Estudio para análisis de falla EAF 559/2024

"Apertura intempestiva del interruptor 52CL3 de S/E Central Quelteheues"

Fecha de Emisión: 20-12-2024

1. Descripción pormenorizada de la perturbación

a. Fecha y Hora de la falla

Fecha	30/11/2024
Hora	16:38
Consumos desconectados (MW)	1.51
Demanda previa del sistema (MW)	9309.1
Porcentaje de desconexión	0.016 %
Calificación Apagón	No aplica (porcentaje de desconexión < 10%)

b. Identificación instalación afectada

Nombre de la instalación	S/E Central Quelteheues / SE006G0010
Tipo de instalación	Subestación
Tensión nominal	110 kV, 23 kV y 12 kV
Segmento	Transmisión Dedicada
Propietario instalación afectada	AES Andes S.A.
RUT	94.272.000-9
Representante Legal	Javier Dib
Dirección	Los Conquistadores 1730, piso 10, Providencia, Santiago.

c. Identificación del elemento fallado

Nombre del elemento fallado	Paño C3 de S/E Central Quelteheues / PA030G0010SE006G0010 (*)
Propietario elemento fallado	Compañía General de Electricidad S.A.
RUT	76.411.321-7
Representante Legal	Iván Quezada Escobar (**)
Dirección	Av. Presidente Riesco N° 5561, piso 14, Las Condes, Santiago

(*) Código de equipo que en el aplicativo Infotécnica del Coordinador aparece de propiedad de AES Andes S.A., sin embargo, en planos cargados en este aplicativo, así como declaraciones de la mencionada empresa, se indica que la propiedad es de Compañía General de Electricidad S.A.

(**): Gerente General de la empresa Compañía General de Electricidad S.A. obtenido de la plataforma REUC del Coordinador.

d.1 Origen y causa de la falla

Se produjo la apertura automática del interruptor 52CL3 de S/E Central Queltehues, asociado a la barra del patio de alimentadores 12 kV de la subestación, por operación en respaldo de la protección de sobrecorriente temporizada de tierra, 50N, ante el no despeje de la falla por el dispositivo de protección del paño C3 de esta S/E.

La empresa AES Andes S.A. informa que el origen de la falla fue la caída de un árbol sobre los conductores del alimentador San José (conectado al paño C3).

d.2 Fenómeno Físico:

OPE22: Error en programación de elementos de protección o control.

d.3 Reiteración:

Reiteración Fenómeno Físico en la instalación afectada: Esta instalación no ha sido afectada por el mismo fenómeno físico, durante los últimos 24 meses móviles.

Reiteración Fenómeno Físico en instalaciones del mismo propietario: No se han producido fallas en instalaciones del mismo propietario con el mismo fenómeno físico, durante los últimos 24 meses móviles

Cantidad de fallas (sin importar Fenómeno Físico) en la misma instalación: No se han producido fallas en la misma instalación afectada, durante los últimos 24 meses móviles.

d.4 Fenómeno eléctrico

CO51: Sobrecorriente de neutro temporizado.

e. Detalles de la instalación, equipo o elemento donde se produjo la falla

El elemento donde presumiblemente se originó la falla corresponde al interruptor 52C3 de S/E Central Queltehues, cuyas características técnicas no se encuentran registradas en la plataforma Infotécnica, de propiedad de la empresa Compañía General de Electricidad S.A., según planos de este aplicativo y declaración del Informe de Falla de 5 días de la empresa AES Andes S.A.

El elemento afectado por la falla corresponde al interruptor 52CL3 de S/E Central Queltehues, el cual corresponde a un equipo tripolar marca Siemens, modelo 8DA10, 1600 A de corriente nominal y 31,5 kA de capacidad de ruptura, cuya fecha de entrada en operación fue en el año 2016, en este caso de propiedad de la empresa AES Andes S.A.

f. Ubicación urbana o rural según DS 327/1997

La empresa CGE S.A. indica: "*Rural*".

g. Proposición del propietario respecto del origen de la falla

Interna *

(*) Dada la omisión de la proposición del origen de la falla de parte de la empresa propietaria.

h. Comuna donde se presenta la falla

13203: San José de Maipo.

i. Fecha de entrega de la información al Coordinador

Coordinado	Informe de 48 horas (31-10-2024)	Informe de 5 días (06-12-2024)
Compañía General de Electricidad S.A. (CGE)	03-12-2024	06-12-2023
AES Andes S.A.	30-11-2024	06-12-2024

2. Descripción del equipamiento afectado

a. Sistema de Generación

b. Sistema de Transmisión

Elemento Afectado	Segmento	Tramo	Hora Desc.	Hora Norm.
S/E Central Quelthues	ST Dedicado	Barra 12 kV	16:38	21:41

c. Consumos

Sub-Estación	Alimentador / Paño	Comuna	Pérdida de Consumo (MW)	% consumo pre-falla	Clientes Afectados	H. Desc.	H. Disp.	H. Norm.
Central Quelthues	Volcán / C1	San José de Maipo	0.01	0.000	7	16:38	21:41	21:53
Central Quelthues	Bocatoma / C2	San José de Maipo	0.00	0.000	15	16:38	21:41	21:53
Central Quelthues	San José / C3	San José de Maipo	1.50	0.016	1995	16:38	21:41	21:53
		Total:	**1.51 MW**	**0.016%**	**2017**			

- Los montos y tiempos señalados corresponden a lo informado por la empresa CGE S.A.

3. Estimación de la energía no suministrada

Sub- Estación	Alimentador / Paño	Empresa	Tipo de Cliente	Pérdida de Consumo (MW)	Tiempo Indisp. (h)	Tiempo Desc. (h)	ENS (MWh)
Central Quelthues	Volcán / C1	CGE	Regulado	0.01	5.05	5.25	0.10
Central Quelthues	Bocatoma / C2	CGE	Regulado	0.00	5.05	5.25	0.00
Central Quelthues	San José / C3	CGE	Regulado	1.50	5.05	5.25	7.90

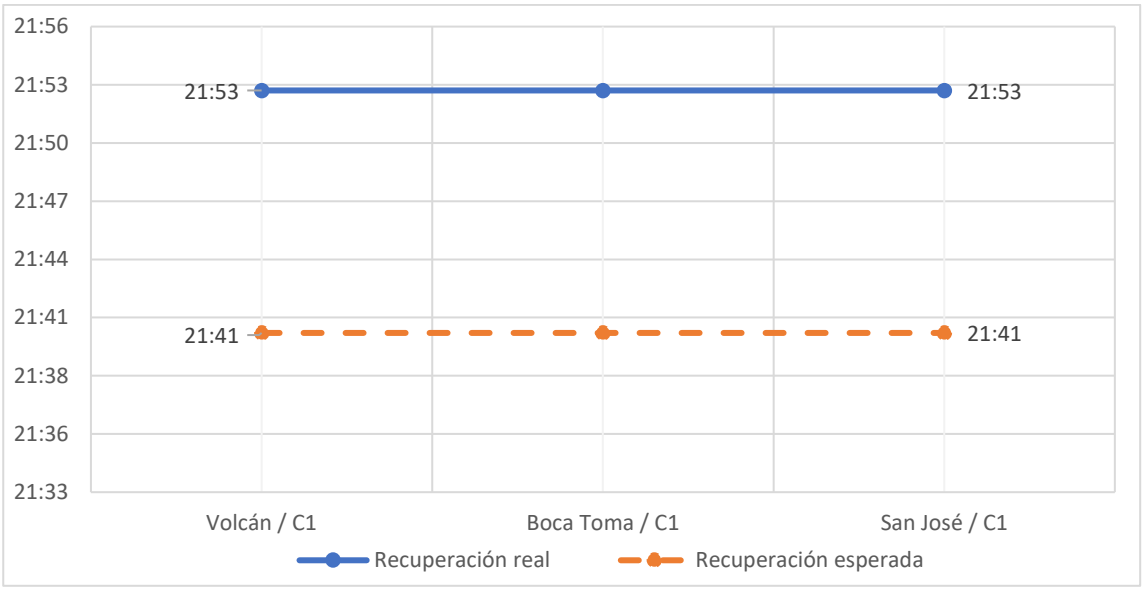
Clientes Regulados : 8.0 MWh

Clientes Libres : MWh

Total : 8.0 MWh

- Los montos y horarios señalados corresponden a lo informado por la empresa CGE S.A.

- Curva de recuperación esperada v/s recuperación real.



Se observan diferencias entre la recuperación de los consumos y la disponibilidad de la barra de 12 kV de la S/E Central Queltehues (12 minutos).

- Velocidad promedio de recuperación.

Rango	Potencia (MW)	Tiempo recuperación (h)	Velocidad de recuperación (MW/h)
Primer 80 %	1.21	5.25	0.23
Último 20 %	0.30	5.25	0.06
100 % Total	1.51	5.25	0.29

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

Demanda del sistema previo a la falla: 9309.1 MW

Regulación de Frecuencia

Control distribuido de frecuencia en el Sistema Eléctrico Nacional, previo a la falla, mediante las centrales Angostura (U3), Colbún (U1), PE Cabo Leones (III), PE Cerro Tigre, PFV Almeyda, PFV Atacama Solar y PFV el Romero.

Estado y configuración previo a la falla

Las instalaciones de transmisión se encontraban en servicio normal en los momentos previos a la desconexión forzada.

Otros antecedentes relevantes

Otros antecedentes presentados por AES Andes S.A.

"Se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado)".

Debido a que la protección asociada al paño C3, alimentador San Jose de Maipo, no es de la propiedad de AES Andes, para obtener las curvas de sobrecorriente temporizada se debe trabajar en conjunto con CGE. Sin embargo, existe un Estudio de Coordinación de Protección (ECAP) desarrollado durante 2024 para dar finalmente solución a la descoordinación de las protecciones en la subestación Queltehues, respecto de los paños C3 y CL3. Para este estudio, AES Andes ya envió observaciones y nos encontramos a la espera de la respuesta y finalización por parte de CGE.".

Otros antecedentes presentados por Compañía General de Electricidad S.A.

"A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).".

En función de los antecedentes presentados a la fecha de emisión del presente EAF, se solicitará la siguiente información adicional a la empresa CGE S.A.:

- Tomado los antecedentes declarados por la empresa AES Andes S.A. y el aplicativo Infotecnica del Coordinador, la causa raíz de la no apertura del interruptor 52C3 de la S/E Central Queltehues con los respectivos antecedentes de respaldo, frente a una falla que habría ocurrido en las redes de distribución del alimentador San José.
- Proposición de su representada respecto de si la causa que provoca la apertura intempestiva de interruptor 52C3 de S/E Central Queltehues es calificada como Interna, Caso Fortuito o Fuerza Mayor.
- Dependiendo de la propuesta y del Fenómeno Físico que produce la falla, se deberán enviar los Probatorios y Antecedentes correspondientes, de acuerdo con lo estipulado en la Resolución Exenta N°30989 de la SEC.
- Registros y análisis de los sistemas de protección asociados al interruptor 52C3 de la S/E Central Queltehues.
- Ajustes de los dispositivos de protección y control asociados al interruptor 52C3 de la S/E Central Queltehues.
- Características de la instalación del interruptor 52C3 de la S/E Central Queltehues. En particular, se debe indicar: Marca del equipo, datos de placa, año de puesta en servicio, plan de mantención, vida útil del equipo, y si al momento de la falla existía algún retraso en inversiones pactadas en dicho equipo.
- Registro de los parámetros eléctricos del equipamiento que integra el paño C3 de la S/E Central Queltehues, y normalización de la propiedad de cada uno de estos equipos en la plataforma Infotécnica del Coordinador, donde alguno de ellos aparece como propiedad de la empresa AES Andes S.A.
- Plan de trabajo para la revisión del equipamiento primario que integra el paño C3 de la S/E Central Queltehues y de su sistema de control asociado. Lo anterior, con el fin de determinar las causas que propiciaron la no apertura del interruptor 52C3 para el evento en evaluación.

- Plan de trabajo para la revisión conjunta con la empresa AES Andes S.A. de la coordinación de protecciones entre los interruptores 52C3 y 52CL3 de S/E Central Queltehues (ECAP en desarrollo), y en función de sus resultados un cronograma de trabajo para su implementación en sitio.
- Eventuales acciones correctivas y/o preventivas adoptadas.
- Motivos que retrasaron la recuperación de los consumos afectados una vez energizada la barra de 12 kV de la S/E Central Queltehues (12 minutos de retraso).
- Revisión del horario de recuperación de los consumos afectados del alimentador Volcán, dado que la empresa AES Andes S.A. reportó el cierre del interruptor 52C1 de S/E Central Queltehues a las 21:52 horas.
- Mantenimientos realizados en los equipos que componen el paño C3 de S/E Central Queltehues, durante los últimos 24 meses, junto con los antecedentes que acrediten su realización.
- Motivos que propiciaron la no entrega de la información citada en las viñetas anteriores en tiempo y forma, junto con las acciones que su representada realizará para evitar una nueva ocurrencia de omisión de dichos antecedentes.

En función de los antecedentes presentados a la fecha de emisión del presente EAF, se solicitará la siguiente información adicional a la empresa AES Andes S.A.:

- Plan de trabajo para la revisión conjunta con la empresa Compañía General de Electricidad S.A. de la coordinación de protecciones entre los interruptores 52C3 y 52CL3 de S/E Central Queltehues (ECAP en desarrollo), comprometido en su Informe de Falla de 5 días, y en función de sus resultados un cronograma de trabajo para su implementación en sitio.
- Normalización de la propiedad del equipamiento que integra el paño C3 de la S/E Central Queltehues en el aplicativo Infotecnica del Coordinador, ya que en su Informe de Falla se indica que el equipo involucrado es de propiedad de la empresa Compañía General de Electricidad S.A., sin embargo, en dicha plataforma se indica que el mencionado paño está registrado como parte de la propiedad de AES Andes S.A.

,
Con la información disponible para elaborar el presente EAF, se deduce que el desempeño no selectivo de las protecciones asociadas al paño C3 de S/E Central Queltehues, frente a una falla que habría ocurrido en el alimentador San José, provocaron desde el punto de vista de la afectación del suministro eléctrico una pérdida excesiva de 0.01 MW de consumos en esta S/E, que equivalen a 0.1 MWh de ENS, según el detalle que se muestra en la siguiente tabla:

Sub- Estación	Alimentador / Paño	Empresa	Tipo de Cliente	Pérdida de Consumo (MW)	Tiempo Desc. (h)	ENS (MWh)
Central Queltehues	Volcán / C1	CGE	Regulado	0.01	5.25	0.10
Central Queltehues	Bocatoma / C2	CGE	Regulado	0.00	5.25	0.00

De forma complementaria, se adjuntan los informes de falla ingresados en el sistema Neomante del Coordinador Eléctrico Nacional por las empresas AES Andes S.A. y CGE S.A. (Anexo N°1) y otros antecedentes aportados por dichas empresas (Anexo N°2).

Acciones preventivas y/o correctivas

a) La instalación afectada no cuenta con auditorías u otro tipo de mantenimientos en curso.

b) Acciones correctivas a corto plazo:

La empresa AES Andes S.A. indica como acciones correctivas de corto plazo: *"Se verifica condición de la falla e inspecciona estado de los equipos reconectadores, se procede a generar las condiciones para normalización. Se energiza barra 12 kV en vacío para posteriormente energizar las LMT 12 kV Bocatoma Volcán 52C1, LMT 12 kV Bocatoma-Maipo 52C2 y LMT 12 kV San José de Maipo 52C3."*

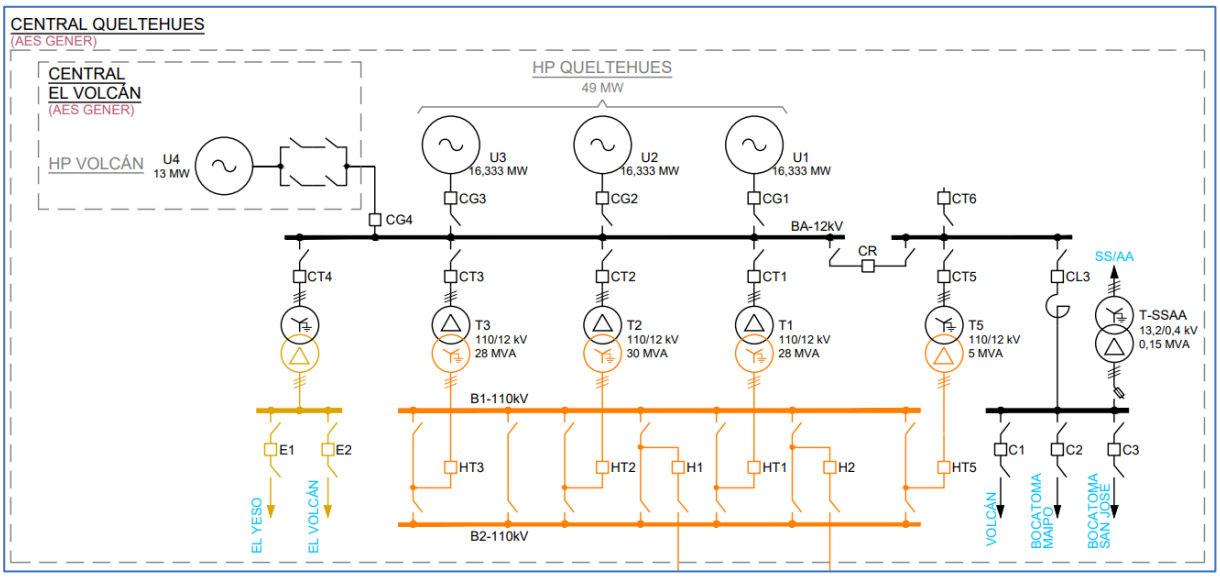
La empresa CGE S.A. no indica acciones correctivas de corto plazo.

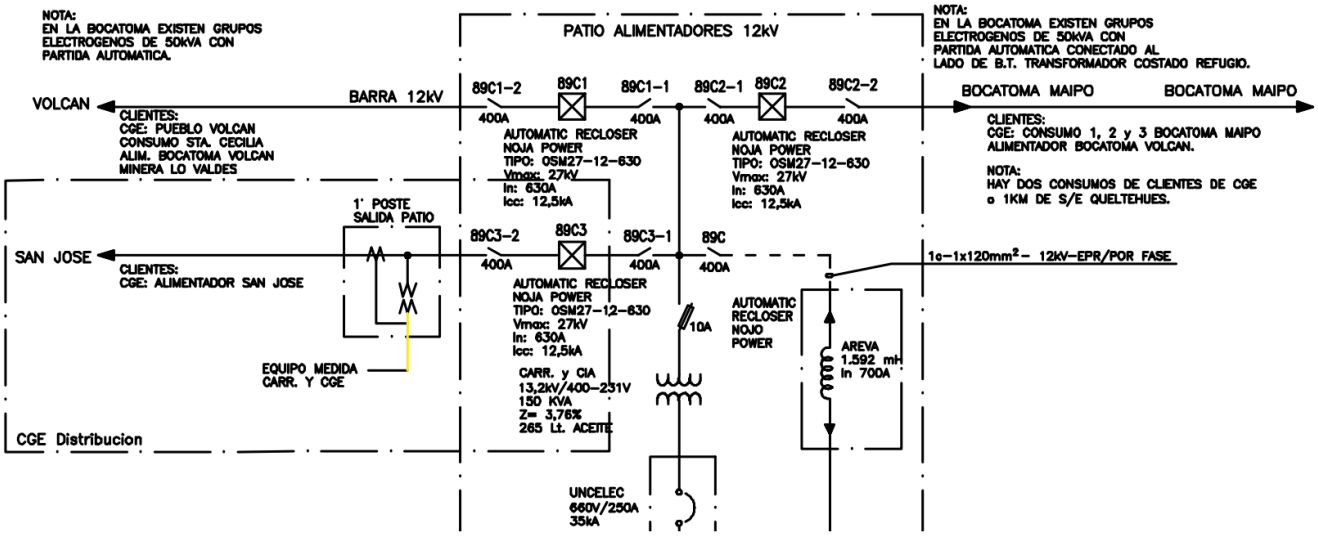
c) Acciones correctivas a largo plazo:

La empresa AES Andes S.A. no indica las siguientes acciones correctivas de largo plazo: *"Estamos en contacto con el personal de CGE para coordinar un trabajo conjunto que permita solucionar la descoordinación de las protecciones en la subestación Queltehues, específicamente en los paños C3 y CL3. Cabe destacar que debido a que el paño C3 no es de propiedad de AES Andes, no se tiene conocimiento de un problema técnico en el reconectador que impida su correcta operación."*

La empresa CGE S.A. no indica acciones correctivas de largo plazo.

Diagrama simplificado de las instalaciones previo a la falla





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

Hora	Involucrado	Evento
16:38	AES Andes S.A.	Apertura automática del interruptor 52CL3 de S/E Central Queltehues, asociado a la barra del patio de alimentadores 12 kV de la S/E, por operación en respaldo de la protección de sobrecorriente temporizada de tierra, ante una falla que tendría como origen la caída de un árbol sobre los conductores del alimentador, no despejada por el interruptor 52C3 de esta S/E.

- El horario señalado corresponde a lo informado por la empresa AES Andes S.A.

6. Normalización del servicio

Fecha	Involucrado	Hora	Acción
30/11/2024	AES Andes S.A.	17:15	Apertura del interruptor 52C1 de S/E Central Queltehues.
30/11/2024	AES Andes S.A./ CGE S.A.	17:16	Apertura de los interruptores 52C2 y 52C3 de S/E Central Queltehues.
30/11/2024	AES Andes S.A.	21:41	Cierre del interruptor 52CL3 de S/E Central Queltehues. Se normaliza la barra del patio de alimentadores 12 kV de la S/E.
30/11/2024	AES Andes S.A.	21:52	Cierre del interruptor 52C1 de S/E Central Queltehues.
30/11/2024	AES Andes S.A./ CGE S.A.	21:53	Cierre de los interruptores 52C2 y 52C3 de S/E Central Queltehues.
30/11/2024	CGE S.A.	21:53	Se informan recuperados la totalidad de los consumos asociados a todos los alimentadores de la S/E Central Queltehues.

- Las horas y fecha señaladas corresponden a lo informado por las empresas AES Andes S.A. y CGE S.A.

ANEXO Nº1

Informes de trabajos y fallas de instalaciones ingresado en la plataforma del Coordinador Eléctrico Nacional por las empresas

Aes Andes S.A. y CGE S.A.

Resumen

Fecha de envío al Coordinador Eléctrico : 30-11-2024 18:36

Finalizado

Número:

2024005278

Solicitante:

AES ANDES S.A.

Empresa:

AES ANDES S.A.

Tipo de Origen:

Interno

SubEstación:

S/E CENTRAL QUELTEHUES

Falla Sobre:

paño

Elementos

Tipo: panos - S/E CENTRAL QUELTEHUES CL3
Nombre : S/E CENTRAL QUELTEHUES CL3
Fecha Perturbacion : 30-11-2024 16:38
Fecha Normaliza : 30-11-2024 20:00
Protección : Se investiga
Interruptor : 52CL3
Consumo : 2 MW
Comentario : Sin observaciones.

¿Produce otra indisponibilidad?

No

Zona Afectada

Metropolitana

Comuna

San José de Maipo

Tipo Causa

Causa Presunta
Causa Principal
Se investiga

Comentarios Tipo Causa:

Se investiga.

Causas

-Fenómeno Físico: Origen no determinado.
-Elemento: Interruptores

-Fenómeno Eléctrico: Enclavamiento
-Operación de los interruptores: Varios

Comentarios Causas:

-Fenómeno Físico: A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
-Elemento: Se investiga.
-Fenómeno Eléctrico: Se investiga.
-Operación de los interruptores: Se investiga.

Observaciones:

-Observaciones: A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
-Acciones Inmediatas: Verificar en apertura de equipos en terreno, estado de instalaciones en SE Queltehues, alarmas, etc. Se comunica a CC de CGE Distribución el evento.
-Hechos Sucedidos: A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
-Acciones Correctivas a Corto Plazo: Se está a la espera de interrogación de protecciónes.
-Acciones Correctivas a Largo Plazo: Sin observaciones.

Afecta SSCC:

No

Afecta Medidores:

No

Afecta Protecciones:

No

Consumo:

Consumo Regulado

Distribuidoras Afectadas

CGE DISTRIBUCIÓN S.A. / Perd. Estm. de Potencia: 2 / Región : Metropolitana / Clientes Afectados: 1

Retorno Automatico:

No Tiene Retorno AutomÃ¡tico

Fecha / Hora Perturbación de la Solicitud:

30-11-2024 16:38

Fecha / Hora Estimada Retorno:

30-11-2024 20:00

Fecha / Hora Efectiva Retorno (Ingreso CDC):

30-11-2024 21:53

Archivos Subidos

Archivo	Fecha Subida
IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev2.pdf (/informe_fallas/download_file/674b7cf6ad651f7090174a71/IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev2.pdf)	06/12/2024 16:48:47
IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev5 -anexos.pdf (/informe_fallas/download_file/674b7cf6ad651f7090174a71/IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev5 -anexos.pdf)	20/12/2024 11:56:05

Resumen

Fecha de envío al Coordinador Eléctrico : 03-12-2024 10:59

Finalizado

Número:

2024005311

Solicitante:

PABLO ANDRES MORALES VASQUEZ

Empresa:

COMPAÑÍA GENERAL DE ELECTRICIDAD S.A.

Tipo de Origen:

Externo

SubEstación:

S/E CENTRAL QUELTEHUES

Falla Sobre:

otro

Elementos

Tipo: otros - tendido cable
Nombre :
Fecha Perturbacion : 30-11-2024 16:38
Fecha Normaliza : 30-11-2024 21:53
Protección : A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
Interruptor : A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
Consumo : 2017
Comentario : A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).

¿Produce otra indisponibilidad?

No

Zona Afectada

Metropolitana

Comuna

San José de Maipo

Tipo Causa

Causa Presunta
Causa Principal
Se investiga

Comentarios Tipo Causa:

"falla aguas arriba del sistema de distribución"

Causas

-Fenómeno Físico: Fallas en instalaciones de terceros u en otro segmento.
-Elemento: Conductores
-Fenómeno Eléctrico: Sobrecorriente instantánea de fase
-Operación de los interruptores: Opera según lo esperado

Comentarios Causas:

-Fenómeno Físico: .
-Elemento: "CGE no se pronuncia en fallas externas"
-Fenómeno Eléctrico: .
-Operación de los interruptores: .

Observaciones:

-Observaciones: .
-Acciones Inmediatas: .
-Hechos Sucedidos: .
-Acciones Correctivas a Corto Plazo: .
-Acciones Correctivas a Largo Plazo: .

Afecta SSCC:

No

Afecta Medidores:

No

Afecta Protecciones:

No

Consumo:

Consumo Regulado y Libre

Distribuidoras Afectadas

COMPAÑÍA GENERAL DE ELECTRICIDAD S.A. / Perd. Estm. de Potencia: 10 / Región : Metropolitana / Clientes Afectados: 2017

Retorno Automatico:

No Tiene Retorno AutomÃ¡tico

Fecha / Hora Perturbación de la Solicitud:

30-11-2024 16:38

Fecha / Hora Estimada Retorno:

30-11-2024 21:53

Fecha / Hora Efectiva Retorno (Ingreso CDC):

30-11-2024 21:53

Archivos Subidos

Archivo	Fecha Subida
IF 2024005311 30-11-2024 SE Queltehues.docx (/informe_fallas/download_file/674f0d07ad651f1eda48a49f/IF 2024005311 30-11-2024 SE Queltehues.docx)	06/12/2024 09:15:40
Nuevo formato para Anexo IF5D.. (5).xlsx (/informe_fallas/download_file/674f0d07ad651f1eda48a49f/Nuevo formato para Anexo IF5D.. (5).xlsx)	06/12/2024 09:15:49

ANEXO Nº2

Otros antecedentes enviados por las empresas
Aes Andes S.A. y CGE S.A.

aes Chile	INFORME DE FALLA. IF2024005278

1 Datos de la empresa propietaria de la instalación fallada.

Nombre empresa propietaria:	AES ANDES S.A.
Rut empresa:	94.272.000-9
Representante Legal:	Javier Dib, Gerente General.
Dirección:	Los Conquistadores 1730, oficina 1001, piso 10.

2 Descripción de la perturbación:

Fecha	30-11-2024.
Hora	16:38 h.
Comuna origen falla.	*13203*
Clasificación de falla	Externo
Código de la Falla	1018

3 Causa de falla:

Apertura forzada por protecciones del interruptor 12 kV 52CL3 de SE Quelteheues. Como antecedente externo, se registra caída de árbol sobre LMT 12 kV San Jose de Maipo propiedad de CGE Distribución.

4 Instalaciones afectadas por falla.

Instalación	Desconexión	Normalización.
Barra 12 kV SE Quelteheues Interruptor 52CL3	*16:38 h.*	*21:41 h*
LMT Quelteheues – Bocatoma Maipo 12 kV.	*16:38 h.*	*21:53 h*
LMT Quelteheues – San José de Maipo 12 kV.	*16:38 h.*	*21:53 h*
LMT Quelteheues – Bocatoma Volcán 12 kV.	*16:38 h.*	*21:52 h.*

5 Estado de las instalaciones previo a falla.

Instalación / Equipo	Estado previo a falla
Barra 12 kV SE Quelteheues Interruptor 52CL3	*En servicio.*
LMT 12 kV Quelteheues – Bocatoma Volcán / Reconectador 52C1	*En servicio.*
LMT 12 kV Quelteheues – Bocatoma Maipo Reconectador 52C2	*En servicio.*
LMT 12 kV Quelteheues – San José de Maipo Reconectador 52C3	*En servicio.*

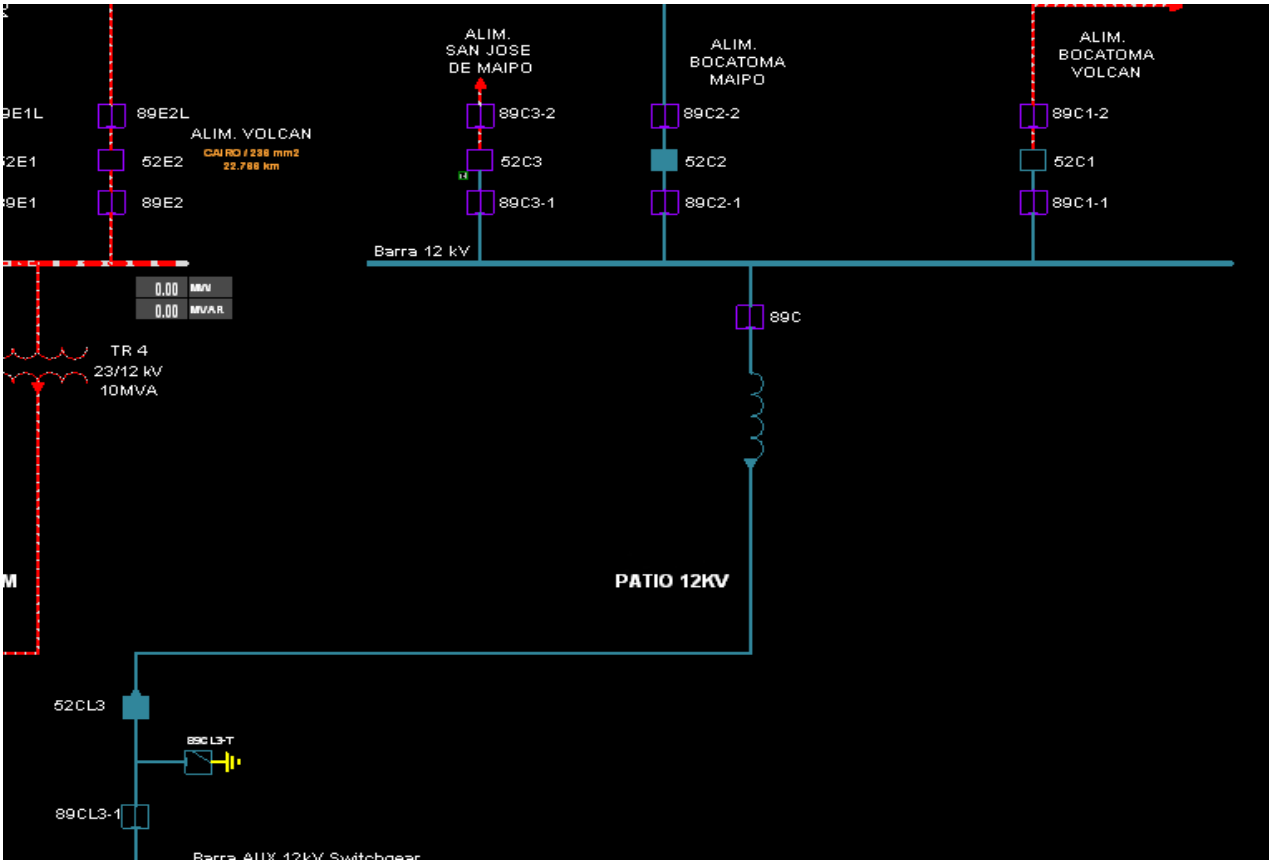
6 Zona afectada con pérdidas de Generación / Consumos.

Instalación	Comuna	Generación [MW]	Consumo [MW]
Consumo CGE Pueblo Volcán	*13203*	*0*	*0,5*
Consumo CGE Sector Las Melosas	*13203*	*0*	*0,160*
Consumo CGE San José de Maipo	*13203*	*0*	*1,5*

7 Codificación Falla.

Fenómeno físico	OTR3	Otros
Elemento Id	PR9	Reconectador
Fenómeno eléctrico	CO51	Corriente de neutro temporizado
Modo Id	13	

8 Diagrama unilineal simplificado.



9 Cronología de eventos, causas y normalización.

Instalación	Evento	Hora
Barra 12 kV SE Queltehues Interruptor 52CL3	*Pérdida de tensión en barra 12 kV por apertura de Interruptor 52CL3. Protección sobrecorriente de nuetro.*	16:38 h.
LMT 12 kV Queltehues – Bocatoma Volcán / Reconectador 52C1	*Pérdida de tensión desde Barra 12 kV por apertura de Interruptor 52CL3. Interruptor 52C1 queda en condición cerrado.*	16:38 h.
LMT 12 kV Queltehues – Bocatoma Maipo / Reconectador 52C2	*Pérdida de tensión desde Barra 12 kV por apertura de Interruptor 52CL3. Interruptor 52C2 queda en condición cerrado.*	16:38 h.
LMT 12 kV Queltehues – San José de Maipo / Reconectador 52C3	*Pérdida de tensión desde Barra 12 kV por apertura de Interruptor 52CL3. Interruptor 52C3 queda en condición cerrado.*	16:38 h.
LMT 12 kV Queltehues – Bocatoma Volcán / Reconectador 52C1	*Apertura manual reconectador 52C1 para normalización.*	17:15 h.
LMT 12 kV Queltehues – Bocatoma Maipo / Reconectador 52C2	*Apertura manual reconectador 52C2 para normalización.*	17:16 h.
LMT 12 kV Queltehues – San José de Maipo / Reconectador 52C3	*Apertura manual reconectador 52C3 para normalización.*	17:16 h.
Barra 12 kV SE Queltehues Interruptor 52CL3	*Cerrado Interruptor 52CL3, energizada barra 12 kV. Normalización.*	21:41 h.
LMT 12 kV Queltehues – Bocactoma Volcán	*Cerrado interruptor 52C1, normalización.*	*21:52 h.*
LMT 12 kV Queltehues – Bocatoma Maipo / Reconectador 52C2	*Cerrado Interruptor 52C2, normalización.*	*21:53 h.*
LMT 12 kV Queltehues – San José de Maipo / Reconectador 52C3	*Cerrado Interruptor 52C3, normalización.*	*21:53 h.*

10 Esquema de Control y Protecciones.

10.1 Protecciones y controles involucrados en la falla.

- *Reconectador 52C3*
- *Protección 52CL3: Protección 50N (Sobrecorriente de neutro de tiempo definido)*

10.2 Análisis del comportamiento protecciones y control.

El relé 7SJ64 (Alimentador 52CL3 en SWG Quelteheues) registró una operación automática por la función de protección 50N (Sobrecorriente de neutro de tiempo definido) a las 19:14:05 (UTC0).

- Se evidencia en los registros del relé, reiterados pickup de función de sobrecorriente de neutro.
- Las corrientes de fallas son de baja magnitud, por lo cual se pueden clasificar como fallas de alta impedancia (contacto de vegetación con línea de distribución).
- Se puede interpretar que la protección de 52CL3 opera correctamente de acuerdo a los ajustes configurados (protección de respaldo). Condición de falla se mantuvo por 8 segundos.

Falla corresponde a terceros, pero esta fue despejada en nuestras instalaciones por la protección de respaldo (relé 7SJ64 de alimentador 52CL3 en SWG Quelteheues 12kV)

Análisis de la actuación de las protecciones involucradas en el evento asociadas a los paños C3 y Paño CL3 de la S/E Quelteheues.

La protección asociada al paño C3, alimentador San Jose de Maipo, es propiedad de la empresa CGE, por lo que para obtener toda la información necesaria para el análisis correspondiente, se debe trabajar en conjunto AES y CGE. Sin embargo, existe un estudio de coordinación de protección con fecha 2024 que se está analizando para dar finalmente solución a la descoordinación de las protecciones en la subestación Quelteheues, respecto de los paños C3 y CL3.

Debido a que la protección asociada al paño C3, alimentador San Jose de Maipo, no es de la propiedad de AES Andes, para obtener las curvas de sobrecorriente temporizada se debe trabajar en conjunto con CGE. Sin embargo, existe un Estudio de Coordinación de Protección (ECAP) desarrollado durante 2024 para dar finalmente solución a la descoordinación de las protecciones en la subestación Quelteheues, respecto de los paños C3 y CL3. Para este estudio, AES Andes ya envió observaciones y nos encontramos a la espera de la respuesta y finalización por parte de CGE.

Razones de la no operación de las protecciones del paño C3 de la S/E Queltehues.

La protección asociada al paño C3 del alimentador San José de Maipo es propiedad de la empresa CGE. Dado que la falla ocurrió en dicho alimentador, se presume que la no operación del reconectador 52 C3 se debe a una descoordinación entre su curva de operación en la función 50N y la misma función de la protección 52 CL3.

11 Análisis Conjunto.

El 30 de noviembre de 2024, a las 16:38 hrs, en S/E Queltehues 12 kV abre 52CL3, por operación de su elemento de protección de sobrecorriente de neutro, dejando sin tensión la barra de 12 kV de SE Queltehues y con ello, fuera de servicio a LMT Bocatoma Volcán 12 kV, Bocatoma Maipo 12 kV y LMT San José de Maipo 12 kV (CGE). Para normalizar, y en coordinación con Centro de Control de CGE se abre manualmente los interruptores 52C1 a las 17:15 hrs.,52C2 a las 17:16 hrs. y 52C3 a las 17:16 hrs. respectivamente, para posteriormente cerrar de manera exitosa el interruptor 52CL3, re energizando la barra 12 kV de Queltehues a las 21:43 hrs. y continuar con la normalización de instalaciones 12 kV, cerrando el interruptor 52C1 a las 21:52 hrs., cerrando el interruptor 52C2 a las 21:53 hrs. y 52C3 a las 21:53 hrs. respectivamente.

12 Otros antecedentes.

12.1 Reiteración de la Falla

IF2024002613 14-06-2024 11:16 h.
IF2024002580 14-06-2024 00:19 h.
IF2024002271 23-05-2024 13:13 h.
IF2024002267 23-05-2024 08:15 h.

12.2 Acciones Correctivas CP (corto plazo)

Se verifica condición de la falla e inspecciona estado de los equipos reconectadores, se procede a generar las condiciones para normalización. Se energiza barra 12 kV en vacío para posteriormente energizar las LMT 12 kV Bocatoma Volcán 52C1, LMT 12 kV Bocatoma-Maipo 52C2 y LMT 12 kV San José de Maipo 52C3.

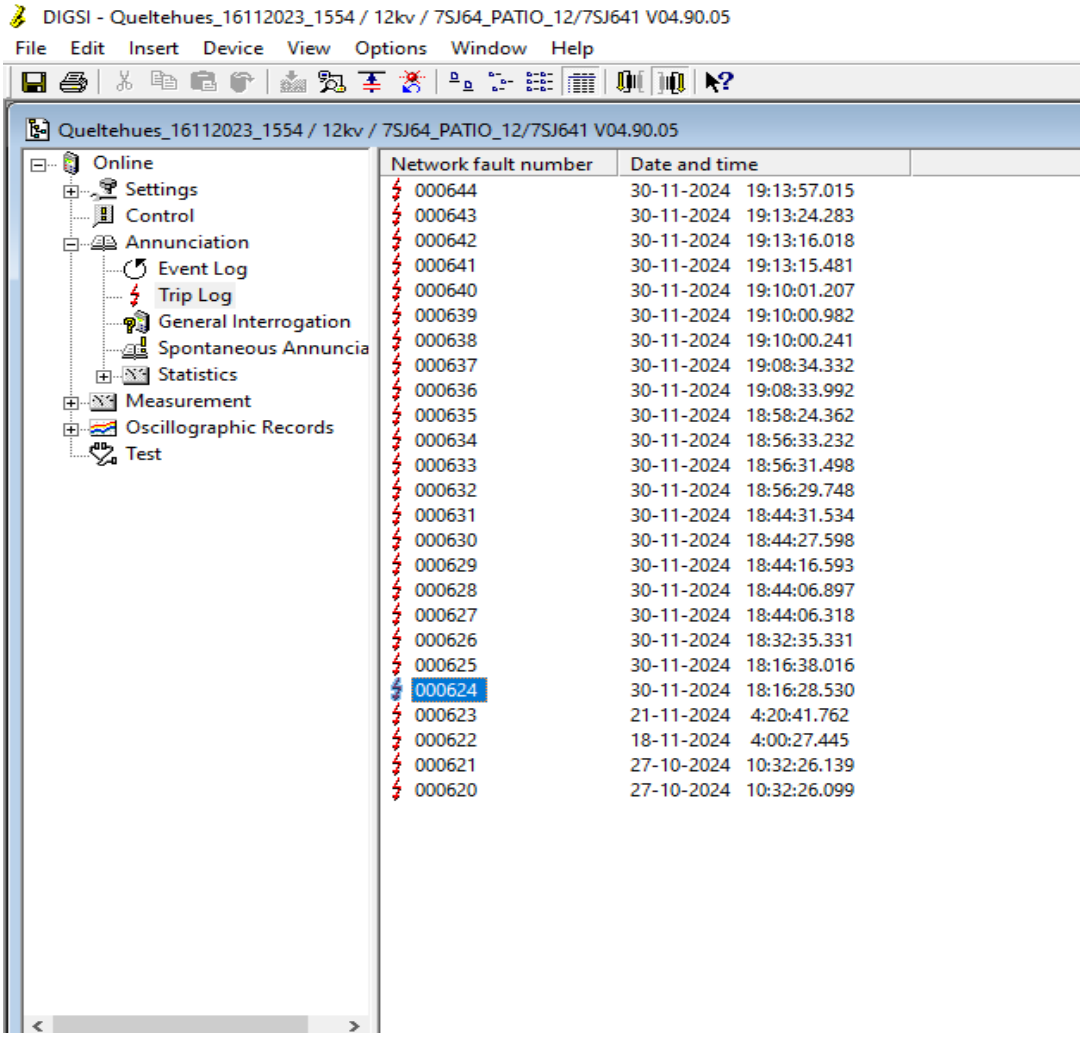
12.3 Acciones Correctivas LP (largo plazo)

Estamos en contacto con el personal de CGE para coordinar un trabajo conjunto que permita solucionar la descoordinación de las protecciones en la subestación Queltehues, específicamente en los paños C3 y CL3. Cabe destacar que debido a que

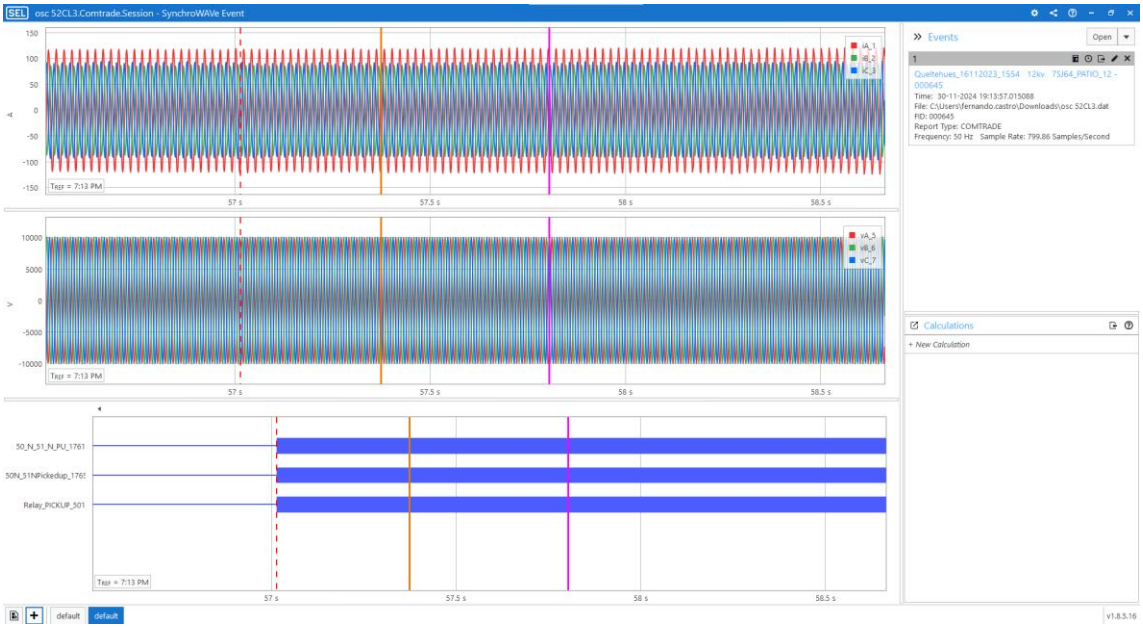
el paño C3 no es de propiedad de AES Andes, no se tiene conocimiento de un problema técnico en el reconectador que impida su correcta operación.

13 Registros de eventos, protecciones y sus ajustes.

- ***Registros de eventos de las protecciones***



- ***Oscilografia de las protecciones y de registrador de eventos***



-

- ***Ajustes de la protección operada.***

7.5 Group 50/51 Phase/Ground Overcurrent; Group 50N

Group 50/51 Phase/Ground Overcurrent; Group 50N

No.	Settings	Value	Group
1319A	50N-3 measurement of	Fundamental component	A
1316A	50N-3 active	Always	A
1317	50N-3 Pickup	oo A	A
1318	50N-3 Time Delay	0,00 sec	A
1320A	50N-2 measurement of	Fundamental component	A
1314A	50N-2 active	Always	A
1302	50N-2 Pickup	oo A	A
1303	50N-2 Time Delay	0,10 sec	A
1321A	50N-1 measurement of	Fundamental component	A
1304	50N-1 Pickup	0,10 A	A
1305	50N-1 Time Delay	8,00 sec	A

- ***Registros de sistemas de control de las plantas (gráficos y/o eventos).***

  Se adjuntan en correo enviado.

14 Anexos

1. Trip Log-Fault / Registros de protección 52CL3.
2. Printout 52CL3.
3. Event report 52CL3

Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12

MLFB:	7SJ64115EE923FG7----0S----------
Parameter-set version:	V04.90.05
Device path:	C:\Siemens\DIGSI4\D4PROJ\Quelteu\P7DI\GV\SD\0000000d
Author:	
Creation date:	21.08.18 14:14:00
Last modified:	30.11.24 18:51:29
Operating mode:	Online
Comment:	
Setting values in:	Secondary value description

PRINT - CONTENTS

1 Indications 2
1.1 Trip Log - 000644 / 30-11-2024 19:13:57.015 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05 2

1 Indications

1.1 Trip Log - 000644 / 30-11-2024 19:13:57.015 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Trip Log - 000644 / 30-11-2024 19:13:57.015 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Number	Indication	Value	Date and time	Cause	State
00301	Power System fault	644 - ON	30.11.2024 19:13:57.015		
00302	Fault Event	645 - ON	30.11.2024 19:13:57.015		
00501	Relay PICKUP	ON	0 ms		
01761	50(N)/51(N) O/C PICKUP	ON	0 ms		
01765	50N/51N picked up	ON	0 ms		
01834	50N-1 picked up	ON	0 ms		
00511	Relay GENERAL TRIP command	ON	7998 ms		
01791	50(N)/51(N) TRIP	ON	7998 ms		
01836	50N-1 TRIP	ON	7998 ms		
01456	50BF (internal) PICKUP	ON	7998 ms		
01457	50BF (external) PICKUP	ON	7998 ms		
00533	Primary fault current Ia	0,10 kA	8028 ms		
00534	Primary fault current Ib	0,06 kA	8028 ms		
00535	Primary fault current Ic	0,07 kA	8028 ms		
01765	50N/51N picked up	OFF	8088 ms		
01834	50N-1 picked up	OFF	8088 ms		
01761	50(N)/51(N) O/C PICKUP	OFF	8088 ms		
01456	50BF (internal) PICKUP	OFF	8088 ms		
01457	50BF (external) PICKUP	OFF	8088 ms		
00545	Time from Pickup to drop out	8088 ms	8088 ms		
00546	Time from Pickup to TRIP	7998 ms	8088 ms		
01123	Fault Locator Loop AG	ON	7911 ms		
01117	Flt Locator: secondary RESISTANCE	-222,39 Ohm	7911 ms		
01118	Flt Locator: secondary REACTANCE	-30,11 Ohm	7911 ms		
01114	Flt Locator: primary RESISTANCE	-44,48 Ohm	7911 ms		
01115	Flt Locator: primary REACTANCE	-6,02 Ohm	7911 ms		
01119	Flt Locator: Distance to fault	-200,7 km	7911 ms		
01120	Flt Locator: Distance [%] to fault	-200,70 %	7911 ms		
00301	Power System fault	644 - OFF	30.11.2024 19:14:05.155		

Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12

MLFB:	7SJ64115EE923FG7----0S----------
Parameter-set version:	V04.90.05
Device path:	C:\Siemens\DIGSI4\D4PROJ\Queltehu\P7DI\GV\SD\0000000d
Author:	
Creation date:	21.08.18 14:14:00
Last modified:	30.11.24 19:00:55
Operating mode:	Online
Comment:	
Setting values in:	Secondary value description

PRINT - CONTENTS

1 Device Configuration 4
2 Configuration - complete (sorted by line) 5
2.1 Indications 5
2.1.1 Device, General Settings 5
2.1.2 EN100-Modul 1 10
2.1.3 Power System Data 1 11
2.1.4 Oscillographic Fault Records 11
2.1.5 Change Group 12
2.1.6 Power System Data 2 13
2.1.7 50/51 Phase/Ground Overcurrent 14
2.1.8 Measurement Supervision 22
2.1.9 74TC Trip Circuit Supervision 23
2.1.10 Fault Locator 24
2.1.11 50BF Breaker Failure 26
2.1.12 Control Authorization 27
2.1.13 Control Device 28
2.1.14 Process Data 30
2.1.15 Min/Max Measurement Setup 32
2.1.16 Set Points (Measured Values) 34
2.1.17 Statistics 35
2.1.18 Set Points (Statistic) 36
2.1.19 Threshold-Switch 36
2.1.20 SIGNAL 36
2.1.21 Cambio Grupo Parametros 37
2.2 Commands 38
2.2.1 Control Device 38
2.3 Measured values 39
2.3.1 Measurement 39
2.3.2 Demand Measurement Setup 42
2.3.3 Min/Max Measurement Setup 43
2.3.4 Set Points (Measured Values) 46
2.4 Metered values 48
2.4.1 Energy 48
2.4.2 Statistics 49
3 Configuration - short (column-oriented) 50
3.1 Binary inputs 50
3.2 Binary outputs 50
3.3 LEDs 51

3.4 CFC 51
3.5 Function keys 53
3.6 Buffer 54
3.6.1 Operational indication buffer 54
3.6.2 Sensitive ground fault indication buffer 57
3.6.3 Trip log 57
3.6.4 Event value buffer 59
3.7 Display 59
3.8 System interface IEC 61850 59
4 Interfaces 69
4.1 Serial interface on PC: 69
4.2 VD addresses 69
4.3 Operator Interface 69
4.4 Service interface 69
4.5 Ethernet on device 69
4.6 Redundancy 70
4.7 Ethernet on PC 70
5 Passwords 71
6 Power System Data 1 72
6.1 Group Power System Data 1; Group Power System 72
6.2 Group Power System Data 1; Group CT's 72
6.3 Group Power System Data 1; Group VT's 72
6.4 Group Power System Data 1; Group Breaker 73
6.5 Group Power System Data 1; Group Prot.Op. quant. 73
7 Settings groups 74
7.1 Group Power System Data 2; Group General 74
7.2 Group 50/51 Phase/Ground Overcurrent; Group General 74
7.3 Group 50/51 Phase/Ground Overcurrent; Group 50 74
7.4 Group 50/51 Phase/Ground Overcurrent; Group 51 75
7.5 Group 50/51 Phase/Ground Overcurrent; Group 50N 75
7.6 Group 50/51 Phase/Ground Overcurrent; Group 51N 75
7.7 Group Measurement Supervision; Group General 76
7.8 Group Measurement Supervision; Group Fuse Fail Mon. 76
7.9 Group Measurement Supervision; Group MeasSupervision 76
7.10 Group 74TC Trip Circuit Supervision; Group General 77
7.11 Group Fault Locator; Group General 77
7.12 Group 50BF Breaker Failure; Group General 77
7.13 Group 50BF Breaker Failure; Group 50BF 77
7.14 Group Demand Measurement Setup; Group Measurement 77
7.15 Group Min/Max Measurement Setup; Group Measurement 78
7.16 Group Energy; Group Measurement 78
8 Time Synchronization 79
9 Annunciation 80
9.1 Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP) 80
9.2 General Interrogation - 30-11-2024 19:26:01.339 94
9.3 Spontaneous Annunciation - 30-11-2024 19:26:01.339 96
9.4 Statistics - 30-11-2024 19:26:01.349 (MEASURED\STAT.SFP) 97
9.5 Set Points (Statistic) - 30-11-2024 19:26:01.939 (MEASURED\STGR.SFP) 97
10 Measurement 98
10.1 Operational values, primary - 30-11-2024 19:26:02.459 (MEASURED\MW01.SFP) 98
10.2 Power values, primary - 30-11-2024 19:26:03.065 (MEASURED\MW15.SFP) 98
10.3 Operational values, secondary - 30-11-2024 19:26:03.498 (MEASURED\MW02.SFP) 99
10.4 Operational Percent - 30-11-2024 19:26:03.977 (MEASURED\MW03.SFP) 99
10.5 Demand - 30-11-2024 19:26:04.430 (MEASURED\MW06.SFP) 100
10.6 V/I,Min/Max - 30-11-2024 19:26:04.941 (MEASURED\MW07.SFP) 100
10.7 P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP) 100
10.8 Min/Max Demand - 30-11-2024 19:26:06.015 (MEASURED\MW09.SFP) 101
10.9 User Defined - 30-11-2024 19:26:06.454 (MEASURED\MW11.SFP) 101
10.10 Energy - 30-11-2024 19:26:06.946 (MEASURED\MW12.SFP) 101

10.11 Set Points (Measured Values) - 30-11-2024 19:26:07.406 (MEASURED\MW13.SFP) 102

1 Device Configuration

No.	Function	Scope
0103	Setting Group Change Option	Enabled
0104	Oscillographic Fault Records	Enabled
0112	50/51	Time Overcurrent Curve IEC
0113	50N/51N	Time Overcurrent Curve IEC
0115	67, 67-TOC	Disabled
0116	67N, 67N-TOC	Disabled
0127	50 1Ph	Disabled
0117	Cold Load Pickup	Disabled
0122	2nd Harmonic Inrush Restraint	Disabled
0131	(sensitive) Ground fault	Disabled
0130	(sens.) Ground fault dir. characteristic	cos phi / sin phi measurement (standard)
0140	46 Negative Sequence Protection	Disabled
0142	49 Thermal Overload Protection	Disabled
0150	27, 59 Under/Overvoltage Protection	Disabled
0154	81 Over/Underfrequency Protection	Disabled
0155	27 / Q dir. con. Protection	Disabled
0161	25 Function group 1	Disabled
0162	25 Function group 2	Disabled
0163	25 Function group 3	Disabled
0164	25 Function group 4	Disabled
0170	50BF Breaker Failure Protection	Enabled
0171	79 Auto-Reclose Function	Disabled
0172	52 Breaker Wear Monitoring	Disabled
0180	Fault Locator	Enabled
0181	Line sections for fault locator	1 Line Section
0182	74TC Trip Circuit Supervision	with 2 Binary Inputs
0190	External Temperature Input	Disabled
0191	Ext. Temperature Input Connection Type	6 RTD simplex operation
	Flexible Function	

2 Configuration - complete (sorted by line)

No filter

2.1 Indications

2.1.1 Device, General Settings

>Synchronize Internal Real Time Clock (SP_Ev - Single point indication event)

>Reset LED (SP - Single point indication)

>Back Light on (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

Device is Operational and Protecting (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

At Least 1 Protection Funct. is Active (IntSP - Internal single point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
System interface

Reset Device (OUT - Output indication)

Configured to destination:
Operation Buffer: I
System interface

Initial Start of Device (OUT - Output indication)

Configured to destination:
Operation Buffer: I
System interface

Reset LED (IntSP - Internal single point indication)

Configured to source:
System interface

Configured to destination:
Operation Buffer: I
System interface

Resume (OUT - Output indication)

Configured to destination:
Operation Buffer: I
System interface

Clock Synchronization Error (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Daylight Saving Time (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Event lost (OUT_Ev - Output indication event)

Configured to destination:
Operation Buffer: I

Flag Lost (OUT - Output indication)

Configured to destination:
Operation Buffer: I

Chatter ON (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error with a summary alarm (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Alarm Summary Event (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error 5V (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error 0V (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error -5V (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error Power Supply (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Failure: Battery empty (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Setting calculation is running (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Settings Check (OUT - Output indication)

Level-2 change (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error Board 1 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 2 (OUT - Output indication)

Configured to destination:

Operation Buffer: IO
System interface

Error Board 3 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 4 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 5 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 6 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 7 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Stop data transmission (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO
System interface

>Stop data transmission (SP - Single point indication)

Configured to destination:
CFC

Test mode (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO
System interface

>Test mode (SP - Single point indication)

Feeder GROUNDED (IntSP - Internal single point indication)

Configured to source:
CFC

Breaker OPENED (IntSP - Internal single point indication)

Configured to source:
CFC

Hardware Test Mode (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO

Clock Synchronization (IntSP_Ev - Internal single point indication event)

Configured to source:
CFC

Alarm: NO calibration data available (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

>Blocking of the offset supervision (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

Error: Offset (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Warn: Limit of Memory Data exceeded (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
Warnings: X

Warn: Limit of Memory Parameter exceeded (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Warn: Limit of Memory Operation exceeded (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Warn: Limit of Memory New exceeded (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Disturbance CFC (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Disturbance CFC Source (VI - Value indication)

Configured to destination:

Operation Buffer:	IO

Time from Pickup to drop out (VI - Value indication)

Configured to destination:

Trip log:	IO

Time from Pickup to TRIP (VI - Value indication)

Configured to destination:

Trip log:	IO

BLOCK Flexible Function (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer:	IO
Control Menu	

2.1.2 EN100-Modul 1

Edition (IntSP - Internal single point indication)

Failure EN100 Modul (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Failure EN100 Link Channel 1 (Ch1) (IntSP - Internal single point indication)

Configured to destination:

LED:	U 13
Operation Buffer:	IO

Failure EN100 Link Channel 2 (Ch2) (IntSP - Internal single point indication)

Configured to destination:

LED:	U 14
Operation Buffer:	IO

2.1.3 Power System Data 1

>Reverse Phase Rotation (SP - Single point indication)

Configured to destination:

Operation Buffer:	IO

Phase rotation ABC (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Phase rotation ACB (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

2.1.4 Oscillographic Fault Records

>Trigger Waveform Capture (SP - Single point indication)

Configured to destination:

CFC

Waveform data deleted (OUT_Ev - Output indication event)

Configured to destination:

Operation Buffer: I

Fault Recording Start (IntSP - Internal single point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Fault recording is running (OUT - Output indication)

Configured to destination:
System interface

2.1.5 Change Group

>Setting Group Select Bit 0 (SP - Single point indication)

Configured to source:
CFC

>Setting Group Select Bit 1 (SP - Single point indication)

Configured to source:
CFC

Setting Group A is active (IntSP - Internal single point indication)

Configured to destination:
LED: U 10
Operation Buffer: IO

Setting Group B is active (IntSP - Internal single point indication)

Configured to destination:
LED: U 11
Operation Buffer: IO

Setting Group C is active (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO

Setting Group D is active (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO

2.1.6 Power System Data 2

>Manual close signal (SP - Single point indication)

>Enable 50/67-(N)-2 (override 79 blk) (SP - Single point indication)

Configured to destination:

Operation Buffer:	IO

Primary fault current Ia (VI - Value indication)

Configured to destination:

Trip log:	IO

Primary fault current Ib (VI - Value indication)

Configured to destination:

Trip log:	IO

Primary fault current Ic (VI - Value indication)

Configured to destination:

Trip log:	IO

Relay PICKUP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

Relay GENERAL TRIP command (OUT - Output indication)

Configured to destination:

BO:	U 4,U 13
LED:	L 1
Trip log:	I
CFC	
System interface	

Manual close signal detected (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

>52-a contact (OPEN, if bkr is open) (SP - Single point indication)

Configured to source:

BI: H 9

Configured to destination:

Operation Buffer: IO

System interface

>52-b contact (OPEN, if bkr is closed) (SP - Single point indication)

Configured to source:

BI: H 8

Configured to destination:

Operation Buffer: IO

System interface

Protection ON/OFF (via system port) (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO

2.1.7 50/51 Phase/Ground Overcurrent

50(N)/51(N) O/C PICKUP (OUT - Output indication)

Configured to destination:

Trip log: IO

System interface

50(N)/51(N) TRIP (OUT - Output indication)

Configured to destination:

Trip log: I

System interface

>BLOCK 50/51 (SP - Single point indication)

>BLOCK 50-3 (SP - Single point indication)

>BLOCK 50-2 (SP - Single point indication)

>BLOCK 50-1 (SP - Single point indication)

>BLOCK 51 (SP - Single point indication)

50/51 O/C switched OFF (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

50/51 O/C is BLOCKED (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
Trip log: IO
System interface

50/51 O/C is ACTIVE (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

50/51 Phase A picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50/51 Phase B picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50/51 Phase C picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50-3 picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50-3 TRIP (OUT - Output indication)

Configured to destination:
Trip log: I
System interface

50-2 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50-2 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50-1 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50-1 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

51 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

51 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50-3 TimeOut (OUT - Output indication)

50-2 Time Out (OUT - Output indication)

50-1 Time Out (OUT - Output indication)

51 Time Out (OUT - Output indication)

50-3 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50-2 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50-1 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

51 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

>BLOCK 50N/51N (SP - Single point indication)

>BLOCK 50N-3 (SP - Single point indication)

>BLOCK 50N-2 (SP - Single point indication)

>BLOCK 50N-1 (SP - Single point indication)

>BLOCK 51N (SP - Single point indication)

50N/51N is OFF (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
System interface	

50N/51N is BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50N/51N is ACTIVE (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
System interface	

50N/51N picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50N-3 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO

50N-3 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I

50N-2 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50N-2 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50N-1 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50N-1 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

51N picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

51N TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50N-3 TimeOut (OUT - Output indication)

50N-2 Time Out (OUT - Output indication)

50N-1 Time Out (OUT - Output indication)

51N Time Out (OUT - Output indication)

50N-3 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50N-2 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50N-1 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

51N BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

2.1.8 Measurement Supervision

VT Fuse Failure (alarm >10s) (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

VT Fuse Failure (alarm instantaneous) (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Current Summation (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Current Balance (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Voltage Balance (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: General Current Supervision (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Phase Sequence (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Phase Sequence Voltage (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Phase Sequence Current (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Measurement Supervision is switched OFF (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

>Failure: Feeder VT (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

>Failure: Busbar VT (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

2.1.9 74TC Trip Circuit Supervision

>BLOCK 74TC (SP - Single point indication)

>74TC Trip circuit superv.: brk relay (SP - Single point indication)

Configured to source:
BI: H 14
Configured to destination:
Operation Buffer: IO

>74TC Trip circuit superv.: trip relay (SP - Single point indication)

Configured to source:
BI: H 13
Configured to destination:
Operation Buffer: IO

74TC Trip circuit supervision OFF (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

74TC Trip circuit supervision is BLOCKED (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Trip log: IO

74TC Trip circuit supervision is ACTIVE (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

74TC blocked. Bin. input is not set (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

74TC Failure Trip Circuit (OUT - Output indication)

Configured to destination:
LED: L 3
Operation Buffer: IO
System interface

2.1.10 Fault Locator

>Start Fault Locator (SP - Single point indication)

Configured to destination:
Operation Buffer: I

Flt Locator: primary RESISTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: primary REACTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: secondary RESISTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: secondary REACTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: Distance to fault (Vl - Value indication)

Configured to destination:

Trip log: IO

Flt Locator: Distance [%] to fault (Vl - Value indication)

Configured to destination:

Trip log: IO

System interface

Fault Locator Loop AG (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop BG (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop CG (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop AB (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop BC (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop CA (OUT - Output indication)

Configured to destination:

Trip log: I

Fault location invalid (OUT - Output indication)

Configured to destination:

Trip log: I

2.1.11 50BF Breaker Failure

>BLOCK 50BF (SP - Single point indication)

Configured to destination:

Operation Buffer:	IO

>50BF initiated externally (SP - Single point indication)

Configured to source:

CFC

Configured to destination:

Operation Buffer:	IO

CFC

50BF is switched OFF (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

System interface

50BF is BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50BF is ACTIVE (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

50BF (internal) PICKUP (OUT - Output indication)

Configured to destination:

Trip log:	IO

CFC

System interface

50BF (external) PICKUP (OUT - Output indication)

Configured to destination:

Trip log:	IO

System interface

50BF TRIP (OUT - Output indication)

Configured to destination:

Trip log: I

50BF (internal) TRIP (OUT - Output indication)

Configured to destination:

Trip log: I
System interface

50BF (external) TRIP (OUT - Output indication)

Configured to destination:

Trip log: I
System interface

50BF TRIP 2 (OUT - Output indication)

Configured to destination:

BO: U 11
Trip log: I
CFC

2.1.12 Control Authorization

Control Authority (DP - Double point indication)

Configured to destination:

Operation Buffer: IO
System interface

Controlmode LOCAL (DP - Double point indication)

Configured to destination:

Operation Buffer: IO

Controlmode REMOTE (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO

Local (SP - Single point indication)

Configured to source:

BI: H 1

Configured to destination:

Operation Buffer: IO
CFC

Remote (SP - Single point indication)

Configured to source:
BI: H 2
Configured to destination:
Operation Buffer: IO
CFC

Local Remoto Celda (DP - Double point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO
System interface

2.1.13 Control Device

52 Breaker (DP - Double point indication)

Configured to source:
BI: X 8
Configured to destination:
Operation Buffer: IO
CFC
System interface
Default Display

Q0 operationcounter= (VI - Value indication)

Disconnect Switch (DP - Double point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO
CFC
System interface
Default Display

Q1 operationcounter= (VI - Value indication)

Ground Switch (DP - Double point indication)

Configured to source:
CFC

Configured to destination:

Operation Buffer:	IO
CFC	
System interface	
Default Display	

Q8 operationcounter= (VI - Value indication)

Interlocking: 52 Open (IntSP - Internal single point indication)

Configured to source:

CFC

Interlocking: 52 Close (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

BO:	U 12
LED:	U 7

Interlocking: Disconnect switch Open (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED:	U 8

Interlocking: Disconnect switch Close (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED:	U 8

Interlocking: Ground switch Open (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED:	U 9

Interlocking: Ground switch Close (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED: U 9

Unlock data transmission via BI (IntSP - Internal single point indication)

Configured to source:
CFC

DSC ON (SP - Single point indication)

Configured to source:
BI: H 10
Configured to destination:
Operation Buffer: IO
CFC
Control Display
Default Display

Q1/5 OFF (DP - Double point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO
CFC
Control Display
Default Display

Tierra Off (SP - Single point indication)

Configured to source:
BI: H 11
Configured to destination:
Operation Buffer: IO
CFC

Tierra ON (SP - Single point indication)

Configured to source:
BI: H 12
Configured to destination:
Operation Buffer: IO
CFC

2.1.14 Process Data

>CB ready Spring is charged (SP - Single point indication)

Configured to source:

BI: H 4

Configured to destination:

CFC

System interface

>CB waiting for Spring charged (SP - Single point indication)

Configured to source:

BI: L 4

Configured to destination:

Operation Buffer: IO

CFC

MCB VT (SP - Single point indication)

Configured to source:

BI: L 7

Configured to destination:

LED: U 6

Operation Buffer: IO

CFC

>Error Control Voltage (SP - Single point indication)

Configured to source:

BI: L 5

Configured to destination:

LED: U 5

Operation Buffer: IO

CFC

System interface

>SF6-Loss (SP - Single point indication)

Configured to source:

BI: H 3

Configured to destination:

LED: U 4

Operation Buffer: IO

CFC

System interface

-S25 (SP - Single point indication)

Configured to source:

BI: H 6

Configured to destination:

Operation Buffer: IO

CFC
System interface

86T (SP - Single point indication)

Configured to source:
CFC
Configured to destination:

BO:	U 4,U 13
LED:	L 2
Operation Buffer:	IO

CFC
System interface

Reset 86 T (IntSP - Internal single point indication)

Configured to source:

Function key:	3

Configured to destination:

Operation Buffer:	IO

CFC

2.1.15 Min/Max Measurement Setup

>I MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>I1 MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>Idmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>Theta MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>V MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>Vphph MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>V1 MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>P MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>S MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Q MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Pdmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Qdmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Sdmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Frq. MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Power Factor MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

2.1.16 Set Points (Measured Values)

Set Point Phase A dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point Phase B dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point Phase C dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point positive sequence I1dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point |Pdmd|> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point |Qdmd|> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point |Sdmd|> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point 37-1 Undercurrent alarm (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point 55 Power factor alarm (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

2.1.17 Statistics

Counter of operating hours (VI - Value indication)

Configured to destination:
System interface

>BLOCK Op Counter (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

Accumulation of interrupted current Ph A (VI - Value indication)

Configured to destination:
System interface

Accumulation of interrupted current Ph B (VI - Value indication)

Configured to destination:
System interface

Accumulation of interrupted current Ph C (VI - Value indication)

Configured to destination:
System interface

2.1.18 Set Points (Statistic)

Set Point Operating Hours (OUT - Output indication)

Configured to destination:

Operation Buffer: IO

2.1.19 Threshold-Switch

Threshold Value 1 (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO
Control Menu

2.1.20 SIGNAL

CB CLOSE 1 (SP - Single point indication)

Configured to source:

BI: H 9

Configured to destination:

Operation Buffer: IO
CFC

TRIP 50BF (OUT - Output indication)

Configured to source:

CFC

Configured to destination:

BO: U 11
Operation Buffer: IO
CFC
System interface

RX50BF/59N (SP - Single point indication)

Configured to source:

BI: H 15

Configured to destination:

Operation Buffer: IO
CFC

50BFEXT/59N (OUT - Output indication)

Configured to source:

CFC

Configured to destination:

BO: U 11
Operation Buffer: IO
CFC

2.1.21 Cambio Grupo Parametros

Interruptor Acoplador (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Desconectador 1 Acople (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Desconectador 2 Acople (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Interruptor Trafo Aux (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Desconectador Trafo Aux (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

2.2 Commands

2.2.1 Control Device

52 Breaker (CF_D12 - Double command 12, with feedback)

Configured to source:
System interface
Configured to destination:
BO: Tr 4
CFC
Control Display
Control Menu

Disconnect Switch (CF_D2 - Double command 2, with feedback)

Configured to source:
System interface
Configured to destination:
BO: Tr 7
CFC
Control Display
Control Menu

Ground Switch (CF_D2 - Double command 2, with feedback)

Configured to source:
System interface
Configured to destination:
BO: Tr 9
CFC
Control Display
Control Menu

2.3 Measured values

2.3.1 Measurement

Ia (MV - Measured value)

Configured to destination:
CFC
System interface

Ib (MV - Measured value)

Configured to destination:
CFC
System interface

Ic (MV - Measured value)

Configured to destination:
CFC
System interface

In (MV - Measured value)

Configured to destination:
CFC
System interface

I1 (positive sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

I2 (negative sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

3Io (zero sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

Va (MV - Measured value)

Configured to destination:
CFC
System interface

Vb (MV - Measured value)

Configured to destination:
CFC
System interface

Vc (MV - Measured value)

Configured to destination:
CFC
System interface

Va-b (MV - Measured value)

Configured to destination:
CFC
System interface

Vb-c (MV - Measured value)

Configured to destination:
CFC
System interface

Vc-a (MV - Measured value)

Configured to destination:
CFC
System interface

VN (MV - Measured value)

Configured to destination:
CFC
System interface

V1 (positive sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

V2 (negative sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

P (active power) (MV - Measured value)

Configured to destination:
CFC
System interface

Q (reactive power) (MV - Measured value)

Configured to destination:
CFC
System interface

S (apparent power) (MV - Measured value)

Configured to destination:
CFC
System interface

Frequency (MV - Measured value)

Configured to destination:
CFC
System interface

Vo (zero sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

Power Factor (MV - Measured value)

Configured to destination:
CFC
System interface

Pa (active power, phase A) (MV - Measured value)

Configured to destination:
CFC

Pb (active power, phase B) (MV - Measured value)

Configured to destination:
CFC

Pc (active power, phase C) (MV - Measured value)

Configured to destination:
CFC

Qa (reactive power, phase A) (MV - Measured value)

Configured to destination:
CFC

Qb (reactive power, phase B) (MV - Measured value)

Configured to destination:
CFC

Qc (reactive power, phase C) (MV - Measured value)

Configured to destination:
CFC

Power Factor, phase A (MV - Measured value)

Configured to destination:
CFC

Power Factor, phase B (MV - Measured value)

Configured to destination:
CFC

Power Factor, phase C (MV - Measured value)

Configured to destination:
CFC

2.3.2 Demand Measurement Setup

I A demand (MV - Measured value)

Configured to destination:
CFC

I B demand (MV - Measured value)

Configured to destination:
CFC

I C demand (MV - Measured value)

Configured to destination:
CFC

I1 (positive sequence) Demand (MV - Measured value)

Configured to destination:
CFC

Active Power Demand (MV - Measured value)

Configured to destination:
CFC

Reactive Power Demand (MV - Measured value)

Configured to destination:
CFC

Apparent Power Demand (MV - Measured value)

Configured to destination:
CFC

2.3.3 Min/Max Measurement Setup

Ia Min (MVT - Measured value with time)

Ia Max (MVT - Measured value with time)

Ib Min (MVT - Measured value with time)

Ib Max (MVT - Measured value with time)

Ic Min (MVT - Measured value with time)

Ic Max (MVT - Measured value with time)

I1 (positive sequence) Minimum (MVT - Measured value with time)

I1 (positive sequence) Maximum (MVT - Measured value with time)

I A Demand Minimum (MVT - Measured value with time)

I A Demand Maximum (MVT - Measured value with time)

I B Demand Minimum (MVT - Measured value with time)

I B Demand Maximum (MVT - Measured value with time)

I C Demand Minimum (MVT - Measured value with time)

I C Demand Maximum (MVT - Measured value with time)

I1 (positive sequence) Demand Minimum (MVT - Measured value with time)

I1 (positive sequence) Demand Maximum (MVT - Measured value with time)

Overload Meter Min (MVT - Measured value with time)

Overload Meter Max (MVT - Measured value with time)

Va-n Min (MVT - Measured value with time)

Va-n Max (MVT - Measured value with time)

Vb-n Min (MVT - Measured value with time)

Vb-n Max (MVT - Measured value with time)

Vc-n Min (MVT - Measured value with time)

Vc-n Max (MVT - Measured value with time)

Va-b Min (MVT - Measured value with time)

Va-b Max (MVT - Measured value with time)

Vb-c Min (MVT - Measured value with time)

Vb-c Max (MVT - Measured value with time)

Vc-a Min (MVT - Measured value with time)

Vc-a Max (MVT - Measured value with time)

V neutral Min (MVT - Measured value with time)

V neutral Max (MVT - Measured value with time)

V1 (positive sequence) Voltage Minimum (MVT - Measured value with time)

V1 (positive sequence) Voltage Maximum (MVT - Measured value with time)

Active Power Minimum (MVT - Measured value with time)

Active Power Maximum (MVT - Measured value with time)

Reactive Power Minimum (MVT - Measured value with time)

Reactive Power Maximum (MVT - Measured value with time)

Apparent Power Minimum (MVT - Measured value with time)

Apparent Power Maximum (MVT - Measured value with time)

Frequency Minimum (MVT - Measured value with time)

Frequency Maximum (MVT - Measured value with time)

Power Factor Minimum (MVT - Measured value with time)

Power Factor Maximum (MVT - Measured value with time)

Active Power Demand Minimum (MVT - Measured value with time)

Active Power Demand Maximum (MVT - Measured value with time)

Reactive Power Demand Minimum (MVT - Measured value with time)

Reactive Power Demand Maximum (MVT - Measured value with time)

Apparent Power Demand Minimum (MVT - Measured value with time)

Apparent Power Demand Maximum (MVT - Measured value with time)

2.3.4 Set Points (Measured Values)

I A dmd> (LV - Limit value)

Configured to destination:

Measured value window	Set Points(MV)
CFC	

I B dmd> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

I C dmd> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

I1dmd> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Pdmd|> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Qdmd|> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Sdmd|> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

37-1 under current (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Power Factor|< (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

2.4 Metered values

2.4.1 Energy

Wp Forward (MVMV - Metered value of measured value)

Configured to source:
Measured value: WpDelta=
Configured to destination:
System interface
Metered value window

Wq Forward (MVMV - Metered value of measured value)

Configured to source:
Measured value: WqDelta=
Configured to destination:
System interface
Metered value window

Wp Reverse (MVMV - Metered value of measured value)

Configured to source:
Measured value: WpDelta=
Configured to destination:
System interface
Metered value window

Wq Reverse (MVMV - Metered value of measured value)

Configured to source:
Measured value: WqDelta=
Configured to destination:
System interface
Metered value window

Pulsed Energy Wp (active) (PMV - Pulse metered value)

Configured to destination:
Metered value window

Pulsed Energy Wq (reactive) (PMV - Pulse metered value)

Configured to destination:
Metered value window

2.4.2 Statistics

Number of TRIPs= (PMV - Pulse metered value)

Configured to destination:

System interface

3 Configuration - short (column-oriented)

3.1 Binary inputs

Binary inputs

Binary inputs	No.	Group	Information	Type	Configuration
1		Cntrl Authority	Local	SP	H
2		Cntrl Authority	Remote	SP	H
3		Process Data	>SF6-Loss	SP	H
4		Process Data	>CB ready Spring is charged	SP	H
4		Process Data	>CB waiting for Spring charged	SP	L
5		Process Data	>Error Control Voltage	SP	L
6		Process Data	-S25	SP	H
7		Process Data	MCB VT	SP	L
8	04602	P.System Data 2	>52-b contact (OPEN, if bkr is closed)	SP	H
8		Control Device	52 Breaker	DP	X
9	04601	P.System Data 2	>52-a contact (OPEN, if bkr is open)	SP	H
9		Control Device	52 Breaker	DP	X
9		SIGNAL	CB CLOSE 1	SP	H
10		Control Device	DSC ON	SP	H
11		Control Device	Tierra Off	SP	H
12		Control Device	Tierra ON	SP	H
13	06852	74TC TripCirc.	>74TC Trip circuit superv.: trip relay	SP	H
14	06853	74TC TripCirc.	>74TC Trip circuit superv.: brk relay	SP	H
15		SIGNAL	RX50BF/59N	SP	H

3.2 Binary outputs

Binary outputs

BO	No.	Group	Information	Type	Configuration
4	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	U
4		Control Device	52 Breaker	CF_D12	Tr
4		Process Data	86T	SP	U
5		Control Device	52 Breaker	CF_D12	Cl
6		Control Device	52 Breaker	CF_D12	Cl
7		Control Device	Disconnect Switch	CF_D2	Tr
8		Control Device	Disconnect Switch	CF_D2	Cl
9		Control Device	Ground Switch	CF_D2	Tr
10		Control Device	Ground Switch	CF_D2	Cl
11	01494	50BF BkrFailure	50BF TRIP 2	OUT	U
11		SIGNAL	TRIP 50BF	OUT	U
11		SIGNAL	50BFEXT/59N	OUT	U
12		Control Device	Interlocking: 52 Close	IntSP	U
13	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	U
13		Process Data	86T	SP	U

3.3 LEDs

LEDs

LEDs	No.	Group	Information	Type	Configuration
1	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	L
2		Process Data	86T	SP	L
3	06865	74TC TripCirc.	74TC Failure Trip Circuit	OUT	L
4		Process Data	>SF6-Loss	SP	U
5		Process Data	>Error Control Voltage	SP	U
6		Process Data	MCB VT	SP	U
7		Control Device	Interlocking: 52 Close	IntSP	U
8		Control Device	Interlocking: Disconnect switch Open	IntSP	U
8		Control Device	Interlocking: Disconnect switch Close	IntSP	U
9		Control Device	Interlocking: Ground switch Open	IntSP	U
9		Control Device	Interlocking: Ground switch Close	IntSP	U
10		Change Group	Setting Group A is active	IntSP	U
11		Change Group	Setting Group B is active	IntSP	U
13	009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IntSP	U
14	009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IntSP	U

3.4 CFC

CFC

No.	Group	Information	Source	Destination
00016	Device, General	>DataStop / >Stop data transmission		X
	Device, General	Feeder gnd / Feeder GROUNDED	X	
	Device, General	Brk OPENED / Breaker OPENED	X	
	Device, General	SynchClock / Clock Synchronization	X	
00004	Osc. Fault Rec.	>Trig.Wave.Cap. / >Trigger Waveform Capture		X
	Osc. Fault Rec.	FltRecSta / Fault Recording Start	X	
00007	Change Group	>Set Group Bit0 / >Setting Group Select Bit 0	X	
00008	Change Group	>Set Group Bit1 / >Setting Group Select Bit 1	X	
00511	P.System Data 2	Relay TRIP / Relay GENERAL TRIP command		X
01431	50BF BkrFailure	>50BF ext SRC / >50BF initiated externally	X	X
01456	50BF BkrFailure	50BF int Pickup / 50BF (internal) PICKUP		X
01494	50BF BkrFailure	50BF TRIP 2 / 50BF TRIP 2		X
	Cntrl Authority	Local / Local		X
	Cntrl Authority	Remote / Remote		X
	Cntrl Authority	LocRemCel / Local Remoto Celda	X	
	Control Device	52Breaker / 52 Breaker		X
	Control Device	52Breaker / 52 Breaker		X
	Control Device	Disc.Swit. / Disconnect Switch		X
	Control Device	Disc.Swit. / Disconnect Switch	X	X
	Control Device	GndSwit. / Ground Switch		X
	Control Device	GndSwit. / Ground Switch	X	X
	Control Device	52 Open / Interlocking: 52 Open	X	
	Control Device	52 Close / Interlocking: 52 Close	X	

CFC(2)

No.	Group	Information	Source	Destination
	Control Device	Disc.Open / Interlocking: Disconnect switch Open	X	
	Control Device	Disc.Close / Interlocking: Disconnect switch Close	X	
	Control Device	GndSw Open / Interlocking: Ground switch Open	X	
	Control Device	GndSw Cl. / Interlocking: Ground switch Close	X	
	Control Device	UnlockDT / Unlock data transmission via BI	X	
	Control Device	DSC ON / DSC ON		X
	Control Device	Q1/5 OFF / Q1/5 OFF	X	X
	Control Device	TieOFF / Tierra Off		X
	Control Device	TieON / Tierra ON		X
	Process Data	>CB ready / >CB ready Spring is charged		X
	Process Data	>CB wait / >CB waiting for Spring charged		X
	Process Data	MCB VT / MCB VT		X
	Process Data	>ErrCntrlV / >Error Control Voltage		X
	Process Data	>SF6-Loss / >SF6-Loss		X
	Process Data	-S25 / -S25		X
	Process Data	86T / 86T	X	X
	Process Data	Reset86T / Reset 86 T		X
00601	Measurement	Ia = / Ia		X
00602	Measurement	Ib = / Ib		X
00603	Measurement	Ic = / Ic		X
00604	Measurement	In = / In		X
00605	Measurement	I1 = / I1 (positive sequence)		X
00606	Measurement	I2 = / I2 (negative sequence)		X
00831	Measurement	3Io = / 3Io (zero sequence)		X
00621	Measurement	Va = / Va		X
00622	Measurement	Vb = / Vb		X
00623	Measurement	Vc = / Vc		X
00624	Measurement	Va-b= / Va-b		X
00625	Measurement	Vb-c= / Vb-c		X
00626	Measurement	Vc-a= / Vc-a		X
00627	Measurement	VN = / VN		X
00629	Measurement	V1 = / V1 (positive sequence)		X
00630	Measurement	V2 = / V2 (negative sequence)		X
00641	Measurement	P = / P (active power)		X
00642	Measurement	Q = / Q (reactive power)		X
00645	Measurement	S = / S (apparent power)		X
00644	Measurement	Freq= / Frequency		X
00832	Measurement	Vo = / Vo (zero sequence)		X
00901	Measurement	PF = / Power Factor		X
30701	Measurement	Pa = / Pa (active power, phase A)		X
30702	Measurement	Pb = / Pb (active power, phase B)		X
30703	Measurement	Pc = / Pc (active power, phase C)		X
30704	Measurement	Qa = / Qa (reactive power, phase A)		X
30705	Measurement	Qb = / Qb (reactive power, phase B)		X
30706	Measurement	Qc = / Qc (reactive power, phase C)		X
30707	Measurement	PFa = / Power Factor, phase A		X

CFC(3)

No.	Group	Information	Source	Destination
30708	Measurement	PFb = / Power Factor, phase B		X
30709	Measurement	PFc = / Power Factor, phase C		X
00963	Demand meter	Ia dmd= / I A demand		X
00964	Demand meter	Ib dmd= / I B demand		X
00965	Demand meter	Ic dmd= / I C demand		X
00833	Demand meter	I1 dmd= / I1 (positive sequence) Demand		X
00834	Demand meter	P dmd = / Active Power Demand		X
00835	Demand meter	Q dmd = / Reactive Power Demand		X
00836	Demand meter	S dmd = / Apparent Power Demand		X
	Set Points(MV)	I Admd> / I A dmd>		X
	Set Points(MV)	I Bdmd> / I B dmd>		X
	Set Points(MV)	I Cdmd> / I C dmd>		X
	Set Points(MV)	I1dmd> / I1dmd>		X
00273	Set Points(MV)	SP. I A dmd> / Set Point Phase A dmd>	X	
00274	Set Points(MV)	SP. I B dmd> / Set Point Phase B dmd>	X	
00275	Set Points(MV)	SP. I C dmd> / Set Point Phase C dmd>	X	
00276	Set Points(MV)	SP. I1dmd> / Set Point positive sequence I1dmd>	X	
	Set Points(MV)	|Pdmd|> / |Pdmd|>		X
	Set Points(MV)	|Qdmd|> / |Qdmd|>		X
	Set Points(MV)	|Sdmd|> / |Sdmd|>		X
00277	Set Points(MV)	SP. |Pdmd|> / Set Point |Pdmd|>	X	
00278	Set Points(MV)	SP. |Qdmd|> / Set Point |Qdmd|>	X	
00279	Set Points(MV)	SP. |Sdmd|> / Set Point |Sdmd|>	X	
00284	Set Points(MV)	SP. 37-1 alarm / Set Point 37-1 Undercurrent alarm	X	
	Set Points(MV)	37-1 / 37-1 under current		X
	Set Points(MV)	|PF|< / |Power Factor|<		X
00285	Set Points(MV)	SP. PF(55)alarm / Set Point 55 Power factor alarm	X	
	SIGNAL	CB CLOSE 1 / CB CLOSE 1		X
	SIGNAL	TRIP 50BF / TRIP 50BF	X	X
	SIGNAL	RX50BF/59N / RX50BF/59N		X
	SIGNAL	50BFEXT/59N / 50BFEXT/59N	X	X
	Grupo	INTACOP / Interruptor Acoplador		X
	Grupo	D1Acop / Desconectador 1 Acople		X
	Grupo	D2Acop / Desconectador 2 Acople		X
	Grupo	INTTaux / Interruptor Trafo Aux		X
	Grupo	D1Taux / Desconectador Trafo Aux		X

3.5 Function keys

Function keys

No.	Group	Information	Function keys
	Process Data	Reset 86 T	3

3.6 Buffer

3.6.1 Operational indication buffer

Operational indication buffer

No.	Group	Information	Buffer
	Device, General	>Back Light on	IO
00051	Device, General	Device is Operational and Protecting	IO
00052	Device, General	At Least 1 Protection Funct. is Active	IO
00055	Device, General	Reset Device	I
00056	Device, General	Initial Start of Device	I
	Device, General	Reset LED	I
00067	Device, General	Resume	I
00068	Device, General	Clock Synchronization Error	IO
00069	Device, General	Daylight Saving Time	IO
00110	Device, General	Event lost	I
00113	Device, General	Flag Lost	I
00125	Device, General	Chatter ON	IO
00140	Device, General	Error with a summary alarm	IO
00160	Device, General	Alarm Summary Event	IO
00144	Device, General	Error 5V	IO
00145	Device, General	Error 0V	IO
00146	Device, General	Error -5V	IO
00147	Device, General	Error Power Supply	IO
00177	Device, General	Failure: Battery empty	IO
00070	Device, General	Setting calculation is running	IO
00072	Device, General	Level-2 change	IO
00183	Device, General	Error Board 1	IO
00184	Device, General	Error Board 2	IO
00185	Device, General	Error Board 3	IO
00186	Device, General	Error Board 4	IO
00187	Device, General	Error Board 5	IO
00188	Device, General	Error Board 6	IO
00189	Device, General	Error Board 7	IO
	Device, General	Stop data transmission	IO
	Device, General	Test mode	IO
	Device, General	Hardware Test Mode	IO
00193	Device, General	Alarm: NO calibration data available	IO
17565	Device, General	>Blocking of the offset supervision	IO
00191	Device, General	Error: Offset	IO
00320	Device, General	Warn: Limit of Memory Data exceeded	IO
00321	Device, General	Warn: Limit of Memory Parameter exceeded	IO
00322	Device, General	Warn: Limit of Memory Operation exceeded	IO
00323	Device, General	Warn: Limit of Memory New exceeded	IO
	Device, General	Disturbance CFC	IO
17566	Device, General	Disturbance CFC Source	IO
236.2127.01	Device, General	BLOCK Flexible Function	IO
009.0100.01	EN100-Modul 1	Failure EN100 Modul	IO

Operational indication buffer(2)

No.	Group	Information	Buffer
009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IO
009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IO
05145	P.System Data 1	>Reverse Phase Rotation	IO
05147	P.System Data 1	Phase rotation ABC	IO
05148	P.System Data 1	Phase rotation ACB	IO
00203	Osc. Fault Rec.	Waveform data deleted	I
	Osc. Fault Rec.	Fault Recording Start	IO
	Change Group	Setting Group A is active	IO
	Change Group	Setting Group B is active	IO
	Change Group	Setting Group C is active	IO
	Change Group	Setting Group D is active	IO
02720	P.System Data 2	>Enable 50/67-(N)-2 (override 79 blk)	IO
00561	P.System Data 2	Manual close signal detected	IO
04601	P.System Data 2	>52-a contact (OPEN, if bkr is open)	IO
04602	P.System Data 2	>52-b contact (OPEN, if bkr is closed)	IO
00126	P.System Data 2	Protection ON/OFF (via system port)	IO
01751	50/51 Overcur.	50/51 O/C switched OFF	IO
01752	50/51 Overcur.	50/51 O/C is BLOCKED	IO
01753	50/51 Overcur.	50/51 O/C is ACTIVE	IO
10034	50/51 Overcur.	50-3 BLOCKED	IO
01852	50/51 Overcur.	50-2 BLOCKED	IO
01851	50/51 Overcur.	50-1 BLOCKED	IO
01855	50/51 Overcur.	51 BLOCKED	IO
01756	50/51 Overcur.	50N/51N is OFF	IO
01757	50/51 Overcur.	50N/51N is BLOCKED	IO
01758	50/51 Overcur.	50N/51N is ACTIVE	IO
10035	50/51 Overcur.	50N-3 BLOCKED	IO
01854	50/51 Overcur.	50N-2 BLOCKED	IO
01853	50/51 Overcur.	50N-1 BLOCKED	IO
01856	50/51 Overcur.	51N BLOCKED	IO
00169	Measurem.Superv	VT Fuse Failure (alarm >10s)	IO
00170	Measurem.Superv	VT Fuse Failure (alarm instantaneous)	IO
00162	Measurem.Superv	Failure: Current Summation	IO
00163	Measurem.Superv	Failure: Current Balance	IO
00167	Measurem.Superv	Failure: Voltage Balance	IO
00161	Measurem.Superv	Failure: General Current Supervision	IO
00171	Measurem.Superv	Failure: Phase Sequence	IO
00176	Measurem.Superv	Failure: Phase Sequence Voltage	IO
00175	Measurem.Superv	Failure: Phase Sequence Current	IO
00197	Measurem.Superv	Measurement Supervision is switched OFF	IO
06509	Measurem.Superv	>Failure: Feeder VT	IO
06510	Measurem.Superv	>Failure: Busbar VT	IO
06853	74TC TripCirc.	>74TC Trip circuit superv.: brk relay	IO
06852	74TC TripCirc.	>74TC Trip circuit superv.: trip relay	IO
06861	74TC TripCirc.	74TC Trip circuit supervision OFF	IO
06862	74TC TripCirc.	74TC Trip circuit supervision is BLOCKED	IO

Operational indication buffer(3)

No.	Group	Information	Buffer
06863	74TC TripCirc.	74TC Trip circuit supervision is ACTIVE	IO
06864	74TC TripCirc.	74TC blocked. Bin. input is not set	IO
06865	74TC TripCirc.	74TC Failure Trip Circuit	IO
01106	Fault Locator	>Start Fault Locator	I
01403	50BF BkrFailure	>BLOCK 50BF	IO
01431	50BF BkrFailure	>50BF initiated externally	IO
01451	50BF BkrFailure	50BF is switched OFF	IO
01452	50BF BkrFailure	50BF is BLOCKED	IO
01453	50BF BkrFailure	50BF is ACTIVE	IO
	Cntrl Authority	Control Authority	IO
	Cntrl Authority	Controlmode LOCAL	IO
	Cntrl Authority	Controlmode REMOTE	IO
	Cntrl Authority	Local	IO
	Cntrl Authority	Remote	IO
	Cntrl Authority	Local Remoto Celda	IO
	Control Device	52 Breaker	IO
	Control Device	Disconnect Switch	IO
	Control Device	Ground Switch	IO
	Control Device	DSC ON	IO
	Control Device	Q1/5 OFF	IO
	Control Device	Tierra Off	IO
	Control Device	Tierra ON	IO
	Process Data	>CB waiting for Spring charged	IO
	Process Data	MCB VT	IO
	Process Data	>Error Control Voltage	IO
	Process Data	>SF6-Loss	IO
	Process Data	-S25	IO
	Process Data	86T	IO
	Process Data	Reset 86 T	IO
00395	Min/Max meter	>I MIN/MAX Buffer Reset	I
00396	Min/Max meter	>I1 MIN/MAX Buffer Reset	I
00403	Min/Max meter	>Idmd MIN/MAX Buffer Reset	I
00412	Min/Max meter	>Theta MIN/MAX Buffer Reset	I
00397	Min/Max meter	>V MIN/MAX Buffer Reset	I
00398	Min/Max meter	>Vphph MIN/MAX Buffer Reset	I
00399	Min/Max meter	>V1 MIN/MAX Buffer Reset	I
00400	Min/Max meter	>P MIN/MAX Buffer Reset	I
00401	Min/Max meter	>S MIN/MAX Buffer Reset	I
00402	Min/Max meter	>Q MIN/MAX Buffer Reset	I
00404	Min/Max meter	>Pdmd MIN/MAX Buffer Reset	I
00405	Min/Max meter	>Qdmd MIN/MAX Buffer Reset	I
00406	Min/Max meter	>Sdmd MIN/MAX Buffer Reset	I
00407	Min/Max meter	>Frq. MIN/MAX Buffer Reset	I
00408	Min/Max meter	>Power Factor MIN/MAX Buffer Reset	I
00273	Set Points(MV)	Set Point Phase A dmd>	IO
00274	Set Points(MV)	Set Point Phase B dmd>	IO

Operational indication buffer(4)

No.	Group	Information	Buffer
00275	Set Points(MV)	Set Point Phase C dmd>	IO
00276	Set Points(MV)	Set Point positive sequence I1dmd>	IO
00277	Set Points(MV)	Set Point |Pdmd|>	IO
00278	Set Points(MV)	Set Point |Qdmd|>	IO
00279	Set Points(MV)	Set Point |Sdmd|>	IO
00284	Set Points(MV)	Set Point 37-1 Undercurrent alarm	IO
00285	Set Points(MV)	Set Point 55 Power factor alarm	IO
00409	Statistics	>BLOCK Op Counter	IO
00272	SetPoint(Stat)	Set Point Operating Hours	IO
	Thresh.-Switch	Threshold Value 1	IO
	SIGNAL	CB CLOSE 1	IO
	SIGNAL	TRIP 50BF	IO
	SIGNAL	RX50BF/59N	IO
	SIGNAL	50BFEXT/59N	IO
	Grupo	Interruptor Acoplador	IO
	Grupo	Desconectador 1 Acople	IO
	Grupo	Desconectador 2 Acople	IO
	Grupo	Interruptor Trafo Aux	IO
	Grupo	Desconectador Trafo Aux	IO

3.6.2 Sensitive ground fault indication buffer

nothing allocated

3.6.3 Trip log

Trip log

No.	Group	Information	Buffer
00545	Device, General	Time from Pickup to drop out	IO
00546	Device, General	Time from Pickup to TRIP	IO
00533	P.System Data 2	Primary fault current Ia	IO
00534	P.System Data 2	Primary fault current Ib	IO
00535	P.System Data 2	Primary fault current Ic	IO
00501	P.System Data 2	Relay PICKUP	I
00511	P.System Data 2	Relay GENERAL TRIP command	I
01761	50/51 Overcur.	50(N)/51(N) O/C PICKUP	IO
01791	50/51 Overcur.	50(N)/51(N) TRIP	I
01752	50/51 Overcur.	50/51 O/C is BLOCKED	IO
01762	50/51 Overcur.	50/51 Phase A picked up	IO
01763	50/51 Overcur.	50/51 Phase B picked up	IO
01764	50/51 Overcur.	50/51 Phase C picked up	IO
01767	50/51 Overcur.	50-3 picked up	IO
01769	50/51 Overcur.	50-3 TRIP	I
01800	50/51 Overcur.	50-2 picked up	IO
01805	50/51 Overcur.	50-2 TRIP	I

Trip log(2)

No.	Group	Information	Buffer
01810	50/51 Overcur.	50-1 picked up	IO
01815	50/51 Overcur.	50-1 TRIP	I
01820	50/51 Overcur.	51 picked up	IO
01825	50/51 Overcur.	51 TRIP	I
10034	50/51 Overcur.	50-3 BLOCKED	IO
01852	50/51 Overcur.	50-2 BLOCKED	IO
01851	50/51 Overcur.	50-1 BLOCKED	IO
01855	50/51 Overcur.	51 BLOCKED	IO
01757	50/51 Overcur.	50N/51N is BLOCKED	IO
01765	50/51 Overcur.	50N/51N picked up	IO
01768	50/51 Overcur.	50N-3 picked up	IO
01770	50/51 Overcur.	50N-3 TRIP	I
01831	50/51 Overcur.	50N-2 picked up	IO
01833	50/51 Overcur.	50N-2 TRIP	I
01834	50/51 Overcur.	50N-1 picked up	IO
01836	50/51 Overcur.	50N-1 TRIP	I
01837	50/51 Overcur.	51N picked up	IO
01839	50/51 Overcur.	51N TRIP	I
10035	50/51 Overcur.	50N-3 BLOCKED	IO
01854	50/51 Overcur.	50N-2 BLOCKED	IO
01853	50/51 Overcur.	50N-1 BLOCKED	IO
01856	50/51 Overcur.	51N BLOCKED	IO
06862	74TC TripCirc.	74TC Trip circuit supervision is BLOCKED	IO
01114	Fault Locator	Flt Locator: primary RESISTANCE	IO
01115	Fault Locator	Flt Locator: primary REACTANCE	IO
01117	Fault Locator	Flt Locator: secondary RESISTANCE	IO
01118	Fault Locator	Flt Locator: secondary REACTANCE	IO
01119	Fault Locator	Flt Locator: Distance to fault	IO
01120	Fault Locator	Flt Locator: Distance [%] to fault	IO
01123	Fault Locator	Fault Locator Loop AG	I
01124	Fault Locator	Fault Locator Loop BG	I
01125	Fault Locator	Fault Locator Loop CG	I
01126	Fault Locator	Fault Locator Loop AB	I
01127	Fault Locator	Fault Locator Loop BC	I
01128	Fault Locator	Fault Locator Loop CA	I
01132	Fault Locator	Fault location invalid	I
01452	50BF BkrFailure	50BF is BLOCKED	IO
01456	50BF BkrFailure	50BF (internal) PICKUP	IO
01457	50BF BkrFailure	50BF (external) PICKUP	IO
01471	50BF BkrFailure	50BF TRIP	I
01480	50BF BkrFailure	50BF (internal) TRIP	I
01481	50BF BkrFailure	50BF (external) TRIP	I
01494	50BF BkrFailure	50BF TRIP 2	I

3.6.4 Event value buffer

nothing allocated

3.7 Display

Display

No.	Group	Information	Control Display	Default Display
	Control Device	52 Breaker	X	
	Control Device	52 Breaker		X
	Control Device	Disconnect Switch	X	
	Control Device	Disconnect Switch		X
	Control Device	Ground Switch	X	
	Control Device	Ground Switch		X
	Control Device	DSC ON	X	X
	Control Device	Q1/5 OFF	X	X
00602	Measurement	Ib		X
00625	Measurement	Vb-c		X

3.8 System interface IEC 61850

System interface IEC 61850

No.	Group	Information	Type	S	D	X
00051	Device, General	Device is Operational and Protecting	OUT		X	
00052	Device, General	At Least 1 Protection Funct. is Active	IntSP	X	X	
00055	Device, General	Reset Device	OUT		X	
00056	Device, General	Initial Start of Device	OUT		X	
	Device, General	Reset LED	IntSP	X	X	

System interface IEC 61850(2)

IEC 61850 object
PROT/LLN0/Mod
PROT/LLN0/Beh
PROT/LLN0/Health
PROT/LPHD1/PhyHealth
PROT/PTRC1/Mod
PROT/PTRC1/Beh
PROT/PTRC1/Health
PROT/XCBR1/Mod
PROT/XCBR1/Beh
PROT/XCBR1/Health
.
.
.
PROT/PTRC1/Mod
PROT/PTRC1/Beh
PROT/LPHD1/Proxy
PROT/XCBR1/Loc
PROT/XCBR1/BlkOpn
PROT/XCBR1/BlkCls
MEAS/LPHD1/Proxy
DR/LPHD1/Proxy
CTRL/LLN0/Mod
CTRL/LLN0/Beh
CTRL/CALH1/Mod
CTRL/CALH1/Beh
.
.
.
CTRL/LPHD1/DevStr
CTRL/LLN0/LEDRs

System interface IEC 61850(3)

No.	Group	Information	Type	S	D	X
00067	Device, General	Resume	OUT		X	
00068	Device, General	Clock Synchronization Error	OUT			X
00140	Device, General	Error with a summary alarm	OUT		X	
00160	Device, General	Alarm Summary Event	OUT		X	
00177	Device, General	Failure: Battery empty	OUT			X
00183	Device, General	Error Board 1	OUT		X	
00184	Device, General	Error Board 2	OUT		X	
00185	Device, General	Error Board 3	OUT		X	
00186	Device, General	Error Board 4	OUT		X	
00187	Device, General	Error Board 5	OUT		X	
00188	Device, General	Error Board 6	OUT		X	
00189	Device, General	Error Board 7	OUT		X	
	Device, General	Stop data transmission	IntSP		X	
	Device, General	Test mode	IntSP		X	
009.0100.01	EN100-Modul 1	Failure EN100 Modul	IntSP			X
009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IntSP			X
009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IntSP			X
30053	Osc. Fault Rec.	Fault recording is running	OUT		X	
00007	Change Group	>Setting Group Select Bit 0	SP			X
00008	Change Group	>Setting Group Select Bit 1	SP			X
	Change Group	Setting Group A is active	IntSP			X

System interface IEC 61850(4)

IEC 61850 object
CTRL/LPHD1/DevStr
EXT/pdGGIO2/SPCSO4
CTRL/CALH1/GrAlm
CTRL/CALH1/GrWrn
EXT/pdGGIO3/SPCSO49
CTRL/LLN0/Health CTRL/CALH1/ErrBoard1
CTRL/LLN0/Health CTRL/CALH1/ErrBoard2
CTRL/LLN0/Health CTRL/CALH1/ErrBoard3
CTRL/LLN0/Health CTRL/CALH1/ErrBoard4
CTRL/LLN0/Health CTRL/CALH1/ErrBoard5
CTRL/LLN0/Health CTRL/CALH1/ErrBoard6
CTRL/LLN0/Health CTRL/CALH1/ErrBoard7
PROT/LLN0/Mod PROT/LLN0/Beh PROT/PTRC1/Beh PROT/XCBR1/Beh PROT/PTOC6/Beh PROT/PTOC7/Beh PROT/PTOC1/Beh PROT/PTOC8/Beh PROT/PTOC9/Beh PROT/PTOC2/Beh . . .
PROT/LLN0/Mod PROT/LLN0/Beh PROT/LLN0/OpTmh PROT/LPHD1/Proxy PROT/PTRC1/Beh PROT/PTRC1/Tr PROT/PTRC1/Str PROT/PTRC1/FinTr PROT/XCBR1/Beh PROT/XCBR1/Loc . . .
EXT/pdGGIO32776/SPCSO1
EXT/pdGGIO32776/SPCSO2
EXT/pdGGIO32776/SPCSO3
DR/SC_RDRE1/RcdMade DR/SC_RDRE1/RcdStr
EXT/pdGGIO1/SPCSO7
EXT/pdGGIO1/SPCSO8
EXT/pdGGIO513/SPCSO53

System interface IEC 61850(5)

No.	Group	Information	Type	S	D	X
	Change Group	Setting Group B is active	IntSP			X
	Change Group	Setting Group C is active	IntSP			X
	Change Group	Setting Group D is active	IntSP			X
00501	P.System Data 2	Relay PICKUP	OUT		X	
00511	P.System Data 2	Relay GENERAL TRIP command	OUT		X	
04601	P.System Data 2	>52-a contact (OPEN, if bkr is open)	SP		X	
04602	P.System Data 2	>52-b contact (OPEN, if bkr is closed)	SP		X	
01761	50/51 Overcur.	50(N)/51(N) O/C PICKUP	OUT		X	
01791	50/51 Overcur.	50(N)/51(N) TRIP	OUT		X	
01751	50/51 Overcur.	50/51 O/C switched OFF	OUT		X	
01752	50/51 Overcur.	50/51 O/C is BLOCKED	OUT		X	
01753	50/51 Overcur.	50/51 O/C is ACTIVE	OUT		X	
01762	50/51 Overcur.	50/51 Phase A picked up	OUT		X	
01763	50/51 Overcur.	50/51 Phase B picked up	OUT		X	
01764	50/51 Overcur.	50/51 Phase C picked up	OUT		X	
01767	50/51 Overcur.	50-3 picked up	OUT		X	
01769	50/51 Overcur.	50-3 TRIP	OUT		X	
01800	50/51 Overcur.	50-2 picked up	OUT		X	
01805	50/51 Overcur.	50-2 TRIP	OUT		X	
01810	50/51 Overcur.	50-1 picked up	OUT		X	
01815	50/51 Overcur.	50-1 TRIP	OUT		X	
01820	50/51 Overcur.	51 picked up	OUT		X	
01825	50/51 Overcur.	51 TRIP	OUT		X	
01756	50/51 Overcur.	50N/51N is OFF	OUT		X	
01758	50/51 Overcur.	50N/51N is ACTIVE	OUT		X	
01765	50/51 Overcur.	50N/51N picked up	OUT		X	
01831	50/51 Overcur.	50N-2 picked up	OUT		X	
01833	50/51 Overcur.	50N-2 TRIP	OUT		X	

System interface IEC 61850(6)

IEC 61850 object
EXT/pdGGIO513/SPCSO54
EXT/pdGGIO513/SPCSO55
EXT/pdGGIO513/SPCSO56
PROT/PTRC1/Str
PROT/PTRC1/Tr
PROT/XCBR1/Pos
PROT/XCBR1/Pos
PROT/PTRC2/Str
PROT/PTRC2/Op
PROT/PTOC6/Mod
PROT/PTOC6/Beh
PROT/PTOC7/Mod
PROT/PTOC7/Beh
PROT/PTOC1/Mod
PROT/PTOC1/Beh
PROT/PTOC18/Mod
PROT/PTOC18/Beh
PROT/PTOC1/Beh
PROT/PTOC6/Mod
PROT/PTOC6/Beh
PROT/PTOC7/Mod
PROT/PTOC7/Beh
PROT/PTOC1/Mod
PROT/PTOC1/Beh
PROT/PTOC18/Mod
PROT/PTOC18/Beh
PROT/PTRC2/Str
PROT/PTRC2/Str
PROT/PTRC2/Str
PROT/PTOC18/Str
PROT/PTOC18/Op
PROT/PTOC7/Str
PROT/PTOC7/Op
PROT/PTOC6/Str
PROT/PTOC6/Op
PROT/PTOC1/Str
PROT/PTOC1/Op
PROT/PTOC8/Mod
PROT/PTOC8/Beh
PROT/PTOC9/Mod
PROT/PTOC9/Beh
PROT/PTOC2/Mod
PROT/PTOC2/Beh
PROT/PTOC8/Mod
PROT/PTOC8/Beh
PROT/PTOC9/Mod
PROT/PTOC9/Beh
PROT/PTOC2/Mod
PROT/PTOC2/Beh
PROT/PTRC2/Str
PROT/PTOC9/Str
PROT/PTOC9/Op

System interface IEC 61850(7)

No.	Group	Information	Type	S	D	X
01834	50/51 Overcur.	50N-1 picked up	OUT		X	
01836	50/51 Overcur.	50N-1 TRIP	OUT		X	
01837	50/51 Overcur.	51N picked up	OUT		X	
01839	50/51 Overcur.	51N TRIP	OUT		X	
06865	74TC TripCirc.	74TC Failure Trip Circuit	OUT		X	
01120	Fault Locator	Flt Locator: Distance [%] to fault	VI		X	
01451	50BF BkrFailure	50BF is switched OFF	OUT		X	
01456	50BF BkrFailure	50BF (internal) PICKUP	OUT		X	
01457	50BF BkrFailure	50BF (external) PICKUP	OUT		X	
01480	50BF BkrFailure	50BF (internal) TRIP	OUT		X	
01481	50BF BkrFailure	50BF (external) TRIP	OUT		X	
01494	50BF BkrFailure	50BF TRIP 2	OUT			X
	Cntrl Authority	Control Authority	DP		X	
	Cntrl Authority	Local Remoto Celda	DP		X	
	Control Device	52 Breaker	CF_D12	X		
	Control Device	52 Breaker	DP		X	
	Control Device	Disconnect Switch	CF_D2	X		
	Control Device	Disconnect Switch	DP		X	
	Control Device	Ground Switch	CF_D2	X		
	Control Device	Ground Switch	DP		X	
	Process Data	>CB ready Spring is charged	SP		X	
	Process Data	MCB VT	SP			X
	Process Data	>Error Control Voltage	SP		X	
	Process Data	>SF6-Loss	SP		X	
	Process Data	-S25	SP		X	
	Process Data	86T	SP		X	
00601	Measurement	Ia	MV		X	
00602	Measurement	Ib	MV		X	
00603	Measurement	Ic	MV		X	
00604	Measurement	In	MV		X	
00605	Measurement	I1 (positive sequence)	MV		X	

System interface IEC 61850(8)

IEC 61850 object
PROT/PTOC8/Str
PROT/PTOC8/Op
PROT/PTOC2/Str
PROT/PTOC2/Op
PROT/XCBR1/CirSpv
PROT/RFLO1/FltDisPrc
PROT/RBRF1/Mod PROT/RBRF1/Beh
PROT/RBRF1/Str
PROT/RBRF1/OpIn
PROT/RBRF1/OpEx
EXT/pdGGIO24/SPCSO22
CTRL/LLN0/Loc
CTRL/AlarmaGGIO1/DPCSO6
CTRL/Q0XCBR1 CTRL/Q0CSWI1 Circuit breaker Q0 OpCnt=
CTRL/Q0XCBR1 CTRL/Q0CSWI1 Circuit breaker Q0 OpCnt=
CTRL/Q1XSWI1 CTRL/Q1CSWI1 Disconnector Q1 OpCnt=
CTRL/Q1XSWI1 CTRL/Q1CSWI1 Disconnector Q1 OpCnt=
CTRL/Q8XSWI1 CTRL/Q8CSWI1 Ground switch Q8 OpCnt=
CTRL/Q8XSWI1 CTRL/Q8CSWI1 Ground switch Q8 OpCnt=
CTRL/AlarmaGGIO1/SPCSO2
EXT/pdGGIO513/SPCSO19
CTRL/AlarmaGGIO1/SPCSO3
CTRL/AlarmaGGIO1/SPCSO1
CTRL/AlarmaGGIO1/SPCSO5
CTRL/AlarmaGGIO1/SPCSO4
MEAS/MMXU1/A
MEAS/MMXU1/A
MEAS/MMXU1/A
MEAS/MMXU1/A
MEAS/MSQI1/SeqA

System interface IEC 61850(9)

No.	Group	Information	Type	S	D	X
00606	Measurement	I2 (negative sequence)	MV		X	
00831	Measurement	3Io (zero sequence)	MV		X	
00621	Measurement	Va	MV		X	
00622	Measurement	Vb	MV		X	
00623	Measurement	Vc	MV		X	
00624	Measurement	Va-b	MV		X	
00625	Measurement	Vb-c	MV		X	
00626	Measurement	Vc-a	MV		X	
00627	Measurement	VN	MV		X	
00629	Measurement	V1 (positive sequence)	MV		X	
00630	Measurement	V2 (negative sequence)	MV		X	
00641	Measurement	P (active power)	MV		X	
00642	Measurement	Q (reactive power)	MV		X	
00645	Measurement	S (apparent power)	MV		X	
00644	Measurement	Frequency	MV		X	
00832	Measurement	Vo (zero sequence)	MV		X	
00901	Measurement	Power Factor	MV		X	
00924	Energy	Wp Forward	MVMV		X	
00925	Energy	Wq Forward	MVMV		X	
00928	Energy	Wp Reverse	MVMV		X	
00929	Energy	Wq Reverse	MVMV		X	
01020	Statistics	Counter of operating hours	VI		X	
01021	Statistics	Accumulation of interrupted current Ph A	VI		X	
01022	Statistics	Accumulation of interrupted current Ph B	VI		X	
01023	Statistics	Accumulation of interrupted current Ph C	VI		X	
	Statistics	Number of TRIPs=	PMV		X	
	SIGNAL	TRIP 50BF	OUT		X	
	Grupo	Interruptor Acoplador	ExDP	X		
	Grupo	Desconectador 1 Acople	ExDP	X		
	Grupo	Desconectador 2 Acople	ExDP	X		
	Grupo	Interruptor Trafo Aux	ExDP	X		
	Grupo	Desconectador Trafo Aux	ExDP	X		

System interface IEC 61850(10)

IEC 61850 object
MEAS/MSQI1/SeqA
MEAS/MSQI1/SeqA
MEAS/MMXU1/PhV
MEAS/MMXU1/PhV
MEAS/MMXU1/PhV
MEAS/MMXU1/PPV
MEAS/MMXU1/PPV
MEAS/MMXU1/PPV
MEAS/MMXU1/PhV
MEAS/MSQI1/SeqV
MEAS/MSQI1/SeqV
MEAS/MMXU1/TotW
MEAS/MMXU1/TotVAr
MEAS/MMXU1/TotVA
MEAS/MMXU1/Hz
MEAS/MSQI1/SeqV
MEAS/MMXU1/TotPF
MEAS/MMTR1/SupWh
MEAS/MMTR1/SupVArh
MEAS/MMTR1/DmdWh
MEAS/MMTR1/DmdVArh
PROT/LLN0/OpTmh CTRL/LLN0/OpTmh
PROT/XCBR1/SumSwARs1
PROT/XCBR1/SumSwARs2
PROT/XCBR1/SumSwARs3
PROT/XCBR1/OpCnt
CTRL/AlarmaGGIO1/SPCSO7
CTRL/POSICGGIO1/DPCSO1
CTRL/POSICGGIO1/DPCSO2
CTRL/POSICGGIO1/DPCSO3
CTRL/POSICGGIO1/DPCSO4
CTRL/POSICGGIO1/DPCSO5

4 Interfaces

4.1 Serial interface on PC:

Address (operator interface device):	0
Frame:	
Baud rate:	0
COM interface:	12

Frame, Baud Rate and Address settings:

4.2 VD addresses

DIGSI VD address:	3
SIPROTEC VD address:	10010
Proxy VD address:	4
SIPROTEC T103 VD address:	0

4.3 Operator Interface

Address:	1
Frame:	8 E(ven) 1
Baud rate:	57600
Max. telegram gap (0...50):	0
IP address:	192.168.1.1
Subnet mask:	255.255.255.0
Link layer:	PPP (point-to-point, serial)

Access authorization at the port for parameterization: Enabled

Access authorization at the port for test and diagnosis: Enabled

Web Monitor operation:	Full access

4.4 Service interface

Address:	1
Frame:	8 E(ven) 1
Baud rate:	38400
Max. telegram gap (0...50):	0
IP address:	192.168.2.1
Subnet mask:	255.255.255.0
Link layer:	PPP via star coupler

Access authorization at the port for parameterization: Enabled

Access authorization at the port for test and diagnosis: Enabled

Web Monitor operation:	Reading

4.5 Ethernet on device

IP address:	172.16.200.35
Subnet mask:	255.255.255.0

Standard gateway:	172.16.200.1
Link layer:	Ethernet
Access authorization at the port for parameterization:	Enabled
Access authorization at the port for test and diagnosis:	Enabled
Web Monitor operation:	Reading
SNMP (Simple Network Management Protocol):	ON
Web server:	ON
IEC 61850:	ON
Supplementary protocol EN100 module:	ON
DIGSI via EN100 module:	ON

4.6 Redundancy

Operating mode:	Switch
Redundancy type:	RSTP
Monitoring time [s]:	2
Switch priority:	32768
Switch identifier:	2048
Deleting old messages after [s]:	40
Status dwell time [s]:	21
Priority vector:	128
Max. number of configuration messages:	100
Connection costs:	200000

4.7 Ethernet on PC

IP address:	10.248.24.223
Subnet mask:	255.255.255.0

5 Passwords

Number	Function	Active
1	Password for switching/selecting/updating	Enabled
2	Password for unlocked switching	Enabled
4	Password for testing and diagnostics	Enabled
6	Password for hardware test menus	Enabled
5	Password for single parameters	Enabled
7	Password for parameter set	Enabled
50	Switchgear password 1	Enabled
51	Switchgear password 2	Enabled
52	Switchgear password 3	Enabled
53	Switchgear password 4	Enabled
54	Switchgear password 5	Enabled
55	Switchgear password 6	Enabled
56	Switchgear password 7	Enabled
57	Switchgear password 8	Enabled
58	Switchgear password 9	Enabled
59	Switchgear password 10	Enabled
100	Serial-Login: Password for full access rights (Web Monitor)	Enabled
101	Serial-Login: Password for changing access rights (Web Monitor)	Enabled
102	Serial-Login: Password for read-only access rights (Web Monitor)	Enabled

6 Power System Data 1

6.1 Group Power System Data 1; Group Power System

Group Power System Data 1; Group Power System

No.	Settings	Value	Group
0214	Rated Frequency	50 Hz	All
0209	Phase Sequence	A B C	All
0276	Unit of temperature measurement	Degree Celsius	All
0201	CT Starpoint	towards Line	All
0280	Holmgreen-conn. (for fast sum-i-monit.)	NO	All
0251A	CT Connection	Ia, Ib, Ic, (IGnd)	All
0213	VT Connection, three-phase	Van, Vbn, Vcn	All
0240	VT Connection, single-phase	NO	All
0215	Distance measurement unit	km	All
0235A	Storage of th. Replicas w/o Power Supply	NO	All
0250A	50, 51 Time Overcurrent with 2ph. prot.	OFF	All

6.2 Group Power System Data 1; Group CT's

Group Power System Data 1; Group CT's

No.	Settings	Value	Group
0204	CT Rated Primary Current	500 A	All
0205	CT Rated Secondary Current	1A	All
0217	Ignd-CT rated primary current	500 A	All
0218	Ignd-CT rated secondary current	1A	All

6.3 Group Power System Data 1; Group VT's

Group Power System Data 1; Group VT's

No.	Settings	Value	Group
0202	Rated Primary Voltage	12,00 kV	All
0203	Rated Secondary Voltage (L-L)	120 V	All
0206A	Matching ratio Phase-VT To Open-Delta-VT	1,73	All

6.4 Group Power System Data 1; Group Breaker

Group Power System Data 1; Group Breaker

No.	Settings	Value	Group
0210A	Minimum TRIP Command Duration	0,15 sec	All
0211A	Maximum Close Command Duration	1,00 sec	All
0212	Closed Breaker Min. Current Threshold	0,10 A	All

6.5 Group Power System Data 1; Group Prot.Op. quant.

Group Power System Data 1; Group Prot.Op. quant.

No.	Settings	Value	Group
0613A	50N/51N/67N Ground Overcurrent with	3I0 (calculated)	All

7 Settings groups

7.1 Group Power System Data 2; Group General

Group Power System Data 2; Group General

No.	Settings	Value	Group
1101	Measurem:FullScaleVoltage(Equipm.rating)	12,00 kV	A
1102	Measurem:FullScaleCurrent(Equipm.rating)	500 A	A
1108	P,Q operational measured values sign	not reversed	A
1103	Zero seq. compensating factor RE/RL	1,00	A
1104	Zero seq. compensating factor XE/XL	1,00	A
1106	feeder reactance per km: x'	0,1500 Ohm / km	A
1109	Line angle	85 °	A
1110	Line length in kilometer	100,0 km	A

7.2 Group 50/51 Phase/Ground Overcurrent; Group General

Group 50/51 Phase/Ground Overcurrent; Group General

No.	Settings	Value	Group
1201	50, 51 Phase Time Overcurrent	ON	A
1213A	Manual Close Mode	50-2 instantaneously	A
1215A	50 Drop-Out Time Delay	0,00 sec	A
1301	50N, 51N Ground Time Overcurrent	ON	A
1313A	Manual Close Mode	50N-2 instantaneously	A
1315A	50N Drop-Out Time Delay	0,00 sec	A

7.3 Group 50/51 Phase/Ground Overcurrent; Group 50

Group 50/51 Phase/Ground Overcurrent; Group 50

No.	Settings	Value	Group
1219A	50-3 measurement of	Fundamental component	A
1216A	50-3 active	Always	A
1217	50-3 Pickup	oo A	A
1218	50-3 Time Delay	0,00 sec	A
1220A	50-2 measurement of	Fundamental component	A
1214A	50-2 active	Always	A
1202	50-2 Pickup	oo A	A
1203	50-2 Time Delay	0,00 sec	A
1221A	50-1 measurement of	Fundamental component	A

Group 50/51 Phase/Ground Overcurrent; Group 50(2)

No.	Settings	Value	Group
1204	50-1 Pickup	oo A	A
1205	50-1 Time Delay	0,00 sec	A

7.4 Group 50/51 Phase/Ground Overcurrent; Group 51

Group 50/51 Phase/Ground Overcurrent; Group 51

No.	Settings	Value	Group
1222A	51 measurement of	Fundamental component	A
1207	51 Pickup	0,56 A	A
1208	51 Time Dial	0,67 sec	A
1210	Drop-out characteristic	Instantaneous	A
1211	IEC Curve	Very Inverse	A
1223	51V Voltage Influence	NO	A
1224	51V V< Threshold for Release Ip	75,0 V	A

7.5 Group 50/51 Phase/Ground Overcurrent; Group 50N

Group 50/51 Phase/Ground Overcurrent; Group 50N

No.	Settings	Value	Group
1319A	50N-3 measurement of	Fundamental component	A
1316A	50N-3 active	Always	A
1317	50N-3 Pickup	oo A	A
1318	50N-3 Time Delay	0,00 sec	A
1320A	50N-2 measurement of	Fundamental component	A
1314A	50N-2 active	Always	A
1302	50N-2 Pickup	oo A	A
1303	50N-2 Time Delay	0,10 sec	A
1321A	50N-1 measurement of	Fundamental component	A
1304	50N-1 Pickup	0,10 A	A
1305	50N-1 Time Delay	8,00 sec	A

7.6 Group 50/51 Phase/Ground Overcurrent; Group 51N

Group 50/51 Phase/Ground Overcurrent; Group 51N

No.	Settings	Value	Group
1322A	51N measurement of	Fundamental component	A

Group 50/51 Phase/Ground Overcurrent; Group 51N(2)

No.	Settings	Value	Group
1307	51N Pickup	0,20 A	A
1308	51N Time Dial	0,43 sec	A
1310	Drop-Out Characteristic	Instantaneous	A
1311	IEC Curve	Normal Inverse	A

7.7 Group Measurement Supervision; Group General

Group Measurement Supervision; Group General

No.	Settings	Value	Group
5301	Fuse Fail Monitor	OFF	A
5310	Block protection by FFM	YES	A
8101	Measurement Supervision	ON	A

7.8 Group Measurement Supervision; Group Fuse Fail Mon.

Group Measurement Supervision; Group Fuse Fail Mon.

No.	Settings	Value	Group
5302	Zero Sequence Voltage	30 V	A
5303	Residual Current	0,10 A	A
5308A	Differential Current Threshold (3phase)	1,00 A	A

7.9 Group Measurement Supervision; Group MeasSupervision

Group Measurement Supervision; Group MeasSupervision

No.	Settings	Value	Group
8102	Voltage Threshold for Balance Monitoring	50 V	A
8103	Balance Factor for Voltage Monitor	0,75	A
8104	Current Threshold for Balance Monitoring	0,50 A	A
8105	Balance Factor for Current Monitor	0,50	A
8110A	T Balance Factor for Voltage Monitor	5 sec	A
8111A	T Current Balance Monitor	5 sec	A

7.10 Group 74TC Trip Circuit Supervision; Group General

Group 74TC Trip Circuit Supervision; Group General

No.	Settings	Value	Group
8201	74TC TRIP Circuit Supervision	ON	A

7.11 Group Fault Locator; Group General

Group Fault Locator; Group General

No.	Settings	Value	Group
8001	Start fault locator with	Pickup	A

7.12 Group 50BF Breaker Failure; Group General

Group 50BF Breaker Failure; Group General

No.	Settings	Value	Group
7001	50BF Breaker Failure Protection	ON	A

7.13 Group 50BF Breaker Failure; Group 50BF

Group 50BF Breaker Failure; Group 50BF

No.	Settings	Value	Group
7004	Check Breaker contacts	ON	A
7005	TRIP-Timer	oo sec	A
7006	50BF Pickup current threshold	0,10 A	A
7008	Delay of 2nd stage for busbar trip	0,20 sec	A

7.14 Group Demand Measurement Setup; Group Measurement

Group Demand Measurement Setup; Group Measurement

No.	Settings	Value	Group
8301	Demand Calculation Intervals	60 Min per., 1 Sub.	A
8302	Demand Synchronization Time	On the Hour	A

7.15 Group Min/Max Measurement Setup; Group Measurement

Group Min/Max Measurement Setup; Group Measurement

No.	Settings	Value	Group
8311	Automatic Cyclic Reset Function	YES	A
8312	MinMax Reset Timer	0 min	A
8313	MinMax Reset Cycle Period	7 day(s)	A
8314	MinMax Start Reset Cycle in	1 Days	A

7.16 Group Energy; Group Measurement

Group Energy; Group Measurement

No.	Settings	Value	Group
8315	Meter resolution	Standard	A

8 Time Synchronization

Source of time synchronization: Ethernet NTP

Fault indication after: 2 Min.

Time format for display German

Offset to time signal: 00:00

No daylight saving time switchover

Daylight saving time offset to GMT: -04:00

Start of daylight saving time: Second Saturday in March at 00:00 o'clock

End of daylight saving time: Second Saturday in March at 00:00 o'clock

Time zone offset to GMT: 00:00

9 Annunciation

9.1 Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)

Number	Indication	Value	Date and time
01431	>50BF initiated externally	OFF	30.11.2024 19:14:05.163
00301	Power System fault	644 - OFF	30.11.2024 19:14:05.155
04602	>52-b contact (OPEN, if bkr is closed)	ON	30.11.2024 19:14:05.088
06853	>74TC Trip circuit superv.: brk relay	ON	30.11.2024 19:14:05.088
	52 Breaker	OPEN	30.11.2024 19:14:05.088
04601	>52-a contact (OPEN, if bkr is open)	OFF	30.11.2024 19:14:05.072
	52 Breaker	Intermediate Position	30.11.2024 19:14:05.072
	CB CLOSE 1	OFF	30.11.2024 19:14:05.072
06852	>74TC Trip circuit superv.: trip relay	OFF	30.11.2024 19:14:05.027
	86T	ON	30.11.2024 19:14:05.013
01431	>50BF initiated externally	ON	30.11.2024 19:14:05.013
00301	Power System fault	644 - ON	30.11.2024 19:13:57.015
00301	Power System fault	643 - OFF	30.11.2024 19:13:24.324
00301	Power System fault	643 - ON	30.11.2024 19:13:24.283
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:13:17.446
00301	Power System fault	642 - OFF	30.11.2024 19:13:17.206
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:13:16.847
00301	Power System fault	642 - ON	30.11.2024 19:13:16.018
00301	Power System fault	641 - OFF	30.11.2024 19:13:15.875
00301	Power System fault	641 - ON	30.11.2024 19:13:15.481
00301	Power System fault	640 - OFF	30.11.2024 19:10:02.366
00301	Power System fault	640 - ON	30.11.2024 19:10:01.207
00301	Power System fault	639 - OFF	30.11.2024 19:10:01.114
00301	Power System fault	639 - ON	30.11.2024 19:10:00.982
00301	Power System fault	638 - OFF	30.11.2024 19:10:00.965
00301	Power System fault	638 - ON	30.11.2024 19:10:00.241

Event Log - 30-11-2024   19:26:00.204 (SIGNALS\OPSIG.SFP)(2)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(3)

Number	Indication	Value	Date and time
00285	Set Point 55 Power factor alarm	OFF	30.11.2024 19:08:43.246
00285	Set Point 55 Power factor alarm	ON	30.11.2024 19:08:42.646
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:08:35.446
00301	Power System fault	637 - OFF	30.11.2024 19:08:35.325
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:08:34.846
00301	Power System fault	637 - ON	30.11.2024 19:08:34.332
00301	Power System fault	636 - OFF	30.11.2024 19:08:34.325
00301	Power System fault	636 - ON	30.11.2024 19:08:33.992
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:58:25.846
00301	Power System fault	635 - OFF	30.11.2024 18:58:25.487
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:58:25.246
00301	Power System fault	635 - ON	30.11.2024 18:58:24.362
00301	Power System fault	634 - OFF	30.11.2024 18:56:34.445
00301	Power System fault	634 - ON	30.11.2024 18:56:33.232
00301	Power System fault	633 - OFF	30.11.2024 18:56:32.425
00301	Power System fault	633 - ON	30.11.2024 18:56:31.498
00301	Power System fault	632 - OFF	30.11.2024 18:56:30.846
00301	Power System fault	632 - ON	30.11.2024 18:56:29.748
00301	Power System fault	631 - OFF	30.11.2024 18:44:32.735
00301	Power System fault	631 - ON	30.11.2024 18:44:31.534
00301	Power System fault	630 - OFF	30.11.2024 18:44:28.075
00301	Power System fault	630 - ON	30.11.2024 18:44:27.598
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:44:18.046
00301	Power System fault	629 - OFF	30.11.2024 18:44:17.715
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:44:17.446

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(4)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(5)

Number	Indication	Value	Date and time
00301	Power System fault	629 - ON	30.11.2024 18:44:16.593
00301	Power System fault	628 - OFF	30.11.2024 18:44:06.964
00301	Power System fault	628 - ON	30.11.2024 18:44:06.897
00301	Power System fault	627 - OFF	30.11.2024 18:44:06.805
00301	Power System fault	627 - ON	30.11.2024 18:44:06.318
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:32:36.646
00301	Power System fault	626 - OFF	30.11.2024 18:32:36.485
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:32:36.046
00301	Power System fault	626 - ON	30.11.2024 18:32:35.331
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:39.646
00301	Power System fault	625 - OFF	30.11.2024 18:16:39.087
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:38.446
00301	Power System fault	625 - ON	30.11.2024 18:16:38.016
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:30.046
00301	Power System fault	624 - OFF	30.11.2024 18:16:29.627
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:29.447
00301	Power System fault	624 - ON	30.11.2024 18:16:28.530
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:13.943
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:12.043
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:11.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:09.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:23.243
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:21.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:16.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:15.243

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(6)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(7)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:12.543
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:10.644
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:09.643
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:07.843
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:42.143
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:40.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:39.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:37.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:26.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:24.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:19.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:18.243
00285	Set Point 55 Power factor alarm	OFF	21.11.2024 04:20:42.646
00301	Power System fault	623 - OFF	21.11.2024 04:20:41.793
00301	Power System fault	623 - ON	21.11.2024 04:20:41.762
00285	Set Point 55 Power factor alarm	ON	21.11.2024 04:20:22.846
	Setting Group A is active	ON	21.11.2024 04:20:03.437
	Setting Group B is active	OFF	21.11.2024 04:20:03.437
	Interruptor Acoplador	OPEN	21.11.2024 04:20:03.137
	Interruptor Acoplador	Intermediate Position	21.11.2024 04:20:03.122
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:40:04.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:40:02.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:39:58.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:39:56.443
009.0100.01	Failure EN100 Modul	OFF	19.11.2024 08:54:39.024

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(8)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(9)

Number	Indication	Value	Date and time
00068	Clock Synchronization Error	OFF	19.11.2024 08:54:36.978
06863	74TC Trip circuit supervision is ACTIVE	ON	19.11.2024 08:54:38.768
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 08:54:30.968
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.11.2024 08:54:30.968
00284	Set Point 37-1 Undercurrent alarm	ON	19.11.2024 08:54:29.572
00272	Set Point Operating Hours	ON	19.11.2024 08:54:29.571
00052	At Least 1 Protection Funct. is Active	ON	19.11.2024 08:54:29.368
01453	50BF is ACTIVE	ON	19.11.2024 08:54:29.368
01758	50N/51N is ACTIVE	ON	19.11.2024 08:54:29.368
01753	50/51 O/C is ACTIVE	ON	19.11.2024 08:54:29.368
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 08:54:29.068
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.11.2024 08:54:29.068
00051	Device is Operational and Protecting	ON	19.11.2024 08:54:28.975
	CB CLOSE 1	ON	19.11.2024 08:54:28.874
	DSC ON	ON	19.11.2024 08:54:28.874
	-S25	ON	19.11.2024 08:54:28.874
	Remote	ON	19.11.2024 08:54:28.874
04601	>52-a contact (OPEN, if bkr is open)	ON	19.11.2024 08:54:28.874
06852	>74TC Trip circuit superv.: trip relay	ON	19.11.2024 08:54:28.874
00067	Resume	ON	19.11.2024 08:54:28.828
00055	Reset Device	ON	19.11.2024 08:54:28.828
05147	Phase rotation ABC	ON	19.11.2024 08:54:28.868
009.0100.01	Failure EN100 Modul	ON	19.11.2024 08:54:28.872
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:13.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:11.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:10.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:08.966
	Setting Group B is active	ON	18.11.2024 04:00:27.743

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(10)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(11)

Number	Indication	Value	Date and time
	Setting Group A is active	OFF	18.11.2024 04:00:27.743
00301	Power System fault	622 - OFF	18.11.2024 04:00:27.497
00301	Power System fault	622 - ON	18.11.2024 04:00:27.445
	Interruptor Acoplador	CLOSE	18.11.2024 04:00:27.428
	Interruptor Acoplador	Intermediate Position	18.11.2024 04:00:27.415
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:44.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:43.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:38.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:36.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:57.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:55.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:54.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:53.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:42.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:40.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:36.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:34.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:29.466
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:27.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:23.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:21.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:39.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:38.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:37.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:35.366

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(12)

Cause	State
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(13)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:43.966
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:42.166
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:41.266
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:39.366
00301	Power System fault	621 - OFF	27.10.2024 10:32:26.177
00301	Power System fault	621 - ON	27.10.2024 10:32:26.139
00301	Power System fault	620 - OFF	27.10.2024 10:32:26.137
00301	Power System fault	620 - ON	27.10.2024 10:32:26.099
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:38.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:36.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:35.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:33.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:09.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:07.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:03.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:01.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:24.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:22.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:17.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:16.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:49.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:47.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:46.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:45.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:46.466

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(14)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(15)

Number	Indication	Value	Date and time
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:44.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:39.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:38.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:57.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:55.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:54.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:52.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:22:01.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:22:00.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:21:55.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:21:53.666
00068	Clock Synchronization Error	OFF	25.09.2024 21:39:58.267
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.09.2024 21:39:59.108
00301	Power System fault	619 - OFF	21.09.2024 18:22:57.789
00301	Power System fault	619 - ON	21.09.2024 18:22:57.715
00068	Clock Synchronization Error	ON	19.09.2024 06:50:22.008
009.0100.01	Failure EN100 Modul	OFF	19.09.2024 06:48:36.922
06863	74TC Trip circuit supervision is ACTIVE	ON	19.09.2024 06:48:25.808
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.09.2024 06:48:18.008
00284	Set Point 37-1 Undercurrent alarm	ON	19.09.2024 06:48:16.612
00272	Set Point Operating Hours	ON	19.09.2024 06:48:16.610

9.2 General Interrogation - 30-11-2024 19:26:01.339

nothing allocated

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(16)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

9.3 Spontaneous Annunciation - 30-11-2024 19:26:01.339

Spontaneous Annunciation - 30-11-2024 19:26:01.339

Number	Indication	Value	Date and time	Cause	State
00055	Reset Device	ON	30.11.2024 22:01:33.843	Spontaneous	
	Clock Synchronization	ON	30.11.2024 22:02:28.603	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:03:28.683	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:04:28.762	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:05:28.840	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:06:28.919	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:07:28.998	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:08:29.077	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:09:29.154	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:10:29.233	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:11:29.312	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:12:29.390	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:13:29.469	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:14:29.548	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:15:29.626	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:16:29.706	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:17:29.786	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:18:29.864	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:19:29.943	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:20:30.022	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:21:30.103	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:22:30.180	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:23:30.260	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:24:30.338	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:25:30.416	Spontaneous Command Issued=SICAM	

9.4 Statistics - 30-11-2024 19:26:01.349 (MEASURED\STAT.SFP)

Statistics - 30-11-2024 19:26:01.349 (MEASURED\STAT.SFP)

Number	Measured value	Value
01021	Accumulation of interrupted current Ph A	2,32 kA
01022	Accumulation of interrupted current Ph B	2,94 kA
01023	Accumulation of interrupted current Ph C	2,92 kA
	Number of TRIPs=	0
01020	Counter of operating hours	29589 hour
31000	Q0 operationcounter=	38
31001	Q1 operationcounter=	68
31008	Q8 operationcounter=	68

9.5 Set Points (Statistic) - 30-11-2024 19:26:01.939 (MEASURED\STGR.SFP)

Set Points (Statistic) - 30-11-2024 19:26:01.939 (MEASURED\STGR.SFP)

Number	Measured value	Value
	Operating hours greater than	10000 hour

10 Measurement

10.1 Operational values, primary - 30-11-2024 19:26:02.459 (MEASURED\MW01.SFP)

Operational values, primary - 30-11-2024 19:26:02.459 (MEASURED\MW01.SFP)

Number	Measured value	Value
00601	Ia	0 A
00602	Ib	0 A
00603	Ic	0 A
00604	In	0 A
00831	3Io (zero sequence)	0 A
00605	I1 (positive sequence)	0 A
00606	I2 (negative sequence)	0 A
00621	Va	7,1 kV
00622	Vb	7,1 kV
00623	Vc	7,1 kV
00624	Va-b	12,3 kV
00625	Vb-c	12,4 kV
00626	Vc-a	12,3 kV
00627	VN	0,0 kV
00832	Vo (zero sequence)	0,0 kV
00629	V1 (positive sequence)	7,1 kV
00630	V2 (negative sequence)	0,0 kV
00641	P (active power)	0,0 MW
00642	Q (reactive power)	0,0 MVAR
00645	S (apparent power)	0,0 MVA
00901	Power Factor	-----
00644	Frequency	49,9 Hz

10.2 Power values, primary - 30-11-2024 19:26:03.065 (MEASURED\MW15.SFP)

Power values, primary - 30-11-2024 19:26:03.065 (MEASURED\MW15.SFP)

Number	Measured value	Value
30701	Pa (active power, phase A)	0,0 MW
30702	Pb (active power, phase B)	0,0 MW
30703	Pc (active power, phase C)	0,0 MW
00641	P (active power)	0,0 MW
30704	Qa (reactive power, phase A)	0,0 MVAR
30705	Qb (reactive power, phase B)	0,0 MVAR
30706	Qc (reactive power, phase C)	0,0 MVAR
00642	Q (reactive power)	0,0 MVAR
00645	S (apparent power)	0,0 MVA
30707	Power Factor, phase A	-----
30708	Power Factor, phase B	-----
30709	Power Factor, phase C	-----
00901	Power Factor	-----

10.3 Operational values, secondary - 30-11-2024 19:26:03.498 (MEASURED\MW02.SFP)

Operational values, secondary - 30-11-2024 19:26:03.498 (MEASURED\MW02.SFP)

Number	Measured value	Value
00601	Ia	0,00 A
00602	Ib	0,00 A
00603	Ic	0,00 A
00604	In	0,00 A
00831	3Io (zero sequence)	0,00 A
00605	I1 (positive sequence)	0,00 A
00606	I2 (negative sequence)	0,00 A
00621	Va	71 V
00622	Vb	71 V
00623	Vc	71 V
00624	Va-b	123 V
00625	Vb-c	124 V
00626	Vc-a	123 V
00627	VN	0 V
00832	Vo (zero sequence)	0 V
00629	V1 (positive sequence)	71 V
00630	V2 (negative sequence)	0 V

10.4 Operational Percent - 30-11-2024 19:26:03.977 (MEASURED\MW03.SFP)

Operational Percent - 30-11-2024 19:26:03.977 (MEASURED\MW03.SFP)

Number	Measured value	Value
00601	Ia	0,0 %
00602	Ib	0,0 %
00603	Ic	0,0 %
00604	In	0,0 %
00831	3Io (zero sequence)	0,0 %
00605	I1 (positive sequence)	0,0 %
00606	I2 (negative sequence)	0,0 %
00621	Va	102,5 %
00622	Vb	103,0 %
00623	Vc	102,7 %
00624	Va-b	102,8 %
00625	Vb-c	103,0 %
00626	Vc-a	102,4 %
00627	VN	0,0 %
00832	Vo (zero sequence)	0,0 %
00629	V1 (positive sequence)	102,8 %
00630	V2 (negative sequence)	0,0 %
00641	P (active power)	0,0 %
00642	Q (reactive power)	0,0 %
00645	S (apparent power)	0,0 %

10.5 Demand - 30-11-2024 19:26:04.430 (MEASURED\MW06.SFP)

Demand - 30-11-2024 19:26:04.430 (MEASURED\MW06.SFP)

Number	Measured value	Value
00963	I A demand	0 A
00964	I B demand	0 A
00965	I C demand	0 A
00833	I1 (positive sequence) Demand	0 A
00834	Active Power Demand	0,0 MW
00835	Reactive Power Demand	0,0 MVAR
00836	Apparent Power Demand	0,0 MVA

10.6 V/I,Min/Max - 30-11-2024 19:26:04.941 (MEASURED\MW07.SFP)

V/I,Min/Max - 30-11-2024 19:26:04.941 (MEASURED\MW07.SFP)

Number	Measured value	Value	Date and time
00851	Ia Min	0 A	30.11.2024 19:14:05.445
00852	Ia Max	545 A	30.11.2024 18:16:39.046
00853	Ib Min	0 A	30.11.2024 19:14:05.445
00854	Ib Max	528 A	30.11.2024 19:13:16.846
00855	Ic Min	0 A	30.11.2024 19:14:05.445
00856	Ic Max	578 A	30.11.2024 18:16:39.046
00857	I1 (positive sequence) Minimum	0 A	30.11.2024 19:14:05.445
00858	I1 (positive sequence) Maximum	546 A	30.11.2024 18:16:39.046
00859	Va-n Min	6,2 kV	30.11.2024 18:16:28.846
00860	Va-n Max	7,3 kV	29.11.2024 09:26:57.645
00861	Vb-n Min	6,5 kV	30.11.2024 19:13:16.846
00862	Vb-n Max	7,3 kV	29.11.2024 09:28:31.246
00863	Vc-n Min	6,4 kV	30.11.2024 19:13:16.846
00864	Vc-n Max	7,3 kV	29.11.2024 09:58:33.645
00865	Va-b Min	11,1 kV	30.11.2024 18:16:39.046
00867	Va-b Max	12,6 kV	29.11.2024 09:28:33.645
00868	Vb-c Min	11,2 kV	30.11.2024 19:13:16.846
00869	Vb-c Max	12,6 kV	29.11.2024 09:28:37.245
00870	Vc-a Min	11,0 kV	30.11.2024 18:16:39.046
00871	Vc-a Max	12,6 kV	29.11.2024 09:58:33.045
00872	V neutral Min	0,0 kV	28.11.2024 00:00:00.945
00873	V neutral Max	0,1 kV	30.11.2024 19:14:03.645
00874	V1 (positive sequence) Voltage Minimum	6,4 kV	30.11.2024 19:13:16.846
00875	V1 (positive sequence) Voltage Maximum	7,3 kV	29.11.2024 09:27:13.246

10.7 P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP)

P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP)

Number	Measured value	Value	Date and time
00876	Active Power Minimum	-9,3 MW	30.11.2024 18:16:39.046

P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP)(2)

Number	Measured value	Value	Date and time
00877	Active Power Maximum	-0,4 MW	30.11.2024 19:10:03.046
00878	Reactive Power Minimum	-5,1 MVAR	30.11.2024 18:16:39.046
00879	Reactive Power Maximum	-0,1 MVAR	29.11.2024 05:02:49.846
00880	Apparent Power Minimum	0,0 MVA	30.11.2024 19:14:05.445
00881	Apparent Power Maximum	10,6 MVA	30.11.2024 18:16:39.046
00882	Frequency Minimum	49,7 Hz	28.11.2024 09:35:12.645
00883	Frequency Maximum	50,3 Hz	30.11.2024 10:41:52.246
00885	Power Factor Minimum	-0,98	28.11.2024 00:02:06.645
00884	Power Factor Maximum	-0,76	30.11.2024 19:08:42.646

10.8 Min/Max Demand - 30-11-2024 19:26:06.015 (MEASURED\MW09.SFP)

Min/Max Demand - 30-11-2024 19:26:06.015 (MEASURED\MW09.SFP)

Number	Measured value	Value	Date and time
00837	I A Demand Minimum	0 A	30.11.2024 21:00:00.045
00838	I A Demand Maximum	91 A	29.11.2024 19:00:00.046
00839	I B Demand Minimum	0 A	30.11.2024 21:00:00.045
00840	I B Demand Maximum	84 A	30.11.2024 18:00:00.046
00841	I C Demand Minimum	0 A	30.11.2024 21:00:00.045
00842	I C Demand Maximum	80 A	29.11.2024 19:00:00.046
00843	I1 (positive sequence) Demand Minimum	0 A	30.11.2024 21:00:00.045
00844	I1 (positive sequence) Demand Maximum	85 A	29.11.2024 19:00:00.046
00845	Active Power Demand Minimum	-1,8 MW	29.11.2024 18:00:00.046
00846	Active Power Demand Maximum	0,0 MW	30.11.2024 21:00:00.045
00847	Reactive Power Demand Minimum	-0,4 MVAR	29.11.2024 19:00:00.046
00848	Reactive Power Demand Maximum	0,0 MVAR	30.11.2024 21:00:00.045
00849	Apparent Power Demand Minimum	0,0 MVA	30.11.2024 21:00:00.045
00850	Apparent Power Demand Maximum	1,8 MVA	29.11.2024 18:00:00.046

10.9 User Defined - 30-11-2024 19:26:06.454 (MEASURED\MW11.SFP)

nothing allocated

10.10 Energy - 30-11-2024 19:26:06.946 (MEASURED\MW12.SFP)

Energy - 30-11-2024 19:26:06.946 (MEASURED\MW12.SFP)

Number	Measured value	Value
00924	Wp Forward	0 MWh
00925	Wq Forward	162 MVARh
00928	Wp Reverse	46237 MWh
00929	Wq Reverse	6148 MVARh
00888	Pulsed Energy Wp (active)	0,0 MWh
00889	Pulsed Energy Wq (reactive)	0,0 MVARh

10.11 Set Points (Measured Values) - 30-11-2024 19:26:07.406 (MEASURED\MW13.SFP)

Set Points (Measured Values) - 30-11-2024 19:26:07.406 (MEASURED\MW13.SFP)

Number	Measured value	Value
	37-1 under current	80,0 %
	I A dmd>	120,0 %
	I B dmd>	120,0 %
	I C dmd>	120,0 %
	I1dmd>	120,0 %
	|Pdmd|>	120,0 %
	|Qdmd|>	120,0 %
	|Sdmd|>	120,0 %
	|Power Factor|<	0,8

Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12

MLFB:	7SJ64115EE923FG7----0S----------
Parameter-set version:	V04.90.05
Device path:	C:\Siemens\DIGSI4\D4PROJ\Queltehu\P7DI\GV\SD\0000000d
Author:	
Creation date:	21.08.18 14:14:00
Last modified:	30.11.24 18:51:29
Operating mode:	Online
Comment:	
Setting values in:	Secondary value description

PRINT - CONTENTS

1 Indications 2
1.1 Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05 2

1 Indications

1.1 Event Log - 30-11-2024 - Quelthues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Event Log - 30-11-2024 - Quelthues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Number	Indication	Value	Date and time
01431	>50BF initiated externally	OFF	30.11.2024 19:14:05.163
00301	Power System fault	644 - OFF	30.11.2024 19:14:05.155
04602	>52-b contact (OPEN, if bkr is closed)	ON	30.11.2024 19:14:05.088
06853	>74TC Trip circuit superv.: brk relay	ON	30.11.2024 19:14:05.088
	52 Breaker	OPEN	30.11.2024 19:14:05.088
04601	>52-a contact (OPEN, if bkr is open)	OFF	30.11.2024 19:14:05.072
	52 Breaker	Intermediate Position	30.11.2024 19:14:05.072
	CB CLOSE 1	OFF	30.11.2024 19:14:05.072
06852	>74TC Trip circuit superv.: trip relay	OFF	30.11.2024 19:14:05.027
	86T	ON	30.11.2024 19:14:05.013
01431	>50BF initiated externally	ON	30.11.2024 19:14:05.013
00301	Power System fault	644 - ON	30.11.2024 19:13:57.015
00301	Power System fault	643 - OFF	30.11.2024 19:13:24.324
00301	Power System fault	643 - ON	30.11.2024 19:13:24.283
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:13:17.446
00301	Power System fault	642 - OFF	30.11.2024 19:13:17.206
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:13:16.847
00301	Power System fault	642 - ON	30.11.2024 19:13:16.018
00301	Power System fault	641 - OFF	30.11.2024 19:13:15.875
00301	Power System fault	641 - ON	30.11.2024 19:13:15.481
00301	Power System fault	640 - OFF	30.11.2024 19:10:02.366
00301	Power System fault	640 - ON	30.11.2024 19:10:01.207
00301	Power System fault	639 - OFF	30.11.2024 19:10:01.114
00301	Power System fault	639 - ON	30.11.2024 19:10:00.982
00301	Power System fault	638 - OFF	30.11.2024 19:10:00.965
00301	Power System fault	638 - ON	30.11.2024 19:10:00.241

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(2)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteheus_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(3)

Number	Indication	Value	Date and time
00285	Set Point 55 Power factor alarm	OFF	30.11.2024 19:08:43.246
00285	Set Point 55 Power factor alarm	ON	30.11.2024 19:08:42.646
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:08:35.446
00301	Power System fault	637 - OFF	30.11.2024 19:08:35.325
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:08:34.846
00301	Power System fault	637 - ON	30.11.2024 19:08:34.332
00301	Power System fault	636 - OFF	30.11.2024 19:08:34.325
00301	Power System fault	636 - ON	30.11.2024 19:08:33.992
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:58:25.846
00301	Power System fault	635 - OFF	30.11.2024 18:58:25.487
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:58:25.246
00301	Power System fault	635 - ON	30.11.2024 18:58:24.362
00301	Power System fault	634 - OFF	30.11.2024 18:56:34.445
00301	Power System fault	634 - ON	30.11.2024 18:56:33.232
00301	Power System fault	633 - OFF	30.11.2024 18:56:32.425
00301	Power System fault	633 - ON	30.11.2024 18:56:31.498
00301	Power System fault	632 - OFF	30.11.2024 18:56:30.846
00301	Power System fault	632 - ON	30.11.2024 18:56:29.748
00301	Power System fault	631 - OFF	30.11.2024 18:44:32.735
00301	Power System fault	631 - ON	30.11.2024 18:44:31.534
00301	Power System fault	630 - OFF	30.11.2024 18:44:28.075
00301	Power System fault	630 - ON	30.11.2024 18:44:27.598
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:44:18.046
00301	Power System fault	629 - OFF	30.11.2024 18:44:17.715
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:44:17.446

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(4)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(5)

Number	Indication	Value	Date and time
00301	Power System fault	629 - ON	30.11.2024 18:44:16.593
00301	Power System fault	628 - OFF	30.11.2024 18:44:06.964
00301	Power System fault	628 - ON	30.11.2024 18:44:06.897
00301	Power System fault	627 - OFF	30.11.2024 18:44:06.805
00301	Power System fault	627 - ON	30.11.2024 18:44:06.318
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:32:36.646
00301	Power System fault	626 - OFF	30.11.2024 18:32:36.485
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:32:36.046
00301	Power System fault	626 - ON	30.11.2024 18:32:35.331
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:39.646
00301	Power System fault	625 - OFF	30.11.2024 18:16:39.087
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:38.446
00301	Power System fault	625 - ON	30.11.2024 18:16:38.016
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:30.046
00301	Power System fault	624 - OFF	30.11.2024 18:16:29.627
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:29.447
00301	Power System fault	624 - ON	30.11.2024 18:16:28.530
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:13.943
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:12.043
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:11.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:09.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:23.243
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:21.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:16.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:15.243

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(6)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(7)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:12.543
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:10.644
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:09.643
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:07.843
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:42.143
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:40.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:39.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:37.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:26.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:24.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:19.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:18.243
00285	Set Point 55 Power factor alarm	OFF	21.11.2024 04:20:42.646
00301	Power System fault	623 - OFF	21.11.2024 04:20:41.793
00301	Power System fault	623 - ON	21.11.2024 04:20:41.762
00285	Set Point 55 Power factor alarm	ON	21.11.2024 04:20:22.846
	Setting Group A is active	ON	21.11.2024 04:20:03.437
	Setting Group B is active	OFF	21.11.2024 04:20:03.437
	Interruptor Acoplador	OPEN	21.11.2024 04:20:03.137
	Interruptor Acoplador	Intermediate Position	21.11.2024 04:20:03.122
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:40:04.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:40:02.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:39:58.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:39:56.443
009.0100.01	Failure EN100 Modul	OFF	19.11.2024 08:54:39.024

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(8)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(9)

Number	Indication	Value	Date and time
00068	Clock Synchronization Error	OFF	19.11.2024 08:54:36.978
06863	74TC Trip circuit supervision is ACTIVE	ON	19.11.2024 08:54:38.768
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 08:54:30.968
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.11.2024 08:54:30.968
00284	Set Point 37-1 Undercurrent alarm	ON	19.11.2024 08:54:29.572
00272	Set Point Operating Hours	ON	19.11.2024 08:54:29.571
00052	At Least 1 Protection Funct. is Active	ON	19.11.2024 08:54:29.368
01453	50BF is ACTIVE	ON	19.11.2024 08:54:29.368
01758	50N/51N is ACTIVE	ON	19.11.2024 08:54:29.368
01753	50/51 O/C is ACTIVE	ON	19.11.2024 08:54:29.368
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 08:54:29.068
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.11.2024 08:54:29.068
00051	Device is Operational and Protecting	ON	19.11.2024 08:54:28.975
	CB CLOSE 1	ON	19.11.2024 08:54:28.874
	DSC ON	ON	19.11.2024 08:54:28.874
	-S25	ON	19.11.2024 08:54:28.874
	Remote	ON	19.11.2024 08:54:28.874
04601	>52-a contact (OPEN, if bkr is open)	ON	19.11.2024 08:54:28.874
06852	>74TC Trip circuit superv.: trip relay	ON	19.11.2024 08:54:28.874
00067	Resume	ON	19.11.2024 08:54:28.828
00055	Reset Device	ON	19.11.2024 08:54:28.828
05147	Phase rotation ABC	ON	19.11.2024 08:54:28.868
009.0100.01	Failure EN100 Modul	ON	19.11.2024 08:54:28.872
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:13.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:11.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:10.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:08.966
	Setting Group B is active	ON	18.11.2024 04:00:27.743

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(10)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(11)

Number	Indication	Value	Date and time
	Setting Group A is active	OFF	18.11.2024 04:00:27.743
00301	Power System fault	622 - OFF	18.11.2024 04:00:27.497
00301	Power System fault	622 - ON	18.11.2024 04:00:27.445
	Interruptor Acoplador	CLOSE	18.11.2024 04:00:27.428
	Interruptor Acoplador	Intermediate Position	18.11.2024 04:00:27.415
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:44.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:43.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:38.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:36.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:57.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:55.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:54.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:53.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:42.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:40.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:36.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:34.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:29.466
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:27.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:23.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:21.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:39.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:38.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:37.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:35.366

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(12)

Cause	State
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(13)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:43.966
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:42.166
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:41.266
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:39.366
00301	Power System fault	621 - OFF	27.10.2024 10:32:26.177
00301	Power System fault	621 - ON	27.10.2024 10:32:26.139
00301	Power System fault	620 - OFF	27.10.2024 10:32:26.137
00301	Power System fault	620 - ON	27.10.2024 10:32:26.099
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:38.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:36.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:35.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:33.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:09.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:07.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:03.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:01.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:24.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:22.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:17.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:16.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:49.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:47.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:46.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:45.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:46.466

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(14)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(15)

Number	Indication	Value	Date and time
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:44.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:39.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:38.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:57.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:55.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:54.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:52.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:22:01.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:22:00.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:21:55.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:21:53.666
00068	Clock Synchronization Error	OFF	25.09.2024 21:39:58.267
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.09.2024 21:39:59.108
00301	Power System fault	619 - OFF	21.09.2024 18:22:57.789
00301	Power System fault	619 - ON	21.09.2024 18:22:57.715
00068	Clock Synchronization Error	ON	19.09.2024 06:50:22.008
009.0100.01	Failure EN100 Modul	OFF	19.09.2024 06:48:36.922
06863	74TC Trip circuit supervision is ACTIVE	ON	19.09.2024 06:48:25.808
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.09.2024 06:48:18.008
00284	Set Point 37-1 Undercurrent alarm	ON	19.09.2024 06:48:16.612
00272	Set Point Operating Hours	ON	19.09.2024 06:48:16.610

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(16)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

INFORME DE FALLA

REQUERIMIENTO NORMA TÉCNICA DE SyCS

INFORME (s) QUINTO DÍA Nº: **IF 2024005311**	FECHA DE FALLA: 30 de 11 de 2024
INSTALACIÓN (ES) SE QUELTEHUES	

1. CAUSA U ORIGEN DE LA FALLA: falla aguas arriba del sistema de distribución.

1.1. Fecha y hora de la Falla:

Fecha	**30 de Noviembre 2024**
Hora	16:38

1.2. Localización de la falla en Instalaciones de Transmisión.

1.2.1. Nombre de subestación con pérdida de suministro.

SE Queltehues

1.3. Datos de la Empresa.

Nombre Empresa: Compañía General de Electricidad S.A
RUT: 76.411.321-7
Representante Legal: (Gerente General vigente a la fecha de envío).
Dirección: Av. Presidente Riesco N° 5561 P14, las Condes, Santiago, Chile.

INFORME DE FALLA

REQUERIMIENTO NORMA TÉCNICA DE SyCS

INFORME (s) QUINTO DÍA Nº: **IF 2024005311**	FECHA DE FALLA: 30 de 11 de 2024
INSTALACIÓN (ES) SE QUELTEHUES	

2. POTENCIA INTERRUMPIDA DE CLIENTES FINALES.

Subestación	Transformador	Alimentador		MW	Horario		Bloque	Clientes Afectados	kVa afectados	Distribuidora	Comunas	Urbano / Rural	N° Incidencia Centrality	Observación
	(Primario)	Nombre	Nema		Desconexión	Normalización			(potencia instalda Dx)					
Queltehues	T5	Volcan	52C1	0,007	30/11/2024 16:38	30/11/2024 21:53	1	17	1505	CGE	SAN JOSÉ DE MAIPO	RURAL	30241024869	Recuperado el 100% de los consumos.
		Bocatoma	52C2	0,003	30/11/2024 16:38	30/11/2024 21:53	1	5	245	CGE	SAN JOSÉ DE MAIPO	RURAL	30241024869	Recuperado el 100% de los consumos.
		San Jose	52C3	1,5	30/11/2024 16:38	30/11/2024 21:53	1	1995	5368	CGE	SAN JOSÉ DE MAIPO	RURAL	30241024869	Recuperado el 100% de los consumos.
Total				1,51				2017	7118					
		MWH	2,5											

ENS: **2,5WH.**

N° de clientes afectados CGE: **2.017.**

ID Barra	Barra	ID Paño	Paño	Alimentador	Pérdida de consu	Hora de Desconexión [dd-mm-yy	Tiempo de interr	Hora de Normalización equivale	Comunas A	Sistema de	Enegía Inte	N° Clientes	Enegía Inte	N° Clientes	ID Coordin	Coordinad	Tipo de cli	IDCliente L	Cliente Libi	Cpph equi
8	BA S/E CEN	17588	S/E CENTRAL QUELTEHL	SAN JOSE DE MAIPO	1.5	30-11-2024 16:38	5.233333	30-11-2024 21:53	San Jose de	D	6.20366	1995	0	0	247	CGE S.A.	RE	no aplica	no aplica	0.96
8	BA S/E CEN	17588	S/E CENTRAL QUELTEHL	VOLCAN	0.007	30-11-2024 16:38	5.233333	30-11-2024 21:53	San Jose de	D	0.00025	17	0	0	247	CGE S.A.	RE	no aplica	no aplica	0.007
8	BA S/E CEN	17588	S/E CENTRAL QUELTEHL	BOCATOMA	0.003	30-11-2024 16:38	5.233333	30-11-2024 21:53	San Jose de	D	0.00015	5	0	0	247	CGE S.A.	RE	no aplica	no aplica	0.003

ANEXO Nº1

Informes de trabajos y fallas de instalaciones ingresado en la plataforma del Coordinador Eléctrico Nacional por las empresas

Aes Andes S.A. y CGE S.A.

Resumen

Fecha de envío al Coordinador Eléctrico : 30-11-2024 18:36

Finalizado

Número:

2024005278

Solicitante:

AES ANDES S.A.

Empresa:

AES ANDES S.A.

Tipo de Origen:

Interno

SubEstación:

S/E CENTRAL QUELTEHUES

Falla Sobre:

paño

Elementos

Tipo: panos - S/E CENTRAL QUELTEHUES CL3
Nombre : S/E CENTRAL QUELTEHUES CL3
Fecha Perturbacion : 30-11-2024 16:38
Fecha Normaliza : 30-11-2024 20:00
Protección : Se investiga
Interruptor : 52CL3
Consumo : 2 MW
Comentario : Sin observaciones.

¿Produce otra indisponibilidad?

No

Zona Afectada

Metropolitana

Comuna

San José de Maipo

Tipo Causa

Causa Presunta
Causa Principal
Se investiga

Comentarios Tipo Causa:

Se investiga.

Causas

-Fenómeno Físico: Origen no determinado.
-Elemento: Interruptores

-Fenómeno Eléctrico: Enclavamiento
-Operación de los interruptores: Varios

Comentarios Causas:

-Fenómeno Físico: A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
-Elemento: Se investiga.
-Fenómeno Eléctrico: Se investiga.
-Operación de los interruptores: Se investiga.

Observaciones:

-Observaciones: A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
-Acciones Inmediatas: Verificar en apertura de equipos en terreno, estado de instalaciones en SE Queltehues, alarmas, etc. Se comunica a CC de CGE Distribución el evento.
-Hechos Sucedidos: A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
-Acciones Correctivas a Corto Plazo: Se está a la espera de interrogación de protecciónes.
-Acciones Correctivas a Largo Plazo: Sin observaciones.

Afecta SSCC:

No

Afecta Medidores:

No

Afecta Protecciones:

No

Consumo:

Consumo Regulado

Distribuidoras Afectadas

CGE DISTRIBUCIÓN S.A. / Perd. Estm. de Potencia: 2 / Región : Metropolitana / Clientes Afectados: 1

Retorno Automatico:

No Tiene Retorno AutomÃ¡tico

Fecha / Hora Perturbación de la Solicitud:

30-11-2024 16:38

Fecha / Hora Estimada Retorno:

30-11-2024 20:00

Fecha / Hora Efectiva Retorno (Ingreso CDC):

30-11-2024 21:53

Archivos Subidos

Archivo	Fecha Subida
IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev2.pdf (/informe_fallas/download_file/674b7cf6ad651f7090174a71/IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev2.pdf)	06/12/2024 16:48:47
IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev5 -anexos.pdf (/informe_fallas/download_file/674b7cf6ad651f7090174a71/IF2024005278_30-11_SE Queltehues 52CL3 12 kV rev5 -anexos.pdf)	20/12/2024 11:56:05

Resumen

Fecha de envío al Coordinador Eléctrico : 03-12-2024 10:59

Finalizado

Número:

2024005311

Solicitante:

PABLO ANDRES MORALES VASQUEZ

Empresa:

COMPAÑÍA GENERAL DE ELECTRICIDAD S.A.

Tipo de Origen:

Externo

SubEstación:

S/E CENTRAL QUELTEHUES

Falla Sobre:

otro

Elementos

Tipo: otros - tendido cable
Nombre :
Fecha Perturbacion : 30-11-2024 16:38
Fecha Normaliza : 30-11-2024 21:53
Protección : A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
Interruptor : A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).
Consumo : 2017
Comentario : A las 16:38 hrs. se produce apertura del interruptor 12 kV 52CL3 lo que provoca la pérdida de suministro a barra de 12 kV que alimenta las siguientes LMT 12 kV: 1.- Bocatoma Maipo 52C2 (interruptor queda cerrado). 2.- Bocatoma Maipo (interruptor permanece cerrado). 2.- San José de Maipo 52C3 (interruptor queda cerrado).

¿Produce otra indisponibilidad?

No

Zona Afectada

Metropolitana

Comuna

San José de Maipo

Tipo Causa

Causa Presunta
Causa Principal
Se investiga

Comentarios Tipo Causa:

"falla aguas arriba del sistema de distribución"

Causas

-Fenómeno Físico: Fallas en instalaciones de terceros u en otro segmento.
-Elemento: Conductores
-Fenómeno Eléctrico: Sobrecorriente instantánea de fase
-Operación de los interruptores: Opera según lo esperado

Comentarios Causas:

-Fenómeno Físico: .
-Elemento: "CGE no se pronuncia en fallas externas"
-Fenómeno Eléctrico: .
-Operación de los interruptores: .

Observaciones:

-Observaciones: .
-Acciones Inmediatas: .
-Hechos Sucedidos: .
-Acciones Correctivas a Corto Plazo: .
-Acciones Correctivas a Largo Plazo: .

Afecta SSCC:

No

Afecta Medidores:

No

Afecta Protecciones:

No

Consumo:

Consumo Regulado y Libre

Distribuidoras Afectadas

COMPAÑÍA GENERAL DE ELECTRICIDAD S.A. / Perd. Estm. de Potencia: 10 / Región : Metropolitana / Clientes Afectados: 2017

Retorno Automatico:

No Tiene Retorno AutomÃ¡tico

Fecha / Hora Perturbación de la Solicitud:

30-11-2024 16:38

Fecha / Hora Estimada Retorno:

30-11-2024 21:53

Fecha / Hora Efectiva Retorno (Ingreso CDC):

30-11-2024 21:53

Archivos Subidos

Archivo	Fecha Subida
IF 2024005311 30-11-2024 SE Queltehues.docx (/informe_fallas/download_file/674f0d07ad651f1eda48a49f/IF 2024005311 30-11-2024 SE Queltehues.docx)	06/12/2024 09:15:40
Nuevo formato para Anexo IF5D.. (5).xlsx (/informe_fallas/download_file/674f0d07ad651f1eda48a49f/Nuevo formato para Anexo IF5D.. (5).xlsx)	06/12/2024 09:15:49

ANEXO Nº2

Otros antecedentes enviados por las empresas
Aes Andes S.A. y CGE S.A.

aes Chile	INFORME DE FALLA. IF2024005278

1 Datos de la empresa propietaria de la instalación fallada.

Nombre empresa propietaria:	AES ANDES S.A.
Rut empresa:	94.272.000-9
Representante Legal:	Javier Dib, Gerente General.
Dirección:	Los Conquistadores 1730, oficina 1001, piso 10.

2 Descripción de la perturbación:

Fecha	30-11-2024.
Hora	16:38 h.
Comuna origen falla.	*13203*
Clasificación de falla	Externo
Código de la Falla	1018

3 Causa de falla:

Apertura forzada por protecciones del interruptor 12 kV 52CL3 de SE Quelteheues. Como antecedente externo, se registra caída de árbol sobre LMT 12 kV San Jose de Maipo propiedad de CGE Distribución.

4 Instalaciones afectadas por falla.

Instalación	Desconexión	Normalización.
Barra 12 kV SE Quelteheues Interruptor 52CL3	*16:38 h.*	*21:41 h*
LMT Quelteheues – Bocatoma Maipo 12 kV.	*16:38 h.*	*21:53 h*
LMT Quelteheues – San José de Maipo 12 kV.	*16:38 h.*	*21:53 h*
LMT Quelteheues – Bocatoma Volcán 12 kV.	*16:38 h.*	*21:52 h.*

5 Estado de las instalaciones previo a falla.

Instalación / Equipo	Estado previo a falla
Barra 12 kV SE Quelteheues Interruptor 52CL3	*En servicio.*
LMT 12 kV Quelteheues – Bocatoma Volcán / Reconectador 52C1	*En servicio.*
LMT 12 kV Quelteheues – Bocatoma Maipo Reconectador 52C2	*En servicio.*
LMT 12 kV Quelteheues – San José de Maipo Reconectador 52C3	*En servicio.*

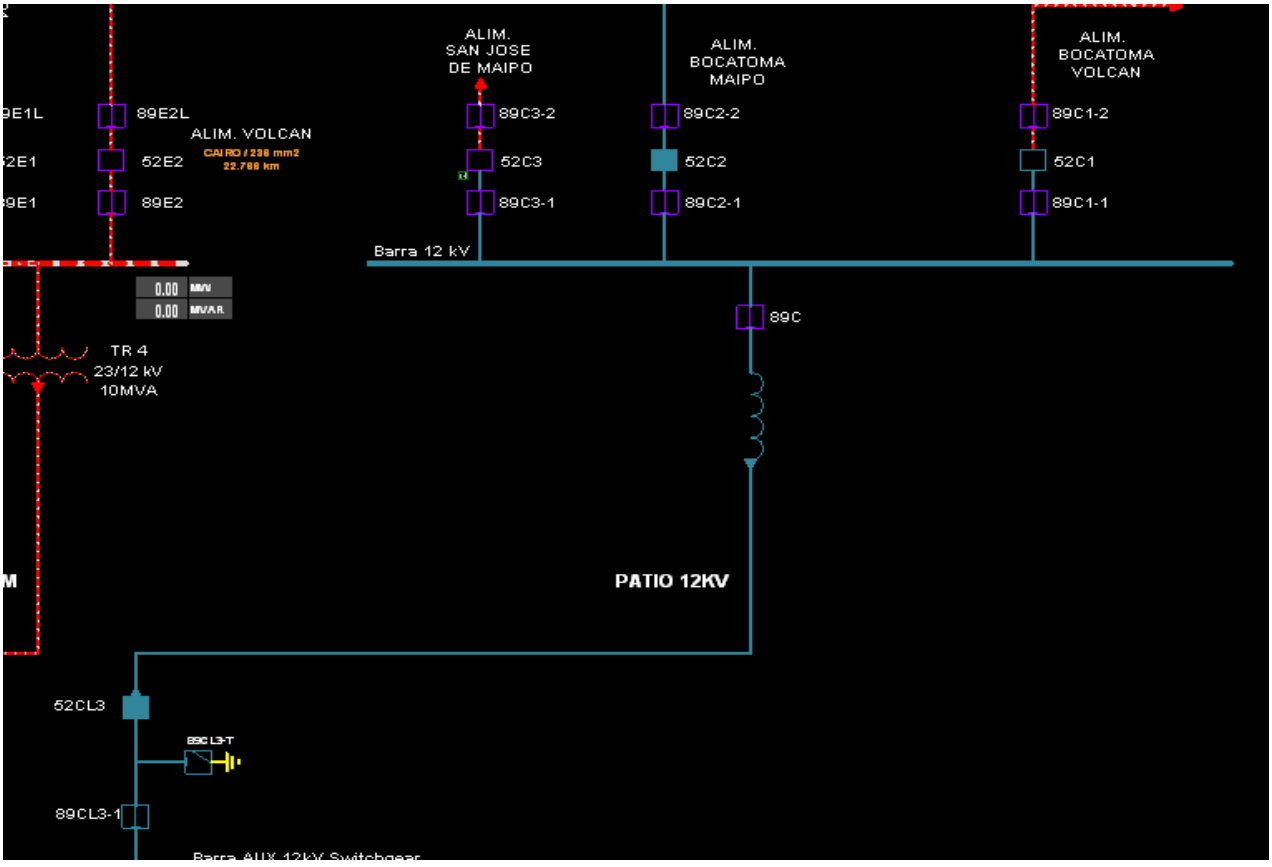
6 Zona afectada con pérdidas de Generación / Consumos.

Instalación	Comuna	Generación [MW]	Consumo [MW]
Consumo CGE Pueblo Volcán	*13203*	*0*	*0,5*
Consumo CGE Sector Las Melosas	*13203*	*0*	*0,160*
Consumo CGE San José de Maipo	*13203*	*0*	*1,5*

7 Codificación Falla.

Fenómeno físico	OTR3	Otros
Elemento Id	PR9	Reconectador
Fenómeno eléctrico	CO51	Corriente de neutro temporizado
Modo Id	13	

8 Diagrama unilineal simplificado.



9 Cronología de eventos, causas y normalización.

Instalación	Evento	Hora
Barra 12 kV SE Queltehues Interruptor 52CL3	*Pérdida de tensión en barra 12 kV por apertura de Interruptor 52CL3. Protección sobrecorriente de nuetro.*	16:38 h.
LMT 12 kV Queltehues – Bocatoma Volcán / Reconectador 52C1	*Pérdida de tensión desde Barra 12 kV por apertura de Interruptor 52CL3. Interruptor 52C1 queda en condición cerrado.*	16:38 h.
LMT 12 kV Queltehues – Bocatoma Maipo / Reconectador 52C2	*Pérdida de tensión desde Barra 12 kV por apertura de Interruptor 52CL3. Interruptor 52C2 queda en condición cerrado.*	16:38 h.
LMT 12 kV Queltehues – San José de Maipo / Reconectador 52C3	*Pérdida de tensión desde Barra 12 kV por apertura de Interruptor 52CL3. Interruptor 52C3 queda en condición cerrado.*	16:38 h.
LMT 12 kV Queltehues – Bocatoma Volcán / Reconectador 52C1	*Apertura manual reconectador 52C1 para normalización.*	17:15 h.
LMT 12 kV Queltehues – Bocatoma Maipo / Reconectador 52C2	*Apertura manual reconectador 52C2 para normalización.*	17:16 h.
LMT 12 kV Queltehues – San José de Maipo / Reconectador 52C3	*Apertura manual reconectador 52C3 para normalización.*	17:16 h.
Barra 12 kV SE Queltehues Interruptor 52CL3	*Cerrado Interruptor 52CL3, energizada barra 12 kV. Normalización.*	21:41 h.
LMT 12 kV Queltehues – Bocactoma Volcán	*Cerrado interruptor 52C1, normalización.*	*21:52 h.*
LMT 12 kV Queltehues – Bocatoma Maipo / Reconectador 52C2	*Cerrado Interruptor 52C2, normalización.*	*21:53 h.*
LMT 12 kV Queltehues – San José de Maipo / Reconectador 52C3	*Cerrado Interruptor 52C3, normalización.*	*21:53 h.*

10 Esquema de Control y Protecciones.

10.1 Protecciones y controles involucrados en la falla.

- *Reconectador 52C3*
- *Protección 52CL3: Protección 50N (Sobrecorriente de neutro de tiempo definido)*

10.2 Análisis del comportamiento protecciones y control.

El relé 7SJ64 (Alimentador 52CL3 en SWG Quelteheues) registró una operación automática por la función de protección 50N (Sobrecorriente de neutro de tiempo definido) a las 19:14:05 (UTC0).

- Se evidencia en los registros del relé, reiterados pickup de función de sobrecorriente de neutro.
- Las corrientes de fallas son de baja magnitud, por lo cual se pueden clasificar como fallas de alta impedancia (contacto de vegetación con línea de distribución).
- Se puede interpretar que la protección de 52CL3 opera correctamente de acuerdo a los ajustes configurados (protección de respaldo). Condición de falla se mantuvo por 8 segundos.

Falla corresponde a terceros, pero esta fue despejada en nuestras instalaciones por la protección de respaldo (relé 7SJ64 de alimentador 52CL3 en SWG Quelteheues 12kV)

Análisis de la actuación de las protecciones involucradas en el evento asociadas a los paños C3 y Paño CL3 de la S/E Quelteheues.

La protección asociada al paño C3, alimentador San Jose de Maipo, es propiedad de la empresa CGE, por lo que para obtener toda la información necesaria para el análisis correspondiente, se debe trabajar en conjunto AES y CGE. Sin embargo, existe un estudio de coordinación de protección con fecha 2024 que se está analizando para dar finalmente solución a la descoordinación de las protecciones en la subestación Quelteheues, respecto de los paños C3 y CL3.

Debido a que la protección asociada al paño C3, alimentador San Jose de Maipo, no es de la propiedad de AES Andes, para obtener las curvas de sobrecorriente temporizada se debe trabajar en conjunto con CGE. Sin embargo, existe un Estudio de Coordinación de Protección (ECAP) desarrollado durante 2024 para dar finalmente solución a la descoordinación de las protecciones en la subestación Quelteheues, respecto de los paños C3 y CL3. Para este estudio, AES Andes ya envió observaciones y nos encontramos a la espera de la respuesta y finalización por parte de CGE.

Razones de la no operación de las protecciones del paño C3 de la S/E Queltehues.

La protección asociada al paño C3 del alimentador San José de Maipo es propiedad de la empresa CGE. Dado que la falla ocurrió en dicho alimentador, se presume que la no operación del reconectador 52 C3 se debe a una descoordinación entre su curva de operación en la función 50N y la misma función de la protección 52 CL3.

11 Análisis Conjunto.

El 30 de noviembre de 2024, a las 16:38 hrs, en S/E Queltehues 12 kV abre 52CL3, por operación de su elemento de protección de sobrecorriente de neutro, dejando sin tensión la barra de 12 kV de SE Queltehues y con ello, fuera de servicio a LMT Bocatoma Volcán 12 kV, Bocatoma Maipo 12 kV y LMT San José de Maipo 12 kV (CGE). Para normalizar, y en coordinación con Centro de Control de CGE se abre manualmente los interruptores 52C1 a las 17:15 hrs.,52C2 a las 17:16 hrs. y 52C3 a las 17:16 hrs. respectivamente, para posteriormente cerrar de manera exitosa el interruptor 52CL3, re energizando la barra 12 kV de Queltehues a las 21:43 hrs. y continuar con la normalización de instalaciones 12 kV, cerrando el interruptor 52C1 a las 21:52 hrs., cerrando el interruptor 52C2 a las 21:53 hrs. y 52C3 a las 21:53 hrs. respectivamente.

12 Otros antecedentes.

12.1 Reiteración de la Falla

IF2024002613 14-06-2024 11:16 h.
IF2024002580 14-06-2024 00:19 h.
IF2024002271 23-05-2024 13:13 h.
IF2024002267 23-05-2024 08:15 h.

12.2 Acciones Correctivas CP (corto plazo)

Se verifica condición de la falla e inspecciona estado de los equipos reconectadores, se procede a generar las condiciones para normalización. Se energiza barra 12 kV en vacío para posteriormente energizar las LMT 12 kV Bocatoma Volcán 52C1, LMT 12 kV Bocatoma-Maipo 52C2 y LMT 12 kV San José de Maipo 52C3.

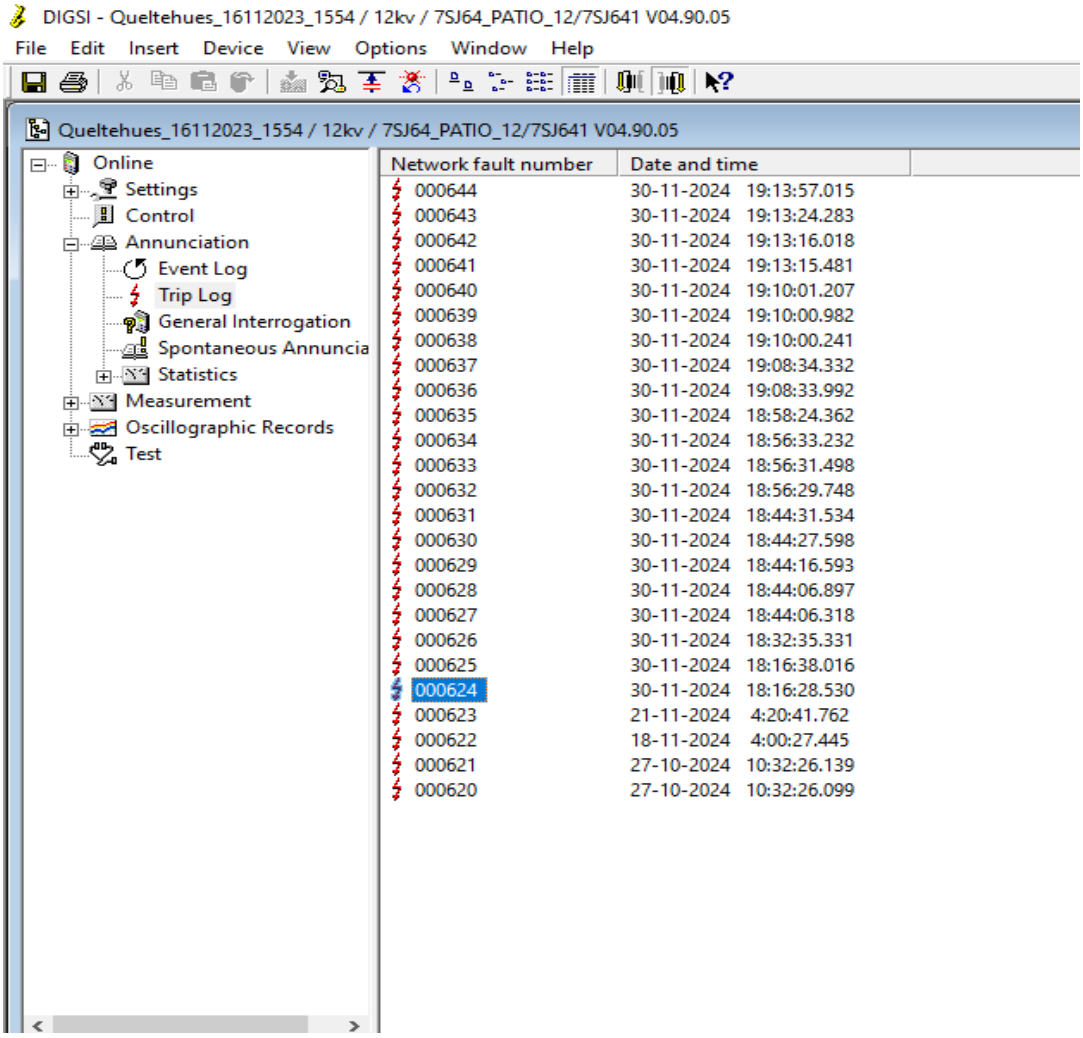
12.3 Acciones Correctivas LP (largo plazo)

Estamos en contacto con el personal de CGE para coordinar un trabajo conjunto que permita solucionar la descoordinación de las protecciones en la subestación Queltehues, específicamente en los paños C3 y CL3. Cabe destacar que debido a que

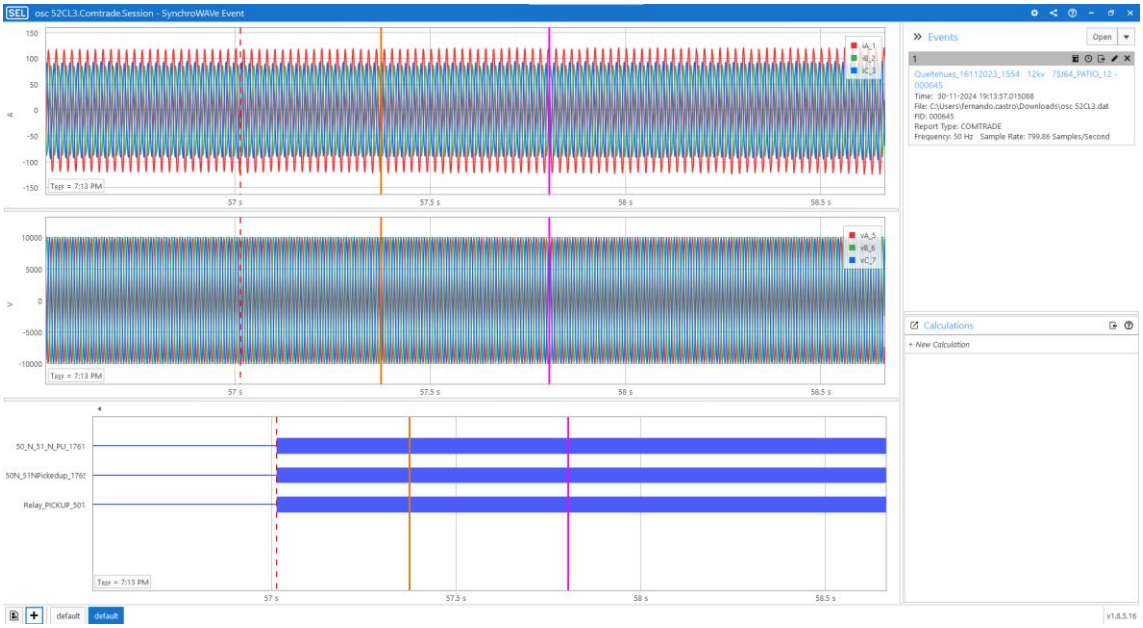
el paño C3 no es de propiedad de AES Andes, no se tiene conocimiento de un problema técnico en el reconectador que impida su correcta operación.

13 Registros de eventos, protecciones y sus ajustes.

- ***Registros de eventos de las protecciones***



- ***Oscilografia de las protecciones y de registrador de eventos***



-

- ***Ajustes de la protección operada.***

7.5 Group 50/51 Phase/Ground Overcurrent; Group 50N

Group 50/51 Phase/Ground Overcurrent; Group 50N

No.	Settings	Value	Group
1319A	50N-3 measurement of	Fundamental component	A
1316A	50N-3 active	Always	A
1317	50N-3 Pickup	oo A	A
1318	50N-3 Time Delay	0,00 sec	A
1320A	50N-2 measurement of	Fundamental component	A
1314A	50N-2 active	Always	A
1302	50N-2 Pickup	oo A	A
1303	50N-2 Time Delay	0,10 sec	A
1321A	50N-1 measurement of	Fundamental component	A
1304	50N-1 Pickup	0,10 A	A
1305	50N-1 Time Delay	8,00 sec	A

- ***Registros de sistemas de control de las plantas (gráficos y/o eventos).***

  Se adjuntan en correo enviado.

14 Anexos

1. Trip Log-Fault / Registros de protección 52CL3.
2. Printout 52CL3.
3. Event report 52CL3

Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12

MLFB:	7SJ64115EE923FG7----0S----------
Parameter-set version:	V04.90.05
Device path:	C:\Siemens\DIGSI4\D4PROJ\Quelteu\P7DI\GV\SD\0000000d
Author:	
Creation date:	21.08.18 14:14:00
Last modified:	30.11.24 18:51:29
Operating mode:	Online
Comment:	
Setting values in:	Secondary value description

PRINT - CONTENTS

1 Indications 2
1.1 Trip Log - 000644 / 30-11-2024 19:13:57.015 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05 2

1 Indications

1.1 Trip Log - 000644 / 30-11-2024 19:13:57.015 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Trip Log - 000644 / 30-11-2024 19:13:57.015 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Number	Indication	Value	Date and time	Cause	State
00301	Power System fault	644 - ON	30.11.2024 19:13:57.015		
00302	Fault Event	645 - ON	30.11.2024 19:13:57.015		
00501	Relay PICKUP	ON	0 ms		
01761	50(N)/51(N) O/C PICKUP	ON	0 ms		
01765	50N/51N picked up	ON	0 ms		
01834	50N-1 picked up	ON	0 ms		
00511	Relay GENERAL TRIP command	ON	7998 ms		
01791	50(N)/51(N) TRIP	ON	7998 ms		
01836	50N-1 TRIP	ON	7998 ms		
01456	50BF (internal) PICKUP	ON	7998 ms		
01457	50BF (external) PICKUP	ON	7998 ms		
00533	Primary fault current Ia	0,10 kA	8028 ms		
00534	Primary fault current Ib	0,06 kA	8028 ms		
00535	Primary fault current Ic	0,07 kA	8028 ms		
01765	50N/51N picked up	OFF	8088 ms		
01834	50N-1 picked up	OFF	8088 ms		
01761	50(N)/51(N) O/C PICKUP	OFF	8088 ms		
01456	50BF (internal) PICKUP	OFF	8088 ms		
01457	50BF (external) PICKUP	OFF	8088 ms		
00545	Time from Pickup to drop out	8088 ms	8088 ms		
00546	Time from Pickup to TRIP	7998 ms	8088 ms		
01123	Fault Locator Loop AG	ON	7911 ms		
01117	Flt Locator: secondary RESISTANCE	-222,39 Ohm	7911 ms		
01118	Flt Locator: secondary REACTANCE	-30,11 Ohm	7911 ms		
01114	Flt Locator: primary RESISTANCE	-44,48 Ohm	7911 ms		
01115	Flt Locator: primary REACTANCE	-6,02 Ohm	7911 ms		
01119	Flt Locator: Distance to fault	-200,7 km	7911 ms		
01120	Flt Locator: Distance [%] to fault	-200,70 %	7911 ms		
00301	Power System fault	644 - OFF	30.11.2024 19:14:05.155		

Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12

MLFB:	7SJ64115EE923FG7----0S----------
Parameter-set version:	V04.90.05
Device path:	C:\Siemens\DIGSI4\D4PROJ\Queltehu\P7DI\GV\SD\0000000d
Author:	
Creation date:	21.08.18 14:14:00
Last modified:	30.11.24 19:00:55
Operating mode:	Online
Comment:	
Setting values in:	Secondary value description

PRINT - CONTENTS

1 Device Configuration 4
2 Configuration - complete (sorted by line) 5
2.1 Indications 5
2.1.1 Device, General Settings 5
2.1.2 EN100-Modul 1 10
2.1.3 Power System Data 1 11
2.1.4 Oscillographic Fault Records 11
2.1.5 Change Group 12
2.1.6 Power System Data 2 13
2.1.7 50/51 Phase/Ground Overcurrent 14
2.1.8 Measurement Supervision 22
2.1.9 74TC Trip Circuit Supervision 23
2.1.10 Fault Locator 24
2.1.11 50BF Breaker Failure 26
2.1.12 Control Authorization 27
2.1.13 Control Device 28
2.1.14 Process Data 30
2.1.15 Min/Max Measurement Setup 32
2.1.16 Set Points (Measured Values) 34
2.1.17 Statistics 35
2.1.18 Set Points (Statistic) 36
2.1.19 Threshold-Switch 36
2.1.20 SIGNAL 36
2.1.21 Cambio Grupo Parametros 37
2.2 Commands 38
2.2.1 Control Device 38
2.3 Measured values 39
2.3.1 Measurement 39
2.3.2 Demand Measurement Setup 42
2.3.3 Min/Max Measurement Setup 43
2.3.4 Set Points (Measured Values) 46
2.4 Metered values 48
2.4.1 Energy 48
2.4.2 Statistics 49
3 Configuration - short (column-oriented) 50
3.1 Binary inputs 50
3.2 Binary outputs 50
3.3 LEDs 51

3.4 CFC 51
3.5 Function keys 53
3.6 Buffer 54
3.6.1 Operational indication buffer 54
3.6.2 Sensitive ground fault indication buffer 57
3.6.3 Trip log 57
3.6.4 Event value buffer 59
3.7 Display 59
3.8 System interface IEC 61850 59
4 Interfaces 69
4.1 Serial interface on PC: 69
4.2 VD addresses 69
4.3 Operator Interface 69
4.4 Service interface 69
4.5 Ethernet on device 69
4.6 Redundancy 70
4.7 Ethernet on PC 70
5 Passwords 71
6 Power System Data 1 72
6.1 Group Power System Data 1; Group Power System 72
6.2 Group Power System Data 1; Group CT's 72
6.3 Group Power System Data 1; Group VT's 72
6.4 Group Power System Data 1; Group Breaker 73
6.5 Group Power System Data 1; Group Prot.Op. quant. 73
7 Settings groups 74
7.1 Group Power System Data 2; Group General 74
7.2 Group 50/51 Phase/Ground Overcurrent; Group General 74
7.3 Group 50/51 Phase/Ground Overcurrent; Group 50 74
7.4 Group 50/51 Phase/Ground Overcurrent; Group 51 75
7.5 Group 50/51 Phase/Ground Overcurrent; Group 50N 75
7.6 Group 50/51 Phase/Ground Overcurrent; Group 51N 75
7.7 Group Measurement Supervision; Group General 76
7.8 Group Measurement Supervision; Group Fuse Fail Mon. 76
7.9 Group Measurement Supervision; Group MeasSupervision 76
7.10 Group 74TC Trip Circuit Supervision; Group General 77
7.11 Group Fault Locator; Group General 77
7.12 Group 50BF Breaker Failure; Group General 77
7.13 Group 50BF Breaker Failure; Group 50BF 77
7.14 Group Demand Measurement Setup; Group Measurement 77
7.15 Group Min/Max Measurement Setup; Group Measurement 78
7.16 Group Energy; Group Measurement 78
8 Time Synchronization 79
9 Annunciation 80
9.1 Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP) 80
9.2 General Interrogation - 30-11-2024 19:26:01.339 94
9.3 Spontaneous Annunciation - 30-11-2024 19:26:01.339 96
9.4 Statistics - 30-11-2024 19:26:01.349 (MEASURED\STAT.SFP) 97
9.5 Set Points (Statistic) - 30-11-2024 19:26:01.939 (MEASURED\STGR.SFP) 97
10 Measurement 98
10.1 Operational values, primary - 30-11-2024 19:26:02.459 (MEASURED\MW01.SFP) 98
10.2 Power values, primary - 30-11-2024 19:26:03.065 (MEASURED\MW15.SFP) 98
10.3 Operational values, secondary - 30-11-2024 19:26:03.498 (MEASURED\MW02.SFP) 99
10.4 Operational Percent - 30-11-2024 19:26:03.977 (MEASURED\MW03.SFP) 99
10.5 Demand - 30-11-2024 19:26:04.430 (MEASURED\MW06.SFP) 100
10.6 V/I,Min/Max - 30-11-2024 19:26:04.941 (MEASURED\MW07.SFP) 100
10.7 P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP) 100
10.8 Min/Max Demand - 30-11-2024 19:26:06.015 (MEASURED\MW09.SFP) 101
10.9 User Defined - 30-11-2024 19:26:06.454 (MEASURED\MW11.SFP) 101
10.10 Energy - 30-11-2024 19:26:06.946 (MEASURED\MW12.SFP) 101

10.11 Set Points (Measured Values) - 30-11-2024 19:26:07.406 (MEASURED\MW13.SFP) 102

1 Device Configuration

No.	Function	Scope
0103	Setting Group Change Option	Enabled
0104	Oscillographic Fault Records	Enabled
0112	50/51	Time Overcurrent Curve IEC
0113	50N/51N	Time Overcurrent Curve IEC
0115	67, 67-TOC	Disabled
0116	67N, 67N-TOC	Disabled
0127	50 1Ph	Disabled
0117	Cold Load Pickup	Disabled
0122	2nd Harmonic Inrush Restraint	Disabled
0131	(sensitive) Ground fault	Disabled
0130	(sens.) Ground fault dir. characteristic	cos phi / sin phi measurement (standard)
0140	46 Negative Sequence Protection	Disabled
0142	49 Thermal Overload Protection	Disabled
0150	27, 59 Under/Overvoltage Protection	Disabled
0154	81 Over/Underfrequency Protection	Disabled
0155	27 / Q dir. con. Protection	Disabled
0161	25 Function group 1	Disabled
0162	25 Function group 2	Disabled
0163	25 Function group 3	Disabled
0164	25 Function group 4	Disabled
0170	50BF Breaker Failure Protection	Enabled
0171	79 Auto-Reclose Function	Disabled
0172	52 Breaker Wear Monitoring	Disabled
0180	Fault Locator	Enabled
0181	Line sections for fault locator	1 Line Section
0182	74TC Trip Circuit Supervision	with 2 Binary Inputs
0190	External Temperature Input	Disabled
0191	Ext. Temperature Input Connection Type	6 RTD simplex operation
	Flexible Function	

2 Configuration - complete (sorted by line)

No filter

2.1 Indications

2.1.1 Device, General Settings

>Synchronize Internal Real Time Clock (SP_Ev - Single point indication event)

>Reset LED (SP - Single point indication)

>Back Light on (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

Device is Operational and Protecting (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

At Least 1 Protection Funct. is Active (IntSP - Internal single point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
System interface

Reset Device (OUT - Output indication)

Configured to destination:
Operation Buffer: I
System interface

Initial Start of Device (OUT - Output indication)

Configured to destination:
Operation Buffer: I
System interface

Reset LED (IntSP - Internal single point indication)

Configured to source:
System interface

Configured to destination:
Operation Buffer: I
System interface

Resume (OUT - Output indication)

Configured to destination:
Operation Buffer: I
System interface

Clock Synchronization Error (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Daylight Saving Time (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Event lost (OUT_Ev - Output indication event)

Configured to destination:
Operation Buffer: I

Flag Lost (OUT - Output indication)

Configured to destination:
Operation Buffer: I

Chatter ON (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error with a summary alarm (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Alarm Summary Event (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error 5V (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error 0V (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error -5V (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error Power Supply (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Failure: Battery empty (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Setting calculation is running (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Settings Check (OUT - Output indication)

Level-2 change (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Error Board 1 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 2 (OUT - Output indication)

Configured to destination:

Operation Buffer: IO
System interface

Error Board 3 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 4 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 5 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 6 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Error Board 7 (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

Stop data transmission (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO
System interface

>Stop data transmission (SP - Single point indication)

Configured to destination:
CFC

Test mode (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO
System interface

>Test mode (SP - Single point indication)

Feeder GROUNDED (IntSP - Internal single point indication)

Configured to source:
CFC

Breaker OPENED (IntSP - Internal single point indication)

Configured to source:
CFC

Hardware Test Mode (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO

Clock Synchronization (IntSP_Ev - Internal single point indication event)

Configured to source:
CFC

Alarm: NO calibration data available (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

>Blocking of the offset supervision (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

Error: Offset (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Warn: Limit of Memory Data exceeded (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
Warnings: X

Warn: Limit of Memory Parameter exceeded (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Warn: Limit of Memory Operation exceeded (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Warn: Limit of Memory New exceeded (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Disturbance CFC (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Disturbance CFC Source (VI - Value indication)

Configured to destination:

Operation Buffer:	IO

Time from Pickup to drop out (VI - Value indication)

Configured to destination:

Trip log:	IO

Time from Pickup to TRIP (VI - Value indication)

Configured to destination:

Trip log:	IO

BLOCK Flexible Function (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer:	IO
Control Menu	

2.1.2 EN100-Modul 1

Edition (IntSP - Internal single point indication)

Failure EN100 Modul (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer:	IO
Warnings:	X

Failure EN100 Link Channel 1 (Ch1) (IntSP - Internal single point indication)

Configured to destination:

LED:	U 13
Operation Buffer:	IO

Failure EN100 Link Channel 2 (Ch2) (IntSP - Internal single point indication)

Configured to destination:

LED:	U 14
Operation Buffer:	IO

2.1.3 Power System Data 1

>Reverse Phase Rotation (SP - Single point indication)

Configured to destination:

Operation Buffer:	IO

Phase rotation ABC (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Phase rotation ACB (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

2.1.4 Oscillographic Fault Records

>Trigger Waveform Capture (SP - Single point indication)

Configured to destination:

CFC

Waveform data deleted (OUT_Ev - Output indication event)

Configured to destination:

Operation Buffer: I

Fault Recording Start (IntSP - Internal single point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Fault recording is running (OUT - Output indication)

Configured to destination:
System interface

2.1.5 Change Group

>Setting Group Select Bit 0 (SP - Single point indication)

Configured to source:
CFC

>Setting Group Select Bit 1 (SP - Single point indication)

Configured to source:
CFC

Setting Group A is active (IntSP - Internal single point indication)

Configured to destination:
LED: U 10
Operation Buffer: IO

Setting Group B is active (IntSP - Internal single point indication)

Configured to destination:
LED: U 11
Operation Buffer: IO

Setting Group C is active (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO

Setting Group D is active (IntSP - Internal single point indication)

Configured to destination:
Operation Buffer: IO

2.1.6 Power System Data 2

>Manual close signal (SP - Single point indication)

>Enable 50/67-(N)-2 (override 79 blk) (SP - Single point indication)

Configured to destination:

Operation Buffer:	IO

Primary fault current Ia (VI - Value indication)

Configured to destination:

Trip log:	IO

Primary fault current Ib (VI - Value indication)

Configured to destination:

Trip log:	IO

Primary fault current Ic (VI - Value indication)

Configured to destination:

Trip log:	IO

Relay PICKUP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

Relay GENERAL TRIP command (OUT - Output indication)

Configured to destination:

BO:	U 4,U 13
LED:	L 1
Trip log:	I
CFC	
System interface	

Manual close signal detected (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

>52-a contact (OPEN, if bkr is open) (SP - Single point indication)

Configured to source:

BI: H 9

Configured to destination:

Operation Buffer: IO

System interface

>52-b contact (OPEN, if bkr is closed) (SP - Single point indication)

Configured to source:

BI: H 8

Configured to destination:

Operation Buffer: IO

System interface

Protection ON/OFF (via system port) (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO

2.1.7 50/51 Phase/Ground Overcurrent

50(N)/51(N) O/C PICKUP (OUT - Output indication)

Configured to destination:

Trip log: IO

System interface

50(N)/51(N) TRIP (OUT - Output indication)

Configured to destination:

Trip log: I

System interface

>BLOCK 50/51 (SP - Single point indication)

>BLOCK 50-3 (SP - Single point indication)

>BLOCK 50-2 (SP - Single point indication)

>BLOCK 50-1 (SP - Single point indication)

>BLOCK 51 (SP - Single point indication)

50/51 O/C switched OFF (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

50/51 O/C is BLOCKED (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
Trip log: IO
System interface

50/51 O/C is ACTIVE (OUT - Output indication)

Configured to destination:
Operation Buffer: IO
System interface

50/51 Phase A picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50/51 Phase B picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50/51 Phase C picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50-3 picked up (OUT - Output indication)

Configured to destination:
Trip log: IO
System interface

50-3 TRIP (OUT - Output indication)

Configured to destination:
Trip log: I
System interface

50-2 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50-2 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50-1 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50-1 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

51 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

51 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50-3 TimeOut (OUT - Output indication)

50-2 Time Out (OUT - Output indication)

50-1 Time Out (OUT - Output indication)

51 Time Out (OUT - Output indication)

50-3 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50-2 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50-1 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

51 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

>BLOCK 50N/51N (SP - Single point indication)

>BLOCK 50N-3 (SP - Single point indication)

>BLOCK 50N-2 (SP - Single point indication)

>BLOCK 50N-1 (SP - Single point indication)

>BLOCK 51N (SP - Single point indication)

50N/51N is OFF (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
System interface	

50N/51N is BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50N/51N is ACTIVE (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
System interface	

50N/51N picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50N-3 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO

50N-3 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I

50N-2 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50N-2 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50N-1 picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

50N-1 TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

51N picked up (OUT - Output indication)

Configured to destination:

Trip log:	IO
System interface	

51N TRIP (OUT - Output indication)

Configured to destination:

Trip log:	I
System interface	

50N-3 TimeOut (OUT - Output indication)

50N-2 Time Out (OUT - Output indication)

50N-1 Time Out (OUT - Output indication)

51N Time Out (OUT - Output indication)

50N-3 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50N-2 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50N-1 BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

51N BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

2.1.8 Measurement Supervision

VT Fuse Failure (alarm >10s) (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

VT Fuse Failure (alarm instantaneous) (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Current Summation (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Current Balance (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Voltage Balance (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: General Current Supervision (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Phase Sequence (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Phase Sequence Voltage (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

Failure: Phase Sequence Current (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Measurement Supervision is switched OFF (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

>Failure: Feeder VT (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

>Failure: Busbar VT (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

2.1.9 74TC Trip Circuit Supervision

>BLOCK 74TC (SP - Single point indication)

>74TC Trip circuit superv.: brk relay (SP - Single point indication)

Configured to source:
BI: H 14
Configured to destination:
Operation Buffer: IO

>74TC Trip circuit superv.: trip relay (SP - Single point indication)

Configured to source:
BI: H 13
Configured to destination:
Operation Buffer: IO

74TC Trip circuit supervision OFF (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

74TC Trip circuit supervision is BLOCKED (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

Trip log: IO

74TC Trip circuit supervision is ACTIVE (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

74TC blocked. Bin. input is not set (OUT - Output indication)

Configured to destination:
Operation Buffer: IO

74TC Failure Trip Circuit (OUT - Output indication)

Configured to destination:
LED: L 3
Operation Buffer: IO
System interface

2.1.10 Fault Locator

>Start Fault Locator (SP - Single point indication)

Configured to destination:
Operation Buffer: I

Flt Locator: primary RESISTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: primary REACTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: secondary RESISTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: secondary REACTANCE (VI - Value indication)

Configured to destination:
Trip log: IO

Flt Locator: Distance to fault (Vl - Value indication)

Configured to destination:

Trip log: IO

Flt Locator: Distance [%] to fault (Vl - Value indication)

Configured to destination:

Trip log: IO

System interface

Fault Locator Loop AG (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop BG (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop CG (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop AB (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop BC (OUT - Output indication)

Configured to destination:

Trip log: I

Fault Locator Loop CA (OUT - Output indication)

Configured to destination:

Trip log: I

Fault location invalid (OUT - Output indication)

Configured to destination:

Trip log: I

2.1.11 50BF Breaker Failure

>BLOCK 50BF (SP - Single point indication)

Configured to destination:

Operation Buffer:	IO

>50BF initiated externally (SP - Single point indication)

Configured to source:

CFC

Configured to destination:

Operation Buffer:	IO

CFC

50BF is switched OFF (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

System interface

50BF is BLOCKED (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO
Trip log:	IO

50BF is ACTIVE (OUT - Output indication)

Configured to destination:

Operation Buffer:	IO

50BF (internal) PICKUP (OUT - Output indication)

Configured to destination:

Trip log:	IO

CFC

System interface

50BF (external) PICKUP (OUT - Output indication)

Configured to destination:

Trip log:	IO

System interface

50BF TRIP (OUT - Output indication)

Configured to destination:

Trip log: I

50BF (internal) TRIP (OUT - Output indication)

Configured to destination:

Trip log: I
System interface

50BF (external) TRIP (OUT - Output indication)

Configured to destination:

Trip log: I
System interface

50BF TRIP 2 (OUT - Output indication)

Configured to destination:

BO: U 11
Trip log: I
CFC

2.1.12 Control Authorization

Control Authority (DP - Double point indication)

Configured to destination:

Operation Buffer: IO
System interface

Controlmode LOCAL (DP - Double point indication)

Configured to destination:

Operation Buffer: IO

Controlmode REMOTE (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO

Local (SP - Single point indication)

Configured to source:

BI: H 1

Configured to destination:

Operation Buffer: IO
CFC

Remote (SP - Single point indication)

Configured to source:
BI: H 2
Configured to destination:
Operation Buffer: IO
CFC

Local Remoto Celda (DP - Double point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO
System interface

2.1.13 Control Device

52 Breaker (DP - Double point indication)

Configured to source:
BI: X 8
Configured to destination:
Operation Buffer: IO
CFC
System interface
Default Display

Q0 operationcounter= (VI - Value indication)

Disconnect Switch (DP - Double point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO
CFC
System interface
Default Display

Q1 operationcounter= (VI - Value indication)

Ground Switch (DP - Double point indication)

Configured to source:
CFC

Configured to destination:

Operation Buffer:	IO
CFC	
System interface	
Default Display	

Q8 operationcounter= (VI - Value indication)

Interlocking: 52 Open (IntSP - Internal single point indication)

Configured to source:

CFC

Interlocking: 52 Close (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

BO:	U 12
LED:	U 7

Interlocking: Disconnect switch Open (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED:	U 8

Interlocking: Disconnect switch Close (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED:	U 8

Interlocking: Ground switch Open (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED:	U 9

Interlocking: Ground switch Close (IntSP - Internal single point indication)

Configured to source:

CFC

Configured to destination:

LED: U 9

Unlock data transmission via BI (IntSP - Internal single point indication)

Configured to source:
CFC

DSC ON (SP - Single point indication)

Configured to source:
BI: H 10
Configured to destination:
Operation Buffer: IO
CFC
Control Display
Default Display

Q1/5 OFF (DP - Double point indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO
CFC
Control Display
Default Display

Tierra Off (SP - Single point indication)

Configured to source:
BI: H 11
Configured to destination:
Operation Buffer: IO
CFC

Tierra ON (SP - Single point indication)

Configured to source:
BI: H 12
Configured to destination:
Operation Buffer: IO
CFC

2.1.14 Process Data

>CB ready Spring is charged (SP - Single point indication)

Configured to source:

BI: H 4

Configured to destination:

CFC

System interface

>CB waiting for Spring charged (SP - Single point indication)

Configured to source:

BI: L 4

Configured to destination:

Operation Buffer: IO

CFC

MCB VT (SP - Single point indication)

Configured to source:

BI: L 7

Configured to destination:

LED: U 6

Operation Buffer: IO

CFC

>Error Control Voltage (SP - Single point indication)

Configured to source:

BI: L 5

Configured to destination:

LED: U 5

Operation Buffer: IO

CFC

System interface

>SF6-Loss (SP - Single point indication)

Configured to source:

BI: H 3

Configured to destination:

LED: U 4

Operation Buffer: IO

CFC

System interface

-S25 (SP - Single point indication)

Configured to source:

BI: H 6

Configured to destination:

Operation Buffer: IO

CFC
System interface

86T (SP - Single point indication)

Configured to source:
CFC
Configured to destination:

BO:	U 4,U 13
LED:	L 2
Operation Buffer:	IO

CFC
System interface

Reset 86 T (IntSP - Internal single point indication)

Configured to source:

Function key:	3

Configured to destination:

Operation Buffer:	IO

CFC

2.1.15 Min/Max Measurement Setup

>I MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>I1 MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>Idmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>Theta MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>V MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:

Operation Buffer:	I

>Vphph MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>V1 MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>P MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>S MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Q MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Pdmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Qdmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Sdmd MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Frq. MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

>Power Factor MIN/MAX Buffer Reset (SP - Single point indication)

Configured to destination:
Operation Buffer: I

2.1.16 Set Points (Measured Values)

Set Point Phase A dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point Phase B dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point Phase C dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point positive sequence I1dmd> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point |Pdmd|> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point |Qdmd|> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point |Sdmd|> (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point 37-1 Undercurrent alarm (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

Set Point 55 Power factor alarm (OUT - Output indication)

Configured to source:
CFC
Configured to destination:
Operation Buffer: IO

2.1.17 Statistics

Counter of operating hours (VI - Value indication)

Configured to destination:
System interface

>BLOCK Op Counter (SP - Single point indication)

Configured to destination:
Operation Buffer: IO

Accumulation of interrupted current Ph A (VI - Value indication)

Configured to destination:
System interface

Accumulation of interrupted current Ph B (VI - Value indication)

Configured to destination:
System interface

Accumulation of interrupted current Ph C (VI - Value indication)

Configured to destination:
System interface

2.1.18 Set Points (Statistic)

Set Point Operating Hours (OUT - Output indication)

Configured to destination:

Operation Buffer: IO

2.1.19 Threshold-Switch

Threshold Value 1 (IntSP - Internal single point indication)

Configured to destination:

Operation Buffer: IO
Control Menu

2.1.20 SIGNAL

CB CLOSE 1 (SP - Single point indication)

Configured to source:

BI: H 9

Configured to destination:

Operation Buffer: IO
CFC

TRIP 50BF (OUT - Output indication)

Configured to source:

CFC

Configured to destination:

BO: U 11
Operation Buffer: IO
CFC
System interface

RX50BF/59N (SP - Single point indication)

Configured to source:

BI: H 15

Configured to destination:

Operation Buffer: IO
CFC

50BFEXT/59N (OUT - Output indication)

Configured to source:

CFC

Configured to destination:

BO: U 11
Operation Buffer: IO
CFC

2.1.21 Cambio Grupo Parametros

Interruptor Acoplador (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Desconectador 1 Acople (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Desconectador 2 Acople (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Interruptor Trafo Aux (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

Desconectador Trafo Aux (ExDP - External double point indication)

Configured to source:
System interface
Configured to destination:
Operation Buffer: IO
CFC

2.2 Commands

2.2.1 Control Device

52 Breaker (CF_D12 - Double command 12, with feedback)

Configured to source:
System interface
Configured to destination:
BO: Tr 4
CFC
Control Display
Control Menu

Disconnect Switch (CF_D2 - Double command 2, with feedback)

Configured to source:
System interface
Configured to destination:
BO: Tr 7
CFC
Control Display
Control Menu

Ground Switch (CF_D2 - Double command 2, with feedback)

Configured to source:
System interface
Configured to destination:
BO: Tr 9
CFC
Control Display
Control Menu

2.3 Measured values

2.3.1 Measurement

Ia (MV - Measured value)

Configured to destination:
CFC
System interface

Ib (MV - Measured value)

Configured to destination:
CFC
System interface

Ic (MV - Measured value)

Configured to destination:
CFC
System interface

In (MV - Measured value)

Configured to destination:
CFC
System interface

I1 (positive sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

I2 (negative sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

3Io (zero sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

Va (MV - Measured value)

Configured to destination:
CFC
System interface

Vb (MV - Measured value)

Configured to destination:
CFC
System interface

Vc (MV - Measured value)

Configured to destination:
CFC
System interface

Va-b (MV - Measured value)

Configured to destination:
CFC
System interface

Vb-c (MV - Measured value)

Configured to destination:
CFC
System interface

Vc-a (MV - Measured value)

Configured to destination:
CFC
System interface

VN (MV - Measured value)

Configured to destination:
CFC
System interface

V1 (positive sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

V2 (negative sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

P (active power) (MV - Measured value)

Configured to destination:
CFC
System interface

Q (reactive power) (MV - Measured value)

Configured to destination:
CFC
System interface

S (apparent power) (MV - Measured value)

Configured to destination:
CFC
System interface

Frequency (MV - Measured value)

Configured to destination:
CFC
System interface

Vo (zero sequence) (MV - Measured value)

Configured to destination:
CFC
System interface

Power Factor (MV - Measured value)

Configured to destination:
CFC
System interface

Pa (active power, phase A) (MV - Measured value)

Configured to destination:
CFC

Pb (active power, phase B) (MV - Measured value)

Configured to destination:
CFC

Pc (active power, phase C) (MV - Measured value)

Configured to destination:
CFC

Qa (reactive power, phase A) (MV - Measured value)

Configured to destination:
CFC

Qb (reactive power, phase B) (MV - Measured value)

Configured to destination:
CFC

Qc (reactive power, phase C) (MV - Measured value)

Configured to destination:
CFC

Power Factor, phase A (MV - Measured value)

Configured to destination:
CFC

Power Factor, phase B (MV - Measured value)

Configured to destination:
CFC

Power Factor, phase C (MV - Measured value)

Configured to destination:
CFC

2.3.2 Demand Measurement Setup

I A demand (MV - Measured value)

Configured to destination:
CFC

I B demand (MV - Measured value)

Configured to destination:
CFC

I C demand (MV - Measured value)

Configured to destination:
CFC

I1 (positive sequence) Demand (MV - Measured value)

Configured to destination:
CFC

Active Power Demand (MV - Measured value)

Configured to destination:
CFC

Reactive Power Demand (MV - Measured value)

Configured to destination:
CFC

Apparent Power Demand (MV - Measured value)

Configured to destination:
CFC

2.3.3 Min/Max Measurement Setup

Ia Min (MVT - Measured value with time)

Ia Max (MVT - Measured value with time)

Ib Min (MVT - Measured value with time)

Ib Max (MVT - Measured value with time)

Ic Min (MVT - Measured value with time)

Ic Max (MVT - Measured value with time)

I1 (positive sequence) Minimum (MVT - Measured value with time)

I1 (positive sequence) Maximum (MVT - Measured value with time)

I A Demand Minimum (MVT - Measured value with time)

I A Demand Maximum (MVT - Measured value with time)

I B Demand Minimum (MVT - Measured value with time)

I B Demand Maximum (MVT - Measured value with time)

I C Demand Minimum (MVT - Measured value with time)

I C Demand Maximum (MVT - Measured value with time)

I1 (positive sequence) Demand Minimum (MVT - Measured value with time)

I1 (positive sequence) Demand Maximum (MVT - Measured value with time)

Overload Meter Min (MVT - Measured value with time)

Overload Meter Max (MVT - Measured value with time)

Va-n Min (MVT - Measured value with time)

Va-n Max (MVT - Measured value with time)

Vb-n Min (MVT - Measured value with time)

Vb-n Max (MVT - Measured value with time)

Vc-n Min (MVT - Measured value with time)

Vc-n Max (MVT - Measured value with time)

Va-b Min (MVT - Measured value with time)

Va-b Max (MVT - Measured value with time)

Vb-c Min (MVT - Measured value with time)

Vb-c Max (MVT - Measured value with time)

Vc-a Min (MVT - Measured value with time)

Vc-a Max (MVT - Measured value with time)

V neutral Min (MVT - Measured value with time)

V neutral Max (MVT - Measured value with time)

V1 (positive sequence) Voltage Minimum (MVT - Measured value with time)

V1 (positive sequence) Voltage Maximum (MVT - Measured value with time)

Active Power Minimum (MVT - Measured value with time)

Active Power Maximum (MVT - Measured value with time)

Reactive Power Minimum (MVT - Measured value with time)

Reactive Power Maximum (MVT - Measured value with time)

Apparent Power Minimum (MVT - Measured value with time)

Apparent Power Maximum (MVT - Measured value with time)

Frequency Minimum (MVT - Measured value with time)

Frequency Maximum (MVT - Measured value with time)

Power Factor Minimum (MVT - Measured value with time)

Power Factor Maximum (MVT - Measured value with time)

Active Power Demand Minimum (MVT - Measured value with time)

Active Power Demand Maximum (MVT - Measured value with time)

Reactive Power Demand Minimum (MVT - Measured value with time)

Reactive Power Demand Maximum (MVT - Measured value with time)

Apparent Power Demand Minimum (MVT - Measured value with time)

Apparent Power Demand Maximum (MVT - Measured value with time)

2.3.4 Set Points (Measured Values)

I A dmd> (LV - Limit value)

Configured to destination:

Measured value window	Set Points(MV)
CFC	

I B dmd> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

I C dmd> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

I1dmd> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Pdmd|> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Qdmd|> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Sdmd|> (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

37-1 under current (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

|Power Factor|< (LV - Limit value)

Configured to destination:
Measured value window — Set Points(MV)
CFC

2.4 Metered values

2.4.1 Energy

Wp Forward (MVMV - Metered value of measured value)

Configured to source:
Measured value: WpDelta=
Configured to destination:
System interface
Metered value window

Wq Forward (MVMV - Metered value of measured value)

Configured to source:
Measured value: WqDelta=
Configured to destination:
System interface
Metered value window

Wp Reverse (MVMV - Metered value of measured value)

Configured to source:
Measured value: WpDelta=
Configured to destination:
System interface
Metered value window

Wq Reverse (MVMV - Metered value of measured value)

Configured to source:
Measured value: WqDelta=
Configured to destination:
System interface
Metered value window

Pulsed Energy Wp (active) (PMV - Pulse metered value)

Configured to destination:
Metered value window

Pulsed Energy Wq (reactive) (PMV - Pulse metered value)

Configured to destination:
Metered value window

2.4.2 Statistics

Number of TRIPs= (PMV - Pulse metered value)

Configured to destination:

System interface

3 Configuration - short (column-oriented)

3.1 Binary inputs

Binary inputs

Binary inputs	No.	Group	Information	Type	Configuration
1		Cntrl Authority	Local	SP	H
2		Cntrl Authority	Remote	SP	H
3		Process Data	>SF6-Loss	SP	H
4		Process Data	>CB ready Spring is charged	SP	H
4		Process Data	>CB waiting for Spring charged	SP	L
5		Process Data	>Error Control Voltage	SP	L
6		Process Data	-S25	SP	H
7		Process Data	MCB VT	SP	L
8	04602	P.System Data 2	>52-b contact (OPEN, if bkr is closed)	SP	H
8		Control Device	52 Breaker	DP	X
9	04601	P.System Data 2	>52-a contact (OPEN, if bkr is open)	SP	H
9		Control Device	52 Breaker	DP	X
9		SIGNAL	CB CLOSE 1	SP	H
10		Control Device	DSC ON	SP	H
11		Control Device	Tierra Off	SP	H
12		Control Device	Tierra ON	SP	H
13	06852	74TC TripCirc.	>74TC Trip circuit superv.: trip relay	SP	H
14	06853	74TC TripCirc.	>74TC Trip circuit superv.: brk relay	SP	H
15		SIGNAL	RX50BF/59N	SP	H

3.2 Binary outputs

Binary outputs

BO	No.	Group	Information	Type	Configuration
4	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	U
4		Control Device	52 Breaker	CF_D12	Tr
4		Process Data	86T	SP	U
5		Control Device	52 Breaker	CF_D12	Cl
6		Control Device	52 Breaker	CF_D12	Cl
7		Control Device	Disconnect Switch	CF_D2	Tr
8		Control Device	Disconnect Switch	CF_D2	Cl
9		Control Device	Ground Switch	CF_D2	Tr
10		Control Device	Ground Switch	CF_D2	Cl
11	01494	50BF BkrFailure	50BF TRIP 2	OUT	U
11		SIGNAL	TRIP 50BF	OUT	U
11		SIGNAL	50BFEXT/59N	OUT	U
12		Control Device	Interlocking: 52 Close	IntSP	U
13	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	U
13		Process Data	86T	SP	U

3.3 LEDs

LEDs

LEDs	No.	Group	Information	Type	Configuration
1	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	L
2		Process Data	86T	SP	L
3	06865	74TC TripCirc.	74TC Failure Trip Circuit	OUT	L
4		Process Data	>SF6-Loss	SP	U
5		Process Data	>Error Control Voltage	SP	U
6		Process Data	MCB VT	SP	U
7		Control Device	Interlocking: 52 Close	IntSP	U
8		Control Device	Interlocking: Disconnect switch Open	IntSP	U
8		Control Device	Interlocking: Disconnect switch Close	IntSP	U
9		Control Device	Interlocking: Ground switch Open	IntSP	U
9		Control Device	Interlocking: Ground switch Close	IntSP	U
10		Change Group	Setting Group A is active	IntSP	U
11		Change Group	Setting Group B is active	IntSP	U
13	009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IntSP	U
14	009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IntSP	U

3.4 CFC

CFC

No.	Group	Information	Source	Destination
00016	Device, General	>DataStop / >Stop data transmission		X
	Device, General	Feeder gnd / Feeder GROUNDED	X	
	Device, General	Brk OPENED / Breaker OPENED	X	
	Device, General	SynchClock / Clock Synchronization	X	
00004	Osc. Fault Rec.	>Trig.Wave.Cap. / >Trigger Waveform Capture		X
	Osc. Fault Rec.	FltRecSta / Fault Recording Start	X	
00007	Change Group	>Set Group Bit0 / >Setting Group Select Bit 0	X	
00008	Change Group	>Set Group Bit1 / >Setting Group Select Bit 1	X	
00511	P.System Data 2	Relay TRIP / Relay GENERAL TRIP command		X
01431	50BF BkrFailure	>50BF ext SRC / >50BF initiated externally	X	X
01456	50BF BkrFailure	50BF int Pickup / 50BF (internal) PICKUP		X
01494	50BF BkrFailure	50BF TRIP 2 / 50BF TRIP 2		X
	Cntrl Authority	Local / Local		X
	Cntrl Authority	Remote / Remote		X
	Cntrl Authority	LocRemCel / Local Remoto Celda	X	
	Control Device	52Breaker / 52 Breaker		X
	Control Device	52Breaker / 52 Breaker		X
	Control Device	Disc.Swit. / Disconnect Switch		X
	Control Device	Disc.Swit. / Disconnect Switch	X	X
	Control Device	GndSwit. / Ground Switch		X
	Control Device	GndSwit. / Ground Switch	X	X
	Control Device	52 Open / Interlocking: 52 Open	X	
	Control Device	52 Close / Interlocking: 52 Close	X	

CFC(2)

No.	Group	Information	Source	Destination
	Control Device	Disc.Open / Interlocking: Disconnect switch Open	X	
	Control Device	Disc.Close / Interlocking: Disconnect switch Close	X	
	Control Device	GndSw Open / Interlocking: Ground switch Open	X	
	Control Device	GndSw Cl. / Interlocking: Ground switch Close	X	
	Control Device	UnlockDT / Unlock data transmission via BI	X	
	Control Device	DSC ON / DSC ON		X
	Control Device	Q1/5 OFF / Q1/5 OFF	X	X
	Control Device	TieOFF / Tierra Off		X
	Control Device	TieON / Tierra ON		X
	Process Data	>CB ready / >CB ready Spring is charged		X
	Process Data	>CB wait / >CB waiting for Spring charged		X
	Process Data	MCB VT / MCB VT		X
	Process Data	>ErrCntrlV / >Error Control Voltage		X
	Process Data	>SF6-Loss / >SF6-Loss		X
	Process Data	-S25 / -S25		X
	Process Data	86T / 86T	X	X
	Process Data	Reset86T / Reset 86 T		X
00601	Measurement	Ia = / Ia		X
00602	Measurement	Ib = / Ib		X
00603	Measurement	Ic = / Ic		X
00604	Measurement	In = / In		X
00605	Measurement	I1 = / I1 (positive sequence)		X
00606	Measurement	I2 = / I2 (negative sequence)		X
00831	Measurement	3Io = / 3Io (zero sequence)		X
00621	Measurement	Va = / Va		X
00622	Measurement	Vb = / Vb		X
00623	Measurement	Vc = / Vc		X
00624	Measurement	Va-b= / Va-b		X
00625	Measurement	Vb-c= / Vb-c		X
00626	Measurement	Vc-a= / Vc-a		X
00627	Measurement	VN = / VN		X
00629	Measurement	V1 = / V1 (positive sequence)		X
00630	Measurement	V2 = / V2 (negative sequence)		X
00641	Measurement	P = / P (active power)		X
00642	Measurement	Q = / Q (reactive power)		X
00645	Measurement	S = / S (apparent power)		X
00644	Measurement	Freq= / Frequency		X
00832	Measurement	Vo = / Vo (zero sequence)		X
00901	Measurement	PF = / Power Factor		X
30701	Measurement	Pa = / Pa (active power, phase A)		X
30702	Measurement	Pb = / Pb (active power, phase B)		X
30703	Measurement	Pc = / Pc (active power, phase C)		X
30704	Measurement	Qa = / Qa (reactive power, phase A)		X
30705	Measurement	Qb = / Qb (reactive power, phase B)		X
30706	Measurement	Qc = / Qc (reactive power, phase C)		X
30707	Measurement	PFa = / Power Factor, phase A		X

CFC(3)

No.	Group	Information	Source	Destination
30708	Measurement	PFb = / Power Factor, phase B		X
30709	Measurement	PFc = / Power Factor, phase C		X
00963	Demand meter	Ia dmd= / I A demand		X
00964	Demand meter	Ib dmd= / I B demand		X
00965	Demand meter	Ic dmd= / I C demand		X
00833	Demand meter	I1 dmd= / I1 (positive sequence) Demand		X
00834	Demand meter	P dmd = / Active Power Demand		X
00835	Demand meter	Q dmd = / Reactive Power Demand		X
00836	Demand meter	S dmd = / Apparent Power Demand		X
	Set Points(MV)	I Admd> / I A dmd>		X
	Set Points(MV)	I Bdmd> / I B dmd>		X
	Set Points(MV)	I Cdmd> / I C dmd>		X
	Set Points(MV)	I1dmd> / I1dmd>		X
00273	Set Points(MV)	SP. I A dmd> / Set Point Phase A dmd>	X	
00274	Set Points(MV)	SP. I B dmd> / Set Point Phase B dmd>	X	
00275	Set Points(MV)	SP. I C dmd> / Set Point Phase C dmd>	X	
00276	Set Points(MV)	SP. I1dmd> / Set Point positive sequence I1dmd>	X	
	Set Points(MV)	|Pdmd|> / |Pdmd|>		X
	Set Points(MV)	|Qdmd|> / |Qdmd|>		X
	Set Points(MV)	|Sdmd|> / |Sdmd|>		X
00277	Set Points(MV)	SP. |Pdmd|> / Set Point |Pdmd|>	X	
00278	Set Points(MV)	SP. |Qdmd|> / Set Point |Qdmd|>	X	
00279	Set Points(MV)	SP. |Sdmd|> / Set Point |Sdmd|>	X	
00284	Set Points(MV)	SP. 37-1 alarm / Set Point 37-1 Undercurrent alarm	X	
	Set Points(MV)	37-1 / 37-1 under current		X
	Set Points(MV)	|PF|< / |Power Factor|<		X
00285	Set Points(MV)	SP. PF(55)alarm / Set Point 55 Power factor alarm	X	
	SIGNAL	CB CLOSE 1 / CB CLOSE 1		X
	SIGNAL	TRIP 50BF / TRIP 50BF	X	X
	SIGNAL	RX50BF/59N / RX50BF/59N		X
	SIGNAL	50BFEXT/59N / 50BFEXT/59N	X	X
	Grupo	INTACOP / Interruptor Acoplador		X
	Grupo	D1Acop / Desconectador 1 Acople		X
	Grupo	D2Acop / Desconectador 2 Acople		X
	Grupo	INTTaux / Interruptor Trafo Aux		X
	Grupo	D1Taux / Desconectador Trafo Aux		X

3.5 Function keys

Function keys

No.	Group	Information	Function keys
	Process Data	Reset 86 T	3

3.6 Buffer

3.6.1 Operational indication buffer

Operational indication buffer

No.	Group	Information	Buffer
	Device, General	>Back Light on	IO
00051	Device, General	Device is Operational and Protecting	IO
00052	Device, General	At Least 1 Protection Funct. is Active	IO
00055	Device, General	Reset Device	I
00056	Device, General	Initial Start of Device	I
	Device, General	Reset LED	I
00067	Device, General	Resume	I
00068	Device, General	Clock Synchronization Error	IO
00069	Device, General	Daylight Saving Time	IO
00110	Device, General	Event lost	I
00113	Device, General	Flag Lost	I
00125	Device, General	Chatter ON	IO
00140	Device, General	Error with a summary alarm	IO
00160	Device, General	Alarm Summary Event	IO
00144	Device, General	Error 5V	IO
00145	Device, General	Error 0V	IO
00146	Device, General	Error -5V	IO
00147	Device, General	Error Power Supply	IO
00177	Device, General	Failure: Battery empty	IO
00070	Device, General	Setting calculation is running	IO
00072	Device, General	Level-2 change	IO
00183	Device, General	Error Board 1	IO
00184	Device, General	Error Board 2	IO
00185	Device, General	Error Board 3	IO
00186	Device, General	Error Board 4	IO
00187	Device, General	Error Board 5	IO
00188	Device, General	Error Board 6	IO
00189	Device, General	Error Board 7	IO
	Device, General	Stop data transmission	IO
	Device, General	Test mode	IO
	Device, General	Hardware Test Mode	IO
00193	Device, General	Alarm: NO calibration data available	IO
17565	Device, General	>Blocking of the offset supervision	IO
00191	Device, General	Error: Offset	IO
00320	Device, General	Warn: Limit of Memory Data exceeded	IO
00321	Device, General	Warn: Limit of Memory Parameter exceeded	IO
00322	Device, General	Warn: Limit of Memory Operation exceeded	IO
00323	Device, General	Warn: Limit of Memory New exceeded	IO
	Device, General	Disturbance CFC	IO
17566	Device, General	Disturbance CFC Source	IO
236.2127.01	Device, General	BLOCK Flexible Function	IO
009.0100.01	EN100-Modul 1	Failure EN100 Modul	IO

Operational indication buffer(2)

No.	Group	Information	Buffer
009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IO
009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IO
05145	P.System Data 1	>Reverse Phase Rotation	IO
05147	P.System Data 1	Phase rotation ABC	IO
05148	P.System Data 1	Phase rotation ACB	IO
00203	Osc. Fault Rec.	Waveform data deleted	I
	Osc. Fault Rec.	Fault Recording Start	IO
	Change Group	Setting Group A is active	IO
	Change Group	Setting Group B is active	IO
	Change Group	Setting Group C is active	IO
	Change Group	Setting Group D is active	IO
02720	P.System Data 2	>Enable 50/67-(N)-2 (override 79 blk)	IO
00561	P.System Data 2	Manual close signal detected	IO
04601	P.System Data 2	>52-a contact (OPEN, if bkr is open)	IO
04602	P.System Data 2	>52-b contact (OPEN, if bkr is closed)	IO
00126	P.System Data 2	Protection ON/OFF (via system port)	IO
01751	50/51 Overcur.	50/51 O/C switched OFF	IO
01752	50/51 Overcur.	50/51 O/C is BLOCKED	IO
01753	50/51 Overcur.	50/51 O/C is ACTIVE	IO
10034	50/51 Overcur.	50-3 BLOCKED	IO
01852	50/51 Overcur.	50-2 BLOCKED	IO
01851	50/51 Overcur.	50-1 BLOCKED	IO
01855	50/51 Overcur.	51 BLOCKED	IO
01756	50/51 Overcur.	50N/51N is OFF	IO
01757	50/51 Overcur.	50N/51N is BLOCKED	IO
01758	50/51 Overcur.	50N/51N is ACTIVE	IO
10035	50/51 Overcur.	50N-3 BLOCKED	IO
01854	50/51 Overcur.	50N-2 BLOCKED	IO
01853	50/51 Overcur.	50N-1 BLOCKED	IO
01856	50/51 Overcur.	51N BLOCKED	IO
00169	Measurem.Superv	VT Fuse Failure (alarm >10s)	IO
00170	Measurem.Superv	VT Fuse Failure (alarm instantaneous)	IO
00162	Measurem.Superv	Failure: Current Summation	IO
00163	Measurem.Superv	Failure: Current Balance	IO
00167	Measurem.Superv	Failure: Voltage Balance	IO
00161	Measurem.Superv	Failure: General Current Supervision	IO
00171	Measurem.Superv	Failure: Phase Sequence	IO
00176	Measurem.Superv	Failure: Phase Sequence Voltage	IO
00175	Measurem.Superv	Failure: Phase Sequence Current	IO
00197	Measurem.Superv	Measurement Supervision is switched OFF	IO
06509	Measurem.Superv	>Failure: Feeder VT	IO
06510	Measurem.Superv	>Failure: Busbar VT	IO
06853	74TC TripCirc.	>74TC Trip circuit superv.: brk relay	IO
06852	74TC TripCirc.	>74TC Trip circuit superv.: trip relay	IO
06861	74TC TripCirc.	74TC Trip circuit supervision OFF	IO
06862	74TC TripCirc.	74TC Trip circuit supervision is BLOCKED	IO

Operational indication buffer(3)

No.	Group	Information	Buffer
06863	74TC TripCirc.	74TC Trip circuit supervision is ACTIVE	IO
06864	74TC TripCirc.	74TC blocked. Bin. input is not set	IO
06865	74TC TripCirc.	74TC Failure Trip Circuit	IO
01106	Fault Locator	>Start Fault Locator	I
01403	50BF BkrFailure	>BLOCK 50BF	IO
01431	50BF BkrFailure	>50BF initiated externally	IO
01451	50BF BkrFailure	50BF is switched OFF	IO
01452	50BF BkrFailure	50BF is BLOCKED	IO
01453	50BF BkrFailure	50BF is ACTIVE	IO
	Cntrl Authority	Control Authority	IO
	Cntrl Authority	Controlmode LOCAL	IO
	Cntrl Authority	Controlmode REMOTE	IO
	Cntrl Authority	Local	IO
	Cntrl Authority	Remote	IO
	Cntrl Authority	Local Remoto Celda	IO
	Control Device	52 Breaker	IO
	Control Device	Disconnect Switch	IO
	Control Device	Ground Switch	IO
	Control Device	DSC ON	IO
	Control Device	Q1/5 OFF	IO
	Control Device	Tierra Off	IO
	Control Device	Tierra ON	IO
	Process Data	>CB waiting for Spring charged	IO
	Process Data	MCB VT	IO
	Process Data	>Error Control Voltage	IO
	Process Data	>SF6-Loss	IO
	Process Data	-S25	IO
	Process Data	86T	IO
	Process Data	Reset 86 T	IO
00395	Min/Max meter	>I MIN/MAX Buffer Reset	I
00396	Min/Max meter	>I1 MIN/MAX Buffer Reset	I
00403	Min/Max meter	>Idmd MIN/MAX Buffer Reset	I
00412	Min/Max meter	>Theta MIN/MAX Buffer Reset	I
00397	Min/Max meter	>V MIN/MAX Buffer Reset	I
00398	Min/Max meter	>Vphph MIN/MAX Buffer Reset	I
00399	Min/Max meter	>V1 MIN/MAX Buffer Reset	I
00400	Min/Max meter	>P MIN/MAX Buffer Reset	I
00401	Min/Max meter	>S MIN/MAX Buffer Reset	I
00402	Min/Max meter	>Q MIN/MAX Buffer Reset	I
00404	Min/Max meter	>Pdmd MIN/MAX Buffer Reset	I
00405	Min/Max meter	>Qdmd MIN/MAX Buffer Reset	I
00406	Min/Max meter	>Sdmd MIN/MAX Buffer Reset	I
00407	Min/Max meter	>Frq. MIN/MAX Buffer Reset	I
00408	Min/Max meter	>Power Factor MIN/MAX Buffer Reset	I
00273	Set Points(MV)	Set Point Phase A dmd>	IO
00274	Set Points(MV)	Set Point Phase B dmd>	IO

Operational indication buffer(4)

No.	Group	Information	Buffer
00275	Set Points(MV)	Set Point Phase C dmd>	IO
00276	Set Points(MV)	Set Point positive sequence I1dmd>	IO
00277	Set Points(MV)	Set Point |Pdmd|>	IO
00278	Set Points(MV)	Set Point |Qdmd|>	IO
00279	Set Points(MV)	Set Point |Sdmd|>	IO
00284	Set Points(MV)	Set Point 37-1 Undercurrent alarm	IO
00285	Set Points(MV)	Set Point 55 Power factor alarm	IO
00409	Statistics	>BLOCK Op Counter	IO
00272	SetPoint(Stat)	Set Point Operating Hours	IO
	Thresh.-Switch	Threshold Value 1	IO
	SIGNAL	CB CLOSE 1	IO
	SIGNAL	TRIP 50BF	IO
	SIGNAL	RX50BF/59N	IO
	SIGNAL	50BFEXT/59N	IO
	Grupo	Interruptor Acoplador	IO
	Grupo	Desconectador 1 Acople	IO
	Grupo	Desconectador 2 Acople	IO
	Grupo	Interruptor Trafo Aux	IO
	Grupo	Desconectador Trafo Aux	IO

3.6.2 Sensitive ground fault indication buffer

nothing allocated

3.6.3 Trip log

Trip log

No.	Group	Information	Buffer
00545	Device, General	Time from Pickup to drop out	IO
00546	Device, General	Time from Pickup to TRIP	IO
00533	P.System Data 2	Primary fault current Ia	IO
00534	P.System Data 2	Primary fault current Ib	IO
00535	P.System Data 2	Primary fault current Ic	IO
00501	P.System Data 2	Relay PICKUP	I
00511	P.System Data 2	Relay GENERAL TRIP command	I
01761	50/51 Overcur.	50(N)/51(N) O/C PICKUP	IO
01791	50/51 Overcur.	50(N)/51(N) TRIP	I
01752	50/51 Overcur.	50/51 O/C is BLOCKED	IO
01762	50/51 Overcur.	50/51 Phase A picked up	IO
01763	50/51 Overcur.	50/51 Phase B picked up	IO
01764	50/51 Overcur.	50/51 Phase C picked up	IO
01767	50/51 Overcur.	50-3 picked up	IO
01769	50/51 Overcur.	50-3 TRIP	I
01800	50/51 Overcur.	50-2 picked up	IO
01805	50/51 Overcur.	50-2 TRIP	I

Trip log(2)

No.	Group	Information	Buffer
01810	50/51 Overcur.	50-1 picked up	IO
01815	50/51 Overcur.	50-1 TRIP	I
01820	50/51 Overcur.	51 picked up	IO
01825	50/51 Overcur.	51 TRIP	I
10034	50/51 Overcur.	50-3 BLOCKED	IO
01852	50/51 Overcur.	50-2 BLOCKED	IO
01851	50/51 Overcur.	50-1 BLOCKED	IO
01855	50/51 Overcur.	51 BLOCKED	IO
01757	50/51 Overcur.	50N/51N is BLOCKED	IO
01765	50/51 Overcur.	50N/51N picked up	IO
01768	50/51 Overcur.	50N-3 picked up	IO
01770	50/51 Overcur.	50N-3 TRIP	I
01831	50/51 Overcur.	50N-2 picked up	IO
01833	50/51 Overcur.	50N-2 TRIP	I
01834	50/51 Overcur.	50N-1 picked up	IO
01836	50/51 Overcur.	50N-1 TRIP	I
01837	50/51 Overcur.	51N picked up	IO
01839	50/51 Overcur.	51N TRIP	I
10035	50/51 Overcur.	50N-3 BLOCKED	IO
01854	50/51 Overcur.	50N-2 BLOCKED	IO
01853	50/51 Overcur.	50N-1 BLOCKED	IO
01856	50/51 Overcur.	51N BLOCKED	IO
06862	74TC TripCirc.	74TC Trip circuit supervision is BLOCKED	IO
01114	Fault Locator	Flt Locator: primary RESISTANCE	IO
01115	Fault Locator	Flt Locator: primary REACTANCE	IO
01117	Fault Locator	Flt Locator: secondary RESISTANCE	IO
01118	Fault Locator	Flt Locator: secondary REACTANCE	IO
01119	Fault Locator	Flt Locator: Distance to fault	IO
01120	Fault Locator	Flt Locator: Distance [%] to fault	IO
01123	Fault Locator	Fault Locator Loop AG	I
01124	Fault Locator	Fault Locator Loop BG	I
01125	Fault Locator	Fault Locator Loop CG	I
01126	Fault Locator	Fault Locator Loop AB	I
01127	Fault Locator	Fault Locator Loop BC	I
01128	Fault Locator	Fault Locator Loop CA	I
01132	Fault Locator	Fault location invalid	I
01452	50BF BkrFailure	50BF is BLOCKED	IO
01456	50BF BkrFailure	50BF (internal) PICKUP	IO
01457	50BF BkrFailure	50BF (external) PICKUP	IO
01471	50BF BkrFailure	50BF TRIP	I
01480	50BF BkrFailure	50BF (internal) TRIP	I
01481	50BF BkrFailure	50BF (external) TRIP	I
01494	50BF BkrFailure	50BF TRIP 2	I

3.6.4 Event value buffer

nothing allocated

3.7 Display

Display

No.	Group	Information	Control Display	Default Display
	Control Device	52 Breaker	X	
	Control Device	52 Breaker		X
	Control Device	Disconnect Switch	X	
	Control Device	Disconnect Switch		X
	Control Device	Ground Switch	X	
	Control Device	Ground Switch		X
	Control Device	DSC ON	X	X
	Control Device	Q1/5 OFF	X	X
00602	Measurement	Ib		X
00625	Measurement	Vb-c		X

3.8 System interface IEC 61850

System interface IEC 61850

No.	Group	Information	Type	S	D	X
00051	Device, General	Device is Operational and Protecting	OUT		X	
00052	Device, General	At Least 1 Protection Funct. is Active	IntSP	X	X	
00055	Device, General	Reset Device	OUT		X	
00056	Device, General	Initial Start of Device	OUT		X	
	Device, General	Reset LED	IntSP	X	X	

System interface IEC 61850(2)

IEC 61850 object
PROT/LLN0/Mod
PROT/LLN0/Beh
PROT/LLN0/Health
PROT/LPHD1/PhyHealth
PROT/PTRC1/Mod
PROT/PTRC1/Beh
PROT/PTRC1/Health
PROT/XCBR1/Mod
PROT/XCBR1/Beh
PROT/XCBR1/Health
.
.
.
PROT/PTRC1/Mod
PROT/PTRC1/Beh
PROT/LPHD1/Proxy
PROT/XCBR1/Loc
PROT/XCBR1/BlkOpn
PROT/XCBR1/BlkCls
MEAS/LPHD1/Proxy
DR/LPHD1/Proxy
CTRL/LLN0/Mod
CTRL/LLN0/Beh
CTRL/CALH1/Mod
CTRL/CALH1/Beh
.
.
.
CTRL/LPHD1/DevStr
CTRL/LLN0/LEDRs

System interface IEC 61850(3)

No.	Group	Information	Type	S	D	X
00067	Device, General	Resume	OUT		X	
00068	Device, General	Clock Synchronization Error	OUT			X
00140	Device, General	Error with a summary alarm	OUT		X	
00160	Device, General	Alarm Summary Event	OUT		X	
00177	Device, General	Failure: Battery empty	OUT			X
00183	Device, General	Error Board 1	OUT		X	
00184	Device, General	Error Board 2	OUT		X	
00185	Device, General	Error Board 3	OUT		X	
00186	Device, General	Error Board 4	OUT		X	
00187	Device, General	Error Board 5	OUT		X	
00188	Device, General	Error Board 6	OUT		X	
00189	Device, General	Error Board 7	OUT		X	
	Device, General	Stop data transmission	IntSP		X	
	Device, General	Test mode	IntSP		X	
009.0100.01	EN100-Modul 1	Failure EN100 Modul	IntSP			X
009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IntSP			X
009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IntSP			X
30053	Osc. Fault Rec.	Fault recording is running	OUT		X	
00007	Change Group	>Setting Group Select Bit 0	SP			X
00008	Change Group	>Setting Group Select Bit 1	SP			X
	Change Group	Setting Group A is active	IntSP			X

System interface IEC 61850(4)

IEC 61850 object
CTRL/LPHD1/DevStr
EXT/pdGGIO2/SPCSO4
CTRL/CALH1/GrAlm
CTRL/CALH1/GrWrn
EXT/pdGGIO3/SPCSO49
CTRL/LLN0/Health CTRL/CALH1/ErrBoard1
CTRL/LLN0/Health CTRL/CALH1/ErrBoard2
CTRL/LLN0/Health CTRL/CALH1/ErrBoard3
CTRL/LLN0/Health CTRL/CALH1/ErrBoard4
CTRL/LLN0/Health CTRL/CALH1/ErrBoard5
CTRL/LLN0/Health CTRL/CALH1/ErrBoard6
CTRL/LLN0/Health CTRL/CALH1/ErrBoard7
PROT/LLN0/Mod PROT/LLN0/Beh PROT/PTRC1/Beh PROT/XCBR1/Beh PROT/PTOC6/Beh PROT/PTOC7/Beh PROT/PTOC1/Beh PROT/PTOC8/Beh PROT/PTOC9/Beh PROT/PTOC2/Beh . . .
PROT/LLN0/Mod PROT/LLN0/Beh PROT/LLN0/OpTmh PROT/LPHD1/Proxy PROT/PTRC1/Beh PROT/PTRC1/Tr PROT/PTRC1/Str PROT/PTRC1/FinTr PROT/XCBR1/Beh PROT/XCBR1/Loc . . .
EXT/pdGGIO32776/SPCSO1
EXT/pdGGIO32776/SPCSO2
EXT/pdGGIO32776/SPCSO3
DR/SC_RDRE1/RcdMade DR/SC_RDRE1/RcdStr
EXT/pdGGIO1/SPCSO7
EXT/pdGGIO1/SPCSO8
EXT/pdGGIO513/SPCSO53

System interface IEC 61850(5)

No.	Group	Information	Type	S	D	X
	Change Group	Setting Group B is active	IntSP			X
	Change Group	Setting Group C is active	IntSP			X
	Change Group	Setting Group D is active	IntSP			X
00501	P.System Data 2	Relay PICKUP	OUT		X	
00511	P.System Data 2	Relay GENERAL TRIP command	OUT		X	
04601	P.System Data 2	>52-a contact (OPEN, if bkr is open)	SP		X	
04602	P.System Data 2	>52-b contact (OPEN, if bkr is closed)	SP		X	
01761	50/51 Overcur.	50(N)/51(N) O/C PICKUP	OUT		X	
01791	50/51 Overcur.	50(N)/51(N) TRIP	OUT		X	
01751	50/51 Overcur.	50/51 O/C switched OFF	OUT		X	
01752	50/51 Overcur.	50/51 O/C is BLOCKED	OUT		X	
01753	50/51 Overcur.	50/51 O/C is ACTIVE	OUT		X	
01762	50/51 Overcur.	50/51 Phase A picked up	OUT		X	
01763	50/51 Overcur.	50/51 Phase B picked up	OUT		X	
01764	50/51 Overcur.	50/51 Phase C picked up	OUT		X	
01767	50/51 Overcur.	50-3 picked up	OUT		X	
01769	50/51 Overcur.	50-3 TRIP	OUT		X	
01800	50/51 Overcur.	50-2 picked up	OUT		X	
01805	50/51 Overcur.	50-2 TRIP	OUT		X	
01810	50/51 Overcur.	50-1 picked up	OUT		X	
01815	50/51 Overcur.	50-1 TRIP	OUT		X	
01820	50/51 Overcur.	51 picked up	OUT		X	
01825	50/51 Overcur.	51 TRIP	OUT		X	
01756	50/51 Overcur.	50N/51N is OFF	OUT		X	
01758	50/51 Overcur.	50N/51N is ACTIVE	OUT		X	
01765	50/51 Overcur.	50N/51N picked up	OUT		X	
01831	50/51 Overcur.	50N-2 picked up	OUT		X	
01833	50/51 Overcur.	50N-2 TRIP	OUT		X	

System interface IEC 61850(6)

IEC 61850 object
EXT/pdGGIO513/SPCSO54
EXT/pdGGIO513/SPCSO55
EXT/pdGGIO513/SPCSO56
PROT/PTRC1/Str
PROT/PTRC1/Tr
PROT/XCBR1/Pos
PROT/XCBR1/Pos
PROT/PTRC2/Str
PROT/PTRC2/Op
PROT/PTOC6/Mod
PROT/PTOC6/Beh
PROT/PTOC7/Mod
PROT/PTOC7/Beh
PROT/PTOC1/Mod
PROT/PTOC1/Beh
PROT/PTOC18/Mod
PROT/PTOC18/Beh
PROT/PTOC1/Beh
PROT/PTOC6/Mod
PROT/PTOC6/Beh
PROT/PTOC7/Mod
PROT/PTOC7/Beh
PROT/PTOC1/Mod
PROT/PTOC1/Beh
PROT/PTOC18/Mod
PROT/PTOC18/Beh
PROT/PTRC2/Str
PROT/PTRC2/Str
PROT/PTRC2/Str
PROT/PTOC18/Str
PROT/PTOC18/Op
PROT/PTOC7/Str
PROT/PTOC7/Op
PROT/PTOC6/Str
PROT/PTOC6/Op
PROT/PTOC1/Str
PROT/PTOC1/Op
PROT/PTOC8/Mod
PROT/PTOC8/Beh
PROT/PTOC9/Mod
PROT/PTOC9/Beh
PROT/PTOC2/Mod
PROT/PTOC2/Beh
PROT/PTOC8/Mod
PROT/PTOC8/Beh
PROT/PTOC9/Mod
PROT/PTOC9/Beh
PROT/PTOC2/Mod
PROT/PTOC2/Beh
PROT/PTRC2/Str
PROT/PTOC9/Str
PROT/PTOC9/Op

System interface IEC 61850(7)

No.	Group	Information	Type	S	D	X
01834	50/51 Overcur.	50N-1 picked up	OUT		X	
01836	50/51 Overcur.	50N-1 TRIP	OUT		X	
01837	50/51 Overcur.	51N picked up	OUT		X	
01839	50/51 Overcur.	51N TRIP	OUT		X	
06865	74TC TripCirc.	74TC Failure Trip Circuit	OUT		X	
01120	Fault Locator	Flt Locator: Distance [%] to fault	VI		X	
01451	50BF BkrFailure	50BF is switched OFF	OUT		X	
01456	50BF BkrFailure	50BF (internal) PICKUP	OUT		X	
01457	50BF BkrFailure	50BF (external) PICKUP	OUT		X	
01480	50BF BkrFailure	50BF (internal) TRIP	OUT		X	
01481	50BF BkrFailure	50BF (external) TRIP	OUT		X	
01494	50BF BkrFailure	50BF TRIP 2	OUT			X
	Cntrl Authority	Control Authority	DP		X	
	Cntrl Authority	Local Remoto Celda	DP		X	
	Control Device	52 Breaker	CF_D12	X		
	Control Device	52 Breaker	DP		X	
	Control Device	Disconnect Switch	CF_D2	X		
	Control Device	Disconnect Switch	DP		X	
	Control Device	Ground Switch	CF_D2	X		
	Control Device	Ground Switch	DP		X	
	Process Data	>CB ready Spring is charged	SP		X	
	Process Data	MCB VT	SP			X
	Process Data	>Error Control Voltage	SP		X	
	Process Data	>SF6-Loss	SP		X	
	Process Data	-S25	SP		X	
	Process Data	86T	SP		X	
00601	Measurement	Ia	MV		X	
00602	Measurement	Ib	MV		X	
00603	Measurement	Ic	MV		X	
00604	Measurement	In	MV		X	
00605	Measurement	I1 (positive sequence)	MV		X	

System interface IEC 61850(8)

IEC 61850 object
PROT/PTOC8/Str
PROT/PTOC8/Op
PROT/PTOC2/Str
PROT/PTOC2/Op
PROT/XCBR1/CirSpv
PROT/RFLO1/FltDisPrc
PROT/RBRF1/Mod PROT/RBRF1/Beh
PROT/RBRF1/Str
PROT/RBRF1/OpIn
PROT/RBRF1/OpEx
EXT/pdGGIO24/SPCSO22
CTRL/LLN0/Loc
CTRL/AlarmaGGIO1/DPCSO6
CTRL/Q0XCBR1 CTRL/Q0CSWI1 Circuit breaker Q0 OpCnt=
CTRL/Q0XCBR1 CTRL/Q0CSWI1 Circuit breaker Q0 OpCnt=
CTRL/Q1XSWI1 CTRL/Q1CSWI1 Disconnector Q1 OpCnt=
CTRL/Q1XSWI1 CTRL/Q1CSWI1 Disconnector Q1 OpCnt=
CTRL/Q8XSWI1 CTRL/Q8CSWI1 Ground switch Q8 OpCnt=
CTRL/Q8XSWI1 CTRL/Q8CSWI1 Ground switch Q8 OpCnt=
CTRL/AlarmaGGIO1/SPCSO2
EXT/pdGGIO513/SPCSO19
CTRL/AlarmaGGIO1/SPCSO3
CTRL/AlarmaGGIO1/SPCSO1
CTRL/AlarmaGGIO1/SPCSO5
CTRL/AlarmaGGIO1/SPCSO4
MEAS/MMXU1/A
MEAS/MMXU1/A
MEAS/MMXU1/A
MEAS/MMXU1/A
MEAS/MSQI1/SeqA

System interface IEC 61850(9)

No.	Group	Information	Type	S	D	X
00606	Measurement	I2 (negative sequence)	MV		X	
00831	Measurement	3Io (zero sequence)	MV		X	
00621	Measurement	Va	MV		X	
00622	Measurement	Vb	MV		X	
00623	Measurement	Vc	MV		X	
00624	Measurement	Va-b	MV		X	
00625	Measurement	Vb-c	MV		X	
00626	Measurement	Vc-a	MV		X	
00627	Measurement	VN	MV		X	
00629	Measurement	V1 (positive sequence)	MV		X	
00630	Measurement	V2 (negative sequence)	MV		X	
00641	Measurement	P (active power)	MV		X	
00642	Measurement	Q (reactive power)	MV		X	
00645	Measurement	S (apparent power)	MV		X	
00644	Measurement	Frequency	MV		X	
00832	Measurement	Vo (zero sequence)	MV		X	
00901	Measurement	Power Factor	MV		X	
00924	Energy	Wp Forward	MVMV		X	
00925	Energy	Wq Forward	MVMV		X	
00928	Energy	Wp Reverse	MVMV		X	
00929	Energy	Wq Reverse	MVMV		X	
01020	Statistics	Counter of operating hours	VI		X	
01021	Statistics	Accumulation of interrupted current Ph A	VI		X	
01022	Statistics	Accumulation of interrupted current Ph B	VI		X	
01023	Statistics	Accumulation of interrupted current Ph C	VI		X	
	Statistics	Number of TRIPs=	PMV		X	
	SIGNAL	TRIP 50BF	OUT		X	
	Grupo	Interruptor Acoplador	ExDP	X		
	Grupo	Desconectador 1 Acople	ExDP	X		
	Grupo	Desconectador 2 Acople	ExDP	X		
	Grupo	Interruptor Trafo Aux	ExDP	X		
	Grupo	Desconectador Trafo Aux	ExDP	X		

System interface IEC 61850(10)

IEC 61850 object
MEAS/MSQI1/SeqA
MEAS/MSQI1/SeqA
MEAS/MMXU1/PhV
MEAS/MMXU1/PhV
MEAS/MMXU1/PhV
MEAS/MMXU1/PPV
MEAS/MMXU1/PPV
MEAS/MMXU1/PPV
MEAS/MMXU1/PhV
MEAS/MSQI1/SeqV
MEAS/MSQI1/SeqV
MEAS/MMXU1/TotW
MEAS/MMXU1/TotVAr
MEAS/MMXU1/TotVA
MEAS/MMXU1/Hz
MEAS/MSQI1/SeqV
MEAS/MMXU1/TotPF
MEAS/MMTR1/SupWh
MEAS/MMTR1/SupVArh
MEAS/MMTR1/DmdWh
MEAS/MMTR1/DmdVArh
PROT/LLN0/OpTmh CTRL/LLN0/OpTmh
PROT/XCBR1/SumSwARs1
PROT/XCBR1/SumSwARs2
PROT/XCBR1/SumSwARs3
PROT/XCBR1/OpCnt
CTRL/AlarmaGGIO1/SPCSO7
CTRL/POSICGGIO1/DPCSO1
CTRL/POSICGGIO1/DPCSO2
CTRL/POSICGGIO1/DPCSO3
CTRL/POSICGGIO1/DPCSO4
CTRL/POSICGGIO1/DPCSO5

4 Interfaces

4.1 Serial interface on PC:

Address (operator interface device):	0
Frame:	
Baud rate:	0
COM interface:	12

Frame, Baud Rate and Address settings:

4.2 VD addresses

DIGSI VD address:	3
SIPROTEC VD address:	10010
Proxy VD address:	4
SIPROTEC T103 VD address:	0

4.3 Operator Interface

Address:	1
Frame:	8 E(ven) 1
Baud rate:	57600
Max. telegram gap (0...50):	0
IP address:	192.168.1.1
Subnet mask:	255.255.255.0
Link layer:	PPP (point-to-point, serial)

Access authorization at the port for parameterization: Enabled

Access authorization at the port for test and diagnosis: Enabled

Web Monitor operation:	Full access

4.4 Service interface

Address:	1
Frame:	8 E(ven) 1
Baud rate:	38400
Max. telegram gap (0...50):	0
IP address:	192.168.2.1
Subnet mask:	255.255.255.0
Link layer:	PPP via star coupler

Access authorization at the port for parameterization: Enabled

Access authorization at the port for test and diagnosis: Enabled

Web Monitor operation:	Reading

4.5 Ethernet on device

IP address:	172.16.200.35
Subnet mask:	255.255.255.0

Standard gateway:	172.16.200.1
Link layer:	Ethernet
Access authorization at the port for parameterization:	Enabled
Access authorization at the port for test and diagnosis:	Enabled
Web Monitor operation:	Reading
SNMP (Simple Network Management Protocol):	ON
Web server:	ON
IEC 61850:	ON
Supplementary protocol EN100 module:	ON
DIGSI via EN100 module:	ON

4.6 Redundancy

Operating mode:	Switch
Redundancy type:	RSTP
Monitoring time [s]:	2
Switch priority:	32768
Switch identifier:	2048
Deleting old messages after [s]:	40
Status dwell time [s]:	21
Priority vector:	128
Max. number of configuration messages:	100
Connection costs:	200000

4.7 Ethernet on PC

IP address:	10.248.24.223
Subnet mask:	255.255.255.0

5 Passwords

Number	Function	Active
1	Password for switching/selecting/updating	Enabled
2	Password for unlocked switching	Enabled
4	Password for testing and diagnostics	Enabled
6	Password for hardware test menus	Enabled
5	Password for single parameters	Enabled
7	Password for parameter set	Enabled
50	Switchgear password 1	Enabled
51	Switchgear password 2	Enabled
52	Switchgear password 3	Enabled
53	Switchgear password 4	Enabled
54	Switchgear password 5	Enabled
55	Switchgear password 6	Enabled
56	Switchgear password 7	Enabled
57	Switchgear password 8	Enabled
58	Switchgear password 9	Enabled
59	Switchgear password 10	Enabled
100	Serial-Login: Password for full access rights (Web Monitor)	Enabled
101	Serial-Login: Password for changing access rights (Web Monitor)	Enabled
102	Serial-Login: Password for read-only access rights (Web Monitor)	Enabled

6 Power System Data 1

6.1 Group Power System Data 1; Group Power System

Group Power System Data 1; Group Power System

No.	Settings	Value	Group
0214	Rated Frequency	50 Hz	All
0209	Phase Sequence	A B C	All
0276	Unit of temperature measurement	Degree Celsius	All
0201	CT Starpoint	towards Line	All
0280	Holmgreen-conn. (for fast sum-i-monit.)	NO	All
0251A	CT Connection	Ia, Ib, Ic, (IGnd)	All
0213	VT Connection, three-phase	Van, Vbn, Vcn	All
0240	VT Connection, single-phase	NO	All
0215	Distance measurement unit	km	All
0235A	Storage of th. Replicas w/o Power Supply	NO	All
0250A	50, 51 Time Overcurrent with 2ph. prot.	OFF	All

6.2 Group Power System Data 1; Group CT's

Group Power System Data 1; Group CT's

No.	Settings	Value	Group
0204	CT Rated Primary Current	500 A	All
0205	CT Rated Secondary Current	1A	All
0217	Ignd-CT rated primary current	500 A	All
0218	Ignd-CT rated secondary current	1A	All

6.3 Group Power System Data 1; Group VT's

Group Power System Data 1; Group VT's

No.	Settings	Value	Group
0202	Rated Primary Voltage	12,00 kV	All
0203	Rated Secondary Voltage (L-L)	120 V	All
0206A	Matching ratio Phase-VT To Open-Delta-VT	1,73	All

6.4 Group Power System Data 1; Group Breaker

Group Power System Data 1; Group Breaker

No.	Settings	Value	Group
0210A	Minimum TRIP Command Duration	0,15 sec	All
0211A	Maximum Close Command Duration	1,00 sec	All
0212	Closed Breaker Min. Current Threshold	0,10 A	All

6.5 Group Power System Data 1; Group Prot.Op. quant.

Group Power System Data 1; Group Prot.Op. quant.

No.	Settings	Value	Group
0613A	50N/51N/67N Ground Overcurrent with	3I0 (calculated)	All

7 Settings groups

7.1 Group Power System Data 2; Group General

Group Power System Data 2; Group General

No.	Settings	Value	Group
1101	Measurem:FullScaleVoltage(Equipm.rating)	12,00 kV	A
1102	Measurem:FullScaleCurrent(Equipm.rating)	500 A	A
1108	P,Q operational measured values sign	not reversed	A
1103	Zero seq. compensating factor RE/RL	1,00	A
1104	Zero seq. compensating factor XE/XL	1,00	A
1106	feeder reactance per km: x'	0,1500 Ohm / km	A
1109	Line angle	85 °	A
1110	Line length in kilometer	100,0 km	A

7.2 Group 50/51 Phase/Ground Overcurrent; Group General

Group 50/51 Phase/Ground Overcurrent; Group General

No.	Settings	Value	Group
1201	50, 51 Phase Time Overcurrent	ON	A
1213A	Manual Close Mode	50-2 instantaneously	A
1215A	50 Drop-Out Time Delay	0,00 sec	A
1301	50N, 51N Ground Time Overcurrent	ON	A
1313A	Manual Close Mode	50N-2 instantaneously	A
1315A	50N Drop-Out Time Delay	0,00 sec	A

7.3 Group 50/51 Phase/Ground Overcurrent; Group 50

Group 50/51 Phase/Ground Overcurrent; Group 50

No.	Settings	Value	Group
1219A	50-3 measurement of	Fundamental component	A
1216A	50-3 active	Always	A
1217	50-3 Pickup	oo A	A
1218	50-3 Time Delay	0,00 sec	A
1220A	50-2 measurement of	Fundamental component	A
1214A	50-2 active	Always	A
1202	50-2 Pickup	oo A	A
1203	50-2 Time Delay	0,00 sec	A
1221A	50-1 measurement of	Fundamental component	A

Group 50/51 Phase/Ground Overcurrent; Group 50(2)

No.	Settings	Value	Group
1204	50-1 Pickup	oo A	A
1205	50-1 Time Delay	0,00 sec	A

7.4 Group 50/51 Phase/Ground Overcurrent; Group 51

Group 50/51 Phase/Ground Overcurrent; Group 51

No.	Settings	Value	Group
1222A	51 measurement of	Fundamental component	A
1207	51 Pickup	0,56 A	A
1208	51 Time Dial	0,67 sec	A
1210	Drop-out characteristic	Instantaneous	A
1211	IEC Curve	Very Inverse	A
1223	51V Voltage Influence	NO	A
1224	51V V< Threshold for Release Ip	75,0 V	A

7.5 Group 50/51 Phase/Ground Overcurrent; Group 50N

Group 50/51 Phase/Ground Overcurrent; Group 50N

No.	Settings	Value	Group
1319A	50N-3 measurement of	Fundamental component	A
1316A	50N-3 active	Always	A
1317	50N-3 Pickup	oo A	A
1318	50N-3 Time Delay	0,00 sec	A
1320A	50N-2 measurement of	Fundamental component	A
1314A	50N-2 active	Always	A
1302	50N-2 Pickup	oo A	A
1303	50N-2 Time Delay	0,10 sec	A
1321A	50N-1 measurement of	Fundamental component	A
1304	50N-1 Pickup	0,10 A	A
1305	50N-1 Time Delay	8,00 sec	A

7.6 Group 50/51 Phase/Ground Overcurrent; Group 51N

Group 50/51 Phase/Ground Overcurrent; Group 51N

No.	Settings	Value	Group
1322A	51N measurement of	Fundamental component	A

Group 50/51 Phase/Ground Overcurrent; Group 51N(2)

No.	Settings	Value	Group
1307	51N Pickup	0,20 A	A
1308	51N Time Dial	0,43 sec	A
1310	Drop-Out Characteristic	Instantaneous	A
1311	IEC Curve	Normal Inverse	A

7.7 Group Measurement Supervision; Group General

Group Measurement Supervision; Group General

No.	Settings	Value	Group
5301	Fuse Fail Monitor	OFF	A
5310	Block protection by FFM	YES	A
8101	Measurement Supervision	ON	A

7.8 Group Measurement Supervision; Group Fuse Fail Mon.

Group Measurement Supervision; Group Fuse Fail Mon.

No.	Settings	Value	Group
5302	Zero Sequence Voltage	30 V	A
5303	Residual Current	0,10 A	A
5308A	Differential Current Threshold (3phase)	1,00 A	A

7.9 Group Measurement Supervision; Group MeasSupervision

Group Measurement Supervision; Group MeasSupervision

No.	Settings	Value	Group
8102	Voltage Threshold for Balance Monitoring	50 V	A
8103	Balance Factor for Voltage Monitor	0,75	A
8104	Current Threshold for Balance Monitoring	0,50 A	A
8105	Balance Factor for Current Monitor	0,50	A
8110A	T Balance Factor for Voltage Monitor	5 sec	A
8111A	T Current Balance Monitor	5 sec	A

7.10 Group 74TC Trip Circuit Supervision; Group General

Group 74TC Trip Circuit Supervision; Group General

No.	Settings	Value	Group
8201	74TC TRIP Circuit Supervision	ON	A

7.11 Group Fault Locator; Group General

Group Fault Locator; Group General

No.	Settings	Value	Group
8001	Start fault locator with	Pickup	A

7.12 Group 50BF Breaker Failure; Group General

Group 50BF Breaker Failure; Group General

No.	Settings	Value	Group
7001	50BF Breaker Failure Protection	ON	A

7.13 Group 50BF Breaker Failure; Group 50BF

Group 50BF Breaker Failure; Group 50BF

No.	Settings	Value	Group
7004	Check Breaker contacts	ON	A
7005	TRIP-Timer	oo sec	A
7006	50BF Pickup current threshold	0,10 A	A
7008	Delay of 2nd stage for busbar trip	0,20 sec	A

7.14 Group Demand Measurement Setup; Group Measurement

Group Demand Measurement Setup; Group Measurement

No.	Settings	Value	Group
8301	Demand Calculation Intervals	60 Min per., 1 Sub.	A
8302	Demand Synchronization Time	On the Hour	A

7.15 Group Min/Max Measurement Setup; Group Measurement

Group Min/Max Measurement Setup; Group Measurement

No.	Settings	Value	Group
8311	Automatic Cyclic Reset Function	YES	A
8312	MinMax Reset Timer	0 min	A
8313	MinMax Reset Cycle Period	7 day(s)	A
8314	MinMax Start Reset Cycle in	1 Days	A

7.16 Group Energy; Group Measurement

Group Energy; Group Measurement

No.	Settings	Value	Group
8315	Meter resolution	Standard	A

8 Time Synchronization

Source of time synchronization: Ethernet NTP

Fault indication after: 2 Min.

Time format for display German

Offset to time signal: 00:00

No daylight saving time switchover

Daylight saving time offset to GMT: -04:00

Start of daylight saving time: Second Saturday in March at 00:00 o'clock

End of daylight saving time: Second Saturday in March at 00:00 o'clock

Time zone offset to GMT: 00:00

9 Annunciation

9.1 Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)

Number	Indication	Value	Date and time
01431	>50BF initiated externally	OFF	30.11.2024 19:14:05.163
00301	Power System fault	644 - OFF	30.11.2024 19:14:05.155
04602	>52-b contact (OPEN, if bkr is closed)	ON	30.11.2024 19:14:05.088
06853	>74TC Trip circuit superv.: brk relay	ON	30.11.2024 19:14:05.088
	52 Breaker	OPEN	30.11.2024 19:14:05.088
04601	>52-a contact (OPEN, if bkr is open)	OFF	30.11.2024 19:14:05.072
	52 Breaker	Intermediate Position	30.11.2024 19:14:05.072
	CB CLOSE 1	OFF	30.11.2024 19:14:05.072
06852	>74TC Trip circuit superv.: trip relay	OFF	30.11.2024 19:14:05.027
	86T	ON	30.11.2024 19:14:05.013
01431	>50BF initiated externally	ON	30.11.2024 19:14:05.013
00301	Power System fault	644 - ON	30.11.2024 19:13:57.015
00301	Power System fault	643 - OFF	30.11.2024 19:13:24.324
00301	Power System fault	643 - ON	30.11.2024 19:13:24.283
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:13:17.446
00301	Power System fault	642 - OFF	30.11.2024 19:13:17.206
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:13:16.847
00301	Power System fault	642 - ON	30.11.2024 19:13:16.018
00301	Power System fault	641 - OFF	30.11.2024 19:13:15.875
00301	Power System fault	641 - ON	30.11.2024 19:13:15.481
00301	Power System fault	640 - OFF	30.11.2024 19:10:02.366
00301	Power System fault	640 - ON	30.11.2024 19:10:01.207
00301	Power System fault	639 - OFF	30.11.2024 19:10:01.114
00301	Power System fault	639 - ON	30.11.2024 19:10:00.982
00301	Power System fault	638 - OFF	30.11.2024 19:10:00.965
00301	Power System fault	638 - ON	30.11.2024 19:10:00.241

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(2)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(3)

Number	Indication	Value	Date and time
00285	Set Point 55 Power factor alarm	OFF	30.11.2024 19:08:43.246
00285	Set Point 55 Power factor alarm	ON	30.11.2024 19:08:42.646
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:08:35.446
00301	Power System fault	637 - OFF	30.11.2024 19:08:35.325
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:08:34.846
00301	Power System fault	637 - ON	30.11.2024 19:08:34.332
00301	Power System fault	636 - OFF	30.11.2024 19:08:34.325
00301	Power System fault	636 - ON	30.11.2024 19:08:33.992
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:58:25.846
00301	Power System fault	635 - OFF	30.11.2024 18:58:25.487
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:58:25.246
00301	Power System fault	635 - ON	30.11.2024 18:58:24.362
00301	Power System fault	634 - OFF	30.11.2024 18:56:34.445
00301	Power System fault	634 - ON	30.11.2024 18:56:33.232
00301	Power System fault	633 - OFF	30.11.2024 18:56:32.425
00301	Power System fault	633 - ON	30.11.2024 18:56:31.498
00301	Power System fault	632 - OFF	30.11.2024 18:56:30.846
00301	Power System fault	632 - ON	30.11.2024 18:56:29.748
00301	Power System fault	631 - OFF	30.11.2024 18:44:32.735
00301	Power System fault	631 - ON	30.11.2024 18:44:31.534
00301	Power System fault	630 - OFF	30.11.2024 18:44:28.075
00301	Power System fault	630 - ON	30.11.2024 18:44:27.598
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:44:18.046
00301	Power System fault	629 - OFF	30.11.2024 18:44:17.715
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:44:17.446

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(4)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(5)

Number	Indication	Value	Date and time
00301	Power System fault	629 - ON	30.11.2024 18:44:16.593
00301	Power System fault	628 - OFF	30.11.2024 18:44:06.964
00301	Power System fault	628 - ON	30.11.2024 18:44:06.897
00301	Power System fault	627 - OFF	30.11.2024 18:44:06.805
00301	Power System fault	627 - ON	30.11.2024 18:44:06.318
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:32:36.646
00301	Power System fault	626 - OFF	30.11.2024 18:32:36.485
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:32:36.046
00301	Power System fault	626 - ON	30.11.2024 18:32:35.331
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:39.646
00301	Power System fault	625 - OFF	30.11.2024 18:16:39.087
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:38.446
00301	Power System fault	625 - ON	30.11.2024 18:16:38.016
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:30.046
00301	Power System fault	624 - OFF	30.11.2024 18:16:29.627
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:29.447
00301	Power System fault	624 - ON	30.11.2024 18:16:28.530
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:13.943
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:12.043
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:11.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:09.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:23.243
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:21.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:16.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:15.243

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(6)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(7)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:12.543
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:10.644
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:09.643
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:07.843
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:42.143
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:40.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:39.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:37.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:26.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:24.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:19.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:18.243
00285	Set Point 55 Power factor alarm	OFF	21.11.2024 04:20:42.646
00301	Power System fault	623 - OFF	21.11.2024 04:20:41.793
00301	Power System fault	623 - ON	21.11.2024 04:20:41.762
00285	Set Point 55 Power factor alarm	ON	21.11.2024 04:20:22.846
	Setting Group A is active	ON	21.11.2024 04:20:03.437
	Setting Group B is active	OFF	21.11.2024 04:20:03.437
	Interruptor Acoplador	OPEN	21.11.2024 04:20:03.137
	Interruptor Acoplador	Intermediate Position	21.11.2024 04:20:03.122
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:40:04.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:40:02.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:39:58.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:39:56.443
009.0100.01	Failure EN100 Modul	OFF	19.11.2024 08:54:39.024

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(8)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(9)

Number	Indication	Value	Date and time
00068	Clock Synchronization Error	OFF	19.11.2024 08:54:36.978
06863	74TC Trip circuit supervision is ACTIVE	ON	19.11.2024 08:54:38.768
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 08:54:30.968
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.11.2024 08:54:30.968
00284	Set Point 37-1 Undercurrent alarm	ON	19.11.2024 08:54:29.572
00272	Set Point Operating Hours	ON	19.11.2024 08:54:29.571
00052	At Least 1 Protection Funct. is Active	ON	19.11.2024 08:54:29.368
01453	50BF is ACTIVE	ON	19.11.2024 08:54:29.368
01758	50N/51N is ACTIVE	ON	19.11.2024 08:54:29.368
01753	50/51 O/C is ACTIVE	ON	19.11.2024 08:54:29.368
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 08:54:29.068
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.11.2024 08:54:29.068
00051	Device is Operational and Protecting	ON	19.11.2024 08:54:28.975
	CB CLOSE 1	ON	19.11.2024 08:54:28.874
	DSC ON	ON	19.11.2024 08:54:28.874
	-S25	ON	19.11.2024 08:54:28.874
	Remote	ON	19.11.2024 08:54:28.874
04601	>52-a contact (OPEN, if bkr is open)	ON	19.11.2024 08:54:28.874
06852	>74TC Trip circuit superv.: trip relay	ON	19.11.2024 08:54:28.874
00067	Resume	ON	19.11.2024 08:54:28.828
00055	Reset Device	ON	19.11.2024 08:54:28.828
05147	Phase rotation ABC	ON	19.11.2024 08:54:28.868
009.0100.01	Failure EN100 Modul	ON	19.11.2024 08:54:28.872
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:13.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:11.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:10.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:08.966
	Setting Group B is active	ON	18.11.2024 04:00:27.743

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(10)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(11)

Number	Indication	Value	Date and time
	Setting Group A is active	OFF	18.11.2024 04:00:27.743
00301	Power System fault	622 - OFF	18.11.2024 04:00:27.497
00301	Power System fault	622 - ON	18.11.2024 04:00:27.445
	Interruptor Acoplador	CLOSE	18.11.2024 04:00:27.428
	Interruptor Acoplador	Intermediate Position	18.11.2024 04:00:27.415
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:44.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:43.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:38.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:36.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:57.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:55.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:54.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:53.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:42.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:40.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:36.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:34.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:29.466
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:27.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:23.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:21.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:39.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:38.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:37.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:35.366

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(12)

Cause	State
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(13)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:43.966
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:42.166
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:41.266
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:39.366
00301	Power System fault	621 - OFF	27.10.2024 10:32:26.177
00301	Power System fault	621 - ON	27.10.2024 10:32:26.139
00301	Power System fault	620 - OFF	27.10.2024 10:32:26.137
00301	Power System fault	620 - ON	27.10.2024 10:32:26.099
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:38.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:36.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:35.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:33.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:09.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:07.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:03.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:01.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:24.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:22.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:17.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:16.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:49.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:47.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:46.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:45.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:46.466

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(14)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(15)

Number	Indication	Value	Date and time
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:44.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:39.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:38.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:57.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:55.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:54.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:52.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:22:01.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:22:00.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:21:55.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:21:53.666
00068	Clock Synchronization Error	OFF	25.09.2024 21:39:58.267
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.09.2024 21:39:59.108
00301	Power System fault	619 - OFF	21.09.2024 18:22:57.789
00301	Power System fault	619 - ON	21.09.2024 18:22:57.715
00068	Clock Synchronization Error	ON	19.09.2024 06:50:22.008
009.0100.01	Failure EN100 Modul	OFF	19.09.2024 06:48:36.922
06863	74TC Trip circuit supervision is ACTIVE	ON	19.09.2024 06:48:25.808
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.09.2024 06:48:18.008
00284	Set Point 37-1 Undercurrent alarm	ON	19.09.2024 06:48:16.612
00272	Set Point Operating Hours	ON	19.09.2024 06:48:16.610

9.2 General Interrogation - 30-11-2024 19:26:01.339

nothing allocated

Event Log - 30-11-2024 19:26:00.204 (SIGNALS\OPSIG.SFP)(16)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

9.3 Spontaneous Annunciation - 30-11-2024 19:26:01.339

Spontaneous Annunciation - 30-11-2024 19:26:01.339

Number	Indication	Value	Date and time	Cause	State
00055	Reset Device	ON	30.11.2024 22:01:33.843	Spontaneous	
	Clock Synchronization	ON	30.11.2024 22:02:28.603	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:03:28.683	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:04:28.762	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:05:28.840	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:06:28.919	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:07:28.998	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:08:29.077	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:09:29.154	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:10:29.233	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:11:29.312	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:12:29.390	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:13:29.469	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:14:29.548	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:15:29.626	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:16:29.706	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:17:29.786	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:18:29.864	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:19:29.943	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:20:30.022	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:21:30.103	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:22:30.180	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:23:30.260	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:24:30.338	Spontaneous Command Issued=SICAM	
	Clock Synchronization	ON	30.11.2024 22:25:30.416	Spontaneous Command Issued=SICAM	

9.4 Statistics - 30-11-2024 19:26:01.349 (MEASURED\STAT.SFP)

Statistics - 30-11-2024 19:26:01.349 (MEASURED\STAT.SFP)

Number	Measured value	Value
01021	Accumulation of interrupted current Ph A	2,32 kA
01022	Accumulation of interrupted current Ph B	2,94 kA
01023	Accumulation of interrupted current Ph C	2,92 kA
	Number of TRIPs=	0
01020	Counter of operating hours	29589 hour
31000	Q0 operationcounter=	38
31001	Q1 operationcounter=	68
31008	Q8 operationcounter=	68

9.5 Set Points (Statistic) - 30-11-2024 19:26:01.939 (MEASURED\STGR.SFP)

Set Points (Statistic) - 30-11-2024 19:26:01.939 (MEASURED\STGR.SFP)

Number	Measured value	Value
	Operating hours greater than	10000 hour

10 Measurement

10.1 Operational values, primary - 30-11-2024 19:26:02.459 (MEASURED\MW01.SFP)

Operational values, primary - 30-11-2024 19:26:02.459 (MEASURED\MW01.SFP)

Number	Measured value	Value
00601	Ia	0 A
00602	Ib	0 A
00603	Ic	0 A
00604	In	0 A
00831	3Io (zero sequence)	0 A
00605	I1 (positive sequence)	0 A
00606	I2 (negative sequence)	0 A
00621	Va	7,1 kV
00622	Vb	7,1 kV
00623	Vc	7,1 kV
00624	Va-b	12,3 kV
00625	Vb-c	12,4 kV
00626	Vc-a	12,3 kV
00627	VN	0,0 kV
00832	Vo (zero sequence)	0,0 kV
00629	V1 (positive sequence)	7,1 kV
00630	V2 (negative sequence)	0,0 kV
00641	P (active power)	0,0 MW
00642	Q (reactive power)	0,0 MVAR
00645	S (apparent power)	0,0 MVA
00901	Power Factor	-----
00644	Frequency	49,9 Hz

10.2 Power values, primary - 30-11-2024 19:26:03.065 (MEASURED\MW15.SFP)

Power values, primary - 30-11-2024 19:26:03.065 (MEASURED\MW15.SFP)

Number	Measured value	Value
30701	Pa (active power, phase A)	0,0 MW
30702	Pb (active power, phase B)	0,0 MW
30703	Pc (active power, phase C)	0,0 MW
00641	P (active power)	0,0 MW
30704	Qa (reactive power, phase A)	0,0 MVAR
30705	Qb (reactive power, phase B)	0,0 MVAR
30706	Qc (reactive power, phase C)	0,0 MVAR
00642	Q (reactive power)	0,0 MVAR
00645	S (apparent power)	0,0 MVA
30707	Power Factor, phase A	-----
30708	Power Factor, phase B	-----
30709	Power Factor, phase C	-----
00901	Power Factor	-----

10.3 Operational values, secondary - 30-11-2024 19:26:03.498 (MEASURED\MW02.SFP)

Operational values, secondary - 30-11-2024 19:26:03.498 (MEASURED\MW02.SFP)

Number	Measured value	Value
00601	Ia	0,00 A
00602	Ib	0,00 A
00603	Ic	0,00 A
00604	In	0,00 A
00831	3Io (zero sequence)	0,00 A
00605	I1 (positive sequence)	0,00 A
00606	I2 (negative sequence)	0,00 A
00621	Va	71 V
00622	Vb	71 V
00623	Vc	71 V
00624	Va-b	123 V
00625	Vb-c	124 V
00626	Vc-a	123 V
00627	VN	0 V
00832	Vo (zero sequence)	0 V
00629	V1 (positive sequence)	71 V
00630	V2 (negative sequence)	0 V

10.4 Operational Percent - 30-11-2024 19:26:03.977 (MEASURED\MW03.SFP)

Operational Percent - 30-11-2024 19:26:03.977 (MEASURED\MW03.SFP)

Number	Measured value	Value
00601	Ia	0,0 %
00602	Ib	0,0 %
00603	Ic	0,0 %
00604	In	0,0 %
00831	3Io (zero sequence)	0,0 %
00605	I1 (positive sequence)	0,0 %
00606	I2 (negative sequence)	0,0 %
00621	Va	102,5 %
00622	Vb	103,0 %
00623	Vc	102,7 %
00624	Va-b	102,8 %
00625	Vb-c	103,0 %
00626	Vc-a	102,4 %
00627	VN	0,0 %
00832	Vo (zero sequence)	0,0 %
00629	V1 (positive sequence)	102,8 %
00630	V2 (negative sequence)	0,0 %
00641	P (active power)	0,0 %
00642	Q (reactive power)	0,0 %
00645	S (apparent power)	0,0 %

10.5 Demand - 30-11-2024 19:26:04.430 (MEASURED\MW06.SFP)

Demand - 30-11-2024 19:26:04.430 (MEASURED\MW06.SFP)

Number	Measured value	Value
00963	I A demand	0 A
00964	I B demand	0 A
00965	I C demand	0 A
00833	I1 (positive sequence) Demand	0 A
00834	Active Power Demand	0,0 MW
00835	Reactive Power Demand	0,0 MVAR
00836	Apparent Power Demand	0,0 MVA

10.6 V/I,Min/Max - 30-11-2024 19:26:04.941 (MEASURED\MW07.SFP)

V/I,Min/Max - 30-11-2024 19:26:04.941 (MEASURED\MW07.SFP)

Number	Measured value	Value	Date and time
00851	Ia Min	0 A	30.11.2024 19:14:05.445
00852	Ia Max	545 A	30.11.2024 18:16:39.046
00853	Ib Min	0 A	30.11.2024 19:14:05.445
00854	Ib Max	528 A	30.11.2024 19:13:16.846
00855	Ic Min	0 A	30.11.2024 19:14:05.445
00856	Ic Max	578 A	30.11.2024 18:16:39.046
00857	I1 (positive sequence) Minimum	0 A	30.11.2024 19:14:05.445
00858	I1 (positive sequence) Maximum	546 A	30.11.2024 18:16:39.046
00859	Va-n Min	6,2 kV	30.11.2024 18:16:28.846
00860	Va-n Max	7,3 kV	29.11.2024 09:26:57.645
00861	Vb-n Min	6,5 kV	30.11.2024 19:13:16.846
00862	Vb-n Max	7,3 kV	29.11.2024 09:28:31.246
00863	Vc-n Min	6,4 kV	30.11.2024 19:13:16.846
00864	Vc-n Max	7,3 kV	29.11.2024 09:58:33.645
00865	Va-b Min	11,1 kV	30.11.2024 18:16:39.046
00867	Va-b Max	12,6 kV	29.11.2024 09:28:33.645
00868	Vb-c Min	11,2 kV	30.11.2024 19:13:16.846
00869	Vb-c Max	12,6 kV	29.11.2024 09:28:37.245
00870	Vc-a Min	11,0 kV	30.11.2024 18:16:39.046
00871	Vc-a Max	12,6 kV	29.11.2024 09:58:33.045
00872	V neutral Min	0,0 kV	28.11.2024 00:00:00.945
00873	V neutral Max	0,1 kV	30.11.2024 19:14:03.645
00874	V1 (positive sequence) Voltage Minimum	6,4 kV	30.11.2024 19:13:16.846
00875	V1 (positive sequence) Voltage Maximum	7,3 kV	29.11.2024 09:27:13.246

10.7 P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP)

P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP)

Number	Measured value	Value	Date and time
00876	Active Power Minimum	-9,3 MW	30.11.2024 18:16:39.046

P, f, Power Factor, Min/Max - 30-11-2024 19:26:05.506 (MEASURED\MW08.SFP)(2)

Number	Measured value	Value	Date and time
00877	Active Power Maximum	-0,4 MW	30.11.2024 19:10:03.046
00878	Reactive Power Minimum	-5,1 MVAR	30.11.2024 18:16:39.046
00879	Reactive Power Maximum	-0,1 MVAR	29.11.2024 05:02:49.846
00880	Apparent Power Minimum	0,0 MVA	30.11.2024 19:14:05.445
00881	Apparent Power Maximum	10,6 MVA	30.11.2024 18:16:39.046
00882	Frequency Minimum	49,7 Hz	28.11.2024 09:35:12.645
00883	Frequency Maximum	50,3 Hz	30.11.2024 10:41:52.246
00885	Power Factor Minimum	-0,98	28.11.2024 00:02:06.645
00884	Power Factor Maximum	-0,76	30.11.2024 19:08:42.646

10.8 Min/Max Demand - 30-11-2024 19:26:06.015 (MEASURED\MW09.SFP)

Min/Max Demand - 30-11-2024 19:26:06.015 (MEASURED\MW09.SFP)

Number	Measured value	Value	Date and time
00837	I A Demand Minimum	0 A	30.11.2024 21:00:00.045
00838	I A Demand Maximum	91 A	29.11.2024 19:00:00.046
00839	I B Demand Minimum	0 A	30.11.2024 21:00:00.045
00840	I B Demand Maximum	84 A	30.11.2024 18:00:00.046
00841	I C Demand Minimum	0 A	30.11.2024 21:00:00.045
00842	I C Demand Maximum	80 A	29.11.2024 19:00:00.046
00843	I1 (positive sequence) Demand Minimum	0 A	30.11.2024 21:00:00.045
00844	I1 (positive sequence) Demand Maximum	85 A	29.11.2024 19:00:00.046
00845	Active Power Demand Minimum	-1,8 MW	29.11.2024 18:00:00.046
00846	Active Power Demand Maximum	0,0 MW	30.11.2024 21:00:00.045
00847	Reactive Power Demand Minimum	-0,4 MVAR	29.11.2024 19:00:00.046
00848	Reactive Power Demand Maximum	0,0 MVAR	30.11.2024 21:00:00.045
00849	Apparent Power Demand Minimum	0,0 MVA	30.11.2024 21:00:00.045
00850	Apparent Power Demand Maximum	1,8 MVA	29.11.2024 18:00:00.046

10.9 User Defined - 30-11-2024 19:26:06.454 (MEASURED\MW11.SFP)

nothing allocated

10.10 Energy - 30-11-2024 19:26:06.946 (MEASURED\MW12.SFP)

Energy - 30-11-2024 19:26:06.946 (MEASURED\MW12.SFP)

Number	Measured value	Value
00924	Wp Forward	0 MWh
00925	Wq Forward	162 MVARh
00928	Wp Reverse	46237 MWh
00929	Wq Reverse	6148 MVARh
00888	Pulsed Energy Wp (active)	0,0 MWh
00889	Pulsed Energy Wq (reactive)	0,0 MVARh

10.11 Set Points (Measured Values) - 30-11-2024 19:26:07.406 (MEASURED\MW13.SFP)

Set Points (Measured Values) - 30-11-2024 19:26:07.406 (MEASURED\MW13.SFP)

Number	Measured value	Value
	37-1 under current	80,0 %
	I A dmd>	120,0 %
	I B dmd>	120,0 %
	I C dmd>	120,0 %
	I1dmd>	120,0 %
	|Pdmd|>	120,0 %
	|Qdmd|>	120,0 %
	|Sdmd|>	120,0 %
	|Power Factor|<	0,8

Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12

MLFB:	7SJ64115EE923FG7----0S----------
Parameter-set version:	V04.90.05
Device path:	C:\Siemens\DIGSI4\D4PROJ\Queltehu\P7DI\GV\SD\0000000d
Author:	
Creation date:	21.08.18 14:14:00
Last modified:	30.11.24 18:51:29
Operating mode:	Online
Comment:	
Setting values in:	Secondary value description

PRINT - CONTENTS

1 Indications 2
1.1 Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05 2

1 Indications

1.1 Event Log - 30-11-2024 - Quelthues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Event Log - 30-11-2024 - Quelthues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05

Number	Indication	Value	Date and time
01431	>50BF initiated externally	OFF	30.11.2024 19:14:05.163
00301	Power System fault	644 - OFF	30.11.2024 19:14:05.155
04602	>52-b contact (OPEN, if bkr is closed)	ON	30.11.2024 19:14:05.088
06853	>74TC Trip circuit superv.: brk relay	ON	30.11.2024 19:14:05.088
	52 Breaker	OPEN	30.11.2024 19:14:05.088
04601	>52-a contact (OPEN, if bkr is open)	OFF	30.11.2024 19:14:05.072
	52 Breaker	Intermediate Position	30.11.2024 19:14:05.072
	CB CLOSE 1	OFF	30.11.2024 19:14:05.072
06852	>74TC Trip circuit superv.: trip relay	OFF	30.11.2024 19:14:05.027
	86T	ON	30.11.2024 19:14:05.013
01431	>50BF initiated externally	ON	30.11.2024 19:14:05.013
00301	Power System fault	644 - ON	30.11.2024 19:13:57.015
00301	Power System fault	643 - OFF	30.11.2024 19:13:24.324
00301	Power System fault	643 - ON	30.11.2024 19:13:24.283
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:13:17.446
00301	Power System fault	642 - OFF	30.11.2024 19:13:17.206
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:13:16.847
00301	Power System fault	642 - ON	30.11.2024 19:13:16.018
00301	Power System fault	641 - OFF	30.11.2024 19:13:15.875
00301	Power System fault	641 - ON	30.11.2024 19:13:15.481
00301	Power System fault	640 - OFF	30.11.2024 19:10:02.366
00301	Power System fault	640 - ON	30.11.2024 19:10:01.207
00301	Power System fault	639 - OFF	30.11.2024 19:10:01.114
00301	Power System fault	639 - ON	30.11.2024 19:10:00.982
00301	Power System fault	638 - OFF	30.11.2024 19:10:00.965
00301	Power System fault	638 - ON	30.11.2024 19:10:00.241

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(2)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteheus_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(3)

Number	Indication	Value	Date and time
00285	Set Point 55 Power factor alarm	OFF	30.11.2024 19:08:43.246
00285	Set Point 55 Power factor alarm	ON	30.11.2024 19:08:42.646
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 19:08:35.446
00301	Power System fault	637 - OFF	30.11.2024 19:08:35.325
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 19:08:34.846
00301	Power System fault	637 - ON	30.11.2024 19:08:34.332
00301	Power System fault	636 - OFF	30.11.2024 19:08:34.325
00301	Power System fault	636 - ON	30.11.2024 19:08:33.992
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:58:25.846
00301	Power System fault	635 - OFF	30.11.2024 18:58:25.487
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:58:25.246
00301	Power System fault	635 - ON	30.11.2024 18:58:24.362
00301	Power System fault	634 - OFF	30.11.2024 18:56:34.445
00301	Power System fault	634 - ON	30.11.2024 18:56:33.232
00301	Power System fault	633 - OFF	30.11.2024 18:56:32.425
00301	Power System fault	633 - ON	30.11.2024 18:56:31.498
00301	Power System fault	632 - OFF	30.11.2024 18:56:30.846
00301	Power System fault	632 - ON	30.11.2024 18:56:29.748
00301	Power System fault	631 - OFF	30.11.2024 18:44:32.735
00301	Power System fault	631 - ON	30.11.2024 18:44:31.534
00301	Power System fault	630 - OFF	30.11.2024 18:44:28.075
00301	Power System fault	630 - ON	30.11.2024 18:44:27.598
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:44:18.046
00301	Power System fault	629 - OFF	30.11.2024 18:44:17.715
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:44:17.446

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(4)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(5)

Number	Indication	Value	Date and time
00301	Power System fault	629 - ON	30.11.2024 18:44:16.593
00301	Power System fault	628 - OFF	30.11.2024 18:44:06.964
00301	Power System fault	628 - ON	30.11.2024 18:44:06.897
00301	Power System fault	627 - OFF	30.11.2024 18:44:06.805
00301	Power System fault	627 - ON	30.11.2024 18:44:06.318
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:32:36.646
00301	Power System fault	626 - OFF	30.11.2024 18:32:36.485
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:32:36.046
00301	Power System fault	626 - ON	30.11.2024 18:32:35.331
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:39.646
00301	Power System fault	625 - OFF	30.11.2024 18:16:39.087
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:38.446
00301	Power System fault	625 - ON	30.11.2024 18:16:38.016
00284	Set Point 37-1 Undercurrent alarm	ON	30.11.2024 18:16:30.046
00301	Power System fault	624 - OFF	30.11.2024 18:16:29.627
00284	Set Point 37-1 Undercurrent alarm	OFF	30.11.2024 18:16:29.447
00301	Power System fault	624 - ON	30.11.2024 18:16:28.530
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:13.943
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:12.043
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.11.2024 09:33:11.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.11.2024 09:33:09.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:23.243
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:21.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	30.11.2024 00:01:16.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	30.11.2024 00:01:15.243

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(6)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(7)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:12.543
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:10.644
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.11.2024 15:09:09.643
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.11.2024 15:09:07.843
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:42.143
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:40.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 17:29:39.343
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 17:29:37.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:26.443
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:24.643
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.11.2024 02:30:19.943
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.11.2024 02:30:18.243
00285	Set Point 55 Power factor alarm	OFF	21.11.2024 04:20:42.646
00301	Power System fault	623 - OFF	21.11.2024 04:20:41.793
00301	Power System fault	623 - ON	21.11.2024 04:20:41.762
00285	Set Point 55 Power factor alarm	ON	21.11.2024 04:20:22.846
	Setting Group A is active	ON	21.11.2024 04:20:03.437
	Setting Group B is active	OFF	21.11.2024 04:20:03.437
	Interruptor Acoplador	OPEN	21.11.2024 04:20:03.137
	Interruptor Acoplador	Intermediate Position	21.11.2024 04:20:03.122
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:40:04.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:40:02.743
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 10:39:58.143
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 10:39:56.443
009.0100.01	Failure EN100 Modul	OFF	19.11.2024 08:54:39.024

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(8)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(9)

Number	Indication	Value	Date and time
00068	Clock Synchronization Error	OFF	19.11.2024 08:54:36.978
06863	74TC Trip circuit supervision is ACTIVE	ON	19.11.2024 08:54:38.768
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.11.2024 08:54:30.968
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.11.2024 08:54:30.968
00284	Set Point 37-1 Undercurrent alarm	ON	19.11.2024 08:54:29.572
00272	Set Point Operating Hours	ON	19.11.2024 08:54:29.571
00052	At Least 1 Protection Funct. is Active	ON	19.11.2024 08:54:29.368
01453	50BF is ACTIVE	ON	19.11.2024 08:54:29.368
01758	50N/51N is ACTIVE	ON	19.11.2024 08:54:29.368
01753	50/51 O/C is ACTIVE	ON	19.11.2024 08:54:29.368
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.11.2024 08:54:29.068
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.11.2024 08:54:29.068
00051	Device is Operational and Protecting	ON	19.11.2024 08:54:28.975
	CB CLOSE 1	ON	19.11.2024 08:54:28.874
	DSC ON	ON	19.11.2024 08:54:28.874
	-S25	ON	19.11.2024 08:54:28.874
	Remote	ON	19.11.2024 08:54:28.874
04601	>52-a contact (OPEN, if bkr is open)	ON	19.11.2024 08:54:28.874
06852	>74TC Trip circuit superv.: trip relay	ON	19.11.2024 08:54:28.874
00067	Resume	ON	19.11.2024 08:54:28.828
00055	Reset Device	ON	19.11.2024 08:54:28.828
05147	Phase rotation ABC	ON	19.11.2024 08:54:28.868
009.0100.01	Failure EN100 Modul	ON	19.11.2024 08:54:28.872
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:13.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:11.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.11.2024 17:19:10.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.11.2024 17:19:08.966
	Setting Group B is active	ON	18.11.2024 04:00:27.743

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(10)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(11)

Number	Indication	Value	Date and time
	Setting Group A is active	OFF	18.11.2024 04:00:27.743
00301	Power System fault	622 - OFF	18.11.2024 04:00:27.497
00301	Power System fault	622 - ON	18.11.2024 04:00:27.445
	Interruptor Acoplador	CLOSE	18.11.2024 04:00:27.428
	Interruptor Acoplador	Intermediate Position	18.11.2024 04:00:27.415
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:44.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:43.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 21:13:38.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 21:13:36.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:57.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:55.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	15.11.2024 10:16:54.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	15.11.2024 10:16:53.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:42.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:40.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	09.11.2024 04:40:36.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	09.11.2024 04:40:34.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:29.466
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:27.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	04.11.2024 09:31:23.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	04.11.2024 09:31:21.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:39.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:38.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	31.10.2024 13:55:37.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	31.10.2024 13:55:35.366

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(12)

Cause	State
Control Issued Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(13)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:43.966
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:42.166
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.10.2024 00:54:41.266
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.10.2024 00:54:39.366
00301	Power System fault	621 - OFF	27.10.2024 10:32:26.177
00301	Power System fault	621 - ON	27.10.2024 10:32:26.139
00301	Power System fault	620 - OFF	27.10.2024 10:32:26.137
00301	Power System fault	620 - ON	27.10.2024 10:32:26.099
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:38.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:36.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.10.2024 05:34:35.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.10.2024 05:34:33.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:09.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:07.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.10.2024 03:17:03.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.10.2024 03:17:01.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:24.266
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:22.466
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.10.2024 02:01:17.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.10.2024 02:01:16.166
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:49.666
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:47.866
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	14.10.2024 09:54:46.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	14.10.2024 09:54:45.066
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:46.466

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(14)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

Event Log - 30-11-2024 - Quelteues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(15)

Number	Indication	Value	Date and time
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:44.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	13.10.2024 04:23:39.966
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	13.10.2024 04:23:38.366
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:57.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:55.766
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	10.10.2024 09:28:54.566
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	10.10.2024 09:28:52.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:22:01.766
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:22:00.066
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	03.10.2024 21:21:55.566
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	03.10.2024 21:21:53.666
00068	Clock Synchronization Error	OFF	25.09.2024 21:39:58.267
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.09.2024 21:39:59.108
00301	Power System fault	619 - OFF	21.09.2024 18:22:57.789
00301	Power System fault	619 - ON	21.09.2024 18:22:57.715
00068	Clock Synchronization Error	ON	19.09.2024 06:50:22.008
009.0100.01	Failure EN100 Modul	OFF	19.09.2024 06:48:36.922
06863	74TC Trip circuit supervision is ACTIVE	ON	19.09.2024 06:48:25.808
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.09.2024 06:48:18.008
00284	Set Point 37-1 Undercurrent alarm	ON	19.09.2024 06:48:16.612
00272	Set Point Operating Hours	ON	19.09.2024 06:48:16.610

Event Log - 30-11-2024 - Queltehues_16112023_1554 / 12kv / 7SJ64_PATIO_12/7SJ641 V04.90.05(16)

Cause	State
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	

INFORME DE FALLA

REQUERIMIENTO NORMA TÉCNICA DE SyCS

INFORME (s) QUINTO DÍA Nº: **IF 2024005311**	FECHA DE FALLA: 30 de 11 de 2024
INSTALACIÓN (ES) SE QUELTEHUES	

1. CAUSA U ORIGEN DE LA FALLA: falla aguas arriba del sistema de distribución.

1.1. Fecha y hora de la Falla:

Fecha	**30 de Noviembre 2024**
Hora	16:38

1.2. Localización de la falla en Instalaciones de Transmisión.

1.2.1. Nombre de subestación con pérdida de suministro.

SE Queltehues

1.3. Datos de la Empresa.

Nombre Empresa: Compañía General de Electricidad S.A
RUT: 76.411.321-7
Representante Legal: (Gerente General vigente a la fecha de envío).
Dirección: Av. Presidente Riesco N° 5561 P14, las Condes, Santiago, Chile.

INFORME DE FALLA

REQUERIMIENTO NORMA TÉCNICA DE SyCS

INFORME (s) QUINTO DÍA Nº: **IF 2024005311**	FECHA DE FALLA: 30 de 11 de 2024
INSTALACIÓN (ES) SE QUELTEHUES	

2. POTENCIA INTERRUMPIDA DE CLIENTES FINALES.

Subestación	Transformador	Alimentador		MW	Horario		Bloque	Clientes Afectados	kVa afectados	Distribuidora	Comunas	Urbano / Rural	N° Incidencia Centrality	Observación
	(Primario)	Nombre	Nema		Desconexión	Normalización			(potencia instalda Dx)					
Queltehues	T5	Volcan	52C1	0,007	30/11/2024 16:38	30/11/2024 21:53	1	17	1505	CGE	SAN JOSÉ DE MAIPO	RURAL	30241024869	Recuperado el 100% de los consumos.
		Bocatoma	52C2	0,003	30/11/2024 16:38	30/11/2024 21:53	1	5	245	CGE	SAN JOSÉ DE MAIPO	RURAL	30241024869	Recuperado el 100% de los consumos.
		San Jose	52C3	1,5	30/11/2024 16:38	30/11/2024 21:53	1	1995	5368	CGE	SAN JOSÉ DE MAIPO	RURAL	30241024869	Recuperado el 100% de los consumos.
Total				1,51				2017	7118					
		MWH	2,5											

ENS: **2,5WH.**

N° de clientes afectados CGE: **2.017.**

ID Barra	Barra	ID Paño	Paño	Alimentador	Pérdida de consu	Hora de Desconexión [dd-mm-yy	Tiempo de interr	Hora de Normalización equivale	Comunas A	Sistema de	Enegía Inte	N° Clientes	Enegía Inte	N° Clientes	ID Coordin	Coordinad	Tipo de cli	IDCliente L	Cliente Libi	Cpph equi
8	BA S/E CEN	17588	S/E CENTRAL QUELTEHL	SAN JOSE DE MAIPO	1.5	30-11-2024 16:38	5.233333	30-11-2024 21:53	San Jose de	D	6.20366	1995	0	0	247	CGE S.A.	RE	no aplica	no aplica	0.96
8	BA S/E CEN	17588	S/E CENTRAL QUELTEHL	VOLCAN	0.007	30-11-2024 16:38	5.233333	30-11-2024 21:53	San Jose de	D	0.00025	17	0	0	247	CGE S.A.	RE	no aplica	no aplica	0.007
8	BA S/E CEN	17588	S/E CENTRAL QUELTEHL	BOCATOMA	0.003	30-11-2024 16:38	5.233333	30-11-2024 21:53	San Jose de	D	0.00015	5	0	0	247	CGE S.A.	RE	no aplica	no aplica	0.003