PFV_Willka_220KV_V09.30

Table of contents

F51_FT1

F51_FT1
Author: ECOCH-HP
Creation time: 05/25/2023 14:52:08
Last modified time: 08/20/2025 22:48:09
Modified by: ECOCH_HP_CMV1

F51_FT1

Device information

Device details	
Name	**Value**
Name	F51_FT1
IEC 61850 name	F51_FT1
IEC 61850 Edition	IEC 61850 Edition 2
Type	7SJ82
Serial number	BM2208001947
Configuration version	V08.83.04
Communication configuration version	V08.83.04
Product code	7SJ82-DAAA-AA0-0AAAA0-AL0411-12111B-BAA000-000AB0-HB1BD4-JA0
Short product code	P1J90216
CPU type	

Function points

Function-points consumption:75 out of 175

Details		
Function	**Configured instances**	**Total function points**
25 Synchronization	1	50
27 Undervolt.-3ph	1	5
59 Overvolt.-3ph	1	5
81 Overfreq.-A	1	5
59 Overvolt.-V0	1	5
50BF Ad.CBF	1	5

Condensed information about configured protection functions.

Alimentador 1	
Name	**Value**
50/51 OC-3ph-A1	Settings group 1: on
50N/51N OC-gnd-A1	Settings group 1: on
27 Undervolt.-3ph 1	Settings group 1: on
59 Overvolt.-3ph 1	Settings group 1: on
81 Overfreq.-A 1	Settings group 1: on
59 Overvolt.-V0 1	Settings group 1: on

TTPP-B1	
Name	**Value**
No protection functions were found.	

Function-chart (CFC) statistics	
Name	**Value**
Ticks for task High priority Event-Triggered	268 out of 500
Ticks for task Event-Triggered	622 out of 11799
Ticks for task Low priority Event-Triggered and Low priority Cyclic-Triggered	0 out of 111976

F51_FT1

Hardware and protocols

Binary input				
Binary input	**Terminals**	**Module**	**User label**	**Threshold value**
1.1	1D4-1D6	Base module	BI 1.1	Low: 44 V, High: 88 V
1.2	1D7-1D14	Base module	BI 1.2	Low: 44 V, High: 88 V
1.3	1D8-1D14	Base module	BI 1.3	Low: 44 V, High: 88 V
1.4	1D9-1D14	Base module	BI 1.4	Low: 44 V, High: 88 V
1.5	1D10-1D14	Base module	BI 1.5	Low: 44 V, High: 88 V
1.6	1D11-1D14	Base module	BI 1.6	Low: 44 V, High: 88 V
1.7	1D12-1D14	Base module	BI 1.7	Low: 44 V, High: 88 V
1.8	1D13-1D14	Base module	BI 1.8	Low: 44 V, High: 88 V
2.1	2L11-2L12	Base module	BI 2.1	Low: 10 V, High: 19 V
2.2	2L11-2L14	Base module	BI 2.2	Low: 44 V, High: 88 V
2.3	2L11-2L13	Base module	BI 2.3	Low: 44 V, High: 88 V
3.1	3N2-3N1	Base module	BI 3.1	Low: 10 V, High: 19 V
3.2	3N3-3N1	Base module	BI 3.2	Low: 44 V, High: 88 V
3.3	3N5-3N11	Base module	BI 3.3	Low: 44 V, High: 88 V
3.4	3N6-3N11	Base module	BI 3.4	Low: 44 V, High: 88 V
3.5	3N7-3N11	Base module	BI 3.5	Low: 44 V, High: 88 V
3.6	3N8-3N11	Base module	BI 3.6	Low: 44 V, High: 88 V
3.7	3N9-3N11	Base module	BI 3.7	Low: 44 V, High: 88 V
3.8	3N10-3N11	Base module	BI 3.8	Low: 44 V, High: 88 V
3.9	3N12-3N11	Base module	BI 3.9	Low: 44 V, High: 88 V
3.10	3N13-3N11	Base module	BI 3.10	Low: 44 V, High: 88 V
3.11	3N14-3N11	Base module	BI 3.11	Low: 44 V, High: 88 V
3.12	3N15-3N11	Base module	BI 3.12	Low: 44 V, High: 88 V

Binary output			
Binary output	**Terminals**	**Module**	**User label**
1.1	1B7-1B8	Base module	BO make 1.1
1.2	1B10-1B9-1B11	Base module	BO change-over 1.2
1.3	1B13-1B12-1B14	Base module	BO change-over 1.3
1.4	1D1-1D2	Base module	BO make 1.4
1.5	1D3-1D2	Base module	BO make 1.5
1.6	1D5-1D2	Base module	BO make 1.6
2.1	2L3-2L4	Base module	BO make 2.1
2.2	2L5-2L6-2L8	Base module	BO change-over 2.2
3.1	3M2-3M1	Base module	BO make 3.1
3.2	3M3-3M1	Base module	BO make 3.2
3.3	3M4-3M1	Base module	BO make 3.3
3.4	3M5-3M1	Base module	BO make 3.4
3.5	3M8-3M7	Base module	BO make 3.5
3.6	3M9-3M7	Base module	BO make 3.6
3.7	3M10-3M7	Base module	BO make 3.7

Current transformers			
Current transformer	**Terminals**	**Module**	**User label**
1A1	1A1-1A2	Base module	I P 1A1
1A2	1A3-1A4	Base module	I P 1A2
1A3	1A5-1A6	Base module	I P 1A3
1A4	1A7-1A8	Base module	I P 1A4

Voltage transformers			
Voltage transformer	**Terminals**	**Module**	**User label**
1.1	1B1-1B2	Base module	V 1.1
1.2	1B3-1B2	Base module	V 1.2
1.3	1B4-1B2	Base module	V 1.3
1.4	1B5-1B6	Base module	V 1.4

Function keys		
Function key	**Module**	**User label**
1	Base module	Operational log
2	Base module	Operational values
3	Base module	Fault log
4	Base module	Activ LR Local
5	Base module	Activ LR Remote
6	Base module	
7	Base module	
8	Base module	

LEDs		
LED	**Module**	**User label**
1.1	Base module	Pickup phs A
1.2	Base module	Pickup phs B
1.3	Base module	Pickup phs C

LED	Module	User label
1.4	Base module	Pickup gnd
1.5	Base module	Operate general
1.6	Base module	Operate general
1.7	Base module	Operate general
1.8	Base module	Operate general
1.9	Base module	Operate general
1.10	Base module	
1.11	Base module	
1.12	Base module	
1.13	Base module	>Start
1.14	Base module	50BF_Trp_E1_FT1
1.15	Base module	50BF_Trp_E2_FT1
1.16	Base module	

Ethernet configurations

Interfaces

Slot	Module	Protocol info
J	Onboard Ethernet	Ethernet-interface settings: DCP
E	ETH-BB-2FO	Channel 1: DCP,IEC 61850-8-1,SNTP,HSR

IP Interface 1 (J\Onboard Ethernet\Channel 1): IP Interface 1		
Number	**Settings**	**Value**
101.1031.5281.101	IP address	172.16.60.60
101.1031.5281.102	Subnet mask	255.255.255.0
101.1031.5281.103	Default Gateway IP Addr	0.0.0.0
101.1031.5281.104	Configuration mode	static
101.1031.5281.105	DCP enabled	on
101.1031.5281.116	ShowVLAN	false

IP Interface 1 (E\ETH-BB-2FO\Channel 1): IP Interface 1		
Number	**Settings**	**Value**
102.1031.5281.101	IP address	192.168.120.143
102.1031.5281.102	Subnet mask	255.255.255.0
102.1031.5281.103	Default Gateway IP Addr	192.168.120.1
102.1031.5281.104	Configuration mode	static
102.1031.5281.105	DCP enabled	on
102.1031.5281.116	ShowVLAN	false

SNTP (E\ETH-BB-2FO\Channel 1): SNTP		
Number	**Settings**	**Value**
102.1031.121.103	Time source 1	192.168.120.13
102.1031.121.104	Time source 2	192.168.120.13
102.1031.121.105	Time interval	15 s
102.1031.121.106	Start time	20 s

F51_FT1

Measuring-points routing

Current-measuring points

Measuring point	Connection type	Terminals
TC-3PH	3-phase + IN	I A: 1A1-1A2 I B: 1A3-1A4 I C: 1A5-1A6 IN: 1A7-1A8

Voltage-measuring points

Measuring point	Connection type	Terminals
TP-3PH	3 ph-to-gnd voltages	V A: 1B1-1B2 V B: 1B3-1B2 V C: 1B4-1B2
TP-1PH		V CA: 1B5-1B6

F51_FT1

Function-group connections

Measuring point to function-group connections

Measuring point	Measuring point
TC-3PH[ID 1]	Alimentador 1:I 3ph
TC-3PH[ID 1]	Q0:I 3ph
TP-3PH[ID 2]	Alimentador 1:V 3ph
TP-3PH[ID 2]	Q0:V
TP-3PH[ID 2]	Q0:V sync1
TP-1PH[ID 4]	Q0:V sync2
TP-1PH[ID 4]	TTPP-B1:V

Function group to circuit-breaker group connections

Protection group	Circuit-breaker group(s)
Alimentador 1	Q0

F51_FT1

Settings

Device settings

Settings	Value
Edit mode	secondary
Number settings groups	1
Activat. of settings group	settings group 1
DIGSI 5 uses the following interface	192.168.120.143 (Port E)
Operation-panel language	English (United States)
Binary input channel threshold	Low: 44 V, High: 88 V
Used time stamp in GOOSE subscriptions	On message reception
Hide settings in IEC 61850 structure	Show all settings
Hide SIPROTEC extensions in IEC 61850 structure	Show all SIPROTEC extensions
Reserv.time for com.prot.	120 s
Use dynamic reporting	True
Block IEC 61850 settings changes	False
Access point used in Edition1	No access point is specified for the SCD import.
Station name	PFV Willka (Substation name)

Activate device functionality	
Settings	**Value**
Voltage variant	DC 110 V to 250 V, AC 100 V to 230 V
Integrated Ethernet interface (port J)	Only DIGSI 5 connection
Significant feature	
Select function-point class or classless	Base + 175

General \Device		
Number	**Settings**	**Value**
91.101	Rated frequency	All: 50 Hz
91.102	Minimum operate time	All: 0 s
91.115	Set. format residu. comp.	All: Kr, Kx
91.138	Block monitoring dir.	All: off
91.164	Station name	All: PFV Willka

General \Chatter blocking		
Number	**Settings**	**Value**
91.123	No. permis.state changes	All: 0
91.127	Initial test time	All: 1 s
91.124	No. of chatter tests	All: 0
91.125	Chatter idle time	All: 1 min
91.137	Subsequent test time	All: 2 s

General \Measurements		
Number	**Settings**	**Value**
91.162	Blk setting change	Settings group 1: false
91.163	Reserv.time for com.prot.	All: 120 s
91.111	Energy restore interval	Settings group 1: 10 min
91.112	Energy restore time	Settings group 1: none

General \Control		
Number	**Settings**	**Value**
91.120	Energy restore	Settings group 1: latest value
91.121	Energy restore by A.time	Settings group 1: false
91.118	Enable sw.auth. station	All: false

General \Spontan.indic.		
Number	**Settings**	**Value**
91.119	Multiple sw.auth. levels	All: false

General \CFC		
Number	**Settings**	**Value**
91.152	Specific sw. authorities	All: false

General \Test support		
Number	**Settings**	**Value**
91.139	Fault-display	All: with pickup
91.161	CFC chart quality handling	All: manual

Localization		
Number	**Settings**	**Value**
6211.139	Unit system	All: SI

Time settings

General	
Settings	**Value**
Date format	All: DD.MM.YYYY

Time source	
Settings	**Value**
Fault indication after	All: 60 s
Time source 1	Ch1:port E:SNTP
Time source 2	none
Time zone time source 1	All: UTC
Time zone time source 2	All: UTC
Sync. latency time src.1	All: 0 µs
Sync. latency time src.2	All: 0 µs

Time zone and daylight saving time	
Settings	**Value**
Time zone offset to UTC	All: 0 min
Offset daylight sav. time	All: 60 min
Switch daylight sav. time	false

Pulse per second (Port G)	
Settings	**Value**
Sync. latency PPS	All: 0 µs
Assumed SmpSynch	All: global

Sample synchronization	
Settings	**Value**
Holdover	All: Enable

Power system \General

General		
Number	**Settings**	**Value**
11.2311.101	Phase sequence	All: ABC

Power system \TC-3PH

CT 3-phase \General		
Number	**Settings**	**Value**
11.931.8881.115	CT connection	All: 3-phase + IN
11.931.8881.127	Tracking	All: active
11.931.8881.130	Measuring-point ID	All: 1

CT 3-phase \CT phases		
Number	**Settings**	**Value**
11.931.8881.101	Rated primary current	All: 2500 A
11.931.8881.102	Rated secondary current	All: 1 A
11.931.8881.117	Current range	All: 50 x IR
11.931.8881.118	Internal CT type	All: CT protection
11.931.8881.116	Neutr.point in dir.of ref.obj	All: yes
11.931.8881.114	Inverted phases	All: none

CT 3-phase \MP disconnection		
Number	**Settings**	**Value**
11.931.8881.173	Current check	All: active
11.931.8881.112	I< threshold	All: 0.10 A

CT 1		
Number	**Settings**	**Value**
11.931.3841.103	Magnitude correction	All: 1
11.931.3841.117	Phase	All: I A

CT 2		
Number	**Settings**	**Value**
11.931.3842.103	Magnitude correction	All: 1

Number	Settings	Value
11.931.3842.117	Phase	All: I B

CT 3		
Number	**Settings**	**Value**
11.931.3843.103	Magnitude correction	All: 1
11.931.3843.117	Phase	All: I C

CT 4		
Number	**Settings**	**Value**
11.931.3844.103	Magnitude correction	All: 1
11.931.3844.117	Phase	All: IN

Brk.wire det.		
Number	**Settings**	**Value**
11.931.5581.1	Mode	Settings group 1: off

Supv. balan. I		
Number	**Settings**	**Value**
11.931.2491.1	Mode	Settings group 1: off
11.931.2491.101	Release threshold	Settings group 1: 0.50 A
11.931.2491.102	Threshold min/max	Settings group 1: 0.5
11.931.2491.6	Delay failure indication	Settings group 1: 5 s

Supv. ph.seq.I		
Number	**Settings**	**Value**
11.931.2551.1	Mode	Settings group 1: off
11.931.2551.6	Delay failure indication	Settings group 1: 5 s
11.931.2551.102	Release threshold	Settings group 1: 0.50 A

Supv. sum I		
Number	**Settings**	**Value**
11.931.2431.1	Mode	Settings group 1: off
11.931.2431.102	Threshold	Settings group 1: 0.10 A
11.931.2431.101	Slope factor	Settings group 1: 0.1
11.931.2431.6	Delay failure indication	Settings group 1: 5 s

Supv.ADC sum I		
Number	**Settings**	**Value**
11.931.2401.1	Mode	Settings group 1: off

Power system \TP-3PH

VT 3-phase		
Number	**Settings**	**Value**
11.941.8911.101	Rated primary voltage	All: 33 kV
11.941.8911.102	Rated secondary voltage	All: 110 V
11.941.8911.104	VT connection	All: 3 ph-to-gnd voltages
11.941.8911.106	Inverted phases	All: none
11.941.8911.111	Tracking	All: active
11.941.8911.130	Measuring-point ID	All: 2
11.941.8911.136	Internal VT type	All: Voltage transformer

VT 1		
Number	**Settings**	**Value**
11.941.3811.103	Magnitude correction	All: 1
11.941.3811.108	Phase	All: V A

VT 2		
Number	**Settings**	**Value**
11.941.3812.103	Magnitude correction	All: 1
11.941.3812.108	Phase	All: V B

VT 3		
Number	**Settings**	**Value**
11.941.3813.103	Magnitude correction	All: 1
11.941.3813.108	Phase	All: V C

Supv. balan. V		
Number	**Settings**	**Value**
11.941.2521.1	Mode	Settings group 1: off
11.941.2521.101	Release threshold	Settings group 1: 55 V
11.941.2521.102	Threshold min/max	Settings group 1: 0.75
11.941.2521.6	Delay failure indication	Settings group 1: 5 s

Supv. ph.seq.V		
Number	**Settings**	**Value**
11.941.2581.1	Mode	Settings group 1: off
11.941.2581.6	Delay failure indication	Settings group 1: 5 s

Supv. sum V		
Number	**Settings**	**Value**
11.941.2461.1	Mode	Settings group 1: off
11.941.2461.3	Threshold	Settings group 1: 27.5 V
11.941.2461.6	Delay failure indication	Settings group 1: 5 s

VT miniatureCB		
Number	**Settings**	**Value**
11.941.2641.101	Response time	Settings group 1: 0 s

Power system \TP-1PH

General		
Number	**Settings**	**Value**
11.961.2311.101	Rated primary voltage	All: 33 kV
11.961.2311.102	Rated secondary voltage	All: 110 V
11.961.2311.103	Tracking	All: inactive
11.961.2311.130	Measuring-point ID	All: 4

VT 1		
Number	**Settings**	**Value**
11.961.3811.103	Magnitude correction	All: 1
11.961.3811.108	Phase	All: V CA

VT miniatureCB		
Number	**Settings**	**Value**
11.961.2641.101	Response time	Settings group 1: 0 s

Recording \General

General		
Number	**Settings**	**Value**
81.2701.175	Scaling COMTRADE	All: Primary values
81.2701.176	COMTRADE revision year	All: COMTRADE 2013
81.2701.1	Mode	Settings group 1: on

Recording \Fault recorder

Control		
Number	**Settings**	**Value**
81.791.2761.130	Fault recording	All: user-defined
81.791.2761.131	Storage	All: always
81.791.2761.111	Maximum record time	All: 3 s
81.791.2761.112	Pre-trigger time	All: 0.5 s
81.791.2761.113	Post-trigger time	All: 1 s
81.791.2761.116	Manual record time	All: 3 s
81.791.2761.140	Sampling frequency	All: 2 kHz
81.791.2761.141	Sampl. freq. IEC 61850 rec.	All: 1 kHz
81.791.2761.129	Cal.zero.seq.cur.channel	All: 3I0
81.791.2761.132	Cal.zero seq.volt.channel	All: 3V0

Alimentador 1 \General

General \Rated values		
Number	**Settings**	**Value**
821.9451.101	Rated current	All: 2500 A
821.9451.102	Rated voltage	All: 33 kV
821.9451.103	Rated apparent power	All: 142.89 MVA

General \Power-system data		
Number	**Settings**	**Value**
821.9451.149	Power-sys. neutral point	Settings group 1: grounded

General \Measurements		
Number	**Settings**	**Value**
821.9451.158	P, Q sign	Settings group 1: not reversed

Alimentador 1 \Process monitor

Alimentador 1 \Inrush detect.

Inrush detect.		
Number	**Settings**	**Value**
821.4141.1	Mode	All: on
821.4141.106	Operat.-range limit Imax	Settings group 1: 20.00 A
821.4141.111	Blocking with CWA	Settings group 1: yes
821.4141.110	Blocking with 2. harmonic	Settings group 1: yes
821.4141.102	2nd harmonic content	Settings group 1: 15 %
821.4141.112	Cross-blocking	Settings group 1: yes
821.4141.109	Cross-blocking time	Settings group 1: 0.06 s
821.4141.114	Start flt.rec	Settings group 1: yes

Alimentador 1 \50/51 OC-3ph-A1

Definite-T 1 \General		
Number	**Settings**	**Value**
821.201.661.1	Mode	Settings group 1: on
821.201.661.2	Operate & flt.rec. blocked	Settings group 1: no
821.201.661.11	1-pole operate allowed	Settings group 1: no
821.201.661.26	Dynamic settings	All: no
821.201.661.27	Blk. w. inrush curr. detect.	Settings group 1: yes
821.201.661.8	Method of measurement	Settings group 1: fundamental comp.
821.201.661.3	Threshold	Settings group 1: 1.44 A
821.201.661.4	Dropout ratio	Settings group 1: 0.95
821.201.661.102	Pickup delay	Settings group 1: 0 s
821.201.661.101	Dropout delay	Settings group 1: 0 s
821.201.661.6	Operate delay	Settings group 1: 0.5 s

ZSI \General		
Number	**Settings**	**Value**
821.201.662.1	Mode	Settings group 1: on
821.201.662.2	Operate & flt.rec. blocked	Settings group 1: no
821.201.662.11	1-pole operate allowed	Settings group 1: no
821.201.662.26	Dynamic settings	All: no
821.201.662.27	Blk. w. inrush curr. detect.	Settings group 1: yes
821.201.662.8	Method of measurement	Settings group 1: fundamental comp.
821.201.662.3	Threshold	Settings group 1: 0.92 A
821.201.662.4	Dropout ratio	Settings group 1: 0.95
821.201.662.102	Pickup delay	Settings group 1: 0 s
821.201.662.101	Dropout delay	Settings group 1: 0 s
821.201.662.6	Operate delay	Settings group 1: 0.3 s

Inverse-T 1 \General		
Number	**Settings**	**Value**
821.201.691.1	Mode	Settings group 1: on
821.201.691.2	Operate & flt.rec. blocked	Settings group 1: no
821.201.691.11	1-pole operate allowed	Settings group 1: no
821.201.691.26	Dynamic settings	All: no
821.201.691.27	Blk. w. inrush curr. detect.	Settings group 1: yes
821.201.691.8	Method of measurement	Settings group 1: fundamental comp.
821.201.691.3	Threshold	Settings group 1: 0.92 A
821.201.691.108	Pickup delay	Settings group 1: 0 s
821.201.691.130	Type of character. curve	Settings group 1: IEC normal inverse
821.201.691.113	Min. time of the curve	Settings group 1: 0 s
821.201.691.131	Reset	Settings group 1: instantaneous
821.201.691.101	Time dial	Settings group 1: 0.08
821.201.691.115	Additional time delay	Settings group 1: 0 s

Alimentador 1 \50N/51N OC-gnd-A1

General		
Number	**Settings**	**Value**
821.211.2311.9	Measured value	All: IN measured

Definite-T 1 \General		
Number	**Settings**	**Value**
821.211.751.1	Mode	Settings group 1: on
821.211.751.2	Operate & flt.rec. blocked	Settings group 1: no
821.211.751.26	Dynamic settings	All: no
821.211.751.27	Blk. w. inrush curr. detect.	Settings group 1: yes
821.211.751.8	Method of measurement	Settings group 1: fundamental comp.
821.211.751.3	Threshold	Settings group 1: 0.05 A
821.211.751.4	Dropout ratio	Settings group 1: 0.95
821.211.751.101	Dropout delay	Settings group 1: 0 s
821.211.751.6	Operate delay	Settings group 1: 0.5 s

ZSI \General		
Number	**Settings**	**Value**
821.211.752.1	Mode	Settings group 1: on
821.211.752.2	Operate & flt.rec. blocked	Settings group 1: no
821.211.752.26	Dynamic settings	All: no
821.211.752.27	Blk. w. inrush curr. detect.	Settings group 1: yes
821.211.752.8	Method of measurement	Settings group 1: fundamental comp.
821.211.752.3	Threshold	Settings group 1: 0.05 A
821.211.752.4	Dropout ratio	Settings group 1: 0.95
821.211.752.101	Dropout delay	Settings group 1: 0 s
821.211.752.6	Operate delay	Settings group 1: 0.3 s

Inverse-T 1 \General		
Number	**Settings**	**Value**
821.211.781.1	Mode	Settings group 1: off
821.211.781.2	Operate & flt.rec. blocked	Settings group 1: no
821.211.781.26	Dynamic settings	All: no
821.211.781.27	Blk. w. inrush curr. detect.	Settings group 1: no
821.211.781.8	Method of measurement	Settings group 1: fundamental comp.
821.211.781.3	Threshold	Settings group 1: 1.20 A
821.211.781.108	Type of character. curve	Settings group 1: IEC normal inverse
821.211.781.113	Min. time of the curve	Settings group 1: 0 s
821.211.781.109	Reset	Settings group 1: instantaneous
821.211.781.101	Time dial	Settings group 1: 1
821.211.781.115	Additional time delay	Settings group 1: 0 s

Alimentador 1 \27 Undervolt.-3ph 1

General		
Number	**Settings**	**Value**
821.131.2311.104	Current-flow criterion	Settings group 1: on
821.131.2311.101	Threshold I>	Settings group 1: 1.20 A
821.131.2311.103	Stabilization counter	Settings group 1: 0

Definite-T 1		
Number	**Settings**	**Value**
821.131.421.1	Mode	Settings group 1: on
821.131.421.2	Operate & flt.rec. blocked	Settings group 1: no
821.131.421.10	Blk. by meas.-volt. failure	Settings group 1: yes
821.131.421.9	Measured value	Settings group 1: phase-to-phase
821.131.421.8	Method of measurement	Settings group 1: fundamental comp.
821.131.421.101	Pickup mode	Settings group 1: 1 out of 3
821.131.421.102	Pickup delay	Settings group 1: yes
821.131.421.3	Threshold	Settings group 1: 88 V
821.131.421.4	Dropout ratio	Settings group 1: 1.05
821.131.421.6	Operate delay	Settings group 1: 2 s

Definite-T 2		
Number	**Settings**	**Value**
821.131.422.1	Mode	Settings group 1: off
821.131.422.2	Operate & flt.rec. blocked	Settings group 1: no
821.131.422.10	Blk. by meas.-volt. failure	Settings group 1: yes
821.131.422.9	Measured value	Settings group 1: phase-to-phase
821.131.422.8	Method of measurement	Settings group 1: fundamental comp.
821.131.422.101	Pickup mode	Settings group 1: 1 out of 3
821.131.422.102	Pickup delay	Settings group 1: no
821.131.422.3	Threshold	Settings group 1: 65.000 V
821.131.422.4	Dropout ratio	Settings group 1: 1.05
821.131.422.6	Operate delay	Settings group 1: 0.5 s

Alimentador 1 \59 Overvolt.-3ph 1

General		
Number	**Settings**	**Value**
821.51.2311.101	Stabilization counter	Settings group 1: 0

Definite-T 1		
Number	**Settings**	**Value**
821.51.181.1	Mode	Settings group 1: on
821.51.181.2	Operate & flt.rec. blocked	Settings group 1: no
821.51.181.9	Measured value	Settings group 1: phase-to-phase
821.51.181.8	Method of measurement	Settings group 1: fundamental comp.
821.51.181.101	Pickup mode	Settings group 1: 1 out of 3
821.51.181.3	Threshold	Settings group 1: 132 V
821.51.181.4	Dropout ratio	Settings group 1: 0.95
821.51.181.6	Operate delay	Settings group 1: 2 s

Definite-T 2		
Number	**Settings**	**Value**
821.51.182.1	Mode	Settings group 1: off
821.51.182.2	Operate & flt.rec. blocked	Settings group 1: no
821.51.182.9	Measured value	Settings group 1: phase-to-phase
821.51.182.8	Method of measurement	Settings group 1: fundamental comp.
821.51.182.101	Pickup mode	Settings group 1: 1 out of 3
821.51.182.3	Threshold	Settings group 1: 130.000 V
821.51.182.4	Dropout ratio	Settings group 1: 0.95
821.51.182.6	Operate delay	Settings group 1: 0.5 s

Alimentador 1 \81 Overfreq.-A 1

General		
Number	**Settings**	**Value**
821.11.2311.101	Minimum voltage	Settings group 1: 38.105 V
821.11.2311.109	Dropout differential	Settings group 1: 20 mHz

Stage 1		
Number	**Settings**	**Value**
821.11.31.1	Mode	Settings group 1: on
821.11.31.2	Operate & flt.rec. blocked	Settings group 1: no
821.11.31.3	Threshold	Settings group 1: 51.6 Hz
821.11.31.6	Operate delay	Settings group 1: 0.1 s

Stage 2		
Number	**Settings**	**Value**
821.11.32.1	Mode	Settings group 1: off
821.11.32.2	Operate & flt.rec. blocked	Settings group 1: no
821.11.32.3	Threshold	Settings group 1: 54 Hz
821.11.32.6	Operate delay	Settings group 1: 5 s

Alimentador 1 \Mes.v.fail.det

Mes.v.fail.det		
Number	**Settings**	**Value**
821.2671.1	Mode	Settings group 1: on
821.2671.115	Asym.fail.-DO on netw.flt.	Settings group 1: no
821.2671.113	Asym.fail. - time delay	Settings group 1: 10 s
821.2671.102	3ph.fail. - phs.curr.release	Settings group 1: 0.10 A
821.2671.103	3ph.fail. - phs.curr. jump	Settings group 1: 0.10 A
821.2671.101	3ph.fail. - VA,VB,VC <	Settings group 1: 5.000 V
821.2671.107	Switch-on 3ph. failure	All: on
821.2671.106	SO 3ph.fail. - time delay	Settings group 1: 3 s

Alimentador 1 \59 Overvolt.-V0 1

Definite-T 1		
Number	**Settings**	**Value**
821.101.331.1	Mode	Settings group 1: on
821.101.331.2	Operate & flt.rec. blocked	Settings group 1: no
821.101.331.10	Blk. by meas.-volt. failure	Settings group 1: no
821.101.331.109	Detection of faulty phase	All: no
821.101.331.8	Method of measurement	Settings group 1: fundamental comp.
821.101.331.3	Threshold	Settings group 1: 33 V
821.101.331.4	Dropout ratio	Settings group 1: 0.95
821.101.331.107	Pickup delay	Settings group 1: 0 s
821.101.331.6	Operate delay	Settings group 1: 1 s

Alimentador 1\Ciruit-breaker interaction

Protection group	Circuit-breaker group(s)
Alimentador 1\ 50/51 OC-3ph-A1\ Definite-T 1	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 50/51 OC-3ph-A1\ ZSI	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 50/51 OC-3ph-A1\ Inverse-T 1	Q0:Trip, Q0:Start CB failure

Protection group	Circuit-breaker group(s)
Alimentador 1\ 50N/51N OC-gnd-A1\ Definite-T 1	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 50N/51N OC-gnd-A1\ ZSI	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 27 Undervolt.-3ph 1\ Definite-T 1	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 59 Overvolt.-3ph 1\ Definite-T 1	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 81 Overfreq.-A 1\ Stage 1	Q0:Trip, Q0:Start CB failure
Alimentador 1\ 59 Overvolt.-V0 1\ Definite-T 1	Q0:Trip, Q0:Start CB failure

Q1 \Control

Control		
Number	**Settings**	**Value**
601.4201.101	Control model	All: SBO w. enh. security
601.4201.102	SBO time-out	All: 30 s
601.4201.103	Feedback monitoring time	All: 10 s
601.4201.104	Check switching authority	All: yes
601.4201.105	Check if pos. is reached	All: yes
601.4201.106	Check double activat. blk.	All: yes

Q1 \Disconnector

Disconnector		
Number	**Settings**	**Value**
601.5401.101	Maximum output time	All: 10 s
601.5401.102	Seal-in time	All: 0 s
601.5401.103	Switching-device type	All: disconnector

Q1-1T \Control

Control		
Number	**Settings**	**Value**
602.4201.101	Control model	All: SBO w. enh. security
602.4201.102	SBO time-out	All: 30 s
602.4201.103	Feedback monitoring time	All: 10 s
602.4201.104	Check switching authority	All: yes
602.4201.105	Check if pos. is reached	All: yes
602.4201.106	Check double activat. blk.	All: yes

Q1-1T \Disconnector

Disconnector		
Number	**Settings**	**Value**
602.5401.101	Maximum output time	All: 10 s
602.5401.102	Seal-in time	All: 0 s
602.5401.103	Switching-device type	All: disconnector

Q0 \General

General \Ref. for %-values		
Number	**Settings**	**Value**
201.2311.101	Rated normal current	All: 2500 A
201.2311.102	Rated voltage	All: 33 kV

General \Breaker settings		
Number	**Settings**	**Value**
201.2311.112	Current thresh. CB open	All: 0.10 A

Q0 \Trip logic

Trip logic		
Number	**Settings**	**Value**
201.5341.103	Reset of trip command	All: with I<

Q0 \Circuit break.

Circuit break.		
Number	**Settings**	**Value**
201.4261.101	Output time	All: 0.1 s
201.4261.105	Indicat. of breaking values	All: always

Q0 \Manual close

Manual close		
Number	**Settings**	**Value**
201.6541.101	Action time	Settings group 1: 0.3 s

Number	Settings	Value
201.6541.102	CB open dropout delay	Settings group 1: 0 s

Q0 \Control

Control		
Number	**Settings**	**Value**
201.4201.101	Control model	All: SBO w. enh. security
201.4201.102	SBO time-out	All: 30 s
201.4201.103	Feedback monitoring time	All: 1 s
201.4201.104	Check switching authority	All: yes
201.4201.105	Check if pos. is reached	All: yes
201.4201.106	Check double activat. blk.	All: yes
201.4201.107	Check blk. by protection	All: yes

Q0 \CB test

CB test		
Number	**Settings**	**Value**
201.6151.101	Dead time	All: 0.1 s
201.6151.102	Trip only	All: false
201.6151.103	Consider current criterion	All: false

Q0 \25 Synchronization

General		
Number	**Settings**	**Value**
201.1151.2311.127	Angle adjust. (transform.)	Settings group 1: 0 °

Synchrocheck 1 \General		
Number	**Settings**	**Value**
201.1151.5071.1	Mode	Settings group 1: on
201.1151.5071.113	Continuous supervision	Settings group 1: true
201.1151.5071.101	Min. operating limit Vmin	Settings group 1: 99.000 V
201.1151.5071.102	Max. operat. limit Vmax	Settings group 1: 121 V
201.1151.5071.110	Max.durat. sync.process	Settings group 1: 30 s
201.1151.5071.108	Direct close command	Settings group 1: no
201.1151.5071.126	Voltage adjustment	Settings group 1: 1

Synchrocheck 1 \De-en.gized switch.		
Number	**Settings**	**Value**
201.1151.5071.105	Close cmd. at V1< & V2>	Settings group 1: yes
201.1151.5071.106	Close cmd. at V1> & V2<	Settings group 1: yes
201.1151.5071.107	Close cmd. at V1< & V2<	Settings group 1: yes
201.1151.5071.103	V1, V2 without voltage	Settings group 1: 5.5 V
201.1151.5071.104	V1, V2 with voltage	Settings group 1: 88 V
201.1151.5071.109	Supervision time	Settings group 1: 0.1 s

Synchrocheck 1 \Synchr. conditions		
Number	**Settings**	**Value**
201.1151.5071.115	Sync. operating mode	Settings group 1: on
201.1151.5071.122	Max. voltage diff. V2>V1	Settings group 1: 5.5 V
201.1151.5071.123	Max. voltage diff. V2<V1	Settings group 1: 5.5 V
201.1151.5071.117	Max. frequency diff. f2>f1	Settings group 1: 0.1 Hz
201.1151.5071.118	Max. frequency diff. f2<f1	Settings group 1: 0.1 Hz
201.1151.5071.124	Max. angle diff. α2>α1	Settings group 1: 10 °
201.1151.5071.125	Max. angle diff. α2<α1	Settings group 1: 10 °

Q0 \50BF Ad.CBF 1

50BF Ad.CBF 1		
Number	**Settings**	**Value**
201.18781.1	Mode	Settings group 1: on
201.18781.105	Holding int. start signal	Settings group 1: yes
201.18781.107	Start via binary input	All: 1 channel
201.18781.106	Holding ext. start signal	Settings group 1: no
201.18781.103	CB aux.cont. crit. allowed	Settings group 1: w. 'CB pos. closed 3p.'
201.18781.104	Dropout	Settings group 1: with effective criterion
201.18781.108	Retrip after T1	Settings group 1: parallel start T2, T1
201.18781.102	Threshold phase current	Settings group 1: 0.92 A
201.18781.101	Threshold sensitive	Settings group 1: 0.05 A
201.18781.109	Delay T1 for 3-pole retrip	Settings group 1: 0.01 s
201.18781.110	Delay T2 for 3-pole trip	Settings group 1: 0.2 s
201.18781.112	Minimum operate time	Settings group 1: 0.1 s
201.18781.120	3I0 criterion	All: Direct release
201.18781.121	I2 criterion	All: Direct release
201.18781.122	Threshold 3I0 dir. release	Settings group 1: 0.05 A

Number	Settings	Value
201.18781.123	Threshold I2 dir. release	Settings group 1: 0.92 A
201.18781.124	Monit. time for BI ">Start"	Settings group 1: 15 s
201.18781.154	Immediate dropout	Settings group 1: true
201.18781.155	BI start external latch	Settings group 1: true

Q0 \74TC sup.2BI 1

74TC sup.2BI 1		
Number	**Settings**	**Value**
201.4411.1	Mode	Settings group 1: on
201.4411.100	Alarm delay	Settings group 1: 2 s

Q0 \74TC sup.2BI 2

74TC sup.2BI 2		
Number	**Settings**	**Value**
201.4412.1	Mode	Settings group 1: on
201.4412.100	Alarm delay	Settings group 1: 2 s

Q61 \Disconnector

Disconnector		
Number	**Settings**	**Value**
701.5401.101	Switching-device type	All: disconnector

Q61T \Disconnector

Disconnector		
Number	**Settings**	**Value**
702.5401.101	Switching-device type	All: disconnector

TTPP-B1 \General

General \Rated values		
Number	**Settings**	**Value**
1151.9421.102	Rated voltage	All: 33 kV

*Setting marked as favorite setting