SIEMENS

SIPROTEC

Line Differential Protection / Distance Protection Devices

7SD5, 7SD610

7SA6, 7SA522

V4.7

Breaker Management Relay

7VK61

V4.6

IEC 61850

PIXIT

Preface, Table of Contents

Applications 1

Basics 2

Mapping 3

Literature, Index

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Preface

Purpose of this manual

In this Manual, you will find the

- Specification of the applications of the IEC 61850 interface
- General information about the effects of configuration of your device to the different Logical Nodes and DOIs
- Mapping of the information relevant to the device on the Logical Node of protocol IEC61850.

Target audience

This manual is intended mainly for all persons who configure, parameterize and operate a SIPROTEC Device 7SD5, 7SD610, 7SA522, 7SA6 or 7VK61.

Scope of validity of this Manual

SIPROTEC 7SA6, Version 4.7

SIPROTEC 7SA522, Version 4.7

SIPROTEC 7SD5, Version 4.7

SIPROTEC 7SD610, Version 4.7

SIPROTEC 7VK61, Version 4.60

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.

Table of contents

1 Applications 9

1.1 General 10
1.2 Association model 11
1.3 Server model 12
1.4 Data set model 13
1.5 Substitution model 14
1.6 Setting group control model 15
1.7 Reporting model 16
1.7.1 Unbuffered Report 16
1.7.2 Buffered Report 17
1.8 Logging model 19
1.9 Generic substation model 20
1.10 Transmission of sample values model 22
1.11 Control model 23
1.12 Time and time synchronisation model 25
1.13 File transfer model 26
1.14 General items 27
1.15 TISSUES 28

2 Basics 31

2.1 General 32
2.2 Effects of Configuration to the Logical Nodes 34
2.2.1 Function parameters general 34
2.2.2 Function parameters SIPROTEC 7SA6 35
2.2.3 Function parameters SIPROTEC 7SA522 39
2.2.4 Function parameters SIPROTEC 7SD5 43
2.2.5 Function parameters SIPROTEC 7SD610 48
2.2.6 Function parameters SIPROTEC 7VK61 51
2.3 Allocation of Logical Nodes to Logical Devices 54
2.4 Logical Node LLN0 58
2.4.1 Logical Device PROT 58
2.4.2 Logical Devices MEAS, CTRL, DR and EXT 59
2.5 The DOI Behavior 60
2.5.1 Logical Device PROT 60
2.5.2 Logical Devices MEAS, CTRL, DR and EXT 61

3 Mapping 63

3.1 Differential Protection (PDIFx, PTRCx) 64
3.1.1 I-DIFF> (PDIF1) 64
3.1.2 I-DIFF>> (PDIF2) 65
3.1.3 Differencial Protection General Information 67
3.2 Distance Protection (PDISx, PTRC2) 74
3.2.1 Distance protection zone 1 (PDIS1) 74
3.2.2 Distance protection zone 1B (PDIS10) 80
3.2.3 Distance protection zone 2 (PDIS2) 86
3.2.4 Distance protection zone 3 (PDIS3) 89
3.2.5 Distance protection zone 4 (PDIS4) 92
3.2.6 Distance protection zone 5 (PDIS5) 95
3.2.7 Distance protection zone 6 (PDIS6) 98
3.2.8 Distance protection general information (PTRC2) 101
3.3 Power swing detection (RPSBx) 106
3.3.1 Power swing detection zone 1 (RPSB1) 106
3.3.2 Power swing detection zone 1B (RPSB10) 108
3.3.3 Power swing detection zone 2 (RPSB2) 110
3.3.4 Power swing detection zone 3 (RPSB3) 112
3.3.5 Power swing detection zone 4 (RPSB4) 114
3.3.6 Power swing detection zone 5 (RPSB5) 116
3.3.7 Power swing detection zone 6 (RPSB7) 118
3.3.8 Power swing trip command (RPSB6) 120
3.4 Teleprotection for distance protection (PSCH1) 121
3.5 Earth fault overcurrent protection in earthed systems (PTOCx) 128
3.5.1 Earth fault 3I0 > (PTOC5) 128
3.5.2 Earth fault 3I0 >> (PTOC6) 130
3.5.3 Earth fault 3I0 >>> (PTOC7) 132
3.5.4 Earth fault 3I0p (PTOC8) 134
3.6 Earth fault detection in non-earthed systems (PSDE1) 136
3.7 Restricted earth fault protection (PDIF3) 140
3.8 Overcurrent protection (PTOCx) 142
3.8.1 O/C Ip (PTOC1) 142
3.8.2 O/C I> (PTOC2) 143
3.8.3 O/C I>> (PTOC3) 144
3.8.4 O/C I>>> (PTOC4) 146
3.8.5 Directional O/C Ip (PTOC9) 148
3.8.6 Directional O/C I> (PTOC10) 150
3.9 Automatic reclosure function (RREC1) 152
3.10 Synchronism and voltage check (RSYN1) 154

3.11 Under and overvoltage protection (PTUVx, PTOVx) . . . 157
3.11.1 Under voltage protection Uph-e < (PTUV1) . . . 157
3.11.2 Undervoltage protection Uph-e<< (PTUV2) . . . 159
3.11.3 Undervoltage protection Uphph< (PTUV3) . . . 161
3.11.4 Undervoltage protection Uphph<< (PTUV4) . . . 163
3.11.5 Undervoltage protection U1< (PTUV5) . . . 165
3.11.6 Undervoltage protection U1<< (PTUV6) . . . 166
3.11.7 Overvoltage protection Uph> (PTOV1) . . . 167
3.11.8 Overvoltage protection Uph-e>> (PTOV2) . . . 169
3.11.9 Overvoltage protection Uphph> (PTOV3) . . . 171
3.11.10 Overvoltage protection Uphph>> (PTOV4) . . . 173
3.11.11 Overvoltage protection 3U0> (PTOV5) . . . 175
3.11.12 Overvoltage protection 3U0>> (PTOV6) . . . 176
3.11.13 Overvoltage protection U1> (PTOV7) . . . 177
3.11.14 Overvoltage protection U1>> (PTOV8) . . . 178
3.11.15 Overvoltage protection U2> (PTOV9) . . . 179
3.11.16 Overvoltage protection U2>> (PTOV10) . . . 180
3.12 Frequency protection (PTUFx, PTOFx) . . . 181
3.12.1 Underfrequency protection FQS stage f1 (PTUF1) . . . 181
3.12.2 Underfrequency protection FQS stage f2 (PTUF2) . . . 183
3.12.3 Underfrequency protection FQS stage f3 (PTUF3) . . . 185
3.12.4 Underfrequency protection FQS stage f4 (PTUF4) . . . 187
3.12.5 Overfrequency protection FQS stage f1 (PTOF1) . . . 189
3.12.6 Overfrequency protection FQS stage f2 (PTOF2) . . . 191
3.12.7 Overfrequency protection FQS stage f3 (PTOF3) . . . 193
3.12.8 Overfrequency protection FQS stage f4 (PTOF4) . . . 195
3.13 Fault locator (RFLO1) . . . 197
3.14 Circuit breaker failure protection (RBRF1) . . . 199
3.15 Thermal overload protection (PTTR1) . . . 201
3.16 Single-pole / threepole tripping Circuit Breaker (XCBRx) . . . 203
3.16.1 Threepole tripping (XCBR1) . . . 203
3.16.2 Single-pole / threepole tripping (XCBR2, XCBR3, XCBR4) . . . 206
3.17 Tripping Logic of the Entire Device (PTRC1) . . . 213
3.18 Device (LPHD1, CALH1) . . . 217
3.18.1 Alarm-, Warn- and Group alarms (CALH1) . . . 218
3.19 Measurements (MMXUx, MSQI1, MMTR1) . . . 221
3.19.1 Measured values of local device (MMXU1) . . . 221
3.19.2 Remote measured values of relay 1 (MMXU2) . . . 225
3.19.3 Remote measured values of relay 2 (MMXU3) . . . 228
3.19.4 Remote measured values of relay 3 (MMXU4) . . . 231
3.19.5 Remote measured values of relay 4 (MMXU5) . . . 234
3.19.6 Remote measured values of relay 5 (MMXU6) . . . 237
3.19.7 Remote measured values of relay 6 (MMXU7) . . . 240
3.19.8 Measured values, symmetrical components (MSQI1) . . . 243
3.19.9 Power Metering (MMTR1) . . . 245

3.20 Oscillographic Fault Records (RDRE1) 247

Literature

Index

Applications

Contents

This chapter specifies the protocol implementation extra information for testing (PIXIT) of the IEC 61850 interface in SIPROTEC 7SD / 7SA / 7VK.

1.1	General	10
1.2	Association model	11
1.3	Server model	12
1.4	Data set model	13
1.5	Substitution model	14
1.6	Setting group control model	15
1.7	Reporting model	16
1.8	Logging model	19
1.9	Generic substation model	20
1.10	Transmission of sample values model	22
1.11	Control model	23
1.12	Time and time synchronisation model	25
1.13	File transfer model	26
1.14	General items	27
1.15	TISSUES	28

1.1 General

This chapter specifies the protocol implementation extra information for testing (PIXIT) of the IEC 61850 interface in SIPROTEC 7SD / 7SA / 7VK.

It is based on the service subset definition given in the protocol implementation conformance statement (PICS), which is specified within the user manual *SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual /1/*.

The following applicable ACSI service models are specified:

- Association model
- Server model
- Data set model
- Substitution model
- Setting group control model
- Reporting model
- Logging model
- Generic substitution model
- Transmission of sample values model
- Control model
- Time and time synchronisation model
- File transfer model
- General items

Together with the PICS and the MICS the PIXIT forms the basis for a conformance test according to IEC 61850-10.

The mapping between the IEC 61850 server data model and the SIPROTEC specific data is specified in Chapter 3.

1.2 Association model

Description	Value / Clarification
Maximum number of clients that can set-up an association simultaneously	5 with IEC 61850 Protocol Update Version V04.02 and lower 6 with IEC 61850 Protocol Update Version EN100 V04.03 and higher
Lost connection detection time range (default range of TCP_KEEPALIVE is 1 – 20 seconds)	10 seconds
Is authentication supported	N
What called association parameters are necessary for successful association ?	Transport selector Y Session selector Y Presentation selector Y AP Title ANY AE Qualifier ANY Where Y means: as defined within the ICD-File ANY means: any value accepted
What is the maximum and minimum MMS PDU size ?	Max MMS PDU size 32768 Min MMS PDU size
What is the typical startup time after a power supply interrupt ?	15 SECONDS
<additional items>	

1.3 Server model

Description	Value / Clarification
Which analogue value (MX) quality bits are supported (can be set by server) ?	Validity: Y Good, Y Invalid, N Reserved, Y Questionable Y Overflow Y OutofRange N BadReference N Oscillatory Y Failure Y OldData N Inconsistent Y Inaccurate Source: Y Process N Substituted Y Test Y OperatorBlocked
Which status value (ST) quality bits are supported (can be set by server) ?	Validity: Y Good, Y Invalid, N Reserved, Y Questionable N BadReference Y Oscillatory Y Failure Y OldData N Inconsistent N Inaccurate Source: Y Process Y Substituted Y Test Y OperatorBlocked
What is the maximum number of data values in one GetDataValues request ?	Not restricted; depends on the max. MMS PDU size given above.
What is the maximum number of data values in one SetDataValues request ?	Not restricted; depends on the max. MMS PDU size given above. No Data Attribute within our object directory is writable with the service SetDataValues.
<additional items>	

1.4 Data set model

Description	Value / Clarification
Maximum number of data elements in one data set	Not limited by an internal configuration parameter. It depends on the available memory.
How many persistent data sets can be created by one or more clients ?	64 data sets for each LD. It depends on the available memory.
How many non-persistent data sets can be created by one or more clients ?	10 data sets. It depends on the available memory.
additional items:	
Maximum number of data sets	Could not be defined, it depends on the available memory space. In principle, this information it not necessary from type conformance testing standpoint.

1.5 Substitution model

This service will not be supported (see also *SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual /1/*).

1.6 Setting group control model

Description	Value / Clarification
What is the number of supported setting groups for each logical device ?	Setting groups available for LLN0 only in LD PROT. The number of supported setting groups is 1 or 4, it depends on the given configuration. Specified in the ICD-File.
What is the effect of when and how the non-volatile storage is updated ? (compare IEC 61850-8-1 $16.2.4)	Just SelectActiveSG service will supported according to PICS.
<additional items>	

1.7 Reporting model

1.7.1 Unbuffered Report

Description	Value / Clarification
The supported trigger conditions are	Y Integrity Y Data change Y Quality change Y Data update Y General Interrogation
The supported optional fields are	Y Sequence-number Y Report-time-stamp Y Reason-for-inclusion Y Data-set-name Y Data-reference N Buffer-overflow N EntryID Y Conf-rev Y Segmentation
Can the server send segmented reports ?	Y
Mechanism on second internal data change notification of the same analogue data value within buffer period (Compare IEC 61850-7-2 $14.2.2.9)	Send report immediately
Multi client URCB approach (Compare IEC 61850-7-2 $14.2.1)	All clients can access all URCB's
additional items:	
Interrupt of general interrogation	Running GI could not be interrupted. If a new GI request occurs during a running GI, the current GI will be finished first before the second GI request will be processed.
Integrity period	Configurable >=1 second;
Dynamic URCB reservation after an abort of the client/server association	Reservation of the URCB is lost. After a re-establishment of the association the URCB reservation has to be done by the client before. This behavior is implemented to avoid unnecessary memory residuals if temporarily client associations (e.g. for maintenance) are established.
Configured URCB reservation after an abort of the client/server association	Reservation of the URCB is not lost.

1.7.2 Buffered Report

Description	Value / Clarification
The supported trigger conditions are	Y Integrity Y Data change Y Quality change Y Data update Y General Interrogation
The supported optional fields are	Y Sequence-number Y Report-time-stamp Y Reason-for-inclusion Y Data-set-name Y Data-reference Y Buffer-overflow Y EntryID Y Conf-rev Y Segmentation
Can the server send segmented reports ?	Y
Mechanism on second internal data change notification of the same analogue data value within buffer period (Compare IEC 61850-7-2 $14.2.2.9)	Buffer the Entry Send report if the report is enabled
Multi client BRCB approach (Compare IEC 61850-7-2 $14.2.1)	All clients can access all BRCB's
What is the format of EntryID ?	First 2 Byte : Integer Last 6 Bytes: BTime6 time stamp
What is the buffer size for each BRCB or how many reports can be buffered ?	About 1 MB are available for the buffering. Each BRCB has an extension attribute Memory that display the percentage of those 1 MB that have been reserved/forseen for its own entries. Default amount 1 MB/(2*Number of logical devices)
additional items:	
Interrupt of general interrogation	Running GI could not be interrupted. If a new GI request occurs during a running GI, the current GI will be finished first before the second GI request will be processed.
Integrity period	Configurable >=1 second;
Dynamic BRCB reservation after an abort of the client/server association	Reservation of the BRCB has been fixed with TISSUE 453. The value of the attribute ResvTms delivers the time interval during which the reservation is still active after the connection has been lost. In case a BRCB is still reserved, and a client connects with the same IP address as the one used during the reservation, then the BRCB attribute can be written by this client without prior setting the ResvTms attribute as long as the reservation timer has not expired.

Configured BRCB reservation after an abort of the client/server association	Reservation of the BRCB is not lost for BRCBs that have been pre-associated to a specific client (pre-association defined with means of the CLientLN element with the BRCB instantiation in the SCD file). Reservation of a BRCB is lost for BRCBs, that have not been pre-associated to a specific client, after the expiration of the reservation timer set with the ResvTms attribute. In case ResvTms is not set (backward compatibility), ResvTms will get a default value for all preconfigured BRCBs that are not pre-associated to a specific client.
Optional use of a flow control for transmitting history of a BRCB	As specified in the IEC61850-7-2, transmission of entries may required some times, depending of the amount of entries that have to be transmitted. Therefore, the SIPROTEC has an optional flow control feature to accelerate the transmission of the entries: each BRCB has an extended attribute MaxOutReports that can be set from the associated-client to change the transmmision strategy of the entries. The number ordered will then be transmitted as long as they exist in the buffer; the server then reset the attribute to 0 and wait for the client to set it again in order to continue the history transmission with MaxOutReports entries. The attribute only influences the flow control of entries while dealing with the history, and not after the history transmission has completed.

1.8 Logging model

This service will not be supported (see also *SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual /1/*).

1.9 Generic substation model

Description	Value / Clarification
What is the behavior when one subscribed GOOSE message isn't received or syntactically incorrect ?	The telegram will be discarded (i.e not forwarded to the application) since it is corrupt or syntactically incorrect and therefore not readable. The data objects will be declared as invalid after a timeout detection since no telegram have been received by the application.
What is the behavior when a subscribed GOOSE message is out-of-order ?	Error message will be stored into the error buffer (could be accessed by EN100 web-server). All expected data objects will be declared as invalid.
What is the behavior when a subscribed GOOSE message is duplicated ?	The sequence number given in the GOOSE-message is out-of-order. Error message will be stored into the error buffer (could be accessed by EN100 web-server). All expected data objects will be declared as invalid.
additional items:	
Maximum number of GOOSE messages which could be sent	<= 16 ; It depends on the available memory.
Maximum number of GOOSE messages which could be received	<= 128 ; It depends on the available memory.
Interpretation of GOOSE messages at subscriber side	1. Received GOOSE data objects without assigned quality attribute are interpreted as invalid. 2. Received GOOSE data objects which quality attribute are set to questionable are changed to invalid.
GOOSE subscriber behavior in case of missing GOOSE messages	After a GOOSE multicast application association has been interrupted, the reception of the second consecutive GOOSE telegram is required to validate the state of this GOOSE association again. However, the IED tolerates a missing telegram as long as the next telegram (expected n, received n+1) is received within the time allowed to live time out detection (the time allowed to live timeout detection occurs after 2*TAL).
GOOSE subscriber behaviour in case of multiple GOOSE messages	If a message is received twice or more, the IED already reports an error after the second reception. Therefore, network configuration error can be more easily tracked.
What is the behavior when a GOOSE header parameter is mismatching with the expected one? (datSet, goID, confRev, numDatSetEntries, number of allData)	Error message will be stored into the error buffer (could be accessed by EN100 web-server). All expected data objects will be declared as invalid.
What is the behavior when a timeAllowedToLive is 0?	Error message will be stored into the error buffer (could be accessed by EN100 web-server) since the timeAllowedToLive expired. All expected data objects will be declared as invalid.

What is the behavior when there is an out-of-order entry in the allData?	The confRev attribute in the header guarantees that the allData entries are in the correct order. Therefore, it's necessary to check the confRev attribute. There is no chance to detect such an out-of-order.
What is the behavior when no telegram is received within a TAL timeout?	To avoid an incorrect timeout detection, the subscriber detects a timeout after a period of 2×TAL. The information is then declared as questionable, oldData.
What is the behavior when a GOOSE header parameter goCBRef is mismatching with the expected one?	Since the goCBRef shall be unique stationwide, the received telegram with the mismatched goCBRef will be discarted: it has not been published. In that case only the timeout detection will set the data to invalid.
What is the behavior when a GOOSE header parameter APPID is mismatching with the expected one?	The APPID is a link layer parameter. It is used as a filter on link layer. If the APPID is mismatching, the tellegram will therefore be discarded on link layer without notifying the application. Only the timeout detection will set the data to invalid.
What is the behavior when a GOOSE header parameter t is not increasing?	The t parameter is not checked. Therefore it doesn't lead to any error detection.
What is the behavior when numDatSetEntries and number of allData are inconsistent?	The telegram is discarded since it is corrupt (not well formed). After the timeout detection (no telegram forwarded to the application) the data objects are declared invalid.

1.10 Transmission of sample values model

Compare the “Implementation Guidelines for Electrical Current and Voltage Transducers according to IEC 60044-7/8 with Digital Output according to IEC 61850-9-2; Version 1.0; as specified by ABB, Areva, Landis+Gyr, OMICRON and SIEMENS

This service will not be supported (see also *SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual /1/*).

1.11 Control model

Description	Value / Clarification
What control models are supported ?	Y Status-only Y Direct-with-normal-security N Sbo-with-normal-security Y Direct-with-enhanced-security Y Sbo-with-enhanced-security
Is Time activated operate (operTm) supported	N
What is the behavior when the test attribute is set in the SelectWithValue and/or Operate request ?	Will be acknowledged with negative response. The AddCause attribute will be set to “not supported”
What are the conditions for the time (T) attribute in the SelectWithValue and/or Operate request ?	Time attribute is not relevant.
Is “operate-many” supported ?	N
Is pulse configuration supported ?	N
What check conditions are supported ?	Y Synchrocheck Y Interlock-check
What service error types are supported ?	Y Instance-not-available Y Instance-in-use Y Access-violation Y Access-not-allowed-in-current-state Y Parameter-value-inappropriate Y Parameter-value-inconsistent Y Class-not-supported Y Instance-locked-by-other-client Y Control-must-be-selected Y Type-conflict Y Failed-due-to-communications Y Constraint failed-due-to-server-constraint

What additional cause diagnosis are supported ?	N Blocked-by-switching-hierarchy Y Select-failed Y Invalid-position Y Position-reached Y Parameter-change-in-execution Y Step-limit Y Blocked-by-Mode Y Blocked-by-process Y Blocked-by-interlocking Y Blocked-by-synchrocheck Y Command-already-in-execution N Blocked-by-health Y 1-of-n-control Y Abortion-by-cancel Y Time-limit-over N Abortion-by-trip Y Object-not-selected
additional items:	
What additional cause diagnosis extensions are supported ?	Y Plausibility_error Y Parameter_setting_invalid Y Hardware_error Y System_overload Y Internal_fault Y Command_sequence_error
Changing the control services by configuration	N
Inconsistency between Select and (Oper or cancel)	Oper or cancel will be acknowledged with negative response if inconsistencies to the select request are detected. The following attributes will not be checked in this case: T (Time)
Cancel request could be sent after an operate request.	Y
Format of the control time stamp attribute ?	TimeStamp instead of EntryTime acc. to the 7-2 Errata List.
Negative response for select request could be performed only	If test mode is activated or If the selection is always done.

1.12 Time and time synchronisation model

Description	Value / Clarification
What kind of quality bits are supported ?	N LeapSecondsKnown Y ClockFailure Y ClockNotSynchronized
What kind of quality accuracy bits are supported ?	Y Invalid N Unspecified
What is the behavior when the time synchronization signal/messages are lost ?	The quality attribute “ClockFailure” will be set to TRUE after a configured time period.
What is the behaviour when the time synchronisation messages indicate that the stratum is greater than 3?	A stratum with a value greater than 3 with the SNTP time synchronization messages indicates that the time server has a questionable synchronisation. It might also indicate that no GPS connection are available. Therefore the time quality attribute “ClockNotSynchronized” will be set to TRUE as long as the stratum content is greater than 3.
additional items:	
What is the behavior at start up time when a time synchronization via SNTP is configured ?	The “ClockNotSynchronized” attribute is set to TRUE as long as no time synchronization is established.

1.13 File transfer model

Description	Value / Clarification
What is structure of files and directories?	Directory name / COMTRADE / *; Directory name / LD / *; Files according to the comtrade standard.
What is the resulting behavior if no file specification is present in the file directory request?	If no file specification is present in the directory request, all files are returned - not only the files in the root directory.
Is the IETF FTP protocol also implemented ?	N
Directory names are separated from the file name by	“/”
The maximum file name size including path (default 64 chars)	64
Are directory/file name case sensitive	Case sensitive
Maximum file size	Not limited by implementation or configuration. Depends on available memory.
additional items:	
Maximum number of clients that can use the FTP service simultaneously	1
Maximum number of files that can be accessed simultaneously	1

1.14 General items

Description	Value / Clarification
IED behavior when the Logical Device is blocked : LLN0.Mod.stVal = blocked	Unlike the definition of the Data Objects “Mod/Beh” in IEC 61850-7-4, outputs to the process will be generated. Details to this behavior are specified in *SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual /1/*
additional items:	
GOOSE Proxy object	To be able to subscribe Data over GOOSE, Proxy Objects are added into the object directory. Typically, they are Data of GGIO logical nodes: SPCSOxx, DPCSOxx, ISCSOxx. The Data Attributes of those Data are ctlVal, q and t. The control model associated to those Data is status-only. They are not controllable from an IEC61850 client, and their function is only to enable the GOOSE subscribing.
What is the type of the attribute actVal in the BCR (Binary Counter Reading) CDC?	The type is integer 32 (INT32).

1.15 TISSUES

Topic	TISSUE -No.	Link	Description	Impact of Interoper.
Object Directory	433	http://www.tissue.iec61850.com/tissue.mspx?issueid=433	Order of attributes in specialized CDCs for control service mapping	-
	422	http://www.tissue.iec61850.com/tissue.mspx?issueid=422	Order of extension data objects and data attributes	-
	168	http://www.tissue.iec61850.com/tissue.mspx?issueid=168	Order of attributes in MMS components	-
Object Model	120	http://www.tissue.iec61850.com/tissue.mspx?issueid=120	Type - Mod.stVal and Mod.ctlVal	-
	146	http://www.tissue.iec61850.com/tissue.mspx?issueid=146	CtxInt	-
	173	http://www.tissue.iec61850.com/tissue.mspx?issueid=173	Ctl modelling harmonization	-
	234	http://www.tissue.iec61850.com/tissue.mspx?issueid=234	New type CtxInt	x
Services	377	http://www.tissue.iec61850.com/tissue.mspx?issueid=377	DeleteDataSet response-	-
	276	http://www.tissue.iec61850.com/tissue.mspx?issueid=276	File Services Negative Responses	-
	183	http://www.tissue.iec61850.com/tissue.mspx?issueid=183	GetNameList error handling	x
	165	http://www.tissue.iec61850.com/tissue.mspx?issueid=165	Improper Error Response for GetDataSetValues	x
	116	http://www.tissue.iec61850.com/tissue.mspx?issueid=116	GetNameList with empty response?	x
Reporting	474	http://www.tissue.iec61850.com/tissue.mspx?issueid=474	GI for URCB	-
	453	http://www.tissue.iec61850.com/tissue.mspx?issueid=453	Reporting & Logging model revision	x
	438	http://www.tissue.iec61850.com/tissue.mspx?issueid=438	EntryTime base should be GMT	-
	349	http://www.tissue.iec61850.com/tissue.mspx?issueid=349	BRCB TimeOfEntry has two definitions	x
	348	http://www.tissue.iec61850.com/tissue.mspx?issueid=348	URCB class and report	x

Reporting	344	http://www.tissue.iec61850.com/tissue.mspx?issueid=344	TimeOfEntry misspelled	-
	335	http://www.tissue.iec61850.com/tissue.mspx?issueid=335	Clearing of Bufovfl	x
	332	http://www.tissue.iec61850.com/tissue.mspx?issueid=332	Ambiguity in use of trigger options	x
	329	http://www.tissue.iec61850.com/tissue.mspx?issueid=329	Reporting and BufOvl	x
	322	http://www.tissue.iec61850.com/tissue.mspx?issueid=322	Write Configuration attribute of BRCBs	
	301	http://www.tissue.iec61850.com/tissue.mspx?issueid=301	SqNum in Buffered Reports	-
	300	http://www.tissue.iec61850.com/tissue.mspx?issueid=300	Attribute Resv in BRCB	x
	298	http://www.tissue.iec61850.com/tissue.mspx?issueid=298	Type of SqNum	x
	297	http://www.tissue.iec61850.com/tissue.mspx?issueid=297	Sequence number	x
	278	http://www.tissue.iec61850.com/tissue.mspx?issueid=278	EntryId not valid for a server	x
	275	http://www.tissue.iec61850.com/tissue.mspx?issueid=275	Confusing statement on GI usage	x
	191	http://www.tissue.iec61850.com/tissue.mspx?issueid=191	BRCB: Integrity and buffering reports	x
	190	http://www.tissue.iec61850.com/tissue.mspx?issueid=190	BRCB: EntryId and TimeOfEntry	x
	177	http://www.tissue.iec61850.com/tissue.mspx?issueid=177	Ignoring OptFlds bits for URCB	-
	52	http://www.tissue.iec61850.com/tissue.mspx?issueid=52	Ambiguity GOOSE SqNum	x
	49	http://www.tissue.iec61850.com/tissue.mspx?issueid=49	BRCB TimeOfEntry?	x
Control Model	46	http://www.tissue.iec61850.com/tissue.mspx?issueid=46	Synchro check cancel	x
	44	http://www.tissue.iec61850.com/tissue.mspx?issueid=44	AddCause - Object not sel	x
	30	http://www.tissue.iec61850.com/tissue.mspx?issueid=30	control parameter T	x

Basics

Contents

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

2.1	General	32
2.2	Effects of Configuration to the Logical Nodes	34
2.3	Allocation of Logical Nodes to Logical Devices	54
2.4	Logical Node LLN0	58
2.5	The DOI Behavior	60

2.1 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.

The devices and high voltage bay control units of the SIPROTEC 4 series can be equipped with an Ethernet module EN100 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.

For details please refer to the manuals:

- *SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual /1/* and
- *SIPROTEC 4 System Description /2/*.

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 2.3.

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

2.2 Effects of Configuration to the Logical Nodes

2.2.1 Function parameters general

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

2.2.2 Function parameters SIPROTEC 7SA6

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 2-1 SIPROTEC 7SA6 - Effects of Function parameters to the Logical Nodes

No.	Funktion	Setting	Logical Nodes
103	Setting Group Change Option		No effect
	Disturbance Recorder	-	RDRE1
110	Trip mode	3pole only	XCBR1
		1-/3pole	XCBR2, XCBR3, XCBR4
114	Distance protection pickup program	Disabled	-
		Z< (quadrilat.)	PDIS1 – PDIS6, PTRC2
		I> (overcurr.)	-
		U/I	-
		U/I/φ	-
115	Characteristic of distance zones		No effect
120	Power Swing detection	Disabled	-
		Enabled	RPSB1 – RPSB7
121	Teleprotection for Distance protection	Disabled	-
		PUTT (Z1B)	PSCH1
		PUTT (Pickup)	PSCH1
		POTT	PSCH1
		Dir.Comp.Pickup	PSCH1
		Unblocking	PSCH1
		Blocking	PSCH1
		Rev. Interlock	PSCH1
		Pilot wire comp	PSCH1

Table 2-1 SIPROTEC 7SA6 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
122	DTT Direct Transfer Trip		No effect
124	Instantaneous HighSpeed SOTF Overcurrent		No effect
125	Weak Infeed (Trip and/or Echo)		No effect
126	Backup overcurrent	Disabled	-
		TOC IEC	PTOC1 - PTOC3
		TOC IEC /w 3ST	PTOC1- PTOC4
		TOC ANSI	PTOC1- PTOC4
130	Sensitive Earth Flt.(comp/ isol. starp.)	Disabled	-
		Enabled	PSDE1
131	Earth fault overcurrent	Disabled	-
		TOC IEC	PTOC5 – PTOC8
		TOC ANSI	PTOC5 – PTOC8
		TOC Logarithm.	PTOC5 – PTOC8
		Definite Time	PTOC5 – PTOC7
		U0 invers	PTOC5 – PTOC8
		Sr inverse	PTOC5 – PTOC8
132	Teleprotection for Earth fault overcurrent		No effect

Table 2-1 SIPROTEC 7SA6 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
133	Auto-Reclose Function	Disabled	-
		1 AR-cycle	RREC1
		2 AR-cycles	RREC1
		3 AR-cycles	RREC1
		4 AR-cycles	RREC1
		5 AR-cycles	RREC1
		6 AR-cycles	RREC1
		7 AR-cycles	RREC1
		8 AR-cycles	RREC1
		ADT	RREC1
134	Auto-Reclose control mode		No effect
135	Synchronism and Voltage Check	Disabled	-
		Enabled	RSYN1
136	Over / Underfrequency Protection	Disabled	-
		Enabled	PTOF1 – PTOF4, PTUF1 – PTUF4
137	Under / Overvoltage Protection	Disabled	-
		Enabled	PTUV1 – PTUV6, PTOV1 – PTOV10
		Enabl. w. comp.	PTUV1 –PTUV6, PTOV1 – PTOV10
138	Fault Locator	Disabled	-
		Enabled	RFLO1
		with BCD-output	RFLO1

Table 2-1 SIPROTEC 7SA6 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
139	Breaker Failure Protection	Disabled	-
		Enabled	RBRF1
		enabled w/ 3I0>	RBRF1
140	Trip Circuit Supervision	Disabled	-
		1 Trip Circuit	XCBR1.CirSpv - XCBR4.CirSpv
		2 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
		3 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
142	Thermal overload protection	Disabled	-
		Enabled	PTTR1
145	Protection Interface 1 (Port D)	Disabled	-
		Enabled	MMXU2 - MMXU4
147	Number of relays	2 relays, Protection Interface 1 disabled	-
		2 relays, Protection Interface 1 enabled	MMXU2, MMXU3
		3 relays	MMXU2, MMXU3, MMXU4
150	Analog Output B1 (Port B)		No effect
151	Analog Output B2 (Port B)		No effect
152	Analog Output D1 (Port D)		No effect
153	Analog Output D2 (Port D)		No effect

2.2.3 Function parameters SIPROTEC 7SA522

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 2-2 SIPROTEC 7SA522 - Effects of Function parameters to the Logical Nodes

No.	Funktion	Setting	Logical Nodes
103	Setting Group Change Option		No effect
	Disturbance Recorder	-	RDRE1
110	Trip mode	3pole only	XCBR1
		1-/3pole	XCBR2, XCBR3, XCBR4
112	Phase Distance	Disabled	-
		Quadrilateral	PDIS1 – PDIS5, PTRC2
		MHO	PDIS1 – PDIS5, PTRC2
113	Earth Distance	Disabled	-
		Quadrilateral	PDIS1 – PDIS6, PTRC2
		MHO	PDIS1 – PDIS6, PTRC2
120	Power Swing detection	Disabled	-
		Enabled	RPSB1 – RPSB7
121	Teleprotection for Distance protection	Disabled	-
		PUTT (Z1B)	PSCH1
		POTT	PSCH1
		Unblocking	PSCH1
		Blocking	PSCH1
		SIGNALv.ProtInt	PSCH1
122	DTT Direct Transfer Trip		No effect
124	Instantaneous HighSpeed SOTF Overcurrent		No effect

Table 2-2 SIPROTEC 7SA522 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
125	Weak Infeed (Trip and/or Echo)		No effect
126	Backup overcurrent	Disabled	-
		TOC IEC	PTOC2 – PTOC3
		TOC IEC /w 3ST	PTOC1 - PTOC4
		TOC ANSI	PTOC1 - PTOC4
131	Earth fault overcurrent	Disabled	-
		TOC IEC	PTOC5 – PTOC8
		TOC ANSI	PTOC5 – PTOC8
		TOC Logarithm.	PTOC5 – PTOC8
		Definite Time	PTOC5 – PTOC7
		U0 invers	PTOC5 – PTOC8
		Sr inverse	PTOC5 – PTOC8
132	Teleprotection for Earth fault overcurrent		No effect
133	Auto-Reclose Function	Disabled	-
		1 AR-cycle	RREC1
		2 AR-cycles	RREC1
		3 AR-cycles	RREC1
		4 AR-cycles	RREC1
		5 AR-cycles	RREC1
		6 AR-cycles	RREC1
		7 AR-cycles	RREC1
		8 AR-cycles	RREC1
		ADT	RREC1
134	Auto-Reclose control mode		No effect

Table 2-2 SIPROTEC 7SA522 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
135	Synchronism and Voltage Check	Disabled	-
		Enabled	RSYN1
136	Over / Underfrequency Protection	Disabled	-
		Enabled	PTOF1 – PTOF4, PTUF1 – PTUF4
137	Under / Overvoltage Protection	Disabled	-
		Enabled	PTUV1 – PTUV6, PTOV1 – PTOV10
		Enabl. w. comp.	PTUV1 –PTUV6, PTOV1 – PTOV10
138	Fault Locator	Disabled	-
		Enabled	RFLO1
		with BCD-output	RFLO1
139	Breaker Failure Protection	Disabled	-
		Enabled	RBRF1
		enabled w/ 3I0>	RBRF1
140	Trip Circuit Supervision	Disabled	-
		1 Trip Circuit	XCBR1.CirSpv - XCBR4.CirSpv
		2 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
		3 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
145	Protection Interface 1 (Port D)	Disabled (Prot. Interf. 2 disabled)	-
		Disabled (Prot. Interf. 2 enabled)	MMXU2 - MMXU4
		Enabled	MMXU2 - MMXU4

Table 2-2 SIPROTEC 7SA522 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
146	Protection Interface 2 (Port E)	Disabled (Prot. Interf. 1 disabled)	-
		Disabled (Prot. Interf. 1 enabled)	MMXU2 - MMXU4
		Enabled	MMXU2 - MMXU4
147	Number of relays	2 relays, no Protection Interface	-
		2 relays, min. 1 Protection Interface	MMXU2, MMXU3
		3 relays	MMXU2, MMXU3, MMXU4

2.2.4 Function parameters SIPROTEC 7SD5

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 2-3 SIPROTEC 7SD5 - Effects of Function parameters to the Logical Nodes

No.	Funktion	Setting	Logical Nodes
103	Setting Group Change Option		No effect
	Disturbance Recorder	-	RDRE1
110	Trip mode	3pole only	XCBR1
		1-/3pole	XCBR2, XCBR3, XCBR4
112	Differential protection	Disabled	-
		Enabled	PDIF1, PDIF2, PTRC3
115	Phase Distance	Disabled	-
		Quadrilateral	PDIS1 – PDIS6, PTRC2
		MHO	PDIS1 – PDIS6, PTRC2
116	Earth Distance	Disabled	-
		Quadrilateral	PDIS1 – PDIS6, PTRC2
		MHO	PDIS1 – PDIS6, PTRC2
117	Distance protection pickup program		No effect
120	Power Swing detection	Disabled	-
		Enabled	RPSB1 – RPSB7, RPSB10

Table 2-3 SIPROTEC 7SD5 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
121	Teleprotection for Distance protection	Disabled	-
		PUTT (Z1B)	PSCH1
		PUTT (Pickup)	PSCH1
		POTT	PSCH1
		Dir.Comp.Pickup	PSCH1
		Unblocking	PSCH1
		Blocking	PSCH1
		Rev. Interlock	PSCH1
		Pilot wire comp	PSCH1
122	DTT Direct Transfer Trip		No effect
124	Instantaneous HighSpeed SOTF Overcurrent		No effect
125	Weak Infeed (Trip and/or Echo)		No effect
126	Backup overcurrent	Disabled	-
		TOC IEC	PTOC1 – PTOC4, PTOC9, PTOC10
		TOC ANSI	PTOC1 – PTOC4, PTOC9, PTOC10
131	Earth fault overcurrent	Disabled	-
		TOC IEC	PTOC5 – PTOC8
		TOC ANSI	PTOC5 – PTOC8
		TOC Logarithm.	PTOC5 – PTOC8
		Definite Time	PTOC5 – PTOC7
		U0 invers	PTOC5 – PTOC8
		Sr inverse	PTOC5 – PTOC8
132	Teleprotection for Earth fault overcurrent		No effect

Table 2-3 SIPROTEC 7SD5 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
133	Auto-Reclose Function	Disabled	-
		1 AR-cycle	RREC1
		2 AR-cycles	RREC1
		3 AR-cycles	RREC1
		4 AR-cycles	RREC1
		5 AR-cycles	RREC1
		6 AR-cycles	RREC1
		7 AR-cycles	RREC1
		8 AR-cycles	RREC1
		ADT	RREC1
134	Auto-Reclose control mode		No effect
135	Synchronism and Voltage Check	Disabled	-
		Enabled	RSYN1
136	Over / Underfrequency Protection	Disabled	-
		Enabled	PTOF1 – PTOF4, PTUF1 – PTUF4
137	Under / Overvoltage Protection	Disabled	-
		Enabled	PTUV1 – PTUV6, PTOV1 – PTOV10
		Enabl. w. comp.	PTUV1 –PTUV6, PTOV1 – PTOV10
138	Fault Locator	Disabled	-
		Enabled	RFLO1
		with BCD-output	RFLO1

Table 2-3 SIPROTEC 7SD5 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
139	Breaker Failure Protection	Disabled	-
		Enabled	RBRF1
		enabled w/ 3I0>	RBRF1
140	Trip Circuit Supervision	Disabled	-
		1 Trip Circuit	XCBR1.CirSpv - XCBR4.CirSpv
		2 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
		3 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
141	Restricted earth fault protection	Disabled	-
		Enabled	PDIF3
142	Thermal overload protection	Disabled	-
		Enabled	PTTR1
143	Transformer inside protection zone		No effect
144	Voltage transformers		No effect
145	Protection Interface 1 (Port D)	Disabled (Prot. Interf. 2 disabled)	-
		Disabled (Prot. Interf. 2 enabled)	MMXU2 - MMXU7
		Enabled	MMXU2 - MMXU7
146	Protection Interface 2 (Port E)	Disabled (Prot. Interf. 1 disabled)	-
		Disabled (Prot. Interf. 1 enabled)	MMXU2 - MMXU7
		Enabled	MMXU2 - MMXU7

Table 2-3 SIPROTEC 7SD5 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
147	Number of relays	2 relays, no Protection Interface	-
		2 relays, min. 1 Protection Interface	MMXU2, MMXU3
		3 relays	MMXU2, MMXU3, MMXU4
		4 relays	MMXU2, MMXU3, MMXU4, MMXU5
		5 relays	MMXU2, MMXU3, MMXU4, MMXU5, MMXU6
		6 relays	MMXU2, MMXU3, MMXU4 MMXU5, MMXU6, MMXU7
148	GPS synchronization		No effect
149	Charging current compensation		No effect
160	Line sections for fault locator		No effect

2.2.5 Function parameters SIPROTEC 7SD610

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 2-4 SIPROTEC 7SD610 - Effects of Function parameters to the Logical Nodes

No.	Funktion	Setting	Logical Nodes
103	Setting Group Change Option		No effect
	Disturbance Recorder	-	RDRE1
110	Trip mode	3pole only	XCBR1
		1-/3pole	XCBR2, XCBR3, XCBR4
112	Differential protection	Disabled	-
		Enabled	PDIF1, PDIF2, PTRC3
122	DTT Direct Transfer Trip		No effect
124	Instantaneous HighSpeed SOTF Overcurrent		No effect
126	Backup overcurrent	Disabled	-
		TOC IEC	PTOC1 – PTOC4, PTOC9, PTOC10
		TOC ANSI	PTOC1 – PTOC4, PTOC9, PTOC10

Table 2-4 SIPROTEC 7SD610 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
133	Auto-Reclose Function	Disabled	-
		1 AR-cycle	RREC1
		2 AR-cycles	RREC1
		3 AR-cycles	RREC1
		4 AR-cycles	RREC1
		5 AR-cycles	RREC1
		6 AR-cycles	RREC1
		7 AR-cycles	RREC1
		8 AR-cycles	RREC1
		ADT	RREC1
134	Auto-Reclose control mode		No effect
136	Over / Underfrequency Protection	Disabled	-
		Enabled	PTOF1 – PTOF4, PTUF1 – PTUF4
137	Under / Overvoltage Protection	Disabled	-
		Enabled	PTUV1 – PTUV6, PTOV1 – PTOV10
		Enabl. w. comp.	PTUV1 –PTUV6, PTOV1 – PTOV10
139	Breaker Failure Protection	Disabled	-
		Enabled	RBRF1
		enabled w/ 3I0>	RBRF1

Table 2-4 SIPROTEC 7SD610 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
140	Trip Circuit Supervision	Disabled	-
		1 Trip Circuit	XCBR1.CirSpv - XCBR4.CirSpv
		2 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
		3 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
141	Restricted earth fault protection	Disabled	-
		Enabled	PDIF3
142	Thermal overload protection	Disabled	-
		Enabled	PTTR1
143	Transformer inside protection zone		No effect
144	Voltage transformers		No effect
148	GPS synchronization		No effect
-	Protection Interface (Port D)		MMXU2, MMXU3

2.2.6 Function parameters SIPROTEC 7VK61

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 2-5 SIPROTEC 7VK61 - Effects of Function parameters to the Logical Nodes

No.	Funktion	Setting	Logical Nodes
103	Setting Group Change Option		No effect
	Disturbance Recorder	-	RDRE1
106	Voltage transformer connection	3phase	-
		1phase	-
		No	LN RSYN1, PTUV1 - PTUV6, PTOV1 - PTOV10 not available
107	Current transformer connection	Yes	
		No	LN PTOC1 - PTOC4 not available
110	Trip mode	3pole only	XCBR1
		1-/3pole	XCBR2, XCBR3, XCBR4
126	Backup overcurrent	Disabled	-
		TOC IEC	PTOC1 – PTOC3
		TOC IEC /w 3ST	PTOC1 - PTOC4
		TOC ANSI	PTOC1 - PTOC4

Table 2-5 SIPROTEC 7VK61 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
133	Auto-Reclose Function	Disabled	-
		1 AR-cycle	RREC1
		2 AR-cycles	RREC1
		3 AR-cycles	RREC1
		4 AR-cycles	RREC1
		5 AR-cycles	RREC1
		6 AR-cycles	RREC1
		7 AR-cycles	RREC1
		8 AR-cycles	RREC1
		ADT	RREC1
134	Auto-Reclose control mode		No effect
135	Synchronism and Voltage Check	Disabled	-
		Enabled	RSYN1
137	Under / Overvoltage Protection	Disabled	-
		Enabled	PTUV1 – PTUV6, PTOV1 – PTOV10
		Enabl. w. comp.	PTUV1 –PTUV6, PTOV1 – PTOV10
139	Breaker Failure Protection	Disabled	-
		Enabled	RBRF1
		enabled w/ 3I0>	RBRF1

Table 2-5 SIPROTEC 7VK61 - Effects of Function parameters to the Logical Nodes (Cont.)

No.	Funktion	Setting	Logical Nodes
140	Trip Circuit Supervision	Disabled	-
		1 Trip Circuit	XCBR1.CirSpv - XCBR4.CirSpv
		2 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv
		3 Trip Circuits	XCBR1.CirSpv - XCBR4.CirSpv

2.3 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 2-6 LD PROT - Logical Nodes

LN	Function	DOI
LLN0	General	Mod, Beh, Health, NamPlt
PTRC1	General device pickup Total OFF	Mod, Beh, Health, NamPlt, Str,Tr,FinTr
PDIF1 PDIF2	Differential protection	Mod, Beh, Health, NamPlt, Str, Op
PTRC3	Differential protection General messages	Mod, Beh, Health, NamPlt, Str, Op StrA, StrAG, StrB, StrBG, StrC, StrCG, StrAB, StrBC, StrCA, StrABC, StrABG, StrBCG, StrCAG, StrABCG
PDIF3	Earth fault overcurrent	Mod, Beh, Health, NamPlt, Str, Op, DifAClc, RstA
PDIS1 PDIS10	Distance protection zone 1, zone 1B	Mod, Beh, Health, NamPlt, Str, Op StrAG, StrBG, StrCG, StrAB, StrBC, StrCA
PDIS2 PDIS3 PDIS4 PDIS5 PDIS6	Distance protection zone 2, zone3, zone 4, zone 5, zone 6	Mod, Beh, Health, NamPlt, Str, Op
PTRC2	Distance protection General messages	Mod, Beh, Health, NamPlt, Str, Op
PSCH1	Distance protection Teleprotection	Mod, Beh, Health, NamPlt, Str, Op, CarRx, ProRx, LosOfGrd, Echo, WeiOp, RvABlk, GrdRx, ProTx
RPSB1 RPSB2 RPSB3 RPSB4 RPSB5 RPSB7 RPSB10	Power Swing detection zone1, zone 2, zone3, zone 4, zone 5, zone 6, zone 1B	Mod, Beh, Health, NamPlt, Str, BlkZn
RPSB6	Power Swing detection Power Swing trip	Mod, Beh, Health, NamPlt, Op

Table 2-6 LD PROT - Logical Nodes (Cont.)

LN	Function	DOI
PTOC5 PTOC6 PTOC7 PTOC8	Earth fault overcurrent	Mod, Beh, Health, NamPlt, Str, Op
PTOC1 PTOC2 PTOC3 PTOC4	Backup overcurrent	Mod, Beh, Health, NamPlt, Str, Op
PTOC9 PTOC10	Backup overcurrent directional	Mod, Beh, Health, NamPlt, Str, Op
RSYN1	Synchronism and Voltage Check	Mod, Beh, Health, NamPlt, Rel, VInd, AngInd, HzInd, SynPrg, DifVClc, DifHzClc, DifAngClc
PTUV1 PTUV2 PTUV3 PTUV4 PTUV5 PTUV6	Undervoltage Protection	Mod, Beh, Health, NamPlt, Str, Op
PTOV1 PTOV2 PTOV3 PTOV4 PTOV5 PTOV6 PTOV7 PTOV8 PTOV9 PTOV10	Overvoltage Protection	Mod, Beh, Health, NamPlt, Str, Op
PTUF1 PTUF2 PTUF3 PTUF4	Underfrequency Protection	Mod, Beh, Health, NamPlt, Str, Op
PTOF1 PTOF2 PTOF3 PTOF4	Overfrequency Protection	Mod, Beh, Health, NamPlt, Str, Op
RFLO1	Fault Locator	Mod, Beh, Health, NamPlt, FltZ, FltDiskm
RBRF1	Breaker Failure Protection	Mod, Beh, Health, NamPlt, Str, OpEx, OpIn
PTTR1	Thermal overload protection	Mod, Beh, Health, NamPlt, Str, Op, AlmThm

Table 2-6 LD PROT - Logical Nodes (Cont.)

LN	Function	DOI
XCBR1	Three-pole tripping	Mod, Beh, Health, NamPlt, Loc, OpCnt, Pos BlkOpn, BlkCls, CBOpCap SumSwARs1, SumSwARs2, SumSwARs3
XCBR2 XCBR3 XCBR4	Single-pole / Three-pole tripping	Mod, Beh, Health, NamPlt, Loc, OpCnt, Pos BlkOpn, BlkCls, CBOpCap, SumSwARs
LPHD1	Device	PhyNam, PhyHealth, Proxy
only SIPROTEC 7VK61		
RREC1	Auto-Reclose Function	Mod, Beh, Health, NamPlt, Op, AutoRecSt

LD MEAS

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

Table 2-7 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
MMXU2	Measure relay 1	Mod, Beh, Health, NamPlt, RelId, A, PhV,
MMXU3	Measure relay 2	Mod, Beh, Health, NamPlt, RelId, A, PhV,
MMXU4	Measure relay 3	Mod, Beh, Health, NamPlt, RelId, A, PhV,
MMXU5	Measure relay 4	Mod, Beh, Health, NamPlt, RelId, A, PhV,
MMXU6	Measure relay 5	Mod, Beh, Health, NamPlt, RelId, A, PhV,
MMXU7	Measure relay 6	Mod, Beh, Health, NamPlt, RelId, A, PhV,
MMTR1	Energy	Mod, Beh, Health, NamPlt, SupWh, SupVArh, DmdWh, DmdVArh
MSQI1	Measured values, symmetrical components	Mod, Beh, Health, NamPlt, SeqA, SeqV
LPHD1	Device	PhyNam, PhyHealth Proxy, CtrlNum, DevStr

LD DR

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

Table 2-8 LD DR - Logical Nodes

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

LD CTRL

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

Table 2-9 LD CTRL - Logical Nodes

LN	Function	DOIs
LLN0	General	Mod, Beh, Health, NamPlt, LEDRs, Loc
RREC1*	Auto-Reclose Function	Mod, Beh, Health, NamPlt, Op, AutoRecSt
CALH1	Alarms, warning messages and group alarms	Mod, Beh, Health, NamPlt, GrAlm, GrWrn, ErrBoard1, ErrBoard2, ErrBoard3, ErrBoard4, ErrBoard5, ErrBoard6, ErrBoard7
LPHD1	Device	PhyNam, PhyHealth, Proxy

*** SIPROTEC 7VK61**: RREC1 Part of Logical Device Protection (see Table 2-6)

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.

LD EXT

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

Table 2-10 LD EXT - Logical Nodes

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

2.4 Logical Node LLN0

2.4.1 Logical Device PROT

LLN0.Mod

No.	Information						
52	At Least 1 Protection Funct. is Active (ProtActive)	0	0	1	1	1	1
	Test mode (Test mode)	0	x	0	1	0	1
	Stop data transmission (DataStop)	0	x	1	0	0	1
LLN0.Mod.stVal		**5**	**5**	**2**	**3**	**1**	**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					
52	At Least 1 Protection Funct. is Active (ProtActive)	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

2.4.2 Logical Devices MEAS, CTRL, DR and EXT

LLN0.Mod

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

2.5 The DOI Behavior

2.5.1 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							
52	At Least 1 Protection Funct. is Active (ProtActive)	x	1	1	1	1	1	1	0
	Test mode (Test mode)	x	0	1	0	1	0	1	x
	Stop data transmission (DataStop)	x	0	0	1	1	x	x	x
	LNx .Mod.stVal	5	1	1	1	1	2	2	x
LNx.Beh.stVal		**5**	**1**	**3**	**2**	**4**	**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

2.5.2 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 2 you can find the available functions of the different devices and what consequences non-configured functions have on the Logical Nodes. You find also general information about IEC 61850 mapping of information.

3.1	Differential Protection (PDIFx, PTRCx)	64
3.2	Distance Protection (PDISx, PTRC2)	74
3.3	Power swing detection (RPSBx)	106
3.4	Teleprotection for distance protection (PSCH1)	121
3.5	Earth fault overcurrent protection in earthed systems (PTOCx)	128
3.6	Earth fault detection in non-earthed systems (PSDE1)	136
3.7	Restricted earth fault protection (PDIF3)	140
3.8	Overcurrent protection (PTOCx)	142
3.9	Automatic reclosure function (RREC1)	152
3.10	Synchronism and voltage check (RSYN1)	154
3.11	Under and overvoltage protection (PTUVx, PTOVx)	157
3.12	Frequency protection (PTUFx, PTOFx)	181
3.13	Fault locator (RFLO1)	197
3.14	Circuit breaker failure protection (RBRF1)	199
3.15	Thermal overload protection (PTTR1)	201
3.16	Single-pole / threepole tripping Circuit Breaker (XCBRx)	203
3.17	Tripping Logic of the Entire Device (PTRC1)	213
3.18	Device (LPHD1, CALH1)	217
3.19	Measurements (MMXUx, MSQI1, MMTR1)	221
3.20	Oscillographic Fault Records (RDRE1)	247

3.1 Differential Protection (PDIFx, PTRCx)

3.1.1 I-DIFF> (PDIF1)

PDIF1.Mod

No.	Information							
3120	Diff: Active (Diff active)	x	0	0	1	1	1	1
3148	Diff: Differential protection is blocked (Diff block)	x	1	0	0	0	0	0
3149	Diff: Diff. protection is switched off (Diff OFF)	1	0	0	0	0	0	0
3190	Diff: Set Teststate of Diff. protection (Test Diff.)	x	x	x	0	1	0	1
3191	Diff: Set Commissioning state of Diff. (Comm. Diff)	x	x	x	0	0	1	1
PDIF1.Mod.stVal		**5**	**2**	**5**	**1**	**3**	**4**	**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

PDIF1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PDIF1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIF1.Str

No.	Information		
3139	Diff: Fault detection of I-Diff> (I-Diff> Flt.)	0	1
PDIF1.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIF1.Op

No.	Information		
	OFF-command IDiff>	0	1
PDIF1.Op.general		**0**	**1**

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

3.1.2 I-DIFF>> (PDIF2)

PDIF2.Mod

No.	Information							
3120	Diff: Active (Diff active)	x	0	0	1	1	1	1
3148	Diff: Differential protection is blocked (Diff block)	x	1	0	0	0	0	0
3149	Diff: Diff. protection is switched off (Diff OFF)	1	0	0	0	0	0	0
3190	Diff: Set Teststate of Diff. protection (Test Diff.)	x	x	x	0	1	0	1
3191	Diff: Set Commissioning state of Diff. (Comm. Diff)	x	x	x	0	0	1	1
PDIF2.Mod.stVal		**5**	**2**	**5**	**1**	**3**	**4**	**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

PDIF2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PDIF2.Health.stVal		**3**	**1**

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

PDIF2.Str

No.	Information		
3137	Diff: Fault detection of I-Diff>> (I-Diff>> Flt.)	0	1
PDIF2.Str.general		**0**	**1**

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

PDIF2.Op

No.	Information		
	OFF-command I-Diff>>	0	1
PDIF2.Op.general		**0**	**1**

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

3.1.3 Differencial Protection General Information

PTRC3.Mod

No.	Information							
3120	Diff: Active (Diff active)	x	0	0	1	1	1	1
3148	Diff: Differential protection is blocked (Diff block)	x	1	0	0	0	0	0
3149	Diff: Diff. protection is switched off (Diff OFF)	1	0	0	0	0	0	0
3190	Diff: Set Teststate of Diff. protection (Test Diff.)	x	0	0	0	1	0	1
3191	Diff: Set Commissioning state of Diff. (Comm. Diff)	x	0	0	0	0	1	1
PTRC3.Mod.stVal		**5**	**2**	**5**	**1**	**3**	**4**	**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

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		
3132	Diff: Fault detection (Diff. Gen. Flt.)	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	
PTRC3.Str.dirGeneral		**1**

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

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

PTRC3.Str.phsA

No.	Information		
3133	Diff: Fault detection in phase L1 (Diff. Flt. L1)	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	
PTRC3.Str.dirPhsA		**1**

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

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

PTRC3.Str.phsB

No.	Information		
3134	Diff: Fault detection in phase L2 (Diff. Flt. L2	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	
PTRC3.Str.dirPhsB		**1**

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

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

PTRC3.Str.phsC

No.	Information		
3135	Diff: Fault detection in phase L3 (Diff. Flt. L3)	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	
PTRC3.Str.dirPhsC		**1**

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

PTRC3.Str.neut

No.	Information		
3136	Diff: Earth fault detection (Diff. Flt. E)	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	
PTRC3.Str.dirNeut		**1**

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

PTRC3.Op

No.	Information		
3141	Diff: General TRIP (Diff. Gen. TRIP)	0	1
PTRC3.Op.general		**0**	**1**

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

PTRC3.Op.phsA

No.	Information			
3142	Diff: TRIP - Only L1 (Diff TRIP 1p L1)	1	0	0
3145	Diff: TRIP L123 (Diff TRIP L123)	0	1	0
PTRC3.Op.phsA		**1**	**1**	**0**

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

PTRC3.Op.phsB

No.	Information			
3143	Diff: TRIP - Only L2 (Diff TRIP 1p L2)	1	0	0
3145	Diff: TRIP L123 (Diff TRIP L123)	0	1	0
PTRC3.Op.phsB		**1**	**1**	**0**

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

PTRC3.Op.phsC

No.	Information			
3144	Diff: TRIP - Only L3 (Diff TRIP 1p L3)	1	0	0
3145	Diff: TRIP L123 (Diff TRIP L123)	0	1	0
PTRC3.Op.phsC		**1**	**1**	**0**

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

PTRC3.StrA

No.	Information		
3176	Diff: Fault detection L1 (only) (Diff Flt. 1p.L1)	1	0
PTRC3.StrA.stVal		**1**	**0**

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

PTRC3.StrAG

No.	Information		
3177	Diff: Fault detection L1E (Diff Flt. L1E)	1	0
PTRC3.StrAG.stVal		**1**	**0**

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

PTRC3.StrB

No.	Information		
3178	Diff: Fault detection L2 (only) (Diff Flt. 1p.L2)	1	0
PTRC3.StrB.stVal		**1**	**0**

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

PTRC3.StrBG

No.	Information		
3179	Diff: Fault detection L2E (Diff Flt. L2E)	1	0
PTRC3.StrBG.stVal		**1**	**0**

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

PTRC3.StrC

No.	Information		
3182	Diff: Fault detection L3 (only) (Diff Flt. 1p.L3)	1	0
PTRC3.StrC.stVal		**1**	**0**

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

PTRC3.StrCG

No.	Information		
3183	Diff: Fault detection L3E (Diff Flt. L3E)	1	0
PTRC3.StrCG.stVal		**1**	**0**

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

PTRC3.StrAB

No.	Information		
3180	Diff: Fault detection L12 (Diff Flt. L12)	1	0
PTRC3.StrAB.stVal		**1**	**0**

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

PTRC3.StrBC

No.	Information		
3186	Diff: Fault detection L23 (Diff Flt. L23)	1	0
PTRC3.StrBC.stVal		**1**	**0**

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

PTRC3.StrCA

No.	Information		
3184	Diff: Fault detection L31 (Diff Flt. L31)	1	0
PTRC3.StrCA.stVal		**1**	**0**

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

PTRC3.StrABC

No.	Information		
3188	Diff: Fault detection L123 (Diff Flt. L123)	1	0
PTRC3.StrABC.stVal		**1**	**0**

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

PTRC3.StrABG

No.	Information		
3181	Diff: Fault detection L12E (Diff Flt. L12E	1	0
PTRC3.StrABG.stVal		**1**	**0**

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

PTRC3.StrBCG

No.	Information		
3187	Diff: Fault detection L23E (Diff Flt. L23E)	1	0
PTRC3.StrBCG.stVal		**1**	**0**

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

PTRC3.StrCAG

No.	Information		
3185	Diff: Fault detection L31E (Diff Flt. L31E)	1	0
PTRC3.StrCAG.stVal		**1**	**0**

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

PTRC3.StrABCG

No.	Information		
3189	Diff: Fault detection L123E (Diff Flt. L123E)	1	0
PTRC3.StrABCG.stVal		**1**	**0**

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

3.2 Distance Protection (PDISx, PTRC2)

3.2.1 Distance protection zone 1 (PDIS1)

PDIS1.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z1 (P1301) = Inactive	x	x	1	0	0	0	0
PDIS1.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS1.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3654	Setting error K0(Z1) or Angle K0(Z1) (Dis.ErrorK0(Z1))	1	0	1	0
PDIS1.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS1.Str

No.	Information							
3741	Distance Pickup Z1, Loop L1E (Dis. Z1 L1E)	0	1	x	x	x	x	x
3742	Distance Pickup Z1, Loop L2E (Dis. Z1 L2E)	0	x	1	x	x	x	x
3743	Distance Pickup Z1, Loop L3E (Dis. Z1 L3E)	0	x	x	1	x	x	x
3744	Distance Pickup Z1, Loop L12 (Dis. Z1 L12)	0	x	x	x	1	x	x
3745	Distance Pickup Z1, Loop L23 (Dis. Z1 L23)	0	x	x	x	x	1	x
3746	Distance Pickup Z1, Loop L31 (Dis. Z1 L31)	0	x	x	x	x	x	1
PDIS1.Str.general		**0**	**1**	**1**	**1**	**1**	**1**	**1**

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

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

PDIS1.Str.dirGeneral

No.	Information															
3719	Distance Pickup FORWARD (Dis. forward)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
3720	Distance Pickup REVERSE (Dis. reverse)		0	0	0	0	0	0	0	1	1	1	1	1	1	1
3741	Distance Pickup Z1, Loop L1E (Dis. Z1 L1E)		0	1	x	x	x	x	x	0	1	x	x	x	x	x
3742	Distance Pickup Z1, Loop L2E (Dis. Z1 L2E)		0	x	1	x	x	x	x	0	x	1	x	x	x	x
3743	Distance Pickup Z1, Loop L3E (Dis. Z1 L3E)		0	x	x	1	x	x	x	0	x	x	1	x	x	x
3744	Distance Pickup Z1, Loop L12 (Dis. Z1 L12)		0	x	x	x	1	x	x	0	x	x	x	1	x	x
3745	Distance Pickup Z1, Loop L23 (Dis. Z1 L23)		0	x	x	x	x	1	x	0	x	x	x	x	1	x
3746	Distance Pickup Z1, Loop L31 (Dis. Z1 L31)		0	x	x	x	x	x	1	0	x	x	x	x	x	1
PDIS1.Str.dirGeneral			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**

No.	Information														
3719	Distance Pickup FORWARD (Dis. forward)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	0	0	0	0	0	0	0	1	1	1	1	1	1	1
3741	Distance Pickup Z1, Loop L1E (Dis. Z1 L1E)	0	1	x	x	x	x	x	0	1	x	x	x	x	x
3742	Distance Pickup Z1, Loop L2E (Dis. Z1 L2E)	0	x	1	x	x	x	x	0	x	1	x	x	x	x
3743	Distance Pickup Z1, Loop L3E (Dis. Z1 L3E)	0	x	x	1	x	x	x	0	x	x	1	x	x	x
3744	Distance Pickup Z1, Loop L12 (Dis. Z1 L12)	0	x	x	x	1	x	x	0	x	x	x	1	x	x
3745	Distance Pickup Z1, Loop L23 (Dis. Z1 L23)	0	x	x	x	x	1	x	0	x	x	x	x	1	x
3746	Distance Pickup Z1, Loop L31 (Dis. Z1 L31)	0	x	x	x	x	x	1	0	x	x	x	x	x	1
PDIS1.Str.dirGeneral		**0**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**3**	**3**	**3**	**3**	**3**	**3**

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

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

PDIS1.Op

No.	Information				
3811	Distance TRIP single-phase Z1 (Dis.TripZ1/1p)	0	1	x	x
3823	DisTRIP 3phase in Z1 with single-ph Flt. (DisTRIP3p. Z1sf)	0	x	1	x
3824	DisTRIP 3phase in Z1 with multi-ph Flt. (DisTRIP3p. Z1mf)	0	x	x	1
PDIS1.Op.general		**0**	**1**	**1**	**1**

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

PDIS1.Op.phsA

No.	Information					
3811	Distance TRIP single-phase Z1 (Dis.TripZ1/1p)	x	0	1	0	0
3823	DisTRIP 3phase in Z1 with single-ph Flt. (DisTRIP3p. Z1sf)	x	0	0	1	0
3824	DisTRIP 3phase in Z1 with multi-ph Flt. (DisTRIP3p. Z1mf)	x	0	0	0	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	0	x	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	x	0	1	1
PDIS1.Op.phsA		**0**	**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsA: 0 - FALSE, 1 - TRUE

PDIS1.Op.phsB

No.	Information					
3811	Distance TRIP single-phase Z1 (Dis.TripZ1/1p)	x	0	1	0	0
3823	DisTRIP 3phase in Z1 with single-ph Flt. (DisTRIP3p. Z1sf)	x	0	0	1	0
3824	DisTRIP 3phase in Z1 with multi-ph Flt. (DisTRIP3p. Z1mf)	x	0	0	0	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	0	x	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	x	0	1	1
PDIS1.Op.phsB		**0**	**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsB: 0 - FALSE, 1 - TRUE

PDIS1.Op.phsC

No.	Information					
3811	Distance TRIP single-phase Z1 (Dis.TripZ1/1p)	x	0	1	0	0
3823	DisTRIP 3phase in Z1 with single-ph Flt. (DisTRIP3p. Z1sf)	x	0	0	1	0
3824	DisTRIP 3phase in Z1 with multi-ph Flt. (DisTRIP3p. Z1mf)	x	0	0	0	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	0	x	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	x	0	1	1
PDIS1.Op.phsC		**0**	**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsC: 0 - FALSE, 1 - TRUE

PDIS1.StrAG

No.	Information		
3741	Distance Pickup Z1, Loop L1E (Dis. Z1 L1E)	0	1
PDIS1.StrAG.stVal		**0**	**1**

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

PDIS1.StrBG

No.	Information		
3742	Distance Pickup Z1, Loop L2E (Dis. Z1 L2E)	0	1
PDIS1.StrBG.stVal		**0**	**1**

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

PDIS1.StrCG

No.	Information		
3743	Distance Pickup Z1, Loop L3E (Dis. Z1 L3E)	0	1
PDIS1.StrCG.stVal		**0**	**1**

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

PDIS1.StrAB

No.	Information		
3744	Distance Pickup Z1, Loop L12 (Dis. Z1 L12)	0	1
PDIS1.StrAB.stVal		**0**	**1**

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

PDIS1.StrBC

No.	Information		
3745	Distance Pickup Z1, Loop L23 (Dis. Z1 L23)	0	1
PDIS1.StrBC.stVal		**0**	**1**

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

PDIS1.StrCA

No.	Information		
3746	Distance Pickup Z1, Loop L31 (Dis. Z1 L31)	0	1
PDIS1.StrCA.stVal		**0**	**1**

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

3.2.2 Distance protection zone 1B (PDIS10)

PDIS10.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z1B (P1351) = Inactive	x	x	1	0	0	0	0
PDIS10.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS10.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	1	0	1	0
PDIS10.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS10.Str

No.	Information							
3747	Distance Pickup Z1B, Loop L1E (Dis. Z1B L1E)	0	1	x	x	x	x	x
3748	Distance Pickup Z1B, Loop L2E (Dis. Z1B L2E)	0	x	1	x	x	x	x
3749	Distance Pickup Z1B, Loop L3E (Dis. Z1B L3E)	0	x	x	1	x	x	x
3750	Distance Pickup Z1B, Loop L12 (Dis. Z1B L12)	0	x	x	x	1	x	x
3751	Distance Pickup Z1B, Loop L23 (Dis. Z1B L23)	0	x	x	x	x	1	x
3752	Distance Pickup Z1B, Loop L31 (Dis. Z1B L31)	0	x	x	x	x	x	1
PDIS10.Str.general		**0**	**1**	**1**	**1**	**1**	**1**	**1**

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

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

PDIS10.Str.dirGeneral

No.	Information																
3719	Distance Pickup FORWARD (Dis. forward)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3720	Distance Pickup REVERSE (Dis. reverse)		0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
3747	Distance Pickup Z1B, Loop L1E (Dis. Z1B L1E)		0	1	x	x	x	x	x	0	1	x	x	x	x	x	x
3748	Distance Pickup Z1B, Loop L2E (Dis. Z1B L2E)		0	x	1	x	x	x	x	0	x	1	x	x	x	x	x
3749	Distance Pickup Z1B, Loop L3E (Dis. Z1B L3E)		0	x	x	1	x	x	x	0	x	x	1	x	x	x	x
3750	Distance Pickup Z1B, Loop L12 (Dis. Z1B L12)		0	x	x	x	1	x	x	0	x	x	x	1	x	x	x
3751	Distance Pickup Z1B, Loop L23 (Dis. Z1B L23)		0	x	x	x	x	1	x	0	x	x	x	x	1	x	x
3752	Distance Pickup Z1B, Loop L31 (Dis. Z1B L31)		0	x	x	x	x	x	1	0	x	x	x	x	x	1	x
PDIS10.Str.dirGeneral			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

No.	Information																
3719	Distance Pickup FORWARD (Dis. forward)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
3747	Distance Pickup Z1B, Loop L1E (Dis. Z1B L1E)	0	1	x	x	x	x	x	0	1	x	x	x	x	x	x	x
3748	Distance Pickup Z1B, Loop L2E (Dis. Z1B L2E)	0	x	1	x	x	x	x	0	x	1	x	x	x	x	x	x
3749	Distance Pickup Z1B, Loop L3E (Dis. Z1B L3E)	0	x	x	1	x	x	x	0	x	x	1	x	x	x	x	x
3750	Distance Pickup Z1B, Loop L12 (Dis. Z1B L12)	0	x	x	x	1	x	x	0	x	x	x	1	x	x	x	x
3751	Distance Pickup Z1B, Loop L23 (Dis. Z1B L23)	0	x	x	x	x	1	x	0	x	x	x	x	1	x	x	x
3752	Distance Pickup Z1B, Loop L31 (Dis. Z1B L31)	0	x	x	x	x	x	1	0	x	x	x	x	x	1	x	x
PDIS10.Str.dirGeneral		**0**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

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

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

PDIS10.Op

No.	Information				
3813	Distance TRIP single-phase Z1B (Dis.TripZ1B1p)	0	1	x	x
3825	DisTRIP 3phase in Z1B with single-ph Flt (DisTRIP3p.Z1Bsf)	0	x	1	x
3826	DisTRIP 3phase in Z1B with multi-ph Flt. (DisTRIP3p Z1Bmf)	0	x	x	1
PDIS10.Op.general		**0**	**1**	**1**	**1**

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

PDIS10.Op.phsA

No.	Information					
3813	Distance TRIP single-phase Z1B (Dis.TripZ1B1p)	x	0	1	0	0
3825	DisTRIP 3phase in Z1B with single-ph Flt (DisTRIP3p.Z1Bsf)	x	0	0	1	0
3826	DisTRIP 3phase in Z1B with multi-ph Flt. (DisTRIP3p Z1Bmf)	x	0	0	0	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	0	x	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	x	0	1	1
PDIS10.Op.phsA		**0**	**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op,phsA: 0 - FALSE, 1 - TRUE

PDIS10.Op.phsB

No.	Information					
3813	Distance TRIP single-phase Z1B (Dis.TripZ1B1p)	x	0	1	0	0
3825	DisTRIP 3phase in Z1B with single-ph Flt (DisTRIP3p.Z1Bsf)	x	0	0	1	0
3826	DisTRIP 3phase in Z1B with multi-ph Flt. (DisTRIP3p Z1Bmf)	x	0	0	0	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	0	x	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	x	0	1	1
PDIS10.Op.phsB		**0**	**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op,phsB: 0 - FALSE, 1 - TRUE

PDIS10.Op.phsC

No.	Information					
3813	Distance TRIP single-phase Z1B (Dis.TripZ1B1p)	x	0	1	0	0
3825	DisTRIP 3phase in Z1B with single-ph Flt (DisTRIP3p.Z1Bsf)	x	0	0	1	0
3826	DisTRIP 3phase in Z1B with multi-ph Flt. (DisTRIP3p Z1Bmf)	x	0	0	0	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	0	x	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	x	0	1	1
PDIS10.Op.phsC		**0**	**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op,phsC: 0 - FALSE, 1 - TRUE

PDIS10.StrAG

No.	Information		
3741	Distance Pickup Z1, Loop L1E (Dis. Z1 L1E)	0	1
PDIS10.StrAG.stVal		**0**	**1**

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

PDIS10.StrBG

No.	Information		
3742	Distance Pickup Z1, Loop L2E (Dis. Z1 L2E)	0	1
PDIS10.StrBG.stVal		**0**	**1**

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

PDIS10.StrCG

No.	Information		
3743	Distance Pickup Z1, Loop L3E (Dis. Z1 L3E)	0	1
PDIS10.StrCG.stVal		**0**	**1**

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

PDIS10.StrAB

No.	Information		
3744	Distance Pickup Z1, Loop L12 (Dis. Z1 L12)	0	1
PDIS10.StrAB.stVal		**0**	**1**

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

PDIS10.StrBC

No.	Information		
3745	Distance Pickup Z1, Loop L23 (Dis. Z1 L23)	0	1
PDIS10.StrBC.stVal		**0**	**1**

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

PDIS10.StrCA

No.	Information		
3746	Distance Pickup Z1, Loop L31 (Dis. Z1 L31)	0	1
PDIS10.StrCA.stVal		**0**	**1**

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

3.2.3 Distance protection zone 2 (PDIS2)

PDIS2.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z2 (P1311) = Inactive	x	x	1	0	0	0	0
PDIS2.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS2.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	1	0	1	0
PDIS2.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS2.Str

No.	Information		
3755	Distance Pickup Z2 (Dis. Pickup Z2)	0	1
PDIS2.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIS2.Str.dirGeneral

No.	Information					
3719	Distance Pickup FORWARD (Dis. forward)	x	0	0	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	x	0	1	0	1
3755	Distance Pickup Z2 (Dis. Pickup Z2)	0	1	1	1	1
PDIS2.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

device annunciation: 1 - ON, 0 - OFF

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

PDIS2.Op

No.	Information				
3816	Distance TRIP single-phase Z2 (Dis.TripZ2/1p)	0	0	1	1
3817	Distance TRIP 3phase in Z2 (Dis.TripZ2/3p)	0	1	0	1
PDIS2.Op.general		**0**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PDIS2.Op.phsA

No.	Information				
3816	Distance TRIP single-phase Z2 (Dis.TripZ2/1p)	0	x	1	0
3817	Distance TRIP 3phase in Z2 (Dis.TripZ2/3p)	0	x	0	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS2.Op.phsA		**0**	**0**	**1**	**1**

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

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

PDIS2.Op.phsB

No.	Information				
3816	Distance TRIP single-phase Z2 (Dis.TripZ2/1p)	0	x	1	0
3817	Distance TRIP 3phase in Z2 (Dis.TripZ2/3p)	0	x	0	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS2.Op.phsB		**0**	**0**	**1**	**1**

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

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

PDIS2.Op.phsC

No.	Information				
3816	Distance TRIP single-phase Z2 (Dis.TripZ2/1p)	0	x	1	0
3817	Distance TRIP 3phase in Z2 (Dis.TripZ2/3p)	0	x	0	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS2.Op.phsC		**0**	**0**	**1**	**1**

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

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

3.2.4 Distance protection zone 3 (PDIS3)

PDIS3.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z3 (P1321) = Inactive	x	x	1	0	0	0	0
PDIS3.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS3.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	1	0	1	0
PDIS3.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS3.Str

No.	Information		
3758	Distance Pickup Z3 (Dis. Pickup Z3)	0	1
PDIS3.Str.general		**0**	**1**

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

PDIS3.Str.dirGeneral

No.	Information					
3719	Distance Pickup FORWARD (Dis. forward)	x	0	0	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	x	0	1	0	1
3758	Distance Pickup Z3 (Dis. Pickup Z3)	0	1	1	1	1
PDIS3.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

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

PDIS3.Op

No.	Information		
3818	Distance TRIP 3phase in Z3 (Dis.TripZ3/T3)	0	1
PDIS3.Op.general		**0**	**1**

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

PDIS3.Op.phsA

No.	Information				
3818	Distance TRIP 3phase in Z3 (Dis.TripZ3/T3)	0	1	1	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS3.Op.phsA		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsA: 0 - FALSE, 1 - TRUE

PDIS3.Op.phsB

No.	Information				
3818	Distance TRIP 3phase in Z3 (Dis.TripZ3/T3)	0	1	1	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS3.Op.phsB		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsB: 0 - FALSE, 1 - TRUE

PDIS3.Op.phsC

No.	Information				
3818	Distance TRIP 3phase in Z3 (Dis.TripZ3/T3)	0	1	1	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS3.Op.phsC		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsC: 0 - FALSE, 1 - TRUE

3.2.5 Distance protection zone 4 (PDIS4)

PDIS4.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z4 (P1331) = Inactive	x	x	1	0	0	0	0
PDIS4.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS4.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	1	0	1	0
PDIS4.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS4.Str

No.	Information		
3759	Distance Pickup Z4 (Dis. Pickup Z4)	0	1
PDIS4.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIS4.Str.dirGeneral

No.	Information					
3719	Distance Pickup FORWARD (Dis. forward)	x	0	0	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	x	0	1	0	1
3759	Distance Pickup Z4 (Dis. Pickup Z4)	0	1	1	1	1
PDIS4.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

device annunciation: 1 - ON, 0 - OFF

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

PDIS4.Op

No.	Information		
3821	Distance TRIP 3phase in Z4 (Dis.TRIP 3p. Z4)	0	1
PDIS4.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PDIS4.Op.phsA

No.	Information				
3821	Distance TRIP 3phase in Z4 (Dis.TRIP 3p. Z4)	0	1	1	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS4.Op.phsA		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsA: 0 - FALSE, 1 - TRUE

PDIS4.Op.phsB

No.	Information				
3821	Distance TRIP 3phase in Z4 (Dis.TRIP 3p. Z4)	0	1	1	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS4.Op.phsB		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsB: 0 - FALSE, 1 - TRUE

PDIS4.Op.phsC

No.	Information				
3821	Distance TRIP 3phase in Z4 (Dis.TRIP 3p. Z4)	0	1	1	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS4.Op.phsC		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsC: 0 - FALSE, 1 - TRUE

3.2.6 Distance protection zone 5 (PDIS5)

PDIS5.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z5 (P1341) = Inactive	x	x	1	0	0	0	0
PDIS5.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS5.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	1	0	1	0
PDIS5.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS5.Str

No.	Information		
3760	Distance Pickup Z5 (Dis. Pickup Z5)	0	1
PDIS5.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIS5.Str.dirGeneral

No.	Information					
3719	Distance Pickup FORWARD (Dis. forward)	x	0	0	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	x	0	1	0	1
3760	Distance Pickup Z5 (Dis. Pickup Z5)	0	1	1	1	1
PDIS5.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

device annunciation: 1 - ON, 0 - OFF

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

PDIS5.Op

No.	Information		
3822	Distance TRIP 3phase in Z5 (Dis.TRIP 3p. Z5)	0	1
PDIS5.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PDIS5.Op.phsA

No.	Information				
3822	Distance TRIP 3phase in Z5 (Dis.TRIP 3p. Z5)	0	1	1	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS5.Op.phsA		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsA: 0 - FALSE, 1 - TRUE

PDIS5.Op.phsB

No.	Information				
3822	Distance TRIP 3phase in Z5 (Dis.TRIP 3p. Z5)	0	1	1	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS5.Op.phsB		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsB: 0 - FALSE, 1 - TRUE

PDIS5.Op.phsC

No.	Information				
3822	Distance TRIP 3phase in Z5 (Dis.TRIP 3p. Z5)	0	1	1	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS5.Op.phsC		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsC: 0 - FALSE, 1 - TRUE

3.2.7 Distance protection zone 6 (PDIS6)

PDIS6.Mod

No.	Information							
3653	Distance is ACTIVE (Dist. ACTIVE)	0	x	x	1	1	1	1
3652	Distance is BLOCKED (Dist. BLOCK)	x	x	x	0	0	1	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	x	x	0	1	0	1
3651	Distance is switched off (Dist. OFF)	x	1	x	0	0	0	0
	Op. mode Z6 (P1361) = Inactive	x	x	1	0	0	0	0
PDIS6.Mod.stVal		**5**	**5**	**5**	**1**	**2**	**2**	**2**

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

PDIS6.Health

No.	Information				
51	Device is Operational and Protecting (Device OK)	1	1	0	0
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	1	0	1	0
PDIS6.Health.stVal		**2**	**1**	**3**	**3**

device annunciation: 1 - ON
0 - OFF

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

PDIS6.Str

No.	Information		
3761	Distance Pickup Z6 (Dis. Pickup Z6)	0	1
PDIS6.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIS6.Str.dirGeneral

No.	Information					
3719	Distance Pickup FORWARD (Dis. forward)	x	0	0	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	x	0	1	0	1
3761	Distance Pickup Z6 (Dis. Pickup Z6)	0	1	1	1	1
PDIS6.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

device annunciation: 1 - ON, 0 - OFF

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

PDIS6.Op

No.	Information		
3827	Distance TRIP 3phase in Z6 (Dis.TRIP 3p. Z6)	0	1
PDIS6.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PDIS6.Op.phsA

No.	Information				
3827	Distance TRIP 3phase in Z6 (Dis.TRIP 3p. Z6)	0	1	1	1
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS6.Op.phsA		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsA: 0 - FALSE, 1 - TRUE

PDIS6.Op.phsB

No.	Information				
3827	Distance TRIP 3phase in Z6 (Dis.TRIP 3p. Z6)	0	1	1	1
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS6.Op.phsB		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsB: 0 - FALSE, 1 - TRUE

PDIS6.Op.phsC

No.	Information				
3827	Distance TRIP 3phase in Z6 (Dis.TRIP 3p. Z6)	0	1	1	1
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	x	0	1	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	x	0	0	1
PDIS6.Op.phsC		**0**	**0**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsC: 0 - FALSE, 1 - TRUE

3.2.8 Distance protection general information (PTRC2)

PTRC2.Mod

No.	Information					
3653	Distance is ACTIVE (Dist. ACTIVE)	0	1	0	0	0
3652	Distance is BLOCKED (Dist. BLOCK)	x	0	1	0	1
3603	>BLOCK 21 Distance (>BLOCK 21 Dist.)	x	0	0	1	1
3651	Distance is switched off (Dist. OFF)	1	0	0	0	0
PTRC2.Mod.stVal		**5**	**1**	**2**	**2**	**2**

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

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

PTRC2.Health

No.	Information					
3654	Setting error K0(Z1) or Angle K0(Z1) (Dis.ErrorK0(Z1))	x	0	1	0	1
3655	Setting error K0(>Z1) or Angle K0(>Z1) (DisErrorK0(>Z1))	x	0	0	1	1
51	Device is Operational and Protecting (Device OK)	0	1	1	1	1
PTRC2.Health.stVal		**3**	**1**	**2**	**2**	**2**

device annunciation: 1 - ON, 0 - OFF

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

PTRC2.Str

No.	Information		
3671	Distance PICKED UP (Dis. PICKUP)	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				
3720	Distance Pickup REVERSE (Dis. reverse)	1	1	0	0
3719	Distance Pickup FORWARD (Dis. forward)	1	0	1	0
PTRC2.Str.dirGeneral		**3**	**2**	**1**	**0**

device annunciation: 1 - ON, 0 - OFF

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

PTRC2.Str.phsA

No.	Information		
3672	Distance PICKUP L1 (Dis.Pickup L1)	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													
3701	Distance Loop L1E selected forward (Dis.Loop L1-E f)	1	x	x	0	0	0	1	1	x	x	x	x	0
3704	Distance Loop L12 selected forward (Dis.Loop L1-2 f)	x	1	x	0	0	0	x	x	1	1	x	x	0
3706	Distance Loop L31 selected forward (Dis.Loop L3-1 f)	x	x	1	0	0	0	x	x	x	x	1	1	0
3707	Distance Loop L1E selected reverse (Dis.Loop L1-E r)	0	0	0	1	x	x	0	0	1	x	1	x	0
3710	Distance Loop L12 selected reverse (Dis.Loop L1-2 r)	0	0	0	x	1	x	1	x	0	0	x	1	0
3712	Distance Loop L31 selected reverse (Dis.Loop L3-1 r)	0	0	0	x	x	1	x	1	x	1	0	0	0
PTRC2.Str.dirPhsA		**1**	**1**	**1**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**0**

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

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

PTRC2.Str.phsB

No.	Information		
3673	Distance PICKUP L2 (Dis.Pickup L2)	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													
3702	Distance Loop L2E selected forward (Dis.Loop L2-E f)	1	x	x	0	0	0	1	1	x	x	x	x	0
3704	Distance Loop L12 selected forward (Dis.Loop L1-2 f)	x	1	x	0	0	0	x	x	1	1	x	x	0
3705	Distance Loop L23 selected forward (Dis.Loop L2-3 f)	x	x	1	0	0	0	x	x	x	x	1	1	0
3708	Distance Loop L2E selected reverse (Dis.Loop L2-E r)	0	0	0	1	x	x	0	0	1	x	1	x	0
3710	Distance Loop L12 selected reverse (Dis.Loop L1-2 r)	0	0	0	x	1	x	1	x	0	0	x	1	0
3711	Distance Loop L23 selected reverse (Dis.Loop L2-3 r)	0	0	0	x	x	1	x	1	x	1	0	0	0
PTRC2.Str.dirPhsB		**1**	**1**	**1**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**0**

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

PTRC2.Str.phsC

No.	Information		
3674	Distance PICKUP L3 (Dis.Pickup L3)	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												
3703	Distance Loop L3E selected forward (Dis.Loop L3-E f)	1	x	x	0	0	0	1	1	x	x	x	x	0
3705	Distance Loop L23 selected forward (Dis.Loop L2-3 f)	x	1	x	0	0	0	x	x	1	1	x	x	0
3706	Distance Loop L31 selected forward (Dis.Loop L3-1 f)	x	x	1	0	0	0	x	x	x	x	1	1	0
3709	Distance Loop L3E selected reverse (Dis.Loop L3-E r)	0	0	0	1	x	x	0	0	1	x	1	x	0
3711	Distance Loop L23 selected reverse (Dis.Loop L2-3 r)	0	0	0	x	1	x	1	x	0	0	x	1	0
3712	Distance Loop L31 selected reverse (Dis.Loop L3-1 r)	0	0	0	x	x	1	x	1	x	1	0	0	0
PTRC2.Str.dirPhsC		**1**	**1**	**1**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**0**

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

PTRC2.Str.neut

No.	Information		
3675	Distance PICKUP Earth (Dis.Pickup E)	0	1
PTRC2.Str.neut		**0**	**1**

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

PTRC2.Op

No.	Information		
3801	Distance protection: General trip (Dis.Gen. Trip)	0	1
PTRC2.Op.general		**0**	**1**

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

PTRC2.Op.phsA

No.	Information			
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	1	0
PTRC2.Op.phsA		**1**	**1**	**0**

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

PTRC2.Op.phsB

No.	Information			
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	1	0
PTRC2.Op.phsB		**1**	**1**	**0**

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

PTRC2.Op.phsC

No.	Information			
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	1	0	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	0	1	0
PTRC2.Op.phsC		**1**	**1**	**0**

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

3.3 Power swing detection (RPSBx)

3.3.1 Power swing detection zone 1 (RPSB1)

RPSB1.Mod

No.	Information					
3651	Distance is switched off (Dist. OFF)	x	x	1	0	0
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	x	x	0	1
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1	1
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	x	1	x	0	0
RPSB1.Mod.stVal		**5**	**5**	**5**	**1**	**2**

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

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

RPSB1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB1.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB1.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB1.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB1.Str.phsA		**0**	**1**	**0**

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

RPSB1.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB1.Str.phsB		**0**	**1**	**0**

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

RPSB1.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB1.Str.phsC		**0**	**1**	**0**

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

RPSB1.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	0	1
RPSB1.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkZn.stVal: 0 - NOT BLOCKED
1 - BLOCKED

3.3.2 Power swing detection zone 1B (RPSB10)

RPSB10.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	x	0	0	1
RPSB10.Mod.stVal		**5**	**1**	**2**	**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

RPSB10.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB10.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB10.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB10.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB10.Str.phsA		**0**	**1**	**0**

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

RPSB10.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB10.Str.phsB		**0**	**1**	**0**

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

RPSB10.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	1
RPSB10.Str.phsC		**0**	**1**	**0**

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

RPSB10.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1/Z1B block or Z1,Z1B,Z2 block	0	0	0	1
RPSB10.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE 0 - OFF / FALSE IEC Status BlkZn.stVal: 0 - NOT BLOCKED 1 - BLOCKED

3.3.3 Power swing detection zone 2 (RPSB2)

RPSB2.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	P/S Op. mode (P2002) = All zones block or Z1,Z1B,Z2 block or Z2 to Z6 block	x	0	0	1
RPSB2.Mod.stVal		**5**	**1**	**2**	**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

RPSB2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB2.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB2.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1,Z1B,Z2 block or Z2 to Z6 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB2.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1,Z1B,Z2 block or Z2 to Z6 block	0	0	1
RPSB2.Str.phsA		**0**	**1**	**0**

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

RPSB2.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1,Z1B,Z2 block or Z2 to Z6 block	0	0	1
RPSB2.Str.phsB		**0**	**1**	**0**

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

RPSB2.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1,Z1B,Z2 block or Z2 to Z6 block	0	0	1
RPSB2.Str.phsC		**0**	**1**	**0**

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

RPSB2.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z1,Z1B,Z2 block or Z2 to Z6 block	0	0	0	1
RPSB2.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE 0 - OFF / FALSE IEC Status BlkZn.stVal: 0 - NOT BLOCKED 1 - BLOCKED

3.3.4 Power swing detection zone 3 (RPSB3)

RPSB3.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	x	0	0	1
RPSB3.Mod.stVal		**5**	**1**	**2**	**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

RPSB3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB3.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB3.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB3.Str.phsA		**0**	**1**	**0**

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

RPSB3.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB3.Str.phsB		**0**	**1**	**0**

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

RPSB3.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB3.Str.phsC		**0**	**1**	**0**

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

RPSB3.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	0	1
RPSB3.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkZn.stVal: 0 - NOT BLOCKED
1 - BLOCKED

3.3.5 Power swing detection zone 4 (RPSB4)

RPSB4.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	x	0	0	1
RPSB4.Mod.stVal		**5**	**1**	**2**	**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

RPSB4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB4.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB4.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB4.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB4.Str.phsA		**0**	**1**	**0**

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

RPSB4.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB4.Str.phsB		**0**	**1**	**0**

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

RPSB4.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB4.Str.phsC		**0**	**1**	**0**

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

RPSB4.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	0	1
RPSB4.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkZn.stVal: 0 - NOT BLOCKED
1 - BLOCKED

3.3.6 Power swing detection zone 5 (RPSB5)

RPSB5.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	x	0	0	1
RPSB5.Mod.stVal		**5**	**1**	**2**	**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

RPSB5.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB5.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB5.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB5.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB5.Str.phsA		**0**	**1**	**0**

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

RPSB5.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB5.Str.phsB		**0**	**1**	**0**

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

RPSB5.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB5.Str.phsC		**0**	**1**	**0**

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

RPSB5.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	0	1
RPSB5.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkZn.stVal: 0 - NOT BLOCKED
1 - BLOCKED

3.3.7 Power swing detection zone 6 (RPSB7)

RPSB7.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	x	0	0	1
RPSB7.Mod.stVal		**5**	**1**	**2**	**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

RPSB7.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB7.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB7.Str

No.	Information			
4164	Power Swing detected (Power Swing)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB1.Str.general		**0**	**1**	**0**

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

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

RPSB7.Str.phsA

No.	Information			
4167	Power Swing detected in L1 (Pow. Swing L1)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB7.Str.phsA		**0**	**1**	**0**

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

RPSB7.Str.phsB

No.	Information			
4168	Power Swing detected in L2 (Pow. Swing L2)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB7.Str.phsB		**0**	**1**	**0**

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

RPSB7.Str.phsC

No.	Information			
4169	Power Swing detected in L3 (Pow. Swing L3)	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	1
RPSB7.Str.phsC		**0**	**1**	**0**

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

RPSB7.BlkZn

No.	Information				
4164	Power Swing detected (Power Swing)	0	1	1	x
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	0	1	x
	P/S Op. mode (P2002) = All zones block or Z2 to Z6 block	0	0	0	1
RPSB7.BlkZn.stVal		**0**	**1**	**0**	**0**

device annunciation / setting: 1 - ON / TRUE
0 - OFF / FALSE
IEC Status BlkZn.stVal: 0 - NOT BLOCKED
1 - BLOCKED

3.3.8 Power swing trip command (RPSB6)

RPSB6.Mod

No.	Information				
4160	>BLOCK Power Swing detection (>Pow. Swing BLK)	x	0	1	x
	Power Swing (P 120) = Enabled and Dis. PICKUP (P 114) = Z< (quadrilat.)	0	1	1	1
	PowerSwing trip (P2006) = YES	x	0	0	1
RPSB6.Mod.stVal		**5**	**1**	**2**	**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

RPSB6.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RPSB6.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

RPSB6.Op

No.	Information		
4166	Power Swing TRIP command (Pow. Swing TRIP)	0	1
RPSB6.Op.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.4 Teleprotection for distance protection (PSCH1)

PSCH1.Mod

No.	Information				
4003	>Distance Teleprotection BLOCK (>Dis.Telep. Blk)	1	1	0	0
4052	Dis. Teleprotection is switched OFF (Dis.Telep. OFF)	1	0	1	0
PSCH1.Mod.stVal		**5**	**2**	**5**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PSCH1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PSCH1.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PSCH1.ProTx

No.	Information						
4057	Dis. Telep. Carrier SEND signal, L1 (Dis.T.SEND L1)	1	1	x	x	x	0
4058	Dis. Telep. Carrier SEND signal, L2 (Dis.T.SEND L2)	1	x	1	x	x	0
4059	Dis. Telep. Carrier SEND signal, L3 (Dis.T.SEND L3)	1	x	x	1	x	0
4056	Dis. Telep. Carrier SEND signal (Dis.T.SEND)	1	x	x	x	1	0
PSCH1.ProTx.stVal		**1**	**1**	**1**	**1**	**1**	**0**

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

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

PSCH1.ProRx

No.	Information		
4054	Dis. Telep. Carrier signal received (Dis.T.Carr.rec.)	0	1
PSCH1.ProRx.stVal		**0**	**1**

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

PSCH1.Str

No.	Information						
4057	Dis. Telep. Carrier SEND signal, L1 (Dis.T.SEND L1)	1	1	x	x	x	0
4058	Dis. Telep. Carrier SEND signal, L2 (Dis.T.SEND L2)	1	x	1	x	x	0
4059	Dis. Telep. Carrier SEND signal, L3 (Dis.T.SEND L3)	1	x	x	1	x	0
4056	Dis. Telep. Carrier SEND signal (Dis.T.SEND)	1	x	x	x	1	0
PSCH1.Str.general		**1**	**1**	**1**	**1**	**1**	**0**

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

PSCH1.Str.phsA

No.	Information		
4057	Dis. Telep. Carrier SEND signal, L1 (Dis.T.SEND L1)	0	1
PSCH1.Str.phsA		**0**	**1**

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

PSCH1.Str.phsB

No.	Information		
4058	Dis. Telep. Carrier SEND signal, L2 (Dis.T.SEND L2)	0	1
PSCH1.Str.phsB		**0**	**1**

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

PSCH1.Str.phsC

No.	Information		
4059	Dis. Telep. Carrier SEND signal, L3 (Dis.T.SEND L3)	0	1
PSCH1.Str.phsC		**0**	**1**

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

PSCH1.Op

No.	Information		
3850	DisTRIP Z1B with Teleprotection scheme (DisTRIP Z1B Tel)	0	1
PSCH1.Op.general		**0**	**1**

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

PSCH1.Op.phsA

No.	Information						
3850	DisTRIP Z1B with Teleprotection scheme (DisTRIP Z1B Tel)	1	1	1	0	0	0
3802	Distance TRIP command - Only Phase L1 (Dis.Trip 1pL1)	1	1	x	1	x	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	1	x	1	x	1	0
PSCH1.Op.phsA		**1**	**1**	**1**	**0**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsA: 0 - FALSE, 1 - TRUE

PSCH1.Op.phsB

No.	Information						
3850	DisTRIP Z1B with Teleprotection scheme (DisTRIP Z1B Tel)	1	1	1	0	0	0
3803	Distance TRIP command - Only Phase L2 (Dis.Trip 1pL2)	1	1	x	1	x	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	1	x	1	x	1	0
PSCH1.Op.phsB		**1**	**1**	**1**	**0**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status Op.phsB: 0 - FALSE, 1 - TRUE

PSCH1.Op.phsC

No.	Information						
3850	DisTRIP Z1B with Teleprotection scheme (DisTRIP Z1B Tel)	1	1	1	0	0	0
3804	Distance TRIP command - Only Phase L3 (Dis.Trip 1pL3)	1	1	x	1	x	0
3805	Distance TRIP command Phases L123 (Dis.Trip 3p)	1	x	1	x	1	0
PSCH1.Op.phsC		**1**	**1**	**1**	**0**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status OP.phsC: 0 - FALSE, 1 - TRUE

PSCH1.CarRx

No.	Information							
4030	>Dis.Tele. Unblocking: UNBLOCK Channel 1 (>Dis.T.UB ub 1)	1	1	x	x	x	x	0
4035	>Dis.Tele. Unblocking: UNBLOCK Channel 2 (>Dis.T.UB ub 2)	1	x	1	x	x	x	0
4032	>Dis.Tele. Unblocking: UNBLOCK Ch. 1, L1 (>Dis.T.UB ub1L1)	1	x	x	1	x	x	0
4033	>Dis.Tele. Unblocking: UNBLOCK Ch. 1, L2 (>Dis.T.UB ub1L2)	1	x	x	x	1	x	0
4034	>Dis.Tele. Unblocking: UNBLOCK Ch. 1, L3 (>Dis.T.UB ub1L3)	1	x	x	x	x	1	0
PSCH1.CarRx.general		**1**	**1**	**1**	**1**	**1**	**1**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status CarRx.general: 0 - FALSE, 1 - TRUE

PSCH1.LosOfGrd

No.	Information				
4055	Dis. Telep. Carrier CHANNEL FAILURE (Dis.T.Carr.Fail)	1	x	x	0
4080	Dis. Tele.Unblocking: FAILURE Channel 1 (Dis.T.UB Fail1)	1	1	x	0
4081	Dis. Tele.Unblocking: FAILURE Channel 2 (Dis.T.UB Fail2)	1	x	1	0
PSCH1.LosOfGrd.stVal		**1**	**1**	**1**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status LosOfGrd.stVal: 0 - FALSE, 1 - TRUE

PSCH1.Echo

No.	Information		
4246	ECHO Send SIGNAL (ECHO SIGNAL)	0	1
PSCH1.Echo.stVal		**0**	**1**

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

PSCH1.WeiOp.general

No.	Information		
4241	Weak Infeed General TRIP command (WeakInfeed TRIP)	0	1
PSCH1.WeiOp.general		**0**	**1**

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

PSCH1.WeiOp.phsA

No.	Information				
4242	Weak Infeed TRIP command - Only L1 (Weak TRIP 1p.L1)	1	1	x	0
4245	Weak Infeed TRIP command L123 (Weak TRIP L123)	1	x	1	0
PSCH1.WeiOp.phsA		**1**	**1**	**1**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status WeiOp.phsA: 0 - FALSE, 1 - TRUE

PSCH1.WeiOp.phsB

No.	Information				
4243	Weak Infeed TRIP command - Only L2 (Weak TRIP 1p.L2)	1	1	x	0
4245	Weak Infeed TRIP command L123 (Weak TRIP L123)	1	x	1	0
PSCH1.WeiOp.phsB		**1**	**1**	**1**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status WeiOp.phsB: 0 - FALSE, 1 - TRUE

PSCH1.WeiOp.phsC

No.	Information				
4244	Weak Infeed TRIP command - Only L3 (Weak TRIP 1p.L3)	1	1	x	0
4245	Weak Infeed TRIP command L123 (Weak TRIP L123)	1	x	1	0
PSCH1.WeiOp.phsC		**1**	**1**	**1**	**0**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status WeiOp.phsC: 0 - FALSE, 1 - TRUE

PSCH1.RvABlk

No.	Information		
4068	Dis. Telep. Transient Blocking (Dis.T.Trans.Blk)	0	1
PSCH1.RvABlk.stval		**0**	**1**

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

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

PSCH1.GrdRx

No.	Information			
4031	>Dis.Tele. Unblocking: BLOCK Channel 1 (>Dis.T.UB bl 1)	1	x	0
4036	>Dis.Tele. Unblocking: BLOCK Channel 2 (>Dis.T.UB bl 2)	x	1	0
PSCH1.GrdRx.stVal		**1**	**1**	**0**

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

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

3.5 Earth fault overcurrent protection in earthed systems (PTOCx)

3.5.1 Earth fault 3I0 > (PTOC5)

PTOC5.Mod

No.	Information							
1333	Earth fault protection is ACTIVE (E/F ACTIVE)	x	x	0	1	1	1	1
1332	Earth fault protection is BLOCKED (E/F BLOCK)	x	x	x	0	1	1	0
1308	>Earth Fault O/C Block 3I0> (>EF BLOCK 3I0>)	x	x	x	1	0	1	0
1331	Earth fault protection is switched OFF (E/F Prot. OFF)	1	x	x	0	0	0	0
	Op. mode 3I0> (P3130) = Inactive	x	1	x	0	0	0	0
PTOC5.Mod.stVal		**5**	**5**	**5**	**2**	**2**	**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

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		
1356	E/F 3I0> PICKED UP (EF 3I0> Pickup)	0	1
PTOC5.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOC5.Str.dirGeneral

No.	Information					
1358	E/F picked up FORWARD (EF forward)	x	1	1	0	0
1359	E/F picked up REVERSE (EF reverse)	x	1	0	1	0
1356	E/F 3I0> PICKED UP (EF 3I0> Pickup)	0	1	1	1	1
PTOC5.Str.dirGeneral		**0**	**3**	**1**	**2**	**0**

device annunciation: 1 - ON, 0 - OFF

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

PTOC5.Op

No.	Information		
1368	E/F 3I0> TRIP (EF 3I0> TRIP)	0	1
PTOC5.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

3.5.2 Earth fault 3I0 >> (PTOC6)

PTOC6.Mod

No.	Information							
1333	Earth fault protection is ACTIVE (E/F ACTIVE)	x	x	0	1	1	1	1
1332	Earth fault protection is BLOCKED (E/F BLOCK)	x	x	x	0	1	1	0
1307	>Earth Fault O/C Block 3I0>> (>EF BLOCK 3I0>>)	x	x	x	1	0	1	0
1331	Earth fault protection is switched OFF (E/F Prot. OFF)	1	x	x	0	0	0	0
	Op. mode 3I0>> (P3120) = Inactive	x	1	x	0	0	0	0
PTOC6.Mod.stVal		**5**	**5**	**5**	**2**	**2**	**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

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		
1355	E/F 3I0>> PICKED UP (EF 3I0>> Pickup)	0	1
PTOC6.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOC6.Str.dirGeneral

No.	Information					
1358	E/F picked up FORWARD (EF forward)	x	1	1	0	0
1359	E/F picked up REVERSE (EF reverse)	x	1	0	1	0
1355	E/F 3I0>> PICKED UP (EF 3I0>> Pickup)	0	1	1	1	1
PTOC6.Str.dirGeneral		**0**	**3**	**1**	**2**	**0**

device annunciation: 1 - ON, 0 - OFF

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

PTOC6.Op

No.	Information		
1367	E/F 3I0>> TRIP (EF 3I0>> TRIP)	0	1
PTOC6.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

3.5.3 Earth fault 3I0 >>> (PTOC7)

PTOC7.Mod

No.	Information							
1333	Earth fault protection is ACTIVE (E/F ACTIVE)	x	x	0	1	1	1	1
1332	Earth fault protection is BLOCKED (E/F BLOCK)	x	x	x	0	1	1	0
1305	>Earth Fault O/C Block 3I0>>> (>EF BLK 3I0>>>)	x	x	x	1	0	1	0
1331	Earth fault protection is switched OFF (E/F Prot. OFF)	1	x	x	0	0	0	0
	Op. mode 3I0>>> (P3110) = Inactive	x	1	x	0	0	0	0
PTOC7.Mod.stVal		**5**	**5**	**5**	**2**	**2**	**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

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		
1354	E/F 3I0>>> PICKED UP (EF 3I0>>>Pickup)	0	1
PTOC7.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOC7.Str.dirGeneral

No.	Information					
1358	E/F picked up FORWARD (EF forward)	x	1	1	0	0
1359	E/F picked up REVERSE (EF reverse)	x	1	0	1	0
1354	E/F 3I0>>> PICKED UP (EF 3I0>>>Pickup)	0	1	1	1	1
PTOC7.Str.dirGeneral		**0**	**3**	**1**	**2**	**0**

device annunciation: 1 - ON, 0 - OFF

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

PTOC7.Op

No.	Information		
1366	E/F 3I0>>> TRIP (EF 3I0>>> TRIP)	0	1
PTOC7.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

3.5.4 Earth fault 3I0p (PTOC8)

PTOC8.Mod

No.	Information						
1332	Earth fault protection is BLOCKED (E/F BLOCK)	x	x	1	1	0	0
1309	>Earth Fault O/C Block 3I0p (>EF BLOCK 3I0p)	x	x	1	0	1	0
1331	Earth fault protection is switched OFF (E/F Prot. OFF)	1	x	0	0	0	0
	Op. mode 3I0p (P3140) = Inactive	x	1	0	0	0	0
PTOC8.Mod.stVal		**5**	**5**	**2**	**2**	**2**	**1**

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

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		
1357	E/F 3I0p PICKED UP (EF 3I0p Pickup)	0	1
PTOC8.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOC8.Str.dirGeneral

No.	Information					
1358	E/F picked up FORWARD (EF forward)	x	0	1	1	0
1359	E/F picked up REVERSE (EF reverse)	x	0	0	1	1
1357	E/F 3I0p PICKED UP (EF 3I0p Pickup)	0	1	1	1	1
PTOC8.Str.dirGeneral		**0**	**0**	**1**	**3**	**2**

device annunciation: 1 - ON, 0 - OFF

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

PTOC8.Op

No.	Information		
1369	E/F 3I0p TRIP (EF 3I0p TRIP)	0	1
PTOC8.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

3.6 Earth fault detection in non-earthed systems (PSDE1)

PSDE1.Mod

No.	Information							
1263	Sensitve E/F detection is ACTIVE (SensEF ACTIVE)	1	1	1	1	0	0	0	0
1262	Sensitve E/F detection is BLOCKED (SensEF BLOCK)	1	1	0	0	1	1	0	0
1261	Sensitve E/F detection is switched OFF (SensEF OFF)	1	0	1	0	1	0	1	0
PSDE1.Mod.stVal		**5**	**2**	**5**	**1**	**5**	**5**	**5**	**5**

device annunciation: 1 - ON, 0 - OFF

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		
1271	Sensitve E/F detection picked up (SensEF 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								
1276	Sensitve E/F detection Forward (SensEF Forward)	1	1	1	1	0	0	0	0
1277	Sensitve E/F detection Reverse (SensEF Reverse)	1	1	0	0	1	1	0	0
1278	Sensitve E/F detection Undef. Direction (SensEF undefDir)	1	0	1	0	1	0	1	0
PSDE1.Mod.dirGeneral		**0**	**3**	**0**	**1**	**0**	**2**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF

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

PSDE1.Str.phsA

No.	Information		
1272	Sensitve E/F detection Phase L1 (SensEF Phase L1)	0	1
PSDE1.Str.phsA		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PSDE1.Str.dirPhsA

No.	Information																
1276	Sensitve E/F detection Forward (SensEF Forward)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
1277	Sensitve E/F detection Reverse (SensEF Reverse)	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0
1278	Sensitve E/F detection Undef. Direction (SensEF undefDir)	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
1272	Sensitve E/F detection Phase L1 (SensEF Phase L1)	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
PSDE1.Str.dirPhsA		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF

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

PSDE1.Str.phsB

No.	Information		
1273	Sensitve E/F detection Phase L2 (SensEF Phase L2)	0	1
PSDE1.Str.phsB		**0**	**1**

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

PSDE1.Str.dirPhsB

No.	Information																
1276	Sensitve E/F detection Forward (SensEF Forward)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
1277	Sensitve E/F detection Reverse (SensEF Reverse)	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0
1278	Sensitve E/F detection Undef. Direction (SensEF undefDir)	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
1273	Sensitve E/F detection Phase L2 (SensEF Phase L2)	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
PSDE1.Str.dirPhsB		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**

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

PSDE1.Str.phsC

No.	Information		
1274	Sensitve E/F detection Phase L3 (SensEF Phase L3)	0	1
PSDE1.Str.phsC		**0**	**1**

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

PSDE1.Str.dirPhsC

No.	Information																
1276	Sensitve E/F detection Forward (SensEF Forward)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
1277	Sensitve E/F detection Reverse (SensEF Reverse)	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0
1278	Sensitve E/F detection Undef. Direction (SensEF undefDir)	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
1274	Sensitve E/F detection Phase L3 (SensEF Phase L3)	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
PSDE1.Str.dirPhsC		**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**

device annunciation: 1 - ON, 0 - OFF, t

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

PSDE1.Op

No.	Information		
1281	Sensitve E/F detection TRIP command (SensEF TRIP)	0	1
PSDE1.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

3.7 Restricted earth fault protection (PDIF3)

PDIF3.Mod

No.	Information							
5813	Restricted earth fault is ACTIVE (REF ACTIVE)	x	0	1	1	1	1	1
5812	Restricted earth fault is BLOCKED (REF BLOCKED)	x	x	0	1	x	x	x
5811	Restricted earth fault is switched OFF (REF OFF)	1	0	0	0	0	0	0
290	Alarm: Broken current-wire detected L1 (Broken Iwire L1)	x	x	0	0	1	x	x
291	Alarm: Broken current-wire detected L2 (Broken Iwire L2)	x	x	0	0	x	1	x
292	Alarm: Broken current-wire detected L3 (Broken Iwire L3)	x	x	0	0	x	x	1
PDIF3.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**	**2**

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

PDIF3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PDIF3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PDIF3.Str

No.	Information		
5817	Restr. earth flt.: picked up (REF picked up)	0	1
PDIF3.Str.general		**0**	**1**

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

PDIF3.Str.dirGeneral

No.	Information	
PDIF3.Str.dirGeneral		**1**

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

PDIF3.Op

No.	Information		
5821	Restr. earth flt.: TRIP (REF TRIP)	0	1
PDIF3.Op.general		**0**	**1**

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

PDIF3.DifAClc

No.	Information	Value		
30654	Idiff REF(% Operational nominal current) (IdiffREF=)	PDIF3.DifAClc.cVal.mag.f	Measured value	Absolute value
		PDIF3.DifAClc.units.SIUnit		
		PDIF3.DifAClc.units.multiplier		

PDIF3.RstA

No.	Information	Value		
30655	Irest REF(% Operational nominal current) (IrestREF=)	PDIF3.RstA.cVal.mag.f	Measured value	Absolute value
		PDIF3.RstA.units.SIUnit		
		PDIF3.RstA.units.multiplier		

3.8 Overcurrent protection (PTOCx)

3.8.1 O/C Ip (PTOC1)

PTOC1.Mod

No.	Information									
7153	Backup O/C is ACTIVE (O/C ACTIVE)	x	x	0	0	0	1	1	1	1
7152	Backup O/C is BLOCKED (O/C BLOCK)	x	x	0	1	1	0	0	1	1
7106	>BLOCK Backup OverCurrent Ip (>BLOCK O/C Ip)	x	x	1	0	1	0	1	0	1
7151	Backup O/C is switched OFF (O/C OFF)	1	x	0	0	0	0	0	0	0
	Operating Mode (P2601) = OFF or Ip (P2640) and 3I0p PICKUP (P2650) = ∞	x	1	0	0	0	0	0	0	0
PTOC1.Mod.stVal		**5**	**5**	**5**	**5**	**5**	**1**	**2**	**2**	**2**

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		
7193	Backup O/C Pickup Ip (O/C PICKUP Ip)	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		
7223	Backup O/C TRIP Ip (O/C TRIP Ip)	0	1
PTOC1.Op.general		**0**	**1**

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

3.8.2 O/C I> (PTOC2)

PTOC2.Mod

No.	Information									
7153	Backup O/C is ACTIVE (O/C ACTIVE)	x	x	0	0	0	1	1	1	1
7152	Backup O/C is BLOCKED (O/C BLOCK)	x	x	0	1	1	0	0	1	1
7105	>BLOCK Backup OverCurrent I> (>BLOCK O/C I>)	x	x	1	0	1	0	1	0	1
7151	Backup O/C is switched OFF (O/C OFF)	1	x	0	0	0	0	0	0	0
	Operating Mode (P2601) = OFF or Iph> (P2620) and 3I0> (P2622) = ∞	x	1	0	0	0	0	0	0	0
PTOC2.Mod.stVal		**5**	**5**	**5**	**5**	**5**	**1**	**2**	**2**	**2**

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		
7192	Backup O/C Pickup I> (O/C PICKUP I>)	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		
7222	Backup O/C TRIP I> (O/C TRIP I>)	0	1
PTOC2.Op.general		**0**	**1**

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

3.8.3 O/C I>> (PTOC3)

PTOC3.Mod

No.	Information								
7153	Backup O/C is ACTIVE (O/C ACTIVE)	x	x	0	0	0	1	1	1	1
7152	Backup O/C is BLOCKED (O/C BLOCK)	x	x	0	1	1	0	0	1	1
7104	>BLOCK Backup OverCurrent I>> (>BLOCK O/C I>>)	x	x	1	0	1	0	1	0	1
7151	Backup O/C is switched OFF (O/C OFF)	1	x	0	0	0	0	0	0	0
	Operating Mode (P2601) = OFF or Iph>> (P2610) and 3I0>> PICKUP (P2612) = ∞	x	1	0	0	0	0	0	0	0
PTOC3.Mod.stVal		**5**	**5**	**5**	**5**	**5**	**1**	**2**	**2**	**2**

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		
7191	Backup O/C Pickup I>> (O/C PICKUP I>>)	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		
7221	Backup O/C TRIP I>> (O/C TRIP I>>)	0	1
PTOC3.Op.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

3.8.4 O/C I>>> (PTOC4)

PTOC4.Mod

No.	Information																
7153	Backup O/C is ACTIVE (O/C ACTIVE)	x	x	0	0	0	0	0	0	1	1	1	1	1	1	1	1
7152	Backup O/C is BLOCKED (O/C BLOCK)	x	x	0	0	1	1	1	1	0	0	0	0	1	1	1	1
7130	>BLOCK I-STUB (>BLOCK I-STUB)	x	x	1	1	0	0	1	1	0	0	1	1	0	0	1	1
7131	>Enable I-STUB-Bus function (>I-STUB ENABLE)	x	x	0	1	0	1	0	1	0	1	0	1	0	1	0	1
7151	Backup O/C is switched OFF (O/C OFF)	1	x	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Operating Mode (P2601) = OFF or Iph>>> (P2630) and 3I0>>> PICKUP (P2632) = ∞	x	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PTOC4.Mod.stVal		**5**	**5**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**

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		
7201	O/C I-STUB Pickup (I-STUB PICKUP)	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		
7235	O/C I-STUB TRIP (I-STUB TRIP)	0	1
PTOC4.Op.general		**0**	**1**

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

3.8.5 Directional O/C Ip (PTOC9)

PTOC9.Mod

No.	Information						
7153	Backup O/C is ACTIVE (O/C ACTIVE)	x	x	0	0	1	1
7152	Backup O/C is BLOCKED (O/C BLOCK)	x	x	0	1	0	1
7151	Backup O/C is switched OFF (O/C OFF)	x	1	0	0	0	0
7159	Operating Mode (P2601) = OFF or Ip ger (P2689) and 3I0 ger PICKUP (P2694) = ∞	1	x	0	0	0	0
PTOC9.Mod.stVal		**5**	**5**	**5**	**2**	**1**	**2**

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		
7203	Backup O/C Pickup Ip directional (O/C PICK. IpDir)	0	1
PTOC9.Str.general		**0**	**1**

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

PTOC9.Str.dirGeneral

No.	Information					
7203	Backup O/C Pickup Ip directional (O/C PICK. IpDir)	0	1	1	1	1
7248	Backup O/C forward direction (O/C Dir.forward)	x	0	0	1	1
7249	Backup O/C reverse direction (O/C Dir.reverse)	x	0	1	0	1
PTOC9.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

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

PTOC9.Op

No.	Information		
7237	Backup O/C Pickup Ip directional (O/C TRIP IpDir.)	0	1
PTOC9.Op.general		**0**	**1**

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

3.8.6 Directional O/C I> (PTOC10)

PTOC10.Mod

No.	Information						
7153	Backup O/C is ACTIVE (O/C ACTIVE)	x	x	0	0	1	1
7152	Backup O/C is BLOCKED (O/C BLOCK)	x	x	0	1	0	1
7151	Backup O/C is switched OFF (O/C OFF)	x	1	0	0	0	0
7158	Operating Mode (P2601) = OFF or Iph> ger (P2630) and 3I0> ger PICKUP (P2632) = ∞	1	x	0	0	0	0
PTOC10.Mod.stVal		**5**	**5**	**5**	**2**	**1**	**2**

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		
7202	Backup O/C Pickup I> directional (O/C PICK. I>Dir)	0	1
PTOC10.Str.general		**0**	**1**

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

PTOC10.Str.dirGeneral

No.	Information					
7202	Backup O/C Pickup I> directional (O/C PICK. I>Dir)	0	1	1	1	1
7248	Backup O/C forward direction (O/C Dir.forward)	x	0	0	1	1
7249	Backup O/C reverse direction (O/C Dir.reverse)	x	0	1	0	1
PTOC10.Str.dirGeneral		**0**	**0**	**2**	**1**	**3**

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

PTOC10.Op

No.	Information		
7236	Backup O/C TRIP I> directional (O/C TRIP I>Dir.)	0	1
PTOC10.Op.general		**0**	**1**

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

3.9 Automatic reclosure function (RREC1)

RREC1.Mod

No.	Information				
2782	AR: Auto-reclose is switched on (AR on)	x	0	1	1
2783	AR: Auto-reclose is blocked (AR is blocked)	x	x	1	0
2781	AR: Auto-reclose is switched off (AR off)	1	0	0	0
RREC1.Mod.stVal		**5**	**5**	**2**	**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	AR: Close command (AR CLOSE Cmd.)	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	AR in progress (AR in progress)	1	1	0	0
2862	AR successful (AR 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

3.10 Synchronism and voltage check (RSYN1)

RSYN1.Mod

No.	Information				
2932	Synchro-check is BLOCKED (Sync. BLOCK)	1	1	0	0
2931	Synchro-check is switched OFF (Sync. OFF)	1	0	1	0
RSYN1.Mod.stVal		**5**	**2**	**5**	**1**

device annunciation:
1 - ON
0 - OFF

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

RSYN1.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RSYN1.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

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

RSYN1.Rel

No.	Information		
2951	Synchronism release (to ext. AR) (Sync. release)	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		
2947	Sync. Voltage diff. greater than limit (Sync. Udiff>)	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		
2949	Sync. Angle diff. greater than limit (Sync. φ-diff>)	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		
2948	Sync. Freq. diff. greater than limit (Sync. fdiff>)	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		
2941	Synchronization is running (Sync. running)	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	
636	U-diff (line-bus) (Udiff =)	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	
647	Frequency (difference line-bus) (F-diff=)	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	
648	Angle (difference line-bus) (φ-diff=)	RSYN1.DifAngClc.mag.f	Measured value	Absolute value
		RSYN1.DifAngClc.units.SIUnit	9	° (Degree)
		RSYN1.DifAngClc.units.multiplier	0	1

3.11 Under and overvoltage protection (PTUVx, PTOVx)

3.11.1 Under voltage protection Uph-e < (PTUV1)

PTUV1.Mod

No.	Information			
10226	Uph-e<(<) Undervolt. is BLOCKED (Uph-e<(<) BLK)	0	0	1
	Uph-e<(<) (P3751) = OFF or Uph-e< (P3752) = 0	0	1	0
PTUV1.Mod.stVal		**1**	**5**	**2**

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

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					
10310	Uph-e< Pickup (Uph-e< Pickup)	0	1	1	1	1
10318	Uph-e< Pickup L1 (Uph-e< PU L1)	0	x	1	x	x
10319	Uph-e< Pickup L2 (Uph-e< PU L2)	0	x	x	1	x
10320	Uph-e< Pickup L3 (Uph-e< PU L3)	0	x	x	x	1
PTUV1.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTUV1.Str.phsA

No.	Information		
10318	Uph-e< Pickup L1 (Uph-e< PU L1)	0	1
PTUV1.Str.phsA		**0**	**1**

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

PTUV1.Str.phsB

No.	Information		
10319	Uph-e< Pickup L2 (Uph-e< PU L2)	0	1
PTUV1.Str.phsB		**0**	**1**

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

PTUV1.Str.phsC

No.	Information		
10320	Uph-e< Pickup L3 (Uph-e< PU L3)	0	1
PTUV1.Str.phsC		**0**	**1**

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

PTUV1.Op

No.	Information				
10317	Uph-e<(<) TRIP command (Uph-e<(<) TRIP)	0	0	1	1
10315	Uph-e< TimeOut (Uph-e< TimeOut)	0	1	0	1
PTUV1.Op.general		**0**	**0**	**0**	**1**

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

3.11.2 Undervoltage protection Uph-e<< (PTUV2)

PTUV2.Mod

No.	Information			
10226	Uph-e<(<) Undervolt. is BLOCKED (Uph-e<(<) BLK)	0	0	1
	Uph-e<(<) (P3751) = OFF or Uph-e<< (P3754) = 0	0	1	0
PTUV2.Mod.stVal		**1**	**5**	**2**

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

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					
10311	Uph-e<< Pickup (Uph-e<< Pickup)	0	1	1	1	1
10321	Uph-e<< Pickup L1 (Uph-e<< PU L1)	0	x	1	x	x
10322	Uph-e<< Pickup L2 (Uph-e<< PU L2)	0	x	x	1	x
10323	Uph-e<< Pickup L3 (Uph-e<< PU L3)	0	x	x	x	1
PTUV2.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTUV2.Str.phsA

No.	Information		
10321	Uph-e<< Pickup L1 (Uph-e<< PU L1)	0	1
PTUV2.Str.phsA		**0**	**1**

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

PTUV2.Str.phsB

No.	Information		
10322	Uph-e<< Pickup L2 (Uph-e<< PU L2)	0	1
PTUV2.Str.phsB		**0**	**1**

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

PTUV2.Str.phsC

No.	Information		
10323	Uph-e<< Pickup L3 (Uph-e<< PU L3)	0	1
PTUV2.Str.phsC		**0**	**1**

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

PTUV2.Op

No.	Information				
10317	Uph-e<(<) TRIP command (Uph-e<(<) TRIP)	0	0	1	1
10316	Uph-e<< TimeOut (Uph-e<< TimeOut)	0	1	0	1
PTUV2.Op.general		**0**	**0**	**0**	**1**

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

3.11.3 Undervoltage protection Uphph< (PTUV3)

PTUV3.Mod

No.	Information			
10228	Uphph<(<) Undervolt. is BLOCKED (Uph-ph<(<) BLK)	0	0	1
	Uph-ph<(<) (P3761) = OFF or Uph-ph< (P3762) = 0	0	1	0
PTUV3.Mod.stVal		**1**	**5**	**2**

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

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

PTUV3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTUV3.Str

No.	Information					
10325	Uph-ph< Pickup (Uph-ph< Pickup)	0	1	1	1	1
10327	Uphph<(<) Pickup L1-L2 (Uphph<(<)PU L12)	0	x	1	x	x
10328	Uphph<(<) Pickup L2-L3 (Uphph<(<)PU L23)	0	x	x	1	x
10329	Uphph<(<) Pickup L3-L1 (Uphph<(<)PU L31)	0	x	x	x	1
PTUV3.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTUV3.Str.phsA

No.	Information				
10327	Uphph<(<) Pickup L1-L2 (Uphph<(<)PU L12)	0	0	1	1
10329	Uphph<(<) Pickup L3-L1 (Uphph<(<)PU L31)	0	1	0	1
PTUV3.Str.phsA		**0**	**1**	**1**	**1**

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

PTUV3.Str.phsB

No.	Information				
10327	Uphph<(<) Pickup L1-L2 (Uphph<(<)PU L12)	0	0	1	1
10328	Uphph<(<) Pickup L2-L3 (Uphph<(<)PU L23)	0	1	0	1
PTUV3.Str.phsB		**0**	**1**	**1**	**1**

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

PTUV3.Str.phsC

No.	Information				
10328	Uphph<(<) Pickup L2-L3 (Uphph<(<)PU L23)	0	0	1	1
10329	Uphph<(<) Pickup L3-L1 (Uphph<(<)PU L31)	0	1	0	1
PTUV3.Str.phsC		**0**	**1**	**1**	**1**

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

PTUV3.Op

No.	Information				
10332	Uphph<(<) TRIP command (Uphph<(<) TRIP)	0	0	1	1
10330	Uphph< TimeOut (Uphph< TimeOut)	0	1	0	1
PTUV3.Op.general		**0**	**0**	**0**	**1**

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

3.11.4 Undervoltage protection Uphph<< (PTUV4)

PTUV4.Mod

No.	Information			
10228	Uphph<(<) Undervolt. is BLOCKED (Uph-ph<(<) BLK)	0	0	1
	Uph-ph<(<) (P3761) = OFF or Uph-ph<< (P3764) = 0	0	1	0
PTUV4.Mod.stVal		**1**	**5**	**2**

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

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

PTUV4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV4.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTUV4.Str

No.	Information					
10326	Uph-ph<< Pickup (Uph-ph<< Pickup)	0	1	1	1	1
10327	Uphph<(<) Pickup L1-L2 (Uphph<(<)PU L12)	0	x	1	x	x
10328	Uphph<(<) Pickup L2-L3 (Uphph<(<)PU L23)	0	x	x	1	x
10329	Uphph<(<) Pickup L3-L1 (Uphph<(<)PU L31)	0	x	x	x	1
PTUV4.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTUV4.Str.phsA

No.	Information				
10327	Uphph<(<) Pickup L1-L2 (Uphph<(<)PU L12)	0	0	1	1
10329	Uphph<(<) Pickup L3-L1 (Uphph<(<)PU L31)	0	1	0	1
PTUV4.Str.phsA		**0**	**1**	**1**	**1**

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

PTUV4.Str.phsB

No.	Information				
10327	Uphph<(<) Pickup L1-L2 (Uphph<(<)PU L12)	0	0	1	1
10328	Uphph<(<) Pickup L2-L3 (Uphph<(<)PU L23)	0	1	0	1
PTUV4.Str.phsB		**0**	**1**	**1**	**1**

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

PTUV4.Str.phsC

No.	Information				
10328	Uphph<(<) Pickup L2-L3 (Uphph<(<)PU L23)	0	0	1	1
10329	Uphph<(<) Pickup L3-L1 (Uphph<(<)PU L31)	0	1	0	1
PTUV4.Str.phsC		**0**	**1**	**1**	**1**

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

PTUV4.Op

No.	Information				
10332	Uphph<(<) TRIP command (Uphph<(<) TRIP)	0	0	1	1
10331	Uphph<< TimeOut (Uphph<< TimeOut)	0	1	0	1
PTUV4.Op.general		**0**	**0**	**0**	**1**

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

3.11.5 Undervoltage protection U1< (PTUV5)

PTUV5.Mod

No.	Information			
10230	U1<(<) Undervolt. is BLOCKED (U1<(<) BLK)	0	0	1
	U1<(<) (P3771) = OFF or U1< (P3772) = 0	0	1	0
PTUV5.Mod.stVal		**1**	**5**	**2**

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

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

PTUV5.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV5.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTUV5.Str

No.	Information		
10300	U1< Pickup (U1< Pickup)	0	1
PTUV5.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTUV5.Op

No.	Information				
10304	U1<(<) TRIP command (U1<(<) TRIP)	0	0	1	1
10302	U1< TimeOut (U1< TimeOut)	0	1	0	1
PTUV5.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.6 Undervoltage protection U1<< (PTUV6)

PTUV6.Mod

No.	Information				
10230	U1<(<) Undervolt. is BLOCKED (U1<(<) BLK)	0	0	1	
	U1<(<) (P3771) = OFF or U1<< (P3774) = 0	0	1	0	
PTUV6.Mod.stVal		**1**	**5**	**2**	

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

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

PTUV6.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTUV6.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTUV6.Str

No.	Information		
10301	U1<< Pickup (U1<< Pickup)	0	1
PTUV6.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTUV6.Op

No.	Information				
10304	U1<(<) TRIP command (U1<(<) TRIP)	0	0	1	1
10303	U1<< TimeOut (U1<< TimeOut)	0	1	0	1
PTUV6.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.7 Overvoltage protection Uph> (PTOV1)

PTOV1.Mod

No.	Information			
10216	Uph-e>(>) Overvolt. is BLOCKED (Uph-e>(>) BLK)	0	0	1
	Uph-e>(>) (P3701) = OFF or Uph-e> (P3702) = ∞	0	1	0
PTOV1.Mod.stVal		**1**	**5**	**2**

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

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					
10240	Uph-e> Pickup (Uph-e> Pickup)	0	1	1	1	1
10248	Uph-e> Pickup L1 (Uph-e> PU L1)	0	x	1	x	x
10249	Uph-e> Pickup L2 (Uph-e> PU L2)	0	x	x	1	x
10250	Uph-e> Pickup L3 (Uph-e> PU L3)	0	x	x	x	1
PTOV1.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTOV1.Str.phsA

No.	Information		
10248	Uph-e> Pickup L1 (Uph-e> PU L1)	0	1
PTOV1.Str.phsA		**0**	**1**

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

PTOV1.Str.phsB

No.	Information		
10249	Uph-e> Pickup L2 (Uph-e> PU L2)	0	1
PTOV1.Str.phsB		**0**	**1**

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

PTOV1.Str.phsC

No.	Information		
10250	Uph-e> Pickup L3 (Uph-e> PU L3)	0	1
PTOV1.Str.phsC		**0**	**1**

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

PTOV1.Op

No.	Information				
	Spannungsschutz.Uphgr_AUS	0	0	1	1
10245	Uph-e> TimeOut (Uph-e> TimeOut)	0	1	0	1
PTOV1.Op.general		**0**	**0**	**0**	**1**

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

3.11.8 Overvoltage protection Uph-e>> (PTOV2)

PTOV2.Mod

No.	Information			
10216	Uph-e>(>) Overvolt. is BLOCKED (Uph-e>(>) BLK)	0	0	1
	Uph-e>(>) (P3701) = OFF or Uph-e>> (P3704) = ∞	0	1	0
PTOV2.Mod.stVal		**1**	**5**	**2**

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

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					
10241	Uph-e>> Pickup (Uph-e>> Pickup)	0	1	1	1	1
10242	Uph-e>(>) Pickup L1 (Uph-e>(>) PU L1)	0	x	1	x	x
10243	Uph-e>(>) Pickup L2 (Uph-e>(>) PU L2)	0	x	x	1	x
10244	Uph-e>(>) Pickup L3 (Uph-e>(>) PU L3)	0	x	x	x	1
PTOV2.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTOV2.Str.phsA

No.	Information		
10242	Uph-e>(>) Pickup L1 (Uph-e>(>) PU L1)	0	1
PTOV2.Str.phsA		**0**	**1**

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

PTOV2.Str.phsB

No.	Information		
10243	Uph-e>(>) Pickup L2 (Uph-e>(>) PU L2)	0	1
PTOV2.Str.phsB		**0**	**1**

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

PTOV2.Str.phsC

No.	Information		
10244	Uph-e>(>) Pickup L3 (Uph-e>(>) PU L3)	0	1
PTOV2.Str.phsC		**0**	**1**

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

PTOV2.Op

No.	Information				
10247	Uph-e>(>) TRIP command (Uph-e>(>) TRIP)	0	0	1	1
10246	Uph-e>> TimeOut (Uph-e>> TimeOut)	0	1	0	1
PTOV2.Op.general		**0**	**0**	**0**	**1**

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

3.11.9 Overvoltage protection Uphph> (PTOV3)

PTOV3.Mod

No.	Information			
10218	Uph-ph>(>) Overvolt. is BLOCKED (Uph-ph>(>) BLK)	0	0	1
	Uph-ph>(>) (P3711) = OFF or Uph-ph> (P3712) = ∞	0	1	0
PTOV3.Mod.stVal		**1**	**5**	**2**

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

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

PTOV3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV3.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV3.Str

No.	Information					
10255	Uph-ph> Pickup (Uphph> Pickup)	0	1	1	1	1
10257	Uph-ph>(>) Pickup L1-L2 (Uphph>(>)PU L12)	0	x	1	x	x
10258	Uph-ph>(>) Pickup L2-L3 (Uphph>(>)PU L23)	0	x	x	1	x
10259	Uph-ph>(>) Pickup L3-L1 (Uphph>(>)PU L31)	0	x	x	x	1
PTOV3.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTOV3.Str.phsA

No.	Information				
10257	Uph-ph>(>) Pickup L1-L2 (Uphph>(>)PU L12)	0	0	1	1
10259	Uph-ph>(>) Pickup L3-L1 (Uphph>(>)PU L31)	0	1	0	1
PTOV3.Str.phsA		**0**	**1**	**1**	**1**

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

PTOV3.Str.phsB

No.	Information				
10257	Uph-ph>(>) Pickup L1-L2 (Uphph>(>)PU L12)	0	0	1	1
10258	Uph-ph>(>) Pickup L2-L3 (Uphph>(>)PU L23)	0	1	0	1
PTOV3.Str.phsB		**0**	**1**	**1**	**1**

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

PTOV3.Str.phsC

No.	Information				
10258	Uph-ph>(>) Pickup L2-L3 (Uphph>(>)PU L23)	0	0	1	1
10259	Uph-ph>(>) Pickup L3-L1 (Uphph>(>)PU L31)	0	1	0	1
PTOV3.Str.phsC		**0**	**1**	**1**	**1**

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

PTOV3.Op

No.	Information				
10262	Uph-ph>(>) TRIP command (Uphph>(>) TRIP)	0	0	1	1
10260	Uph-ph> TimeOut (Uphph> TimeOut)	0	1	0	1
PTOV3.Op.general		**0**	**0**	**0**	**1**

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

3.11.10 Overvoltage protection Uphph>> (PTOV4)

PTOV4.Mod

No.	Information			
10218	Uph-ph>(>) Overvolt. is BLOCKED (Uph-ph>(>) BLK)	0	0	1
	Uph-ph>(>) (P3711) = OFF or Uph-ph>> (P3714) = ∞	0	1	0
PTOV4.Mod.stVal		**1**	**5**	**2**

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

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

PTOV4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV4.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV4.Str

No.	Information					
10256	Uph-ph>> Pickup (Uphph>> Pickup)	0	1	1	1	1
10266	Uph-ph>> Pickup L1-L2 (Uphph>> PU L12)	0	x	1	x	x
10267	Uph-ph>> Pickup L2-L3 (Uphph>> PU L23)	0	x	x	1	x
10268	Uph-ph>> Pickup L3-L1 (Uphph>> PU L31)	0	x	x	x	1
PTOV4.Str.general		**0**	**1**	**1**	**1**	**1**

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

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

PTOV4.Str.phsA

No.	Information				
10266	Uph-ph>> Pickup L1-L2 (Uphph>> PU L12)	0	0	1	1
10268	Uph-ph>> Pickup L3-L1 (Uphph>> PU L31)	0	1	0	1
PTOV4.Str.phsA		**0**	**1**	**1**	**1**

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

PTOV4.Str.phsB

No.	Information				
10266	Uph-ph>> Pickup L1-L2 (Uphph>> PU L12)	0	0	1	1
10267	Uph-ph>> Pickup L2-L3 (Uphph>> PU L23)	0	1	0	1
PTOV4.Str.phsB		**0**	**1**	**1**	**1**

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

PTOV4.Str.phsC

No.	Information				
10267	Uph-ph>> Pickup L2-L3 (Uphph>> PU L23)	0	0	1	1
10268	Uph-ph>> Pickup L3-L1 (Uphph>> PU L31)	0	1	0	1
PTOV4.Str.phsC		**0**	**1**	**1**	**1**

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

PTOV4.Op

No.	Information				
10262	Uph-ph>(>) TRIP command (Uphph>(>) TRIP)	0	0	1	1
10261	Uph-ph>> TimeOut (Uphph>> TimeOut)	0	1	0	1
PTOV4.Op.general		**0**	**0**	**0**	**1**

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

3.11.11 Overvoltage protection 3U0> (PTOV5)

PTOV5.Mod

No.	Information				
10220	3U0>(>) Overvolt. is BLOCKED (3U0>(>) BLK)	0	0	1	
	3U0>(>) (or Ux) (P3721) = OFF or 3U0> (P3722) = ∞	0	1	0	
PTOV5.Mod.stVal		**1**	**5**	**2**	

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

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

PTOV5.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV5.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV5.Str

No.	Information		
10270	3U0> Pickup (3U0> Pickup)	0	1
PTOV5.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV5.Op

No.	Information				
10274	3U0>(>) TRIP command (3U0>(>) TRIP)	0	0	1	1
10272	3U0> TimeOut (3U0> TimeOut)	0	1	0	1
PTOV5.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.12 Overvoltage protection 3U0>> (PTOV6)

PTOV6.Mod

No.	Information			
10220	3U0>(>) Overvolt. is BLOCKED (3U0>(>) BLK)	0	0	1
	3U0>(>) (or Ux) (P3721) = OFF or 3U0>> (P3724) = ∞	0	1	0
PTOV6.Mod.stVal		**1**	**5**	**2**

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

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

PTOV6.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV6.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV6.Str

No.	Information		
10271	3U0>> Pickup (3U0>> Pickup)	0	1
PTOV6.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV6.Op

No.	Information				
10274	3U0>(>) TRIP command (3U0>(>) TRIP)	0	0	1	1
10273	3U0>> TimeOut (3U0>> TimeOut)	0	1	0	1
PTOV6.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.13 Overvoltage protection U1> (PTOV7)

PTOV7.Mod

No.	Information			
10222	U1>(>) Overvolt. is BLOCKED (U1>(>) BLK)	0	0	1
	U1>(>) (P3731) = OFF or U1> (P3732) = ∞	0	1	0
PTOV7.Mod.stVal		**1**	**5**	**2**

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

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

PTOV7.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV7.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV7.Str

No.	Information		
10280	U1> Pickup (U1> Pickup)	0	1
PTOV7.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV7.Op

No.	Information				
10284	U1>(>) TRIP command (U1>(>) TRIP)	0	0	1	1
10282	U1> TimeOut (U1> TimeOut)	0	1	0	1
PTOV7.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.14 Overvoltage protection U1>> (PTOV8)

PTOV8.Mod

No.	Information			
10222	U1>(>) Overvolt. is BLOCKED (U1>(>) BLK)	0	0	1
	U1>(>) (P3731) = OFF or U1>> (P3734) = ∞	0	1	0
PTOV8.Mod.stVal		**1**	**5**	**2**

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

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

PTOV8.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV8.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV8.Str

No.	Information		
10281	U1>> Pickup (U1>> Pickup)	0	1
PTOV8.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV8.Op

No.	Information				
10284	U1>(>) TRIP command (U1>(>) TRIP)	0	0	1	1
10283	U1>> TimeOut (U1>> TimeOut)	0	1	0	1
PTOV8.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.15 Overvoltage protection U2> (PTOV9)

PTOV9.Mod

No.	Information				
10224	U2>(>) Overvolt. is BLOCKED (U2>(>) BLK)	0	0	0	1
	U2>(>) (P3741) = OFF or U2> (P3742) = ∞	0	1	0	0
PTOV9.Mod.stVal		**1**	**5**	**2**	

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

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

PTOV9.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV9.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV9.Str

No.	Information		
10290	U2> Pickup (U2> Pickup)	0	1
PTOV9.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV9.Op

No.	Information				
10294	U2>(>) TRIP command (U2>(>) TRIP)	0	0	1	1
10292	U2> TimeOut (U2> TimeOut)	0	1	0	1
PTOV9.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.11.16 Overvoltage protection U2>> (PTOV10)

PTOV10.Mod

No.	Information			
10224	U2>(>) Overvolt. is BLOCKED (U2>(>) BLK)	0	0	1
	U2>(>) (P3741) = OFF or U2>> (P3742) = ∞	0	1	0
PTOV10.Mod.stVal		**1**	**5**	**2**

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

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

PTOV10.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
PTOV10.Health.stVal		**3**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV10.Str

No.	Information		
10291	U2>> Pickup (U2>> Pickup)	0	1
PTOV10.Str.general		**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

PTOV10.Op

No.	Information				
10294	U2>(>) TRIP command (U2>(>) TRIP)	0	0	1	1
10293	U2>> TimeOut (U2>> TimeOut)	0	1	0	1
PTOV10.Op.general		**0**	**0**	**0**	**1**

device annunciation: 1 - ON
0 - OFF

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

3.12 Frequency protection (PTUFx, PTOFx)

3.12.1 Underfrequency protection FQS stage f1 (PTUF1)

PTUF1.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5206	>BLOCK frequency protection stage f1 (>BLOCK f1)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f1 (P3601) = ON and f1 PICKUP (P3602/3603) < Rated Frequency (P230)	x	0	1	1	1	1
	O/U FREQ. f1 (P3601) =OFF or f1 PICKUP (P3602/3603) = Rated Frequency (P230)	1	0	0	0	0	0
PTUF1.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f1 picked up (f1 picked up)	0	0	1	1
	O/U FREQ. f1 P3601) = ON and f1 PICKUP (P3602/3603) < Rated Frequency (P230)	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	Frequency protection: f1 TRIP (f1 TRIP)	0	0	1	1
	O/U FREQ. f1 P3601) = ON and f1 PICKUP (P3602/3603) < Rated Frequency (P230)	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

3.12.2 Underfrequency protection FQS stage f2 (PTUF2)

PTUF2.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5207	>BLOCK frequency protection stage f2 (>BLOCK f2)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f2 (P3611) = ON and f2 PICKUP (P3612/3613) < Rated Frequency (P230)	x	0	1	1	1	1
	O/U FREQ. f2 (P3611) = OFF or f2 PICKUP (P3612/3613) = Rated Frequency (P230)	1	0	0	0	0	0
PTUF2.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f2 picked up (f2 picked up)	0	0	1	1
	O/U FREQ. f2 (P3611) = ON and f2 PICKUP (P3612/3613) < Rated Frequency (P230)	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	Frequency protection: f2 TRIP (f2 TRIP)	0	0	1	1
	O/U FREQ. f2 (P3611)= ON and f2 PICKUP (P3612/3613) < Rated Frequency (P230)	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

3.12.3 Underfrequency protection FQS stage f3 (PTUF3)

PTUF3.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5208	>BLOCK frequency protection stage f3 (>BLOCK f3)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f3 (P3621) = ON and f3 PICKUP (P3622/3623) < Rated Frequency (P230)	x	0	1	1	1	1
	O/U FREQ. f3 (P3621) = OFF or f3PICKUP (P3622/3623) = Rated Frequency (P230)	1	0	0	0	0	0
PTUF3.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f3 picked up (f3 picked up)	0	0	1	1
	O/U FREQ. f3 (P3621) = ON and f3 PICKUP (P3622/3623) < Rated Frequency (P230)	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	Frequency protection: f3 TRIP (f3 TRIP)	0	0	1	1
	O/U FREQ. f3 (P3621) = ON and f3 PICKUP (P3622/3623) < Rated Frequency (P230)	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

3.12.4 Underfrequency protection FQS stage f4 (PTUF4)

PTUF4.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5209	>BLOCK frequency protection stage f4 (>BLOCK f4)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f4 ON (P3631) and f4 PICKUP (P3632/3633) < Rated Frequency (P230)	x	0	1	1	1	1
	O/U FREQ. f4 (P3631) = OFF or f4 PICKUP (P3632/3633) = Rated Frequency (P230)	1	0	0	0	0	0
PTUF4.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f4 picked up (f4 picked up)	0	0	1	1
	O/U FREQ. f4 (P3631)= ON and f4 PICKUP (P3632/3633) < Rated Frequency (P230)	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	Frequency protection: f4 TRIP (f4 TRIP)	0	0	1	1
	O/U FREQ. f4 (P3631) = ON and f4 PICKUP (P3632/3633) < Rated Frequency (P230)	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

3.12.5 Overfrequency protection FQS stage f1 (PTOF1)

PTOF1.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5206	>BLOCK frequency protection stage f1 (>BLOCK f1)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f1 (P3601) = ON and f1 PICKUP (P3602/3603) > Rated Frequency (P230)	x	1	0	0	0	0
	O/U FREQ. f1 (P3601) = OFF or f1 PICKUP (P3602/3603) = Rated Frequency (P230)	1	0	0	0	0	0
PTOF1.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f1 picked up (f1 picked up)	0	0	1	1
	O/U FREQ. f1 (P3601) = ON and f1 PICKUP (P3602/3603) > Rated Frequency (P230)	1	0	1	0
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	Frequency protection: f1 TRIP (f1 TRIP)	0	0	1	1
	O/U FREQ. f1 (P3601) = ON and f1 PICKUP (P3602/3603) > Rated Frequency (P230)q	1	0	1	0
PTOF1.Op.general		**0**	**0**	**1**	**0**

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

3.12.6 Overfrequency protection FQS stage f2 (PTOF2)

PTOF2.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5207	>BLOCK frequency protection stage f2 (>BLOCK f2)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f2 (P3611) = ON and f2 PICKUP (P3612/3613) > Rated Frequency (P230)	x	1	0	0	0	0
	O/U FREQ. f2 (P3611) = OFF or f2 PICKUP (P3612/3613) = Rated Frequency (P230)	1	0	0	0	0	0
PTOF2.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f2 picked up (f2 picked up)	0	0	1	1
	O/U FREQ. f2 (P3611)= ON and f2 PICKUP (P3612/3613) > Rated Frequency (P230)	1	0	1	0
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	Frequency protection: f2 TRIP (f2 TRIP)	0	0	1	1
	O/U FREQ. f2 (P3611) = ON and f2 PICKUP (P3612/3613) > Rated Frequency (P230)	1	0	1	0
PTOF2.Op.general		**0**	**0**	**1**	**0**

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

3.12.7 Overfrequency protection FQS stage f3 (PTOF3)

PTOF3.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5208	>BLOCK frequency protection stage f3 (>BLOCK f3)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f3 (P3621) = ON and f3 PICKUP (P3622/3623) > Rated Frequency (P230)	x	1	0	0	0	0
	O/U FREQ. f3 (P3621)= OFF or f3 PICKUP (P3622/3623) = Rated Frequency (P230)	1	0	0	0	0	0
PTOF3.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f3 picked up (f3 picked up)	0	0	1	1
	O/U FREQ. f3 (P3621) = ON and f3 PICKUP (P3622/3623) > Rated Frequency (P230)	1	0	1	0
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	Frequency protection: f3 TRIP (f3 TRIP)	0	0	1	1
	O/U FREQ. f3 (P3621) = ON and f3 PICKUP (P3622/3623) > Rated Frequency (P230)	1	0	1	0
PTOF3.Op.general		**0**	**0**	**1**	**0**

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

3.12.8 Overfrequency protection FQS stage f4 (PTOF4)

PTOF4.Mod

No.	Information						
5212	Frequency protection is BLOCKED (Freq. BLOCKED)	x	x	0	1	x	x
5209	>BLOCK frequency protection stage f4 (>BLOCK f4)	x	x	0	x	1	x
5215	Frequency protection undervoltage Blk (Freq UnderV Blk)	x	x	0	x	x	1
	O/U FREQ. f4 (P3631) = ON and f4 PICKUP (P3632/3633) > Rated Frequency (P230)	x	1	0	0	0	0
	O/U FREQ. f4 (P3631) = OFF or f4 PICKUP (P3632/3633) = Rated Frequency (P230)	1	0	0	0	0	0
PTOF4.Mod.stVal		**5**	**5**	**1**	**2**	**2**	**2**

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	Frequency protection: f4 picked up (f4 picked up)	0	0	1	1
	O/U FREQ. f4 (P3631) = ON and f4 PICKUP (P3632/3633) > Rated Frequency (P230)	1	0	1	0
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	Frequency protection: f4 TRIP (f4 TRIP)	0	0	1	1
	O/U FREQ. f4 (P3631) = ON and f4 PICKUP (P3632/3633) > Rated Frequency (P230)	1	0	1	0
PTOF4.Op.general		**0**	**0**	**1**	**0**

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

3.13 Fault locator (RFLO1)

RFLO1.Mod

No.	Information		
	Fault Locator (P138) = Enabled or with BCD-output	0	1
RFLO1.Mod.stVal		**5**	**1**

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	0	1	1
1133	Fault locator setting error K0,angle(K0) (Flt.Loc.ErrorK0)	0	1	0	1
RFLO1.Health.stVal		**3**	**3**	**1**	**2**

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 or miles
		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

3.14 Circuit breaker failure protection (RBRF1)

RBRF1.Mod

No.	Information				
1452	Breaker failure is BLOCKED (BkrFail BLOCK)	0	0	1	1
1451	Breaker failure is switched OFF (BkrFail OFF)	0	1	0	1
RBRF1.Mod.stVal		**1**	**5**	**2**	**5**

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		
1461	Breaker failure protection started (BF Start)	0	1
RBRF1.Str.general		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

RBRF1.OpEx

No.	Information		
1494	BF Trip T2 (busbar trip) (BF T2-TRIP(bus))	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					
1472	BF Trip T1 (local trip) - only phase L1 (BF T1-TRIP 1pL1)	0	1	x	x	x
1473	BF Trip T1 (local trip) - only phase L2 (BF T1-TRIP 1pL2)	0	x	1	x	x
1474	BF Trip T1 (local trip) - only phase L3 (BF T1-TRIP 1pL3)	0	x	x	1	x
1476	BF Trip T1 (local trip) - 3pole (BF T1-TRIP L123)	0	x	x	x	1
RBRF1.OpIn.general		**0**	**1**	**1**	**1**	**1**

device annunciation: 1 - ON, 0 - OFF, x - irrelevant
IEC Status OpIn.general: 0 - FALSE, 1 - TRUE

RBRF1.OpIn.phsA

No.	Information		
1472	BF Trip T1 (local trip) - only phase L1 (BF T1-TRIP 1pL1)	0	1
RBRF1.OpIn.phsA		**0**	**1**

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

RBRF1.OpIn.phsB

No.	Information		
1473	BF Trip T1 (local trip) - only phase L2 (BF T1-TRIP 1pL2)	0	1
RBRF1.OpIn.phsB		**0**	**1**

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

RBRF1.OpIn.phsC

No.	Information		
1474	BF Trip T1 (local trip) - only phase L3 (BF T1-TRIP 1pL3)	0	1
RBRF1.OpIn.phsC		**0**	**1**

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

3.15 Thermal overload protection (PTTR1)

PTTR1.Mod

No.	Information				
1513	Thermal Overload Protection ACTIVE (Th.O/L ACTIVE)	x	0	1	1
1512	Thermal Overload Protection BLOCKED (Th.Overload BLK)	x	x	0	1
1511	Thermal Overload Protection OFF (Th.Overload OFF)	1	0	0	0
PTTR1.Mod.stVal		**5**	**5**	**1**	**2**

device annunciation: 1 - ON, 0 - OFF

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	Th. Overload Pickup before trip (Th.O/L Pickup)	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	Th. Overload TRIP command (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	Th. Overload Alarm: Near Thermal Trip (Th.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

3.16 Single-pole / threepole tripping Circuit Breaker (XCBRx)

3.16.1 Threepole tripping (XCBR1)

XCBR1.Mod

No.	Information		
52	At Least 1 Protection Funct. is Active (ProtActive)	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

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		
1000	Number of breaker TRIP commands (# 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.CirSpv

No.	Information		
6865	Failure Trip Circuit (FAIL: 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		
1027	Accumulation of interrupted current L1 (Σ IL1 =)	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		
1028	Accumulation of interrupted current L2 (Σ IL2 =)	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		
1029	Accumulation of interrupted current L3 (Σ IL3 =)	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

3.16.2 Single-pole / threepole tripping (XCBR2, XCBR3, XCBR4)

XCBR2.Mod

No.	Information		
52	At Least 1 Protection Funct. is Active (ProtActive)	1	0
XCBR2.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

XCBR2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
XCBR2.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR2.Loc

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR2.Loc.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF

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

XCBR2.OpCnt

No.	Information	Value		
1001	Number of breaker TRIP commands L1 (TripNo L1=)	XCBR2.OpCnt.stVal	Metered value	Absolute value

XCBR2.Pos

No.	Information		
351	>Circuit breaker aux. contact: Pole L1 (>CB Aux. L1)	0	1
XCBR2.Pos.stVal		**01**	**10**

device annunciation: 1 - ON, 0 - OFF

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

XCBR2.BlkOpn

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR2.BlkOpn.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR2.BlkCls

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR2.BlkCls.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status BlkCls.stval: 0 - FALSE, 1 - TRUE

XCBR2.CirSpv

No.	Information		
6865	Failure Trip Circuit (FAIL: Trip cir.)	0	1
XCBR2.CirSpv.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR2.SumSwARs

No.	Information	Value		
1027	Accumulation of interrupted current L1 (Σ IL1 =)	XCBR2.SumSwARs.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		XCBR2.SumSwARs.units.SIUnit	5	A (Ampere)
		XCBR2.SumSwARs.units.multiplier	3	Kilo
		XCBR2.SumSwARs.pulsQty	1.000000e-002	A / Metered value

XCBR3.Mod

No.	Information		
52	At Least 1 Protection Funct. is Active (ProtActive)	1	0
XCBR3.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

XCBR3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
XCBR3.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR3.Loc

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR3.Loc.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF

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

XCBR3.OpCnt

No.	Information	Value		
1002	Number of breaker TRIP commands L2 (TripNo L2=)	XCBR3.OpCnt.stVal	Metered value	Absolute value

XCBR3.Pos

No.	Information		
352	>Circuit breaker aux. contact: Pole L2 (>CB Aux. L2)	0	1
XCBR3.Pos.stVal		**01**	**10**

device annunciation: 1 - ON, 0 - OFF

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

XCBR3.BlkOpn

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR3.BlkOpn.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR3.BlkCls

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR3.BlkCls.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR3.CirSpv

No.	Information		
6865	Failure Trip Circuit (FAIL: Trip cir.)	0	1
XCBR3.CirSpv.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR3.SumSwARs

No.	Information	Value		
1028	Accumulation of interrupted current L2 (Σ IL2 =)	XCBR3.SumSwARs.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		XCBR3.SumSwARs.units.SIUnit	5	A (Ampere)
		XCBR3.SumSwARs.units.multiplier	3	Kilo
		XCBR3.SumSwARs.pulsQty	1.000000e-002	A / Metered value

XCBR4.Mod

No.	Information		
52	At Least 1 Protection Funct. is Active (ProtActive)	1	0
XCBR4.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

XCBR4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
XCBR4.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR4.Loc

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR4.Loc.stVal		**1**	**0**

device annunciation: 1 - ON, 0 - OFF

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

XCBR4.OpCnt

No.	Information	Value		
1003	Number of breaker TRIP commands L3 (TripNo L3=)	XCBR4.OpCnt.stVal	Metered value	Absolute value

XCBR4.Pos

No.	Information		
353	>Circuit breaker aux. contact: Pole L3 (>CB Aux. L3)	0	1
XCBR4.Pos.stVal		**01**	**10**

device annunciation: 1 - ON, 0 - OFF

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

XCBR4.BlkOpn

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR4.BlkOpn.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

IEC Status BlkOpn.stval: 0 - FALSE, 1 - TRUE

XCBR4.BlkCls

No.	Information		
55	Reset Device (Reset Device)	1	0
XCBR4.BlkCls.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR4.CirSpv

No.	Information		
6865	Failure Trip Circuit (FAIL: Trip cir.)	0	1
XCBR4.CirSpv.stVal		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

XCBR4.SumSwARs

No.	Information	Value		
1029	Accumulation of interrupted current L3 (Σ IL3 =)	XCBR4.SumSwARs.actVal	Metered value	Current value of acummulated interrupted current = actVal × pulsQty
		XCBR4.SumSwARs.units.SIUnit	5	A (Ampere)
		XCBR4.SumSwARs.units.multiplier	3	Kilo
		XCBR4.SumSwARs.pulsQty	1.000000e-002	A / Metered value

3.17 Tripping Logic of the Entire Device (PTRC1)

PTRC1.Mod

No.	Information		
52	At Least 1 Protection Funct. is Active (ProtActive)	1	0
PTRC1.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

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	x	x	x	x
503	Relay PICKUP Phase L1 (Relay PICKUP L1)	0	x	1	x	x	x
504	Relay PICKUP Phase L2 (Relay PICKUP L2)	0	x	x	1	x	x
505	Relay PICKUP Phase L3 (Relay PICKUP L3)	0	x	x	x	1	x
506	Relay PICKUP Earth (Relay PICKUP E)	0	x	x	x	x	1
PTRC1.Str.general		**0**	**1**	**1**	**1**	**1**	**1**

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

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

PTRC1.Str.dirGeneral

No.	Information										
3719	Distance Pickup FORWARD (Dis. forward)	0	1	0	1	0	0	0	1	1	x	x
1358	E/F picked up FORWARD (EF forward)	0	0	1	1	0	0	0	x	x	1	1
3720	Distance Pickup REVERSE (Dis. reverse)	0	0	0	0	1	0	1	1	x	1	x
1359	E/F picked up REVERSE (EF reverse)	0	0	0	0	0	1	1	x	1	x	1
PTRC1.Str.dirGeneral		**0**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**3**	**3**	**3**

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

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

PTRC1.Str.phsA

No.	Information		
503	Relay PICKUP Phase L1 (Relay PICKUP L1)	0	1
PTRC1.Str.phsA		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PTRC1.Str.phsB

No.	Information		
504	Relay PICKUP Phase L2 (Relay PICKUP L2)	0	1
PTRC1.Str.phsB		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PTRC1.Str.phsC

No.	Information		
505	Relay PICKUP Phase L3 (Relay PICKUP L3)	0	1
PTRC1.Str.phsC		**0**	**1**

device annunciation: 1 - ON, 0 - OFF

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

PTRC1.Str.neut

No.	Information		
506	Relay PICKUP Earth (Relay PICKUP E)	0	1
PTRC1.Str.neut		**0**	**1**

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

PTRC1.Tr.general

No.	Information					
501	Relay PICKUP (Relay PICKUP)	0	1	x	x	x
507	Relay TRIP command Phase L1 (Relay TRIP L1)	0	x	1	x	x
508	Relay TRIP command Phase L2 (Relay TRIP L2)	0	x	x	1	x
509	Relay TRIP command Phase L3 (Relay TRIP L3)	0	x	x	x	1
PTRC1.Tr.general		**0**	**1**	**1**	**1**	**1**

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

PTRC1.Tr.phsA

No.	Information		
507	Relay TRIP command Phase L1 (Relay TRIP L1)	0	1
PTRC1.Tr.phsA		**0**	**1**

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

PTRC1.Tr.phsB

No.	Information		
508	Relay TRIP command Phase L2 (Relay TRIP L2)	0	1
PTRC1.Tr.phsB		**0**	**1**

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

PTRC1.Tr.phsC

No.	Information		
509	Relay TRIP command Phase L3 (Relay TRIP L3)	0	1
PTRC1.Tr.phsC		**0**	**1**

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

PTRC1.FinTr

No.	Information		
536	Relay Definitive TRIP (Definitive TRIP)	0	1
PTRC1.FinTr.stVal		**0**	**1**

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

3.18 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
x - irrelevant

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

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

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

3.18.1 Alarm-, Warn- and Group alarms (CALH1)

CALH1.Mod

No.	Information		
55	Reset Device (Reset Device)	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
SIPROTEC 7SA with Firmware V04.65 and higher
SIPROTEC 7SD with Firmware V04.61 and higher
SIPROTEC 7VK with Firmware V04.60 and higher.

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

3.19 Measurements (MMXUx, MSQI1, MMTR1)

3.19.1 Measured values of local device (MMXU1)

MMXU1.Mod

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

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		
643	cos PHI (Power factor) (cos phi =)	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	I L1 (IL1 =)	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	I L2 (IL2 =)	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	I L3 (IL3 =)	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

MMXU1.PPV

No.	Information	Value		
624	U L12 (UL12=)	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	U L23 (UL23=)	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	U L31 (UL31=)	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	U L1-E (UL1E=)	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	U L2-E (UL2E=)	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	U L3-E (UL3E=)	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	Uen (Uen =)	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

3.19.2 Remote measured values of relay 1 (MMXU2)

MMXU2.Mod

No.	Information		
3491	Relay 1 in Login state (Rel1 Login)	0	1
MMXU2.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

MMXU2.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU2.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

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

MMXU2.RelId

No.	Information	Value		
7761	Relay ID of 1. relay (Relay ID)	MMXU2.RelId.stVal	Parameter 4701	Device address

MMXU2.A

No.	Information	Value		
7762	IL1(% of Operational nominal current) (IL1_opN=)	MMXU2.A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU2.A.phsA.units.SIUnit	1	NONE
		MMXU2.A.phsA.units.multiplier	0	1
7763	Angle IL1_rem <-> IL1_loc (ΦI L1=)	MMXU2.A.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7764	IL2(% of Operational nominal current) (IL2_opN=)	MMXU2.A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU2.A.phsB.units.SIUnit	1	NONE
		MMXU2.A.phsB.units.multiplier	0	1
7765	Angle IL2_rem <-> IL2_loc (ΦI L2=)	MMXU2.A.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7766	IL3(% of Operational nominal current) (IL3_opN=)	MMXU2.A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU2.A.phsC.units.SIUnit	1	NONE
		MMXU2.A.phsC.units.multiplier	0	1
7767	Angle IL3_rem <-> IL3_loc (ΦI L3=)	MMXU2.A.phsC.cVal.ang.f	Measured value	Phase angle in °

MMXU2.PhV

No.	Information	Value		
7769	UL1(% of Operational nominal voltage) (UL1_opN=)	MMXU2.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU2. PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU2. PhV.phsA.units.multiplier	3	Kilo
7770	Angle UL1_rem <-> UL1_loc (ΦU L1=)	MMXU2. PhV.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7771	UL2(% of Operational nominal voltage) (UL2_opN=)	MMXU2.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU2. PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU2. PhV.phsB.units.multiplier	3	Kilo
7772	Angle UL2_rem <-> UL2_loc (ΦU L2=)	MMXU2. PhV.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7773	UL3(% of Operational nominal voltage) (UL3_opN=)	MMXU2.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU2. PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU2. PhV.phsC.units.multiplier	3	Kilo
7774	Angle UL3_rem <-> UL3_loc (ΦU L3=)	MMXU2. PhV.phsC.cVal.ang.f	Measured value	Phase angle in °

3.19.3 Remote measured values of relay 2 (MMXU3)

MMXU3.Mod

No.	Information		
3492	Relay 2 in Login state (Rel2 Login)	0	1
MMXU3.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

MMXU3.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU3.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

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

MMXU3.RelId

No.	Information	Value		
7781	Relay ID of 2. relay (Relay ID)	MMXU3.RelId.stVal	Parameter 4702	Device address

MMXU3.A

No.	Information	Value		
7782	IL1(% of Operational nominal current) (IL1_opN=)	MMXU3.A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU3.A.phsA.units.SIUnit	1	NONE
		MMXU3.A.phsA.units.multiplier	0	1
7783	Angle IL1_rem <-> IL1_loc (ΦI L1=)	MMXU3.A.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7784	IL2(% of Operational nominal current) (IL2_opN=)	MMXU3.A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU3.A.phsB.units.SIUnit	1	NONE
		MMXU3.A.phsB.units.multiplier	0	1
7785	Angle IL2_rem <-> IL2_loc (ΦI L2=)	MMXU3.A.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7786	IL3(% of Operational nominal current) (IL3_opN=)	MMXU3.A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU3.A.phsC.units.SIUnit	1	NONE
		MMXU3.A.phsC.units.multiplier	0	1
7787	Angle IL3_rem <-> IL3_loc (ΦI L3=)	MMXU3.A.phsC.cVal.ang.f	Measured value	Phase angle in °

MMXU3.PhV

No.	Information	Value		
7789	UL1(% of Operational nominal voltage) (UL1_opN=)	MMXU3.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU3. PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU3. PhV.phsA.units.multiplier	3	Kilo
7790	Angle UL1_rem <-> UL1_loc (ΦU L1=)	MMXU3. PhV.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7791	UL2(% of Operational nominal voltage) (UL2_opN=)	MMXU3.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU3. PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU3. PhV.phsB.units.multiplier	3	Kilo
7792	Angle UL2_rem <-> UL2_loc (ΦU L2=)	MMXU3. PhV.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7793	UL3(% of Operational nominal voltage) (UL3_opN=)	MMXU3.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU3. PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU3. PhV.phsC.units.multiplier	3	Kilo
7794	Angle UL3_rem <-> UL3_loc (ΦU L3=)	MMXU3. PhV.phsC.cVal.ang.f	Measured value	Phase angle in °

3.19.4 Remote measured values of relay 3 (MMXU4)

MMXU4.Mod

No.	Information		
3493	Relay 3 in Login state (Rel3 Login)	0	1
MMXU4.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

MMXU4.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU4.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

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

MMXU4.RelId

No.	Information	Value		
7801	Relay ID of 3. relay (Relay ID)	MMXU4.RelId.stVal	Parameter 4703	Device address

MMXU4.A

No.	Information	Value		
7802	IL1(% of Operational nominal current) (IL1_opN=)	MMXU4.A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU4.A.phsA.units.SIUnit	1	NONE
		MMXU4.A.phsA.units.multiplier	0	1
7803	Angle IL1_rem <-> IL1_loc (ΦI L1=)	MMXU4.A.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7804	IL2(% of Operational nominal current) (IL2_opN=)	MMXU4.A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU4.A.phsB.units.SIUnit	1	NONE
		MMXU4.A.phsB.units.multiplier	0	1
7805	Angle IL2_rem <-> IL2_loc (ΦI L2=)	MMXU4.A.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7806	IL3(% of Operational nominal current) (IL3_opN=)	MMXU4.A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU4.A.phsC.units.SIUnit	1	NONE
		MMXU4.A.phsC.units.multiplier	0	1
7807	Angle IL3_rem <-> IL3_loc (ΦI L3=)	MMXU4.A.phsC.cVal.ang.f	Measured value	Phase angle in °

MMXU4.PhV

No.	Information	Value		
7809	UL1(% of Operational nominal voltage) (UL1_opN=)	MMXU4.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU4.PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU4.PhV.phsA.units.multiplier	3	Kilo
7810	Angle UL1_rem <-> UL1_loc (ΦU L1=)	MMXU4.PhV.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7811	UL2(% of Operational nominal voltage) (UL2_opN=)	MMXU4.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU4.PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU4.PhV.phsB.units.multiplier	3	Kilo
7812	Angle UL2_rem <-> UL2_loc (ΦU L2=)	MMXU4.PhV.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7813	UL3(% of Operational nominal voltage) (UL3_opN=)	MMXU4.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU4.PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU4. PhV.phsC.units.multiplier	3	Kilo
7814	Angle UL3_rem <-> UL3_loc (ΦU L3=)	MMXU4. PhV.phsC.cVal.ang.f	Measured value	Phase angle in °

3.19.5 Remote measured values of relay 4 (MMXU5)

MMXU5.Mod

No.	Information		
3494	Relay 4 in Login state (Rel4 Login)	0	1
MMXU5Mod.stVal		**5**	**1**

device annunciation:
1 - ON
0 - OFF

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

MMXU5.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU5Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

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

MMXU5.RelId

No.	Information	Value		
7821	Relay ID of 4. relay (Relay ID)	MMXU5RelId.stVal	Parameter 4704	Device address

MMXU5.A

No.	Information	Value		
7822	IL1(% of Operational nominal current) (IL1_opN=)	MMXU5A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU5A.phsA.units.SIUnit	1	NONE
		MMXU5A.phsA.units.multiplier	0	1
7823	Angle IL1_rem <-> IL1_loc (ΦI L1=)	MMXU5A.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7824	IL2(% of Operational nominal current) (IL2_opN=)	MMXU5A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU5A.phsB.units.SIUnit	1	NONE
		MMXU5A.phsB.units.multiplier	0	1
7825	Angle IL2_rem <-> IL2_loc (ΦI L2=)	MMXU5A.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7826	IL3(% of Operational nominal current) (IL3_opN=)	MMXU5A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU5A.phsC.units.SIUnit	1	NONE
		MMXU5A.phsC.units.multiplier	0	1
7827	Angle IL3_rem <-> IL3_loc (ΦI L3=)	MMXU5A.phsC.cVal.ang.f	Measured value	Phase angle in °

MMXU5.PhV

No.	Information	Value		
7829	UL1(% of Operational nominal voltage) (UL1_opN=)	MMXU5.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU5.PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU5.PhV.phsA.units.multiplier	3	Kilo
7830	Angle UL1_rem <-> UL1_loc (ΦU L1=)	MMXU5.PhV.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7831	UL2(% of Operational nominal voltage) (UL2_opN=)	MMXU5.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU5.PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU5.PhV.phsB.units.multiplier	3	Kilo
7832	Angle UL2_rem <-> UL2_loc (ΦU L2=)	MMXU5.PhV.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7833	UL3(% of Operational nominal voltage) (UL3_opN=)	MMXU5.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU5.PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU5. PhV.phsC.units.multiplier	3	Kilo
7834	Angle UL3_rem <-> UL3_loc (ΦU L3=)	MMXU5. PhV.phsC.cVal.ang.f	Measured value	Phase angle in °

3.19.6 Remote measured values of relay 5 (MMXU6)

MMXU6.Mod

No.	Information		
3495	Relay 5 in Login state (Rel5 Login)	0	1
MMXU6.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

MMXU6.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU6.Health.stVal		**3**	**1**

device annunciation: 1 - ON, 0 - OFF

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

MMXU6.RelId

No.	Information	Value		
7841	Relay ID of 5. relay (Relay ID)	MMXU6.RelId.stVal	Parameter 4705	Device address

MMXU6.A

No.	Information	Value		
7842	IL1(% of Operational nominal current) (IL1_opN=)	MMXU6.A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU6.A.phsA.units.SIUnit	1	NONE
		MMXU6.A.phsA.units.multiplier	0	1
7843	Angle IL1_rem <-> IL1_loc (ΦI L1=)	MMXU6.A.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7844	IL2(% of Operational nominal current) (IL2_opN=)	MMXU6.A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU6.A.phsB.units.SIUnit	1	NONE
		MMXU6.A.phsB.units.multiplier	0	1
7845	Angle IL2_rem <-> IL2_loc (ΦI L2=)	MMXU6.A.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7846	IL3(% of Operational nominal current) (IL3_opN=)	MMXU6.A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU6.A.phsC.units.SIUnit	1	NONE
		MMXU6.A.phsC.units.multiplier	0	1
7847	Angle IL3_rem <-> IL3_loc (ΦI L3=)	MMXU6.A.phsC.cVal.ang.f	Measured value	Phase angle in °

MMXU6.PhV

No.	Information	Value		
7849	UL1(% of Operational nominal voltage) (UL1_opN=)	MMXU6.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU6.PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU6.PhV.phsA.units.multiplier	3	Kilo
7850	Angle UL1_rem <-> UL1_loc (ΦU L1=)	MMXU6.PhV.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7851	UL2(% of Operational nominal voltage) (UL2_opN=)	MMXU6.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU6.PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU6.PhV.phsB.units.multiplier	3	Kilo
7852	Angle UL2_rem <-> UL2_loc (ΦU L2=)	MMXU6.PhV.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7853	UL3(% of Operational nominal voltage) (UL3_opN=)	MMXU6.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU6.PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU6. PhV.phsC.units.multiplier	3	Kilo
7854	Angle UL3_rem <-> UL3_loc (ΦU L3=)	MMXU6. PhV.phsC.cVal.ang.f	Measured value	Phase angle in °

3.19.7 Remote measured values of relay 6 (MMXU7)

MMXU7.Mod

No.	Information		
3496	Relay 6 in Login state (Rel6 Login)	0	1
MMXU7.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

MMXU7.Health

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
MMXU7.Health.stVal		**3**	**1**

device annunciation:
1 - ON
0 - OFF

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

MMXU7.RelId

No.	Information	Value		
7861	Relay ID of 6. relay (Relay ID)	MMXU7.RelId.stVal	Parameter 4706	Device address

MMXU7.A

No.	Information	Value		
7862	IL1(% of Operational nominal current) (IL1_opN=)	MMXU7.A.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU7.A.phsA.units.SIUnit	1	NONE
		MMXU7.A.phsA.units.multiplier	0	1
7863	Angle IL1_rem <-> IL1_loc (ΦI L1=)	MMXU7.A.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7864	IL2(% of Operational nominal current) (IL2_opN=)	MMXU7.A.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU7.A.phsB.units.SIUnit	1	NONE
		MMXU7.A.phsB.units.multiplier	0	1
7865	Angle IL2_rem <-> IL2_loc (ΦI L2=)	MMXU7.A.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7866	IL3(% of Operational nominal current) (IL3_opN=)	MMXU7.A.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU7.A.phsC.units.SIUnit	1	NONE
		MMXU7.A.phsC.units.multiplier	0	1
7867	Angle IL3_rem <-> IL3_loc (ΦI L3=)	MMXU7.A.phsC.cVal.ang.f	Measured value	Phase angle in °

MMXU7.PhV

No.	Information	Value		
7869	UL1(% of Operational nominal voltage) (UL1_opN=)	MMXU7.PhV.phsA.cVal.mag.f	Measured value	Absolute value
		MMXU7.PhV.phsA.units.SIUnit	29	V (Volt)
		MMXU7.PhV.phsA.units.multiplier	3	Kilo
7870	Angle UL1_rem <-> UL1_loc (ΦU L1=)	MMXU7.PhV.phsA.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7871	UL2(% of Operational nominal voltage) (UL2_opN=)	MMXU7.PhV.phsB.cVal.mag.f	Measured value	Absolute value
		MMXU7.PhV.phsB.units.SIUnit	29	V (Volt)
		MMXU7.PhV.phsB.units.multiplier	3	Kilo
7872	Angle UL2_rem <-> UL2_loc (ΦU L2=)	MMXU7.PhV.phsB.cVal.ang.f	Measured value	Phase angle in °

No.	Information	Value		
7873	UL3(% of Operational nominal voltage) (UL3_opN=)	MMXU7.PhV.phsC.cVal.mag.f	Measured value	Absolute value
		MMXU7.PhV.phsC.units.SIUnit	29	V (Volt)
		MMXU7. PhV.phsC.units.multiplier	3	Kilo
7874	Angle UL3_rem <-> UL3_loc (ΦU L3=)	MMXU7. PhV.phsC.cVal.ang.f	Measured value	Phase angle in °

3.19.8 Measured values, symmetrical components (MSQI1)

MSQI1.Mod

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

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		
619	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		
620	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		
610	3I0 (zero sequence) (3I0 =)	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	
634	U1 (positive sequence) (U1 =)	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	
635	U2 (negative sequence) (U2 =)	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	
684	U0 (zero sequence) (U0 =)	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

3.19.9 Power Metering (MMTR1)

MMTR1.Mod

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

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	9	Giga
		MMTR1.SupWh.pulsQty	1.154700e-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	9	Giga
		MMTR1.SupVArh.pulsQty	1.154700e-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	9	Giga
		MMTR1.DmdWh.pulsQty	1.154700e-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	9	Giga
		MMTR1.DmdVArh.pulsQty	1.154700e-005	VArh / Metered value

3.20 Oscillographic Fault Records (RDRE1)

RDRE1.Mod

No.	Information		
51	Device is Operational and Protecting (Device OK)	0	1
RDRE1.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

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

Literature

/1/ SIPROTEC 4 Ethernet Module EN 100 IEC 61850 Electrical/optical Interface 100 MBit, Manual
C53000-G1176-C167

/2/ SIPROTEC 4 System Description
E50417-H1176-C151

/3/ SIPROTEC DIGSI, StartUP
E50417-G1176-C152

/4/ DIGSI CFC, Manual
E50417-H1176-C098

/5/ SIPROTEC SIGRA 4, Manual
E50417-H1176-C1100-C070

/6/ SIPROTEC Distance Protection 7SA6, Manual
C53000-G1176-C156

/7/ SIPROTEC Distance Protection 7SA522, Manual
C53000-G1176-C155

/8/ SIPROTEC Line Differential Protection with Distance Protection 7SD5, Manual
C5300-G1176-C169

/9/ SIPROTEC Differential Protection 7SD610, Manual
C5300-G1176-C145

/10/ SIPROTEC Breaker Management Relay7VK61, Manual
C5300-G1176-C159

Index

C

CALH1 34, 57, 218
- ErrBoard1 219
- ErrBoard2 219
- ErrBoard3 219
- ErrBoard4 219
- ErrBoard5 220
- ErrBoard6 220
- ErrBoard7 220
- GrAlm 218
- GrWrn 218
- Health 218
- Mod 218

D

DAI 33
DOI 33

F

Function parameters 34
Functional Scope
- 7SA522 39
- 7SA6 35
- 7SD5 43
- 7SD610 48
- 7VK61 51

L

LD
- CTRL (Control) 34, 57
- DR (Disturbance recorder) 57
- EXT (Extended) 57
- Logical Device 32
- MEAS (Measurement) 34, 56
- PROT (Protection) 34, 54

LLN0 32, 34, 54, 56, 57
- Beh 58, 59
- Mod 58, 59

Logical Node 33, 35, 39, 43, 48, 51, 54
LPHD1 32, 34, 56, 57, 217
- DevStr 217
- PhyHealth 217
- Proxy 217

M

MMTR1 34, 56, 245
- DmdVArh 246
- DmdWh 246
- Health 245
- Mod 245
- SupVArh 246
- SupWh 245

MMXU1 34, 56, 221
- Health 221
- Hz 222
- Mod 221
- PhV 224
- PPV 223
- TotPF 222
- TotVA 222
- TotVAr 222
- TotW 222

MMXU2 46, 47, 50, 225
- A 226
- Health 225
- Mod 225
- PhV 227
- RelId 225

MMXU3 47, 50, 228
- A 229
- Health 228
- Mod 228
- PhV 230
- RelId 228

MMXU4 47, 231
- A 232
- Health 231
- Mod 231
- PhV 233
- RelId 231

MMXU5 47, 234
- A 235
- Health 234
- Mod 234
- PhV 236
- RelId 234

MMXU6 47, 237
- A 238
- Health 237
- Mod 237
- PhV 239
- RelId 237

MMXU7 46, 47, 240
- A 241
- Health 240
- Mod 240

PhV 242
RelId 240
MSQI1 34, 56, 243
Health 243
Mod 243
SeqA 244
SeqV 244

P

PDIF1 43, 48, 54, 64
Health 64
Mod 64
Op 65
Str 64
PDIF2 65
Health 65
Mod 65
Op 66
Str 66
PDIF3 46, 50, 140
DifAClc 141
Health 140
Mod 140
Op 141
Str 141
Str.dirGeneral 141
PDIS1 39, 43, 54, 74
Health 74
Mod 74
Op 77
Op.phsA 77
Op.phsB 77
Op.phsC 78
Str 75
Str.dirGeneral 76
StrAB 79
StrAG 78
StrBC 79
StrBG 78
StrCA 79
StrCG 78
PDIS10 80
Health 80
Mod 80
Op 83
Op.phsA 83
Op.phsB 83
Op.phsC 84
Str 81
Str.dirGeneral 82
StrAB 85
StrAG 84
StrBC 85
StrBG 84
StrCA 85
StrCG 84
PDIS2 54, 86
Health 86
Mod 86
Op 87
Op.phsA 87
Op.phsB 88
Op.phsC 88
Str 86
Str.dirGeneral 87
PDIS3 89
Health 89
Mod 89
Op 90
Op.phsA 91
OP.phsB 91
OP.phsC 91
Str 90
Str.dirGeneral 90
PDIS4 92
Health 92
Mod 92
Op 93
Op.phsA 94
Op.phsB 94
Op.phsC 94
Str 92
Str.dirGeneral 93
PDIS5 95, 98
Health 95, 98
Mod 95, 98
Op 96, 99
Op.phsA 97, 100
Op.phsB 97, 100
Op.phsC 97, 100
Str 95, 98
Str.dirGeneral 96, 99
PSCH1 35, 39, 44, 54, 121
Echo 125
GrdRx 127
Health 121
LosOfGrd 125
Mod 121
Op 123
Op.CarRx 125
Op.phsA 124
Op.phsB 124
Op.phsC 124
ProRx 122
ProTx 121
RvABlk 127
Str 122
Str.phsA 122
Str.phsB 122
Str.phsC 123
WeiOp.general 126
WeiOp.phsA 126
WeiOp.phsB 126
WeiOp.phsC 126
PSDE1 36, 136
Health 136

Mod 136
Op 139
Str 136
Str.dirGeneral 137
Str.dirPhsA 137
Str.dirPhsB 138
Str.dirPhsC 139
Str.phsA 137
Str.phsB 138
Str.phsC 138
PTOC1 36, 55, 142
Health 142
Mod 142
Op 143
Str 142
PTOC10 55, 150
Health 150
Mod 150
Op 151
Str 151
Str.dirGeneral 151
PTOC2 40, 44, 48, 51, 55, 143
Health 143
Mod 143
Op 144
Str 144
PTOC3 36, 144
Health 145
Mod 144
Op 145
Str 145
PTOC4 146
Health 146
Mod 146
Op 147
Str 147
PTOC5 36, 40, 44, 55, 128
Health 128
Mod 128
Op 129
Str 128
Str.dirGeneral 129
PTOC6 130
Health 130
Mod 130
Op 131
Str 130
Str.dirGeneral 131
PTOC7 132
Health 132
Mod 132
Op 133
Str 132
Str.dirGeneral 133
PTOC8 134
Health 134
Mod 134
Op 135
Str 134
Str.dirGeneral 135
PTOC9 55, 148
Health 148
Mod 148
Op 149
Str 149
Str.dirGeneral 149
PTOF1 37, 41, 45, 49, 55, 189
Health 189
Mod 189
Op 190
Str 190
PTOF2 191
Health 191
Mod 191
Op 192
Str 192
PTOF3 193
Health 193
Mod 193
Op 194
Str 194
PTOF4 195
Health 195
Mod 195
Op 196
Str 196
PTOV1 37, 41, 45, 49, 52, 55, 167
Health 167
Mod 167
Op 168
Str 167
Str.phsA 168
Str.phsB 168
Str.phsC 168
PTOV10 180
Health 180
Mod 180
Op 180
Str 180
PTOV2 169
Health 169
Mod 169
Op 170
Str 169
Str.phsA 170
Str.phsB 170
Str.phsC 170
PTOV3 171
Health 171
Mod 171
Op 172
Str 171
Str.phsA 172
Str.phsB 172
Str.phsC 172
PTOV4 173
Health 173
Mod 173

Op 174
Str 173
Str.phsA 174
Str.phsB 174
Str.phsC 174
PTOV5 175
Health 175
Mod 175
Op 175
Str 175
PTOV6 176
Health 176
Mod 176
Op 176
Str 176
PTOV7 177
Health 177
Mod 177
Op 177
Str 177
PTOV8 178
Health 178
Mod 178
Op 178
Str 178
PTOV9 179
Health 179
Mod 179
Op 179
Str 179
PTRC1 213
FinTr 216
Health 213
Mod 213
Str 213
Str.dirGeneral 214
Str.neut 215
Str.phsA 214
Str.phsB 214
Str.phsC 214
Tr.dirGeneral 215
Tr.phsA 215
Tr.phsB 215
Tr.phsC 216
PTRC2 34, 35, 39, 43, 54, 101
Health 101
Mod 101
Op 104
Op.phsA 105
Op.phsB 105
Op.phsC 105
Str 101
Str.dirGeneral 102
Str.dirPhsA 102
Str.dirPhsB 103
Str.dirPhsC 104
Str.neut 104
Str.phsA 102, 103, 104
Str.phsB 103, 104
Str.phsC 104
PTRC3 54, 67
Health 67
Mod 67
Op 69
Op.phsA 70
Op.phsB 70
Op.phsC 70
Str 67
Str.dirGeneral 68
Str.dirNeut 69
Str.dirPhsA 68
Str.dirPhsB 68
Str.dirPhsC 69
Str.neut 69
Str.phsA 68
Str.phsB 68
Str.phsC 69
StrA 70
StrAB 72
StrABC 72
StrABCG 73
StrABG 73
StrAG 71
StrB 71
StrBC 72
StrBCG 73
StrBG 71
StrC 71
StrCA 72
StrCAG 73
StrCG 71
PTTR1 38, 46, 50, 55, 201
AlmThm 202
Health 201
Mod 201
Op 201
Str 201
PTUF1 37, 41, 45, 49, 55, 181
Health 181
Mod 181
Op 182
Str 182
PTUF2 183
Health 183
Mod 183
Op 184
Str 184
PTUF3 185
Health 185
Mod 185
Op 186
Str 186
PTUF4 187
Health 187
Mod 187
Op 188
Str 188
PTUV1 37, 41, 45, 49, 52, 55, 157

Health 157
Mod 157
Op 158
Str 157
Str.phsA 158
Str.phsB 158
Str.phsC 158
PTUV2 159
Health 159
Mod 159
Op 160
Str 159
Str.phsA 160
Str.phsB 160
Str.phsC 160
PTUV3 161
Health 161
Mod 161
Op 162
Str 161
Str.phsA 162
Str.phsB 162
Str.phsC 162
PTUV4 163
Health 163
Mod 163
Op 164
Str 163
Str.phsA 164
Str.phsB 164
Str.phsC 164
PTUV5 165
Health 165
Mod 165
Op 165
Str 165
PTUV6 166
Health 166
Mod 166
Op 166
Str 166

R

RBRF1 38, 41, 46, 49, 52, 55, 199
Health 199
Mod 199
OpEx 199
OpIn 200
OpIn.phsA 200
OpIn.phsB 200
OpIn.phsC 200
Str 199
RDRE1 35, 39, 43, 48, 51, 57, 247
FltNum 248
GriFltNum 248
Health 247
Mod 247
RcdMade 247, 248
RcdStr 248
RFLO1 37, 41, 45, 55, 197
FltDiskm 198
FltDisPrc 198
FltZ 198
Health 197
Mod 197
RPSB1 35, 39, 43, 54, 106
BlkZn 107
Health 106
Mod 106
Str 106
Str.phsA 107
Str.phsB 107
Str.phsC 107
RPSB10 108
BlkZn 109
Health 108
Mod 108
Str 108
Str.phsA 109
Str.phsB 109
Str.phsC 109
RPSB2 110
BlkZn 111
Health 110
Mod 110
Str 110
Str.phsA 111
Str.phsB 111
Str.phsC 111
RPSB3 112
BlkZn 113
Health 112
Mod 112
Str 112
Str.phsA 113
Str.phsB 113
Str.phsC 113
RPSB4 114
BlkZn 115
Health 114
Mod 114
Str 114
Str.phsA 115
Str.phsB 115
Str.phsC 115
RPSB5 116, 118
BlkZn 117, 119
Health 116, 118
Mod 116, 118
Str 116, 118
Str.phsA 117, 119
Str.phsB 117, 119
Str.phsC 117, 119
RPSB6 54, 120
Health 120
Mod 120
Op 120
RREC1 37, 40, 45, 49, 52, 56, 57, 152

AutoRecSt 153
Health 152
Mod 152
Op 153
RSYN1 37, 41, 45, 52, 55, 154
AngInd 155
DifAngClc 156
DifHzClc 156
DifVClc 157
Health 154
HzInd 155
Mod 154
Rel 154
SynPrg 155
VInd 155

X

XCBR1 35, 39, 43, 48, 51, 56, 203
BlkCls 204
BlkOpn 204
CirSpv 204
Health 203
Loc 203
Mod 203
OpCnt 203
Pos 204
SumSwAR1s 205
SumSwAR2s 205
SumSwAR3s 205
XCBR2 35, 39, 43, 48, 51, 56, 206
BlkCls 207
BlkOpn 207
CirSpv 207
Health 206
Loc 206
Mod 206
OpCnt 206
Pos 207
SumSwARs 208
XCBR3 35, 39, 43, 48, 51, 208
BlkCls 209
BlkOpn 209
CirSpv 209
Health 208
Loc 208
Mod 208
OpCnt 209
Pos 209
SumSwARs 210
XCBR4 210
BlkCls 211
BlkOpn 211
CirSpv 211
Health 210
Loc 210
Mod 210
OpCnt 211
Pos 211
SumSwARs 212