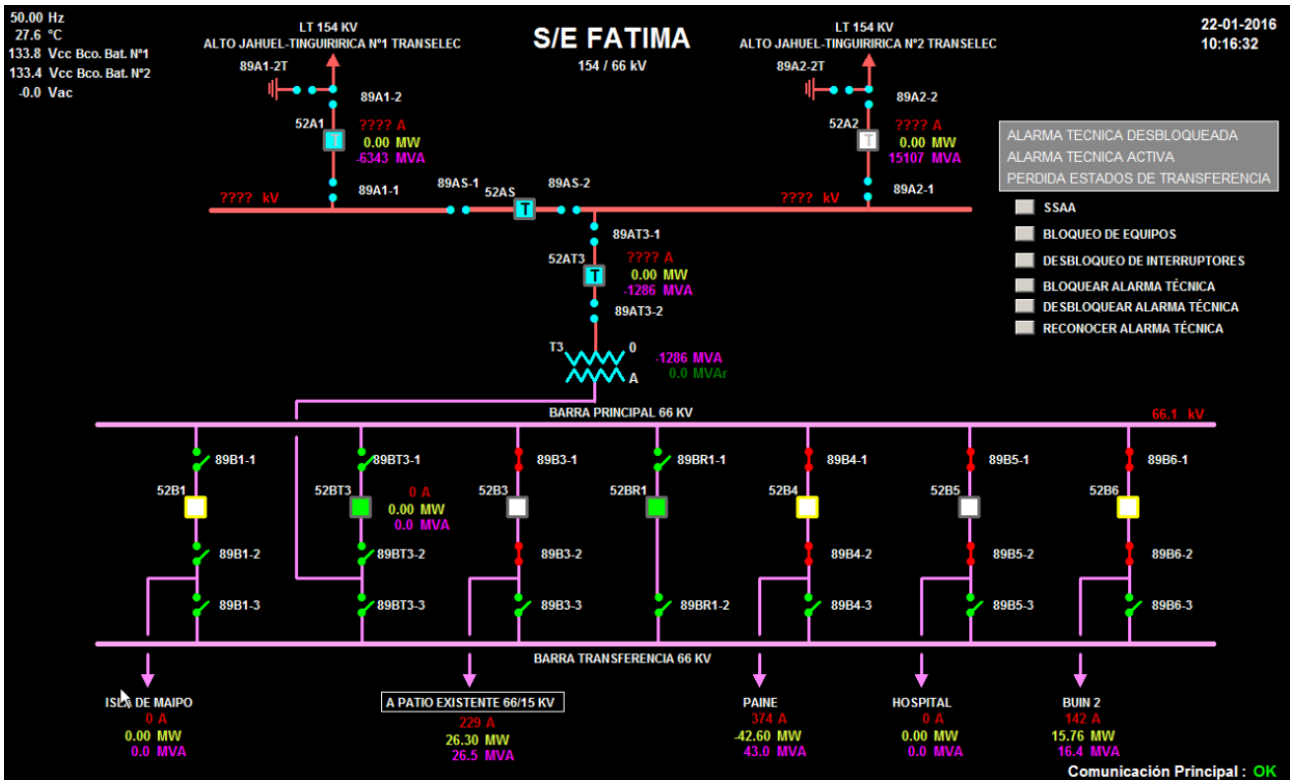
3. DIAGRAMAS SIMPLIFICADOS.



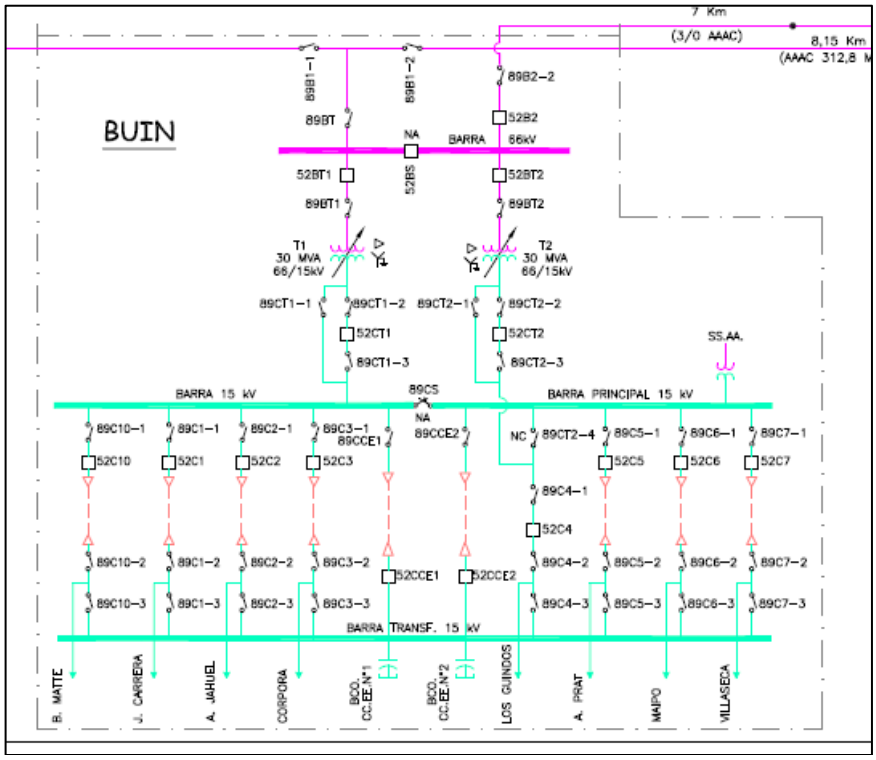
INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	



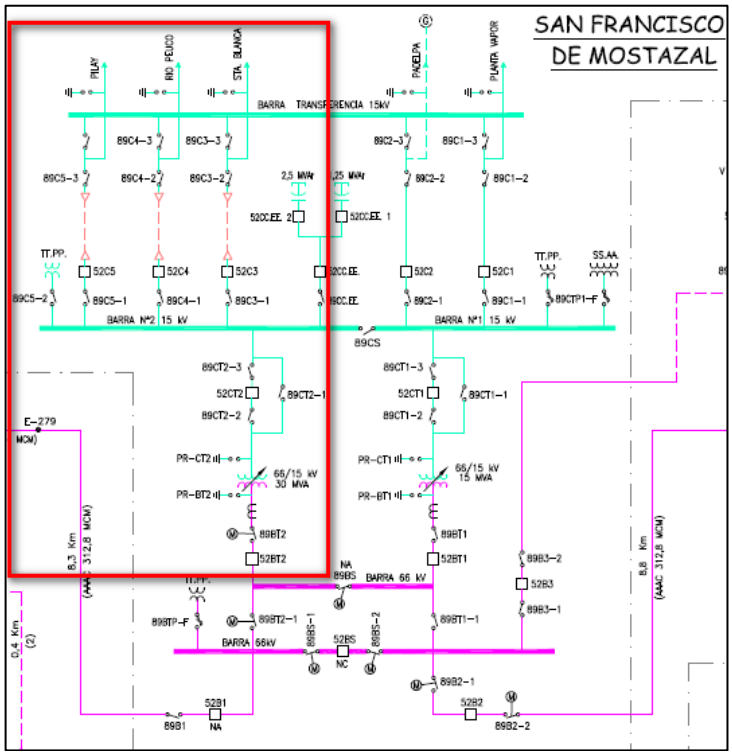
INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	



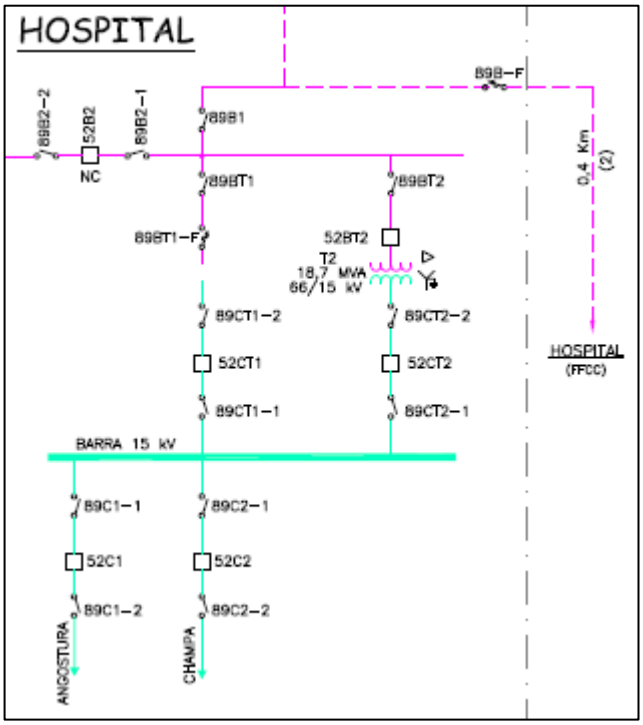
INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	



INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	



INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	



INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	

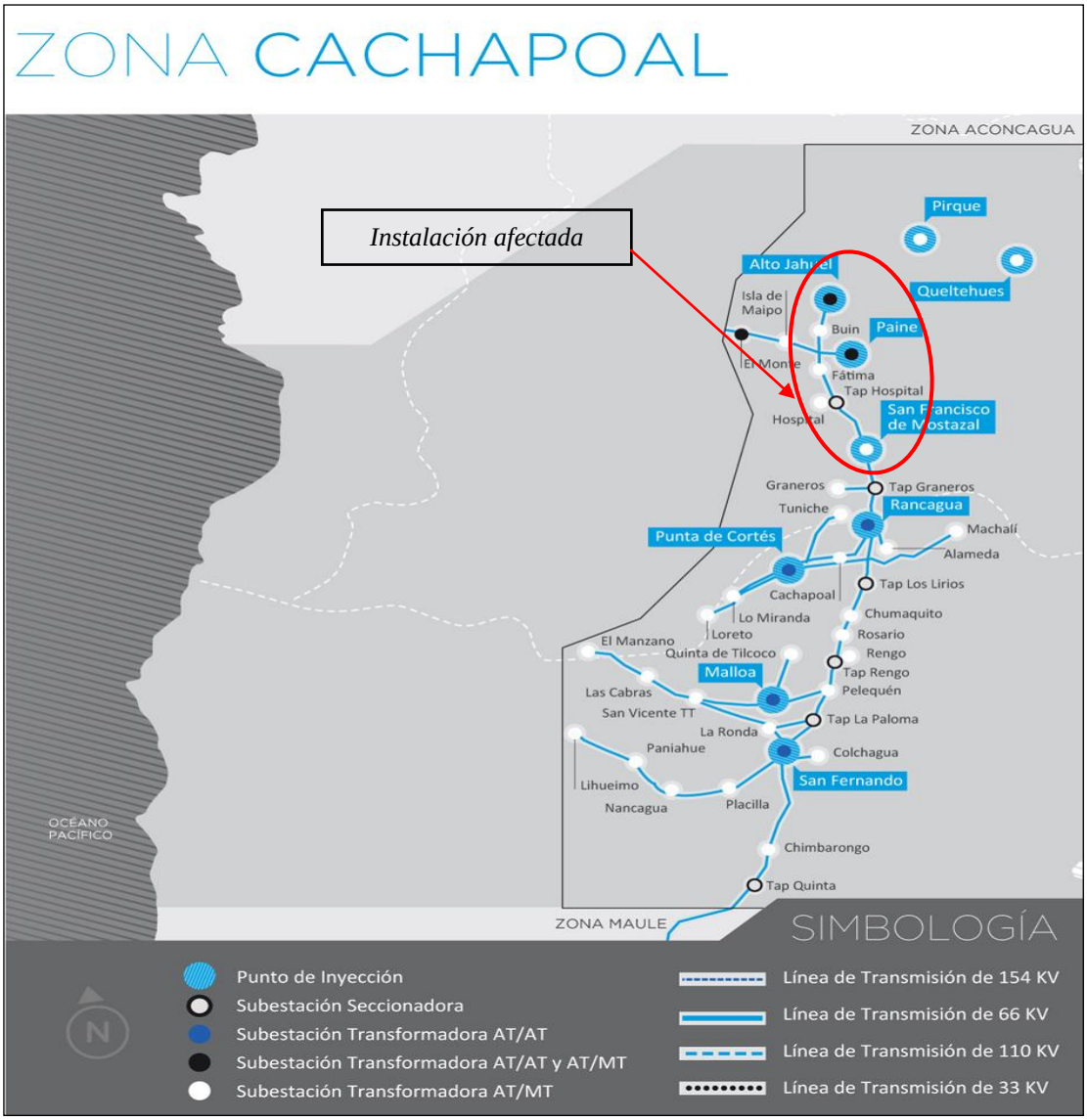


Figura 1.- Región Geográfica correspondiente a la Zona Cachapoal de Transnet. Se indican subestaciones involucradas en la Región Metropolitana.

4. PÉRDIDAS DE GENERACIÓN.

No hay generación, propiedad de TRANSNET, involucrada en la falla.

5. PÉRDIDAS DE CONSUMOS.

SUBESTACIÓN	INSTALACIÓN	POTENCIA INTERRUMPIDA (MW)	HORA DESCONEXIÓN	HORA NORMALIZACIÓN
Hospital	*S/E Completa*	*5,7*	*01:18*	*02:57*
Buín	*Transformador 2*	*13,2*	*01:18*	*01:21*
Fátima	*S/E Completa.*	*20,5*	*01:18*	*03:18*
San Francisco Mostazal	*Transformador 2*	*11,8*	*01:18*	*02:54*
Papelera Talagante	*S/E Completa*	*18,2*	*01:18*	*04:04*
Isla de Maipo	*Transformador N°1*	*11,2*	*01:18*	*02:50*
Isla de Maipo	*Transformador N°2*	*7,5*	*01:18*	*03:08*
TOTAL		***88,1 MW***		

ENS = 151,22 MWH

6. CRONOLOGÍA DE EVENTOS Y DESCRIPCIÓN DE CAUSAS.

S/E	*Evento*	*Horario*
		07.01.16
Externa	*Pérdida de suministro LT Alto Jahuel- Rancagua-Tinguiririca Cto. N°1 afectando consumos de las SSEE Malloa (Transformador N°1) y SE Punta de Cortés*	*01:08*
COT	Abierto 52AT de S/E Paine	*01:18*
CDEC	Abierto 52B3 de S/E Isla de Maipo.	*01:18*
COT	Abierto 52BT1 de S/E Papelera Talagante	*01:18*
BUIN	Abierto 52B2 de S/E Buín.	*01:20*
BUIN	Cerrado 52BS de S/E Buín. (Se recupera los consumos de T2 de S/E Buín).	*01:21*
COT	Abierto 52ET3 de S/E Isla de Maipo.	*01:34*
COT	Cerrado 52C5 Cto. A. Prat de S/E Buín	*01:36*
FATIMA	Abierto 52C1 Cto. La Colonia de S/E Fátima.	*02:39*
FATIMA	Abierto 52C2 Cto. Viluco de S/E Fátima	*02:39*
FATIMA	Abierto 52C3 Cto.Paine de S/E Fátima.	*02:39*
FATIMA	Abierto 52C4 Cto. Linderos de S/E Fátima.	*02:39*
FATIMA	Abierto 52C5 Cto. La Cervera de S/E Fátima.	*02:39*
PAINE	Abierto 52B3 de S/E Paine.	*02:46*
COT	Abierto 52BT de S/E Isla de Maipo.	*02:48*
COT	Abierto 52BT1 de S/E Isla de Maipo.	*02:48*
COT	Cerrado 52BT1 de S/E Isla de Maipo.	*02:50*
SAN FCO. MOSTAZAL	Abierto 52B1 de S/E San Francisco de Mostazal	*02:52*
SAN FCO. MOSTAZAL	Cerrado 52BS de S/E San Francisco de Mostazal.	*02:53*
PAINE	Abierto 52B2 de S/E Paine.	*02:56*
SAN FCO. MOSTAZAL	Cerrado 52B1 de S/E San Francisco de Mostazal. (Se recupera S/E Hospital).	*02:57*

FATIMA	Abierto 52B4 hacia S/E Paine	*02:59*
FATIMA	Cerrado 52B5 hacia S/E Hospital	*03:00*
FATIMA	Cerrado 52C5 Cto. La Cervera	*03:01*
FATIMA	Cerrado 52C1 Cto. La Colonia	*03:16*
FATIMA	Cerrado 52C3 Cto. Paine	*03:17*
COT	Cerrado 52BT de S/E Isla de Maipo. (Se recupera 52C6 Cto. Miraflores)	*03:08*
COT	Cerrado 52B3 de S/E Isla de Maipo (Se recupera los Consumos de S/E Papelera Talagante)	*03:42*
Recuperación de Papelera Talagante		
COT	Cerrado 52C1 de S/E Papelera Talagante.	*04:04*
COT	Cerrado 52C2 de S/E Papelera Talagante.	*04:04*
COT	Cerrado 52C3 de S/E Papelera Talagante.	*04:05*
FATIMA	Cerrado 52C2 Cto. Viluco de S/E Fatima.	*06:54*
FATIMA	Cerrado 52C5 Cto. La Cervera	*07:16*
COT	Apertura por liberación de carga del Cto. 52C2 Voith de S/E Papelera Talagante (0,3MW).	*08:25*
COT	Apertura por liberación de carga del Cto. 52C1 Beloit de S/E Papelera Talagante (0,6MW).	*08:25*
SAN FCO. MOSTAZAL	Apertura por liberación de carga del Cto. 52C4 Rio Peuco (3MW).	*08:25*
SAN FCO. MOSTAZAL	Apertura por liberación de carga del Cto. 52C5 Pilay (4,3MW).	*08:41*
PAINE	Cierre del DD.CC 89A1 de S/E Paine	*08:44*
PAINE	Cierre 52AT de S/E Paine	*08:48*
Maniobras de Microcorte, sin éxito		
SAN FCO. MOSTAZAL	Apertura de 52BS de S/E San Francisco de Mostazal	*08:49*
FATIMA	Se generan 3 órdenes de cierre al 52B4 de S/E Fátima sin éxito. (Interruptor solo para maniobras, no considera protecciones habilitadas. El no cierre se origina por la operación de la protección térmica de este (guarda motor).	*08:49*
SAN FCO. MOSTAZAL	Cierre 52BS	*08:54*
FATIMA	Cierre 52B4 de S/E Fátima	*09:27*

INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	

SAN FCO. MOSTAZAL	Apertura del 52BS de S/E San Francisco de Mostazal.	*09:30*
PAINE	Cierre 52B2	*09:31*
FATIMA	Apertura 52B5	*09:33*
BUIN	Cierre 52B2	*09:36*
BUIN	Apertura del 52BS	*09:37*
COT	Apertura de los interruptores 52BT1, 52BT y 52B3 de S/E Isla de Maipo.	*08:57*
COT	Apertura 89B2 de S/E Isla de Maipo	*08:57*
PAINE	Cierre 52B3	*08:58*
COT	Cierre local del interruptor 52BT de S/E Isla de Maipo.	*08:58*
SAN FCO. MOSTAZAL	Cierre por liberación Cto. 52C4 Rio Peuco	*08:58*
BUIN	Apertura por liberación de carga Cto. 52C1 Javiera Carrera de S/E Buin.	*09:17*
SAN FCO. MOSTAZAL	Cierre por liberación de carga del Cto. 52C5 Pilay de S/E San Francisco de Mostazal	*09:17*
PAINE	Cierre 52B2 de S/E Paine	*09:31*
FATIMA	Apertura del 52B5 de S/E Fátima	*09:33*
BUIN	Cierre Cto 52C1 Javiera Carrera de S/E Buin. (1,7MW)	*09:37*
BUIN	Traspaso de carga entre Cto. Linderos de Fátima y Villaseca de S/E Buin.	*09:48*
COT	Cierre sin éxito 52ET3 S/E Isla de Maipo	*10:01*
COT	Cerrado 52ET3 S/E Isla de Maipo (Local)	*10:42*
COT	Abierto límite de Zona Entre Cto. Autopista del Sol (Chilectra Malloco) y entre Carampangue S/E Isla de Maipo	*10:43*

7. ESQUEMAS DE PROTECCIÓN Y CONTROL INVOLUCRADOS EN LA FALLA.

Correctamente no existen protecciones de Transnet operadas en esta falla externa.

8. ACCIONES CORRECTIVAS A CORTO PLAZO

No aplica

9. ACCIONES CORRECTIVAS A LARGO PLAZO

No aplica

10. CONCLUSIONES.

No existen protecciones de Transnet operadas en esta falla externa. La pérdida de suministro se produjo por causas externas a las instalaciones de Transnet, y de acuerdo a lo informado por medios oficiales del CDEC-SIC, las fallas se localizó en la LT154 kV Alto Jahuel– Rancagua-Tinguiririca N°1, propiedad de Transelec.

11. ANÁLISIS CONJUNTO.

A las 01:18 hrs del día 07 de Enero de 2016, el centro de operación de transmisión de TRANSNET informa la pérdida de suministro a nivel de 154kV en la LT Alto Jahuel– Rancagua-Tinguiririca Circuito N° 1, afectando los consumos asociados a S/E Paine, con una potencia total desconectada de 88 MW, que interrumpió el suministro de las SSEE Buin, Fátima, Hospital y Transformador N°2 de San Francisco de Mostazal. La causa de la falla informada por los medios oficiales del CDEC-SIC fue robo de conductor.

A las 01:18 horas y como consecuencia de la falla, se procede con la apertura del interruptor 52AT de S/E Paine. Minutos más tarde, a las 01:21 horas se transfiere la carga del Transformador N° 2 de S/E Buin, hacia el paño B3 de S/E Alto Jahuel. Posteriormente, se ejecutan las maniobras necesarias para recuperar parcialmente los consumos afectados de S/E Isla Maipo, restableciendo el suministro del Transformador N°1 a las 02:50. Por su parte, a las 02:57 se cierra el interruptor 52B1 de S/E San Francisco de Mostazal, recuperando el suministro de S/E Hospital.

A las 03:01 y las 03:17, se efectúa la recuperación parcial de los consumos asociados a los Transformador N°1 y N° 2 de S/E Fátima, con el cierre de los interruptores 52C1, 52C3 y 52C5 de la misma. Las maniobras continúan con la recuperación de suministro, registrando horario

de recuperación del Transformador N°2 de S/E Isla de Maipo, a las 03:08 horas. Del mismo modo, a las 03:42 se cierra el interruptor 52B3 de S/E Isla Maipo restableciendo los consumos de S/E Papelera Talagante con este horario.

La recuperación de consumos se efectuó hasta aproximadamente las 08:48 horas, horario en que se cierra nuevamente el interruptor 52AT1 de S/E Paine y se inicia la normalización de la topología.

Anexo Nº1
Novedades Relevantes del CDEC-SIC
Día 07/01/2016

INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	

CDEC SIC

Hora	Observación
00:00	Cs. Pehuenche, Colbún y Rapel ratifican condición de agotamiento.
00:06	C. Ralco U-2 toma la regulación de frecuencia.
00:07	C. San Isidro II TV disponible y sincronizada.
00:41	Línea de 66 kV Pan de Azúcar – Marquesa interrupción forzada por protecciones, se pierden 12 MW de consumos.
01:04	C. San Isidro TG se retira por control suministro de gas.
01:08	Línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 2 interrupción forzada por protecciones, se pierden 77 MW de consumos correspondientes a SS/EE Cachapoal, Machalí, Loreto, Lo Miranda, Tuniche, Quinta de Tilcoco, Las Cabras y El Manzano. Causa informada: Robo de conductor entre estructuras Nº 354 y 355.
01:08	S/E Tinguiririca línea de 154 kV Itahue – Tinguiririca 2 interrupción forzada por protecciones, en S/E Itahue se encontraba abierto por control de oscilaciones.
01:10	C. La Higuera U-1 F/S a solicitud del CDC para eliminar las oscilaciones en línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 1.
01:12	Cerrada línea de 66 kV Pan de Azúcar – Marquesa y normalizado los consumos.
01:12	S/E Punta de Cortés CC de Transelec abre interruptores de línea de 154 kV Tinguiririca – Rancagua – Alto Jahuel 1 y 2, no autorizado por el CDC. Centrales que inyectan en S/E Tinguiririca quedan generando en isla alimentando los consumos de SS/EE San Fernando y Teno. Por operación de EDAC se pierden 23 y 25 MW de consumos correspondientes a SS/EE San Fernando y Teno, se autoriza la reposición inmediata.
01:12	C. La Confluencia U-1 sale del servicio en forma intempestiva con 77 MW.
01:12	C. El Paso U-2 y U-3 salen del servicio en forma intempestiva con 40 MW.
01:12	S/E Teno Planta Papeles Arauco pierde 1,3 MW de consumos por operación de EDAC.
01:17	S/E Itahue sincronizada línea de 154 kV Itahue – Tinguiririca 1.
01:19	Recuperado los consumos de SS/EE Quinta de Tilcoco, Las Cabras y El Manzano.
01:19	Línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 1 interrupción forzada por protecciones, se pierden 87 MW de consumos correspondientes a SS/EE Buin TR Nº 2, Fátima, Hospital, Isla de Maipo, Graneros, San Francisco de Mostazal y Papelera Talagante. Causa informada: Robo de conductor entre estructuras Nº 354 y 355.
01:19	S/E Rancagua alimentado en isla desde S/E Sauzal.
01:21	S/E Teno Planta Papeles Arauco normalizado consumos.
01:21	Recuperado los consumos del TR Nº 2 de S/E Buin.
01:27	S/E Alto Jahuel cierre manual sin éxito de línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 1.
01:28	S/E Alto Jahuel cierre manual sin éxito de línea de 154 kV Punta de Cortés – Rancagua – Alto Jahuel 2.
01:32	Cerrada línea de 154 kV Itahue – Tinguiririca 2.
01:36	C. Coya U-5 F/S a solicitud del CDC para transferir su inyección hacia S/E Rancagua para mejorar condiciones de tensión y frecuencia en la zona.
01:43	Línea de 66 kV Rancagua – Rosario se realiza microcorte para transferir consumos desde S/E Rancagua hacia S/E Malloa, para mejorar regulación de frecuencia y voltaje en área de Rancagua alimentada en isla desde C. Sauzal.
01:43	C. Chacayes U-1 sale del servicio en forma intempestiva con 60 MW.
01:50	C. Sauzalito sale del servicio en forma intempestiva con 11.5 MW.
01:51	C. Coya U-5 sincronizada hacia Rancagua.
01:53	C. Coya U-5 F/S a solicitud del CDC para transferir su inyección hacia S/E Alto Jahuel.
01:57	S/E Rancagua F/S a solicitud del CDC para transferir consumos hacia S/E Alto Jahuel, debido a mala regulación de frecuencia, tensión y recuperar la mayor cantidad de consumos pérdidos en la zona.
02:00	C. La Higuera empieza a verter.
02:10	C. Coya U-5 sincronizada hacia S/E Alto Jahuel.
02:12	C. Sauzal U-2 F/S a solicitud del CDC para transferir su inyección hacia S/E Alto Jahuel.
02:40	S/E Rancagua E/S desde S/E Alto Jahuel.
02:41	Recuperados los consumos de SS/EE Hospital y Fátima parcialmente.
02:51	Recuperados los consumos del TR 1 de S/E Isla de Maipo.
03:00	C. Sauzal U-2 sincronizada hacia S/E Alto Jahuel.
03:09	Recuperados el 100% de los consumos de S/E Isla de Maipo.
03:15	Recuperados los consumos de SS/EE Cachapoal y Machalí.
03:37	C. Esperanza unidades con informe de limitación, no obedecen orden de partida remota.
03:42	Recuperado 2 MW de consumos de S/E Papelera Talagante.
03:47	C. Chacayes U-1 sincronizada hacia S/E Alto Jahuel.

Anexo Nº2
Estampa de tiempo sincronizada

Estampa de Tiempo Nodo Buin.

SE	Fecha	Hora	Estado	DESCRIPCION
Hospital	2016/01/07	01:07:26.586	1	Hospital_ALM_Falla Rele SEL/TM Op_52B2
Hospital	2016/01/07	01:18:36.279	1	Hospital_ALM_Falla Rele SEL/TM Op_52B2
Papelera Talagante	2016/01/07	01:18:36.405	1	BT1 PS1 (87L) DIFERENCIAL TRIP
Paine	2016/01/07	01:18:36.439	1	Paine_ALM_21_21n_52AT1
Papelera Talagante	2016/01/07	01:18:36.451	1	BT1 52BT1 ABIERTO
Paine	2016/01/07	01:18:36.530	1	Paine_154_ST_Abierto_52AT1
Paine	2016/01/07	01:18:36.530	1	Paine_ALM_Apertura_52AT1
Hospital	2016/01/07	01:18:36.677	1	Hospital_ALM_Bajo voltaje CA/CC
Fatima	2016/01/07	01:18:41.405	1	Fatima_15_ST_Abierto_52C7
Fatima	2016/01/07	01:18:41.418	1	Fatima_15_ST_Bloqueado_52C7
Hospital	2016/01/07	01:18:41.893	1	Hospital_ALM_apertura 52CT
Hospital	2016/01/07	01:18:42.727	1	Hospital_ALM_apertura 52C1
Hospital	2016/01/07	01:18:45.690	1	Hospital_ALM_apertura 52C2
Buin	2016/01/07	01:18:46.477	1	Buín_15_ST_Abierto_52C9
Buin	2016/01/07	01:21:19.276	1	Buín_66_ST_Abierto_52B2
Buin	2016/01/07	01:21:42.961	1	Buín_66_ST_Cerrado_89BS
Buin	2016/01/07	01:37:08.464	1	Buín_15_ST_Cerrado_52C5
Fatima	2016/01/07	02:39:58.546	1	Fátima_15_ST_Abierto_52C1
Fatima	2016/01/07	02:40:09.289	1	Fátima_15_ST_Abierto_52C3
Fatima	2016/01/07	02:40:11.478	1	Fátima_15_ST_Abierto_52C4
Fatima	2016/01/07	02:40:32.112	1	Fatima_15_ST_Abierto_52C5
Paine	2016/01/07	02:46:37.494	1	Paine_66_ST_Abierto_52B3
Fatima	2016/01/07	02:50:24.217	1	Fátima_15_ST_Abierto 52CCE2-1_Fase_A
Fatima	2016/01/07	02:50:24.218	1	Fátima_15_ST_Abierto 52CCE2-1_Fase_B
Fatima	2016/01/07	02:50:24.218	1	Fátima_15_ST_Abierto 52CCE2-1_Fase_C
Paine	2016/01/07	02:56:55.193	1	Paine_66_ST_Abierto_52B2
Fatima	2016/01/07	03:02:09.967	1	Fatima_15_ST_Cerrado_52C5

Fatima	2016/01/07	03:16:36.229	1	Fátima_15_ST_Cerrado_52C1
Fatima	2016/01/07	03:17:54.142	1	Fátima_15_ST_Cerrado_52C3
Papelera Talagante	2016/01/07	04:03:49.294	1	C1 52C1 CERRADO
Papelera Talagante	2016/01/07	04:04:29.125	1	C2 52C2 CERRADO
Papelera Talagante	2016/01/07	04:04:39.976	1	C3 52C3 CERRADO
Paine	2016/01/07	04:06:32.044	1	Paine_154_ST_Abierto_89AT1_1
Buin	2016/01/07	05:14:45.585	1	Buín_15_ST_Abierto_52C5
Buin	2016/01/07	05:14:46.547	1	Buín_ALM_Apertura_52C5
Fatima	2016/01/07	05:33:08.469	1	Fatima_15_ST_Abierto_52C5
Buin	2016/01/07	06:36:27.091	1	Buín_15_ST_Cerrado_52C9
Buin	2016/01/07	07:14:29.205	1	Buín_15_ST_Abierto_52C1
Buin	2016/01/07	07:14:30.364	1	Buín_ALM_Apertura_52C1
Buin	2016/01/07	07:15:06.729	1	Buín_15_ST_Cerrado_52C1
Fatima	2016/01/07	07:15:32.936	1	Fatima_15_ST_Cerrado_52C5
Papelera Talagante	2016/01/07	08:24:40.806	1	C1 52C1 ABIERTO
Papelera Talagante	2016/01/07	08:24:52.636	1	C2 52C2 ABIERTO
Paine	2016/01/07	08:42:53.950	1	Paine_154_ST_Cerrado_89AT1_1
Paine	2016/01/07	08:47:46.984	1	Paine_154_ST_Cerrado_52AT1
Hospital	2016/01/07	08:48:59.978	1	Hospital_ALM_Bajo voltaje CA/CC
Hospital	2016/01/07	08:49:03.726	1	Hospital_ALM_apertura 52C1
Hospital	2016/01/07	08:49:07.183	1	Hospital_ALM_apertura 52CT
Hospital	2016/01/07	08:49:07.295	1	Hospital_ALM_apertura 52C2
Paine	2016/01/07	08:57:37.267	1	Paine_66_ST_Cerrado_52B3
Paine	2016/01/07	09:07:28.973	1	Paine_66_ST_Abierto_52B1
Papelera Talagante	2016/01/07	09:14:18.211	1	C1 52C1 CERRADO
Buin	2016/01/07	09:15:59.866	1	Buín_15_ST_Abierto_52C1
Buin	2016/01/07	09:16:00.723	1	Buín_ALM_Apertura_52C1
Papelera Talagante	2016/01/07	09:17:02.441	1	C2 52C2 CERRADO
Hospital	2016/01/07	09:29:13.111	1	Hospital_ALM_Bajo voltaje CA/CC
Hospital	2016/01/07	09:29:14.855	1	Hospital_ALM_apertura 52C2
Hospital	2016/01/07	09:29:20.124	1	Hospital_ALM_apertura 52CT

Hospital	2016/01/07	09:29:20.312	1	Hospital_ALM_apertura 52C1
Paine	2016/01/07	09:29:51.377	1	Paine_66_ST_Cerrado_52B1
Fatima	2016/01/07	09:29:57.680	1	Fátima_15_ST_Abierto 52CCE2
Fatima	2016/01/07	09:29:57.681	1	Alm_Apertura_Interruptor_52CCE2
Paine	2016/01/07	09:31:17.982	1	Paine_66_ST_Cerrado_52B2
Buin	2016/01/07	09:35:26.995	1	Buín_66_ST_Cerrado_52B2
Buin	2016/01/07	09:36:07.603	1	Buín_66_ST_Abierto_89BS
Buin	2016/01/07	09:36:23.062	1	Buín_15_ST_Cerrado_52C1
Fatima	2016/01/07	09:45:04.037	1	Fátima_15_ST_Cerrado_52C4

Isla de Maipo	2016/01/07	01:18:36.469	1	Isla_Maipo_66_ST_Abierto_52B3
Mostazal	2016/01/07	01:18:44.088	1	Mostazal_15_ST_Abierto_52CBC1
Isla de Maipo	2016/01/07	01:34:41.246	1	IMaipo_23_ST_Abierto_52ET3
Isla de Maipo	2016/01/07	02:47:54.180	1	IMaipo_66_ST_Abierto_52BT1
Isla de Maipo	2016/01/07	02:48:04.329	1	IMaipo_66_ST_Abierto_52BT
Graneros	2016/01/07	02:49:20.244	1	Graneros_15_ST_Cerrado_52C2
Isla de Maipo	2016/01/07	02:50:24.740	1	IMaipo_66_ST_Cerrado_52BT1
Mostazal	2016/01/07	02:52:58.820	1	Mostazal_Estado abierto 52B1
Mostazal	2016/01/07	02:53:23.540	1	Mostazal_66_ST_Cerrado_52BS
Mostazal	2016/01/07	02:57:40.703	1	Mostazal_Estado cerrado 52B1
Isla de Maipo	2016/01/07	03:08:57.586	1	IMaipo_66_ST_Cerrado_52BT
Isla de Maipo	2016/01/07	03:42:22.611	1	Isla_Maipo_66_ST_Cerrado_52B3
Isla de Maipo	2016/01/07	08:56:25.849	1	IMaipo_66_ST_Abierto_52BT1
Isla de Maipo	2016/01/07	08:56:28.288	1	IMaipo_66_ST_Abierto_52BT
Isla de Maipo	2016/01/07	08:56:37.491	1	Isla_Maipo_66_ST_Abierto_52B3
Mostazal	2016/01/07	08:57:45.989	1	Mostazal_Estado cerrado 52C4
Isla de Maipo	2016/01/07	08:58:15.743	1	IMaipo_66_ST_Cerrado_52BT

INFORME (s) CDEC Nº: **IF000032/2016**	FECHA DE FALLA: **07 DE ENERO DE 2016**
INSTALACIÓN (ES) SE PAINE	

Isla de Maipo	2016/01/07	08:58:18.245	1	IMaipo_66_ST_Cerrado_52BT1
Isla de Maipo	2016/01/07	08:58:27.954	1	Isla_Maipo_66_ST_Cerrado_52B3
Isla de Maipo	2016/01/07	10:41:21.989	1	IMaipo_23_ST_Cerrado_52ET3
Isla de Maipo	2016/01/07	23:34:57.552	1	IMaipo_23_ST_Abierto_52ET3