

## Estudio para análisis de falla EAF 106/2021

### “Desconexión forzada de barra 12 kV S/E Queltehues”

Fecha de Emisión: 07-05-2021

#### 1. Descripción pormenorizada de la perturbación

##### a. Fecha y Hora de la falla

<b>Fecha</b>	17/04/2021
<b>Hora</b>	16:15
<b>Consumos desconectados (MW)</b>	1.2
<b>Demanda previa del sistema (MW)</b>	8981.38 MW
<b>Porcentaje de desconexión</b>	0.013 %
<b>Calificación Apagón</b>	No aplica (porcentaje de desconexión < 10%)

##### b. Identificación instalación afectada

<b>Nombre de la instalación</b>	S/E Central Queltehues / SE006G010
<b>Tipo de instalación</b>	S/E
<b>Tensión nominal</b>	12 kV
<b>Segmento</b>	Transmisión Dedicada
<b>Propietario instalación afectada</b>	AES Gener S.A.
<b>RUT</b>	9.427.2000 - 9
<b>Representante Legal</b>	Ricardo Manuel F.
<b>Dirección</b>	Rosario Norte 532, piso 19, Las Condes.

##### c. Identificación del elemento fallado

<b>Nombre del elemento fallado</b>	S/E Central Queltehues / SE006G010
<b>Propietario elemento fallado</b>	AES Gener S.A.
<b>RUT</b>	9.427.2000 - 9
<b>Representante Legal</b>	Ricardo Manuel F.
<b>Dirección</b>	Rosario Norte 532, piso 19, Las Condes.

**d.1 Origen y causa de la falla**

La desconexión forzada de la barra 12 kV de S/E Queltehues se origina producto de intervención fortuita durante la realización de trabajos de personal contratista de AES Gener S.A., asociados a "diagnóstico y corrección de error interno en protección Siemens serie Siprotec 4 modelo 7UT6 asociada al transformador de poder N°2" de S/E Central Queltehues, en la que no se realiza el correcto bloqueo de la función de protección a intervenir.

**d.2 Fenómeno Físico:**

OPE1: Trabajos en instalaciones.

La empresa AES Gener S.A. A. envió antecedentes para acreditar la causa de la falla.

**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 un fenómeno físico similar (homologado), 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**

FA50BF: Falla de interruptor.

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

El elemento donde se originó la falla corresponde al relé del transformador N°2 110/12 kV de S/E Central Queltehues, marca Siemens, modelo Siprotec 4/7UT63331-5EE92, N° BF:1401518408, cuya fecha de puesta en servicio fue el año 2015, de acuerdo con lo informado por su propietario.

La empresa AES Gener S.A. no remitió los antecedentes respecto de los mantenimientos realizados a este elemento durante los últimos 24 meses.

**f. Ubicación urbana o rural según DS 327/1997**

Rural.

**g. Proposición del propietario respecto del origen de la falla**

Interna.

La empresa AES Gener S.A. remite antecedentes en respaldo a la proposición del origen de la falla, los cuales se listan a continuación:

- o Informe técnico específico de la falla emitido por el responsable, con detalle pormenorizado del hecho que provoca la falla.
- o Registros de las protecciones de la unidad, asociadas a la falla.

**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 (19/04/2021)	Informe de 5 días (23/04/2021)
AES Gener S.A.	19/04/2021	23/04/2021 26/04/2021

## 2. Descripción del equipamiento afectado

### a. Sistema de Generación

Central	Unidad	Pérdida de Generación (MW)	H. Desconexión	H. Normalización
Volcán	1	5.00	16:15	17:22

**Total: 5.00 MW**

- Fechas, horas y montos señalados corresponden a lo informado por AES Gener S.A.

### b. Sistema de Transmisión

Elemento Afectado	Segmento	Tramo	Hora Desc.	Hora Norm.
Central Queltehues - PHAM	ST Dedicado		16:15	17:12
S/E Central Queltehues	ST Dedicado	Barra 12 kV	16:15	17:06

- Fechas y horas señaladas corresponden a lo informado por AES Gener S.A.

### c. Consumos

Sub-Estación	Alimentador / Paño	Comuna	Pérdida de Consumo (MW)	% consumo pre-falla	Clientes Afectados	H. Desc.	H. Dispon.	H. Norm.
S/E PHAM	Completa	San José de Maipo	1.20	0.013	1	16:15	17:12	17:12

**Total: 1.20 MW 0.013 % 1**

- Fechas, horas y montos señalados corresponden a lo informado por AES Gener S.A.

## 3. Estimación de la energía no suministrada

Sub-Estación	Alimentador / Paño	Empresa	Tipo de Cliente	Pérdida de Consumo (MW)	Tiempo Indispon. (h)	Tiempo Desc.(h)	ENS (MWh)
S/E PHAM	Completa	Alto Maipo	Libre	1.20	0.95	0.95	1.14

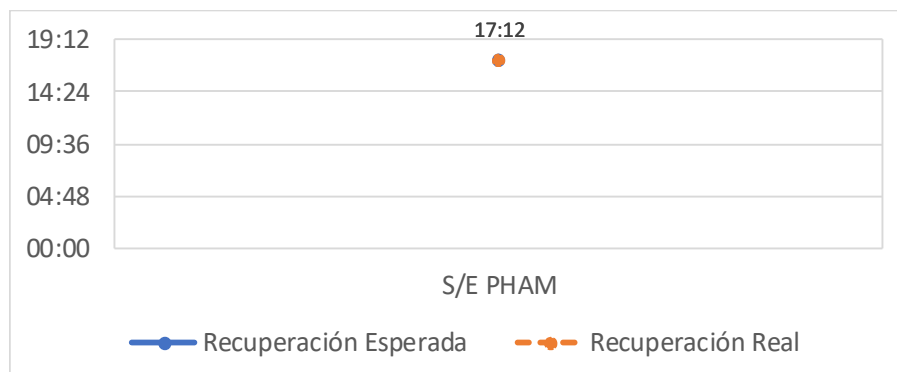
**Clientes Regulados : 0.00 MWh**

**Clientes Libres : 1.14 MWh**

**Total : 1.14 MWh**

- Fechas, horas y montos señalados corresponden a lo informado por AES Gener S.A.

- Curva de recuperación esperada v/s recuperación real.



No se aprecian diferencias entre los horarios de recuperación real respecto de los horarios de disponibilidad de las barras primarias respectivas para recuperar consumos.

- Velocidad promedio de recuperación.

Rango	Potencia (MW)	Tiempo recuperación (h)	Velocidad de recuperación (MW/h)
Primer 80 %	0.96	0.95	1.01
Último 20 %	0.24	0.95	0.25
100 % Total	1.20	0.95	1.26

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

**Demanda del sistema previo a la falla:** 8981.38 MW

##### Regulación de Frecuencia

Control distribuido de frecuencia en el SEN previo a la falla, mediante las centrales Andina (CTA), Cochran (CCH1), Cochran (CCH2), El Toro (U1), El Toro (U3), El Toro (U4), Guacolda (U4), Mejillones (CTM1), Mejillones (CTM3), Norgener (NTO1), Norgener (NTO2) y Tocopilla (U15), Tocopilla (U16).

##### Estado y configuración previo a la falla

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

- Unidades N°1, N°2 y N°3 de central Queltehues fuera de servicio.
- Transformador N°2 110/12 kV de S/E Central Queltehues desconectado bajo solicitud de desconexión de curso forzoso N°2021031647.

##### Otros antecedentes relevantes

Según lo informado por AES Gener S.A.:

*Origen de la falla: En intervención de fabricante Siemens, activación forzada de entrada binaria que recepciona el disparo de 50 BF en los dispositivos de protección, asociados a la barra de 12 kV.*

*Fenómeno físico: OPE 1 (Trabajos en instalaciones), inyección manual de tensión de control en borne de dispositivo de protección que desencadena la lógica de disparo por función falla interruptor, y que se encuentra conectada en paralelo al resto de dispositivos de la barra, por ende, al realizar la inyección de tensión de control en uno de ellos, se activa en todos los demás.*

*Fenómeno eléctrico: Disparó indeseado por recepción de función 50 Breaker Failure.*

*Causa de la falla: Interna, en el contexto de intervención de fabricante Siemens de diagnóstico y corrección de error interno en protección Siemens serie Siprotec 4 modelo 7UT6 asociada al transformador de poder n°2 se procede a la realización de puente, para la inyección forzada de tensión continua de control entre un punto positivo en bornera 125VDC, y conexionado de entrada en relé (BI.14), esta prueba se realiza con la intención de verificar el buen funcionamiento, o activación de la función asociada a esta, sin embargo especialista Siemens al momento de la realización de esta prueba no se percata de interconexión del punto con las celdas de la barra de 12kV, sin completar de manera cabal el proceso de bloqueo que impide la desconexión generada por esta prueba. Dicho lo anterior y en relación al punto h de este informe, se reitera que la afección a instalaciones ajenas a la celda de transformador n°2, se debe a que la lógica de disparo de la función falla interruptor, considera la conexión en paralelo de todos los dispositivos de protección, en lo que refiere a la*



entrada binaria de recepción externa de disparo, de manera de que cualquier protección que emita una orden de desenganche, sea transmitida y recepcionada por todos los dispositivos de esta barra. Por lo tanto, al forzar la excitación de la entrada binaria n°14 de este dispositivo, sin aislarla de la instalación, se omitió de manera errónea el efecto que esto tendría, generándose un disparo sobre barra con apertura efectiva de los interruptores asociados.

Se adjunta reporte emitido por Siemens que da cuenta del reinicio del firmware y que el equipo se encuentra correctamente operativo.

De acuerdo con los registros del Coordinador Eléctrico Nacional:

2021031647	AES GENER	Curso Forzoso	<b>SubEstación</b> ▶ S/E CENTRAL QUELTEHUÉS ▶ Tipo: transformadores2d - CENTRAL QUELTEHUÉS 110/12KV 30MVA 2 ▶ <b>Desconexión</b> / Origen Interno / Curso Forzoso ▶ No tiene consumo afectado ▶ <b>Trabajos a Realizar:</b> Se dejara el transformador fuera de servicio por encontrarse con el sistema de protecciones fuera de servicio. <a href="#">Ver menos</a> ▶ <b>Desc. Nivel Riesgo:</b> Actividad sin riesgo, el transformador se dejara fuera de servicio. <a href="#">Ver menos</a> ▶ <b>Comentarios Adicionales:</b>	13-04-2021 18:05	13-04-2021 23:59	<a href="#">Ejecución Exitosa</a>
				<b>Fecha Efectiva Inicio</b> 13-04-2021 18:05	<b>Fecha Efectiva Fin</b> 05-05-2021 15:54	

Por su parte, en función de los antecedentes presentados a la fecha de emisión del presente EAF, se solicitará la siguiente información adicional a AES Gener S.A.:

- Estado de implementación de las medidas correctivas informadas.
- Cronograma de trabajo asociado a la normalización de las señales SISR de S/E Queltehues, las que no se aprecian reportadas correctamente en el SCADA del Coordinador (salvo las medidas de las variables eléctricas de las unidades de central Queltehues y Volcán).
- Envío de la información faltante de acuerdo con lo indicado en las Resoluciones Exentas de la SEC N°30891-2019 y N°30989-2019.

De forma complementaria, se adjuntan los informes de falla de instalaciones, ingresados en el sistema Neomante del Coordinador Eléctrico Nacional por AES Gener S.A. (Anexo N°1) y Otros antecedentes aportados por AES Gener S.A. (Anexo N°2).

### **Acciones preventivas y/o correctivas**

a) La instalación afectada no cuenta con una auditoría, plan de acción u otro tipo de mantenimiento en curso.

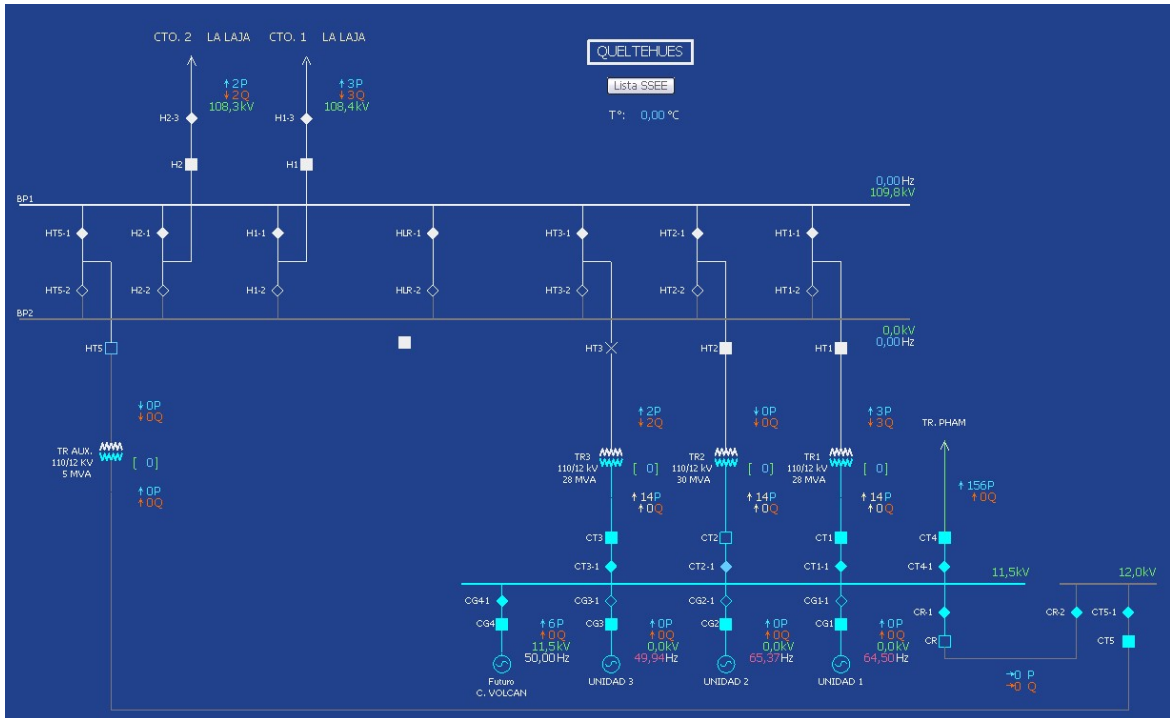
b) Acciones correctivas a corto plazo:

La empresa AES Gener S.A. señala "Reforzar con mayor grado de detalle en procedimiento de trabajo, las actividades a realizar y los circuitos involucrados, adjuntando a este documento minutas de bloqueo, en desconexión y normalización de circuitos de control. Adicionalmente se solicita a Siemens la revisión de todos los dispositivos Siprotec de la barra 12 kV."

c) Acciones correctivas a largo plazo:

No se señalan.

## 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
16:15	AES Gener	Apertura de los interruptores 52CT3 y 52HT3 del transformador N°3 110/12 kV de S/E Central Queltehués, por operación de la protección 50BF asociada al transformador N°2 110/12 kV de esta S/E.
16:15	AES Gener	Apertura de los interruptores 52CT1 y 52HT1 del transformador N°1 110/12 kV de S/E Central Queltehués, por operación de la protección 50BF asociada al transformador N°2 110/12 kV de esta S/E.
16:15	AES Gener	Apertura del interruptor 52CG4 de S/E Central Volcán por operación de la protección 50BF, asociada al transformador N°2 110/12 kV de S/E Central Queltehués.
16:15	AES Gener	Apertura del interruptor 52CT4 de S/E Central Queltehués, de la línea 12 kV Central Queltehués - PHAM, por operación de la protección 50BF asociada al transformador N°2 110/12 kV de S/E Central Queltehués.

- Horas y eventos señalados corresponden a lo informado por AES Gener S.A.

## 6. Normalización del servicio

Fecha	Involucrado	Hora	Acción
17/04/2021	AES Gener	17:06	Se realiza cierre del interruptor 52HT1 de S/E Central Queltehués.
17/04/2021	AES Gener	17:06	Se realiza cierre del interruptor 52CT1 de S/E Central Queltehués.
17/04/2021	AES Gener	17:09	Se realiza cierre del interruptor 52HT3 de S/E Central Queltehués.
17/04/2021	AES Gener	17:09	Se realiza cierre del interruptor 52CT3 de S/E Central Queltehués
17/04/2021	AES Gener	17:12	Se realiza cierre del interruptor 52CT4 de S/E Central Queltehués, normalizando los consumos afectados.
17/04/2021	AES Gener	17:22	Se realiza cierre del interruptor 52CG4 de S/E Central Volcán.

- Fechas, horas, maniobras y eventos señalados corresponden a lo informado por AES Gener S.A.

ANEXO N°1

Informes de trabajos y fallas de instalaciones ingresados en el Sistema del Coordinador Eléctrico Nacional por AES Gener S.A.

## Resumen - Subestación

### Resumen

**Número:**

2021001162

**Solicitante:**

AES GENER

**Empresa:**

AES GENER

**Tipo de Origen:**

Interno

**SubEstación:**

S/E CENTRAL QUELTEHUES

**Falla Sobre:**

transformador

**Elementos**

Tipo: transformadores2d - CENTRAL QUELTEHUES 110/12KV 28MVA 1

Nombre : CENTRAL QUELTEHUES 110/12KV 28MVA 1

Fecha Perturbacion : 17-04-2021 16:15

Fecha Normaliza : 17-04-2021 17:07

Protección : .

Interruptor : .

Consumo : 0

Comentario : .

**¿Produce otra indisponibilidad?**

No

**Zona Afectada**

Metropolitana

**Comuna**

San José de Maipo

**Tipo Causa**

Causa Presunta

Causa Secundaria

Se investiga

**Comentarios Tipo Causa:**

se investiga

**Causas**

**-Fenómeno Físico:** Origen no determinado.

**-Elemento:** Transformadores de poder

**-Fenómeno Eléctrico:** Protección diferencial de barra

**-Operación de los interruptores:** Opera según lo esperado

**Comentarios Causas:**

- Fenómeno Físico: .
- Elemento: .
- Fenómeno Eléctrico: se investiga
- Operación de los interruptores: .

**Observaciones:**

- Observaciones: .
- Acciones Inmediatas: Verificación y normalización de protecciones operadas
- Hechos Sucidos: .
- Acciones Correctivas a Corto Plazo: se investiga
- Acciones Correctivas a Largo Plazo: se investiga

**Afecta SSCC:**

No

**Afecta Medidores:**

No

**Afecta Protecciones:**

No

**Consumo:**

No tiene consumo afectado

**Retorno Automatico:**

No Tiene Retorno Automático

**Fecha / Hora Perturbación de la Solicitud:**

17-04-2021 16:15

**Fecha / Hora Estimada Retorno:**

17-04-2021 17:07

**Fecha / Hora Efectiva Retorno:**

17-04-2021 17:07

## Resumen - Subestación

### Resumen

**Número:**

2021001163

**Solicitante:**

AES GENER

**Empresa:**

AES GENER

**Tipo de Origen:**

Interno

**SubEstación:**

S/E CENTRAL QUELTEHUES

**Falla Sobre:**

barra

**Elementos**

Tipo: barras - BA S/E CENTRAL QUELTEHUES 12KV

Nombre : BA S/E CENTRAL QUELTEHUES 12KV

Fecha Perturbacion : 17-04-2021 16:15

Fecha Normaliza : 17-04-2021 17:07

Protección : .

Interruptor : .

Consumo : 1.2

Comentario : Consumos proyecto Alto Maipo

**¿Produce otra indisponibilidad?**

Si

**Indisponibilidades Asociadas****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:** Celdas

**-Fenómeno Eléctrico:** Protección diferencial de barra

**-Operación de los interruptores:** Opera según lo esperado

**Comentarios Causas:**

**-Fenómeno Físico:** .

**-Elemento:** Barra 12 kV de SE Queltehues en Celda

**-Fenómeno Eléctrico:** se investiga

**-Operación de los interruptores:** se investiga

**Observaciones:**

**-Observaciones:** Cliente PHAM afectado por OA

**-Acciones Inmediatas:** Verificación y normalización de protecciones e instalaciones operadas

**-Hechos Sucidos:** .

**-Acciones Correctivas a Corto Plazo:** se investiga

**-Acciones Correctivas a Largo Plazo:** se investiga

**Afecta SCCC:**

No

**Afecta Medidores:**

No

**Afecta Protecciones:**

No

**Consumo:**

Libre

**Distribuidoras Afectadas**

AES GENER / Perd. Estm. de Potencia: 1.2 / Región : Metropolitana / Clientes Afectados: 1

**Retorno Automatico:**

No Tiene Retorno Automático

**Fecha / Hora Perturbación de la Solicitud:**

17-04-2021 16:15

**Fecha / Hora Estimada Retorno:**

17-04-2021 17:07

**Fecha / Hora Efectiva Retorno:**

17-04-2021 17:07

## Resumen - Subestación

### Resumen

**Número:**

2021001164

**Solicitante:**

AES GENER

**Empresa:**

AES GENER

**Tipo de Origen:**

Interno

**SubEstación:**

S/E CENTRAL QUELTEHUES

**Falla Sobre:**

transformador

**Elementos**

Tipo: transformadores2d - CENTRAL QUELTEHUES 110/12KV 28MVA 3

Nombre : CENTRAL QUELTEHUES 110/12KV 28MVA 3

Fecha Perturbacion : 17-04-2021 16:15

Fecha Normaliza : 17-04-2021 17:09

Protección : .

Interruptor : .

Consumo : 0

Comentario : .

**¿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:** Transformadores de poder

**-Fenómeno Eléctrico:** Protección diferencial de barra

**-Operación de los interruptores:** Opera según lo esperado



**Comentarios Causas:**

- Fenómeno Físico: se investiga
- Elemento: .
- Fenómeno Eléctrico: se investiga
- Operación de los interruptores: se investiga

**Observaciones:**

- Observaciones: se investiga
- Acciones Inmediatas: Verificación y normalización de protecciones e instalaciones operadas
- Hechos Sucidos: .
- Acciones Correctivas a Corto Plazo: se investiga
- Acciones Correctivas a Largo Plazo: se investiga

**Afecta SSCC:**

No

**Afecta Medidores:**

No

**Afecta Protecciones:**

No

**Consumo:**

No tiene consumo afectado

**Retorno Automatico:**

No Tiene Retorno Automático

**Fecha / Hora Perturbación de la Solicitud:**

17-04-2021 16:15

**Fecha / Hora Estimada Retorno:**

17-04-2021 17:09

**Fecha / Hora Efectiva Retorno:**

17-04-2021 17:09

## Resumen - Central Generadora

### Resumen

**Número:**

2021001165

**Solicitante:**

AES GENER

**Empresa:**

AES GENER

**Tipo de Origen:**

Interno

**Central:**

HP VOLCÁN

**Afecta a todas las unidades**

**Potencia:**

Desconexión de la unidad(es)

**Unidades:****Zona Afectada**

Metropolitana

**Comuna**

Isla de Maipo

**Tipo Causa**

Causa Presunta

Causa Principal

Se investiga

**Comentarios Tipo Causa:**

se investiga

**Causas**

**-Fenómeno Físico:** Origen no determinado.

**-Elemento:** Equipo generador

**-Fenómeno Eléctrico:** Protección diferencial de barra

**-Operación de los interruptores:** Opera según lo esperado

**Comentarios Causas:**

**-Fenómeno Físico:** se investiga

**-Elemento:** .

**-Fenómeno Eléctrico:** se investiga

**-Operación de los interruptores:** se investiga

**Observaciones:**

**-Observaciones:** .

**-Acciones Inmediatas:** Verificación y normalización de protecciones e instalaciones operadas

**-Hechos Sucuidos: .**

**-Acciones Correctivas a Corto Plazo:** se investiga

**-Acciones Correctivas a Largo Plazo:** se investiga

**Afecta SSCC:**

No

**Afecta Medidores:**

No

**Afecta Protecciones:**

No

**Consumo:**

No tiene consumo afectado

**Retorno Automatico:**

No Tiene Retorno Automático

**Estado Operativo:**

DF (Desconexión Forzada)

**Estado Operativo Efectivo:**

LF (Unidad con limitación forzada)

**Fecha / Hora Perturbación de la Solicitud:**

17-04-2021 16:15

**Fecha / Hora Estimada Retorno:**

17-04-2021 17:31

**Fecha / Hora Efectiva Retorno:**

17-04-2021 17:31

ANEXO N°2  
Otros antecedentes aportados por AES Gener S.A.

## 1. Descripción General de la interrupción

### a) Identificación del propietario de la instalación donde se produjo la falla:

AES GENER S.A (CENTRALES CORDILLERA).

RUT: 94272000 – 9.

Representante Legal: Ricardo Manuel Falú. R.U.T.: 21.535.942-5.

Dirección Legal: Rosario Norte 532, piso 19, Las Condes.

### b) Identificación del elemento o equipo fallado

Barra 12 kV de SE Queltehues.

Transformador 110/12 kV N°1.

Transformador 110/12 kV N°3.

Central Volcán.

### c) Identificación de instalación fallada

#### • Nombre de la instalación:

Barra 12 kV de SE Queltehues ID BDIT 8.

Transformador 110/12 kV N°1, ID BDIT 511.

Transformador 110/12 kV N°3, ID BDIT 511.

Central Volcán ID BDIT 77.

• **Tipo de instalación:** Subestación 12 kV.

• **Segmento al cual pertenece el equipo o elemento donde se produjo la falla:** Segmento generación.

• **Tipo de elemento eléctrico fallado:** Barra 12 kV de Subestación.

• **Elemento u equipo fallado:**

Protección Siemens 7UT Siprotec 4 (relé de protección de transformador N°2).

d) **Fecha y hora de la falla:** Sábado 17 04.2021, 16:15 hrs.

e) **Estimación de consumos desconectados:**

Consumo de faenas de proyecto Alto Maipo 1.2 MW, y 5 MW de generación de Central Volcán.

f) **Origen de la falla:** En intervención de fabricante Siemens, activación forzada de entrada binaria que recepciona el disparo de 50 BF en los dispositivos de protección, asociados a la barra de 12 kV.

g) **Fenómeno físico:** OPE 1 (Trabajos en instalaciones), inyección manual de tensión de control en borne de dispositivo de protección que desencadena la lógica de disparo por función falla interruptor, y que se encuentra conectada en paralelo al resto de dispositivos de la barra, por ende, al realizar la inyección de tensión de control en uno de ellos, se activa en todos los demás.

Resumen - Subestación

**Resumen**

Número:  
2021031647

Solicitante:  
AES GENER

Empresa:  
AES GENER

Tipo de Solicitud:  
**Desconexión**  
Origen: Interno  
Tipo de programación: Curso Forzoso

Descripción Nivel de Riesgo  
Actividad sin riesgo, el transformador se dejara fuera de servicio.

Tipo de Trabajo:  
Otro Tipo de Trabajo  
Comentario Trabajo a Realizar  
Se dejara el transformador fuera de servicio por encontrarse con el sistema de protecciones fuera de servicio.

SubEstación:  
S/E CENTRAL QUELTEHUES

Trabajo Sobre:  
transformador

Elementos  
Tipo: transformadores2d - CENTRAL QUELTEHUES 110/12KV 30MVA 2

¿Produce otra Disponibilidad?  
No

Comentarios:  
.

Consumos Afectados:  
No tiene consumo afectado

Afecta SSCC:  
No

Afecta Medidores:  
No

Afecta Protecciones:  
No

Trabajo requiere:  
Ninguno de los antecedentes anteriores

Otros:

Puede Afectar a: equipo  
Comentarios : Se encuentra sin protecciones.

Fecha / Hora Inicio:  
13-04-2021 18:05

Fecha / Hora Término:  
13-04-2021 23:59

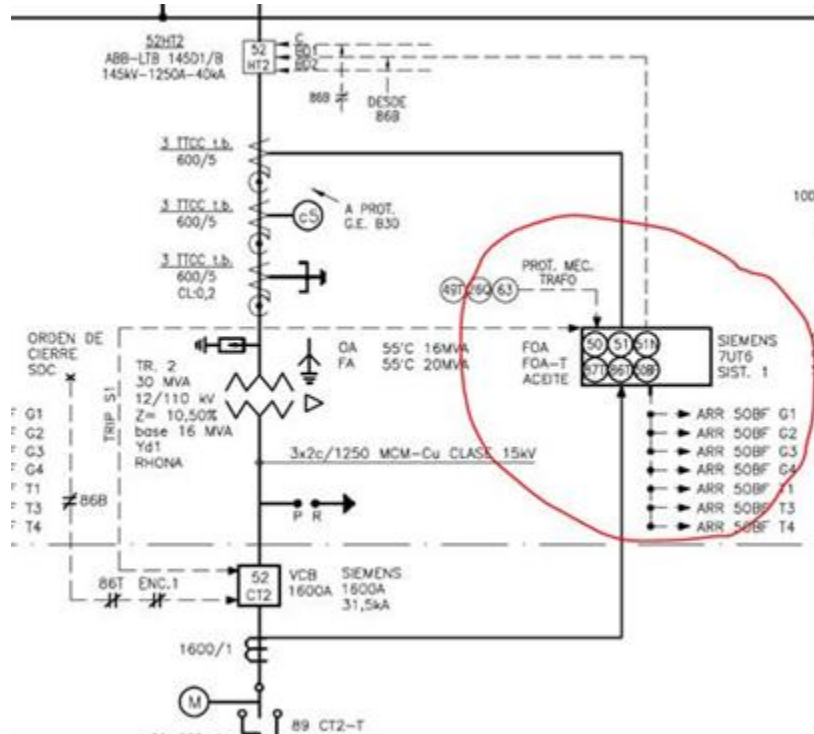
Fecha / Hora Inicio Efectiva:  
13-04-2021 18:05

**Comentarios**  
Sin comentarios

h) **Fenómeno eléctrico:** Disparó indeseado por recepción de función 50 Breaker Failure.

**Causa de la falla:** Interna, en el contexto de intervención de fabricante Siemens de diagnóstico y corrección de error interno en protección Siemens serie Siprotec 4 modelo 7UT6 asociada al transformador de poder n°2 se procede a la realización de puente, para la inyección forzada de tensión continua de control entre un punto positivo en bornera 125VDC, y conexasión de entrada en relé (BI.14), esta prueba se realiza con la intención de verificar el buen funcionamiento, o activación de la función asociada a esta, sin embargo especialista Siemens al momento de la realización de esta prueba no se percata de interconexión del punto con las celdas de la barra de 12kV, sin completar de manera cabal el proceso de bloqueo que impide la desconexión generada por esta prueba. Dicho lo anterior y en relación al punto h de este informe, se reitera que la afección a instalaciones ajenas a la celda de transformador n°2, se debe a que la lógica de disparo de la función falla interruptor, considera la conexión en paralelo de todos los dispositivos de protección, en lo que refiere a la entrada binaria de recepción externa de disparo, de manera de que cualquier protección que emita una orden de desenganche, sea transmitida y recepcionada por todos los dispositivos de esta barra. Por lo tanto al forzar la excitación de la entrada binaria n°14 de este dispositivo, sin aislarla de la instalación, se omitió de manera errónea el efecto que esto tendría, generándose un disparo sobre barra con apertura efectiva de los interruptores asociados.

Se adjunta reporte emitido por Siemens que da cuenta del reinicio del firmware y que el equipo se encuentra correctamente operativo.



i) **Reiteración:** No hay reiteraciones.

j) **Detalles de la instalación, equipo o elemento donde se produjo la falla:**

Marca: Siemens

Datos de placa: Siprotec 4/7UT63331-5EE92 N° BF:1401518408

Año de puesta en servicio efectivo: 2015.

Plan de mantención: Solo asociado a cambio de firmware, y ajustes de conexión.

Vida útil del equipo: 30 años.

Retraso en inversiones pactadas: No aplica.

k) **Ubicación urbana o rural, según decreto 327,1997, Ministerio de Minería, Título IX Art.25°:** Rural.

l) **Comuna en donde se originó la falla:** 13203 San José de Maipo.

m) **Comunas afectadas por la falla:** No aplica, no hay afectación de consumos regulados.

## 2. Acciones Preventivas y/o Correctivas

Reforzar con mayor grado de detalle en procedimiento de trabajo, las actividades a realizar y los circuitos involucrados, adjuntando a este documento minutas de bloqueo, en desconexión y normalización de circuitos de control.

Adicionalmente se solicita a Siemens la revisión de todos los dispositivos Siprotec de la barra 12 kV.

**3. Cronología de eventos y/o actividades:**

**a) Hora de llegada de personal calificado al punto de falla, los recursos utilizados y la hora de comienzo de las faenas de normalización.** Personal de operaciones realiza el cierre del interruptor transformador N°1 a las 17:06 horas, transformador N°3 17:09 horas, transformador N°4 17:12 horas. Indicando que La operación indeseada ocurre en el desarrollo del trabajo, por lo que el personal especializado y de operaciones se encontraba en el lugar.

**b) Descripción de los Mecanismos de Normalización Utilizados: Detalle de los elementos utilizados para la normalización del sistema.**

Una vez determinada, y eliminada la causa de falla, se verifican los interruptores afectados abiertos en terreno, y en sistema SCADA para su posterior energización.

**c) Descripción de las acciones Realizadas para normalizar el Servicio: Principales comunicaciones entre los CC de las empresas con el CDC.**

Telefónicamente se le informa al Centro de Control AES Gener del evento ocurrido, y se notifica el paso a paso para recuperar los circuitos afectados.

**d) Fecha y hora de normalización del servicio, y las acciones realizadas para la regularización del servicio**

17.04.2021, transformador N°1 a las 17:06 horas, transformador N°3 17:09 horas, alimentadores 23 kV faenas de Proyecto Alto Maipo 17:12 horas, Generador Volcán 17:22



## e) Cronología de maniobras realizadas por los CC para despejar la falla y la normalización del servicio.

Instalación	Equipo	Evento	Causa	Hora
SE Queltehues	Barra principal 12 kV	<i>Desconexión de Barra</i>	Operación indeseada, debido a trabajos de revisión de sistema protecciones en transformador 110-12 kV N°2 de SE Queltehues.	16:15 hrs.
SE Queltehues	Transformador 110-12 kV N°3	Apertura Interruptor 52CT3	Operación indeseada, debido a trabajos de revisión de sistema protecciones en transformador 110-12 kV N°2 de SE Queltehues.	16:15 hrs.
SE Queltehues	Transformador 110-12 kV N°1	Apertura Interruptor 52CT1	Operación indeseada, debido a trabajos de revisión de sistema protecciones en transformador 110-12 kV N°2 de SE Queltehues.	16:15 hrs.
SE Queltehues	Central Volcán	Apertura Interruptor 52CG4	Operación indeseada, debido a trabajos de revisión de sistema protecciones en transformador 110-12 kV N°2 de SE Queltehues.	16:15 hrs.
SE Queltehues	Transformador 110-12 kV N°3	Apertura Interruptor 52HT3	Operación indeseada, debido a trabajos de revisión de sistema protecciones en transformador 110-12 kV N°2 de SE Queltehues.	16:15 hrs.
SE Queltehues	Transformador 110-12 kV N°1	Apertura Interruptor 52HT1	Operación indeseada, debido a trabajos de revisión de sistema protecciones en transformador 110-12 kV N°2 de SE Queltehues.	16:15 hrs.
SE Queltehues	Barra principal 12 kV	<i>Energización</i>	Normalización	17:06 hrs.
SE Queltehues	Transformador 110-12 kV N°1	Cierre Interruptor 52CT1	Normalización	17:06hrs.
SE Queltehues	Transformador 110-12 kV N°1	Cierre Interruptor 52HT1	Normalización	17:06 hrs.
SE Queltehues	Transformador 110-12 kV N°3	Cierre Interruptor 52CT3	Normalización	17:09hrs.
SE Queltehues	Transformador 110-12 kV N°3	Cierre Interruptor 52HT3	Normalización	17:09 hrs.
SE Queltehues	Central Volcán	Cierre Interruptor 52CG4	Normalización	17:22 hrs.

f) Cronología de las actividades y de los trabajos efectuados por las cuadrillas en terreno, para reparar/normalizar la topología de la instalación fallada.

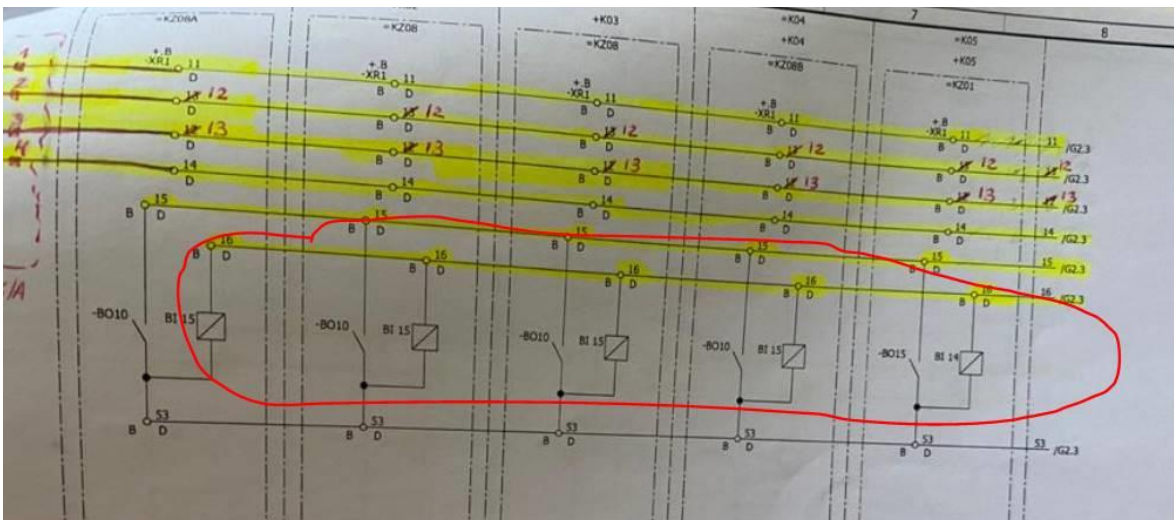
No aplica.

g) Cronología de eventos que provocan la indisponibilidad de suministro.

Ver punto e).

**4. Análisis de las actuaciones de protecciones:**

Las protecciones actuaron debidamente una vez que se excita la entrada binaria de los dispositivos que desencadenan la orden de desenganche sobre barra, mostrando una apertura física de los interruptores en servicio.



El disparo se relaciona con las pruebas de verificación del fabricante sobre el dispositivo que presentó un fallo de funcionamiento durante la semana pasada (protección Siemens serie Siprotec 4 modelo 7UT6 asociada al transformador de poder n°2), y que implicó la salida de operación del transformador N°2. En momentos donde el especialista Siemens revisaba las entradas binarias del equipo, excita mediante la aplicación de voltaje de prueba la BI n°14, que corresponde a la recepción de comando de disparo por 50BF, no se percató que al estar conectada en paralelo (como se muestra en plano) se energizarían las recepciones de las celdas asociadas a esta barra generando el disparo.

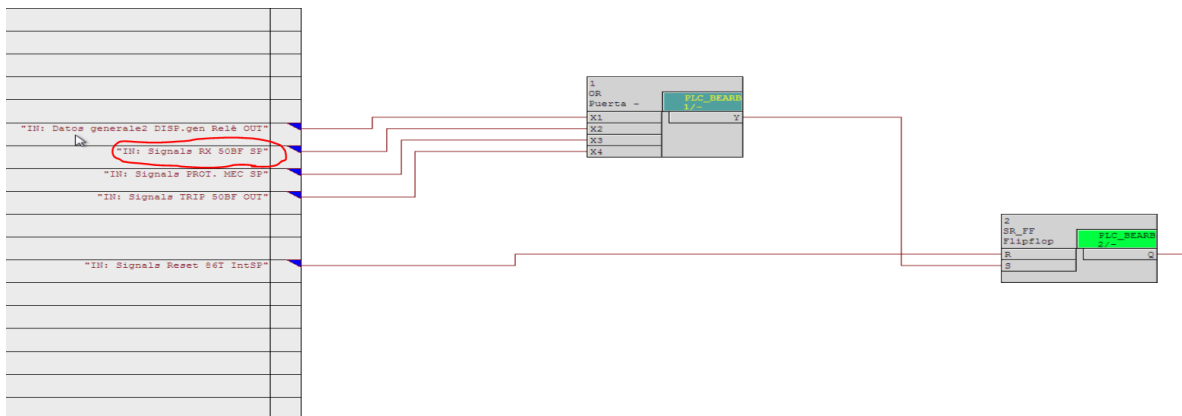
## 5. Anexos:

Se adjuntan reportes de las protecciones, no obstante, se muestra a modo de ejemplo lo captado por la protección de transformador 1 donde al recepcionar la señal RX Trip 50 BF desencadena la lógica de disparo, activando el maestro virtual 86T de acuerdo a la siguiente imagen

W7 ALfalfal [Corriendo] - Oracle VM VirtualBox

DIGSI - [Avisos de funcionamiento - 23-04-2021 - Queitohues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00]

Number	Indicacion	Value	Date end time	Initiator	Cause	State	Add. Cause
	Autoridad de mando	REMOTO	16.04.2021 23:13:32.206			Aviso es...	
	Autoridad de mando	POSICIÓN INTERM...	16.04.2021 23:15:08.796			Aviso es...	
	Autoridad de mando	REMOTO	16.04.2021 23:49:10.746			Aviso es...	
	Autoridad de mando	POSICIÓN INTERM...	16.04.2021 23:49:18.946			Aviso es...	
	RX TRIP 50BF	Entra	17.04.2021 16:14:11.817	PO = Auto. E...		Aviso es...	
	TRIP 50BF EXT	Entra	17.04.2021 16:14:11.817	PO = Auto. E...		Aviso es...	
	86T	Entra	17.04.2021 16:14:11.817	PO = Auto. E...		Aviso es...	
06852	>Relé aux. supervisión circuito disparo	State	17.04.2021 16:14:11.828	PO = Auto. E...		Aviso es...	
	CB 110kV	POSICIÓN INTERM...	17.04.2021 16:14:11.849	PO = Auto. E...		Aviso es...	
	Q110	POSICIÓN INTERM...	17.04.2021 16:14:11.849	PO = Auto. E...		Aviso es...	
	CB 110kV	ABRIR	17.04.2021 16:14:11.865	PO = Auto. E...		Aviso es...	
	Q110	ABRIR	17.04.2021 16:14:11.865	PO = Auto. E...		Aviso es...	
	CL CB 12kV	Sale	17.04.2021 16:14:11.879	PO = Auto. E...		Aviso es...	
06853	Interruptor de potencia Q0	POSICIÓN INTERM...	17.04.2021 16:14:11.879				
	>Relé aux.interrup.pot supervisión circ.	Entra	17.04.2021 16:14:11.893	PO = Auto. E...		Aviso es...	
	Interruptor de potencia Q0	ABIERTO	17.04.2021 16:14:11.893				
05733	Dif. Factor adaptación Tr.I Puesto med.1	1189	17.04.2021 16:14:11.895	PO = Auto. E...		Aviso es...	
	RX TRIP 50BF	Sale	17.04.2021 16:14:11.953	PO = Auto. E...		Aviso es...	
	TRIP 50BF EXT	Sale	17.04.2021 16:14:11.953	PO = Auto. E...		Aviso es...	
	Release Q1D OPEN	Entra	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	Release Q1E OPEN	Entra	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	Release Q1D CLOSE	Entra	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	Release Q1E CLOSE	Entra	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	PERMISIVO INT 12 KV	Sale	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	CB RELEASE	Sale	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	PERISIVO 110 KV	Sale	17.04.2021 16:14:12.083	PO = Auto. E...		Aviso es...	
	RESET 86T	Entra	17.04.2021 16:29:30.238	PO = local	Mando p...		
	86T	Sale	17.04.2021 16:29:30.239	PO = Auto. E...		Aviso es...	
06852	>Relé aux. supervisión circuito disparo	Entra	17.04.2021 16:29:30.304	PO = Auto. E...		Aviso es...	
	RESET 86T	Sale	17.04.2021 16:29:30.407	PO = local	Mando p...		
	PERMISIVO INT 12 KV	Entra	17.04.2021 16:29:30.407	PO = Auto. E...		Aviso es...	
	PERISIVO 110 KV	Entra	17.04.2021 16:29:30.407	PO = Auto. E...		Aviso es...	
	Reposición señales LED	Entra	17.04.2021 16:29:31.838	PO = local		Aviso es...	
	CB 110kV	POSICIÓN INTERM...	17.04.2021 17:03:53.835	PO = Auto. E...		Aviso es...	
	Q110	POSICIÓN INTERM...	17.04.2021 17:03:53.835	PO = Auto. E...		Aviso es...	
	CB 110kV	CERRAR	17.04.2021 17:03:53.869	PO = Auto. E...		Aviso es...	
	Q110	CERRAR	17.04.2021 17:03:53.869	PO = Auto. E...		Aviso es...	
00301	Falta en Red. numerado	3 - Entra	17.04.2021 17:03:53.874	PO = Auto. E...		Aviso es...	
00301	Falta en Red. numerado	3 - Sale	17.04.2021 17:03:54.155	PO = Auto. E...		Aviso es...	
	Release Q1E CLOSE	Sale	17.04.2021 17:03:54.160	PO = Auto. E...		Aviso es...	
	CB RELEASE	Entra	17.04.2021 17:03:54.160	PO = Auto. E...		Aviso es...	
	Remote	Sale	17.04.2021 17:05:18.317	PO = Auto. E...		Aviso es...	
	Local	Entra	17.04.2021 17:05:18.348	PO = Auto. E...		Aviso es...	
	Release Q1D OPEN	Sale	17.04.2021 17:05:18.502	PO = Auto. E...		Aviso es...	
	Release Q1E OPEN	Sale	17.04.2021 17:05:18.502	PO = Auto. E...		Aviso es...	
	Release Q1D CLOSE	Sale	17.04.2021 17:05:18.502	PO = Auto. E...		Aviso es...	
	CB RELEASE	Sale	17.04.2021 17:05:18.502	PO = Auto. E...		Aviso es...	
	OP MECH CH	Sale	17.04.2021 17:05:21.774	PO = Auto. E...		Aviso es...	
06853	>Relé aux.interrup.pot supervisión circ.	Sale	17.04.2021 17:05:21.777	PO = Auto. E...		Aviso es...	
06852	>Relé aux. supervisión circuito disparo	Sale	17.04.2021 17:05:21.777	PO = Auto. E...		Aviso es...	
	Interruptor de potencia Q0	POSICIÓN INTERM...	17.04.2021 17:05:21.777				
06852	>Relé aux. supervisión circuito disparo	Entra	17.04.2021 17:05:21.791	PO = Auto. E...		Aviso es...	
	CL CB 12kV	Entra	17.04.2021 17:05:21.791	PO = Auto. E...		Aviso es...	
	Interruptor de potencia Q0	CERRADO	17.04.2021 17:05:21.791				
05733	Dif. Factor adaptación Tr.I Puesto med.1	1190	17.04.2021 17:05:21.795	PO = Auto. E...		Aviso es...	
	OP MECH CH	Entra	17.04.2021 17:05:28.609	PO = Auto. E...		Aviso es...	
	Local	Sale	17.04.2021 17:06:39.307	PO = Auto. E...		Aviso es...	
	Remote	Entra	17.04.2021 17:06:39.333	PO = Auto. E...		Aviso es...	
	CB RELEASE	Entra	17.04.2021 17:06:39.673	PO = Auto. E...		Aviso es...	
	Autoridad de mando	REMOTO	18.04.2021 14:53:01.426			Aviso es...	






SOE SCADA:

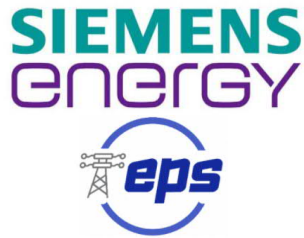
Estampa de Tiempo	Área/Subestación	Nivel de Voltaje	Bahía/Barra	Equip	Señal	Stat	Value	Ind
04/17/21 13:15:32:194	SIC/QUELTEHUES	12KV	TR 3	52CT3	STATUS	App	ABIERTO	Alam True Time
04/17/21 13:15:32:208	SIC/QUELTEHUES	12KV	TR PHAM SWITCHGEAR	52CT4	STATUS	App	ABIERTO	Alam True Time
04/17/21 13:15:32:211	SIC/QUELTEHUES	12KV	TR 1	52CT1	STATUS	App	ABIERTO	Alam True Time
04/17/21 13:15:32:216	SIC/QUELTEHUES	12KV	GEN VOLCAN SWITCHGEAR	52CG4	STATUS	App	ABIERTO	Alam True Time
04/17/21 16:15:32:161	SIC/QUELTEHUES	110KV	TR 3	52HT3	STATUS	App	ABIERTO	Alam True Time
04/17/21 16:15:32:166	SIC/QUELTEHUES	110KV	TR 1	52HT1	STATUS	App	ABIERTO	Alam True Time
04/17/21 16:15:37:804	SIC/QUELTEHUES	GEN VOLCAN		PROT	RELE MAESTRO	App	OPERADO	Alam True Time
04/17/21 17:22:12:000	SIC/QUELTEHUES	GEN VOLCAN		PROT	RELE MAESTRO	Ack	NORMAL	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR 1		SELECTOR L-R	Ack	LOCAL	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR 1	52CT1	STATUS	Ack	CERRADO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR 1		SELECTOR L-R	Ack	REMOTO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR 3		SELECTOR L-R	Ack	LOCAL	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR 3	52CT3	STATUS	Ack	CERRADO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR AUXILIAR		SELECTOR L-R	Ack	LOCAL	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR PHAM SWITCHGEAR	52CT4	STATUS	Ack	CERRADO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR AUXILIAR		SELECTOR L-R	Ack	REMOTO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	12KV	TR 3		SELECTOR L-R	Ack	REMOTO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	110KV	TR 1	52HT1	STATUS	Ack	CERRADO	Alam True Time
04/17/21 17:17:46:000	SIC/QUELTEHUES	110KV	TR 3	52HT3	STATUS	Ack	INVALID	Alam True Time
04/17/21 17:18:04:690	SIC/QUELTEHUES	GEN VOLCAN		PROT	RELE MAESTRO	Dis	NORMAL	Sport True Time
04/17/21 17:18:04:690	SIC/QUELTEHUES	GEN VOLCAN		PROT	RELE MAESTRO	Dis	NORMAL	Alam True Time
04/17/21 14:06:38:678	SIC/QUELTEHUES	12KV	TR 1		SELECTOR L-R	App	LOCAL	Alam True Time
04/17/21 14:06:42:118	SIC/QUELTEHUES	12KV	TR 1	52CT1	STATUS	App	CERRADO	Alam True Time
04/17/21 14:07:59:640	SIC/QUELTEHUES	12KV	TR 1		SELECTOR L-R	App	REMOTO	Alam True Time
04/17/21 14:09:13:622	SIC/QUELTEHUES	12KV	TR 3		SELECTOR L-R	App	LOCAL	Alam True Time
04/17/21 14:09:17:945	SIC/QUELTEHUES	12KV	TR 3	52CT3	STATUS	App	CERRADO	Alam True Time
04/17/21 14:12:18:541	SIC/QUELTEHUES	12KV	TR AUXILIAR		SELECTOR L-R	App	LOCAL	Alam True Time
04/17/21 14:12:21:513	SIC/QUELTEHUES	12KV	TR PHAM SWITCHGEAR	52CT4	STATUS	App	CERRADO	Alam True Time
04/17/21 14:12:29:592	SIC/QUELTEHUES	12KV	TR AUXILIAR		SELECTOR L-R	App	REMOTO	Alam True Time
04/17/21 14:12:30:588	SIC/QUELTEHUES	12KV	TR 3		SELECTOR L-R	App	REMOTO	Alam True Time
04/17/21 16:15:37:804	SIC/QUELTEHUES	GEN VOLCAN		PROT	RELE MAESTRO	App	OPERADO	Alam True Time
04/17/21 17:05:14:171	SIC/QUELTEHUES	110KV	TR 1	52HT1	STATUS	App	CERRADO	Alam True Time
04/17/21 17:08:53:974	SIC/QUELTEHUES	110KV	TR 3	52HT3	STATUS	App	CERRADO	Alam True Time

# INFORME DE REVISION Y PRUEBAS DEL RELÉ DE PROTECCIÓN DE TRANSFORMADOR 2 CENTRAL QUELTEHUE SE GIS

Revisión : 0  
Fecha : 18-04-2021

Emisión Final	0	Emisión Final	20-04-2021	J. Bravo	J. Bravo	A. Gonzalez
<b>Estado / Fase</b>	<b>Rev.</b>	<b>Comentarios / Modificaciones</b>	<b>Fecha de Act.</b>	<b>Elaboró</b>	<b>Revisó</b>	<b>Aprobó</b>

						
		Firmas	Total de Páginas:	13	Fecha de Emisión:	20-04-2021
Elaboró:	José Bravo	J.B.	Informe de Revisión y Pruebas del Relé de Protección de Transformador 2 Central Queltehue SE GIS			
Revisó:	José Bravo	J.B.				
Aprobó	Andrés González	A.G.				
			<b>QUEL-SAT-01</b>			
Ruta de Almacenamiento del documento:						






INFORME DE REVISIÓN Y PRUEBAS DEL  
RELÉ DE PROTECCIÓN DE  
TRANSFORMADOR 2  
CENTRAL QUELTEHUE SE GI



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 	<b>INFORME DE REVISIÓN Y PRUEBAS DEL RELÉ DE PROTECCIÓN DE TRANSFORMADOR 2 CENTRAL QUELTHEHUE SE GI</b>	
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## 1. OBJETIVOS

Revisión detallada y verificación de la protección diferencial de transformador 2 de 110/12 kV (CT2) por la falla ocurrida en el mismo el día 13-04-2021.




## 2. ACTIVIDADES REALIZADAS

- Revisión general del equipo y reapriete general de bornes en relé y bornes relacionados.
- Reinstalación del firmware del relé, incluye inicialización del mismo.
- Pruebas de entradas y salidas digitales.
- Revisión y corrección de ajustes cargados en el relé según último EAP Aprobado.
- Pruebas de inyección secundaria

## 3. DOCUMENTOS, EQUIPOS E INSTRUMENTOS

Se verificó la disposición de los siguientes documentos, herramientas, equipos e instrumentos. La verificación se registró de acuerdo a lo siguiente:

DOCUMENTO O EQUIPO	NOMBRE DEL DOCUMENTO	REGISTRO
ESTUDIO DE AJUSTES	15095-01-IT-004_Rev2	√
MANUAL DE LA PROTECCIÓN	7UT6x_Manual_A4_V040300_en	√
INYECTOR TRIFÁSICO MARCA OMICRON	CMC356	√
MULTITESTER	FLUKE 179 TRU RMS MULTIMETER	√

 	<b>INFORME DE REVISIÓN Y PRUEBAS DEL RELÉ DE PROTECCIÓN DE TRANSFORMADOR 2 CENTRAL QUELTHEHUE SE GI</b>	
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#### 4. IDENTIFICACIÓN DEL EQUIPO DE PROTECCIÓN

Se identificó el relé de protección, registrando su marca, número serial y de orden (MLFB).

	DESCRIPCIÓN	REGISTRO
MARCA	Siemens	√
NÚMERO SERIAL	BF1401518408	√
NÚMERO DE ORDEN (MLFB)	7UT63315EE924BA0+L0S	√

#### 5. REVISIÓN GENERAL DEL EQUIPO

Se realizó una revisión general del equipo, donde se encontró que el relé fue inicializado el día de la falla, por lo que no contaba con eventos previos al 13.04.2021. Una vez finalizada esta revisión se procedió a realizar un reapriete general de bornes del relé. No se encontraron cables sueltos o no ajustados en los bornes del relé, bloque de pruebas, bornes de corriente y los asociados al relé de protección.

#### 6. REINSTALACIÓN DE FIRMWARE

Se realizó la reinstalación de firmware en el relé para descartar que el mismo se encontrase corrupto, en las siguientes figuras se puede apreciar la versión antes y después de la reinstalación.



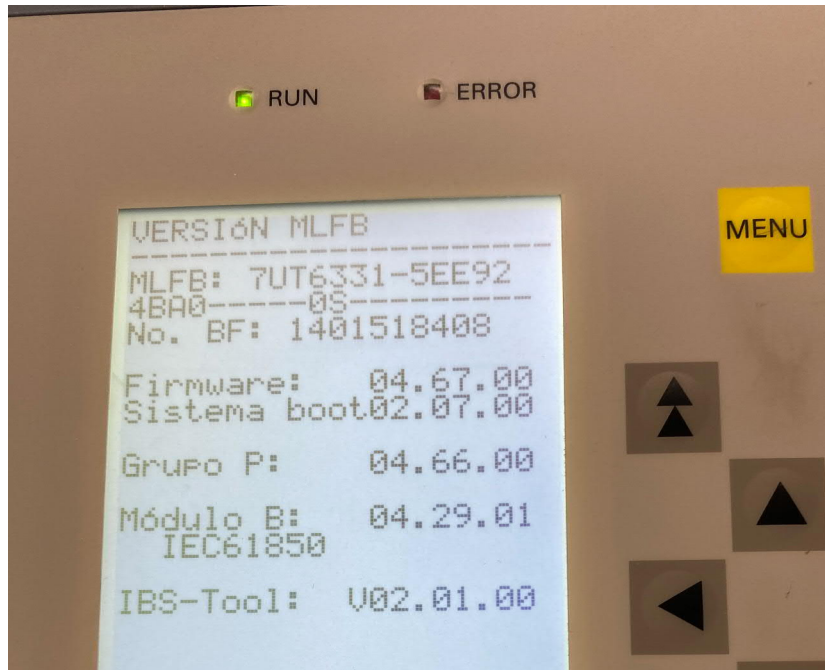
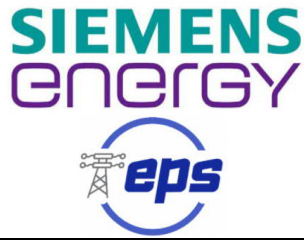


Figura 1. Firmware del relé previa a la reinstalación



Figura 2. Firmware del relé después de la reinstalación

Una vez verificado que el firmware fuese cargado correctamente, se procedió a inicializar el relé con el backup del proyecto.



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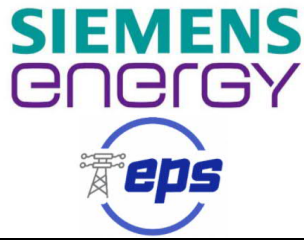


## **7. PRUEBAS DE ENTRADAS Y SALIDAS DIGITALES**

### **ENTRADAS DIGITALES**

Se realizaron pruebas de las entradas digitales colocando un positivo directamente en el borne de la entrada positiva del relé

<b>Entrada</b>	<b>Estado de Función</b>
BI.1	OK
BI.2	OK
BI.3	OK
BI.4	OK
BI.5	OK
BI.6	OK
BI.7	OK
BI.8	OK
BI.9	OK
BI.10	OK
BI.11	OK
BI.12	OK
BI.13	OK
BI.14	OK
BI.15	OK
BI.16	OK
BI.17	OK
BI.18	OK
BI.19	OK
BI.20	OK
BI.21	OK



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## **SALIDAS DIGITALES**

Se realizaron pruebas de las salidas digitales midiendo continuidad directamente en los bornes de la cada una de las salidas del relé

<b>Salida</b>	<b>Estado de Función</b>
BO.1	OK
BO.2	OK
BO.3	OK
BO.4	OK
BO.5	OK
BO.6	OK
BO.7	OK
BO.8	OK
BO.9	OK
BO.10	OK
BO.11	OK
BO.12	OK
BO.13	OK
BO.14	OK
BO.15	OK
BO.16	OK
BO.17	OK
BO.18	OK
BO.19	OK
BO.20	OK
BO.21	OK
BO.22	OK
BO.23	OK
BO.24	OK

## 8. REVISIÓN DE AJUSTES

Se encontraron las siguientes diferencias entre el último estudio de ajuste y los ajustes cargados en el relé

- a) Bloqueos por 2do y 5to armónico 87T: en el EAP se indica que el bloqueo por 2do armónico deber ser del 15% y de 5to armónico 25%, tal como se aprecia en la figura 3, mientras que en el relé se encontraban en 20% (2do armónico) y 30% (5to armónico).

### Función Diferencial de Transformador (87T)

Es un esquema unitario que cubre el 100% del transformador de poder en forma instantánea para fallas entre fases y fase a tierra. Se considerará un ajuste de alta sensibilidad, para poder detectar de manera instantánea cualquier falla interna del transformador (30% de la corriente nominal del transformador de poder). Para mantener una estabilidad adecuada frente a fallas externas, se ajusta una característica de restricción con pendientes de un 40% (Slope 1) y 80% (Slope 2) respectivamente. Se habilita además la inhibición de corrientes de inrush durante la energización (2º armónico) por fase, con un ajuste de un 15% y de quinto armónico (5º armónico), con un ajuste de 25%. Esta protección debe dar apertura tanto a los interruptores en 110 kV (52HT1, 52HT2 Y 52HT3) como a las respectivas celdas en 12 kV (52CT1, 52CT2 y 52CT3), según corresponda.

Figura 3. Extracto del EAP del ajuste de protección 87T

El relé de protección se encontraba ajustado como se muestra a continuación.

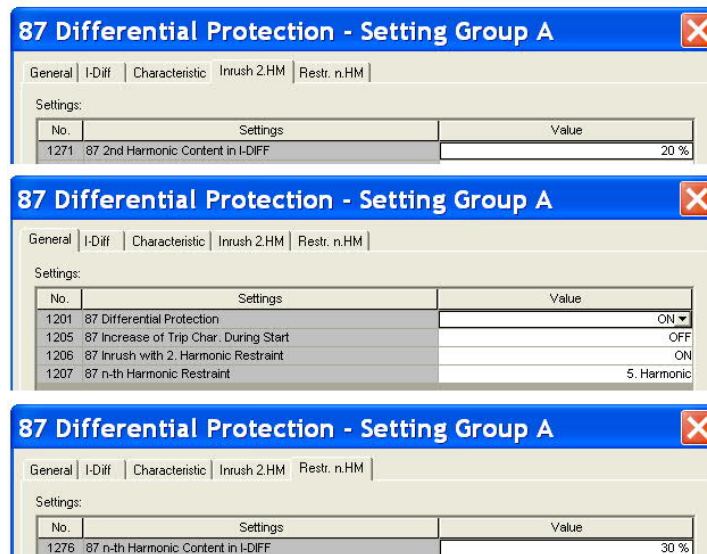


Figura 4. Ajuste bloqueo 2do y 5to Armónico en el relé.

Se realizó la corrección a dichos ajustes a los siguientes.

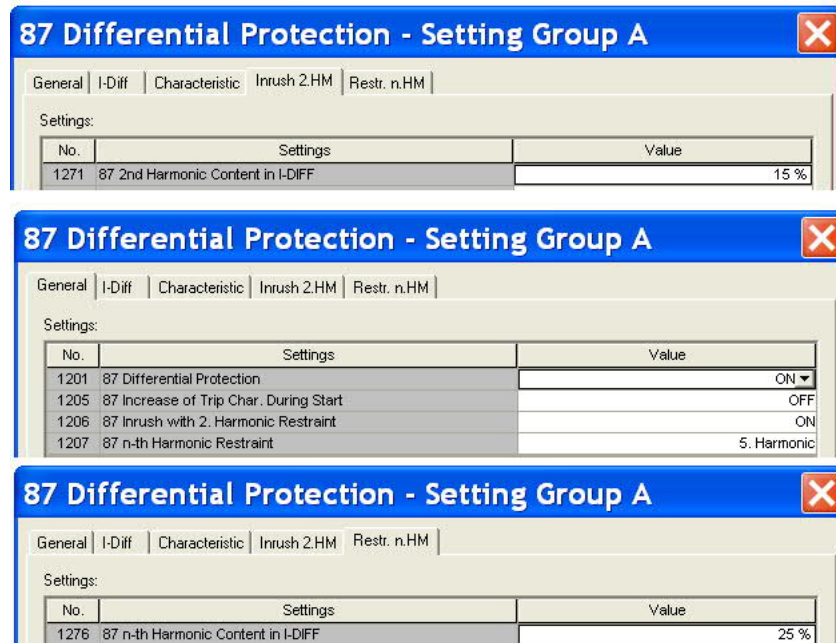


Figura 4. Ajuste bloqueo 2do y 5to Armónico en el relé actualizado.

- b) Diferencia de umbral y tiempo función sobrecorriente temporizada de fase (51). Los ajustes del informe del EAP indican que la corriente de umbral debe ser 1,57Asec y TD=0,26, mientras en el relé se encontraban ajustados en 1,92Asec y TD=0,32. Esto se puede apreciar entre las figuras 5, 6 y 7.

Función de Sobrecorriente de Fases - Lado 110 kV (51/50)

De modo de lograr un respaldo de la protección diferencial del transformador, se ajusta la función de **sobrecorriente temporizada de fases (51)**, considerando que la curva tiempo corriente de la protección quede por debajo de la curva de daño térmico-mecánico del transformador de poder (Curva ANSI Recommended of Transactions on Industry Applications Vol.1º July/August 1986). El pickup se ajusta a un **120% de la corriente nominal** de los transformadores de poder respectivos (T1, T2 y T3). Se ajusta también la función de **sobrecorriente de fases instantánea (50)** en 110 kV, con el fin de despejar fallas entre fases máximas en el lado primario de los transformadores de poder. Esta última se ajusta de manera de no operar por corrientes de energización de los transformadores (inrush), estimada en **9 veces la corriente nominal del transformador de poder**.

Figura 5. Extracto del EAP ajuste sobrerriente temporizada e instantánea de fase



Tabla 8-5 Ajustes Función 50/51 Relé Siemens 7UT633.

PARÁMETRO	VALOR DE AJUSTE
I>	1,57 A sec
Curva	IEC Normal Inverse
T>	0,26
I>>	11,81 A sec
T>>	0,00 s

Figura 6. Extracto del EAP cuadro resumen de ajuste sobrerriente de fase

El relé de protección se encontraba ajustado como se muestra a continuación.

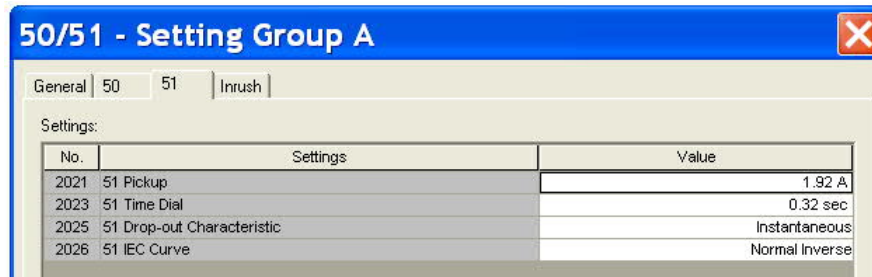


Figura 7. Ajuste sobrecorriente temporizada de fase

Se realizó la corrección a dichos ajustes a los siguientes.

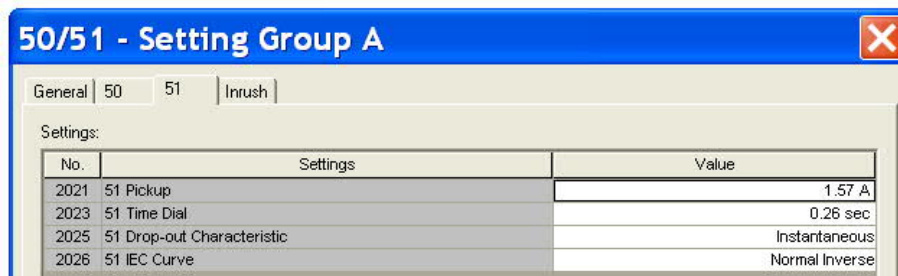


Figura 8. Ajuste sobrecorriente temporizada de fase corregida

- c) Diferencia de umbral función sobrecorriente instantánea de fase (50). Los ajustes del informe del EAP indican que la corriente de umbral debe ser 11,81Asec, mientras en el relé se encontraban ajustados en 11Asec. Esto se puede apreciar en las figuras 5, 6 y 9.

El relé de protección se encontraba ajustado como se muestra a continuación.

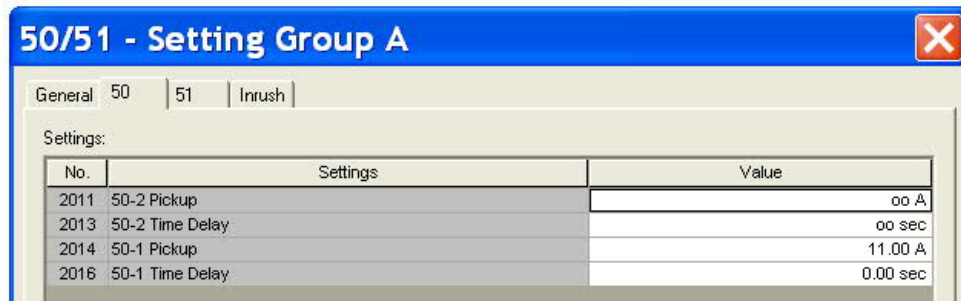


Figura 9. Ajuste sobrecorriente instantánea de fase

Se realizó la corrección a dichos ajustes a los siguientes.

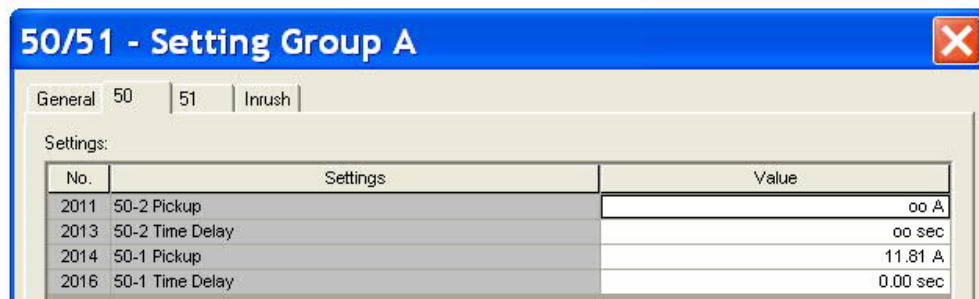


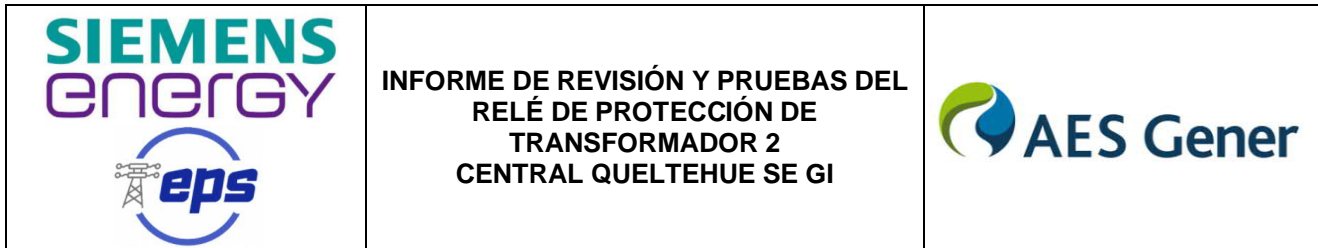
Figura 10. Ajuste sobrecorriente instantánea de fase corregida

d) Diferencia de umbral función falla interruptor (50BF). En la siguiente figura se aprecia el ajuste de corriente mínima para la función falla interruptor es de 0,1Asec, mientras que en el relé se encontraba ajustado en 0,2Asec. Esto se puede apreciar en las figuras 11 y 12.

Tabla 8-58 Ajustes función 50BF Switchgear Queltehues 12 kV.

CELDA 12KV	EQUIPO DE PROTECCIÓN	TT/CC [A]	AJUSTE PROPUESTO
52CT1	Relé diferencial de Transformador Marca SIEMENS Modelo 7UT633	1600/1	T2: 0,20 seg.
52CT2			Isup: 0,10 A sec (160 A Primarios)
52CT3			I3I0 : 0,10 A sec (160 A Primarios)
			Status: Si.
			Retrip: No aplica.

Figura 11. Extracto del EAP - Ajuste umbral función 50BF



El relé de protección se encontraba ajustado como se muestra a continuación.



Figura 12. Ajuste umbral de corriente falla interruptor

Se realizó la corrección a dichos ajustes a los siguientes.

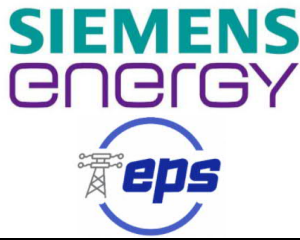


Figura 13. Ajuste umbral de corriente falla interruptor corregida

## 9. PRUEBAS DE INYECCIÓN SECUNDARIAS

En el anexo 1 podrán encontrar las pruebas de inyección secundarias de cada una de las funciones ajustadas en el relé de protección, así como sus desviaciones.





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## 10. TÉRMINO DE LAS PRUEBAS

### ACTIVIDADES RELEVANTES

Se verificaron las entradas de corrientes del relé diferencial de transformador 2 (CT2). Los errores se pueden apreciar en las pruebas anexas.
Se verificó la correcta operación de todas las funciones ajustadas correspondientes al relé diferencial de transformador 2 (CT2). Los errores se pueden apreciar en las pruebas anexas.
Se verificó la correcta operación de todas las entradas y salidas digitales a nivel de hardware del relé diferencial de transformador 2 (CT2).
Se actualizaron los ajustes de protecciones según último EAP
Se reinstaló el firmware del relé a la misma revisión y se inicializó el mismo
Considerando los puntos anteriormente señalados se concluye que el relé de protección de Transformador CT2 se encuentra correctamente operativo y configurado en base al estudio de ajustes proporcionado por AES.

### PENDIENTES


### OBSERVACIONES Y/O RECOMENDACIONES

Se recomienda realizar una actualización de la ingeniería elemental de la subestación GIS.
Se recomienda realizar pruebas de mantenimiento al resto de equipos de la subestación
Se recomienda realizar reapriete a los bornes de los equipos en patio.



## Resumen - Subestación

### Resumen

**Número:**

2021031647

**Solicitante:**

AES GENER

**Empresa:**

AES GENER

**Tipo de Solicitud:****Desconexión**

Origen: Interno

Tipo de programación: **Curso Forzoso**

**Descripción Nivel de Riesgo**

Actividad sin riesgo, el transformador se dejara fuera de servicio.

**Tipo de Trabajo:**

Otro Tipo de Trabajo

**Comentario Trabajo a Realizar**

Se dejara el transformador fuera de servicio por encontrarse con el sistema de protecciones fuera de servicio.

**SubEstación:**

S/E CENTRAL QUELTEHUES

**Trabajo Sobre:**

transformador

**Elementos**

Tipo: transformadores2d - CENTRAL QUELTEHUES 110/12KV 30MVA 2

**¿Produce otra indisponibilidad?**

No

**Comentarios:**

.

**Consumos Afectados:**

No tiene consumo afectado

**Afecta SSCC:**

No

**Afecta Medidores:**

No

**Afecta Protecciones:**

No

**Trabajo requiere:**

Ninguno de los antecedentes anteriores

**Otros:**

**Puede Afectar a:** equipo

**Comentarios :** Se encuentra sin protecciones.

**Fecha / Hora Inicio:**

13-04-2021 18:05

**Fecha / Hora Término:**

13-04-2021 23:59

**Fecha / Hora Inicio Efectiva:**

13-04-2021 18:05

 **Comentarios**

**Sin comentarios**

## Queltehues\_180221 / 12kv / 7UT\_TRAFO2

MLFB: 7UT63315EE924BA0----0S-----  
Parameter set version: V04.66.00  
Device path: C:\Users\ALfalfa\Desktop\Back up siemens  
18022021\Queltehu\P7DI\GV\SD\0000000c  
Author:  
Creation date: 21.08.18 14:14:00  
Last modified: 23.04.21 11:11:26  
Operating mode: Online  
Comment:  
Setting values in: Primary value description

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## 1 Indications

### 1.1 Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00

Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00

Number	Indication	Value	Date and time
	Reset LED	ON	18.04.2021 17:06:17.070
00068	Clock Synchronization Error	ON	18.04.2021 16:34:46.851
009.0100.01	Failure EN100 Modul	OFF	18.04.2021 16:32:59.959
	Reset LED	ON	18.04.2021 16:32:45.781
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	18.04.2021 16:32:43.251
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.04.2021 16:32:43.251
06863	74TC Trip circuit supervision is ACTIVE	ON	18.04.2021 16:32:41.541
00052	At Least 1 Protection Funct. is Active	ON	18.04.2021 16:32:41.139
047.2413.01	50BF is ACTIVE	ON	18.04.2021 16:32:41.139
191.2413.01	50N/51N is ACTIVE	ON	18.04.2021 16:32:41.139
023.2413.01	50/51 O/C is ACTIVE	ON	18.04.2021 16:32:41.139
05617	87 Differential protection is ACTIVE	ON	18.04.2021 16:32:41.139
00051	Device is Operational and Protecting	ON	18.04.2021 16:32:41.021
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	18.04.2021 16:32:40.951
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.04.2021 16:32:40.951
30054	Broken wire is switched OFF	ON	18.04.2021 16:32:40.928
05734	87 Adaption factor CT M2	3,811	18.04.2021 16:32:40.927
05733	87 Adaption factor CT M1	1,109	18.04.2021 16:32:40.927
30061	General: Adaption factor CT M2	3,811	18.04.2021 16:32:40.927
30060	General: Adaption factor CT M1	1,109	18.04.2021 16:32:40.927
	PERM12k	ON	18.04.2021 16:32:40.832



Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(3)

Number	Indication	Value	Date and time
	BLoqueo INT 110 kV	ON	18.04.2021 16:32:40.832
	Permisivo cierre INT 110 kV	ON	18.04.2021 16:32:40.831
	Permisivo cierre INT 12 kV	ON	18.04.2021 16:32:40.831
05147	Phase rotation ABC	ON	18.04.2021 16:32:40.762
	Tierra Off	ON	18.04.2021 16:32:40.761
	S25	ON	18.04.2021 16:32:40.761
	Local	ON	18.04.2021 16:32:40.761
	OP MECH CH	ON	18.04.2021 16:32:40.761
06853	>74TC Trip circuit superv.: bkr relay	ON	18.04.2021 16:32:40.761
06852	>74TC Trip circuit superv.: trip relay	ON	18.04.2021 16:32:40.761
00067	Resume	ON	18.04.2021 16:32:40.712
009.0100.01	Failure EN100 Modul	ON	18.04.2021 16:32:40.760
00070	Setting calculation is running	ON	18.04.2021 16:32:10.673
	Protecc Mecanicas del Trafo	OFF	18.04.2021 16:31:15.313
	Protecc Mecanicas del Trafo	ON	18.04.2021 16:31:12.902
	Protecc Mecanicas del Trafo	OFF	18.04.2021 16:31:12.404
	Protecc Mecanicas del Trafo	ON	18.04.2021 16:31:12.336
	Protecc Mecanicas del Trafo	OFF	18.04.2021 16:31:12.032
	Protecc Mecanicas del Trafo	ON	18.04.2021 16:31:11.976
00068	Clock Synchronization Error	ON	18.04.2021 16:30:43.830
	Alarmas Trafo	OFF	18.04.2021 16:29:07.701
	Alarmas Trafo	ON	18.04.2021 16:29:05.774
	Alarmas Trafo	OFF	18.04.2021 16:29:05.699
	Alarmas Trafo	ON	18.04.2021 16:29:05.644
009.0100.01	Failure EN100 Modul	OFF	18.04.2021 16:28:56.958
	Reset LED	ON	18.04.2021 16:28:43.315





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(4)

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

Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(5)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	18.04.2021 16:28:40.229
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.04.2021 16:28:40.229
06863	74TC Trip circuit supervision is ACTIVE	ON	18.04.2021 16:28:38.454
00052	At Least 1 Protection Funct. is Active	ON	18.04.2021 16:28:38.051
047.2413.01	50BF is ACTIVE	ON	18.04.2021 16:28:38.051
191.2413.01	50N/51N is ACTIVE	ON	18.04.2021 16:28:38.051
023.2413.01	50/51 O/C is ACTIVE	ON	18.04.2021 16:28:38.051
05617	87 Differential protection is ACTIVE	ON	18.04.2021 16:28:38.051
00051	Device is Operational and Protecting	ON	18.04.2021 16:28:38.016
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	18.04.2021 16:28:37.929
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.04.2021 16:28:37.929
30054	Broken wire is switched OFF	ON	18.04.2021 16:28:37.847
05734	87 Adaption factor CT M2	3,811	18.04.2021 16:28:37.846
05733	87 Adaption factor CT M1	1,109	18.04.2021 16:28:37.846
30061	General: Adaption factor CT M2	3,811	18.04.2021 16:28:37.846
30060	General: Adaption factor CT M1	1,109	18.04.2021 16:28:37.846
	PERM12k	ON	18.04.2021 16:28:37.742
	BLoqueo INT 110 kV	ON	18.04.2021 16:28:37.742
	Permisivo cierre INT 110 kV	ON	18.04.2021 16:28:37.741
	Permisivo cierre INT 12 kV	ON	18.04.2021 16:28:37.741
05147	Phase rotation ABC	ON	18.04.2021 16:28:37.740
	Tierra Off	ON	18.04.2021 16:28:37.739
	S25	ON	18.04.2021 16:28:37.739
	Local	ON	18.04.2021 16:28:37.739
	OP MECH CH	ON	18.04.2021 16:28:37.739
06853	>74TC Trip circuit superv.: bkr relay	ON	18.04.2021 16:28:37.739





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(7)

Number	Indication	Value	Date and time
06852	>74TC Trip circuit superv.: trip relay	ON	18.04.2021 16:28:37.739
00067	Resume	ON	18.04.2021 16:28:37.689
009.0100.01	Failure EN100 Modul	ON	18.04.2021 16:28:37.737
00070	Setting calculation is running	ON	18.04.2021 16:28:08.335
	Alarma Alta Temperatura Trafo	OFF	18.04.2021 16:27:02.518
	Alarma Alta Temperatura Trafo	ON	18.04.2021 16:27:00.021
	Alarma Alta Temperatura Trafo	OFF	18.04.2021 16:26:59.544
	Alarma Alta Temperatura Trafo	ON	18.04.2021 16:26:59.462
	Alarma Interruptor 110 kv	OFF	18.04.2021 16:25:35.485
	Alarma Interruptor 110 kv	ON	18.04.2021 16:25:33.286
	Alarma Interruptor 110 kv	OFF	18.04.2021 16:25:29.673
	Alarma Interruptor 110 kv	ON	18.04.2021 16:25:29.595
	Alarma Interruptor 110 kv	OFF	18.04.2021 16:25:29.484
	Alarma Interruptor 110 kv	ON	18.04.2021 16:25:29.398
	Alarma Interruptor 110 kv	OFF	18.04.2021 16:25:28.808
	Alarma Interruptor 110 kv	ON	18.04.2021 16:25:28.721
	CB 110kv	OFF	18.04.2021 16:23:25.951
	CB 110kv	Intermediate Position	18.04.2021 16:23:24.402
	CB 110kv	OFF	18.04.2021 16:23:24.067
	CB 110kv	Intermediate Position	18.04.2021 16:23:24.000
	CB 110kv	OFF	18.04.2021 16:21:46.140
	CB 110kv	Intermediate Position	18.04.2021 16:21:46.130
	CB 110kv	OFF	18.04.2021 16:21:46.094
	CB 110kv	Intermediate Position	18.04.2021 16:21:45.865





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(9)

Number	Indication	Value	Date and time
	CB 110kv	OFF	18.04.2021 16:21:45.407
	CB 110kv	Intermediate Position	18.04.2021 16:21:45.202
	CB 110kv	OFF	18.04.2021 16:21:45.149
	CB 110kv	Intermediate Position	18.04.2021 16:21:44.769
	CB 110kv	OFF	18.04.2021 16:21:44.382
	CB 110kv	Intermediate Position	18.04.2021 16:21:42.653
	CB 110kv	OFF	18.04.2021 16:21:42.651
	CB 110kv	Intermediate Position	18.04.2021 16:21:42.489
	CB 110kv	OFF	18.04.2021 16:21:42.451
	CB 110kv	Intermediate Position	18.04.2021 16:21:42.448
	CB 110kv	OFF	18.04.2021 16:21:42.359
	CB 110kv	Intermediate Position	18.04.2021 16:21:42.268
	CB 110kv	OFF	18.04.2021 16:21:42.176
	CB 110kv	Intermediate Position	18.04.2021 16:21:42.091
	CB 110kv	OFF	18.04.2021 16:21:42.084
	CB 110kv	Intermediate Position	18.04.2021 16:21:42.081
	CB 110kv	OFF	18.04.2021 16:21:42.023
	CB 110kv	Intermediate Position	18.04.2021 16:21:41.976
	CB 110kv	OFF	18.04.2021 16:21:41.969
	CB 110kv	Intermediate Position	18.04.2021 16:21:38.208
	CB 110kv	OFF	18.04.2021 16:21:37.548
	CB 110kv	Intermediate Position	18.04.2021 16:21:37.541
00068	Clock Synchronization Error	ON	18.04.2021 16:03:19.852





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(11)

Number	Indication	Value	Date and time
009.0100.01	Failure EN100 Modul	OFF	18.04.2021 16:01:32.964
	Reset LED	ON	18.04.2021 16:01:18.880
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	18.04.2021 16:01:16.252
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.04.2021 16:01:16.252
06863	74TC Trip circuit supervision is ACTIVE	ON	18.04.2021 16:01:14.572
00052	At Least 1 Protection Funct. is Active	ON	18.04.2021 16:01:14.168
047.2413.01	50BF is ACTIVE	ON	18.04.2021 16:01:14.168
191.2413.01	50N/51N is ACTIVE	ON	18.04.2021 16:01:14.168
023.2413.01	50/51 O/C is ACTIVE	ON	18.04.2021 16:01:14.168
05617	87 Differential protection is ACTIVE	ON	18.04.2021 16:01:14.168
00051	Device is Operational and Protecting	ON	18.04.2021 16:01:14.022
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	18.04.2021 16:01:13.952
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	18.04.2021 16:01:13.952
30054	Broken wire is switched OFF	ON	18.04.2021 16:01:13.929
05734	87 Adaption factor CT M2	3,811	18.04.2021 16:01:13.928
05733	87 Adaption factor CT M1	1,109	18.04.2021 16:01:13.928
30061	General: Adaption factor CT M2	3,811	18.04.2021 16:01:13.928
30060	General: Adaption factor CT M1	1,109	18.04.2021 16:01:13.928
	PERM12k	ON	18.04.2021 16:01:13.833
	BLoqueo INT 110 kV	ON	18.04.2021 16:01:13.833
	Permisivo cierre INT 110 kV	ON	18.04.2021 16:01:13.832
	Permisivo cierre INT 12 kV	ON	18.04.2021 16:01:13.832
05147	Phase rotation ABC	ON	18.04.2021 16:01:13.763
	Tierra Off	ON	18.04.2021 16:01:13.762







Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(13)

Number	Indication	Value	Date and time
	S25	ON	18.04.2021 16:01:13.762
	Local	ON	18.04.2021 16:01:13.762
	OP MECH CH	ON	18.04.2021 16:01:13.762
06853	>74TC Trip circuit superv.: bkr relay	ON	18.04.2021 16:01:13.762
06852	>74TC Trip circuit superv.: trip relay	ON	18.04.2021 16:01:13.762
00067	Resume	ON	18.04.2021 16:01:13.712
009.0100.01	Failure EN100 Modul	ON	18.04.2021 16:01:13.761
00070	Setting calculation is running	ON	18.04.2021 15:59:37.527
30140	Incons. S1: CBaux open/ curr. persistent	OFF	18.04.2021 15:56:12.358
30140	Incons. S1: CBaux open/ curr. persistent	ON	18.04.2021 15:55:44.820
30140	Incons. S1: CBaux open/ curr. persistent	OFF	18.04.2021 15:54:12.607
30140	Incons. S1: CBaux open/ curr. persistent	ON	18.04.2021 15:52:38.372
00070	Setting calculation is running	OFF	18.04.2021 15:48:39.134
00052	At Least 1 Protection Funct. is Active	OFF	18.04.2021 15:48:38.208
047.2413.01	50BF is ACTIVE	OFF	18.04.2021 15:48:38.208
05617	87 Differential protection is ACTIVE	OFF	18.04.2021 15:48:38.208
047.2411.01	50BF is switched OFF	ON	18.04.2021 15:48:38.208
05615	87 Differential prot. is switched OFF	ON	18.04.2021 15:48:38.208
00070	Setting calculation is running	ON	18.04.2021 15:48:33.473
00301	Power System fault	995 - OFF	18.04.2021 15:47:49.375
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:47:49.351
047.2653.01	50BF (external) PICKUP	ON	18.04.2021 15:47:49.004
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:47:48.999
00301	Power System fault	995 - ON	18.04.2021 15:47:48.979
00301	Power System fault	994 - OFF	18.04.2021 15:47:48.075
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:47:48.000





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(15)

Number	Indication	Value	Date and time
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:47:47.700
00301	Power System fault	994 - ON	18.04.2021 15:47:47.679
00301	Power System fault	993 - OFF	18.04.2021 15:47:30.198
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:47:30.171
047.2653.01	50BF (external) PICKUP	ON	18.04.2021 15:47:29.825
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:47:29.823
00301	Power System fault	993 - ON	18.04.2021 15:47:29.802
00301	Power System fault	992 - OFF	18.04.2021 15:47:28.898
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:47:28.823
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:47:28.523
00301	Power System fault	992 - ON	18.04.2021 15:47:28.503
00301	Power System fault	991 - OFF	18.04.2021 15:47:10.739
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:47:10.716
047.2653.01	50BF (external) PICKUP	ON	18.04.2021 15:47:10.367
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:47:10.364
00301	Power System fault	991 - ON	18.04.2021 15:47:10.344
00301	Power System fault	990 - OFF	18.04.2021 15:47:09.439
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:47:09.364
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:47:09.064
00301	Power System fault	990 - ON	18.04.2021 15:47:09.044
00301	Power System fault	989 - OFF	18.04.2021 15:46:02.108
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:46:02.081
047.2653.01	50BF (external) PICKUP	ON	18.04.2021 15:46:01.733





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(17)

Number	Indication	Value	Date and time
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:46:01.733
00301	Power System fault	989 - ON	18.04.2021 15:46:01.715
00301	Power System fault	988 - OFF	18.04.2021 15:46:00.808
047.2651.01	>50BF initiated externally	OFF	18.04.2021 15:46:00.736
047.2651.01	>50BF initiated externally	ON	18.04.2021 15:46:00.433
00301	Power System fault	988 - ON	18.04.2021 15:46:00.413
00301	Power System fault	987 - OFF	18.04.2021 15:44:40.765

Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_TRAFO2/7UT633 V04.67.00(18)

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	

## Queltehues\_180221 / 12kv / 7UT\_PAM

MLFB: 7UT63315EE924BA0----0S-----  
Parameter set version: V04.66.00  
Device path: C:\Users\ALfalfa\Desktop\Back up siemens  
18022021\Queltehu\P7DI\GV\SD\00000006  
Author:  
Creation date: 21.08.18 14:14:00  
Last modified: 23.04.21 11:52:24  
Operating mode: Online  
Comment:  
Setting values in: Primary value description

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## 1 Indications

### 1.1 Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00

Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00

Number	Indication	Value	Date and time
00068	Clock Synchronization Error	ON	19.04.2021 00:15:40.616
009.0100.01	Failure EN100 Modul	OFF	19.04.2021 00:13:53.240
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.04.2021 00:13:37.016
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.04.2021 00:13:37.016
06863	74TC Trip circuit supervision is ACTIVE	ON	19.04.2021 00:13:35.146
00051	Device is Operational and Protecting	ON	19.04.2021 00:13:34.797
00052	At Least 1 Protection Funct. is Active	ON	19.04.2021 00:13:34.742
191.2413.01	50N/51N is ACTIVE	ON	19.04.2021 00:13:34.742
023.2413.01	50/51 O/C is ACTIVE	ON	19.04.2021 00:13:34.742
05617	87 Differential protection is ACTIVE	ON	19.04.2021 00:13:34.742
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.04.2021 00:13:34.716
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	19.04.2021 00:13:34.716
30054	Broken wire is switched OFF	ON	19.04.2021 00:13:34.694
05734	87 Adaption factor CT M2	1,195	19.04.2021 00:13:34.692
05733	87 Adaption factor CT M1	2,494	19.04.2021 00:13:34.692
30061	General: Adaption factor CT M2	1,195	19.04.2021 00:13:34.692
30060	General: Adaption factor CT M1	2,494	19.04.2021 00:13:34.692
047.2411.01	50BF is switched OFF	ON	19.04.2021 00:13:34.692
	Permisivo cierre INT 110 kV	ON	19.04.2021 00:13:34.597
	CB REL	ON	19.04.2021 00:13:34.597
	Permisivo cierre INT 12 kV	ON	19.04.2021 00:13:34.597



Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(3)

Number	Indication	Value	Date and time
05147	Phase rotation ABC	ON	19.04.2021 00:13:34.528
	Q1D CL	ON	19.04.2021 00:13:34.527
	S25	ON	19.04.2021 00:13:34.527
	Remote	ON	19.04.2021 00:13:34.527
	OP MECH CH	ON	19.04.2021 00:13:34.527
06852	>74TC Trip circuit superv.: trip relay	ON	19.04.2021 00:13:34.527
00067	Resume	ON	19.04.2021 00:13:34.480
009.0100.01	Failure EN100 Modul	ON	19.04.2021 00:13:34.525
	CB 110kv	ON	17.04.2021 18:33:31.093
	CB 110kv	Intermediate Position	17.04.2021 18:33:31.087
	CB REL	ON	17.04.2021 18:12:14.436
	Remote	ON	17.04.2021 18:12:14.436
	Local	OFF	17.04.2021 18:12:14.344
	OP MECH CH	ON	17.04.2021 18:12:13.199
00301	Power System fault	2 - OFF	17.04.2021 18:12:07.417
	circuit breaker Q0	CLOSE	17.04.2021 18:12:06.251
00301	Power System fault	2 - ON	17.04.2021 18:12:06.254
06852	>74TC Trip circuit superv.: trip relay	ON	17.04.2021 18:12:06.251
	circuit breaker Q0	Intermediate Position	17.04.2021 18:12:06.238
06853	>74TC Trip circuit superv.: bkr relay	OFF	17.04.2021 18:12:06.238
06852	>74TC Trip circuit superv.: trip relay	OFF	17.04.2021 18:12:06.238
	OP MECH CH	OFF	17.04.2021 18:12:06.227
	Local	ON	17.04.2021 18:12:03.295
	Q1E O REL	OFF	17.04.2021 18:12:03.258
	Q1E C REL	OFF	17.04.2021 18:12:03.258
	Q1D O REL	OFF	17.04.2021 18:12:03.258





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(5)

Number	Indication	Value	Date and time
	Q1D C REL	OFF	17.04.2021 18:12:03.258
	CB REL	OFF	17.04.2021 18:12:03.258
	Remote	OFF	17.04.2021 18:12:03.258
	CB 110kv	OFF	17.04.2021 17:34:01.297
	CB 110kv	Intermediate Position	17.04.2021 17:34:01.291
	Reset LED	ON	17.04.2021 17:31:03.811
	Reset 86T	OFF	17.04.2021 17:31:03.227
	Reset 86T	ON	17.04.2021 17:31:03.058
	Reset LED	ON	17.04.2021 17:30:44.676
	Reset 86T	OFF	17.04.2021 17:30:43.727
	Reset 86T	ON	17.04.2021 17:30:43.558
06852	>74TC Trip circuit superv.: trip relay	ON	17.04.2021 17:15:17.066
	TRIP 50BF EXT	OFF	17.04.2021 17:15:17.045
	RX 50BF EXT	OFF	17.04.2021 17:15:17.045
	Q1E O REL	ON	17.04.2021 17:15:16.988
	Q1E C REL	ON	17.04.2021 17:15:16.988
	Q1D O REL	ON	17.04.2021 17:15:16.988
	Q1D C REL	ON	17.04.2021 17:15:16.988
	circuit breaker Q0	OPEN	17.04.2021 17:15:16.979
06853	>74TC Trip circuit superv.: bkr relay	ON	17.04.2021 17:15:16.978
	circuit breaker Q0	Intermediate Position	17.04.2021 17:15:16.964
06852	>74TC Trip circuit superv.: trip relay	OFF	17.04.2021 17:15:16.919
	TRIP 50BF EXT	ON	17.04.2021 17:15:16.908
	RX 50BF EXT	ON	17.04.2021 17:15:16.908





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(7)

Number	Indication	Value	Date and time
00068	Clock Synchronization Error	ON	27.03.2021 13:26:26.797
009.0100.01	Failure EN100 Modul	OFF	27.03.2021 13:24:39.415
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	27.03.2021 13:24:23.197
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	27.03.2021 13:24:23.197
06863	74TC Trip circuit supervision is ACTIVE	ON	27.03.2021 13:24:21.322
00051	Device is Operational and Protecting	ON	27.03.2021 13:24:20.975
00052	At Least 1 Protection Funct. is Active	ON	27.03.2021 13:24:20.920
191.2413.01	50N/51N is ACTIVE	ON	27.03.2021 13:24:20.920
023.2413.01	50/51 O/C is ACTIVE	ON	27.03.2021 13:24:20.920
05617	87 Differential protection is ACTIVE	ON	27.03.2021 13:24:20.920
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	27.03.2021 13:24:20.897
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	27.03.2021 13:24:20.897
30054	Broken wire is switched OFF	ON	27.03.2021 13:24:20.874
05734	87 Adaption factor CT M2	1,195	27.03.2021 13:24:20.873
05733	87 Adaption factor CT M1	2,494	27.03.2021 13:24:20.873
30061	General: Adaption factor CT M2	1,195	27.03.2021 13:24:20.873
30060	General: Adaption factor CT M1	2,494	27.03.2021 13:24:20.873
047.2411.01	50BF is switched OFF	ON	27.03.2021 13:24:20.873
	Permisivo cierre INT 110 kV	ON	27.03.2021 13:24:20.777
	CB REL	ON	27.03.2021 13:24:20.777
	Permisivo cierre INT 12 kV	ON	27.03.2021 13:24:20.777
05147	Phase rotation ABC	ON	27.03.2021 13:24:20.708
	Q1D CL	ON	27.03.2021 13:24:20.707
	S25	ON	27.03.2021 13:24:20.707
	Remote	ON	27.03.2021 13:24:20.707







Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(9)

Number	Indication	Value	Date and time
	OP MECH CH	ON	27.03.2021 13:24:20.707
06852	>74TC Trip circuit superv.: trip relay	ON	27.03.2021 13:24:20.707
00067	Resume	ON	27.03.2021 13:24:20.660
009.0100.01	Failure EN100 Modul	ON	27.03.2021 13:24:20.706
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.03.2021 04:43:16.917
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.03.2021 04:43:15.017
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.03.2021 04:43:10.217
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.03.2021 04:43:08.517
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	16.03.2021 09:20:28.817
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	16.03.2021 09:20:27.017
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	16.03.2021 09:20:25.917
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	16.03.2021 09:20:24.117
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	11.03.2021 01:41:35.417
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	11.03.2021 01:41:33.617
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	11.03.2021 01:41:32.517
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	11.03.2021 01:41:30.717
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	27.02.2021 06:22:53.717
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	27.02.2021 06:22:51.917
00068	Clock Synchronization Error	ON	25.02.2021 13:32:19.617
009.0100.01	Failure EN100 Modul	OFF	25.02.2021 13:30:32.243
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	25.02.2021 13:30:16.017
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	25.02.2021 13:30:16.017
06863	74TC Trip circuit supervision is ACTIVE	ON	25.02.2021 13:30:14.142
00051	Device is Operational and Protecting	ON	25.02.2021 13:30:13.800



Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(11)

Number	Indication	Value	Date and time
00052	At Least 1 Protection Funct. is Active	ON	25.02.2021 13:30:13.738
191.2413.01	50N/51N is ACTIVE	ON	25.02.2021 13:30:13.738
023.2413.01	50/51 O/C is ACTIVE	ON	25.02.2021 13:30:13.738
05617	87 Differential protection is ACTIVE	ON	25.02.2021 13:30:13.738
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	25.02.2021 13:30:13.717
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	25.02.2021 13:30:13.717
30054	Broken wire is switched OFF	ON	25.02.2021 13:30:13.694
05734	87 Adaption factor CT M2	1,195	25.02.2021 13:30:13.693
05733	87 Adaption factor CT M1	2,494	25.02.2021 13:30:13.693
30061	General: Adaption factor CT M2	1,195	25.02.2021 13:30:13.693
30060	General: Adaption factor CT M1	2,494	25.02.2021 13:30:13.693
047.2411.01	50BF is switched OFF	ON	25.02.2021 13:30:13.693
	Permisivo cierre INT 110 kV	ON	25.02.2021 13:30:13.597
	CB REL	ON	25.02.2021 13:30:13.597
	Permisivo cierre INT 12 kV	ON	25.02.2021 13:30:13.597
05147	Phase rotation ABC	ON	25.02.2021 13:30:13.528
	Q1D CL	ON	25.02.2021 13:30:13.527
	S25	ON	25.02.2021 13:30:13.527
	Remote	ON	25.02.2021 13:30:13.527
	OP MECH CH	ON	25.02.2021 13:30:13.527
06852	>74TC Trip circuit superv.: trip relay	ON	25.02.2021 13:30:13.527
00067	Resume	ON	25.02.2021 13:30:13.480
009.0100.01	Failure EN100 Modul	ON	25.02.2021 13:30:13.526
00068	Clock Synchronization Error	ON	22.02.2021 09:24:06.795
009.0100.01	Failure EN100 Modul	OFF	22.02.2021 09:22:19.417
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	22.02.2021 09:22:03.195



Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(13)

Number	Indication	Value	Date and time
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.02.2021 09:22:03.195
06863	74TC Trip circuit supervision is ACTIVE	ON	22.02.2021 09:22:01.326
00051	Device is Operational and Protecting	ON	22.02.2021 09:22:00.976
00052	At Least 1 Protection Funct. is Active	ON	22.02.2021 09:22:00.919
191.2413.01	50N/51N is ACTIVE	ON	22.02.2021 09:22:00.919
023.2413.01	50/51 O/C is ACTIVE	ON	22.02.2021 09:22:00.919
05617	87 Differential protection is ACTIVE	ON	22.02.2021 09:22:00.919
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	22.02.2021 09:22:00.895
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.02.2021 09:22:00.895
30054	Broken wire is switched OFF	ON	22.02.2021 09:22:00.873
05734	87 Adaption factor CT M2	1,195	22.02.2021 09:22:00.871
05733	87 Adaption factor CT M1	2,494	22.02.2021 09:22:00.871
30061	General: Adaption factor CT M2	1,195	22.02.2021 09:22:00.871
30060	General: Adaption factor CT M1	2,494	22.02.2021 09:22:00.871
047.2411.01	50BF is switched OFF	ON	22.02.2021 09:22:00.871
	Permisivo cierre INT 110 kV	ON	22.02.2021 09:22:00.776
	CB REL	ON	22.02.2021 09:22:00.776
	Permisivo cierre INT 12 kV	ON	22.02.2021 09:22:00.776
05147	Phase rotation ABC	ON	22.02.2021 09:22:00.707
	Q1D CL	ON	22.02.2021 09:22:00.706
	S25	ON	22.02.2021 09:22:00.706
	Remote	ON	22.02.2021 09:22:00.706
	OP MECH CH	ON	22.02.2021 09:22:00.706
06852	>74TC Trip circuit superv.: trip relay	ON	22.02.2021 09:22:00.706
00067	Resume	ON	22.02.2021 09:22:00.660
009.0100.01	Failure EN100 Modul	ON	22.02.2021 09:22:00.704





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(15)

Number	Indication	Value	Date and time
	CB 110kv	ON	18.02.2021 19:02:29.485
	CB 110kv	Intermediate Position	18.02.2021 19:02:29.480
	CB REL	ON	18.02.2021 18:50:45.607
	OP MECH CH	ON	18.02.2021 18:50:45.607
	Remote	ON	18.02.2021 18:50:43.543
	Local	OFF	18.02.2021 18:50:43.506
00301	Power System fault	1 - OFF	18.02.2021 18:50:40.644
	circuit breaker Q0	CLOSE	18.02.2021 18:50:38.601
00301	Power System fault	1 - ON	18.02.2021 18:50:38.602
06852	>74TC Trip circuit superv.: trip relay	ON	18.02.2021 18:50:38.601
	circuit breaker Q0	Intermediate Position	18.02.2021 18:50:38.588
06853	>74TC Trip circuit superv.: bkr relay	OFF	18.02.2021 18:50:38.588
06852	>74TC Trip circuit superv.: trip relay	OFF	18.02.2021 18:50:38.588
	OP MECH CH	OFF	18.02.2021 18:50:38.578
	Local	ON	18.02.2021 18:50:34.043
	Q1E O REL	OFF	18.02.2021 18:50:34.015
	Q1E C REL	OFF	18.02.2021 18:50:34.015
	Q1D O REL	OFF	18.02.2021 18:50:34.015
	Q1D C REL	OFF	18.02.2021 18:50:34.015
	CB REL	OFF	18.02.2021 18:50:34.015
	Remote	OFF	18.02.2021 18:50:34.015
00068	Clock Synchronization Error	ON	18.02.2021 18:44:43.832
009.0100.01	Failure EN100 Modul	OFF	18.02.2021 18:42:56.452
	Reset LED	ON	18.02.2021 18:42:41.697





Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(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	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Spontaneous Com.Issued=AutoLocal	
Control Issued Command Issued=DIGSI	



Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(17)

Number	Indication	Value	Date and time
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	18.02.2021 18:42:40.232
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	18.02.2021 18:42:40.232
06863	74TC Trip circuit supervision is ACTIVE	ON	18.02.2021 18:42:38.702
00052	At Least 1 Protection Funct. is Active	ON	18.02.2021 18:42:38.298

Event Log - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT\_PAM/7UT633 V04.67.00(18)

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

## Queltehues\_180221 / 12kv / 7UT633\_TRAFO1

MLFB: 7UT63315EE924BA0----0S-----  
Parameter set version: V04.66.00  
Device path: C:\Users\ALfalfa\Desktop\Back uo siemens  
18022021\Queltehu\P7DI\GV\SD\00000002  
Author:  
Creation date: 21.08.18 14:14:00  
Last modified: 23.04.21 11:19:18  
Operating mode: Online  
Comment:  
Setting values in: Primary value description

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## 1 Indications

### 1.1 Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00

Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00

Number	Indication	Value	Date and time	Cause
	Autoridad de mando	POSICIÓN INTERMEDIA	22.04.2021 23:40:38.556	Aviso espontáneo
	Autoridad de mando	REMOTO	22.04.2021 23:40:33.356	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	22.04.2021 23:38:44.346	Aviso espontáneo
	Autoridad de mando	REMOTO	22.04.2021 14:37:30.376	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	22.04.2021 13:57:46.786	Aviso espontáneo
	Autoridad de mando	REMOTO	22.04.2021 12:17:56.536	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	22.04.2021 12:07:47.846	Aviso espontáneo
	Autoridad de mando	REMOTO	22.04.2021 12:07:30.846	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	22.04.2021 02:48:40.586	Aviso espontáneo
	Autoridad de mando	REMOTO	21.04.2021 13:09:46.786	Aviso espontáneo
	ALARMAS DEL TRANSFORMADOR	Sale	21.04.2021 02:18:44.580	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Entra	21.04.2021 02:18:42.195	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Sale	21.04.2021 02:18:41.150	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Entra	21.04.2021 02:18:38.812	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Sale	21.04.2021 01:29:52.320	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Entra	21.04.2021 01:29:49.955	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Sale	21.04.2021 01:19:11.309	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Entra	21.04.2021 01:19:08.970	Aviso espontáneo PO = Auto. Equipo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 20:53:50.776	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 20:45:53.656	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 20:45:53.556	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 20:45:40.956	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 20:45:39.246	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 15:06:13.316	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 14:40:31.066	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 14:29:12.496	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 14:29:12.396	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 14:29:08.496	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 14:29:00.466	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 14:02:41.106	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 14:02:09.416	Aviso espontáneo





Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(3)

Number	Indication	Value	Date and time	Cause
	Autoridad de mando	REMOTO	20.04.2021 14:00:52.636	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 14:00:52.236	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 14:00:01.156	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 13:59:58.656	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 13:54:37.446	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 13:54:27.526	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 13:46:08.986	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 13:43:08.266	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 13:37:49.646	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 01:13:27.486	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 01:05:28.086	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 01:03:50.366	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 01:03:02.106	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 00:24:40.616	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 00:11:53.796	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 00:10:01.686	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 00:04:28.376	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 00:02:37.376	Aviso espontáneo
	Autoridad de mando	REMOTO	20.04.2021 00:02:19.176	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	20.04.2021 00:00:04.166	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 23:59:59.566	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 23:59:56.466	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 22:57:50.136	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 22:57:45.426	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 22:44:37.966	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 22:44:19.256	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 22:15:58.146	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 22:05:31.976	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 22:02:59.906	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 21:57:48.476	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 21:42:51.176	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 21:39:47.396	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 21:39:30.086	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 21:33:53.316	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 21:31:34.646	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 21:25:01.106	Aviso espontáneo
	Autoridad de mando	REMOTO	19.04.2021 12:18:41.906	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	19.04.2021 02:14:30.886	Aviso espontáneo
	ALARMAS DEL TRANSFORMADOR	Sale	19.04.2021 01:21:05.923	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Entra	19.04.2021 01:21:03.551	Aviso espontáneo PO = Auto. Equipo





Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(5)

Number	Indication	Value	Date and time	Cause
	ALARMAS DEL TRANSFORMADOR	Sale	19.04.2021 01:20:19.335	Aviso espontáneo PO = Auto. Equipo
	ALARMAS DEL TRANSFORMADOR	Entra	19.04.2021 01:20:16.983	Aviso espontáneo PO = Auto. Equipo
	Autoridad de mando	REMOTO	18.04.2021 14:53:01.426	Aviso espontáneo
	CB RELEASE	Entra	17.04.2021 17:06:39.673	Aviso espontáneo PO = Auto. Equipo
	Remote	Entra	17.04.2021 17:06:39.333	Aviso espontáneo PO = Auto. Equipo
	Local	Sale	17.04.2021 17:06:39.307	Aviso espontáneo PO = Auto. Equipo
	OP MECH CH	Entra	17.04.2021 17:05:28.609	Aviso espontáneo PO = Auto. Equipo
05733	Dif: Factor adaptación Tr.I Puesto med.1	1190	17.04.2021 17:05:21.795	Aviso espontáneo PO = Auto. Equipo
	Interruptor de potencia Q0	CERRADO	17.04.2021 17:05:21.791	Aviso espontáneo
	CL CB 12kV	Entra	17.04.2021 17:05:21.791	Aviso espontáneo PO = Auto. Equipo
06852	>Relé aux. supervisión circuito disparo	Entra	17.04.2021 17:05:21.791	Aviso espontáneo PO = Auto. Equipo
	Interruptor de potencia Q0	POSICIÓN INTERMEDIA	17.04.2021 17:05:21.777	Aviso espontáneo
06852	>Relé aux. supervisión circuito disparo	Sale	17.04.2021 17:05:21.778	Aviso espontáneo PO = Auto. Equipo
06853	>Relé aux.interrup.pot.supervisión circ.	Sale	17.04.2021 17:05:21.777	Aviso espontáneo PO = Auto. Equipo
	OP MECH CH	Sale	17.04.2021 17:05:21.774	Aviso espontáneo PO = Auto. Equipo
	CB RELEASE	Sale	17.04.2021 17:05:18.502	Aviso espontáneo PO = Auto. Equipo
	Release Q1D CLOSE	Sale	17.04.2021 17:05:18.502	Aviso espontáneo PO = Auto. Equipo
	Release Q1E OPEN	Sale	17.04.2021 17:05:18.502	Aviso espontáneo PO = Auto. Equipo
	Release Q1D OPEN	Sale	17.04.2021 17:05:18.502	Aviso espontáneo PO = Auto. Equipo
	Local	Entra	17.04.2021 17:05:18.348	Aviso espontáneo PO = Auto. Equipo
	Remote	Sale	17.04.2021 17:05:18.317	Aviso espontáneo PO = Auto. Equipo
	CB RELEASE	Entra	17.04.2021 17:03:54.160	Aviso espontáneo PO = Auto. Equipo
	Release Q1E CLOSE	Sale	17.04.2021 17:03:54.160	Aviso espontáneo PO = Auto. Equipo
00301	Falta en Red, numerado	3 - Sale	17.04.2021 17:03:54.155	Aviso espontáneo PO = Auto. Equipo
00301	Falta en Red, numerado	3 - Entra	17.04.2021 17:03:53.874	Aviso espontáneo PO = Auto. Equipo





*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(6)*

**State**


Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(7)

Number	Indication	Value	Date and time	Cause
	Q110	CERRAR	17.04.2021 17:03:53.869	Aviso espontáneo PO = Auto. Equipo
	CB 110kv	CERRAR	17.04.2021 17:03:53.869	Aviso espontáneo PO = Auto. Equipo
	Q110	POSICIÓN INTERMEDIA	17.04.2021 17:03:53.835	Aviso espontáneo PO = Auto. Equipo
	CB 110kv	POSICIÓN INTERMEDIA	17.04.2021 17:03:53.835	Aviso espontáneo PO = Auto. Equipo
	Reposición señales LED	Entra	17.04.2021 16:29:31.838	Aviso espontáneo PO = local
	PERISIVO 110 KV	Entra	17.04.2021 16:29:30.407	Aviso espontáneo PO = Auto. Equipo
	PERMISIVO INT 12 KV	Entra	17.04.2021 16:29:30.407	Aviso espontáneo PO = Auto. Equipo
	RESET 86T	Sale	17.04.2021 16:29:30.407	Mando positivo PO = local
06852	>Relé aux. supervisión circuito disparo	Entra	17.04.2021 16:29:30.304	Aviso espontáneo PO = Auto. Equipo
	86T	Sale	17.04.2021 16:29:30.239	Aviso espontáneo PO = Auto. Equipo
	RESET 86T	Entra	17.04.2021 16:29:30.238	Mando positivo PO = local
	PERISIVO 110 KV	Sale	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	CB RELEASE	Sale	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	PERMISIVO INT 12 KV	Sale	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	Release Q1E CLOSE	Entra	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	Release Q1D CLOSE	Entra	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	Release Q1E OPEN	Entra	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	Release Q1D OPEN	Entra	17.04.2021 16:14:12.083	Aviso espontáneo PO = Auto. Equipo
	TRIP 50BF EXT	Sale	17.04.2021 16:14:11.953	Aviso espontáneo PO = Auto. Equipo
	RX TRIP 50BF	Sale	17.04.2021 16:14:11.953	Aviso espontáneo PO = Auto. Equipo
05733	Dif: Factor adaptación Tr.I Puesto med.1	1189	17.04.2021 16:14:11.895	Aviso espontáneo PO = Auto. Equipo
	Interruptor de potencia Q0	ABIERTO	17.04.2021 16:14:11.893	Aviso espontáneo
06853	>Relé aux.interrup.pot.supervisión circ.	Entra	17.04.2021 16:14:11.893	Aviso espontáneo PO = Auto. Equipo
	Interruptor de potencia Q0	POSICIÓN INTERMEDIA	17.04.2021 16:14:11.879	Aviso espontáneo

*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(8)*

**State**


Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(9)

Number	Indication	Value	Date and time	Cause
	CL CB 12kV	Sale	17.04.2021 16:14:11.879	Aviso espontáneo PO = Auto. Equipo
	Q110	ABRIR	17.04.2021 16:14:11.865	Aviso espontáneo PO = Auto. Equipo
	CB 110kv	ABRIR	17.04.2021 16:14:11.865	Aviso espontáneo PO = Auto. Equipo
	Q110	POSICIÓN INTERMEDIA	17.04.2021 16:14:11.849	Aviso espontáneo PO = Auto. Equipo
	CB 110kv	POSICIÓN INTERMEDIA	17.04.2021 16:14:11.849	Aviso espontáneo PO = Auto. Equipo
06852	>Relé aux. supervisión circuito disparo	Sale	17.04.2021 16:14:11.828	Aviso espontáneo PO = Auto. Equipo
	86T	Entra	17.04.2021 16:14:11.817	Aviso espontáneo PO = Auto. Equipo
	TRIP 50BF EXT	Entra	17.04.2021 16:14:11.817	Aviso espontáneo PO = Auto. Equipo
	RX TRIP 50BF	Entra	17.04.2021 16:14:11.817	Aviso espontáneo PO = Auto. Equipo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:49:18.946	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:49:10.746	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:15:08.796	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:13:32.206	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:11:16.816	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:10:44.516	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:10:25.576	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:10:10.956	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:09:55.357	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:09:13.046	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:09:10.146	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:07:30.186	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:04:46.036	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:03:36.126	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:02:28.266	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 23:01:47.456	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 23:01:15.916	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 22:59:05.966	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 22:59:00.366	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 22:58:03.826	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 22:57:15.096	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 22:56:23.676	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 22:56:18.376	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 22:42:59.296	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 22:42:12.106	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 19:44:31.076	Aviso espontáneo

*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(10)*

**State**

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Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(11)

Number	Indication	Value	Date and time	Cause
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 19:38:16.806	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 19:09:46.226	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:51:09.656	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:50:50.336	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:49:32.706	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:49:00.456	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:48:55.156	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:45:56.486	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:45:56.386	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:45:44.576	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:45:07.136	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:41:51.976	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:40:31.696	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:40:00.096	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:22:45.417	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:16:51.996	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:16:40.296	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:16:04.286	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:15:49.336	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 18:11:58.046	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 18:11:54.846	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:54:31.356	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:54:18.746	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:53:40.036	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:46:54.976	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:46:36.466	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:46:35.966	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:46:02.946	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:45:26.776	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:44:45.966	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:44:39.866	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:44:13.966	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:44:08.767	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:23:19.966	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:22:54.766	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:22:50.766	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:22:38.056	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:22:31.057	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:22:31.046	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:22:23.537	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:19:18.126	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:18:43.606	Aviso espontáneo



*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(12)*

**State**

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*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(13)*

Number	Indication	Value	Date and time	Cause
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:17:15.376	Aviso espontáneo
	Autoridad de mando	REMOTO	16.04.2021 17:16:51.976	Aviso espontáneo
	Autoridad de mando	POSICIÓN INTERMEDIA	16.04.2021 17:11:45.026	Aviso espontáneo



*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO1/7UT633 V04.67.00(14)*

**State**



## Queltehues\_180221 / 12kv / 7UT633\_TRAFO3

MLFB: 7UT63315EE924BA0----0S-----  
Parameter set version: V04.66.00  
Device path: C:\Users\ALfalfa\Desktop\Back uo siemens  
18022021\Queltehu\P7DI\GV\SD\00000007  
Author:  
Creation date: 21.08.18 14:14:00  
Last modified: 23.04.21 11:28:03  
Operating mode: Online  
Comment:  
Setting values in: Primary value description

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## 1 Indications

### 1.1 Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00

*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00*

Number	Indication	Value	Date and time
	CB RELEASE	Entra	17.04.2021 18:12:30.688
	Remote	Entra	17.04.2021 18:12:30.634
	Local	Sale	17.04.2021 18:12:30.588
	OP MECH CH	Entra	17.04.2021 18:09:25.102
05733	Dif: Factor adaptación Tr.I Puesto med.1	1190	17.04.2021 18:09:17.949
	Interruptor de potencia Q0	CERRADO	17.04.2021 18:09:17.945
	CL CB 12kV	Entra	17.04.2021 18:09:17.945
06852	>Relé aux. supervisión circuito disparo	Entra	17.04.2021 18:09:17.945
	Interruptor de potencia Q0	POSICIÓN INTERMEDIA	17.04.2021 18:09:17.932
06853	>Relé aux.interrup.pot.supervisión circ.	Sale	17.04.2021 18:09:17.932
06852	>Relé aux. supervisión circuito disparo	Sale	17.04.2021 18:09:17.932
	OP MECH CH	Sale	17.04.2021 18:09:17.925
	CB RELEASE	Sale	17.04.2021 18:09:14.256
	Release Q1D CLOSE	Sale	17.04.2021 18:09:14.256
	Release Q1E OPEN	Sale	17.04.2021 18:09:14.256
	Release Q1D OPEN	Sale	17.04.2021 18:09:14.256
	Local	Entra	17.04.2021 18:09:13.622
	Remote	Sale	17.04.2021 18:09:13.464
00301	Falta en Red, numerado	4 - Sale	17.04.2021 18:08:54.352
	CB RELEASE	Entra	17.04.2021 18:08:54.164
	Release Q1E CLOSE	Sale	17.04.2021 18:08:54.163
	Q110	CERRAR	17.04.2021 18:08:54.014



Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(2)

Cause	State
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo	
Aviso espontáneo PO = Auto. Equipo	
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Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	

Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(3)

Number	Indication	Value	Date and time
	CB 110kv	CERRAR	17.04.2021 18:08:54.014
00301	Falta en Red, numerado	4 - Entra	17.04.2021 18:08:54.011
	Q110	POSICIÓN INTERMEDIA	17.04.2021 18:08:53.979
	CB 110kv	POSICIÓN INTERMEDIA	17.04.2021 18:08:53.979
	Reposición señales LED	Entra	17.04.2021 17:30:56.261
	RESET 86T	Sale	17.04.2021 17:30:55.711
	RESET 86T	Entra	17.04.2021 17:30:55.542
	RESET 86T	Sale	17.04.2021 17:30:55.030
	RESET 86T	Entra	17.04.2021 17:30:54.861
	PERMISIVO CIERRE INT 110 KV	Entra	17.04.2021 17:30:42.818
	PERMISIVO CIERRE INT 12 KV	Entra	17.04.2021 17:30:42.818
	RESET 86T	Sale	17.04.2021 17:30:42.818
06852	>Relé aux. supervisión circuito disparo	Entra	17.04.2021 17:30:42.714
	86T	Sale	17.04.2021 17:30:42.649
	RESET 86T	Entra	17.04.2021 17:30:42.649
	PERMISIVO CIERRE INT 110 KV	Sale	17.04.2021 17:15:32.310
	CB RELEASE	Sale	17.04.2021 17:15:32.310
	PERMISIVO CIERRE INT 12 KV	Sale	17.04.2021 17:15:32.310
	Release Q1E CLOSE	Entra	17.04.2021 17:15:32.310
	Release Q1D CLOSE	Entra	17.04.2021 17:15:32.310
	Release Q1E OPEN	Entra	17.04.2021 17:15:32.310
	Release Q1D OPEN	Entra	17.04.2021 17:15:32.310
	TRIP 50BF EXT	Sale	17.04.2021 17:15:32.258

Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(4)

Cause	State
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = local	
Mando positivo PO = local	
Mando positivo PO = local	
Mando positivo PO = local	
Mando positivo PO = local	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Mando positivo PO = local	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Mando positivo PO = local	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	

Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(5)

Number	Indication	Value	Date and time
	RX TRIP 50BF	Sale	17.04.2021 17:15:32.258
05733	Dif: Factor adaptación Tr.I Puesto med.1	1189	17.04.2021 17:15:32.199
	Interruptor de potencia Q0	ABIERTO	17.04.2021 17:15:32.194
06853	>Relé aux.interrupt.pot.supervisión circ.	Entra	17.04.2021 17:15:32.194
	Interruptor de potencia Q0	POSICIÓN INTERMEDIA	17.04.2021 17:15:32.179
	CL CB 12kV	Sale	17.04.2021 17:15:32.179
	Q110	ABRIR	17.04.2021 17:15:32.165
	CB 110kv	ABRIR	17.04.2021 17:15:32.165
	Q110	POSICIÓN INTERMEDIA	17.04.2021 17:15:32.149
	CB 110kv	POSICIÓN INTERMEDIA	17.04.2021 17:15:32.149
06852	>Relé aux. supervisión circuito disparo	Sale	17.04.2021 17:15:32.131
	86T	Entra	17.04.2021 17:15:32.120
	TRIP 50BF EXT	Entra	17.04.2021 17:15:32.120
	RX TRIP 50BF	Entra	17.04.2021 17:15:32.120
00068	Fallo en función reloj	Sale	17.04.2021 13:47:51.269
00068	Fallo en función reloj	Entra	17.04.2021 13:29:51.376
00068	Fallo en función reloj	Sale	17.04.2021 13:27:45.765
00068	Fallo en función reloj	Entra	17.04.2021 13:20:49.376
00068	Fallo en función reloj	Sale	17.04.2021 13:18:43.411
00068	Fallo en función reloj	Entra	17.04.2021 13:15:47.379
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	13.04.2021 20:14:41.479
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	13.04.2021 20:14:39.679
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	13.04.2021 19:44:49.779
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	13.04.2021 19:44:43.879







Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(7)

Number	Indication	Value	Date and time
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	11.04.2021 18:28:09.379
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	11.04.2021 18:28:07.579
00068	Fallo en función reloj	Sale	06.04.2021 18:28:18.715
00068	Fallo en función reloj	Entra	06.04.2021 18:24:22.378
00068	Fallo en función reloj	Sale	06.04.2021 17:47:14.269
00068	Fallo en función reloj	Entra	06.04.2021 17:45:18.380
00301	Falta en Red, numerado	3 - Sale	02.04.2021 03:15:52.948
00301	Falta en Red, numerado	3 - Entra	02.04.2021 03:15:52.826
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	27.03.2021 13:24:34.780
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	27.03.2021 13:24:32.980
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	27.03.2021 13:24:31.780
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	27.03.2021 13:24:29.980
00068	Fallo en función reloj	Sale	23.03.2021 04:43:43.446
009.0100.01	Fallo módulo EN100	Sale	23.03.2021 04:43:45.754
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	23.03.2021 04:43:30.028
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	23.03.2021 04:43:30.028
06863	Supervisión circuito de diparo, activo	Entra	23.03.2021 04:43:28.158
00051	Equipo operativo ("Contacto-Live")	Entra	23.03.2021 04:43:27.803
00052	Al menos una función está activada	Entra	23.03.2021 04:43:27.756
047.2413.01	Prot. fallo interruptor, activada	Entra	23.03.2021 04:43:27.756
191.2413.01	Prot.sobreintens. 3I0, activada	Entra	23.03.2021 04:43:27.756
023.2413.01	Prot.sobreintens. fases, activada	Entra	23.03.2021 04:43:27.756
05617	Protección diferencial, activada	Entra	23.03.2021 04:43:27.756





Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(9)

Number	Indication	Value	Date and time
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	23.03.2021 04:43:27.728
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	23.03.2021 04:43:27.728
30054	Supervisión Rotura Alambre desconectada	Entra	23.03.2021 04:43:27.705
05734	Dif: Factor adaptación Tr.I Puesto med.2	2,041	23.03.2021 04:43:27.704
05733	Dif: Factor adaptación Tr.I Puesto med.1	1188	23.03.2021 04:43:27.704
30061	Gen: Factor adapt. Tr.I Puesto med.2	2,041	23.03.2021 04:43:27.704
30060	Gen: Factor adapt. Tr.I Puesto med.1	1,188	23.03.2021 04:43:27.704
	PERMISIVO CIERRE INT 110 KV	Entra	23.03.2021 04:43:27.608
	BLOQUEO INT 110 KV	Entra	23.03.2021 04:43:27.608
	PERM12KV	Entra	23.03.2021 04:43:27.608
	CB RELEASE	Entra	23.03.2021 04:43:27.608
	PERMISIVO CIERRE INT 12 KV	Entra	23.03.2021 04:43:27.608
05147	Secuencia de fase L1 L2 L3	Entra	23.03.2021 04:43:27.539
	CL CB 12kV	Entra	23.03.2021 04:43:27.538
	Q1D CClose	Entra	23.03.2021 04:43:27.538
	oper. key not Plugged in	Entra	23.03.2021 04:43:27.538
	Remote	Entra	23.03.2021 04:43:27.538
	OP MECH CH	Entra	23.03.2021 04:43:27.538
06852	>Relé aux. supervisión circuito disparo	Entra	23.03.2021 04:43:27.538
00067	Reinicio	Entra	23.03.2021 04:43:27.492
009.0100.01	Fallo módulo EN100	Entra	23.03.2021 04:43:27.536
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	22.03.2021 22:59:23.265
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	22.03.2021 22:59:21.565
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	22.03.2021 22:59:20.365
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	22.03.2021 22:59:18.465
00068	Fallo en función reloj	Sale	16.03.2021 09:20:54.129



Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(11)

Number	Indication	Value	Date and time
009.0100.01	Fallo módulo EN100	Sale	16.03.2021 09:20:54.926
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	16.03.2021 09:20:39.208
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	16.03.2021 09:20:39.208
06863	Supervisión circuito de diparo, activo	Entra	16.03.2021 09:20:37.333
00051	Equipo operativo ("Contacto-Live")	Entra	16.03.2021 09:20:36.986
00052	Al menos una función está activada	Entra	16.03.2021 09:20:36.929
047.2413.01	Prot. fallo interruptor, activada	Entra	16.03.2021 09:20:36.929
191.2413.01	Prot.sobreintens. 3I0, activada	Entra	16.03.2021 09:20:36.929
023.2413.01	Prot.sobreintens. fases, activada	Entra	16.03.2021 09:20:36.929
05617	Protección diferencial, activada	Entra	16.03.2021 09:20:36.929
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	16.03.2021 09:20:36.908
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	16.03.2021 09:20:36.908
30054	Supervisión Rotura Alambre desconectada	Entra	16.03.2021 09:20:36.885
05734	Dif: Factor adaptación Tr.I Puesto med.2	2,041	16.03.2021 09:20:36.884
05733	Dif: Factor adaptación Tr.I Puesto med.1	1188	16.03.2021 09:20:36.884
30061	Gen: Factor adapt. Tr.I Puesto med.2	2,041	16.03.2021 09:20:36.884
30060	Gen: Factor adapt. Tr.I Puesto med.1	1,188	16.03.2021 09:20:36.884
	PERMISIVO CIERRE INT 110 KV	Entra	16.03.2021 09:20:36.788
	BLOQUEO INT 110 KV	Entra	16.03.2021 09:20:36.788
	PERM12KV	Entra	16.03.2021 09:20:36.788
	CB RELEASE	Entra	16.03.2021 09:20:36.788
	PERMISIVO CIERRE INT 12 KV	Entra	16.03.2021 09:20:36.788
05147	Secuencia de fase L1 L2 L3	Entra	16.03.2021 09:20:36.719
	CL CB 12kv	Entra	16.03.2021 09:20:36.718



Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(13)

Number	Indication	Value	Date and time
	Q1D CClose	Entra	16.03.2021 09:20:36.718
	oper. key not Plugged in	Entra	16.03.2021 09:20:36.718
	Remote	Entra	16.03.2021 09:20:36.718
	OP MECH CH	Entra	16.03.2021 09:20:36.718
06852	>Relé aux. supervisión circuito disparo	Entra	16.03.2021 09:20:36.718
00067	Reinicio	Entra	16.03.2021 09:20:36.672
009.0100.01	Fallo módulo EN100	Entra	16.03.2021 09:20:36.716
00301	Falta en Red, numerado	2 - Sale	15.03.2021 06:01:46.133
00301	Falta en Red, numerado	2 - Entra	15.03.2021 06:01:46.072
00068	Fallo en función reloj	Sale	11.03.2021 01:41:59.778
009.0100.01	Fallo módulo EN100	Sale	11.03.2021 01:42:08.926
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	11.03.2021 01:41:53.208
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	11.03.2021 01:41:53.208
06863	Supervisión circuito de disparo, activo	Entra	11.03.2021 01:41:51.338
00051	Equipo operativo ("Contacto-Live")	Entra	11.03.2021 01:41:50.982
00052	Al menos una función está activada	Entra	11.03.2021 01:41:50.936
047.2413.01	Prot. fallo interruptor, activada	Entra	11.03.2021 01:41:50.936
191.2413.01	Prot.sobreintens. 3I0, activada	Entra	11.03.2021 01:41:50.936
023.2413.01	Prot.sobreintens. fases, activada	Entra	11.03.2021 01:41:50.936
05617	Protección diferencial, activada	Entra	11.03.2021 01:41:50.936
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	11.03.2021 01:41:50.908
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	11.03.2021 01:41:50.908
30054	Supervisión Rotura Alambre desconectada	Entra	11.03.2021 01:41:50.885
05734	Dif: Factor adaptación Tr.I Puesto med.2	2,041	11.03.2021 01:41:50.884
05733	Dif: Factor adaptación Tr.I Puesto med.1	1188	11.03.2021 01:41:50.884
30061	Gen: Factor adapt. Tr.I Puesto med.2	2,041	11.03.2021 01:41:50.884









Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(15)

Number	Indication	Value	Date and time
30060	Gen: Factor adapt. Tr.I Puesto med.1	1,188	11.03.2021 01:41:50.884
	PERMISIVO CIERRE INT 110 KV	Entra	11.03.2021 01:41:50.788
	BLOQUEO INT 110 KV	Entra	11.03.2021 01:41:50.788
	PERM12KV	Entra	11.03.2021 01:41:50.788
	CB RELEASE	Entra	11.03.2021 01:41:50.788
	PERMISIVO CIERRE INT 12 KV	Entra	11.03.2021 01:41:50.788
05147	Secuencia de fase L1 L2 L3	Entra	11.03.2021 01:41:50.719
	CL CB 12kV	Entra	11.03.2021 01:41:50.718
	Q1D CClose	Entra	11.03.2021 01:41:50.718
	oper. key not Plugged in	Entra	11.03.2021 01:41:50.718
	Remote	Entra	11.03.2021 01:41:50.718
	OP MECH CH	Entra	11.03.2021 01:41:50.718
06852	>Relé aux. supervisión circuito disparo	Entra	11.03.2021 01:41:50.718
00067	Reinicio	Entra	11.03.2021 01:41:50.673
009.0100.01	Fallo módulo EN100	Entra	11.03.2021 01:41:50.716
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	05.03.2021 23:48:56.405
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	05.03.2021 23:48:54.705
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	05.03.2021 23:48:50.105
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	05.03.2021 23:48:48.305
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	25.02.2021 13:30:20.905
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	25.02.2021 13:30:19.205
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Sale	25.02.2021 13:30:14.605
009.0101.01	Fallo Link EN100 canal 1 (Ch1)	Entra	25.02.2021 13:30:12.805
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	24.02.2021 19:33:12.705
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	24.02.2021 19:33:11.005
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	24.02.2021 19:33:06.105



Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(16)

Cause	State
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo	
Aviso espontáneo	
Aviso espontáneo	
Aviso espontáneo	
Aviso espontáneo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	

*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(17)*

Number	Indication	Value	Date and time
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	24.02.2021 19:33:04.405
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	24.02.2021 11:20:57.805
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	24.02.2021 11:20:55.905
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	24.02.2021 11:20:51.305
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Entra	24.02.2021 11:20:49.505
009.0102.01	Fallo Link EN100 canal 2 (Ch2)	Sale	23.02.2021 06:19:45.705

*Avisos de funcionamiento - 23-04-2021 - Queltehues\_180221 / 12kv / 7UT633\_TRAFO3/7UT633 V04.67.00(18)*

Cause	State
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	
Aviso espontáneo PO = Auto. Equipo	

## Queltehues\_180221 / 12kv / 7UT\_TRAFO2

MLFB: 7UT63315EE924BA0---0S-----  
Parameter set version: V04.66.00  
Device path: C:\Users\Alfalfa\Desktop\Back up siemens  
18022021\Queltehu\P7DI\GV\SD\0000000c  
Author:  
Creation date: 21.08.18 14:14:00  
Last modified: 03.04.21 11:05:14  
Operating mode: Online  
Comment:  
Setting values in: Primary value description

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## 1 Device Configuration

No.	Function	Scope
0103	Setting Group Change Option	Disabled
0105	Protection Object	3 phase Transformer
0112	87 Differential Protection	Enabled
0113	87G Restricted ground fault protection	Disabled
0117	Cold Load Pickup	Disabled
0120	50/51	Time Overcurrent Curve IEC
0122	50N/51N	Time Overcurrent Curve IEC
0124	50G/51G	Disabled
0127	50 1Ph	Disabled
0140	46 Negative Sequence Protection	Disabled
0142	49 Thermal Overload Protection	Disabled
0170	50BF Breaker Failure Protection	Enabled
0180	Disconnect measurement location	Disabled
0181	Measured Values Supervision	Enabled
0182	74TC Trip Circuit Supervision	with 2 Binary Inputs
0186	External Trip Function 1	Disabled
0187	External Trip Function 2	Disabled
0190	External Temperature Input	Disabled
0191	Ext. Temperature Input Connection Type	6 RTD simplex operation
	Flexible Function	
	additional Measured Value	



## 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)

**Reset LED (IntSP - Internal single point indication)**

**Configured to source:**

System interface

**Configured to destination:**

Operation Buffer: |

System interface

>Test mode (SP - Single point indication)

**Test mode (IntSP - Internal single point indication)**

**Configured to destination:**

Operation Buffer: IO

System interface

>Stop data transmission (SP - Single point indication)

**Configured to destination:**

CFC

**Stop data transmission (IntSP - Internal single point indication)**

**Configured to destination:**

Operation Buffer: IO

System interface

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

**Configured to source:**



CFC

## >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:

System interface

## Initial Start of Device (OUT - Output indication)

### Configured to destination:

Operation Buffer: I  
System interface

## Resume (OUT - Output indication)

### Configured to destination:

Operation Buffer: I  
System interface

## Daylight Saving Time (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Clock Synchronization (IntSP\_Ev - Internal single point indication event)

### 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

### Frequency out of range (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO  
System interface

### Chatter ON (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Hardware Test Mode (IntSP - Internal single point indication)

**Configured to destination:**

Operation Buffer: IO

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

**Configured to destination:**

Operation Buffer: IO

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

**Configured to destination:**

Operation Buffer: IO

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

### Configured to destination:

Operation Buffer: IO

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

### Configured to destination:

Operation Buffer: IO

## 2.1.2 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

## 2.1.3 Oscillographic Fault Records

### >Trigger Waveform Capture (SP - Single point indication)

### Fault Recording Start (IntSP - Internal single point indication)

### Configured to destination:

Operation Buffer: IO

### Fault recording is running (OUT - Output indication)

### Configured to destination:

System interface

## 2.1.4 Power System Data 2

### Fault in configuration of the Protection (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Gen.err.: Inconsistency group/connection (OUT - Output indication)

**Configured to destination:**

Operation Buffer: I

### Gen.err.: Sev. ground-CTs with equal typ (OUT - Output indication)

**Configured to destination:**

Operation Buffer: I

### Gen.err.: Number of sides / measurements (OUT - Output indication)

**Configured to destination:**

Operation Buffer: I

### General: Adaption factor CT M1 (VI - Value indication)

**Configured to destination:**

Operation Buffer: IO

### General: Adaption factor CT M2 (VI - Value indication)

**Configured to destination:**

Operation Buffer: IO

### parameter too low: (VI - Value indication)

**Configured to destination:**

Operation Buffer: IO

### parameter too high: (VI - Value indication)

**Configured to destination:**

Operation Buffer: IO

## setting fault: (VI - Value indication)

### Configured to destination:

Operation Buffer: IO

## >Manual close signal measurement loc. 1 (SP - Single point indication)

## Manual close signal meas.loc. 1 detected (OUT - Output indication)

### Configured to destination:

Operation Buffer: I

## >Manual close signal measurement loc. 2 (SP - Single point indication)

## Manual close signal meas.loc. 2 detected (OUT - Output indication)

### Configured to destination:

Operation Buffer: I

## >Manual close signal side 1 (SP - Single point indication)

## Manual close signal side 1 is detected (OUT - Output indication)

### Configured to destination:

Operation Buffer: I

## >Manual close signal side 2 (SP - Single point indication)

## Manual close signal side 2 is detected (OUT - Output indication)

### Configured to destination:

Operation Buffer: I

## Relay PICKUP (OUT - Output indication)

### Configured to destination:

Trip log: I  
System interface

7UT\_TRAFO2\_prn

Relay GENERAL TRIP command (OUT - Output indication)

SIMATIC

Queltehues\_180221 / 12kv /  
7UT\_TRAFO2/7UT633 V04.67.00

03.04.21 11:06:47

## Relay GENERAL TRIP command (OUT - Output indication)

### Configured to destination:

BO:	U 6,U 14
LED:	L 1
Trip log:	I
CFC	
System interface	

## >Quitt Lock Out: General Trip (IntSP - Internal single point indication)

### Configured to source:

Function key:	4
---------------	---

### Configured to destination:

CFC

## Lock Out: General TRIP (IntSP - Internal single point indication)

### Configured to source:

CFC

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

## Time from Pickup to TRIP (VI - Value indication)

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

### Configured to destination:

Operation Buffer:	IO
-------------------	----

## Primary fault current I A meas. loc. 1 (VI - Value indication)

## Primary fault current I B meas. loc. 1 (VI - Value indication)

## Primary fault current I C meas. loc. 1 (VI - Value indication)

## Primary fault current I A meas. loc. 2 (VI - Value indication)

**Primary fault current I B meas. loc. 2 (VI - Value indication)**

**Primary fault current I C meas. loc. 2 (VI - Value indication)**

**Primary fault current I A side 1 (VI - Value indication)**

**Primary fault current I B side 1 (VI - Value indication)**

**Primary fault current I C side 1 (VI - Value indication)**

**Primary fault current I A side 2 (VI - Value indication)**

**Primary fault current I B side 2 (VI - Value indication)**

**Primary fault current I C side 2 (VI - Value indication)**

## 2.1.5 87 Differential Protection

**>BLOCK 87 differential protection (SP - Single point indication)**

**87 Differential prot. is switched OFF (OUT - Output indication)**

### Configured to destination:

Operation Buffer:	IO
System interface	

**87 Differential protection is BLOCKED (OUT - Output indication)**

### Configured to destination:

Operation Buffer:	IO
Trip log:	IO
System interface	



## 87 Differential protection is ACTIVE (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO  
System interface

## 87 err.: Adverse Adaption factor CT (OUT - Output indication)

### Configured to destination:

Operation Buffer: I

## 87 Adaption factor CT M1 (VI - Value indication)

### Configured to destination:

Operation Buffer: IO

## 87 Adaption factor CT M2 (VI - Value indication)

### Configured to destination:

Operation Buffer: IO

## 87 Differential protection picked up (OUT - Output indication)

### Configured to destination:

Trip log: IO  
System interface

## 87 Blocked by 2.Harmon. A (OUT - Output indication)

### Configured to destination:

Trip log: IO

## 87 Blocked by 2.Harmon. B (OUT - Output indication)

### Configured to destination:

Trip log: IO

## 87 Blocked by 2.Harmon. C (OUT - Output indication)

### Configured to destination:

Trip log: IO

## 87 Blocked by n.Harmon. A (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Blocked by n.Harmon. B (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Blocked by n.Harmon. C (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Blocked by ext. fault A (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Blocked by ext. fault B (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Blocked by ext. fault C (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Crossblock by 2.Harmonic (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Crossblock by n.Harmonic (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Crossblock by ext. fault (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 Increase of char. phase A (OUT - Output indication)

### Configured to destination:

Operation Buffer:	IO
Trip log:	IO

## 87 Increase of char. phase B (OUT - Output indication)

### Configured to destination:

Operation Buffer:	IO
Trip log:	IO

## 87 Increase of char. phase C (OUT - Output indication)

### Configured to destination:

Operation Buffer:	IO
Trip log:	IO

## 87 DC in phase A (OUT - Output indication)

### Configured to destination:

Trip log:	IO
-----------	----

## 87 DC in phase B (OUT - Output indication)

### Configured to destination:

Trip log:	IO
-----------	----

## 87 DC in phase C (OUT - Output indication)

### Configured to destination:

Trip log:	IO
-----------	----

## 87 Increase of char. phase (DC) (OUT - Output indication)

### Configured to destination:

Trip log:	IO
-----------	----

## 87 TRIP (OUT - Output indication)

### Configured to destination:

BO:	U 6,U 14
LED:	L 8
Trip log:	I



CFC

## 87 TRIP Phase A (OUT - Output indication)

**Configured to destination:**

Trip log: |

## 87 TRIP Phase B (OUT - Output indication)

**Configured to destination:**

Trip log: |

## 87 TRIP Phase C (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87-1 Phase A (without Tdelay) (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87-1 Phase B (without Tdelay) (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87-1 Phase C (without Tdelay) (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87-2 Phase A (without Tdelay) (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87-2 Phase B (without Tdelay) (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87-2 Phase C (without Tdelay) (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 87 TRIP by 87-1 (OUT - Output indication)

**Configured to destination:**

Trip log: I  
System interface

## 87 TRIP by 87-2 (OUT - Output indication)

**Configured to destination:**

Trip log: I  
System interface

## Diff. curr. Ph. A at trip without Tdelay (VI - Value indication)

**Configured to destination:**

Trip log: IO

## Diff. curr. Ph. B at trip without Tdelay (VI - Value indication)

**Configured to destination:**

Trip log: IO

## Diff. curr. Ph. C at trip without Tdelay (VI - Value indication)

**Configured to destination:**

Trip log: IO

## Restr.curr. Ph. A at trip without Tdelay (VI - Value indication)

**Configured to destination:**

Trip log: IO

## Restr.curr. Ph. B at trip without Tdelay (VI - Value indication)

**Configured to destination:**

Trip log: IO

## Restr.curr. Ph. C at trip without Tdelay (VI - Value indication)

### Configured to destination:

Trip log: IO

## 2.1.6 General 50/51

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

### Configured to destination:

Trip log: IO

### 50(N,G)/51(N,G) TRIP (OUT - Output indication)

### Configured to destination:

Trip log: I  
CFC

## 2.1.7 50/51

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

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

### Configured to destination:

Operation Buffer: IO  
Trip log: IO

### 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 InRush detected (OUT - Output indication)

### Configured to destination:

Trip log: IO

## 50/51 Phase B InRush detected (OUT - Output indication)

### Configured to destination:

Trip log: IO

## 50/51 Phase C InRush detected (OUT - Output indication)

### Configured to destination:

Trip log: IO

## Cross blk: PhX blocked PhY (OUT - Output indication)

### Configured to destination:

Trip log: IO

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

### Configured to destination:

Trip log: IO

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

### Configured to destination:

Trip log: IO

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

### Configured to destination:

Trip log: IO

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

### Configured to destination:



Trip log: IO

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

**Configured to destination:**

Trip log: IO

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

**Configured to destination:**

Trip log: IO

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

## 50-2 BLOCKED (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

Trip log: IO

System interface

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

**Configured to destination:**

Trip log: IO

System interface

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

## 50-2 TRIP (OUT - Output indication)

**Configured to destination:**

BO: U 6,U 14

LED: L 9

Trip log: I

CFC

System interface

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





## 50-1 BLOCKED (OUT - Output indication)

### Configured to destination:

Operation Buffer:	IO
Trip log:	IO
System interface	

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

### Configured to destination:

Trip log:	IO
System interface	

## 50-1 InRush picked up (OUT - Output indication)

### Configured to destination:

Trip log:	IO
-----------	----

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

## 50-1 TRIP (OUT - Output indication)

### Configured to destination:

BO:	U 14,U 6
LED:	L 9
Trip log:	I
CFC	
System interface	

## >BLOCK 51 (SP - Single point indication)

## 51 BLOCKED (OUT - Output indication)

### Configured to destination:

Operation Buffer:	IO
Trip log:	IO
System interface	

## 51 picked up (OUT - Output indication)

### Configured to destination:

Trip log:	IO
-----------	----



System interface

## 51 InRush picked up (OUT - Output indication)

**Configured to destination:**

Trip log: IO

## 51 Time Out (OUT - Output indication)

## 51 TRIP (OUT - Output indication)

**Configured to destination:**

BO: U 14,U 6

LED: L 9

Trip log: I

System interface

## 50/51 err.: Not avail. for this object (OUT - Output indication)

**Configured to destination:**

Operation Buffer: I

## 2.1.8 50N/51N

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

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

**Configured to destination:**

Operation Buffer: IO

Trip log: IO

## 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  
System interface

## 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

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

### Configured to destination:

Trip log: IO

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

## 50N-2 BLOCKED (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO  
Trip log: IO  
System interface

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

### Configured to destination:

Trip log: IO  
System interface

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

## 50N-2 TRIP (OUT - Output indication)

### Configured to destination:

Trip log: I  
CFC  
System interface

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

### 50N-1 BLOCKED (OUT - Output indication)

**Configured to destination:**

Operation Buffer:	IO
Trip log:	IO
System interface	

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

**Configured to destination:**

Trip log:	IO
System interface	

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

**Configured to destination:**

Trip log:	IO
-----------	----

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

### 50N-1 TRIP (OUT - Output indication)

**Configured to destination:**

Trip log:	I
CFC	
System interface	

## >BLOCK 51N (SP - Single point indication)

### 51N BLOCKED (OUT - Output indication)

**Configured to destination:**

Operation Buffer:	IO
Trip log:	IO
System interface	

### 51N picked up (OUT - Output indication)

**Configured to destination:**



Trip log: IO  
System interface

## 51N InRush picked up (OUT - Output indication)

**Configured to destination:**  
Trip log: IO

## 51N TimeOut (OUT - Output indication)

## 51N TRIP (OUT - Output indication)

**Configured to destination:**  
Trip log: I  
System interface

## 50N/51N err.: Not avail. for this object (OUT - Output indication)

**Configured to destination:**  
Operation Buffer: I

## 2.1.9 50BF Breaker Failure

### >BLOCK 50BF (SP - Single point indication)

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

**Configured to source:**  
CFC  
**Configured to destination:**  
Operation Buffer: IO  
Trip log: IO

## 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
System interface	

### 50BF is ACTIVE (OUT - Output indication)

**Configured to destination:**

Operation Buffer:	IO
System interface	

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

**Configured to destination:**

Operation Buffer:	I
Trip log:	IO
CFC	
System interface	

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

**Configured to destination:**

Operation Buffer:	I
Trip log:	IO
System interface	

### 50BF-1 TRIP (local trip) (OUT - Output indication)

**Configured to destination:**

Trip log:	I
CFC	
System interface	

### 50BF-2 TRIP (busbar trip) (OUT - Output indication)

**Configured to destination:**

Trip log:	I
CFC	
System interface	

### 50BF err.: Not available for this object (OUT - Output indication)

**Configured to destination:**

Operation Buffer:	I
-------------------	---

## 2.1.10 Measurement Supervision

### Failure: General Current Supervision (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Failure: Current Balance (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Fail.: Current Balance meas. location 1 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Fail.: Current Balance meas. location 2 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Failure: Phase Sequence (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Failure: Phase Sequence Current (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Failure: Phase Sequence I meas. loc. 1 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Failure: Phase Sequence I meas. loc. 2 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## 2.1.11 74TC Trip Circuit Supervision



## >BLOCK 74TC (SP - Single point indication)

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

**Configured to source:**

BI: H 12

**Configured to destination:**

Operation Buffer: IO

### >74TC Trip circuit superv.: bkr 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:**

Operation Buffer: IO

## 2.1.12 Supervision

### Disturbance CFC (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

### Error with a summary alarm (OUT - Output indication)

**Configured to destination:**

System interface

### Error: Measurement system (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### Error Board 0 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

### 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 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

## Error:1A/5Ajumper different from setting (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Err: inconsist. jumper/setting CT M1 (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Err: inconsist. jumper/setting CT M2 (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Error: Offset (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Broken wire is switched OFF (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Broken wire detected (OUT - Output indication)

### Configured to destination:

Operation Buffer: IO

## Broken wire Ph. A measurement location 1 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Broken wire Ph. B measurement location 1 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Broken wire Ph. C measurement location 1 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Broken wire Ph. A measurement location 2 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Broken wire Ph. B measurement location 2 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Broken wire Ph. C measurement location 2 (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Alarm Summary Event (OUT - Output indication)

**Configured to destination:**

System interface

## Alarm: Analog input adjustment invalid (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Failure: Battery empty (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Clock Synchronization Error (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Error: Communication Module B (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Error: Communication Module C (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Error: Communication Module D (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Incons. M1: CBaux open/ curr. persistent (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Incons. M2: CBaux open/ curr. persistent (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Incons. S1: CBaux open/ curr. persistent (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## Incons. S2: CBaux open/ curr. persistent (OUT - Output indication)

**Configured to destination:**

Operation Buffer: IO

## 2.1.13 External Annunciations of Transformer

### >Stage-1 from gas in oil detector (SP - Single point indication)

**Configured to destination:**

Operation Buffer: IO

### >Stage-1 from Buchholz protection (SP - Single point indication)

**Configured to destination:**

Operation Buffer: IO

### >Stage-2 from Buchholz protection (SP - Single point indication)

**Configured to destination:**

Operation Buffer: IO

### >Tank supervision from Buchh. protect. (SP - Single point indication)

**Configured to destination:**

Operation Buffer: IO

## 2.1.14 EN100-Modul 1

### Edition (IntSP - Internal single point indication)

#### Failure EN100 Modul (IntSP - Internal single point indication)

**Configured to destination:**

Operation Buffer: IO

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

**Configured to destination:**

Operation Buffer: IO

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

**Configured to destination:**

Operation Buffer: IO

## 2.1.15 Control Authorization

### Control Authority (DP - Double point indication)

#### Configured to destination:

Operation Buffer: IO  
System interface

### Controlmode REMOTE (IntSP - Internal single point indication)

#### Configured to destination:

Operation Buffer: IO

### Controlmode LOCAL (DP - Double point indication)

#### Configured to destination:

Operation Buffer: IO

### Local (SP - Single point indication)

#### Configured to source:

BI: H 1

#### Configured to destination:

LED: U 13  
Operation Buffer: IO  
CFC  
System interface

### Remote (SP - Single point indication)

#### Configured to source:

BI: H 2

#### Configured to destination:

LED: U 14  
Operation Buffer: IO  
CFC  
System interface

## 2.1.16 Control Device

### circuit breaker Q0 (DP - Double point indication)

#### Configured to source:

BI: X 7



**Configured to destination:**

Operation Buffer: IO  
CFC  
System interface  
Default Display

**Q0 operationcounter= (VI - Value indication)**

**CB REL (IntSP - Internal single point indication)**

**Configured to source:**

CFC

**Configured to destination:**

LED: U 7  
Operation Buffer: IO  
CFC

**Q1D (DP\_I - Double point indication with intermediate pos.)**

**Configured to source:**

CFC

**Configured to destination:**

Operation Buffer: IO  
CFC  
System interface  
Default Display

**Q1E (DP\_I - Double point indication with intermediate pos.)**

**Configured to source:**

CFC

**Configured to destination:**

Operation Buffer: IO  
CFC  
System interface  
Default Display

**Q1D O REL (IntSP - Internal single point indication)**

**Configured to source:**

CFC

**Configured to destination:**

LED: U 8





Operation Buffer: IO  
CFC

## Q1E O REL (IntSP - Internal single point indication)

### Configured to source:

CFC

### Configured to destination:

LED: U 9  
Operation Buffer: IO  
CFC

## Q1D CL (SP - Single point indication)

### Configured to source:

BI: H 9

### Configured to destination:

Operation Buffer: IO  
CFC

## CB 110kv (DP\_I - Double point indication with intermediate pos.)

### Configured to source:

BI: X 16

### Configured to destination:

Operation Buffer: IO  
CFC  
System interface

## Q1D C REL (IntSP - Internal single point indication)

### Configured to source:

CFC

### Configured to destination:

Operation Buffer: IO  
CFC

## Q1E C REL (IntSP - Internal single point indication)

### Configured to source:

CFC

### Configured to destination:

Operation Buffer: IO  
CFC

## Q1 OFF (DP\_I - Double point indication with intermediate pos.)

### Configured to source:

CFC

### Configured to destination:

Operation Buffer: IO

CFC

Control Display

Default Display

Control Menu

## Tierra Off (SP - Single point indication)

### Configured to source:

BI: H 10

### Configured to destination:

Operation Buffer: IO

CFC

## Tierra ON (SP - Single point indication)

### Configured to source:

BI: H 11

### Configured to destination:

Operation Buffer: IO

CFC

## 2.1.17 Signals

## OP MECH CH (SP - Single point indication)

### Configured to source:

BI: H 4

### Configured to destination:

Operation Buffer: IO

CFC

System interface

## SF6 Alarm (SP - Single point indication)

### Configured to source:

BI: H 3

### Configured to destination:

LED: U 4



Operation Buffer: IO  
CFC  
System interface

## MCB TRIP (SP - Single point indication)

### Configured to source:

BI: L 5

### Configured to destination:

LED: U 5  
Operation Buffer: IO  
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 16,U 6,U 14,U 24  
LED: U 2  
Operation Buffer: IO  
CFC  
System interface

## Protecc Mecanicas del Trafo (SP - Single point indication)

### Configured to source:

BI: H 19

### Configured to destination:

LED: U 3  
Operation Buffer: IO  
Trip log: I  
CFC  
System interface

## Alarmas Trafo (SP - Single point indication)

### Configured to source:

BI: H 20

### Configured to destination:

Operation Buffer: IO

CFC

System interface

## Reset 86T (IntSP - Internal single point indication)

### Configured to source:

Function key: 3

### Configured to destination:

Operation Buffer: IO

CFC

System interface

## Permisivo cierre INT 110 kV (SP - Single point indication)

### Configured to source:

CFC

### Configured to destination:

BO: U 17

Operation Buffer: IO

System interface

## Permisivo cierre INT 12 kV (SP - Single point indication)

### Configured to source:

CFC

### Configured to destination:

BO: U 13

Operation Buffer: IO

System interface

## Alarma Interruptor 110 kv (SP - Single point indication)

### Configured to source:

BI: H 18

### Configured to destination:

Operation Buffer: IO

System interface

## CB 12kV CLOSE (SP - Single point indication)

### Configured to source:

BI: H 8

### Configured to destination:

Operation Buffer: IO

Trip log: IO

CFC

## TRIP 50BF LOG (OUT - Output indication)

### Configured to source:

CFC

### Configured to destination:

BO: U 15,U 6,U 14,U 16,U 24

Operation Buffer: IO

Trip log: I

CFC

System interface

## RX TRIP 50BF (SP - Single point indication)

### Configured to source:

BI: H 14

### Configured to destination:

Operation Buffer: IO

CFC

## TRIP EXT 50BF (OUT - Output indication)

### Configured to source:

CFC

### Configured to destination:

BO: U 6,U 14

Operation Buffer: IO

## BLoqueo INT 110 kV (SP - Single point indication)

### Configured to source:

CFC

### Configured to destination:

BO: U 20

Operation Buffer: IO

## PERM12k (SP - Single point indication)

**Configured to source:**

CFC

**Configured to destination:**

BO: U 21  
Operation Buffer: IO

## Alarma Alta Temperatura Trafo (SP - Single point indication)

**Configured to source:**

BI: H 21

**Configured to destination:**

Operation Buffer: IO  
System interface

## 2.1.18 Min/Max Measurement Setup

### >Reset MinMaxValues (SP - Single point 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

## 2.1.20 Statistics

### >BLOCK Op Counter (SP - Single point indication)

**Configured to destination:**

Operation Buffer: IO

## Counter of operating hours (VI - Value indication)

**Configured to destination:**

System interface

## Number of breaker TRIP commands (VI - Value indication)

Accumulation of interrupted curr. A M1 (VI - Value indication)

Accumulation of interrupted curr. B M1 (VI - Value indication)

Accumulation of interrupted curr. C M1 (VI - Value indication)

Accumulation of interrupted curr. A M2 (VI - Value indication)

Accumulation of interrupted curr. B M2 (VI - Value indication)

Accumulation of interrupted curr. C M2 (VI - Value indication)

Accumulation of interrupted curr. A S1 (VI - Value indication)

Accumulation of interrupted curr. B S1 (VI - Value indication)

Accumulation of interrupted curr. C S1 (VI - Value indication)

Accumulation of interrupted curr. A S2 (VI - Value indication)

Accumulation of interrupted curr. B S2 (VI - Value indication)

Accumulation of interrupted curr. C S2 (VI - Value indication)

## 2.1.21 Set Points (Statistic)

Set Point Operating Hours (OUT - Output indication)

Configured to destination:

Operation Buffer:

IO

## 2.2 Commands

### 2.2.1 87 Differential Protection

#### SC OO (C\_S - Single command)

**Configured to destination:**

Operation Buffer: IO

### 2.2.2 50/51

#### SC OO (C\_S - Single command)

**Configured to destination:**

Operation Buffer: IO

#### ON/OFF (C\_S) (C\_S - Single command)

**Configured to destination:**

Operation Buffer: IO

### 2.2.3 Control Device

#### circuit breaker Q0 (CF\_D12 - Double command 12, with feedback)

**Configured to source:**

System interface

**Configured to destination:**

BO: Tr 6

CFC

Control Display

Control Menu

#### Q1D (CF\_D2 - Double command 2, with feedback)

**Configured to source:**

System interface

CFC

**Configured to destination:**

BO: Tr 1

CFC

Control Display

Control Menu



7UT\_TRAFO2\_prn

Q1E (CF\_D2 - Double command 2, with feedback)

SIMATIC

Queltehues\_180221 / 12kv /  
7UT\_TRAFO2/7UT633 V04.67.00

03.04.21 11:06:47

## Q1E (CF\_D2 - Double command 2, with feedback)

### Configured to source:

System interface

CFC

### Configured to destination:

BO:

Tr 3

CFC

Control Display

Control Menu

## CB 110kv (CF\_D2 - Double command 2, with feedback)

### Configured to source:

System interface

### Configured to destination:

CFC

## 2.3 Measured values

### 2.3.1 Measurement

#### Voltaje de Barra (MVU - User-defined measured value)

**Configured to source:**

System interface

**Configured to destination:**

Measured value window

User Defined

CFC

#### Operat. meas. current A meas. loc. 1 (MV - Measured value)

**Configured to destination:**

System interface

#### Operat. meas. current B meas. loc. 1 (MV - Measured value)

**Configured to destination:**

System interface

#### Operat. meas. current C meas. loc. 1 (MV - Measured value)

**Configured to destination:**

System interface

#### 3I0 (zero sequence) of meas. loc. 1 (MV - Measured value)

**Configured to destination:**

System interface

#### I1 (positive sequence) of meas. loc. 1 (MV - Measured value)

**Configured to destination:**

System interface

#### I2 (negative sequence) of meas. loc. 1 (MV - Measured value)

**Configured to destination:**

System interface

7UT\_TRAFO2\_prn

Operat. meas. current A meas. loc. 2 (MV - Measured value)

SIMATIC

Queltehues\_180221 / 12kv /  
7UT\_TRAFO2/7UT633 V04.67.00

03.04.21 11:06:47

## Operat. meas. current A meas. loc. 2 (MV - Measured value)

**Configured to destination:**

System interface

## Operat. meas. current B meas. loc. 2 (MV - Measured value)

**Configured to destination:**

System interface

## Operat. meas. current C meas. loc. 2 (MV - Measured value)

**Configured to destination:**

System interface

## 3I0 (zero sequence) of meas. loc. 2 (MV - Measured value)

**Configured to destination:**

System interface

## I1 (positive sequence) of meas. loc. 2 (MV - Measured value)

**Configured to destination:**

System interface

## I2 (negative sequence) of meas. loc. 2 (MV - Measured value)

**Configured to destination:**

System interface

## Operat. meas. current A side 1 (MV - Measured value)

## Operat. meas. current B side 1 (MV - Measured value)

## Operat. meas. current C side 1 (MV - Measured value)

## 3I0 (zero sequence) of side 1 (MV - Measured value)

## I1 (positive sequence) of side 1 (MV - Measured value)

7UT\_TRAFO2\_prn

I2 (negative sequence) of side 1 (MV - Measured value)

SIMATIC

Queltehues\_180221 / 12kv /  
7UT\_TRAFO2/7UT633 V04.67.00

03.04.21 11:06:47

I2 (negative sequence) of side 1 (MV - Measured value)

Operat. meas. current A side 2 (MV - Measured value)

Operat. meas. current B side 2 (MV - Measured value)

Operat. meas. current C side 2 (MV - Measured value)

3I0 (zero sequence) of side 2 (MV - Measured value)

I1 (positive sequence) of side 2 (MV - Measured value)

I2 (negative sequence) of side 2 (MV - Measured value)

Phase angle in phase IA meas. loc. 1 (MV - Measured value)

Phase angle in phase IB meas. loc. 1 (MV - Measured value)

Phase angle in phase IC meas. loc. 1 (MV - Measured value)

Phase angle in phase IA meas. loc. 2 (MV - Measured value)

Phase angle in phase IB meas. loc. 2 (MV - Measured value)

Phase angle in phase IC meas. loc. 2 (MV - Measured value)

Operat. meas. voltage Vmeas. (MVU - User-defined measured value)

Configured to source:

CFC



**Configured to destination:**

Measured value window

Operation. pri

**S (apparent power) (MV - Measured value)**

**Configured to destination:**

System interface

**Frequency (MV - Measured value)**

**Configured to destination:**

System interface

**2.3.2 Diff- and Rest. Measurement**

**IDiff A(I/Inominal object [%]) (MV - Measured value)**

**Configured to destination:**

System interface

**IDiff B(I/Inominal object [%]) (MV - Measured value)**

**Configured to destination:**

System interface

**IDiff C(I/Inominal object [%]) (MV - Measured value)**

**Configured to destination:**

System interface

**IRest A(I/Inominal object [%]) (MV - Measured value)**

**Configured to destination:**

System interface

**IRest B(I/Inominal object [%]) (MV - Measured value)**

**Configured to destination:**

System interface

**IRest C(I/Inominal object [%]) (MV - Measured value)**

**Configured to destination:**

System interface

## 2.4 Metered values

### 2.4.1 Energy

#### 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

## 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		Signals	SF6 Alarm	SP	H
4		Signals	OP MECH CH	SP	H
5		Signals	MCB TRIP	SP	L
6		Signals	S25	SP	H
7		Control Device	circuit breaker Q0	DP	X
8		Control Device	circuit breaker Q0	DP	X
8		Signals	CB 12kV CLOSE	SP	H
9		Control Device	Q1D CL	SP	H
10		Control Device	Tierra Off	SP	H
11		Control Device	Tierra ON	SP	H
12	06852	74TC TripCirc.	>74TC Trip circuit superv.: trip relay	SP	H
13	06853	74TC TripCirc.	>74TC Trip circuit superv.: bkr relay	SP	H
14		Signals	RX TRIP 50BF	SP	H
16		Control Device	CB 110kv	DP_I	X
17		Control Device	CB 110kv	DP_I	X
18		Signals	Alarma Interruptor 110 kv	SP	H
19		Signals	Protecc Mecanicas del Trafo	SP	H
20		Signals	Alarmas Trafo	SP	H
21		Signals	Alarma Alta Temperatura Trafo	SP	H

### 3.2 Binary outputs

*Binary outputs*

BO	No.	Group	Information	Type	Configuration
1		Control Device	Q1D	CF_D2	Tr
2		Control Device	Q1D	CF_D2	Cl
3		Control Device	Q1E	CF_D2	Tr
4		Control Device	Q1E	CF_D2	Cl
6	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	U
6	05671	87 Diff. Prot	87 TRIP	OUT	U
6	023.2551.01	50/51	50-2 TRIP	OUT	U
6	023.2552.01	50/51	50-1 TRIP	OUT	U
6	023.2553.01	50/51	51 TRIP	OUT	U
6		Control Device	circuit breaker Q0	CF_D12	Tr
6		Signals	86T	SP	U
6		Signals	TRIP 50BF LOG	OUT	U



Binary outputs(2)

BO	No.	Group	Information	Type	Configuration
6		Signals	TRIP EXT 50BF	OUT	U
7		Control Device	circuit breaker Q0	CF_D12	CI
8		Control Device	circuit breaker Q0	CF_D12	CI
13		Signals	Permisivo cierre INT 12 kV	SP	U
14	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	U
14	05671	87 Diff. Prot	87 TRIP	OUT	U
14	023.2551.01	50/51	50-2 TRIP	OUT	U
14	023.2552.01	50/51	50-1 TRIP	OUT	U
14	023.2553.01	50/51	51 TRIP	OUT	U
14		Signals	86T	SP	U
14		Signals	TRIP 50BF LOG	OUT	U
14		Signals	TRIP EXT 50BF	OUT	U
15		Signals	TRIP 50BF LOG	OUT	U
16		Signals	86T	SP	U
16		Signals	TRIP 50BF LOG	OUT	U
17		Signals	Permisivo cierre INT 110 kV	SP	U
20		Signals	BLoqueo INT 110 kV	SP	U
21		Signals	PERM12k	SP	U
24		Signals	86T	SP	U
24		Signals	TRIP 50BF LOG	OUT	U

### 3.3 LEDs

LEDs

LEDs	No.	Group	Information	Type	Configuration
1	00511	P.System Data 2	Relay GENERAL TRIP command	OUT	L
2		Signals	86T	SP	U
3		Signals	Protecc Mecanicas del Trafo	SP	U
4		Signals	SF6 Alarm	SP	U
5		Signals	MCB TRIP	SP	U
7		Control Device	CB REL	IntSP	U
8	05671	87 Diff. Prot	87 TRIP	OUT	L
8		Control Device	Q1D O REL	IntSP	U
9	023.2551.01	50/51	50-2 TRIP	OUT	L
9	023.2552.01	50/51	50-1 TRIP	OUT	L
9	023.2553.01	50/51	51 TRIP	OUT	L
9		Control Device	Q1E O REL	IntSP	U
13		Cntrl Authority	Local	SP	U
14		Cntrl Authority	Remote	SP	U



## 3.4 CFC

### CFC

No.	Group	Information	Source	Destination
00016	Device, General	>DataStop / >Stop data transmission		X
	Device, General	UnlockDT / Unlock data transmission via BI	X	
00511	P.System Data 2	Relay TRIP / Relay GENERAL TRIP command		X
	P.System Data 2	>QuitG-TRP / >Quitt Lock Out: General Trip		X
	P.System Data 2	G-TRP Quit / Lock Out: General TRIP	X	
05671	87 Diff. Prot	87 TRIP / 87 TRIP		X
022.2451.01	General 50/51	50/51(N,G) TRIP / 50(N,G)/51(N,G) TRIP		X
023.2551.01	50/51	50-2 TRIP / 50-2 TRIP		X
023.2552.01	50/51	50-1 TRIP / 50-1 TRIP		X
191.2551.01	50N/51N	50N-2 TRIP / 50N-2 TRIP		X
191.2552.01	50N/51N	50N-1 TRIP / 50N-1 TRIP		X
047.2651.01	50BF BkrFailure	>50BF ext SRC / >50BF initiated externally	X	
047.2652.01	50BF BkrFailure	50BF int Pickup / 50BF (internal) PICKUP		X
047.2654.01	50BF BkrFailure	50BF-1 locTRIP / 50BF-1 TRIP (local trip)		X
047.2655.01	50BF BkrFailure	50BF-2 busTRIP / 50BF-2 TRIP (busbar trip)		X
	Cntrl Authority	Local / Local		X
	Cntrl Authority	Remote / Remote		X
	Control Device	Q0 / circuit breaker Q0		X
	Control Device	Q0 / circuit breaker Q0		X
	Control Device	CB REL / CB REL	X	X
	Control Device	Q1D / Q1D	X	X
	Control Device	Q1D / Q1D	X	X
	Control Device	Q1E / Q1E	X	X
	Control Device	Q1E / Q1E	X	X
	Control Device	Q1D O REL / Q1D O REL	X	X
	Control Device	Q1E O REL / Q1E O REL	X	X
	Control Device	Q1D CL / Q1D CL		X
	Control Device	CB 110kv / CB 110kv		X
	Control Device	CB 110kv / CB 110kv		X
	Control Device	Q1D C REL / Q1D C REL	X	X
	Control Device	Q1E C REL / Q1E C REL	X	X
	Control Device	Q1 OFF / Q1 OFF	X	X
	Control Device	TieOff / Tierra Off		X
	Control Device	TieOn / Tierra ON		X
	Signals	OP MECH CH / OP MECH CH		X
	Signals	SF6 Alarm / SF6 Alarm		X
	Signals	S25 / S25		X
	Signals	86T / 86T	X	X
	Signals	86TOp / Protecc Mecanicas del Trafo		X
	Signals	AlaTrafo / Alarmas Trafo		X

CFC(2)

No.	Group	Information	Source	Destination
	Signals	Reset86 / Reset 86T		X
	Signals	Perm110 / Permisivo cierre INT 110 kV	X	
	Signals	Perm12 / Permisivo cierre INT 12 kV	X	
	Signals	CB 12kV CL / CB 12kV CLOSE		X
	Signals	TRIP 50BF / TRIP 50BF LOG	X	X
	Signals	RX TRIP 50 / RX TRIP 50BF		X
	Signals	TRIP EXT 50BF / TRIP EXT 50BF	X	
	Signals	BLOQ110 / BLoqueo INT 110 kV	X	
	Signals	PERM12k / PERM12k	X	
30656	Measurement	Vmeas.= / Operat. meas. voltage Vmeas.	X	
	Measurement	VOLTS / Voltaje de Barra		X

## 3.5 Function keys

Function keys

No.	Group	Information	Function keys
	P.System Data 2	>Quitt Lock Out: General Trip	4
	Signals	Reset 86T	3

## 3.6 Buffer

### 3.6.1 Operational indication buffer

Operational indication buffer

No.	Group	Information	Buffer
	Device, General	Reset LED	I
	Device, General	Test mode	IO
	Device, General	Stop data transmission	IO
	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
00056	Device, General	Initial Start of Device	I
00067	Device, General	Resume	I
00069	Device, General	Daylight Saving Time	IO
00070	Device, General	Setting calculation is running	IO
00072	Device, General	Level-2 change	IO
00109	Device, General	Frequency out of range	IO
00125	Device, General	Chatter ON	IO
	Device, General	Hardware Test Mode	IO
00320	Device, General	Warn: Limit of Memory Data exceeded	IO



Operational indication buffer(2)

No.	Group	Information	Buffer
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
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
	Osc. Fault Rec.	Fault Recording Start	IO
00311	P.System Data 2	Fault in configuration of the Protection	IO
00312	P.System Data 2	Gen.err.: Inconsistency group/connection	I
00313	P.System Data 2	Gen.err.: Sev. ground-CTs with equal typ	I
00314	P.System Data 2	Gen.err.: Number of sides / measurements	I
30060	P.System Data 2	General: Adaption factor CT M1	IO
30061	P.System Data 2	General: Adaption factor CT M2	IO
30067	P.System Data 2	parameter too low:	IO
30068	P.System Data 2	parameter too high:	IO
30069	P.System Data 2	setting fault:	IO
30070	P.System Data 2	Manual close signal meas.loc. 1 detected	I
30071	P.System Data 2	Manual close signal meas.loc. 2 detected	I
30075	P.System Data 2	Manual close signal side 1 is detected	I
30076	P.System Data 2	Manual close signal side 2 is detected	I
00126	P.System Data 2	Protection ON/OFF (via system port)	IO
05615	87 Diff. Prot	87 Differential prot. is switched OFF	IO
05616	87 Diff. Prot	87 Differential protection is BLOCKED	IO
05617	87 Diff. Prot	87 Differential protection is ACTIVE	IO
05620	87 Diff. Prot	87 err.: Adverse Adaption factor CT	I
05733	87 Diff. Prot	87 Adaption factor CT M1	IO
05734	87 Diff. Prot	87 Adaption factor CT M2	IO
05666	87 Diff. Prot	87 Increase of char. phase A	IO
05667	87 Diff. Prot	87 Increase of char. phase B	IO
05668	87 Diff. Prot	87 Increase of char. phase C	IO
	87 Diff. Prot	SC OO	IO
023.2501.01	50/51	>BLOCK 50/51 InRush	IO
023.2411.01	50/51	50/51 O/C switched OFF	IO
023.2412.01	50/51	50/51 O/C is BLOCKED	IO
023.2413.01	50/51	50/51 O/C is ACTIVE	IO
023.2514.01	50/51	50-2 BLOCKED	IO
023.2515.01	50/51	50-1 BLOCKED	IO
023.2516.01	50/51	51 BLOCKED	IO
023.2491.01	50/51	50/51 err.: Not avail. for this object	I
	50/51	SC OO	IO
	50/51	ON/OFF (C_S)	IO
191.2501.01	50N/51N	>BLOCK 50/51N InRush	IO



Operational indication buffer(3)

No.	Group	Information	Buffer
191.2411.01	50N/51N	50N/51N is OFF	IO
191.2412.01	50N/51N	50N/51N is BLOCKED	IO
191.2413.01	50N/51N	50N/51N is ACTIVE	IO
191.2514.01	50N/51N	50N-2 BLOCKED	IO
191.2515.01	50N/51N	50N-1 BLOCKED	IO
191.2516.01	50N/51N	51N BLOCKED	IO
191.2491.01	50N/51N	50N/51N err.: Not avail. for this object	I
047.2651.01	50BF BkrFailure	>50BF initiated externally	IO
047.2411.01	50BF BkrFailure	50BF is switched OFF	IO
047.2412.01	50BF BkrFailure	50BF is BLOCKED	IO
047.2413.01	50BF BkrFailure	50BF is ACTIVE	IO
047.2652.01	50BF BkrFailure	50BF (internal) PICKUP	I
047.2653.01	50BF BkrFailure	50BF (external) PICKUP	I
047.2491.01	50BF BkrFailure	50BF err.: Not available for this object	I
00161	Measuram.Superv	Failure: General Current Supervision	IO
00163	Measuram.Superv	Failure: Current Balance	IO
30110	Measuram.Superv	Fail.: Current Balance meas. location 1	IO
30111	Measuram.Superv	Fail.: Current Balance meas. location 2	IO
00171	Measuram.Superv	Failure: Phase Sequence	IO
00175	Measuram.Superv	Failure: Phase Sequence Current	IO
30115	Measuram.Superv	Failure: Phase Sequence I meas. loc. 1	IO
30116	Measuram.Superv	Failure: Phase Sequence I meas. loc. 2	IO
06852	74TC TripCirc.	>74TC Trip circuit superv.: trip relay	IO
06853	74TC TripCirc.	>74TC Trip circuit superv.: bkr relay	IO
06861	74TC TripCirc.	74TC Trip circuit supervision OFF	IO
06862	74TC TripCirc.	74TC Trip circuit supervision is BLOCKED	IO
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
	Supervision	Disturbance CFC	IO
00110	Supervision	Event lost	I
00113	Supervision	Flag Lost	I
00181	Supervision	Error: Measurement system	IO
00190	Supervision	Error Board 0	IO
00184	Supervision	Error Board 2	IO
00185	Supervision	Error Board 3	IO
00188	Supervision	Error Board 6	IO
00189	Supervision	Error Board 7	IO
00192	Supervision	Error:1A/5Ajumper different from setting	IO
30097	Supervision	Err: inconsist. jumper/setting CT M1	IO
30098	Supervision	Err: inconsist. jumper/setting CT M2	IO
00191	Supervision	Error: Offset	IO



Operational indication buffer(4)

No.	Group	Information	Buffer
30054	Supervision	Broken wire is switched OFF	IO
00251	Supervision	Broken wire detected	IO
30120	Supervision	Broken wire Ph. A measurement location 1	IO
30121	Supervision	Broken wire Ph. B measurement location 1	IO
30122	Supervision	Broken wire Ph. C measurement location 1	IO
30123	Supervision	Broken wire Ph. A measurement location 2	IO
30124	Supervision	Broken wire Ph. B measurement location 2	IO
30125	Supervision	Broken wire Ph. C measurement location 2	IO
00193	Supervision	Alarm: Analog input adjustment invalid	IO
00177	Supervision	Failure: Battery empty	IO
00068	Supervision	Clock Synchronization Error	IO
00198	Supervision	Error: Communication Module B	IO
00199	Supervision	Error: Communication Module C	IO
00200	Supervision	Error: Communication Module D	IO
30135	Supervision	Incons. M1: CBaux open/ curr. persistent	IO
30136	Supervision	Incons. M2: CBaux open/ curr. persistent	IO
30140	Supervision	Incons. S1: CBaux open/ curr. persistent	IO
30141	Supervision	Incons. S2: CBaux open/ curr. persistent	IO
00390	Ext. Tansf. Ann.	>Stage-1 from gas in oil detector	IO
00391	Ext. Tansf. Ann.	>Stage-1 from Buchholz protection	IO
00392	Ext. Tansf. Ann.	>Stage-2 from Buchholz protection	IO
00393	Ext. Tansf. Ann.	>Tank supervision from Buchh. protect.	IO
009.0100.01	EN100-Modul 1	Failure EN100 Modul	IO
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
	Cntrl Authority	Control Authority	IO
	Cntrl Authority	Controlmode REMOTE	IO
	Cntrl Authority	Controlmode LOCAL	IO
	Cntrl Authority	Local	IO
	Cntrl Authority	Remote	IO
	Control Device	circuit breaker Q0	IO
	Control Device	CB REL	IO
	Control Device	Q1D	IO
	Control Device	Q1E	IO
	Control Device	Q1D O REL	IO
	Control Device	Q1E O REL	IO
	Control Device	Q1D CL	IO
	Control Device	CB 110kv	IO
	Control Device	Q1D C REL	IO
	Control Device	Q1E C REL	IO
	Control Device	Q1 OFF	IO
	Control Device	Tierra Off	IO



*Operational indication buffer(5)*

No.	Group	Information	Buffer
	Control Device	Tierra ON	IO
	Signals	OP MECH CH	IO
	Signals	SF6 Alarm	IO
	Signals	MCB TRIP	IO
	Signals	S25	IO
	Signals	86T	IO
	Signals	Protecc Mecanicas del Trafo	IO
	Signals	Alarmas Trafo	IO
	Signals	Reset 86T	IO
	Signals	Permisivo cierre INT 110 kV	IO
	Signals	Permisivo cierre INT 12 kV	IO
	Signals	Alarma Interruptor 110 kv	IO
	Signals	CB 12kV CLOSE	IO
	Signals	TRIP 50BF LOG	IO
	Signals	RX TRIP 50BF	IO
	Signals	TRIP EXT 50BF	IO
	Signals	BLoqueo INT 110 kV	IO
	Signals	PERM12k	IO
	Signals	Alarma Alta Temperatura Trafo	IO
11001	Min/Max meter	>Reset MinMaxValues	IO
	Thresh.-Switch	Threshold Value 1	IO
00409	Statistics	>BLOCK Op Counter	IO
00272	SetPoint(Stat)	Set Point Operating Hours	IO

### 3.6.2 Sensitive ground fault indication buffer

nothing allocated

### 3.6.3 Trip log

*Trip log*

No.	Group	Information	Buffer
00501	P.System Data 2	Relay PICKUP	I
00511	P.System Data 2	Relay GENERAL TRIP command	I
05616	87 Diff. Prot	87 Differential protection is BLOCKED	IO
05631	87 Diff. Prot	87 Differential protection picked up	IO
05644	87 Diff. Prot	87 Blocked by 2.Harmon. A	IO
05645	87 Diff. Prot	87 Blocked by 2.Harmon. B	IO
05646	87 Diff. Prot	87 Blocked by 2.Harmon. C	IO
05647	87 Diff. Prot	87 Blocked by n.Harmon. A	IO
05648	87 Diff. Prot	87 Blocked by n.Harmon. B	IO



Trip log(2)

No.	Group	Information	Buffer
05649	87 Diff. Prot	87 Blocked by n.Harmon. C	IO
05651	87 Diff. Prot	87 Blocked by ext. fault A	IO
05652	87 Diff. Prot	87 Blocked by ext. fault B	IO
05653	87 Diff. Prot	87 Blocked by ext. fault C	IO
05657	87 Diff. Prot	87 Crossblock by 2.Harmonic	IO
05658	87 Diff. Prot	87 Crossblock by n.Harmonic	IO
05660	87 Diff. Prot	87 Crossblock by ext. fault	IO
05666	87 Diff. Prot	87 Increase of char. phase A	IO
05667	87 Diff. Prot	87 Increase of char. phase B	IO
05668	87 Diff. Prot	87 Increase of char. phase C	IO
05742	87 Diff. Prot	87 DC in phase A	IO
05743	87 Diff. Prot	87 DC in phase B	IO
05744	87 Diff. Prot	87 DC in phase C	IO
05745	87 Diff. Prot	87 Increase of char. phase (DC)	IO
05671	87 Diff. Prot	87 TRIP	I
05672	87 Diff. Prot	87 TRIP Phase A	I
05673	87 Diff. Prot	87 TRIP Phase B	I
05674	87 Diff. Prot	87 TRIP Phase C	IO
05681	87 Diff. Prot	87-1 Phase A (without Tdelay)	IO
05682	87 Diff. Prot	87-1 Phase B (without Tdelay)	IO
05683	87 Diff. Prot	87-1 Phase C (without Tdelay)	IO
05684	87 Diff. Prot	87-2 Phase A (without Tdelay)	IO
05685	87 Diff. Prot	87-2 Phase B (without Tdelay)	IO
05686	87 Diff. Prot	87-2 Phase C (without Tdelay)	IO
05691	87 Diff. Prot	87 TRIP by 87-1	I
05692	87 Diff. Prot	87 TRIP by 87-2	I
05701	87 Diff. Prot	Diff. curr. Ph. A at trip without Tdelay	IO
05702	87 Diff. Prot	Diff. curr. Ph. B at trip without Tdelay	IO
05703	87 Diff. Prot	Diff. curr. Ph. C at trip without Tdelay	IO
05704	87 Diff. Prot	Restr.curr. Ph. A at trip without Tdelay	IO
05705	87 Diff. Prot	Restr.curr. Ph. B at trip without Tdelay	IO
05706	87 Diff. Prot	Restr.curr. Ph. C at trip without Tdelay	IO
022.2421.01	General 50/51	50(N,G)/51(N,G) O/C PICKUP	IO
022.2451.01	General 50/51	50(N,G)/51(N,G) TRIP	I
023.2501.01	50/51	>BLOCK 50/51 InRush	IO
023.2412.01	50/51	50/51 O/C is BLOCKED	IO
023.2531.01	50/51	50/51 Phase A InRush detected	IO
023.2532.01	50/51	50/51 Phase B InRush detected	IO
023.2533.01	50/51	50/51 Phase C InRush detected	IO
023.2534.01	50/51	Cross blk: PhX blocked PhY	IO
023.2422.01	50/51	50/51 Phase A picked up	IO
023.2423.01	50/51	50/51 Phase B picked up	IO



Trip log(3)

No.	Group	Information	Buffer
023.2424.01	50/51	50/51 Phase C picked up	IO
023.2526.01	50/51	50/51 Phase A InRush picked up	IO
023.2527.01	50/51	50/51 Phase B InRush picked up	IO
023.2528.01	50/51	50/51 Phase C InRush picked up	IO
023.2514.01	50/51	50-2 BLOCKED	IO
023.2521.01	50/51	50-2 picked up	IO
023.2551.01	50/51	50-2 TRIP	I
023.2515.01	50/51	50-1 BLOCKED	IO
023.2522.01	50/51	50-1 picked up	IO
023.2524.01	50/51	50-1 InRush picked up	IO
023.2552.01	50/51	50-1 TRIP	I
023.2516.01	50/51	51 BLOCKED	IO
023.2523.01	50/51	51 picked up	IO
023.2525.01	50/51	51 InRush picked up	IO
023.2553.01	50/51	51 TRIP	I
191.2501.01	50N/51N	>BLOCK 50/51N InRush	IO
191.2412.01	50N/51N	50N/51N is BLOCKED	IO
191.2425.01	50N/51N	50N/51N picked up	IO
191.2529.01	50N/51N	50N/51N InRush picked up	IO
191.2514.01	50N/51N	50N-2 BLOCKED	IO
191.2521.01	50N/51N	50N-2 picked up	IO
191.2551.01	50N/51N	50N-2 TRIP	I
191.2515.01	50N/51N	50N-1 BLOCKED	IO
191.2522.01	50N/51N	50N-1 picked up	IO
191.2524.01	50N/51N	50N-1 InRush picked up	IO
191.2552.01	50N/51N	50N-1 TRIP	I
191.2516.01	50N/51N	51N BLOCKED	IO
191.2523.01	50N/51N	51N picked up	IO
191.2525.01	50N/51N	51N InRush picked up	IO
191.2553.01	50N/51N	51N TRIP	I
047.2651.01	50BF BkrFailure	>50BF initiated externally	IO
047.2412.01	50BF BkrFailure	50BF is BLOCKED	IO
047.2652.01	50BF BkrFailure	50BF (internal) PICKUP	IO
047.2653.01	50BF BkrFailure	50BF (external) PICKUP	IO
047.2654.01	50BF BkrFailure	50BF-1 TRIP (local trip)	I
047.2655.01	50BF BkrFailure	50BF-2 TRIP (busbar trip)	I
06862	74TC TripCirc.	74TC Trip circuit supervision is BLOCKED	IO
	Signals	Protecc Mecanicas del Trafo	I
	Signals	CB 12kV CLOSE	IO
	Signals	TRIP 50BF LOG	I



## 3.6.4 Event value buffer

nothing allocated

## 3.7 Display

Display

No.	Group	Information	Control Display	Default Display
	Control Device	circuit breaker Q0	X	
	Control Device	circuit breaker Q0		X
	Control Device	Q1D	X	
	Control Device	Q1D		X
	Control Device	Q1E	X	
	Control Device	Q1E		X
	Control Device	Q1 OFF	X	X
00721	Measurement	Operat. meas. current A side 1	X	X
00722	Measurement	Operat. meas. current B side 1	X	X
00723	Measurement	Operat. meas. current C side 1	X	X
00724	Measurement	Operat. meas. current A side 2	X	X
00725	Measurement	Operat. meas. current B side 2	X	X
00726	Measurement	Operat. meas. current C side 2	X	X
00645	Measurement	S (apparent power)	X	X
00644	Measurement	Frequency	X	X
07742	Meas. Dif/Rest.	IDiff A(I/Inominal object [%])	X	X
07743	Meas. Dif/Rest.	IDiff B(I/Inominal object [%])	X	X
07744	Meas. Dif/Rest.	IDiff C(I/Inominal object [%])	X	X
07745	Meas. Dif/Rest.	IRest A(I/Inominal object [%])	X	X
07746	Meas. Dif/Rest.	IRest B(I/Inominal object [%])	X	X
07747	Meas. Dif/Rest.	IRest C(I/Inominal object [%])	X	X

## 3.8 System interface IEC 61850

System interface IEC 61850

No.	Group	Information	Type	S	D	X	IEC 61850 object
	Device, General	Reset LED	IntSP	X	X		CTRL/LLN0/LEDRs

System interface IEC 61850(2)

No.	Group	Information	Type	S	D	X	IEC 61850 object
	Device, General	Test mode	IntSP			X	PROT/LLN0/Mod PROT/LLN0/Beh PROT/LLN0/OpTmh PROT/LPHD1/Proxy PROT/PTRC1/Beh PROT/PTRC1/Tr PROT/PTRC1/Str PROT/PTOF1/Beh PROT/PTOF1/Str PROT/PTOF1/Op . . .
	Device, General	Stop data transmission	IntSP			X	PROT/LLN0/Mod PROT/LLN0/Beh PROT/PTRC1/Beh PROT/PTOF1/Beh PROT/PTUF1/Beh PROT/PTUF2/Beh PROT/PTUF3/Beh PROT/PTOC1/Beh PROT/PTOC2/Beh PROT/PTOC3/Beh . . .
00051	Device, General	Device is Operational and Protecting	OUT			X	PROT/LLN0/Health PROT/LPHD1/PhyHealth PROT/PTRC1/Health PROT/PTOF1/Health PROT/PTUF1/Health PROT/PTUF2/Health PROT/PTUF3/Health PROT/PTOC1/Health PROT/PTOC2/Health PROT/PTOC3/Health . . .
00052	Device, General	At Least 1 Protection Funct. is Active	IntSP		X	X	PROT/LLN0/Mod PROT/LLN0/Beh PROT/PTRC1/Mod PROT/PTRC1/Beh PROT/PTOF1/Beh PROT/PTUF1/Beh PROT/PTUF2/Beh . . .

System interface IEC 61850(3)

No.	Group	Information	Type	S	D	X	IEC 61850 object
00055	Device, General	Reset Device	OUT			X	PROT/LPHD1/Proxy MEAS/LLN0/Mod MEAS/LLN0/Beh MEAS/LPHD1/Proxy MEAS/MMXU1/Mod MEAS/MMXU1/Beh MEAS/MMTR1/Mod MEAS/MMTR1/Beh MEAS/MSQI1/Mod MEAS/MSQI1/Beh . . .
00056	Device, General	Initial Start of Device	OUT			X	CTRL/LPHD1/DevStr
00067	Device, General	Resume	OUT			X	CTRL/LPHD1/DevStr
00070	Device, General	Setting calculation is running	OUT			X	EXT/pdGGIO2/SPCSO6
00109	Device, General	Frequency out of range	OUT			X	PROT/PTOC1/Mod PROT/PTOC1/Beh PROT/PTOC2/Mod PROT/PTOC2/Beh PROT/PTOC3/Mod PROT/PTOC3/Beh PROT/PTOC4/Mod PROT/PTOC4/Beh PROT/PTOC5/Mod PROT/PTOC5/Beh . . .
	Device, General	Hardware Test Mode	IntSP			X	EXT/pdGGIO513/SPCSO28
30053	Osc. Fault Rec.	Fault recording is running	OUT			X	DR/SC_RDRE1/RcdMade DR/SC_RDRE1/RcdStr
00501	P.System Data 2	Relay PICKUP	OUT			X	PROT/PTRC1/Str
00511	P.System Data 2	Relay GENERAL TRIP command	OUT			X	PROT/PTRC1/Tr
05615	87 Diff. Prot	87 Differential prot. is switched OFF	OUT			X	PROT/PDIF1/Mod PROT/PDIF1/Beh PROT/PDIF2/Mod PROT/PDIF2/Beh
05616	87 Diff. Prot	87 Differential protection is BLOCKED	OUT			X	PROT/PDIF1/Mod PROT/PDIF1/Beh PROT/PDIF2/Mod PROT/PDIF2/Beh
05617	87 Diff. Prot	87 Differential protection is ACTIVE	OUT			X	PROT/PDIF1/Mod PROT/PDIF1/Beh PROT/PDIF2/Mod PROT/PDIF2/Beh
05631	87 Diff. Prot	87 Differential protection picked up	OUT			X	PROT/PDIF1/Str PROT/PDIF2/Str
05671	87 Diff. Prot	87 TRIP	OUT			X	EXT/pdGGIO89/SPCSO39
05691	87 Diff. Prot	87 TRIP by 87-1	OUT			X	PROT/PDIF1/Op



System interface IEC 61850(4)

No.	Group	Information	Type	S	D	X	IEC 61850 object
05692	87 Diff. Prot	87 TRIP by 87-2	OUT			X	PROT/PDIF2/Op
023.2411.01	50/51	50/51 O/C switched OFF	OUT			X	PROT/PTOC1/Mod PROT/PTOC1/Beh PROT/PTOC2/Mod PROT/PTOC2/Beh PROT/PTOC3/Mod PROT/PTOC3/Beh
023.2412.01	50/51	50/51 O/C is BLOCKED	OUT			X	PROT/PTOC1/Mod PROT/PTOC1/Beh PROT/PTOC2/Mod PROT/PTOC2/Beh PROT/PTOC3/Mod PROT/PTOC3/Beh
023.2413.01	50/51	50/51 O/C is ACTIVE	OUT			X	PROT/PTOC1/Mod PROT/PTOC1/Beh PROT/PTOC2/Mod PROT/PTOC2/Beh PROT/PTOC3/Mod PROT/PTOC3/Beh
023.2514.01	50/51	50-2 BLOCKED	OUT			X	PROT/PTOC2/Mod PROT/PTOC2/Beh
023.2521.01	50/51	50-2 picked up	OUT			X	PROT/PTOC2/Str
023.2551.01	50/51	50-2 TRIP	OUT			X	PROT/PTOC2/Op
023.2515.01	50/51	50-1 BLOCKED	OUT			X	PROT/PTOC1/Mod PROT/PTOC1/Beh
023.2522.01	50/51	50-1 picked up	OUT			X	PROT/PTOC1/Str
023.2552.01	50/51	50-1 TRIP	OUT			X	PROT/PTOC1/Op
023.2516.01	50/51	51 BLOCKED	OUT			X	PROT/PTOC3/Mod PROT/PTOC3/Beh
023.2523.01	50/51	51 picked up	OUT			X	PROT/PTOC3/Str
023.2553.01	50/51	51 TRIP	OUT			X	PROT/PTOC3/Op
191.2411.01	50N/51N	50N/51N is OFF	OUT			X	PROT/PTOC7/Mod PROT/PTOC7/Beh PROT/PTOC8/Mod PROT/PTOC8/Beh PROT/PTOC9/Mod PROT/PTOC9/Beh
191.2412.01	50N/51N	50N/51N is BLOCKED	OUT			X	PROT/PTOC7/Mod PROT/PTOC7/Beh PROT/PTOC8/Mod PROT/PTOC8/Beh PROT/PTOC9/Mod PROT/PTOC9/Beh
191.2413.01	50N/51N	50N/51N is ACTIVE	OUT			X	PROT/PTOC7/Mod PROT/PTOC7/Beh PROT/PTOC8/Mod PROT/PTOC8/Beh PROT/PTOC9/Mod PROT/PTOC9/Beh



System interface IEC 61850(5)

No.	Group	Information	Type	S	D	X	IEC 61850 object
191.2514.01	50N/51N	50N-2 BLOCKED	OUT		X		PROT/PTOC8/Mod PROT/PTOC8/Beh
191.2521.01	50N/51N	50N-2 picked up	OUT		X		PROT/PTOC8/Str
191.2551.01	50N/51N	50N-2 TRIP	OUT		X		PROT/PTOC8/Op
191.2515.01	50N/51N	50N-1 BLOCKED	OUT		X		PROT/PTOC7/Mod PROT/PTOC7/Beh
191.2522.01	50N/51N	50N-1 picked up	OUT		X		PROT/PTOC7/Str
191.2552.01	50N/51N	50N-1 TRIP	OUT		X		PROT/PTOC7/Op
191.2516.01	50N/51N	51N BLOCKED	OUT		X		PROT/PTOC9/Mod PROT/PTOC9/Beh
191.2523.01	50N/51N	51N picked up	OUT		X		PROT/PTOC9/Str
191.2553.01	50N/51N	51N TRIP	OUT		X		PROT/PTOC9/Op
047.2651.01	50BF BkrFailure	>50BF initiated externally	SP			X	EXT/pdGGIO32786/SPCSO2
047.2411.01	50BF BkrFailure	50BF is switched OFF	OUT		X		PROT/RBRF1/Mod PROT/RBRF1/Beh
047.2412.01	50BF BkrFailure	50BF is BLOCKED	OUT		X		PROT/RBRF1/Mod PROT/RBRF1/Beh
047.2413.01	50BF BkrFailure	50BF is ACTIVE	OUT		X		PROT/RBRF1/Mod PROT/RBRF1/Beh
047.2652.01	50BF BkrFailure	50BF (internal) PICKUP	OUT		X		PROT/RBRF1/Str
047.2653.01	50BF BkrFailure	50BF (external) PICKUP	OUT		X		PROT/RBRF1/Str
047.2654.01	50BF BkrFailure	50BF-1 TRIP (local trip)	OUT		X	X	PROT/RBRF1/OpIn EXT/pdGGIO32786/SPCSO9
047.2655.01	50BF BkrFailure	50BF-2 TRIP (busbar trip)	OUT		X	X	PROT/RBRF1/OpEx EXT/pdGGIO32786/SPCSO10
06865	74TC TripCirc.	74TC Failure Trip Circuit	OUT			X	EXT/pdGGIO108/SPCSO17
00140	Supervision	Error with a summary alarm	OUT		X		CTRL/CALH1/GrAlm
00184	Supervision	Error Board 2	OUT		X		CTRL/CALH1/ErrBoard2
00185	Supervision	Error Board 3	OUT		X		CTRL/CALH1/ErrBoard3
00188	Supervision	Error Board 6	OUT		X		CTRL/CALH1/ErrBoard6
00189	Supervision	Error Board 7	OUT		X		CTRL/CALH1/ErrBoard7
00160	Supervision	Alarm Summary Event	OUT		X		CTRL/CALH1/GrWrn
00177	Supervision	Failure: Battery empty	OUT			X	EXT/pdGGIO3/SPCSO49
00068	Supervision	Clock Synchronization Error	OUT			X	EXT/pdGGIO2/SPCSO4
00198	Supervision	Error: Communication Module B	OUT			X	EXT/pdGGIO4/SPCSO6
009.0100.01	EN100-Modul 1	Failure EN100 Modul	IntSP			X	EXT/pdGGIO32768/SPCSO1
009.0101.01	EN100-Modul 1	Failure EN100 Link Channel 1 (Ch1)	IntSP			X	EXT/pdGGIO32768/SPCSO2
009.0102.01	EN100-Modul 1	Failure EN100 Link Channel 2 (Ch2)	IntSP			X	EXT/pdGGIO32768/SPCSO3
	Cntrl Authority	Control Authority	DP		X		CTRL/LLN0/Loc
	Cntrl Authority	Local	SP		X		CTRL/ALARMAGGIO1/SPCSO3
	Cntrl Authority	Remote	SP		X		CTRL/ALARMAGGIO1/SPCSO4
	Control Device	circuit breaker Q0	CF_D12	X			CTRL/Q0XCBR1 CTRL/Q0CSWI1 Circuit breaker Q0 OpCnt=



System interface IEC 61850(6)

No.	Group	Information	Type	S	D	X	IEC 61850 object
	Control Device	circuit breaker Q0	DP		X		CTRL/Q0XCBR1 CTRL/Q0CSWI1 Circuit breaker Q0 OpCnt=
	Control Device	Q1D	CF_D2	X			CTRL/DescXSWI1 CTRL/DescCSWI1 Disconnecter Q0 OpCnt=
	Control Device	Q1D	DP_I		X		CTRL/DescXSWI1 CTRL/DescCSWI1 Disconnecter Q0 OpCnt=
	Control Device	Q1E	CF_D2	X			CTRL/DescXSWI2 CTRL/DescCSWI2 Disconnecter Q0 OpCnt=
	Control Device	Q1E	DP_I		X		CTRL/DescXSWI2 CTRL/DescCSWI2 Disconnecter Q0 OpCnt=
	Control Device	CB 110kv	CF_D2	X			CTRL/L110XCBR1 CTRL/L110CSWI1 Circuit breaker # TRIPs=
	Control Device	CB 110kv	DP_I		X		CTRL/L110XCBR1 CTRL/L110CSWI1 Circuit breaker # TRIPs=
	Signals	OP MECH CH	SP		X		CTRL/ALARMAGGIO1/SPCSO1
	Signals	SF6 Alarm	SP		X		CTRL/ALARMAGGIO1/SPCSO2
	Signals	MCB TRIP	SP		X		CTRL/ALARMAGGIO1/SPCSO11
	Signals	S25	SP		X		CTRL/ALARMAGGIO1/SPCSO5
	Signals	86T	SP		X		CTRL/ALARMAGGIO1/SPCSO10
	Signals	Protecc Mecanicas del Trafo	SP		X		CTRL/ALARMAGGIO1/SPCSO6
	Signals	Alarmas Trafo	SP		X		CTRL/ALARMAGGIO1/SPCSO7
	Signals	Reset 86T	IntSP		X		CTRL/ALARMAGGIO1/SPCSO9
	Signals	Permisivo cierre INT 110 kV	SP		X		CTRL/INTERRGGIO1/SPCSO2
	Signals	Permisivo cierre INT 12 kV	SP		X		CTRL/INTERRGGIO1/SPCSO3
	Signals	Alarma Interruptor 110 kv	SP		X		CTRL/ALARMAGGIO1/SPCSO8
	Signals	TRIP 50BF LOG	OUT		X		CTRL/ALARMAGGIO1/SPCSO12
	Signals	Alarma Alta Temperatura Trafo	SP		X		CTRL/ALARMAGGIO1/SPCSO13
30661	Measurement	Operat. meas. current A meas. loc. 1	MV		X		MEAS/M1_MMXU1/A
30662	Measurement	Operat. meas. current B meas. loc. 1	MV		X		MEAS/M1_MMXU1/A
30663	Measurement	Operat. meas. current C meas. loc. 1	MV		X		MEAS/M1_MMXU1/A
30664	Measurement	3I0 (zero sequence) of meas. loc. 1	MV		X		MEAS/M1_MSQI1/SeqA
30665	Measurement	I1 (positive sequence) of meas. loc. 1	MV		X		MEAS/M1_MSQI1/SeqA
30666	Measurement	I2 (negative sequence) of meas. loc. 1	MV		X		MEAS/M1_MSQI1/SeqA





System interface IEC 61850(7)

No.	Group	Information	Type	S	D	X	IEC 61850 object
30667	Measurement	Operat. meas. current A meas. loc. 2	MV			X	MEAS/M2_MMXU1/A
30668	Measurement	Operat. meas. current B meas. loc. 2	MV			X	MEAS/M2_MMXU1/A
30669	Measurement	Operat. meas. current C meas. loc. 2	MV			X	MEAS/M2_MMXU1/A
30670	Measurement	3I0 (zero sequence) of meas. loc. 2	MV			X	MEAS/M2_MSQI1/SeqA
30671	Measurement	I1 (positive sequence) of meas. loc. 2	MV			X	MEAS/M2_MSQI1/SeqA
30672	Measurement	I2 (negative sequence) of meas. loc. 2	MV			X	MEAS/M2_MSQI1/SeqA
00645	Measurement	S (apparent power)	MV			X	MEAS/MMXU1/TotVA
00644	Measurement	Frequency	MV			X	MEAS/MMXU1/Hz
	Measurement	Voltaje de Barra	MVU	X			MEAS/voltGGIO1/AnIn1
07742	Meas. Dif/Rest.	IDiff A(I/Inominal object [%])	MV			X	PROT/PDIF1/DifAClc PROT/PDIF3/DifAClc
07743	Meas. Dif/Rest.	IDiff B(I/Inominal object [%])	MV			X	PROT/PDIF1/DifAClc
07744	Meas. Dif/Rest.	IDiff C(I/Inominal object [%])	MV			X	PROT/PDIF1/DifAClc
07745	Meas. Dif/Rest.	IRest A(I/Inominal object [%])	MV			X	PROT/PDIF1/RstA
07746	Meas. Dif/Rest.	IRest B(I/Inominal object [%])	MV			X	PROT/PDIF1/RstA
07747	Meas. Dif/Rest.	IRest C(I/Inominal object [%])	MV			X	PROT/PDIF1/RstA
00888	Energy	Pulsed Energy Wp (active)	PMV			X	EXT/pdGGIO111/ISCSO8
00889	Energy	Pulsed Energy Wq (reactive)	PMV			X	EXT/pdGGIO112/ISCSO1
01020	Statistics	Counter of operating hours	VI			X	PROT/LLN0/OpTmh CTRL/LLN0/OpTmh EXT/LLN0/OpTmh

## 4 Interfaces

### 4.1 Serial interface on PC:

Address (operator interface device): 0  
Frame:  
Baud rate: 0  
COM interface: 6  
Frame, Baud Rate and Address settings:

### 4.2 VD addresses

DIGSI VD address: 3  
SIPROTEC VD address: 10001  
Proxy VD address: 4  
SIPROTEC T103 VD address: 0

### 4.3 Operator Interface

Address: 1  
Frame: 8 E(ven) 1  
Baud rate: 115200  
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 (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: Reading



## 4.5 Ethernet on device

IP address:	172.16.200.29
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 (http):	ON
Web server (https):	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:	10.0.2.15
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
5	Password for single parameters	Enabled
6	Password for hardware test menus	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 General Device Settings

### 6.1 Group Device, General Settings; Group General

*Group Device, General Settings; Group General*

No.	Settings	Value	Group
0201	Fault Display on LED / LCD	Display Targets on every Pickup	All
0202	Spontaneous display of flt.annunciations	NO	All

## 7 Power System Data 1

### 7.1 Group Power System Data 1; Group CT-Numbers

*Group Power System Data 1; Group CT-Numbers*

No.	Settings	Value	Group
0211	Number of connected Measuring Locations	2	All
0212	Number of assigned Measuring Locations	2	All
0213	Number of Sides	2	All

### 7.2 Group Power System Data 1; Group CT-Assign

*Group Power System Data 1; Group CT-Assign*

No.	Settings	Value	Group
0220	Assignment at 2 assig.Meas.Loc./ 2 Sides	S1:M1, S2:M2	All
0251	Auxiliary CT IX1 is used as	Not connected	All
0252	Auxiliary CT IX2 is used as	Not connected	All
0253	Auxiliary CT IX3 is used as	Not connected	All
0255	Type of auxiliary CT IX3	1A/5A current input	All

### 7.3 Group Power System Data 1; Group Power System

*Group Power System Data 1; Group Power System*

No.	Settings	Value	Group
0270	Rated Frequency	50 Hz	All
0271	Phase Sequence	A B C	All
0276	Unit of temperature measurement	Degree Celsius	All

## 7.4 Group Power System Data 1; Group Transf.

*Group Power System Data 1; Group Transf.*

No.	Settings	Value	Group
0311	Rated Primary Voltage Side 1	12,0 kV	All
0312	Rated Apparent Power of Transf. Side 1	30,00 MVA	All
0313	Starpoint of Side 1 is	Isolated	All
0314	Transf. Winding Connection Side 1	D (Delta)	All
0321	Rated Primary Voltage Side 2	110,0 kV	All
0322	Rated Apparent Power of Transf. Side 2	30,00 MVA	All
0323	Starpoint of Side 2 is	Grounded	All
0324	Transf. Winding Connection Side 2	Y (Wye)	All
0325	Vector Group Numeral of Side 2	1	All

## 7.5 Group Power System Data 1; Group Funct.

*Group Power System Data 1; Group Funct.*

No.	Settings	Value	Group
0420	50/51 assigned to	Measuring location 2	All
0422	50N/51N assigned to	Measuring location 2	All
0470	50BF Breaker Failure Prot. assigned to	Measuring location 1	All

## 7.6 Group Power System Data 1; Group CT's

*Group Power System Data 1; Group CT's*

No.	Settings	Value	Group
0511	CT-Strpnt. Meas. Loc.1 in Dir. of Object	YES	All
0512	CT Rated Primary Current Meas. Loc. 1	1600 A	All
0513	CT Rated Secondary Current Meas. Loc. 1	1A	All
0521	CT-Strpnt. Meas. Loc.2 in Dir. of Object	YES	All
0522	CT Rated Primary Current Meas. Loc. 2	600 A	All
0523	CT Rated Secondary Current Meas. Loc. 2	5A	All

## 7.7 Group Power System Data 1; Group CB

### *Group Power System Data 1; Group CB*

No.	Settings	Value	Group
0831	Switchgear / CBaux at Side 1	Q0	All
0832	Switchgear / CBaux at Side 2	<none>	All
0836	Switchgear / CBaux at Measuring Loc. M1	<none>	All
0837	Switchgear / CBaux at Measuring Loc. M2	<none>	All
0841	Switchgear / CBaux at ext. location 1	<none>	All
0851A	Minimum TRIP Command Duration	0,15 sec	All

## 8 Oscillographic Fault Records

### 8.1 Group Oscillographic Fault Records; Group Osc. Fault Rec.

*Group Oscillographic Fault Records; Group Osc. Fault Rec.*

No.	Settings	Value	Group
0901	Waveform Capture	Save with Pickup	All
0903	Max. length of a Waveform Capture Record	1,00 sec	All
0904	Captured Waveform Prior to Trigger	0,20 sec	All
0905	Captured Waveform after Event	0,10 sec	All
0906	Capture Time via Binary Input	0,50 sec	All

## 9 Settings groups

### 9.1 Group Power System Data 2; Group PoleOpen Detect

*Group Power System Data 2; Group PoleOpen Detect*

No.	Settings	Value	Group
1111	Pole Open Current Threshold Side 1	0,40 I/InS	A
1112	Pole Open Current Threshold Side 2	0,40 I/InS	A
1121	Pole Open Current Threshold Meas.Loc. M1	320 A	A
1122	Pole Open Current Threshold Meas.Loc. M2	24 A	A

### 9.2 Group 87 Differential Protection; Group General

*Group 87 Differential Protection; Group General*

No.	Settings	Value	Group
1201	87 Differential Protection	ON	A
1205	87 Increase of Trip Char. During Start	OFF	A
1206	87 Inrush with 2. Harmonic Restraint	ON	A
1207	87 n-th Harmonic Restraint	5. Harmonic	A

### 9.3 Group 87 Differential Protection; Group I-Diff

*Group 87 Differential Protection; Group I-Diff*

No.	Settings	Value	Group
1221	87-1 Pickup Value of Differential Curr.	0,30 I/InO	A
1226A	87-1 T I-DIFF> Time Delay	0,00 sec	A
1231	87-2 Pickup Value of High Set Trip	12,0 I/InO	A
1236A	87-2 T I-DIFF>> Time Delay	0,00 sec	A



## 9.4 Group 87 Differential Protection; Group Characteristic

*Group 87 Differential Protection; Group Characteristic*

No.	Settings	Value	Group
1241A	87 Slope 1 of Tripping Characteristic	0,40	A
1242A	87 Base Point for Slope 1 of Charac.	0,00 I/InO	A
1243A	87 Slope 2 of Tripping Characteristic	0,80	A
1244A	87 Base Point for Slope 2 of Charac.	2,50 I/InO	A
1251A	87 I-RESTRAINT for Start Detection	0,10 I/InO	A
1252A	87 Factor for Increas. of Char. at Start	1,0	A
1253	87 Maximum Permissible Starting Time	5,0 sec	A
1261A	87 Pickup for Add-on Stabilization	4,00 I/InO	A
1262A	87 Duration of Add-on Stabilization	15 Cycle	A
1263A	87 Time for Cross-block Add-on Stabiliz.	15 Cycle	A

## 9.5 Group 87 Differential Protection; Group Inrush 2.HM

*Group 87 Differential Protection; Group Inrush 2.HM*

No.	Settings	Value	Group
1271	87 2nd Harmonic Content in I-DIFF	20 %	A
1272A	87 Time for Cross-blocking 2nd Harm.	3 Cycle	A

## 9.6 Group 87 Differential Protection; Group Restr. n.HM

*Group 87 Differential Protection; Group Restr. n.HM*

No.	Settings	Value	Group
1276	87 n-th Harmonic Content in I-DIFF	30 %	A
1277A	87 Time for Cross-blocking n-th Harm.	0 Cycle	A
1278A	87 Limit IDIFFmax of n-th Harm.Restrict.	1,5 I/InO	A

## 9.7 Group 50/51; Group General

*Group 50/51; Group General*

No.	Settings	Value	Group
2001	50, 51 Phase Time Overcurrent	ON	A
2002	50/51 InRush Restrained	ON	A
2008A	50/51 Manual Close Mode	50-2 instantaneously	A

## 9.8 Group 50/51; Group 50

*Group 50/51; Group 50*

No.	Settings	Value	Group
2011	50-2 Pickup	oo A	A
2013	50-2 Time Delay	oo sec	A
2014	50-1 Pickup	1320 A	A
2016	50-1 Time Delay	0,00 sec	A

## 9.9 Group 50/51; Group 51

*Group 50/51; Group 51*

No.	Settings	Value	Group
2021	51 Pickup	230 A	A
2023	51 Time Dial	0,32 sec	A
2025	51 Drop-out Characteristic	Instantaneous	A
2026	51 IEC Curve	Normal Inverse	A

## 9.10 Group 50/51; Group Inrush

*Group 50/51; Group Inrush*

No.	Settings	Value	Group
2041	50/51 2nd harmonic in % of fundamental	20 %	A
2042	50/51 Maximum Current for Inr. Rest.	4500 A	A
2044	50/51 CROSS BLOCK	NO	A
2045	50/51 CROSS BLOCK Time	0,00 sec	A

## 9.11 Group 50N/51N; Group General

*Group 50N/51N; Group General*

No.	Settings	Value	Group
2201	50N, 51N Neutral Time Overcurrent	ON	A
2202	50/51N InRush Restrained	ON	A
2208A	50/51N Manual Close Mode	50N-2 instantaneously	A

## 9.12 Group 50N/51N; Group 50N

*Group 50N/51N; Group 50N*

No.	Settings	Value	Group
2211	50N-2 Pickup	oo A	A
2213	50N-2 Time Delay	oo sec	A
2214	50N-1 Pickup	oo A	A
2216	50N-1 Time Delay	oo sec	A

## 9.13 Group 50N/51N; Group 51N

*Group 50N/51N; Group 51N*

No.	Settings	Value	Group
2221	51N Pickup	50 A	A
2223	51N Time Dial	0,41 sec	A
2225	51N Drop-out Characteristic	Instantaneous	A
2226	51N IEC Curve	Normal Inverse	A

## 9.14 Group 50N/51N; Group Inrush

*Group 50N/51N; Group Inrush*

No.	Settings	Value	Group
2241	50/51N 2nd harmonic in % of fundamental	20 %	A



*Group 50N/51N; Group Inrush(2)*

No.	Settings	Value	Group
2242	50/51N Maximum Current for Inr. Rest.	4500 A	A

## 9.15 Group 50BF Breaker Failure; Group General

*Group 50BF Breaker Failure; Group General*

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

## 9.16 Group 50BF Breaker Failure; Group 50BF

*Group 50BF Breaker Failure; Group 50BF*

No.	Settings	Value	Group
7012	50BF Start with Relay (intern)	0	A
7015	50BF Time Delay of 1st stage-local trip	oo sec	A
7016	50BF Time Delay of 2nd stage-busbar trip	0,20 sec	A

## 9.17 Group Measurement Supervision; Group General

*Group Measurement Supervision; Group General*

No.	Settings	Value	Group
8101	Current Balance Supervision	OFF	A
8105	Current Phase Rotation Supervision	OFF	A

## 9.18 Group Measurement Supervision; Group Balance I M1

*Group Measurement Supervision; Group Balance I M1*

No.	Settings	Value	Group
8111	Current Balance Monitor Meas. Loc. 1	800 A	A
8112	Bal. Factor for Curr. Monitor Meas.Loc.1	0,50	A



*Group Measurement Supervision; Group Balance I M1(2)*

No.	Settings	Value	Group
8113A	Symmetry Iph: Pick-up delay	5 sec	A

## 9.19 Group Measurement Supervision; Group Balance I M2

*Group Measurement Supervision; Group Balance I M2*

No.	Settings	Value	Group
8121	Current Balance Monitor Meas. Loc. 2	60 A	A
8122	Bal. Factor for Curr. Monitor Meas.Loc.2	0,50	A
8123A	Symmetry Iph: Pick-up delay	5 sec	A

## 9.20 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

## 9.21 Group Supervision; Group General

*Group Supervision; Group General*

No.	Settings	Value	Group
8401	Fast Broken Current-wire Supervision	OFF	A
8414	Delay time for BWD supervision	1,0 sec	A
8415	min differential current for BWD	1,00 I/InO	A

## 9.22 Group Measurement; Group Measurement

*Group Measurement; Group Measurement*

No.	Settings	Value	Group
7601	Calculation of Power	with V measur.	A

## 9.23 Group Demand Measurement Setup; Group Measurement

*Group Demand Measurement Setup; Group Measurement*

No.	Settings	Value	Group
7611	Demand Calculation Intervals	60 Min per., 1 Sub.	A
7612	Demand Synchronization Time	On the Hour	A

## 9.24 Group Min/Max Measurement Setup; Group Measurement

*Group Min/Max Measurement Setup; Group Measurement*

No.	Settings	Value	Group
7621	Automatic Cyclic Reset Function	YES	A
7622	MinMax Reset Timer	0 min	A
7623	MinMax Reset Cycle Period	7 day(s)	A
7624	MinMax Start Reset Cycle in	1 Days	A

## 10 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 summer time switchover

Summer time offset to GMT: -04:00

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

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

Time zone offset to GMT: 00:00

## 11 Annunciation

### 11.1 Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)

Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)

Number	Indication	Value	Date and time	Cause	State
00301	Power System fault	3 - OFF	02.04.2021 03:15:52.950	Spontaneous Com.Issued=AutoLocal	
00301	Power System fault	3 - ON	02.04.2021 03:15:52.822	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.03.2021 15:10:27.812	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.03.2021 15:10:25.912	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	30.03.2021 15:10:24.812	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	30.03.2021 15:10:23.013	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.03.2021 04:43:26.612	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.03.2021 04:43:24.912	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.03.2021 04:43:20.112	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.03.2021 04:43:18.412	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	OFF	22.03.2021 22:59:40.186	Spontaneous Com.Issued=AutoLocal	
00068	Clock Synchronization Error	OFF	22.03.2021 22:59:39.969	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	22.03.2021 22:59:30.215	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	22.03.2021 22:59:30.215	Spontaneous Com.Issued=AutoLocal	
06863	74TC Trip circuit supervision is ACTIVE	ON	22.03.2021 22:59:28.345	Spontaneous Com.Issued=AutoLocal	
00051	Device is Operational and Protecting	ON	22.03.2021 22:59:27.993	Spontaneous Com.Issued=AutoLocal	
00052	At Least 1 Protection Funct. is Active	ON	22.03.2021 22:59:27.943	Spontaneous Com.Issued=AutoLocal	
047.2413.01	50BF is ACTIVE	ON	22.03.2021 22:59:27.943	Spontaneous Com.Issued=AutoLocal	
191.2413.01	50N/51N is ACTIVE	ON	22.03.2021 22:59:27.943	Spontaneous Com.Issued=AutoLocal	
023.2413.01	50/51 O/C is ACTIVE	ON	22.03.2021 22:59:27.943	Spontaneous Com.Issued=AutoLocal	
05617	87 Differential protection is ACTIVE	ON	22.03.2021 22:59:27.943	Spontaneous Com.Issued=AutoLocal	





Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(2)

Number	Indication	Value	Date and time	Cause	State
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	22.03.2021 22:59:27.915	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	22.03.2021 22:59:27.915	Spontaneous Com.Issued=AutoLocal	
30054	Broken wire is switched OFF	ON	22.03.2021 22:59:27.892	Spontaneous Com.Issued=AutoLocal	
05734	87 Adaption factor CT M2	3,811	22.03.2021 22:59:27.891	Spontaneous Com.Issued=AutoLocal	
05733	87 Adaption factor CT M1	1,109	22.03.2021 22:59:27.891	Spontaneous Com.Issued=AutoLocal	
30061	General: Adaption factor CT M2	3,811	22.03.2021 22:59:27.891	Spontaneous Com.Issued=AutoLocal	
30060	General: Adaption factor CT M1	1,109	22.03.2021 22:59:27.891	Spontaneous Com.Issued=AutoLocal	
	PERM12k	ON	22.03.2021 22:59:27.796	Spontaneous Com.Issued=AutoLocal	
	BLoqueo INT 110 kV	ON	22.03.2021 22:59:27.796	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 110 kV	ON	22.03.2021 22:59:27.795	Spontaneous Com.Issued=AutoLocal	
	CB REL	ON	22.03.2021 22:59:27.795	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 12 kV	ON	22.03.2021 22:59:27.795	Spontaneous Com.Issued=AutoLocal	
05147	Phase rotation ABC	ON	22.03.2021 22:59:27.726	Spontaneous Com.Issued=AutoLocal	
	CB 12kV CLOSE	ON	22.03.2021 22:59:27.725	Spontaneous	
	Q1D CL	ON	22.03.2021 22:59:27.725	Spontaneous	
	S25	ON	22.03.2021 22:59:27.725	Spontaneous	
	Remote	ON	22.03.2021 22:59:27.725	Spontaneous	
	OP MECH CH	ON	22.03.2021 22:59:27.725	Spontaneous	
06852	>74TC Trip circuit superv.: trip relay	ON	22.03.2021 22:59:27.725	Spontaneous	
00067	Resume	ON	22.03.2021 22:59:27.678	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	ON	22.03.2021 22:59:27.723	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.03.2021 12:43:43.557	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.03.2021 12:43:41.856	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.03.2021 12:43:37.056	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	19.03.2021 12:43:35.256	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	16.03.2021 09:20:37.456	Spontaneous Com.Issued=AutoLocal	



Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(3)

Number	Indication	Value	Date and time	Cause	State
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	16.03.2021 09:20:35.657	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	16.03.2021 09:20:34.456	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	16.03.2021 09:20:32.656	Spontaneous Com.Issued=AutoLocal	
00301	Power System fault	2 - OFF	15.03.2021 06:01:46.141	Spontaneous Com.Issued=AutoLocal	
00301	Power System fault	2 - ON	15.03.2021 06:01:46.071	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	11.03.2021 01:41:43.156	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	11.03.2021 01:41:41.356	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	11.03.2021 01:41:40.056	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	11.03.2021 01:41:38.356	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	06.03.2021 15:47:01.956	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	06.03.2021 15:47:00.256	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	06.03.2021 15:46:58.956	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	06.03.2021 15:46:57.356	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	OFF	05.03.2021 23:49:13.435	Spontaneous Com.Issued=AutoLocal	
00068	Clock Synchronization Error	OFF	05.03.2021 23:49:13.315	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	05.03.2021 23:49:00.034	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	05.03.2021 23:49:00.034	Spontaneous Com.Issued=AutoLocal	
06863	74TC Trip circuit supervision is ACTIVE	ON	05.03.2021 23:48:58.159	Spontaneous Com.Issued=AutoLocal	
00051	Device is Operational and Protecting	ON	05.03.2021 23:48:57.813	Spontaneous Com.Issued=AutoLocal	
00052	At Least 1 Protection Funct. is Active	ON	05.03.2021 23:48:57.756	Spontaneous Com.Issued=AutoLocal	
047.2413.01	50BF is ACTIVE	ON	05.03.2021 23:48:57.756	Spontaneous Com.Issued=AutoLocal	
191.2413.01	50N/51N is ACTIVE	ON	05.03.2021 23:48:57.756	Spontaneous Com.Issued=AutoLocal	
023.2413.01	50/51 O/C is ACTIVE	ON	05.03.2021 23:48:57.756	Spontaneous Com.Issued=AutoLocal	



Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(4)

Number	Indication	Value	Date and time	Cause	State
05617	87 Differential protection is ACTIVE	ON	05.03.2021 23:48:57.756	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	05.03.2021 23:48:57.734	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	05.03.2021 23:48:57.734	Spontaneous Com.Issued=AutoLocal	
30054	Broken wire is switched OFF	ON	05.03.2021 23:48:57.712	Spontaneous Com.Issued=AutoLocal	
05734	87 Adaption factor CT M2	3,811	05.03.2021 23:48:57.711	Spontaneous Com.Issued=AutoLocal	
05733	87 Adaption factor CT M1	1,109	05.03.2021 23:48:57.711	Spontaneous Com.Issued=AutoLocal	
30061	General: Adaption factor CT M2	3,811	05.03.2021 23:48:57.711	Spontaneous Com.Issued=AutoLocal	
30060	General: Adaption factor CT M1	1,109	05.03.2021 23:48:57.711	Spontaneous Com.Issued=AutoLocal	
	PERM12k	ON	05.03.2021 23:48:57.616	Spontaneous Com.Issued=AutoLocal	
	BLoqueo INT 110 kV	ON	05.03.2021 23:48:57.616	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 110 kV	ON	05.03.2021 23:48:57.615	Spontaneous Com.Issued=AutoLocal	
	CB REL	ON	05.03.2021 23:48:57.615	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 12 kV	ON	05.03.2021 23:48:57.615	Spontaneous Com.Issued=AutoLocal	
05147	Phase rotation ABC	ON	05.03.2021 23:48:57.546	Spontaneous Com.Issued=AutoLocal	
	CB 12kV CLOSE	ON	05.03.2021 23:48:57.545	Spontaneous	
	Q1D CL	ON	05.03.2021 23:48:57.545	Spontaneous	
	S25	ON	05.03.2021 23:48:57.545	Spontaneous	
	Remote	ON	05.03.2021 23:48:57.545	Spontaneous	
	OP MECH CH	ON	05.03.2021 23:48:57.545	Spontaneous	
06852	>74TC Trip circuit superv.: trip relay	ON	05.03.2021 23:48:57.545	Spontaneous	
00067	Resume	ON	05.03.2021 23:48:57.498	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	ON	05.03.2021 23:48:57.543	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	02.03.2021 16:31:15.637	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	02.03.2021 16:31:13.837	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	02.03.2021 16:31:12.737	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	02.03.2021 16:31:11.037	Spontaneous Com.Issued=AutoLocal	



Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(5)

Number	Indication	Value	Date and time	Cause	State
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.02.2021 00:23:19.737	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.02.2021 00:23:18.037	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	28.02.2021 00:23:13.237	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	28.02.2021 00:23:11.537	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	OFF	24.02.2021 19:33:29.611	Spontaneous Com.Issued=AutoLocal	
00068	Clock Synchronization Error	OFF	24.02.2021 19:33:29.394	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	24.02.2021 19:33:12.034	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	24.02.2021 19:33:12.034	Spontaneous Com.Issued=AutoLocal	
06863	74TC Trip circuit supervision is ACTIVE	ON	24.02.2021 19:33:10.164	Spontaneous Com.Issued=AutoLocal	
00051	Device is Operational and Protecting	ON	24.02.2021 19:33:09.814	Spontaneous Com.Issued=AutoLocal	
00052	At Least 1 Protection Funct. is Active	ON	24.02.2021 19:33:09.761	Spontaneous Com.Issued=AutoLocal	
047.2413.01	50BF is ACTIVE	ON	24.02.2021 19:33:09.761	Spontaneous Com.Issued=AutoLocal	
191.2413.01	50N/51N is ACTIVE	ON	24.02.2021 19:33:09.761	Spontaneous Com.Issued=AutoLocal	
023.2413.01	50/51 O/C is ACTIVE	ON	24.02.2021 19:33:09.761	Spontaneous Com.Issued=AutoLocal	
05617	87 Differential protection is ACTIVE	ON	24.02.2021 19:33:09.761	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	24.02.2021 19:33:09.734	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	24.02.2021 19:33:09.734	Spontaneous Com.Issued=AutoLocal	
30054	Broken wire is switched OFF	ON	24.02.2021 19:33:09.712	Spontaneous Com.Issued=AutoLocal	
05734	87 Adaption factor CT M2	3,811	24.02.2021 19:33:09.711	Spontaneous Com.Issued=AutoLocal	
05733	87 Adaption factor CT M1	1,109	24.02.2021 19:33:09.711	Spontaneous Com.Issued=AutoLocal	
30061	General: Adaption factor CT M2	3,811	24.02.2021 19:33:09.711	Spontaneous Com.Issued=AutoLocal	
30060	General: Adaption factor CT M1	1,109	24.02.2021 19:33:09.711	Spontaneous Com.Issued=AutoLocal	
	PERM12k	ON	24.02.2021 19:33:09.616	Spontaneous Com.Issued=AutoLocal	





Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(6)

Number	Indication	Value	Date and time	Cause	State
	BLoqueo INT 110 kV	ON	24.02.2021 19:33:09.616	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 110 kV	ON	24.02.2021 19:33:09.615	Spontaneous Com.Issued=AutoLocal	
	CB REL	ON	24.02.2021 19:33:09.615	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 12 kV	ON	24.02.2021 19:33:09.615	Spontaneous Com.Issued=AutoLocal	
05147	Phase rotation ABC	ON	24.02.2021 19:33:09.546	Spontaneous Com.Issued=AutoLocal	
	CB 12kV CLOSE	ON	24.02.2021 19:33:09.545	Spontaneous	
	Q1D CL	ON	24.02.2021 19:33:09.545	Spontaneous	
	S25	ON	24.02.2021 19:33:09.545	Spontaneous	
	Remote	ON	24.02.2021 19:33:09.545	Spontaneous	
	OP MECH CH	ON	24.02.2021 19:33:09.545	Spontaneous	
06852	>74TC Trip circuit superv.: trip relay	ON	24.02.2021 19:33:09.545	Spontaneous	
00067	Resume	ON	24.02.2021 19:33:09.499	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	ON	24.02.2021 19:33:09.543	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	OFF	24.02.2021 11:21:14.597	Spontaneous Com.Issued=AutoLocal	
00068	Clock Synchronization Error	OFF	24.02.2021 11:21:14.479	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	24.02.2021 11:20:57.035	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	24.02.2021 11:20:57.035	Spontaneous Com.Issued=AutoLocal	
06863	74TC Trip circuit supervision is ACTIVE	ON	24.02.2021 11:20:55.155	Spontaneous Com.Issued=AutoLocal	
00051	Device is Operational and Protecting	ON	24.02.2021 11:20:54.815	Spontaneous Com.Issued=AutoLocal	
00052	At Least 1 Protection Funct. is Active	ON	24.02.2021 11:20:54.753	Spontaneous Com.Issued=AutoLocal	
047.2413.01	50BF is ACTIVE	ON	24.02.2021 11:20:54.753	Spontaneous Com.Issued=AutoLocal	
191.2413.01	50N/51N is ACTIVE	ON	24.02.2021 11:20:54.753	Spontaneous Com.Issued=AutoLocal	
023.2413.01	50/51 O/C is ACTIVE	ON	24.02.2021 11:20:54.753	Spontaneous Com.Issued=AutoLocal	
05617	87 Differential protection is ACTIVE	ON	24.02.2021 11:20:54.753	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	24.02.2021 11:20:54.735	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	24.02.2021 11:20:54.735	Spontaneous Com.Issued=AutoLocal	



Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(7)

Number	Indication	Value	Date and time	Cause	State
30054	Broken wire is switched OFF	ON	24.02.2021 11:20:54.712	Spontaneous Com.Issued=AutoLocal	
05734	87 Adaption factor CT M2	3,811	24.02.2021 11:20:54.711	Spontaneous Com.Issued=AutoLocal	
05733	87 Adaption factor CT M1	1,109	24.02.2021 11:20:54.711	Spontaneous Com.Issued=AutoLocal	
30061	General: Adaption factor CT M2	3,811	24.02.2021 11:20:54.711	Spontaneous Com.Issued=AutoLocal	
30060	General: Adaption factor CT M1	1,109	24.02.2021 11:20:54.711	Spontaneous Com.Issued=AutoLocal	
	PERM12k	ON	24.02.2021 11:20:54.616	Spontaneous Com.Issued=AutoLocal	
	BLoqueo INT 110 kV	ON	24.02.2021 11:20:54.616	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 110 kV	ON	24.02.2021 11:20:54.615	Spontaneous Com.Issued=AutoLocal	
	CB REL	ON	24.02.2021 11:20:54.615	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 12 kV	ON	24.02.2021 11:20:54.615	Spontaneous Com.Issued=AutoLocal	
05147	Phase rotation ABC	ON	24.02.2021 11:20:54.546	Spontaneous Com.Issued=AutoLocal	
	CB 12kV CLOSE	ON	24.02.2021 11:20:54.545	Spontaneous	
	Q1D CL	ON	24.02.2021 11:20:54.545	Spontaneous	
	S25	ON	24.02.2021 11:20:54.545	Spontaneous	
	Remote	ON	24.02.2021 11:20:54.545	Spontaneous	
	OP MECH CH	ON	24.02.2021 11:20:54.545	Spontaneous	
06852	>74TC Trip circuit superv.: trip relay	ON	24.02.2021 11:20:54.545	Spontaneous	
00067	Resume	ON	24.02.2021 11:20:54.499	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	ON	24.02.2021 11:20:54.543	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	OFF	23.02.2021 06:20:02.570	Spontaneous Com.Issued=AutoLocal	
00068	Clock Synchronization Error	OFF	23.02.2021 06:20:02.459	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	23.02.2021 06:19:46.215	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	23.02.2021 06:19:46.215	Spontaneous Com.Issued=AutoLocal	
06863	74TC Trip circuit supervision is ACTIVE	ON	23.02.2021 06:19:44.340	Spontaneous Com.Issued=AutoLocal	
00051	Device is Operational and Protecting	ON	23.02.2021 06:19:43.994	Spontaneous Com.Issued=AutoLocal	
00052	At Least 1 Protection Funct. is Active	ON	23.02.2021 06:19:43.936	Spontaneous Com.Issued=AutoLocal	



Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(8)

Number	Indication	Value	Date and time	Cause	State
047.2413.01	50BF is ACTIVE	ON	23.02.2021 06:19:43.936	Spontaneous Com.Issued=AutoLocal	
191.2413.01	50N/51N is ACTIVE	ON	23.02.2021 06:19:43.936	Spontaneous Com.Issued=AutoLocal	
023.2413.01	50/51 O/C is ACTIVE	ON	23.02.2021 06:19:43.936	Spontaneous Com.Issued=AutoLocal	
05617	87 Differential protection is ACTIVE	ON	23.02.2021 06:19:43.936	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	ON	23.02.2021 06:19:43.915	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	ON	23.02.2021 06:19:43.915	Spontaneous Com.Issued=AutoLocal	
30054	Broken wire is switched OFF	ON	23.02.2021 06:19:43.892	Spontaneous Com.Issued=AutoLocal	
05734	87 Adaption factor CT M2	3,811	23.02.2021 06:19:43.891	Spontaneous Com.Issued=AutoLocal	
05733	87 Adaption factor CT M1	1,109	23.02.2021 06:19:43.891	Spontaneous Com.Issued=AutoLocal	
30061	General: Adaption factor CT M2	3,811	23.02.2021 06:19:43.891	Spontaneous Com.Issued=AutoLocal	
30060	General: Adaption factor CT M1	1,109	23.02.2021 06:19:43.891	Spontaneous Com.Issued=AutoLocal	
	PERM12k	ON	23.02.2021 06:19:43.796	Spontaneous Com.Issued=AutoLocal	
	BLoqueo INT 110 kV	ON	23.02.2021 06:19:43.796	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 110 kV	ON	23.02.2021 06:19:43.795	Spontaneous Com.Issued=AutoLocal	
	CB REL	ON	23.02.2021 06:19:43.795	Spontaneous Com.Issued=AutoLocal	
	Permisivo cierre INT 12 kV	ON	23.02.2021 06:19:43.795	Spontaneous Com.Issued=AutoLocal	
05147	Phase rotation ABC	ON	23.02.2021 06:19:43.726	Spontaneous Com.Issued=AutoLocal	
	CB 12kV CLOSE	ON	23.02.2021 06:19:43.725	Spontaneous	
	Q1D CL	ON	23.02.2021 06:19:43.725	Spontaneous	
	S25	ON	23.02.2021 06:19:43.725	Spontaneous	
	Remote	ON	23.02.2021 06:19:43.725	Spontaneous	
	OP MECH CH	ON	23.02.2021 06:19:43.725	Spontaneous	
06852	>74TC Trip circuit superv.: trip relay	ON	23.02.2021 06:19:43.725	Spontaneous	
00067	Resume	ON	23.02.2021 06:19:43.679	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	ON	23.02.2021 06:19:43.723	Spontaneous Com.Issued=AutoLocal	
009.0100.01	Failure EN100 Modul	OFF	19.02.2021 09:05:16.618	Spontaneous Com.Issued=AutoLocal	



Event Log - 03-04-2021 11:06:50.083 (SIGNALS\OPSIG.SFP)(9)

Number	Indication	Value	Date and time	Cause	State
00068	Clock Synchronization Error	OFF	19.02.2021 09:05:16.504	Spontaneous Com.Issued=AutoLocal	
009.0102.01	Failure EN100 Link Channel 2 (Ch2)	OFF	19.02.2021 09:04:59.034	Spontaneous Com.Issued=AutoLocal	
009.0101.01	Failure EN100 Link Channel 1 (Ch1)	OFF	19.02.2021 09:04:59.034	Spontaneous Com.Issued=AutoLocal	

## 11.2 Trip Log - 03-04-2021 11:06:51.055 (SIGNALS\FAULT\FAULPROT.SFP)

Trip Log - 03-04-2021 11:06:51.055 (SIGNALS\FAULT\FAULPROT.SFP)

Number	Indication	Value	Date and time	Cause	State
00301	Power System fault	3 - ON	02.04.2021 03:15:52.822		
00301	Power System fault	2 - ON	15.03.2021 06:01:46.071		
00301	Power System fault	1 - ON	18.02.2021 13:01:05.646		

## 11.3 General Interrogation - 03-04-2021 11:06:51.295

nothing allocated

## 11.4 Spontaneous Annunciation - 03-04-2021 11:06:51.295

Spontaneous Annunciation - 03-04-2021 11:06:51.295

Number	Indication	Value	Date and time	Cause	State
00055	Reset Device	ON	03.04.2021 11:05:37.157	Spontaneous	
	Clock Synchronization	ON	03.04.2021 11:06:29.407	Spontaneous Command Issued=SICAM	

## 11.5 Statistics - 03-04-2021 11:06:51.305 (MEASURED\STAT.SFP)

Statistics - 03-04-2021 11:06:51.305 (MEASURED\STAT.SFP)

Number	Measured value	Value
01020	Counter of operating hours	1054 hour
01000	Number of breaker TRIP commands	1
30763	Accumulation of interrupted curr. A M1	.....
30764	Accumulation of interrupted curr. B M1	.....
30765	Accumulation of interrupted curr. C M1	.....
30766	Accumulation of interrupted curr. A M2	.....
30767	Accumulation of interrupted curr. B M2	.....
30768	Accumulation of interrupted curr. C M2	.....
30607	Accumulation of interrupted curr. A S1	.....





Statistics - 03-04-2021 11:06:51.305 (MEASURED\STAT.SFP)(2)

Number	Measured value	Value
30608	Accumulation of interrupted curr. B S1	.....
30609	Accumulation of interrupted curr. C S1	.....
30610	Accumulation of interrupted curr. A S2	.....
30611	Accumulation of interrupted curr. B S2	.....
30612	Accumulation of interrupted curr. C S2	.....
31000	Q0 operationcounter=	15

## 11.6 Set Points (Statistic) - 03-04-2021 11:06:51.475 (MEASURED\STGR.SFP)

Set Points (Statistic) - 03-04-2021 11:06:51.475 (MEASURED\STGR.SFP)

Number	Measured value	Value
	Operating hours greater than	10000 hour

## 12 Measurement

### 12.1 Operational values, primary - 03-04-2021 11:06:51.625 (MEASURED\MW01.SFP)

*Operational values, primary - 03-04-2021 11:06:51.625 (MEASURED\MW01.SFP)*

Number	Measured value	Value
30661	Operat. meas. current A meas. loc. 1	0,62 kA
30662	Operat. meas. current B meas. loc. 1	0,62 kA
30663	Operat. meas. current C meas. loc. 1	0,62 kA
30664	3I0 (zero sequence) of meas. loc. 1	0,00 kA
30665	I1 (positive sequence) of meas. loc. 1	0,62 kA
30666	I2 (negative sequence) of meas. loc. 1	0,00 kA
30667	Operat. meas. current A meas. loc. 2	73 A
30668	Operat. meas. current B meas. loc. 2	75 A
30669	Operat. meas. current C meas. loc. 2	73 A
30670	3I0 (zero sequence) of meas. loc. 2	1 A
30671	I1 (positive sequence) of meas. loc. 2	73 A
30672	I2 (negative sequence) of meas. loc. 2	0 A
30656	Operat. meas. voltage Vmeas.	0,00 kV
00645	S (apparent power)	0,0 MVA
00644	Frequency	50,05 Hz

### 12.2 Operational current of sides, primary - 03-04-2021 11:06:51.806 (MEASURED\IS01.SFP)

*Operational current of sides, primary - 03-04-2021 11:06:51.806 (MEASURED\IS01.SFP)*

Number	Measured value	Value
00721	Operat. meas. current A side 1	0,62 kA
00722	Operat. meas. current B side 1	0,62 kA
00723	Operat. meas. current C side 1	0,62 kA
30640	3I0 (zero sequence) of side 1	0,00 kA
30641	I1 (positive sequence) of side 1	0,62 kA
30642	I2 (negative sequence) of side 1	0,00 kA
00724	Operat. meas. current A side 2	73 A
00725	Operat. meas. current B side 2	75 A
00726	Operat. meas. current C side 2	73 A
30643	3I0 (zero sequence) of side 2	1 A
30644	I1 (positive sequence) of side 2	73 A
30645	I2 (negative sequence) of side 2	0 A

## 12.3 Operational values, secondary - 03-04-2021 11:06:51.956 (MEASURED\MW02.SFP)

Operational values, secondary - 03-04-2021 11:06:51.956 (MEASURED\MW02.SFP)

Number	Measured value	Value
30661	Operat. meas. current A meas. loc. 1	0,39 A
30662	Operat. meas. current B meas. loc. 1	0,39 A
30663	Operat. meas. current C meas. loc. 1	0,38 A
30664	3I0 (zero sequence) of meas. loc. 1	0,00 A
30665	I1 (positive sequence) of meas. loc. 1	0,39 A
30666	I2 (negative sequence) of meas. loc. 1	0,00 A
30667	Operat. meas. current A meas. loc. 2	0,61 A
30668	Operat. meas. current B meas. loc. 2	0,62 A
30669	Operat. meas. current C meas. loc. 2	0,61 A
30670	3I0 (zero sequence) of meas. loc. 2	0,01 A
30671	I1 (positive sequence) of meas. loc. 2	0,61 A
30672	I2 (negative sequence) of meas. loc. 2	0,00 A
00644	Frequency	50,05 Hz

## 12.4 Angles - 03-04-2021 11:06:52.136 (MEASURED\PHAS.SFP)

Angles - 03-04-2021 11:06:52.136 (MEASURED\PHAS.SFP)

Number	Measured value	Value
30736	Phase angle in phase IA meas. loc. 1	0 °
30737	Phase angle in phase IB meas. loc. 1	240 °
30738	Phase angle in phase IC meas. loc. 1	120 °
30739	Phase angle in phase IA meas. loc. 2	150 °
30740	Phase angle in phase IB meas. loc. 2	30 °
30741	Phase angle in phase IC meas. loc. 2	270 °

## 12.5 Operational Percent - 03-04-2021 11:06:52.286 (MEASURED\MW03.SFP)

Operational Percent - 03-04-2021 11:06:52.286 (MEASURED\MW03.SFP)

Number	Measured value	Value
00721	Operat. meas. current A side 1	42,9 %
00722	Operat. meas. current B side 1	42,9 %
00723	Operat. meas. current C side 1	42,9 %
30640	3I0 (zero sequence) of side 1	0,3 %
30641	I1 (positive sequence) of side 1	42,9 %
30642	I2 (negative sequence) of side 1	0,3 %
00724	Operat. meas. current A side 2	46,5 %
00725	Operat. meas. current B side 2	47,4 %
00726	Operat. meas. current C side 2	47,4 %



Operational Percent - 03-04-2021 11:06:52.286 (MEASURED\MW03.SFP)(2)

Number	Measured value	Value
30643	3I0 (zero sequence) of side 2	0,9 %
30644	I1 (positive sequence) of side 2	47,4 %
30645	I2 (negative sequence) of side 2	0,0 %
00645	S (apparent power)	0,0 %
00644	Frequency	100,1 %

## 12.6 Operational current of sides, I/nS - 03-04-2021 11:06:52.467 (MEASURED\IS02.SFP)

Operational current of sides, I/nS - 03-04-2021 11:06:52.467 (MEASURED\IS02.SFP)

Number	Measured value	Value
00721	Operat. meas. current A side 1	0,43 I/InS
00722	Operat. meas. current B side 1	0,43 I/InS
00723	Operat. meas. current C side 1	0,43 I/InS
30640	3I0 (zero sequence) of side 1	0,00 I/InS
30641	I1 (positive sequence) of side 1	0,43 I/InS
30642	I2 (negative sequence) of side 1	0,00 I/InS
00724	Operat. meas. current A side 2	0,47 I/InS
00725	Operat. meas. current B side 2	0,47 I/InS
00726	Operat. meas. current C side 2	0,47 I/InS
30643	3I0 (zero sequence) of side 2	0,01 I/InS
30644	I1 (positive sequence) of side 2	0,47 I/InS
30645	I2 (negative sequence) of side 2	0,00 I/InS

## 12.7 Differential and Restraint Current - 03-04-2021 11:06:52.647 (MEASURED\DIFF.SFP)

Differential and Restraint Current - 03-04-2021 11:06:52.647 (MEASURED\DIFF.SFP)

Number	Measured value	Value
07742	IDiff A(I/Inominal object [%])	0,04 I/InO
07743	IDiff B(I/Inominal object [%])	0,04 I/InO
07744	IDiff C(I/Inominal object [%])	0,04 I/InO
07745	IRest A(I/Inominal object [%])	0,89 I/InO
07746	IRest B(I/Inominal object [%])	0,91 I/InO
07747	IRest C(I/Inominal object [%])	0,90 I/InO

## 12.8 Min. and Maximum Values - 03-04-2021 11:06:52.807 (MEASURED\MIN2.SFP)

nothing allocated

7UT\_TRAFO2\_prn

Demand - 03-04-2021 11:06:53.057 (MEASURED\DMD1.SFP)

SIMATIC

Queltehues\_180221 / 12kv /

7UT\_TRAFO2/7UT633 V04.67.00

03.04.21 11:06:47

## 12.9 Demand - 03-04-2021 11:06:53.057 (MEASURED\DMD1.SFP)

nothing allocated

## 12.10 Min/Max Demand - 03-04-2021 11:06:53.228 (MEASURED\MIN1.SFP)

nothing allocated

## 12.11 User Defined - 03-04-2021 11:06:53.388 (MEASURED\MW11.SFP)

*User Defined - 03-04-2021 11:06:53.388 (MEASURED\MW11.SFP)*

Number	Measured value	Value
	Voltaje de Barra	.....

## 12.12 Energy - 03-04-2021 11:06:53.528 (MEASURED\MW12.SFP)

*Energy - 03-04-2021 11:06:53.528 (MEASURED\MW12.SFP)*

Number	Measured value	Value
00888	Pulsed Energy Wp (active)	0,0 MWh
00889	Pulsed Energy Wq (reactive)	0,0 MVARh

## 12.13 Set Points (Measured Values) - 03-04-2021 11:06:53.808 (MEASURED\MW13.SFP)

nothing allocated