SIEMENS

SIPROTEC

Multifuction Protection

7SJ66
IEC61850
Mapping

C53000-L2640-C554-3

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Preface

Purpose of this manual

In this Manual, you will find the

- General information about the effects of configuration of your device to the different Logical Nodes and DOIs
- Mapping of device relevant information to Logical Nodes as part of protocol IEC61850

Target audience

This manual is intended mainly for all persons who configure, parameterize and operate SIPROTEC Devices 7SJ66

Scope of validity of this Manual

SIPROTEC 7SJ66, Versions from 4.41 and higher

Standards

This document has been created according to the ISO 9001 quality standards.

Further Support

If you have questions about SIPROTEC IEC 61850 interface, please contact your Siemens sales representative.

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Basics

Contents

This chapter contains general information about the effects of device configuration on Logical Nodes and DOIs.

1.1 General

The protocol IEC 61850 was developed to define a standard that can be internationally employed for the transmission of power automation system data.

This cross national standard enables an interoperability between automation systems and devices made by different manufacturers.

7SJ66x can be equipped with an Ethernet module via which the protocol IEC 61850 is interpreted.

The configuration of the protocol and the integration of the device with redundant IEC 61850 interfaces in your network are performed via the configuration system DIGSI.

Note

The following definitions are taken mainly from standard IEC 61850, Technical Specification IEC TS 61850-2.

Logical Devices

LD Logical Devices represent a functional structuring of the LN Logical Nodes of a SIPROTEC device.

The following Logical Devices are present:

- ❑ Logical Device Protection PROT
- ❑ Logical Device Measurement MEAS
- ❑ Logical Device Disturbance Recorder DR
- ❑ Logical Device Control CTRL
- ❑ Logical Device Extended EXT

Each LD contains LN LLN0 and LN LPHD1.

The allocation of the Logical Nodes to the Logical Devices is listed in Chapter 1.3.

Logical Node LN

Smallest part of a function that exchanges data. A logical node is an object defined by its data and methods.

Data object instance DOI

A Data object is part of a logical node object representing specific information for example status of measurement. From an object-oriented point of view, a data object is an instance of a data class. Specific data classes carry the semantic within a logical node.

Data attribute instance DAI

A Data attribute defines the name (semantic), format, range of possible values, and representation of values while being communicated.

Annunciation types via GOOSE

Generic Object Oriented Substation Event

A GOOSE report enables high speed trip signals to be issued with a high probability of delivery.

The following types of information can be configured via GOOSE.

- ❑ External single point indication O/O
- ❑ External single point indication I/O
- ❑ External double point indication
- ❑ External double point indication, fast
- ❑ External operational measured values
- ❑ External metered values

1.2 Effects of Configuration on the Logical Nodes

1.2.1 Function parameters

Depending on the configuration of the function parameters the functions of the SIPROTEC are enabled or disabled. If a function is disabled, the corresponding Logical Node is not available.

The following Logical Nodes are always available:

Logical Device Protection:	LLN0, LPHD1, XCBR1, PTRC1
Logical Device Measurement:	LLN0, LPHD1, MMXU1, MMTR1, MSQI1
Logical Device Control:	LLN0, LPHD1, CALH1

1.2.2 Function parameters SIPROTEC 7SJ66

The following table shows which Logical Nodes are available when setting the corresponding function parameter.

The setting (-) implies that no corresponding LN is available.

Table 1-1 SIPROTEC 7SJ66 - Effects of Function parameters to the Logical Nodes

No.	Function	Setting	Logical Nodes
103	Setting Group Change Option		No effect
104	Oscillographic Fault Records	Disabled	-
		Enabled	RDRE1
112	50/51 (Charac. Phase) Overcurrent Protection	Disabled	-
		Definite Time	PTOC6, PTOC7, PTOC1 PTOC18, PTRC2
		TOC IEC	PTOC6, PTOC7, PTOC1 PTOC18, PTRC2
		TOC ANSI	PTOC6, PTOC7, PTOC1 PTOC18, PTRC2
		User Defined PU	PTOC6, PTOC7, PTOC1 PTOC18, PTRC2
		Userdef. Reset	PTOC6, PTOC7, PTOC1, PTOC18, PTRC2
113	50N/51N (Charac. Ground) Overcurrent Protection	Disabled	-
		Definite Time	PTOC8, PTOC9, PTOC2, PTRC2
		TOC IEC	PTOC8, PTOC9, PTOC2, PTRC2
		TOC ANSI	PTOC8, PTOC9, PTOC2, PTRC2
		User Defined PU	PTOC8, PTOC9, PTOC2, PTRC2
		Userdef. Reset	PTOC8, PTOC9, PTOC2, PTRC2

Table 1-1 SIPROTEC 7SJ66 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Function	Setting	Logical Nodes
115	67, 67-TOC Directional Overcurrent Protection	Disabled	-
		Definite Time	PTOC10, PTOC11, PTOC19, PTOC3, PTRC3
		TOC IEC	PTOC10, PTOC11, PTOC19, PTOC3, PTRC3
		TOC ANSI	PTOC10, PTOC11, PTOC19, PTOC3, PTRC3
		User Defined PU	PTOC10, PTOC11, PTOC19, PTOC3, PTRC3
		Userdef. Reset	PTOC10, PTOC11, PTOC19, PTOC3, PTRC3
116	67N, 67N-TOC Directional Overcurrent Protection	Disabled	-
		Definite Time	PTOC12, PTOC13, PTOC20, PTOC4, PTRC3
		TOC IEC	PTOC12, PTOC13, PTOC20, PTOC4, PTRC3
		TOC ANSI	PTOC12, PTOC13, PTOC20, PTOC4, PTRC3
		User Defined PU	PTOC12, PTOC13, PTOC20, PTOC4, PTRC3
		Userdef. Reset	PTOC12, PTOC13, PTOC20, PTOC4, PTRC3
117	Cold Load Pickup		No effect
122	2nd Harmonic Inrush Restraint		No effect

Table 1-1 SIPROTEC 7SJ66 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Function	Setting	Logical Nodes
127	50 1Ph Single Phase Overcurrent Protection	Disabled	-
		Enabled	PTOC16, PTOC17
130	(sens.) Ground fault dir. characteristic	cos φ / sin φ	see Parameter 131
		V0/I0 φ mea.	see Parameter 131
131	(sensitive) Ground fault and (sens.) Ground fault dir. characteristic = cos φ / sin φ	Disabled	-
		Definite Time	PHIZ1, PSDE1, PSDE2
		TOC IEC	PHIZ1, PSDE2, PSDE3
		TOC IANSI	PHIZ1, PSDE2, PSDE3
		User Defined PU	PHIZ1, PSDE2, PSDE3
		Log. inverse 1	PHIZ1, PSDE2, PSDE3
		Log. inverse 2	PHIZ1, PSDE2, PSDE3
131	(sensitive) Ground fault and (sens.) Ground fault dir. characteristic = V0/I0 φ mea.	Disabled	-
		Definite Time	PHIZ1, PSDE1, PSDE2
		User Defined PU	PHIZ1, PSDE1, PSDE2
133	Intermittent earth fault protection		No effect
134	Dir. Intermittent earth fault protection		No effect
135	Admittance Earth Fault Protection	Disable	-
		Enable	PSDE4, PSDE5, PSDE6, PSDE7
140	46 Negative Sequence Protection	Disabled	-
		TOC ANSI	PTOC14, PTOC15, PTOC5
		TOC IEC	PTOC14, PTOC15, PTOC5
		Definite Time	PTOC14, PTOC15

Table 1-1 SIPROTEC 7SJ66 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Function	Setting	Logical Nodes
141	48 Startup Supervision of Motors	Disabled	-
		Enabled	PMSS1
142	49 Thermal Overload Protection	Disabled	-
		No ambient temp	PTTR1
		With amb. temp.	PTTR1
143	66 Startup Counter for Motors	Disabled	-
		Enabled	PMRI1
144	Load Jam Protection	Disabled	-
		Enabled	PMLJ1
150	27, 59 Under/Overvoltage Protection	Disabled	-
		Enabled	PTUV1, PTUV2, PTOV1, PTOV2
154	81 Over/Underfrequency Protection	Disabled	-
		Enabled	PTOF1 – PTOF4, PTUF1 – PTUF4
155	27/Q-Protection	Disabled	-
		Enabled	PTUV7
161	25 Function group 1 Synchronism and Voltage Check	Disabled	-
		SYNCHROCHECK	RSYN1
170	50BF Breaker Failure Protection	Disabled	-
		Enabled	RBRF1
		enabled w/ 3I0>	RBRF1
171	79 Auto-Reclose Function	Disabled	-
		Enabled	RREC1
172	52 Breaker Wear Monitoring		No effect

Table 1-1 SIPROTEC 7SJ66 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Function	Setting	Logical Nodes
180	Fault Locator	Disabled	-
		Enabled	RFLO1
181	Line sections for fault locator		No effect
182	74TC Trip Circuit Supervision	Disabled	-
		2 Binary Inputs	DOI CirSpv, LN XCBR LD PROT
		1 Binary Input	DOI CirSpv, LN XCBR LD PROT
190	External Temperature Input		No effect
191	Ext. Temperature Input Connection Type		No effect

1.3 Allocation of Logical Nodes to Logical Devices

All Logical Nodes (LN) are allocated to Logical Devices (LD). The following tables show this allocation and the DOIs available for each LN.

LD PROT

The Logical Device PROT (Protection) contains the following LNs:

Table 1-2 LD PROT - Logical Nodes

LN	Function	DOI
LLN0 PTRC1	General General device pickup General OFF	Mod, Beh, Health, NamPlt, OpTmh Mod, Beh, Health, NamPlt, Str,Tr,FinTr
XCBR1	52 Breaker Three-pole tripping	Mod, Beh, Health, NamPlt, Loc, OpCnt, Pos BlkOpn, BlkCls, CBOpCap SumSwARs1, SumSwARs2, SumSwARs3
PTOC6 PTOC7 PTOC18 PTOC1 PTRC2	50/51 (Charac. Phase)	Mod, Beh, Health, NamPlt, Str, Op, ChgSet
PTOC8 PTOC9 PTOC2 PRTC2	50N/51N (Charac. Ground)	Mod, Beh, Health, NamPlt, Str, Op, ChgSet
PTOC10 PTOC11 PTOC19 PTOC3 PTRC3	67, 67-TOC	Mod, Beh, Health, NamPlt, Str, Op, ChgSet
PTOC12 PTOC13 PTOC20 PTOC4 PRTC3	67N, 67N-TOC	Mod, Beh, Health, NamPlt, Str, Op, ChgSet
PTOC16 PTOC17	50 1Ph	Mod, Beh, Health, NamPlt, Str, Op
PTUV1 PTUV2	27 Undervoltage Protection	Mod, Beh, Health, NamPlt, Str, Op
PTOV1 PTOV2	59 Overvoltage Protection	Mod, Beh, Health, NamPlt, Str, Op

Table 1-2 LD PROT - Logical Nodes (Cont.)

LN	Function	DOI
PTUV7	27/Q-Protection	Mod, Beh, Health, NamPlt, Str, Op
PTOC14 PTOC15 PTOC5	46 Negative Sequence Protection	Mod, Beh, Health, NamPlt, Str, Op
PMSS1	48 Startup Supervision of Motors	Mod, Beh, Health, NamPlt, Str, Op
PMRI1	66 Startup Counter for Motors	Mod, Beh, Health, NamPlt, Op, StrInhTmm
PMLJ1	Load Jam Protection	Mod, Beh, Health, NamPlt, Str, Op, LDJamAlm, ChgSet
PTUF1 PTUF2 PTUF3 PTUF4	81 Underfrequency Protection	Mod, Beh, Health, NamPlt, Str, Op, BlkV
PTOF1 PTOF2 PTOF3 PTOF4	81 Overfrequency Protection	Mod, Beh, Health, NamPlt, Str, Op, BlkV
PTTR1	49 Thermal Overload Protection	Mod, Beh, Health, NamPlt, Str, Op, AlmThm
PSDE1 PSDE2 PSDE3	(sensitive) Ground fault	Mod, Beh, Health, NamPlt, Str, Op
PSDE4 PSDE5 PSDE6 PSDE7	Admittance Earth Fault Protection	Mod, Beh, Health, NamPlt, Str, Op
PHIZ1	(sensitive) Ground fault	Mod, Beh, Health, NamPlt, Str, Op
RREC1	79 Auto-Reclose Function	Mod, Beh, Health, NamPlt, Op, AutoRecSt
RFLO1	Fault Locator	Mod, Beh, Health, NamPlt, FltZ, FltDiskm, FltDisPrc
RBRF1	50BF Breaker Failure Protection	Mod, Beh, Health, NamPlt, Str, OpEx, OpIn
LPHD1	Device	PhyNam, PhyHealth, Proxy

LD MEAS

The Logical Device MEAS (Measurement) contains the following LNs:

Table 1-3 LD MEAS - Logical Nodes

LN	Function	DOIs
LLN0	General	Mod, Beh, Health, NamPlt
MMXU1	Operational measured values	Mod, Beh, Health, NamPlt, TotW, TotVAr, TotVA, TotPF, Hz, PPV, PhV, A
MMTR1	Power Metering	Mod, Beh, Health, NamPlt, SupWh, SupVArh, DmdWh, DmdVArh
MSQI1	Measured values, symmetrical components	Mod, Beh, Health, NamPlt, SeqA, SeqV
LPHD1	Device	PhyNam, PhyHealth, Proxy

LD DR

The Logical Device DR (Disturbance Recorder) contains the following LNs:

Table 1-4 LD DR - Logical Nodes

LN	Function	DOIs
LLN0	General	Mod, Beh, Health, NamPlt
RDRE1	Oscillographic Fault Records	Mod, Beh, Health, NamPlt, RcdMade, RcdStr FltNum, GriFltNum, RcdTrg
LPHD1	Device	PhyNam, PhyHealth, Proxy

LD CTRL

The Logical Device CTRL (Control) contains the following LNs:

Table 1-5 LD CTRL - Logical Nodes

LN	Function	DOIs
LLN0	General	Mod, Beh, Health, NamPlt, LEDRs, Loc
RSYN1	25 Function group 1	Mod, Beh, Health, NamPlt, Rel, VInd, AngInd, HzInd, SynPrg, DifVClc, DifHzClc, DifAngClc
CALH1	Error with a summary alarm and Alarm summary event	Mod, Beh, Health, NamPlt, GrAlm, GrWrn, ErrBoard1, ErrBoard2, ErrBoard3, ErrBoard4, ErrBoard5, ErrBoard6, ErrBoard7
LPHD1	Device	PhyNam, PhyHealth, Proxy, CtlNum, DevStr

LD EXT

The Logical Device EXT (Extended) contains the following LNs:

Table 1-6 LD EXT - Logical Nodes

LN	Function	DOIs
LLN0	General	Mod, Beh, Health, NamPlt, LEDRs, Loc
LPHD1	Device	PhyNam, PhyHealth, Proxy, CtlNum

The Logical Nodes of the switching (and userdefined) objects will be created by DIGSI during the parameterization of your SIPROTEC device.

MICS, Model Implementation Conformance Statement, shows the assignment of the DOIs; you can use DIGSI to print the MICS.

1.4 Logical Node LLN0

1.4.1 Logical Device PROT

LLN0.Mod

No.	Information					
51	Device is Operational and Protecting (Device OK)	0	1	1	1	1
	Test mode (Test mode)	x	0	0	1	1
	Stop data transmission (DataStop)	x	0	1	0	1
LLN0.Mod.stVal		**5**	**1**	**2**	**3**	**4**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

LLN0.Beh

No.	Information					
51	Device is Operational and Protecting (Device OK)	0	1	1	1	1
	Test mode (Test mode)	x	0	0	1	1
	Stop data transmission (DataStop)	x	0	1	0	1
LLN0.Beh.stVal		**5**	**1**	**2**	**3**	**4**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Beh.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

LLN0.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
LLN0.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

LLN0.OpTmh

No.	Information	Value	
1020	Counter of operating hours (Op.Hours=)	LLN0.OpTmh.stVal	Operating hours (Absolute value)

1.4.2 Logical Devices MEAS, DR and EXT

LLN0.Mod

No.	Information					
51	Device is Operational and Protecting (Device OK)	0	1	1	1	1
	Test mode (Test mode)	x	1	1	0	0
	Stop data transmission (DataStop)	x	1	0	1	0
LLN0.Mod.stVal		**5**	**4**	**3**	**2**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

LLN0.Beh

No.	Information					
51	Device is Operational and Protecting (Device OK)	0	1	1	1	1
	Test mode (Test mode)	x	0	0	1	1
	Stop data transmission (DataStop)	x	0	1	0	1
LLN0.Beh.stVal		**5**	**1**	**2**	**3**	**4**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Beh.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

LLN0.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
LLN0.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

1.4.3 Logical Device CTRL

LLN0.Mod

No.	Information					
55	Reset Device (Reset Device)	1	1	1	1	1
51	Device is Operational and Protecting (Device OK)	1	1	1	1	0
	Test mode (Test mode)	1	1	0	0	0
	Stop data transmission (DataStop)	1	0	1	0	0
LLN0.Mod.stVal		**4**	**3**	**2**	**1**	**5**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

LLN0.Beh

No.	Information					
55	Reset Device (Reset Device)	1	1	1	1	1
51	Device is Operational and Protecting (Device OK)	1	1	1	1	0
	Test mode (Test mode)	1	1	0	0	0
	Stop data transmission (DataStop)	1	0	1	0	0
LLN0.Beh.stVal		**4**	**3**	**2**	**1**	**5**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Beh.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

LLN0.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
LLN0.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

LLN0.OpTmh

No.	Information	Value	
1020	Counter of operating hours (Op.Hours=)	LLN0.OpTmh.stVal	Operating hours (Absolute value)

1.5 DOI Behavior

1.5.1 Logical Device PROT

For the Logical Nodes of the PROT Logical Device, **LNx.Beh.stVal** is formed from **LNx.Mod.stVal** of the Logical Node and the status of the following device messages:

- Test mode (Test mode),
- Stop data transmission and
- At Least 1 Protection Funct. is Active.

No.	Information						
	Test mode (Test mode)	x	0	1	0	1	x
	Stop data transmission (DataStop)	x	0	0	1	1	x
51	Device is Operational and Protecting (Device OK)	x	1	1	1	1	0
	LNx .Mod.stVal	5	1	1	1	1	x
LNx.Beh.stVal		**5**	**1**	**3**	**2**	**4**	**5**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

1.5.2 Logical Devices MEAS, CTRL, DR and EXT

For the Logical Nodes of the MEAS, CTRL, DR and EXT Logical Devices, **LNx.Beh.stVal** is formed from **LNx.Mod.stVal** of the Logical Node and the status of the following device messages:

- Test mode (Test mode),
- Stop data transmission.

No.	Information							
	Test mode (Test mode)	x	0	1	0	1	0	1
	Stop data transmission (DataStop)	x	0	0	1	1	x	x
	LNx .Mod.stVal	5	1	1	1	1	2	2
LNx.Beh.stVal		**5**	**1**	**3**	**2**	**4**	**2**	**4**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

Mapping

Contents

This chapter shows the mapping of the information relevant to the device on the Logical Node of protocol IEC61850. It is structured according to function. In Chapter 1 you can find what consequences non-configured functions have on the Logical Nodes as well as general information about IEC 61850 mapping of information.

2.1 Device (LPHD1, CALH1)

LPHD1.DevStr

No.	Information				
56	Initial Start of Device (Initial Start)	0	0	1	1
67	Resume (Resume)	0	1	0	1
LPHD1.DevStr.stVal		**T**	**2**	**1**	**T**

device annunciation: 1 - ON
0 - OFF

IEC Status DevStr.stVal: 1 - Initial Start
2 - Resume
T - toggel between 1 and 2

LPHD1.Proxy

No.	Information		
55	Reset Device (Reset Device)	0	1
LPHD1.Proxy.stVal		**1**	**0**

device annunciation: 1 - ON
0 - OFF

IEC Status Proxy.stVal: 0 - DEVICE is not a PROXY
1 - DEVICE is a PROXY

LPHD1.PhyHealth

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
LPHD1.PhyHealth.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status PhyHealth.stVal: 1 - OK
2 - WARNING
3 - ALARM

2.1.1 Error with a summary alarm and Alarm summary event

CALH1.Mod

No.	Information		
56	Initial Start of Device (Initial Start)	1	0
CALH1.Mod.stVal		**1**	**5**

device annunciation: 1 - ON, 0 - OFF

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

CALH1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
CALH1.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

CALH1.GrAlm

No.	Information		
140	Error with a summary alarm (Error Sum Alarm)	1	0
CALH1.GrAlm.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF

IEC Status GrAlm.stVal: 0 - FALSE, 1 - TRUE

CALH1.GrWrn

No.	Information		
160	Alarm Summary Event (Alarm Sum Event)	1	0
CALH1.GrWrn.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF

IEC Status GrWrn.stVal: 0 - FALSE, 1 - TRUE

The LN CALH1.ErrBoard1 to CALH1.ErrBoard7 are available with Firmware

CALH1.ErrBoard1

No.	Information		
183	Error Board 1 (Error Board 1)	1	0
CALH1.ErrBoard1.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard1.stVal: 0 - FALSE, 1 - TRUE

CALH1.ErrBoard2

No.	Information		
184	Error Board 2 (Error Board 2)	1	0
CALH1.ErrBoard2.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard2.stVal: 0 - FALSE, 1 - TRUE

CALH1.ErrBoard3

No.	Information		
185	Error Board 3 (Error Board 3)	1	0
CALH1.ErrBoard3.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard3.stVal: 0 - FALSE, 1 - TRUE

CALH1.ErrBoard4

No.	Information		
186	Error Board 4 (Error Board 4)	1	0
CALH1.ErrBoard4.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard4.stVal: 0 - FALSE, 1 - TRUE

CALH1.ErrBoard5

No.	Information		
187	Error Board 5 (Error Board 5)	1	0
CALH1.ErrBoard5.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard5.stVal: 0 - FALSE, 1 - TRUE

CALH1.ErrBoard6

No.	Information		
188	Error Board 6 (Error Board 6)	1	0
CALH1.ErrBoard6.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard6.stVal: 0 - FALSE, 1 - TRUE

CALH1.ErrBoard7

No.	Information		
189	Error Board 7 (Error Board 7)	1	0
CALH1.ErrBoard7.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF
IEC Status ErrBoard7.stVal: 0 - FALSE, 1 - TRUE

2.2 Oscillographic Fault Records (RDRE1)

RDRE1.Mod

No.	Information	
55	Reset Device (Reset Device)	x
RDRE1.Mod.stVal		**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

RDRE1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RDRE1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

RDRE1.RcdMade

No.	Information		
30053	Fault recording is running (Fault rec. run.)	0	1
RDRE1.RcdMade.stVal		**1**	**0**

device annunciation:
1 - ON
0 - OFF

IEC Status RcdMade.stVal:
0 - FALSE
1 - TRUE
(Recording complete)

RDRE1.FltNum

No.	Information	Value	
302	Fault Event (Fault Event)	RDRE1.FltNum.stVal	Present fault number

RDRE1.GriFltNum

No.	Information	Value	
301	Power System fault (Pow.Sys.Flt.)	RDRE1.GriFltNum.stVal	Network fault number

RDRE1.RcdStr

No.	Information		
30053	Fault recording is running (Fault rec. run.)	0	1
RDRE1.RcdStr.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status RcdStr.stVal: 0 - FALSE, 1 - TRUE

RDRE1.RcdTrg

No.	Information		
	Fault Recording Start(FltRecSta)	0	1
RDRE1.RcdTrg.ctlVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

2.3 Overcurrent Protection 50, 51, 50N, 51N (PTOCx, PTRC2)

2.3.1 Overcurrent Protection 50, 51 PH (PTOC6, PTOC7, PTOC18, PTOC1)

PTOC6.Mod

No.	Information			
1751	50/51 O/C switched OFF (50/51 PH OFF)	1	x	0
	50-1 PICKUP (P1204) = ∞	x	1	0
PTOC6.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC6.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC6.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC6.Str

No.	Information		
1810	50-1 picked up (50-1 picked up)	0	1
PTOC6.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOC6.Op

No.	Information		
1815	50-1 TRIP (50-1 TRIP)	0	1
PTOC6.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PTOC6.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC6.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC7.Mod

No.	Information			
1751	50/51 O/C switched OFF (50/51 PH OFF)	1	x	0
	50-2 PICKUP (P1202) = ∞	x	1	0
PTOC7.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC7.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC7.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC7.Str

No.	Information		
1800	50-2 picked up (50-2 picked up)	0	1
PTOC7.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC7.Op

No.	Information		
1805	50-2 TRIP (50-2 TRIP)	0	1
PTOC7.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC7.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC7.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC18.Mod

No.	Information			
1751	50/51 O/C switched OFF (50/51 PH OFF)	1	x	0
	50-3 PICKUP(P1217) = ∞	x	1	0
PTOC18.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant
IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC18.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC18.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC18.Str

No.	Information		
1767	50-3 picked up (50-3 picked up)	0	1
PTOC18.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC18.Op

No.	Information		
1769	50-3 TRIP (50-3 TRIP)	0	1
PTOC18.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC18.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC18.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC1.Mod

No.	Information		
1751	50/51 O/C switched OFF (50/51 PH OFF)	1	0
PTOC1.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant
IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC1.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC1.Str

No.	Information		
1820	51 picked up (51 picked up)	0	1
PTOC1.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC1.Op

No.	Information		
1825	51 TRIP (51 TRIP)	0	1
PTOC1.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC1.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC1.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

2.3.2 Overcurrent Protection 50N, 51N (PTOC8, PTOC9, PTOC2)

PTOC8.Mod

No.	Information			
7156	50N/51N is OFF (50N/51N OFF)	1	x	0
	50N-1 PICKUP (P1304) = ∞	x	1	0
PTOC8.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC8.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC8.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC8.Str

No.	Information		
1834	50N-1 picked up (50N-1 picked up)	0	1
PTOC8.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOC8.Op

No.	Information		
1836	50N-1 TRIP (50N-1 TRIP)	0	1
PTOC8.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PTOC8.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC8.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC9.Mod

No.	Information			
7156	50N/51N is OFF (50N/51N OFF)	1	x	0
	50N-2 PICKUP (P1302) = ∞	x	1	0
PTOC9.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant
IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC9.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC9.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC9.Str

No.	Information		
1831	50N-2 picked up (50N-2 picked up)	0	1
PTOC9.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC9.Op

No.	Information		
1833	50N-2 TRIP (50N-2 TRIP)	0	1
PTOC9.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC9.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC9.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC2.Mod

No.	Information		
1756	50N/51N is OFF (50N/51N OFF)	1	0
PTOC2.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC2.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC2.Str

No.	Information		
1837	51N picked up (51N picked up)	0	1
PTOC2.Str.general		**0**	**1**

device annunciation: 1 - ON 0 - OFF
IEC Status Str.general: 0 - FALSE 1 - TRUE

PTOC2.Op

No.	Information		
1839	51N TRIP (51N TRIP)	0	1
PTOC2.Op.general		**0**	**1**

device annunciation: 1 - ON 0 - OFF
IEC Status Op.general: 0 - FALSE 1 - TRUE

PTOC2.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC2.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE 1 - TRUE

2.3.3 Overcurrent Protection 50N, 51N (PTRC2)

PTRC2.Mod

No.	Information		
1751 1756	50/51 O/C switched OFF (50/51 PH OFF) and 50N/51N is OFF (50N/51N OFF)	1	0
PTRC2.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTRC2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTRC2.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTRC2.Str

No.	Information		
1761	50(N)/51(N) O/C PICKUP (50(N)/51(N) PU)	0	1
PTRC2.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general: 0 - FALSE
1 - TRUE

PTRC2.Str.dirGeneral

No.	Information	
PTRC2.Str.dirGeneral		**0**

device annunciation:

IEC Status Str.dirGeneral: 0 - UNKNOWN

PTRC2.Str.phsA

No.	Information		
1762	50/51 Phase A picked up (50/51 Ph A PU)	0	1
PTRC2.Str.phsA		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.phsA: 0 - FALSE, 1 - TRUE

PTRC2.Str.dirPhsA

No.	Information	
PTRC2.Str.dirPhsA		**0**

device annunciation:
IEC Status Str.dirPhsA: 0 - UNKNOWN

PTRC2.Str.phsB

No.	Information		
1763	50/51 Phase B picked up (50/51 Ph B PU)	0	1
PTRC2.Str.phsB		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.phsB: 0 - FALSE, 1 - TRUE

PTRC2.Str.dirPhsB

No.	Information	
PTRC2.Str.dirPhsB		**0**

device annunciation:
IEC Status Str.dirPhsB: 0 - UNKNOWN

PTRC2.Str.phsC

No.	Information		
1764	50/51 Phase C picked up (50/51 Ph C PU)	0	1
PTRC2.Str.phsC		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.phsC: 0 - FALSE, 1 - TRUE

PTRC2.Str.dirPhsC

No.	Information	
PTRC2.Str.dirPhsC		**0**

device annunciation: IEC Status Str.dirPhsC: 0 - UNKNOWN

PTRC2.Str.neut

No.	Information		
1765	50N/51N picked up (50N/51NPickedup)	0	1
PTRC2.Str.neut		**0**	**1**

device annunciation: 1 - ON
0 - OFF IEC Status Str.neut: 0 - FALSE
1 - TRUE

PTRC2.Str.dirNeut

No.	Information	
PTRC2.Str.dirNeut		**0**

device annunciation: IEC Status Str.dirPhsC: 0 - UNKNOWN

PTRC2.Op

No.	Information		
1791	50(N)/51(N) TRIP (50(N)/51(N)TRIP)	0	1
PTRC2.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF IEC Status Op.general: 0 - FALSE
1 - TRUE

2.4 Directional Overcurrent Protection 67, 67N (PTOCx, PTRC3)

2.4.1 Directional Overcurrent Protection 67 (PTOC10, PTOC11, PTOC19, PTOC3)

PTOC10.Mod

No.	Information			
2651	67/67-TOC switched OFF (67/67-TOC OFF)	1	x	0
	67-1 PICKUP (P1504) = ∞	x	1	0
PTOC10.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC10.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC10.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC10.Str

No.	Information		
2660	67-1 picked up (67-1 picked up)	0	1
PTOC10.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOC10.Op

No.	Information		
2665	67-1 TRIP (67-1 TRIP)	0	1
PTOC10.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC10.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC10.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC11.Mod

No.	Information			
2651	67/67-TOC switched OFF (67/67-TOC OFF)	1	x	0
	67-2 PICKUP (P1502) = ∞	x	1	0
PTOC11.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC11.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC11.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC11.Str

No.	Information		
2642	67-2 picked up (67-2 picked up)	0	1
PTOC11.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC11.Op

No.	Information		
2649	67-2 TRIP (67-2 TRIP)	0	1
PTOC11.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC11.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC11.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC19.Mod

No.	Information			
2651	67/67-TOC switched OFF (67/67-TOC OFF)	1	x	0
	67-3 PICKUP (P1528) = ∞	x	1	0
PTOC19.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant
IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC19.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC19.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC19.Str

No.	Information		
2697	67-3 picked up (67-3 picked up)	0	1
PTOC19.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC19.Op

No.	Information		
2678	67-3 TRIP (67-3 TRIP)	0	1
PTOC19.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC19.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC19.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC3.Mod

No.	Information		
2651	67/67-TOC switched OFF (67/67-TOC OFF)	1	0
PTOC3.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOC3.Str

No.	Information		
2670	67-TOC picked up (67-TOC picked up)	0	1
PTOC3.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOC3.Op

No.	Information		
2675	67-TOC TRIP (67-TOC TRIP)	0	1
PTOC3.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general: 0 - FALSE
1 - TRUE

PTOC3.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC3.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

2.4.2 Directional Overcurrent Protection 67N (PTOC12, PTOC13, PTOC20, PTOC4)

PTOC12.Mod

No.	Information			
2656	67N/67N-TOC switched OFF (67N OFF)	1	x	0
	67N-1 PICKUP (P1604) = ∞	x	1	0
PTOC12.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC12.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC12.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC12.Str

No.	Information		
2681	67N-1 picked up (67N-1 picked up)	0	1
PTOC12.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOC12.Op

No.	Information		
2683	67N-1 TRIP (67N-1 TRIP)	0	1
PTOC12.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PTOC12.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC12.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC13.Mod

No.	Information			
2656	67N/67N-TOC switched OFF (67N OFF)	1	x	0
	67N-2 PICKUP (P1602) = ∞	x	1	0
PTOC13.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC13.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC13.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC13.Str

No.	Information		
2646	67N-2 picked up (67N-2 picked up)	0	1
PTOC13.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC13.Op

No.	Information		
2679	67N-2 TRIP (67N-2 TRIP)	0	1
PTOC13.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC13.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC13.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC20.Mod

No.	Information			
2656	67N/67N-TOC switched OFF (67N OFF)	1	x	0
	67N-3 PICKUP (P1628) = ∞	x	1	0
PTOC20.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant
IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC20.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC20.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC20.Str

No.	Information		
2698	67N-3 picked up (67N-3 picked up)	0	1
PTOC20.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC20.Op

No.	Information		
2603	67N-3 TRIP (67N-3 TRIP)	0	1
PTOC20.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC20.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC20.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

PTOC4.Mod

No.	Information			
2656	67N/67N-TOC switched OFF (67N OFF)	1	x	0
	M.of PU TD (P1630) = ∞	x	1	0
PTOC4.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant
IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTOC4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC4.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTOC4.Str

No.	Information		
2684	67N-TOC picked up (67N-TOCPickedup)	0	1
PTOC4.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC4.Op

No.	Information		
2686	67N-TOC TRIP (67N-TOC TRIP)	0	1
PTOC4.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTOC4.ChgSet

No.	Information		
1997	Dynamic settings are ACTIVE (Dyn set. ACTIVE)	0	1
PTOC4.ChgSet.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status ChgSet.stVal: 0 - FALSE, 1 - TRUE

2.4.3 Directional Overcurrent Protection 67N (PTRC3)

PTRC3.Mod

No.	Information		
	67/67-TOC switched OFF (67/67-TOC OFF) (I 2651) and 67N/67N-TOC switched OFF (67N OFF) (I 2656)	1	0
PTRC3.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTRC3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTRC3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTRC3.Str

No.	Information		
2691	67/67N picked up (67/67N pickedup)	0	1
PTRC3.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general: 0 - FALSE
1 - TRUE

PTRC3.Str.dirGeneral

No.	Information					
2691	67/67N picked up (67/67N picked up)	0	1	1	1	1
	Phase A forward (Phase A forward) (I 2628) or Phase B forward (Phase B forward) (I 2629) or Phase C forward (Phase C forward) (I 2630) or Ground forward (Ground forward) (I 2635)	x	0	1	0	1
	Phase A reverse (Phase A reverse) (I 2632) or Phase B reverse (Phase B reverse) (I 2633) or Phase C reverse (Phase C reverse) (I 2634) or Ground reverse (Ground reverse) (I 2636)	x	0	0	1	1
PTRC3.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.dirGeneral:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD
3 - BOTH

PTRC3.Str.phsA

No.	Information		
2692	67/67-TOC Phase A picked up (67 A picked up)	0	1
PTRC3.Str.phsA		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.phsA:
0 - FALSE
1 - TRUE

PTRC3.Str.dirPhsA

No.	Information					
2692	67/67-TOC Phase A picked up (67 A picked up)	0	1	1	1	1
2628	Phase A forward (Phase A forward)	x	0	1	0	1
2632	Phase A reverse (Phase A reverse)	x	0	0	1	1
PTRC3.Str.dirPhsA		**0**	**0**	**1**	**2**	**3**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.dirPhsA:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD

PTRC3.Str.phsB

No.	Information		
2693	67/67-TOC Phase B picked up (67 B picked up)	0	1
PTRC3.Str.phsB		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.phsB: 0 - FALSE, 1 - TRUE

PTRC3.Str.dirPhsB

No.	Information					
2693	67/67-TOC Phase B picked up (67 B picked up)	0	1	1	1	1
2629	Phase B forward (Phase B forward)	x	0	1	0	1
2633	Phase B reverse (Phase B reverse)	x	0	0	1	1
PTRC3.Str.dirPhsB		**0**	**0**	**1**	**2**	**3**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Str.dirPhsB: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD

PTRC3.Str.phsC

No.	Information		
2694	67/67-TOC Phase C picked up (67 C picked up)	0	1
PTRC3.Str.phsC		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.phsC: 0 - FALSE, 1 - TRUE

PTRC3.Str.dirPhsC

No.	Information					
2694	67/67-TOC Phase C picked up (67 C picked up)	0	1	1	1	1
2630	Phase C forward (Phase C forward)	x	0	1	0	1
2634	Phase C reverse (Phase C reverse)	x	0	0	1	1
PTRC3.Str.dirPhsC		**0**	**0**	**1**	**2**	**3**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Str.dirPhsC: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD

PTRC3.Str.neut

No.	Information		
2695	67N/67N-TOC picked up (67N picked up)	0	1
PTRC3.Str.neut		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.neut: 0 - FALSE, 1 - TRUE

PTRC3.Str.dirNeut

No.	Information					
2695	67N/67N-TOC picked up (67N picked up)	0	1	1	1	1
2635	Ground forward (Ground forward)	x	0	1	0	1
2636	Ground reverse (Ground reverse)	x	0	0	1	1
PTRC3.Str.dirNeut		**0**	**0**	**1**	**2**	**3**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Str.dirPhsC: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD

PTRC3.Op

No.	Information		
2696	67/67N TRIP (67/67N TRIP)	0	1
PTRC3.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.5 Single-Phase Overcurrent Protection (PTOC16, PTOC17)

PTOC16.Mod

No.	Information			
5961	50 1Ph is OFF (50 1Ph OFF)	1	x	0
	50 1Ph-1 PICKUP (P2705) = ∞	x	1	0
PTOC16.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC16.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC16.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC16.Str

No.	Information		
5974	50 1Ph-1 picked up (50 1Ph-1 PU)	0	1
PTOC16.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOC16.Op

No.	Information		
5975	50 1Ph-1 TRIP (50 1Ph-1 TRIP)	0	1
PTOC16.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PTOC17.Mod

No.	Information			
5961	50 1Ph is OFF (50 1Ph OFF)	1	x	0
	50 1Ph-2 PICKUP (P2703) = ∞	x	1	0
PTOC17.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC17.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC17.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOC17.Str

No.	Information		
5977	50 1Ph-2 picked up (50 1Ph-2 PU)	0	1
PTOC17.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC17.Op

No.	Information		
5979	50 1Ph-2 TRIP (50 1Ph-2 TRIP)	0	1
PTOC17.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.6 Voltage Protection 27, 59 (PTUVx, PTOVx)

2.6.1 Undervoltage Protection 27 (PTUV1)

PTUV1.Mod

No.	Information		
6530	27 Undervoltage protection switched OFF (27 OFF)	1	0
PTUV1.Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUV1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTUV1.Str

No.	Information			
6533	27-1 Undervoltage picked up (27-1 picked up)	0	x	1
6534	27-1 Undervoltage PICKUP w/curr. superv (27-1 PU CS)	0	1	x
PTUV1.Str.general		**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTUV1.Op

No.	Information		
6539	27-1 Undervoltage TRIP (27-1 TRIP)	0	1
PTUV1.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.6.2 Undervoltage Protection 27 (PTUV2)

PTUV2.Mod

No.	Information		
6530	27 Undervoltage protection switched OFF (27 OFF)	1	0
PTUV2.Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUV2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV2.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTUV2.Str

No.	Information			
6537	27-2 Undervoltage picked up (27-2 picked up)	0	x	1
6538	27-2 Undervoltage PICKUP w/curr. superv (27-2 PU CS)	0	1	x
PTUV2.Str.general		**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, X - irrelevant

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTUV2.Op

No.	Information		
6540	27-2 Undervoltage TRIP (27-2 TRIP)	0	1
PTUV2.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.6.3 Overvoltage Protection 59 (PTOV1)

PTOV1.Mod

No.	Information		
6565	59-Overvoltage protection switched OFF (59 OFF)	1	0
PTOV1.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOV1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOV1.Str

No.	Information		
6568	59 picked up (59-1 picked up)	0	1
PTOV1.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOV1.Op

No.	Information		
6570	59 TRIP (59-1 TRIP)	0	1
PTOV1.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

2.6.4 Overvoltage Protection 59 (PTOV2)

PTOV2.Mod

No.	Information		
6565	59-Overvoltage protection switched OFF (59 OFF)	1	0
PTOV2.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOV2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV2.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOV2.Str

No.	Information		
6571	59-2 Overvoltage V>> picked up (59-2 picked up)	0	1
PTOV2.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOV2.Op

No.	Information		
6573	59-2 Overvoltage V>> TRIP (59-2 TRIP)	0	1
PTOV2.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general: 0 - FALSE
1 - TRUE

2.7 Negative Sequence Protection 46 (PTOC14, PTOC15, PTOC5)

PTOC14.Mod

No.	Information		
5151	46 switched OFF (46 OFF)	1	0
PTOC14.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC14.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC14.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC14.Str

No.	Information		
5165	46-1 picked up (46-1 picked up)	0	1
PTOC14.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTOC14.Op

No.	Information		
	46-1 TRIP (46-1 TRIP)	0	1
PTOC14.Op.general		**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE

IEC Status Op.general:
0 - FALSE
1 - TRUE

PTOC15.Mod

No.	Information		
5151	46 switched OFF (46 OFF)	1	0
PTOC15.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC15.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC15.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOC15.Str

No.	Information		
5159	46-2 picked up (46-2 picked up)	0	1
PTOC15.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOC15.Op

No.	Information		
	46-2 TRIP (46-2 TRIP)	0	1
PTOC15.Op.general		**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE

IEC Status Op.general: 0 - FALSE
1 - TRUE

PTOC5.Mod

No.	Information		
5151	46 switched OFF (46 OFF)	1	0
PTOC5.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOC5.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOC5.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTOC5.Str

No.	Information		
5166	46-TOC picked up (46-TOC pickedup)	0	1
PTOC5.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTOC5.Op

No.	Information		
	46-TOC TRIP (46-TOC TRIP)	0	1
PTOC5.Op.general		**0**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.8 Motor Protection (PMSS1, PMRI1)

2.8.1 Motor Starting Protection 48 (PMSS1)

PMSS1.Mod

No.	Information		
6811	Startup supervision OFF (START-SUP OFF)	1	0
PMSS1.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PMSS1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PMSS1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PMSS1.Str

No.	Information		
6823	Startup supervision Pickup (START-SUP pu)	0	1
PMSS1.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general: 0 - FALSE
1 - TRUE

PMSS1.Op

No.	Information		
6821	Startup supervision TRIP (START-SUP TRIP)	0	1
PMSS1.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Op.general: 0 - FALSE
1 - TRUE

2.8.2 Motor Restart Inhibit 66 (PMRI1)

PMRI1.Mod

No.	Information		
4824	66 Motor start protection OFF (66 OFF))	1	0
PMRI1.Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PMRI1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PMRI1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PMRI1.Op

No.	Information		
4827	66 Motor start protection TRIP (66 TRIP)	0	1
PMRI1.Op.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PMRI1.StrInhTmm

No.	Information	Value	
809	Time untill release of reclose-blocking (T reclose=)	PMRI1.StrInhTmm.stVal	Absolute value

2.9 Load Jam Protection (PMLJ1)

Function available with Firmware

PMLJ1.Mod

No.	Information		
10022	Load Jam Protection is OFF (JAM PROT.OFF)	1	0
PMLJ1.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PMLJ1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PMLJ1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PMLJ1.Str

No.	Information		
10025	Load Jam Protection picked up (Load Jam pickup)	0	1
PMLJ1.Str.general		**0**	**1**

device annunciation: 1 - ON 0 - OFF
IEC Status Str.general: 0 - FALSE 1 - TRUE

PMLJ1.Op

No.	Information		
10026	Load Jam Protection TRIP (Load Jam TRIP)	0	1
PMLJ1.Op.general		**0**	**1**

device annunciation: 1 - ON 0 - OFF
IEC Status Op.general: 0 - FALSE 1 - TRUE

PMLJ1.LodJamAlm

No.	Information		
10024	Load Jam Protection alarm (Load Jam alarm)	0	1
PMLJ1.LodJamAlm.stVal		**0**	**1**

device annunciation: 1 - ON 0 - OFF
IEC Status Op.general: 0 - FALSE 1 - TRUE

2.10 Frequency protection 81 O/U (PTUFx, PTOFx)

2.10.1 Frequency protection 81-1 U (PTUF1)

PTUF1.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	1
PTUF1.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUF1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUF1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTUF1.Str

No.	Information				
5232	81-1 picked up (81-1 picked up)	0	0	1	1
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	0	1
PTUF1.Str.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTUF1.Op

No.	Information				
5236	81-1 TRIP (81-1 TRIP)	0	0	1	1
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	0	1
PTUF1.Op.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTUF1.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	0	1
PTUF1.BlkV.stVal		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.2 Frequency protection 81-2 U (PTUF2)

PTUF2.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	1
PTUF2.Mod.stVal		**5**	**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUF2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUF2.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTUF2.Str

No.	Information				
5233	81-2 picked up (81-2 picked up)	0	0	1	1
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	0	1
PTUF2.Str.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTUF2.Op

No.	Information				
5237	81-2 TRIP (81-2 TRIP)	0	0	1	1
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	0	1
PTUF2.Op.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTUF2.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	0	1
PTUF2.BlkV.stVal		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.3 Frequency protection 81-3 U (PTUF3)

PTUF3.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	1
PTUF3.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUF3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUF3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTUF3.Str

No.	Information				
5234	81-3 picked up (81-3 picked up)	0	0	1	1
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	0	1
PTUF3.Str.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTUF3.Op

No.	Information				
5238	81-3 TRIP (81-3 TRIP)	0	0	1	1
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	0	1
PTUF3.Op.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTUF3.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	0	1
PTUF3.BlkV.stVal		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.4 Frequency protection 81-4 U (PTUF4)

PTUF4.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	1
PTUF4.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUF4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUF4.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTUF4.Str

No.	Information				
5235	81-4 picked up (81-4 picked up)	0	0	1	1
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	0	1
PTUF4.Str.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTUF4.Op

No.	Information				
5239	81-4 TRIP (81-4 TRIP)	0	0	1	1
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	0	1
PTUF4.Op.general		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTUF4.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	0	1
PTUF4.BlkV.stVal		**0**	**0**	**0**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.5 Frequency protection 81-1 O (PTOF1)

PTOF1.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-1 PICKUP (P5403/5404) ≤ Rated Frequency (P214)	1	x	0
PTOF1.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOF1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOF1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOF1.Str

No.	Information				
5232	81-1 picked up (81-1 picked up)	0	0	1	1
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	0	1
PTOF1.Str.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOF1.Op

No.	Information				
5236	81-1 TRIP (81-1 TRIP)	0	0	1	1
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	0	1
PTOF1.Op.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTOF1.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-1 PICKUP (P5403/5404) < Rated Frequency (P214)	0	1	0	1
PTOF1.BlkV.stVal		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.6 Frequency protection 81-2 O (PTOF2)

PTOF2.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-2 PICKUP (P5406/5407) ≤ Rated Frequency (P214)	1	x	0
PTOF2.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOF2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOF2.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOF2.Str

No.	Information				
5233	81-2 picked up (81-2 picked up)	0	0	1	1
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	0	1
PTOF2.Str.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOF2.Op

No.	Information				
5237	81-2 TRIP (81-2 TRIP)	0	0	1	1
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	0	1
PTOF2.Op.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTOF2.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-2 PICKUP (P5406/5407) < Rated Frequency (P214)	0	1	0	1
PTOF2.BlkV.stVal		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.7 Frequency protection 81-3 O (PTOF3)

PTOF3.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-3 PICKUP (P5409/5410) ≤ Rated Frequency (P214)	1	x	0
PTOF1.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOF3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOF3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOF3.Str

No.	Information				
5234	81-3 picked up (81-3 picked up)	0	0	1	1
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	0	1
PTOF3.Str.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOF3.Op

No.	Information				
5238	81-3 TRIP (81-3 TRIP)	0	0	1	1
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	0	1
PTOF3.Op.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTOF3.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-3 PICKUP (P5409/5410) < Rated Frequency (P214)	0	1	0	1
PTOF3.BlkV.stVal		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.10.8 Frequency protection 81-4 O (PTOF4)

PTOF4.Mod

No.	Information			
5211	81 OFF (81 OFF)	x	1	0
	81-4 PICKUP (P5412/5413) ≤ Rated Frequency (P214)	1	x	0
PTOF4.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal: 1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTOF4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOF4.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal: 1 - OK
2 - WARNING
3 - ALARM

PTOF4.Str

No.	Information				
5235	81-4 picked up (81-4 picked up)	0	0	1	1
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	0	1
PTOF4.Str.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Str.general: 0 - FALSE
1 - TRUE

PTOF4.Op

No.	Information				
5239	81-4 TRIP (81-4 TRIP)	0	0	1	1
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	0	1
PTOF4.Op.general		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status Op.general: 0 - FALSE
1 - TRUE

PTOF4.BlkV

No.	Information				
5214	81 Under Voltage Block (81 Under V Blk)	0	0	1	1
	81-4 PICKUP (P5412/5413) < Rated Frequency (P214)	0	1	0	1
PTOF4.BlkV.stVal		**0**	**0**	**1**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkV.stVal: 0 - FALSE
1 - TRUE

2.11 QV Protection 27/Q (PTUV9)

PTUV9.Mod

No.	Information		
6411	27/Q -Protection off (27/Q OFF)	0	1
PTUV9.Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTUV9.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV9.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTUV9.Str

No.	Information		
6423	27/Q-Protection PICKUP (27/Q PICKUP)	0	1
PTUV9.Str.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTUV9.Op

No.	Information				
6421	27/Q -Protection Gen TRIP (27/Q Gen TRIP)	0	1	0	1
6422	27/Q -Protection Gen TRIP (27/Q Gen TRIP)	0	0	1	1
PTUV9.Op.general		**0**	**1**	**1**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

2.12 Thermal overload protection (PTTR1)

PTTR1.Mod

No.	Information		
1511	49 Overload Protection is OFF (49 O / L OFF)	1	0
PTTR1.Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PTTR1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTTR1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PTTR1.Str

No.	Information		
1517	49 Winding Overload (49 Winding O/L)	0	1
PTTR1.Str.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PTTR1.Op

No.	Information		
1521	49 Thermal Overload TRIP (49 Th O/L TRIP)	0	1
PTTR1.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PTTR1.AlmThm

No.	Information		
1516	49 Overload Alarm! Near Thermal Trip (49 O/L Θ Alarm)	0	1
PTTR1.AlmThm.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status AlmThm.general: 0 - FALSE, 1 - TRUE

2.13 Ground Fault Protection 64, 50N(s), 51N(s) (PHIZ1, PSDEx)

2.13.1 Ground Fault Protection 64 (PHIZ1)

PHIZ1.Mod

No.	Information		
1211	50Ns/67Ns is OFF (50Ns/67Ns OFF)	1	0
PHIZ1.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PHIZ1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PHIZ1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PHIZ1.Str

No.	Information		
1215	64 displacement voltage pick up (64 Pickup)	0	1
PHIZ1.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PHIZ1.Str.dirGeneral

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	0	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	0	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	0	0	0	0	1
PHIZ1.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status Str.dirGeneral: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD, 3 - BOTH

PHIZ1.Str.phsA

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	x	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	x	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	x	0	0	x	1
1272	Sensitive Ground fault picked up in Ph A (Sens. Gnd Ph A)	x	0	1	1	1	1
PHIZ1.Str.phsA		**0**	**0**	**1**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.phsA: 0 -FALSE, 1 - TRUE

PHIZ1.Str.dirPhsA

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	x	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	x	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	x	0	0	x	1
1272	Sensitive Ground fault picked up in Ph A (Sens. Gnd Ph A)	x	0	1	1	1	1
PHIZ1.Str.dirPhsA		**0**	**0**	**1**	**2**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status Str.dirPhsA: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD

PHIZ1.Str.phsB

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	x	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	x	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	x	0	0	x	1
1273	Sensitive Ground fault picked up in Ph B (Sens. Gnd Ph B)	x	0	1	1	1	1
PHIZ1.Str.phsB		**0**	**0**	**1**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.phsB: 0 -FALSE, 1 - TRUE

PHIZ1.Str.dirPhsB

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	x	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	x	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	x	0	0	x	1
1273	Sensitive Ground fault picked up in Ph B (Sens. Gnd Ph B)	x	0	1	1	1	1
PHIZ1.Str.dirPhsB		**0**	**0**	**1**	**2**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status Str.dirPhsB: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD

PHIZ1.Str.phsC

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	x	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	x	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	x	0	0	x	1
1274	Sensitive Ground fault picked up in Ph C (Sens. Gnd Ph C)	x	0	1	1	1	1
PHIZ1.Str.phsC		**0**	**0**	**1**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.phsC: 0 -FALSE, 1 - TRUE

PHIZ1.Str.dirPhsC

No.	Information						
1215	64 displacement voltage pick up (64 Pickup)	0	x	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	x	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	x	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	x	0	0	x	1
1274	Sensitive Ground fault picked up in Ph C (Sens. Gnd Ph C)	x	0	1	1	1	1
PHIZ1.Str.dirPhsC		**0**	**0**	**1**	**2**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status Str.dirPhsC: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD

PHIZ1.Op

No.	Information		
1217	64 displacement voltage element TRIP (64 TRIP)	0	1
PHIZ1.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.13.2 Ground Fault Protection 50N(s) (PSDE1, PSDE2)

PSDE1.Mod

No.	Information		
1211	50Ns/67Ns is OFF (50Ns/67Ns OFF)	1	0
PSDE1.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PSDE1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSDE1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PSDE1.Str

No.	Information		
1224	50Ns-1 Pickup (50Ns-1 Pickup)	0	1
PSDE1.Str.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PSDE1.Str.dirGeneral

No.	Information						
1224	50Ns-1 Pickup (50Ns-1 Pickup)	0	1	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	0	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	0	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	0	0	0	0	1
PSDE1.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.dirGeneral:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD
3 - BOTH

PSDE1.Op

No.	Information		
1226	50Ns-1 TRIP (50Ns-1 TRIP)	0	1
PSDE1.Op.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PSDE2.Mod

No.	Information		
1211	50Ns/67Ns is OFF (50Ns/67Ns OFF)	1	0
PSDE2.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PSDE2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSDE2.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

PSDE2.Str

No.	Information		
1221	50Ns-2 Pickup (50Ns-2 Pickup)	0	1
PSDE2.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PSDE2.Str.dirGeneral

No.	Information						
1221	50Ns-2 Pickup (50Ns-2 Pickup)	0	1	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	0	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	0	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	0	0	0	0	1
PSDE2.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Str.dirGeneral: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD, 3 - BOTH

PSDE2.Op

No.	Information		
1223	50Ns-2 TRIP (50Ns-2 TRIP)	0	1
PSDE2.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

2.13.3 51 N(s) (PSDE3)

PSDE3.Mod

No.	Information			
1211	50Ns/67Ns is OFF (50Ns/67Ns OFF)	1	x	0
	M.of PU TD (P3131) = ∞	x	1	0
PSDE3.Mod.stVal		**5**	**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PSDE3.Health

No.	Information			
51	Device is Operational and Protecting (Device OK)	x	0	1
16029	sens.grd.flt. 51Ns BLOCKED Setting Error (51Ns BLK PaErr)	1	x	0
PSDE3.Health.stVal		**3**	**3**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PSDE3.Str

No.	Information		
1227	51Ns picked up (51Ns Pickup)	0	1
PSDE3.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PSDE3.Str.dirGeneral

No.	Information						
1227	51Ns picked up (51Ns Pickup)	0	1	1	1	1	1
1276	Sensitive Gnd fault in forward direction (SensGnd Forward)	x	0	1	0	1	x
1277	Sensitive Gnd fault in reverse direction (SensGnd Reverse)	x	0	0	1	1	x
1278	Sensitive Gnd fault direction undefined (SensGnd undef.)	x	0	0	0	0	1
PSDE3.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.dirGeneral:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD
3 - BOTH

PSDE3.Op

No.	Information		
1229	51Ns TRIP (51Ns TRIP)	0	1
PSDE3.Op.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

2.14 Admittance Earth Fault Protection (PSDE4, PSDE5, PSDE6, PSDE7)

PSDE4.Mod

No.	Information		
18516	Y0(G0/B0) is OFF (Y0 OFF)	1	0
PSDE4.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PSDE4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSDE4.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.general:
1 - OK
2 - WARNING
3 - ALARM

PSDE4.Str

No.	Information		
18501	Y0(G0/B0)-1 Pickup (Y0-1 Pickup)	0	1
PSDE4.Str.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PSDE4.Str.dirGeneral

No.	Information						
18501	Y0(G0/B0)-1 Pickup (Y0-1 Pickup)	0	1	1	1	1	1
18485	Y0(G0/B0)-1 in forward direction (Y0-1 Forward)	x	0	1	0	1	x
18486	Y0(G0/B0)-1 in reverse direction (Y0-1 Reverse)	x	0	0	1	1	x
PSDE4.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.dirGeneral:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD
3 - BOTH

PSDE4.Op

No.	Information		
18505	Y0(G0/B0)-1 TRIP (Y0-1 TRIP)	0	1
PSDE4.Op.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

PSDE5.Mod

No.	Information		
18516	Y0(G0/B0) is OFF (Y0 OFF)	1	0
PSDE5.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PSDE5.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSDE5.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 1 - OK, 2 - WARNING, 3 - ALARM

PSDE5.Str

No.	Information		
18502	Y0(G0/B0)-2 Pickup (Y0-2 Pickup)	0	1
PSDE5.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Str.general: 0 - FALSE, 1 - TRUE

PSDE5.Str.dirGeneral

No.	Information						
18502	Y0(G0/B0)-2 Pickup (Y0-2 Pickup)	0	1	1	1	1	1
18488	Y0(G0/B0)-2 in forward direction (Y0-2 Forward)	x	0	1	0	1	x
18489	Y0(G0/B0)-2 in reverse direction (Y0-2 Reverse)	x	0	0	1	1	x
PSDE5.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Str.dirGeneral: 0 - UNKNOWN, 1 - FORWARD, 2 - BACKWARD, 3 - BOTH

PSDE5.Op

No.	Information		
18506	Y0(G0/B0)-2 TRIP (Y0-2 TRIP)	0	1
PSDE5.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Op.general: 0 - FALSE, 1 - TRUE

PSDE6.Mod

No.	Information		
18516	Y0(G0/B0) is OFF (Y0 OFF)	1	0
PSDE6.Mod.stVal		**5**	**1**

device annunciation / setting:
1 - ON / TRUE
0 - OFF / FALSE
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

PSDE6.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSDE6.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.general:
1 - OK
2 - WARNING
3 - ALARM

PSDE6.Str

No.	Information		
18503	Y0(G0/B0)-3 Pickup (Y0-3 Pickup)	0	1
PSDE6.Str.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Str.general:
0 - FALSE
1 - TRUE

PSDE6.Str.dirGeneral

No.	Information						
18503	Y0(G0/B0)-3 Pickup (Y0-3 Pickup)	0	1	1	1	1	1
18491	Y0(G0/B0)-3 in forward direction (Y0-3 Forward)	x	0	1	0	1	x
18492	Y0(G0/B0)-3 in reverse direction (Y0-3 Reverse)	x	0	0	1	1	x
PSDE6.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.dirGeneral:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD
3 - BOTH

PSDE6.Op

No.	Information		
18507	Y0(G0/B0)-3 TRIP (Y0-3 TRIP)	0	1
PSDE6.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Op.general: 0 - FALSE, 1 - TRUE

PSDE7.Mod

No.	Information		
18516	Y0(G0/B0) is OFF (Y0 OFF)	1	0
PSDE7.Mod.stVal		**5**	**1**

device annunciation / setting: 1 - ON / TRUE, 0 - OFF / FALSE, x - irrelevant

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PSDE7.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSDE7.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 1 - OK, 2 - WARNING, 3 - ALARM

PSDE7.Str

No.	Information		
18504	Y0(G0/B0)-4 Pickup (Y0-4 Pickup)	0	1
PSDE7.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PSDE7.Str.dirGeneral

No.	Information						
18504	Y0(G0/B0)-4 Pickup (Y0-4 Pickup)	0	1	1	1	1	1
18494	Y0(G0/B0)-4 in forward direction (Y0-4 Forward)	x	0	1	0	1	x
18495	Y0(G0/B0)-4 in reverse direction (Y0-4 Reverse)	x	0	0	1	1	x
PSDE7.Str.dirGeneral		**0**	**0**	**1**	**2**	**3**	**0**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Str.dirGeneral:
0 - UNKNOWN
1 - FORWARD
2 - BACKWARD
3 - BOTH

PSDE7.Op

No.	Information		
18508	Y0(G0/B0)-4 TRIP (Y0-4 TRIP)	0	1
PSDE7.Op.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

2.15 Automatic Reclosing System 79 (RREC1)

RREC1.Mod

No.	Information		
2781	79 Auto recloser is switched OFF (79 OFF)	1	0
RREC1.Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

RREC1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RREC1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

RREC1.Op

No.	Information		
2851	79 - Close command (79 Close)	0	1
RREC1.Op.general		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Op.general:
0 - FALSE
1 - TRUE

RREC1.AutoRecSt

No.	Information				
2801	79 - in progress (79 in progress)	1	1	0	0
2862	79 - cycle successful (79 Successful)	1	0	1	0
RREC1.AutoRecSt.stVal		**3**	**2**	**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status AutoRecST.stVal:
1 - ready
2 - in progress
3 - successful

2.16 Fault Locator (RFLO1)

RFLO1.Mod

No.	Information		
	Fault Locator (P180) = Enabled	1	0
RFLO1.Mod.stVal		**1**	**5**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

RFLO1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RFLO1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

RFLO1.FltZ

No.	Information	Value		
	Absolute value of the fault impedance	RFLO1.FltZ.cVal.mag.f	Measured value	Absolute value
		RFLO1.FltZ.units.SIUnit	30	Ω (Ohm)
		RFLO1.FltZ.units.multiplier	0	1
	Angle of the fault impedance	RFLO1.FltZ.cVal.ang.f	Measured value	Angle in °

RFLO1.FltDiskm

No.	Information	Value		
1119 or 1122	Flt Locator: Distance to fault (dist =)	RFLO1.FltDiskm.mag.f	Measured value	Absolute value
		RFLO1.FltDiskm.units.SIUnit	2	Meter
		RFLO1.FltDiskm.units.multiplier	3	Kilo

RFLO1.FltDisPrc

No.	Information	Value		
1120	Flt Locator: Distance [%] to fault (d[%] =)	RFLO1.FltDisPrc.mag.f	Measured value	Absolute value
		RFLO1.FltDisPrc.units.SIUnit	1	NONE
		RFLO1.FltDisPrc.multiplier	0	1

2.17 Circuit breaker failure protection 50BF(RBRF1)

RBRF1.Mod

No.	Information		
1451	Breaker failure is switched OFF (BkrFail OFF)	1	0
RBRF1.Mod.stVal		**5**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

RBRF1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RBRF1.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

RBRF1.Str

No.	Information				
1456	50BF (internal) PICKUP (50BF int Pickup)	0	0	1	1
1457	50BF (external) PICKUP (50BF ext Pickup)	0	1	0	1
RBRF1.Str.general		**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

RBRF1.OpEx

No.	Information		
1481	50BF (external) TRIP (50BF ext TRIP)	0	1
RBRF1.OpEx.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status OpEx.general: 0 - FALSE, 1 - TRUE

RBRF1.OpIn

No.	Information		
1480	50BF (internal) TRIP (50BF int TRIP)	0	1
RBRF1.OpIn.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant

IEC Status OpIn.general: 0 - FALSE, 1 - TRUE

2.18 Synchronism and Voltage Check 25 (RSYNx)

RSYN1.Mod

No.	Information		
170.2101	Sync-group 1 is switched OFF (25-1 OFF)	0	1
RSYN1.Mod.stVal		**1**	**5**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

RSYN1.Health

No.	Information				
170.0050	25 Synchronization Error (25 Sync. Error)	x	x	1	0
51	Device is Operational and Protecting (Device OK)	x	x	1	1
170.2096	25 Multiple selection of func-groups (25 FG-Error)	1	x	0	0
170.2097	25 Setting error (25 Set-Error)	x	1	0	0
RSYN1.Health.stVal		**3**	**3**	**2**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

RSYN1.Rel

No.	Information		
170.0049	25 Sync. Release of CLOSE Command (25 CloseRelease)	0	1
RSYN1.Rel.stVal		**0**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Rel.stVal:
0 - FALSE
1 - TRUE

RSYN1.VInd

No.	Information		
170.2030	25 Voltage difference (Vdiff) okay (25 Vdiff ok)	0	1
RSYN1.VInd.stVal		**1**	**0**

device annunciation: 1 - ON 0 - OFF IEC Status VInd.stVal: 0 - FALSE 1 - TRUE

RSYN1.AngInd

No.	Information		
170.2032	25 Angle difference (alphadiff) okay (25 αdiff ok)	0	1
RSYN1.AngInd.stVal		**1**	**0**

device annunciation: 1 - ON 0 - OFF IEC Status AngInd.stVal: 0 - FALSE 1 - TRUE

RSYN1.HzInd

No.	Information		
170.2031	25 Frequency difference (fdiff) okay (25 fdiff ok)	0	1
RSYN1.HzInd.stVal		**1**	**0**

device annunciation: 1 - ON 0 - OFF IEC Status HzInd.stVal: 0 - FALSE 1 - TRUE

RSYN1.SynPrg

No.	Information		
170.2022	25-group 1: measurement in progress (25-1 meas.)	0	1
RSYN1.SynPrg.stVal		**0**	**1**

device annunciation: 1 - ON 0 - OFF IEC Status SynPrg.stVal: 0 - FALSE 1 - TRUE

RSYN1.DifVClc

No.	Information	Value		
170.2054	dV = (dV =)	RSYN1.DifVClc.mag.f	Measured value	Absolute value
		RSYN1.DifVClc.units.SIUnit	29	V (Volt)
		RSYN1.DifVClc.units.multiplier	3	Kilo

RSYN1.DifHzClc

No.	Information	Value		
170.2055	df = (df =)	RSYN1. DifHzClc.mag.f	Measured value	Absolute value
		RSYN1. DifHzClc.units.SIUnit	33	Hz
		RSYN1. DifHzClc.units.multiplier	0	1

RSYN1.DifAngClc

No.	Information	Value		
170.2056	dalpha = (dα =)	RSYN1. DifAngClc.mag.f	Measured value	Absolute value
		RSYN1. DifAngClc.units.SIUnit	9	° (Degree)
		RSYN1. DifAngClc.units.multiplier	0	1

2.19 Three-pole tripping 52 Breaker (XCBR1)

XCBR1.Mod

No.	Information		
51	Device is Operational and Protecting (Device OK)	1	0
XCBR1.Mod.stVal		**1**	**5**

device annunciation:
1 - ON
0 - OFF

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

XCBR1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
XCBR1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

XCBR1.Loc

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR1.Loc.stVal		**1**	**0**

device annunciation:
1 - ON
0 - OFF

IEC Status Loc.stVal:
0 - FALSE
1 - TRUE

XCBR1.OpCnt

No.	Information	Value		
	Number of TRIPs= (#of TRIPs=)	XCBR1.OpCnt.stVal	Metered value	Absolute value

XCBR1.Pos

No.	Information				
4601	>52-a contact (OPEN, if bkr is open) (>52-a)	0	1	0	1
4602	>52-b contact (OPEN, if bkr is closed) (>52-b)	0	0	1	1
XCBR1.Pos.stVal - if spontan information		**11**	**01**	**10**	**11**
XCBR1.Pos.stVal - if command is running		**00**	**01**	**10**	**00**

device annunciation: 1 - ON
0 - OFF

IEC Status Pos.stVal: 00 - INTERMEDIATE STATE
01 - OFF
10 - ON
11 - BAD STATE

XCBR1.BlkOpn

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR1.BlkOpn.stVal		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status BlkOpn.stVal: 0 - FALSE
1 - TRUE

XCBR1.BlkCls

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR1.BlkCls.stVal		**0**	**1**

device annunciation: 1 - ON
0 - OFF

IEC Status BlkCls.stVal: 0 - FALSE
1 - TRUE

XCBR1.CBOpCap

No.	Information	
XCBR1.CBOpCap.stVal		**1**

device annunciation:

IEC Status CBOpCap.stVal: 1 - NONE

XCBR1.CirSpv

No.	Information		
6865	74TC Failure Trip Circuit (74TC Trip cir.)	0	1
XCBR1.CirSpv.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status CirSpv.stVal: 0 - FALSE, 1 - TRUE

XCBR1.SumSwARs1

No.	Information	Value		
1021	Accumulation of interrupted current Ph A (Σ Ia =)	XCBR1.SumSwARs1.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		XCBR1.SumSwARs1.units.SIUnit	5	A (Ampere)
		XCBR1.SumSwARs1.units.multiplier	3	Kilo
		XCBR1.SumSwARs1.pulsQty	1.000000e-002	A / Metered value

XCBR1.SumSwARs2

No.	Information	Value		
1022	Accumulation of interrupted current Ph B (Σ Ib =)	XCBR1.SumSwARs2.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		XCBR1.SumSwARs2.units.SIUnit	5	A (Ampere)
		XCBR1.SumSwARs2.units.multiplier	3	Kilo
		XCBR1.SumSwARs2.pulsQty	1.000000e-002	A / Metered value

XCBR1.SumSwARs3

No.	Information	Value		
1023	Accumulation of interrupted current Ph C (Σ Ic =)	XCBR1.SumSwARs3.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		XCBR1.SumSwARs3.units.SIUnit	5	A (Ampere)
		XCBR1.SumSwARs3.units.multiplier	3	Kilo
		XCBR1.SumSwARs3.pulsQty	1.000000e-002	A / Metered value

2.20 Tripping Logic of the Entire Device (PTRC1)

PTRC1.Mod

No.	Information			
51	Device is Operational and Protecting (Device OK)	0	1	1
52	At Least 1 Protection Funct. is Active (ProtActive)	x	0	1
PTRC1.Mod.stVal		**5**	**5**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Mod.stVal: 1 - ON, 2 - BLOCKED, 3 - TEST, 4 - TEST/BLOCKED, 5 - OFF

PTRC1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTRC1.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Health.stVal: 1 - OK, 2 - WARNING, 3 - ALARM

PTRC1.Str

No.	Information		
501	Relay PICKUP (Relay PICKUP)	0	1
PTRC1.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status Str.general: 0 - FALSE, 1 - TRUE

PTRC1.Tr

No.	Information		
511	Relay GENERAL TRIP command (Relay TRIP)	0	1
PTRC1.Tr.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status Tr.general: 0 - FALSE, 1 - TRUE

PTRC1.FinTr

No.	Information		
2863	79 - Lockout (79 Lockout)	0	1
PTRC1.FinTr.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF
IEC Status FinTr.stVal: 0 - FALSE, 1 - TRUE

2.21 Measurement (MMXU1, MSQI1, MMTR1)

2.21.1 Measures (MMXU1)

MMXU1.Mod

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU1.Mod.stVal		**0**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

MMXU1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

MMXU1.TotW

No.	Information	Value		
641	P (active power) (P =)	MMXU1.TotW.mag.f	Measured value	Absolute value
		MMXU1.TotW.units.SIUnit	62	W (Watt)
		MMXU1.TotW.units.multiplier	6	Mega

MMXU1.TotVAr

No.	Information	Value		
642	Q (reactive power) (Q =)	MMXU1.TotVAr.mag.f	Measured value	Absolute value
		MMXU1.TotVAr.units.SIUnit	63	VAr
		MMXU1.TotVAr.units.multiplier	6	Mega

MMXU1.TotVA

No.	Information	Value		
645	S (apparent power) (S =)	MMXU1.TotVA.mag.f	Measured value	Absolute value
		MMXU1.TotVA.units.SIUnit	61	VA
		MMXU1.TotVA.units.multiplier	6	Mega

MMXU1.TotPF

No.	Information	Value		
901	Power Factor (PF =)	MMXU1.TotPF.mag.f	Measured value	Absolute value
		MMXU1.TotPF.units.SIUnit	1	NONE
		MMXU1.TotPF.units.multiplier	0	1

MMXU1.Hz

No.	Information	Value		
644	Frequency (Freq=)	MMXU1.Hz.mag.f	Measured value	Absolute value
		MMXU1.Hz.units.SIUnit	33	Hz
		MMXU1.Hz.units.multiplier	0	1

MMXU1.A

No.	Information	Value		
601	Ia (Ia =)	MMXU1.A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU1.A.phsA.units.SIUnit	5	A (Ampere)
		MMXU1.A.phsA.units.multiplier	0	1

No.	Information	Value		
602	Ib (Ib =)	MMXU1.A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU1.A.phsB.units.SIUnit	5	A (Ampere)
		MMXU1.A.phsB.units.multiplier	0	1

No.	Information	Value		
603	Ic (Ic =)	MMXU1.A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU1.A.phsC.units.SIUnit	5	A (Ampere)
		MMXU1.A.phsC.units.multiplier	0	1

No.	Information	Value		
604	In (In =)	MMXU1.A.neut.cVal.mag.f	Measured value	Absolute value
		MMXU1.A.neut.units.SIUnit	5	A (Ampere)
		MMXU1.A.neut.units.multiplier	0	1

MMXU1.PPV

No.	Information	Value		
624	Va-b (Va-b=)	MMXU1.PPV.phsAB.cVal.mag.f	Measured value	Absolute value
		MMXU1.PPV.phsAB.units.SIUnit	29	V (Volt)
		MMXU1.PPV.phsAB.units.multiplier	3	Kilo

No.	Information	Value		
625	Vb-c (Vb-c=)	MMXU1.PPV.phsBC.cVal.mag.f	Measured value	Absolute value
		MMXU1.PPV.phsBC.units.SIUnit	29	V (Volt)
		MMXU1.PPV.phsBC.units.multiplier	3	Kilo

No.	Information	Value		
626	Vc-a (Vc-a=)	MMXU1.PPV.phsCA.cVal.mag.f	Measured value	Absolute value
		MMXU1.PPV.phsCA.units.SIUnit	29	V (Volt)
		MMXU1.PPV.phsCA.units.multiplier	3	Kilo

MMXU1.PhV

No.	Information	Value		
621	Va (Va =)	MMXU1.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU1.PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU1.PhV.phsA.units.multiplier	3	Kilo

No.	Information	Value		
622	Vb (Vb =)	MMXU1.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU1.PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU1.PhV.phsB.units.multiplier	3	Kilo

No.	Information	Value		
623	Vc (Vc =)	MMXU1.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU1.PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU1.PhV.phsC.units.multiplier	3	Kilo

No.	Information	Value		
627	VN (VN =)	MMXU1.PhV.neut.cVal.mag.f	Measured value	Absolute value
		MMXU1.PhV.neut.units.SIUnit	29	V (Volt)
		MMXU1.PhV.neut.units.multiplier	3	Kilo

2.21.2 Measured values, symmetrical components (MSQI1)

MSQI1.Mod

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MSQI1.Mod.stVal		**0**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

MSQI1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MSQI1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

MSQI1.SeqA

No.	Information	Value		
605	I1 (positive sequence) (I1 =)	MSQI1.SeqA.c1.cVal.mag.f	Measured value	Absolute value
		MSQI1.SeqA.c1.units.SIUnit	5	A (Ampere)
		MSQI1.SeqA.c1.units.multiplier	0	1

No.	Information	Value		
606	I2 (negative sequence) (I2 =)	MSQI1.SeqA.c2.cVal.mag.f	Measured value	Absolute value
		MSQI1.SeqA.c2.units.SIUnit	5	A (Ampere)
		MSQI1.SeqA.c2.units.multiplier	0	1

No.	Information	Value		
831	3Io (zero sequence) (3Io =)	MSQI1.SeqA.c3.cVal.mag.f	Measured value	Absolute value
		MSQI1.SeqA.c3.units.SIUnit	5	A (Ampere)
		MSQI1.SeqA.c3.units.multiplier	0	1

MSQI1.SeqV

No.	Information	Value		
629	V1 (positive sequence) (V1 =)	MSQI1.SeqV.c1.cVal.mag.f	Measured value	Absolute value
		MSQI1.SeqV.c1.units.SIUnit	29	V (Volt)
		MSQI1.SeqV.c1.units.multiplier	3	Kilo

No.	Information		Value	
630	V2 (negative sequence) (V2 =)	MSQI1.SeqV.c2.cVal.mag.f	Measured value	Absolute value
		MSQI1.SeqV.c2.units.SIUnit	29	V (Volt)
		MSQI1.SeqV.c2.units.multiplier	3	Kilo

No.	Information		Value	
832	Vo (zero sequence) (Vo =)	MSQI1.SeqV.c3.cVal.mag.f	Measured value	Absolute value
		MSQI1.SeqV.c3.units.SIUnit	29	V (Volt)
		MSQI1.SeqV.c3.units.multiplier	3	Kilo

2.21.3 Power Metering (MMTR1)

MMTR1.Mod

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMTR1.Mod.stVal		**0**	**1**

device annunciation:
1 - ON
0 - OFF
x - irrelevant

IEC Status Mod.stVal:
1 - ON
2 - BLOCKED
3 - TEST
4 - TEST/BLOCKED
5 - OFF

MMTR1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMTR1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

IEC Status Health.stVal:
1 - OK
2 - WARNING
3 - ALARM

MMTR1.SupWh

No.	Information	Value		
924	Wp Forward (Wp+=)	MMTR1.SupWh.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		MMTR1.SupWh.units.SIUnit	72	Wh
		MMTR1.SupWh.units.multiplier	6	Mega
		MMTR1.SupWh.pulsQty	3.464200e-005	Wh / Metered value

MMTR1.SupVArh

No.	Information	Value		
925	Wq Forward (Wq+=)	MMTR1.SupVArh.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		MMTR1.SupVArh.units.SIUnit	73	VArh
		MMTR1.SupVArh.units.multiplier	6	Mega
		MMTR1.SupVArh.pulsQty	3.464200e-005	VArh / Metered value

MMTR1.DmdWh

No.	Information	Value		
928	Wp Reverse (Wp-=)	MMTR1.DmdWh.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		MMTR1.DmdWh.units.SIUnit	72	Wh
		MMTR1.DmdWh.units.multiplier	6	Mega
		MMTR1.DmdWh.pulsQty	3.464200e-005	Wh / Metered value

MMTR1.DmdVArh

No.	Information	Value		
929	Wq Reverse (Wq-=)	MMTR1.DmdVArh.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		MMTR1.DmdVArh.units.SIUnit	73	VArh
		MMTR1.DmdVArh.units.multiplier	6	Mega
		MMTR1.DmdVArh.pulsQty	3.464200e-005	VArh / Metered value

Literature

/1/ SIPROTEC 4 System Description
E50417-H1176-C151

/2/ SIPROTEC DIGSI, StartUP
E50417-G1176-C152

/3/ DIGSI CFC, Manual
E50417-H1176-C098

/4/ SIPROTEC SIGRA 4, Manual
E50417-H1176-C1100-C070