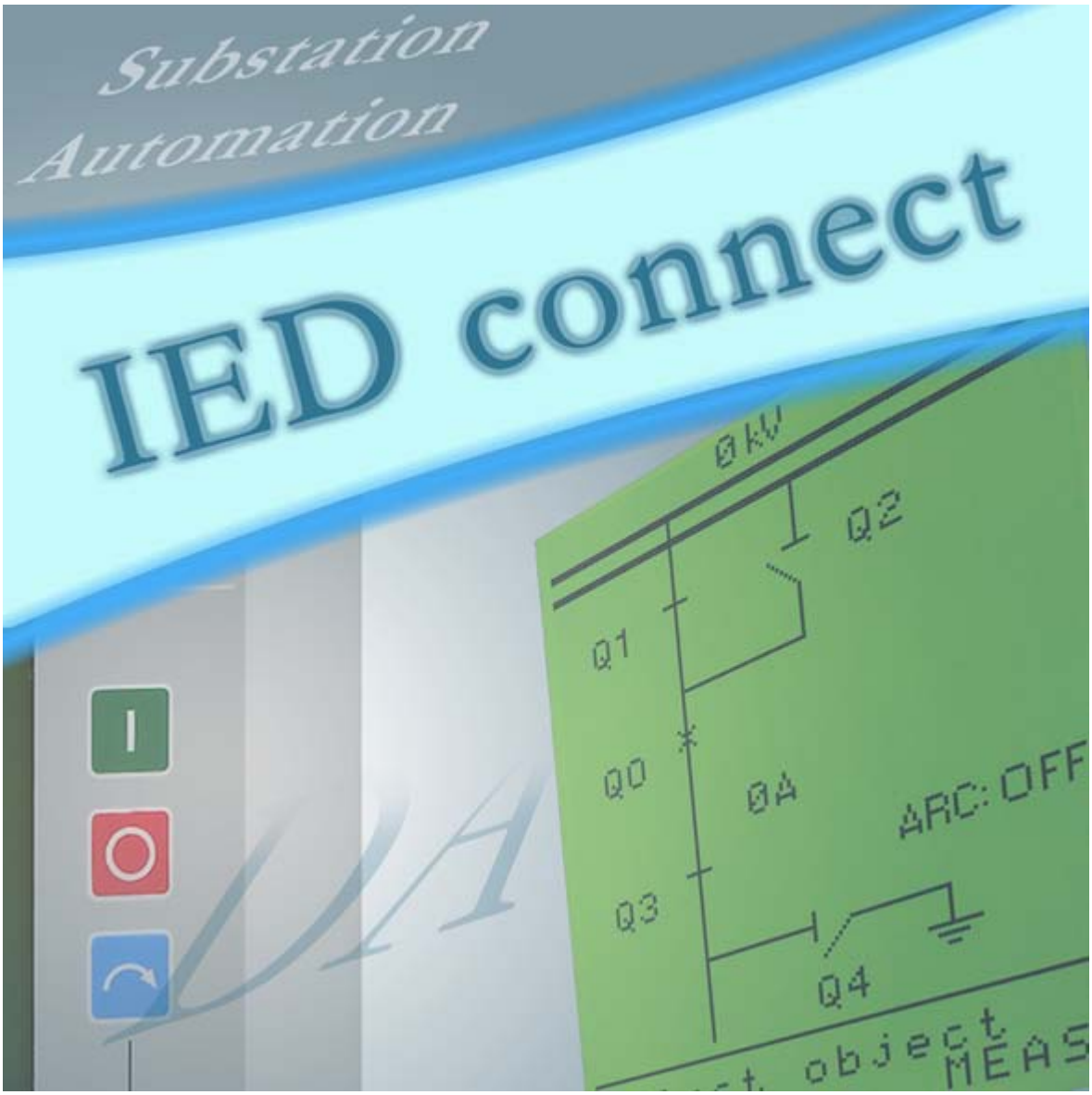
Connectivity Packages

User's Guide



Contents

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1. Introduction

A connectivity package is a collection of software and information related to a specific protection and control terminal, an IED (Intelligent Electronic Device). Connectivity packages enable system products and tools to connect and interact with an IED.

This manual introduces the installation and uninstallation of connectivity packages, the content and usage of connectivity packages and the logical node naming principles as well as the main functions of Connectivity Package Manager. Connectivity Package Manager is a tool that helps the user to define the right connectivity package versions for different system products and tools.

For more information on handling connectivity packages in different system products and tools, see Section 1.3. Related documents.

1.1. Use of symbols

This publication includes the following icons that point out safety-related conditions or other important information:

The information icon alerts the reader to relevant facts and conditions.

It should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to information or property loss. Therefore, comply fully with all notices.

1.2. Intended audience

This manual is intended for operators, supervisors and administrators to support normal use of the product.

1.3. Related documents

Name of the document	Document ID
Connectivity Packages, Online Help	
MicroSCADA Pro IEC 61850 Master Protocol (OPC) *1.1 User's Guide	1MRS755321
Protection and Control IED Manager PCM 600, Online Help	
Protection and Control IED Manager PCM 600 Installation and Commissioning Manual	1MRS755552
SPA-ZC 400 Ethernet Adapter Installation and Commissioning Manual	1MRS755347
SPA-ZC 402 Ethernet Adapter Installation and Commissioning Manual	1MRS755380
COM 600 Station Automation Series COM 600 3.0 User's Guide	1MRS756125

Related IEC 61850 standards:

- IEC 61850-6: Configuration description language for communication in electrical substations related to IEDs
- IEC 61850-7-3: Basic communication structure for substation and feeder equipment - Common data classes
- IEC 61850-7-4: Basic communication structure for substation and feeder equipment - Compatible logical node classes and data classes

1.4. Document conventions

The following conventions are used for the presentation of material:

- The words in names of screen elements (for example, the title in the title bar of a dialog, the label for a field of a dialog box) are initially capitalized.
- Capital letters are used for the name of a keyboard key if it is labeled on the keyboard. For example, press the CTRL key. Although the Enter and Shift keys are not labeled they are written in capital letters, e.g. press ENTER.
- Lowercase letters are used for the name of a keyboard key that is not labeled on the keyboard. For example, the space bar, comma key and so on.
- Press CTRL+C indicates that you must hold down the CTRL key while pressing the C key (to copy a selected object in this case).
- Press ALT E C indicates that you press and release each key in sequence (to copy a selected object in this case).
- The names of push and toggle buttons are boldfaced. For example, click **OK**.
- The names of menus and menu items are boldfaced. For example, the **File** menu.
- The following convention is used for menu operations: **Menu Name > Menu Item > Cascaded Menu Item**. For example: select **File > Open > New Project**.
- The **Start** menu name always refers to the **Start** menu on the Windows Task Bar.
- System prompts/messages and user responses/input are shown in the Courier font. For example, if you enter a value out of range, the following message is displayed: `Entered value is not valid.`

You may be told to enter the string MIF349 in a field. The string is shown as follows in the procedure: `MIF349`

- Variables are shown using lowercase letters: sequence name

1.5. Document revisions

Version	Date	History
A	15.10.2004	Document created
B	25.05.2005	Support for RET 541/543/545
C	08.07.2005	Support for REF 541/543/545
D	04.10.2005	Support for REX 521
E	30.05.2006	Support for Protection and Control IED Manager PCM 600 and COM 600 Station Automation Series' products.
F	30.11.2006	New supported IEDs added and some other minor updates in the content
G	20.03.2007	Support for logical node naming and mapping to IEC 61850 added
H	27.06.2008	Support for Protection and Control IED Manager PCM600 Ver. 2.0

2. Supported IEDs

Table 2.-1 Supported system products, protocols and tools for medium voltage IED connectivity packages

	REF 541/543/545 connectivity package	REM 543/545 connectivity package	RET 541/543/545 connectivity package	REX 521 connectivity package
Communication Engineering Tool for COM 610 Ver. 2.0				
IEC 61850	1.0	1.0	-	-
SPA	1.0	1.0	-	-
LON	1.0	1.0	-	-
Communication Engineering Tool for COM 610 Ver. 2.1 or later				
IEC 61850	1.1 or later	1.1 or later	1.0 or later	1.0 or later
SPA	1.1 or later	1.1 or later	1.0 or later	1.0 or later
LON	1.1 or later	1.1 or later	1.0 or later	1.0 or later
Communication Engineering Tool for COM 6xx Ver. 3.0.1 or later				
IEC 61850	2.1 or later	2.1 or later	2.1 or later	2.1 or later
SPA	2.1 or later	2.1 or later	2.1 or later	2.1 or later
LON	2.1 or later	2.1 or later	2.1 or later	2.1 or later
SLD Editor	2.1 or later	2.1 or later	2.1 or later	2.1 or later
Communication Engineering Tool for SPA-ZC 40x Ver. 1.0 with SPA-ZC 40x				
IEC 61850	1.0 - 1.2	1.0 - 1.1	1.0	-
Communication Engineering Tool for SPA-ZC 40x Ver. 1.1.0 (or later) with SPA-ZC 40x				
IEC 61850	1.3 or later	1.2 or later	1.1 or later	1.0 or later
MicroSCADA Pro SYS 600 Ver. 9.0 or later				
Communication Engineering Tool for IEC 61850	1.1 or later	1.1 or later	1.0 or later	1.0 or later
SCL Importer	1.1 or later	1.1 or later	1.0 or later	1.0 or later
COM 500 Ver. 4.1 or later				
Communication Engineering Tool for IEC 61850	1.1 or later	1.1 or later	1.0 or later	1.0 or later
SCL Importer	1.1 or later	1.1 or later	1.0 or later	1.0 or later
Protection and Control IED Manager PCM 600 Ver. 2.0				
IEC 61850	2.1 or later	2.1 or later	2.1 or later	2.1 or later
SPA	2.1 or later	2.1 or later	2.1 or later	2.1 or later
LON	2.1 or later	2.1 or later	2.1 or later	2.1 or later
Parameter Setting	2.1 or later	2.1 or later	2.1 or later	2.1 or later
Disturbance Handling	2.1 or later	2.1 or later	2.1 or later	2.1 or later
Event Viewer	2.1 or later	2.1 or later	2.1 or later	2.1 or later
Signal Monitoring	2.1 or later	2.1 or later	2.1 or later	2.1 or later
Signal Matrix	-	-	-	-

Table 2.-2 Supported system products, protocols and tools for medium voltage SPACOM connectivity packages

	SPACOM connectivity package
Communication Engineering Tool for COM 6xx 3.0.1 or later	
IEC 61850	2.0 or later
SPA	2.0 or later
Communication Engineering Tool for SPA-ZC 40x Ver. 2.1 (or later) with SPA-ZC 40x	
IEC 61850	2.0 or later
MicroSCADA Pro SYS 600 Ver. 9.2 or later	
Communication Engineering Tool for IEC 61850	2.0 or later
SCL Importer	2.0 or later
Protection and Control IED Manager PCM 600 Ver. 2.0	
IEC 61850	2.0 or later
SPA	2.0 or later
Parameter Setting	2.0 or later
Disturbance Handling	2.0 or later
Signal Monitoring	2.0 or later

Table 2.-3 System products, protocols and tools supporting connectivity concept

	REF 610 connectivity package	REM 610 connectivity package	REU 610 connectivity package
Communication Engineering Tool for COM 610 Ver. 2.1 or later			
IEC 61850	2.0 or later	2.0 or later	-
SPA	2.0 or later	2.0 or later	-
Communication Engineering Tool for COM 6xx Ver. 3.0.1 or later			
IEC 61850	2.0 or later	2.0 or later	2.0 or later
SPA	2.0 or later	2.0 or later	2.0 or later
SLD Editor	-	-	-
Communication Engineering Tool for SPA-ZC 40x Ver. 1.1.0 (or later) with SPA-ZC 40x			
IEC 61850	2.0 or later	2.0 or later	-
Communication Engineering Tool for SPA-ZC 40x Ver. 2.0 (or later) with SPA-ZC 40x			
IEC 61850	2.0 or later	2.0 or later	2.0 or later
MicroSCADA Pro SYS 600 Ver. 9.0 or later			
Communication Engineering Tool for IEC 61850	2.0 or later	2.0 or later	2.0 or later
SCL Importer	2.0 or later	2.0 or later	2.0 or later
COM 500 Ver. 4.1 or later			
Communication Engineering Tool for IEC 61850	2.0 or later	2.0 or later	2.0 or later
SCL Importer	2.0 or later	2.0 or later	2.0 or later
Protection and Control IED Manager PCM 600 Ver. 2.0			
IEC 61850	2.0 or later	2.0 or later	2.0 or later
SPA	2.0 or later	2.0 or later	2.0 or later
Parameter Setting	2.0 or later	2.0 or later	2.0 or later
Disturbance Handling	2.0 or later	2.0 or later	2.0 or later
Event Viewer	-	-	-

	REF 610 connectivity package	REM 610 connectivity package	REU 610 connectivity package
Signal Monitoring	2.0 or later	2.0 or later	2.0 or later
Signal Matrix	-	-	-

Table 2.-4 Supported medium voltage IED revisions in connectivity packages

	REF 541/543/545					
REF 541/543/545 Connectivity Package	1.0	1.5	2.0	2.5	3.0	3.5
Ver. 1.0 - 1.1					x	
Ver. 1.2 - 2.1					x	x
	REM 543/545					
REM 543/545 Connectivity Package		1.5	2.0	2.5		
Ver. 1.0 - 2.2				x		
	RET 541/543/545					
RET 541/543/545 Connectivity Package					3.0	
Ver. 1.0 - 2.2					x	
	REX 521					
REX 521 Connectivity Package			C	E	F	G
Ver. 1.0			x	x	x	
Ver. 1.1 - 2.1			x	x	x	x
	REU 610					
REU 610 Connectivity Package			C			
Ver. 2.0			x			
	REF 610					
REF 610 Connectivity Package			C			
Ver. 2.0			x			
	REM 610					
REM 610 Connectivity Package			C			
Ver. 2.0			x			
	SACO 16D1, SACO 16D3, SACO 64D4, SACO 16D2					
Connectivity Package			36 N			
Ver. 2.0			x			
	SPAJ 140, SPCJ 4D29 SPAJ 142, SPCJ 4D29					
Connectivity Package			183 B			
Ver. 2.0			x			
	SPAJ 141, SPCJ 4D24					
Connectivity Package			042 D			
Ver. 2.0			x			
	SPAJ 144, SPCJ 4D28					
Connectivity Package			116 D			
Ver. 2.0			x			
	SPAD 346, SPCD 3D53					
Connectivity Package			187 B			
Ver. 2.0			x			

	SPAD 346, SPCD 2D55					
Connectivity Package			124 H			
Ver. 2.0			x			
	SPAD 346, SPCJ 4D28					
Connectivity Package			116 D			
Ver. 2.0			x			

The necessary connectivity packages can be downloaded from the ABB web site http://www.abb.com/substationautomation.

3. Installation and uninstallation

This chapter describes the installation and uninstallation of the connectivity packages.

3.1. Installing connectivity packages

One connectivity package requires at least 55 MB of hard disk space, although the installation package size is about 30 MB.

Connectivity packages can be installed in the same environments as the system products and tools that use the connectivity packages. For more information about the system product and tool manuals, refer to Section 1.3. Related documents.

To install a connectivity package:

1. Locate the connectivity package installation program (.msi) on the computer, or download it via Internet.
2. Double-click the relevant IED connectivity package installation program to start the installation. The installation wizard extracts the installation files on your local computer.
3. After the connectivity package installation program starts, click **Next** to proceed, see Fig. 3.1.-1.

   With the **Back** button, you can return to the previous dialog, and with the **Cancel** button, exit the installation wizard. This applies to all the dialogs in the installation wizard.

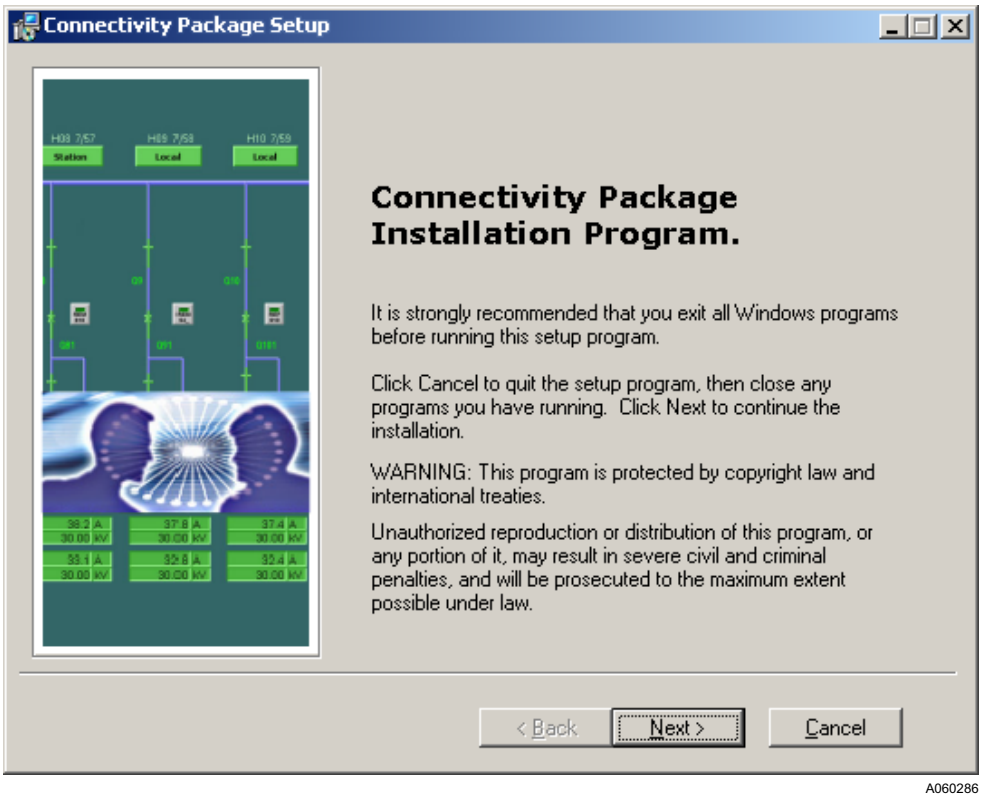

Fig. 3.1.-1 Installing connectivity packages

4. Follow the instructions of the installation wizard to complete the installation.

3.2. Uninstalling connectivity packages

To uninstall the connectivity packages:

1. Double-click the Add/Remove Programs icon from the Windows Control Panel. An Add/Remove Programs dialog is displayed.
2. Select the relevant connectivity package and click **Remove**, see Fig. 3.2.-1.

   You can check that you are uninstalling the right connectivity package by clicking the support information link. A Support Info dialog is displayed to identify the correct connectivity package version.

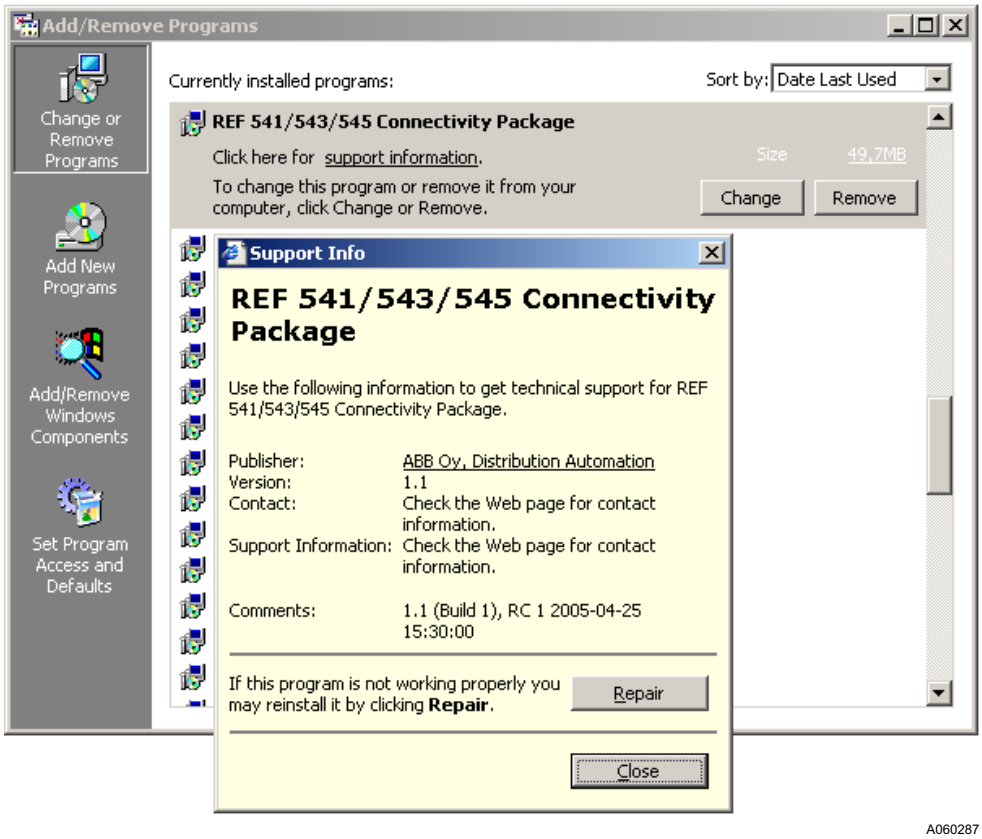

Fig. 3.2.-1 Example of Add/Remove Programs dialog

4. Connectivity Package Manager

Connectivity Package Manager helps you to select the right connectivity package versions for different system products and tools. Connectivity Package Manager is included in products supporting the connectivity concept. For more information on the supported system products and tools, refer to Section 1.3. Related documents and Section 2. Supported IEDs.

A Connectivity Package Manager window shows the installed system products and tools as well as the installed connectivity package versions in a tree structure, see Fig. 4.-1. The object tree shows all the information on the connectivity packages and the IED configuration tools that are installed on the computer. You can define which version of the connectivity package is used with a specific system product and tool by selecting the corresponding check box.

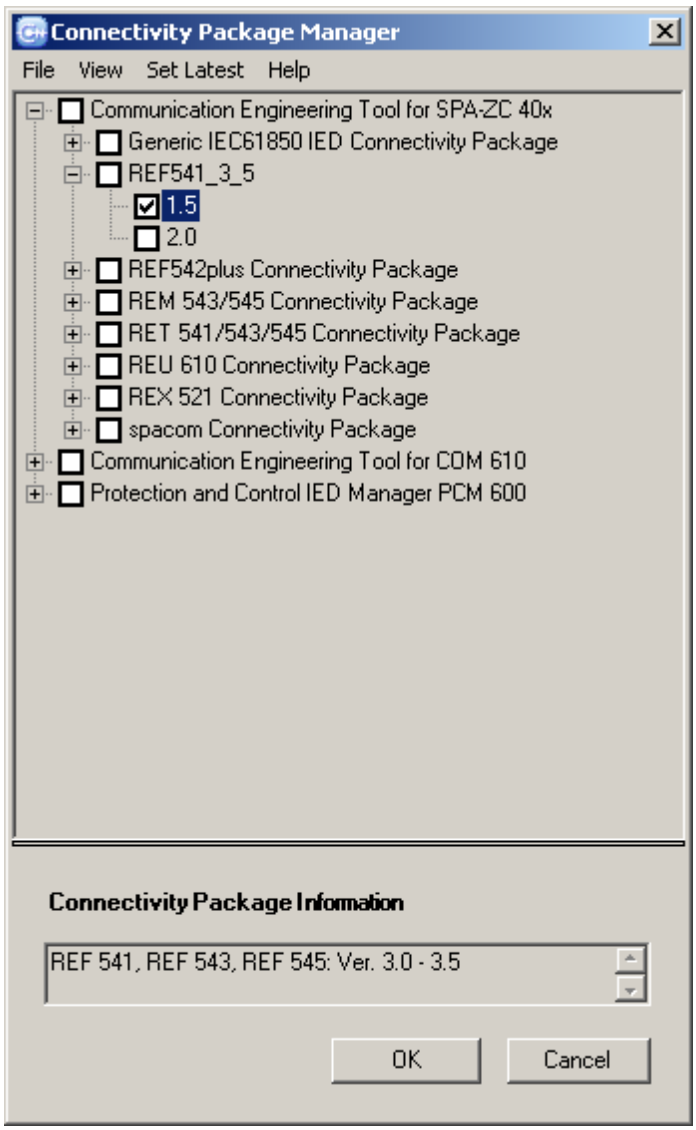

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Fig. 4.-1 Connectivity Package Manager

4.1. Starting Connectivity Package Manager

You can start Connectivity Package Manager from the shortcut icon on your computer's desktop, see Fig. 4.1.-1.

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Fig. 4.1.-1 Connectivity Package Manager icon

You can exit the program by selecting **File > Exit**.

4.2. Using Connectivity Package Manager

This section describes the main functions of Connectivity Package Manager.

4.2.1. Selecting connectivity package versions

When Connectivity Package Manager is started, it shows all the system products and tools supporting connectivity concept, as well as the connectivity packages installed on your computer. You can expand and collapse Connectivity Package Manager's tree structure to see which connectivity package versions are currently used in different system products and tools.

You can browse through the object tree with the mouse or the keyboard's arrow keys. You can expand and collapse the nodes by clicking the ⊞ and ⊟ icons or by pressing the left and right arrow keys. You can also use the commands on the **View** menu to expand and collapse the nodes.

If the check box beside the version name is selected, the particular version of the connectivity package is used in the application or tool. If you clear all the versions of one connectivity package, the application or tool no longer uses that connectivity package the next time you start it. This will save some processing time during the application or tool startup.

If you have already installed some connectivity packages, Connectivity Package Manager detects them and checks if they can be used with the new IEDs. If the installed connectivity packages have a wrong version extension, Connectivity Package Manager prevents them from being defined for the new IEDs.

To select the latest versions of all the installed connectivity packages, select **Set Latest > Set Latest Versions to All**. The program goes through all the installed connectivity packages shown in the object tree and selects the most recent versions, see Fig. 4.2.1.-1

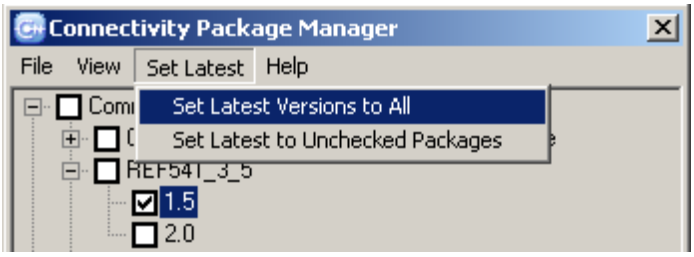

Fig. 4.2.1.-1 Setting latest versions to all nodes

To select the latest version of only those connectivity packages that do not have any version selected, select **Set Latest > Set Latest to Unchecked Packages**. This command leaves the already selected connectivity package versions as they are, see Fig. 4.2.1.-2.

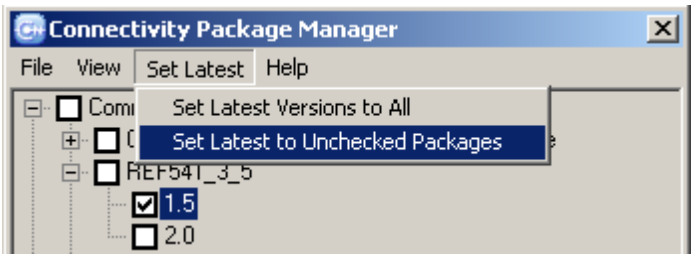

Fig. 4.2.1.-2 Setting latest versions to unactive packages

If the connectivity package version has information about supported IEDs, this information is shown in the text box under Supported IEDs, see Fig. 4.2.1.-3. With this information, you can confirm the right version of the connectivity package.

Fig. 4.2.1.-3 Example of specific IED's supported versions

4.2.2. Adding connectivity packages

Connectivity packages can be installed on the local computer with Connectivity Package Manager as well. You can install connectivity packages from any location you have access to.

To add a new connectivity package:

1. Select **File > Add new package**. The Open dialog is displayed.

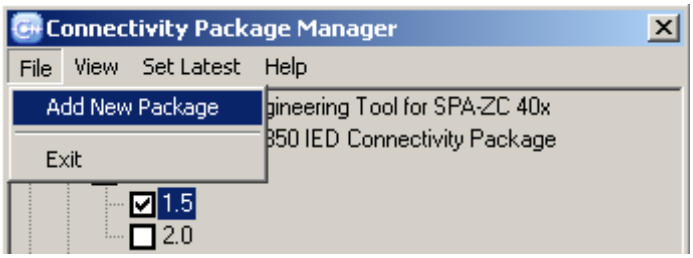

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Fig. 4.2.2.-1 Adding a new connectivity package

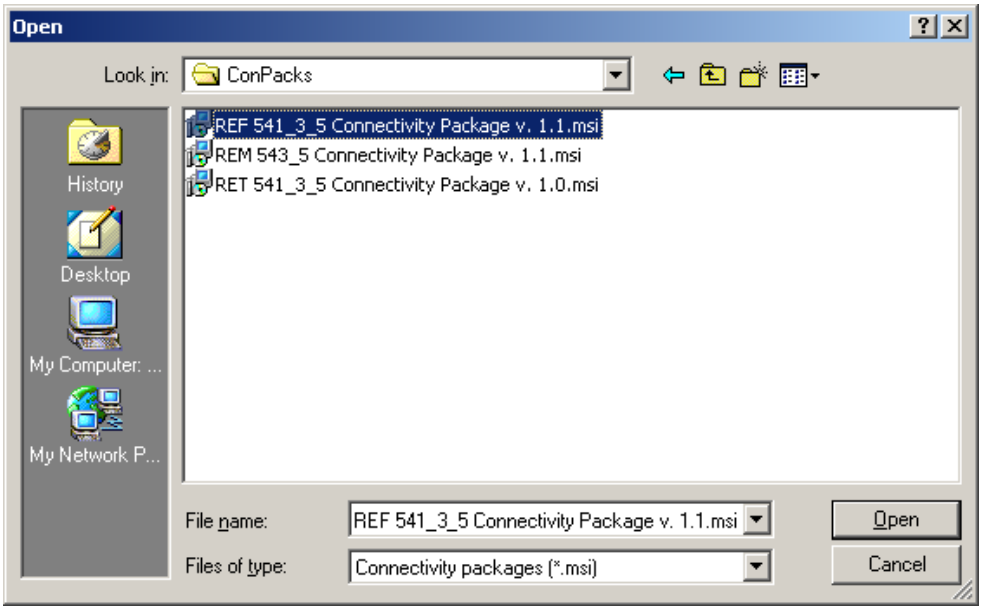

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Fig. 4.2.2.-2 Example of adding a connectivity package

2. Select the relevant connectivity package installer file (.msi).
3. Click **Open**.

The installation program starts to install the selected connectivity package on your local computer. For more information about installing connectivity packages, refer to Section 3. Installation and uninstallation.

5. Content and usage of connectivity packages

For all the products supporting the connectivity concept, the connectivity packages contain:

- Description of IED functions and capabilities in SCL (Substation Configuration description Language) format. The functions of an IED are mapped from the SPA and LON protocols to IEC 61850 protocol. The description texts in these files can be translated into other languages as well.
- Object types for device integration. These object types define the properties for a device-related object, for example the protocols that are supported by an IED.
- IED specific visual elements, for example object icons, graphical symbols and pictures in various places.
- Connectivity package related documentation
- IED specific documentation
- Other data and components needed by products using connectivity packages

The following sections describe the usage of the connectivity packages in different products. For more information on how to use connectivity packages in system products and tools, refer to documentation related to each product.

Control and Monitoring Unit COM 605, Communication Gateway COM 610 and Station Computer COM 615

You can use connectivity packages with Communication Engineering Tool for COM 600 to configure COM 600 Station Automation Series' products to communicate and interact with SPA and LON devices. With the help of connectivity packages you can also configure systems that have COM 605, COM 610 or COM 615 using IEC 61850 protocol and SPA-ZC 40x to communicate and interact with SPA devices.

Additionally connectivity packages contain IED specific information for single line diagram, parameter setting and disturbance recording uploading. With this information you can easily configure COM 605 or COM 615 so that they have the IED specific information and functionality available in the web based HMI.

Ethernet Adapter SPA-ZC 40x

You can use the connectivity packages to configure SPA-ZC 40x with CET for SPA-ZC 40x.

MicroSCADA Pro SYS 600 and COM 500

In MicroSCADA Pro SYS 600 *9.0 or later and COM 500 *4.1 or later, you can use the connectivity packages to configure the IEC 61850 OPC server. This is usually done by importing the export file that is generated when SPA-ZC 40x is configured. In MicroSCADA Pro SYS 600 *9.1 or later and COM 500 *4.2 or later, the same export file can also be used to build up the process database.

Protection and Control IED Manager PCM 600

You can use the connectivity packages to create configuration structure in PCM 600. In addition to other products supporting connectivity concept, the connectivity packages for PCM 600 contain:

- Description of IED internal parameters and their properties (for example data format, unit, setting range, visibility, access rights, and so on). The description texts can be translated into other languages as well.
- Software components that adapt the IED-specific interfaces to the standard interfaces of system products and tools, for example IED-specific dispatchers for tools. This means that there is protocol-specific adaptation for the Parameter Setting and Disturbance Handling tool components, for example disturbance uploading according to COMTRADE.

6. Logical node naming

The connectivity packages contain the descriptions for logical nodes and function blocks of IEDs. When an IED configuration (SCL file or CAP project file) is imported, a structure containing definitions of logical nodes is constructed.

When the IED configuration is imported, for example, to Communication Engineering Tool (CET), you can see the logical devices (LD) and logical nodes (LN). An IED object can include many logical devices, and a logical device can include many logical nodes.

The logical node names are composed of three different parts: LN prefix, LN class and LN instance number. The LN prefix is an ABB specific string with less than five characters (see the table below). The LN class is the name of the logical node class defined in the IEC 61850-7-4 specification, refer to the Section 1.3. Related documents. The LN instance number is the ID number of the logical node. For example in the REF 541/543/545, REM 543/545, RET 541/543/545 and REX 521 connectivity packages, the LN instance number is the SPA channel number of the corresponding function block.

The Fig. 6.-1 shows an example of designation code for the logical nodes in connectivity packages. In the following example, the logical node name is PH PTOC 1.

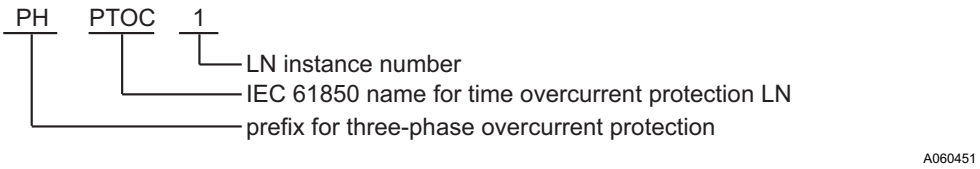

Fig. 6.-1 Logical node naming in connectivity packages

6.1. Logical node mapping for IEDs of RED 500 series

Table 6.1.-1 LN mapping for RED 500

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
Protection				
AR5Func	-	RREC	80	Auto-reclosing function
CUB1Cap	CUB	PTOC	117	Unbalance protection for capacitors
CUB1Cap	CUB	RBRF	117	Circuit breaker failure protection of unbalance protection for capacitors
CUB3Cap	CUB	PTOC	52	Three-phase unbalance protection for capacitor banks
CUB3Cap	CUB	RBRF	52	Circuit breaker failure protection of three-phase unbalance protection for capacitor banks
CUB3Low	CUB	PTOC	51	Phase discontinuity protection

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
CUB3Low	CUB	RBRF	51	Circuit breaker failure protection of phase discontinuity protection
DEF2High	DEF	PTOC	41	Directional earth-fault protection function, high-set stage
DEF2High	DEF	RBRF	41	Circuit breaker failure protection of directional earth-fault protection function, high-set stage
DEF2Inst	DEF	PTOC	42	Directional earth-fault protection function, instantaneous stage
DEF2Inst	DEF	RBRF	42	Circuit breaker failure protection of directional earth-fault protection function, instantaneous stage
DEF2Low	DEF	PTOC	40	Directional earth-fault protection function, low-set stage
DEF2Low	DEF	RBRF	40	Circuit breaker failure protection of directional earth-fault protection function, low-set stage
Diff3	HIZ	PDIF	100	High-impedance based differential protection for generators and motors
Diff3	HIZ	RBRF	100	Circuit breaker failure protection of high-impedance based differential protection for generators and motors
Diff6G	GEN	PDIF	99	Stabilized three-phase differential protection for generators
Diff6G	GEN	RBRF	99	Circuit breaker failure protection of stabilized three-phase differential protection for transformers
DOC6High	DIR	PTOC	36	Three-phase directional overcurrent function, high-set stage
DOC6High	DIR	RBRF	36	Circuit breaker failure protection of three-phase directional overcurrent function, high-set stage
DOC6Inst	DIR	PTOC	37	Three-phase directional overcurrent function, instantaneous stage
DOC6Inst	DIR	RBRF	37	Circuit breaker failure protection of three-phase directional overcurrent function, instantaneous stage
DOC6Low	DIR	PTOC	35	Three-phase directional overcurrent function, low-set stage
DOC6Low	DIR	RBRF	35	Circuit breaker failure protection of three-phase directional overcurrent function, low-set stage
FLOC	LCTR	RFLO	58	Fault locator
Freq1St1	T1	PTOF	72	Overfrequency protection stage 1, timer 1
Freq1St1	T1	PTUF	72	Underfrequency protection stage 1, timer 1

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
Freq1St1_1	T2	PTOF	72	Overfrequency protection stage 1, timer 2
Freq1St1_1	T2	PTUF	72	Underfrequency protection stage 1, timer 2
Freq1St1	-	PFRC	72	Rate of change of frequency protection stage 1
Freq1St2	T1	PTOF	73	Overfrequency protection stage 2, timer 1
Freq1St2	T1	PTUF	73	Underfrequency protection stage 2, timer 1
Freq1St2_1	T2	PTOF	73	Overfrequency protection stage 2, timer 2
Freq1St2_1	T2	PTUF	73	Underfrequency protection stage 2, timer 2
Freq1St2	-	PFRC	73	Rate of change of frequency protection stage 2
Freq1St3	T1	PTOF	74	Overfrequency protection stage 3, timer 1
Freq1St3	T1	PTUF	74	Underfrequency protection stage 3, timer 1
Freq1St3_1	T2	PTOF	74	Overfrequency protection stage 3, timer 2
Freq1St3_1	T2	PTUF	74	Underfrequency protection stage 3, timer 2
Freq1St3	-	PFRC	74	Rate of change of frequency protection stage 3
Freq1St4	T1	PTOF	75	Overfrequency protection stage 4, timer 1
Freq1St4	T1	PTUF	75	Underfrequency protection stage 4, timer 1
Freq1St4_1	T2	PTOF	75	Overfrequency protection stage 4, timer 2
Freq1St4_1	T2	PTUF	75	Underfrequency protection stage 4, timer 2
Freq1St4	-	PFRC	75	Rate of change of frequency protection stage 4
Freq1St5	T1	PTOF	76	Overfrequency protection stage 5, timer 1
Freq1St5	T1	PTUF	76	Underfrequency protection stage 5, timer 1
Freq1St5_1	T2	PTOF	76	Overfrequency protection stage 5, timer 2
Freq1St5_1	T2	PTUF	76	Underfrequency protection stage 5, timer 2
Freq1St5	-	PFRC	76	Rate of change of frequency protection stage 5

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
FuseFail	-	RFUF	118	ABB-specific logical node for fuse failure supervision. Includes data object instances Loc for local operation and FuFail for RFUF fuse failure in addition to the mandatory data from the common logical node class.
Inrush3	INR	PHAR	34	Three-phase transformer inrush and motor start-up current detector
MotStart	-	PMSS	54	Three-phase start-up supervision for motors, starting time supervision
MotStart	-	PMRI	54	Three-phase start-up supervision for motors, restart inhibition
NEF1High	EF	PTOC	39	Non-directional earth-fault protection function, high-set stage
NEF1High	EF	RBRF	39	Circuit breaker failure protection of non-directional earth-fault protection function, high-set stage
NEF1Inst	EF	PTOC	90	Non-directional earth-fault protection function, instantaneous stage
NEF1Inst	EF	RBRF	90	Circuit breaker failure protection of non-directional earth-fault protection function, instantaneous stage
NEF1Low	EF	PTOC	38	Non-directional earth-fault protection function, low-set stage
NEF1Low	EF	RBRF	38	Circuit breaker failure protection of non-directional earth-fault protection function, low-set stage
NOC3High	PH	PTOC	32	Three-phase non-directional overcurrent function, high-set stage
NOC3High	PH	RBRF	32	Circuit breaker failure protection of three-phase non-directional overcurrent function, high-set stage
NOC3Inst	PH	PIOC	33	Three-phase non-directional overcurrent protection function, instantaneous stage
NOC3Inst	PH	RBRF	33	Circuit breaker failure protection of three-phase non-directional overcurrent protection function, instantaneous stage
NOC3Low	PH	PTOC	31	Three-phase non-directional overcurrent function, low-set stage
NOC3Low	PH	RBRF	31	Circuit breaker failure protection of three-phase non-directional overcurrent function, low-set stage
NPS3High	NS	PTOC	78	Negative phase sequence protection, high-set stage

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
NPS3High	NS	RBRF	78	Circuit breaker failure protection of negative phase sequence protection, high-set stage
NPS3Low	NS	PTOC	77	Negative phase sequence protection, low-set stage
NPS3Low	NS	RBRF	77	Circuit breaker failure protection of negative phase sequence protection, low-set stage
NUC3St1	PH	PTUC	88	Three-phase non-directional undercurrent protection, stage 1
NUC3St1	PH	RBRF	88	Circuit breaker failure protection of three-phase non-directional undercurrent protection, stage 1
NUC3St2	PH	PTUC	89	Three-phase non-directional undercurrent protection, stage 2
NUC3St2	PH	RBRF	89	Circuit breaker failure protection of three-phase non-directional undercurrent protection, stage 2
OE1High	-	PVPH	69	Overexcitation protection, high-set stage
OE1High	-	RBRF	69	Circuit breaker failure protection of overexcitation protection, high-set stage
OE1Low	-	PVPH	68	Overexcitation protection, low-set stage
OE1Low	-	RBRF	68	Circuit breaker failure protection of Overexcitation protection, low-set stage
OL3Cap	OLC	PTOC	116	Three-phase overload protection for capacitors
OL3Cap	OLC	PTUC	116	Undercurrent protection for capacitor banks
OL3Cap	OLC	RBRF	116	Circuit breaker failure protection of three-phase overload protection for capacitors
OPOW6St1	PH	PDIR	92	Three-phase directional overpower, stage 1
OPOW6St1	PH	PDOP	92	Directional overpower
OPOW6St1	PH	RBRF	92	Breaker failure
OPOW6St2	PH	PDIR	93	Three-phase directional overpower, stage 2
OPOW6St2	PH	PDOP	93	Directional overpower
OPOW6St2	PH	RBRF	93	Breaker failure
OPOW6St3	PH	PDIR	94	Three-phase directional overpower, stage 3
OPOW6St3	PH	PDOP	94	Directional overpower

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
OPOW6St3	PH	RBRF	94	Breaker failure
OV3High	PH	PTOV	63	Three-phase overvoltage protection, high-set stage
OV3Low	PH	PTOV	62	Three-phase overvoltage protection, low-set stage
PREV3	PRV	PPAM	55	Phase reversal protection
PSV3St1	NS	PTOV	112	Negative phase sequence overvoltage
PSV3St1	PS	PTUV	112	Positive phase sequence undervoltage
PSV3St1_1	PS	PTOV	112	Positive phase sequence overvoltage
PSV3St2	NS	PTOV	113	Negative phase sequence overvoltage
PSV3St2	PS	PTUV	113	Positive phase sequence undervoltage
PSV3St2_1	PS	PTOV	113	Positive phase sequence overvoltage
REF1A	REF	PDIF	102	High-impedance based restricted earth-fault protection
REF1A	REF	RBRF	102	Circuit breaker failure protection of high-impedance based restricted earth-fault protection
ROV1High	RES	PTOV	45	Residual overvoltage protection, high-set stage
ROV1Inst	RES	PTOV	46	Residual overvoltage protection, instantaneous stage
ROV1Low	RES	PTOV	44	Residual overvoltage protection, low-set stage
SCVST1	-	RSYN	70	Synchro-check/voltage check function stage 1
SCVST2	-	RSYN	71	Synchro-check/voltage check function stage 2
TOL3Cab	CAB	PTTR	47	Three-phase thermal overload protection for cables
TOL3Dev	DEV	PTTR	48	Three-phase thermal overload protection for devices
UE6High	-	PDIR	67	Three-phase underexcitation protection, high-set stag
UE6High	-	PDUP	67	Directional underpower of three-phase underexcitation protection, high-set stage
UE6High	-	RBRF	67	Circuit breaker failure of three-phase underexcitation protection, high-set stage
UE6Low	UE	PDIS	66	Three-phase underexcitation protection, low-set stage
UI6High	-	PDIS	111	Three-phase underimpedance protection, high-set stage

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
UI6High	-	RBRF	111	Circuit breaker failure of three-phase underimpedance protection, high-set stage
UI6Low	UI	PDIS	110	Three-phase underimpedance protection, low-set stage
UI6Low	UI	RBRF	110	Circuit breaker failure of three-phase underimpedance protection, low-set stage
UPOW6St1	PH	PDIR	95	Three-phase underpower or reverse power, stage 1
UPOW6St1	PH	PDUP	95	Directional underpower
UPOW6St1	PH	RBRF	95	Circuit breaker failure of three-phase underpower or reverse power, stage 1
UPOW6St2	PH	PDIR	96	Three-phase underpower or reverse power, stage 2
UPOW6St2	PH	PDUP	96	Directional underpower
UPOW6St2	PH	RBRF	96	Circuit breaker failure of three-phase underpower or reverse power, stage 2
UPOW6St3	PH	PDIR	97	Three-phase underpower or reverse power, stage 3
UPOW6St3	PH	PDUP	97	Directional underpower
UPOW6St3	PH	RBRF	97	Circuit breaker failure of three-phase underpower or reverse power, stage 3
UV3High	PH	PTUV	65	Three-phase undervoltage protection, high-set stage
UV3Low	PH	PTUV	64	Three-phase undervoltage protection, low-set stage
VOC6High	-	PVOC	107	Voltage controlled/dependent time overcurrent
VOC6High	-	RBRF	107	Circuit breaker failure of voltage controlled/dependant time overcurrent
VOC6Low	PH	PVOC	91	Voltage dependent overcurrent protection, low-set stage (51V)
VOC6Low	PH	RBRF	91	Circuit breaker failure of voltage dependent overcurrent protection, low-set stage
NOC3LowB	PH	PTOC	53	Three-phase non-directional overcurrent function, low-set stage
NOC3LowB	PH	RBRF	53	Circuit breaker failure protection of three-phase non-directional overcurrent function, low-set stage
REF4A	REF	PDIF	101	Stabilized restricted earth-fault protection, high voltage side
REF4A	REF	RBRF	101	Circuit breaker failure protection of stabilized restricted earth-fault protection, high voltage side

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
REF4B	REF	PDIF	119	Stabilized restricted earth-fault protection, low voltage side
REF4B	REF	RBRF	119	Circuit breaker failure protection of stabilized restricted earth-fault protection, low voltage side
Diff6T	GEN	PDIF	106	Stabilized three-phase differential protection for transformers
Diff6T	GEN	RBRF	106	Circuit breaker failure protection of stabilized three-phase differential protection for transformers
Control				
CO3DC1	DCO3	CILO	139	Three state disconnector 1, interlocking
CO3DC1	DCO3	CSWI	139	Three state disconnector 1, switch control
CO3DC1	DCO3	XSWI	139	Three state disconnector 1, disconnector information
CO3DC1_1	ESW3	CILO	139	Three state disconnector 1, interlocking
CO3DC1_1	ESW3	CSWI	139	Three state disconnector 1, switch control
CO3DC1_1	ESW3	XSWI	139	Three state disconnector 1, disconnector information
CO3DC2	DCO3	CILO	140	Three state disconnector 2, interlocking
CO3DC2	DCO3	CSWI	140	Three state disconnector 2, switch control
CO3DC2	DCO3	XSWI	140	Three state disconnector 2, disconnector information
CO3DC2_1	ESW3	CILO	140	Three state disconnector 1, interlocking
CO3DC2_1	ESW3	CSWI	140	Three state disconnector 2, switch control
CO3DC2_1	ESW3	XSWI	140	Three state disconnector 2, disconnector information
COCB1	CB	CILO	120	Circuit breaker 1, interlocking
COCB1	CB	CSWI	120	Circuit breaker 1, switch control
COCB1	CB	XCBR	120	Circuit breaker 1, circuit breaker information
COCB2	CB	CILO	121	Circuit breaker 2, interlocking
COCB2	CB	CSWI	121	Circuit breaker 2, switch control
COCB2	CB	XCBR	121	Circuit breaker 2, circuit breaker information
CODC1	DCO	CILO	122	Disconnector 1, interlocking
CODC1	DCO	CSWI	122	Disconnector 1, switch control

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
CODC1	DCO	XSWI	122	Disconnector 1, disconnector information
CODC2	DCO	CILO	123	Disconnector 2, interlocking
CODC2	DCO	CSWI	123	Disconnector 2, switch control
CODC2	DCO	XSWI	123	Disconnector 2, disconnector information
CODC3	DCO	CILO	124	Disconnector 3, interlocking
CODC3	DCO	CSWI	124	Disconnector 3, switch control
CODC3	DCO	XSWI	124	Disconnector 3, disconnector information
CODC4	DCO	CILO	125	Disconnector 4, interlocking
CODC4	DCO	CSWI	125	Disconnector 4, switch control
CODC4	DCO	XSWI	125	Disconnector 4, disconnector information
CODC5	DCO	CILO	126	Disconnector 5, interlocking
CODC5	DCO	CSWI	126	Disconnector 5, switch control
CODC5	DCO	XSWI	126	Disconnector 5, disconnector information
COIND1	ESW	CSWI	127	Switch controller
COIND1	ESW	XSWI	127	Object indication 1, non-controllable
COIND2	ESW	CSWI	128	Switch controller
COIND2	ESW	XSWI	128	Object indication 2, non-controllable
COIND3	ESW	CSWI	129	Switch controller
COIND3	ESW	XSWI	129	Object indication 3, non-controllable
COIND4	ESW	CSWI	130	Switch controller
COIND4	ESW	XSWI	130	Object indication 4, non-controllable
COIND5	ESW	CSWI	131	Switch controller
COIND5	ESW	XSWI	131	Object indication 5, non-controllable
COIND6	ESW	CSWI	132	Switch controller
COIND6	ESW	XSWI	132	Object indication 6, non-controllable
COIND7	ESW	CSWI	133	Switch controller
COIND7	ESW	XSWI	133	Object indication 7, non-controllable
COIND8	ESW	CSWI	134	Switch controller
COIND8	ESW	XSWI	134	Object indication 8, non-controllable
COPFC	PFC	ARCO	143	Power factor controller
Condition Monitoring				
CMBWEAR1	CBEW	GGIO	187	Circuit breaker electric wear 1
CMBWEAR2	CBEW	GGIO	188	Circuit breaker electric wear 2
CMCU3	SCC	GGIO	181	Supervision function of the energizing current input circuit
CMGAS1	-	SIMG	186	Gas density monitoring
CMGAS3	-	SIMG	194	Gas density monitoring of three poles

Function Block Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance(Channel Number)	
CMSHED	CHED	GGIO	189	Scheduled maintenance
CMSPRC1	SPRC	GGIO	190	Spring charging control 1
CMTCS1	TCS	GGIO	191	Trip circuit supervision 1
CMTCS2	TCS	GGIO	192	Trip circuit supervision 2
CMTIME1	T	GGIO	184	Operate time counter 1 for the used operate time (motors)
CMTIME2	T	GGIO	185	Operate time counter 2 for the used operate time (motors)
CMTRAV1	TRT	GGIO	193	
CMVO3	SVC	GGIO	182	Supervision of the energizing voltage input circuit
Measurement				
MEAI1	GM	GGIO	213	General measurement 1
MEAI2	GM	GGIO	214	General measurement 2
MEAI3	GM	GGIO	215	General measurement 3
MEAI4	GM	GGIO	216	General measurement 4
MEAI5	GM	GGIO	217	General measurement 5
MEAI6	GM	GGIO	218	General measurement 6
MEAI7	GM	GGIO	219	General measurement 7
MEAI8	GM	GGIO	220	General measurement 8
MECU1A	I	MMXU	201	Current measurement A
MECU1B	I	MMXU	203	Current measurement B
MECU3A	I	MMXU	200	Three-phase current measurement A
MECU3B	I	MMXU	202	Three-phase current measurement B
MEDREC	-	RDRE	225	Transiet disturbance recorder
MEFR1	F	MMXU	208	System frequency measurement
MEPE7	W	MMTR	207	Three-phase energy metering
MEPE7	P	MMXU	207	Three-phase power metering
MEVO1A	U	MMXU	205	Voltage measurement A
MEVO1B	U	MMXU	226	Voltage measurement B
MEVO3A	U	MMXU	204	Three-phase voltage measurement A
MEVO3B	U	MMXU	206	Three-phase voltage measurement B
Power Quality				
PQCU3H	PQ	MHAI	512	Current waveform distortion measurement
PQVO3H	PQ	MHAI	513	Voltage waveform distortion measurement
PQVO3SD	UV	QVVR	514	Short duration voltage variations

6.1.1. RED 500 Logical Node Naming and mapping to IEC 61850

Table 6.1.1.-1 RED 500 Logical Node Naming and mapping to IEC 61850

RED500 FB	Description	LN instance name	LN class	Data
RED500	Logical node zero	LLN0	LN0	
RED500	Operation mode		LN0	MOD
RED500	Behaviour		LN0	BEH
RED500	Status		LN0	HEALTH
RED500	ABB		LN0	NAMPLT
RED500	Local operation		LN0	LOC
RED500	LPHD logical node	LPHD1	LPHD	
RED500	Physical device health		LPHD	PHYHEALTH
RED500	Input communication buffer overflow		LPHD	INOV
RED500	Indicates if this LD is a proxy		LPHD	PROXY
AR5FUNC	Auto-reclosing, 0->1	RREC80	RREC	
AR5FUNC	0->1 operation mode		RREC	MOD
AR5FUNC	0->1 behaviour		RREC	BEH
AR5FUNC	0->1 status		RREC	HEALTH
AR5FUNC	0->1 name plate		RREC	NAMPLT
AR5FUNC	0->1 automatic operation (external switch status)		RREC	AUTO
AR5FUNC	0->1 CB close command by auto-recloser		RREC	OP
AR5FUNC	0->1 status of auto-reclosing sequence		RREC	AUTORECST
CMBWEAR1	Circuit breaker electic wear, CBCM wear 1	CBEWGGIO187	GGIO	
CMBWEAR1	CBCM wear 1 operation mode		GGIO	MOD
CMBWEAR1	CBCM wear 1 behaviour		GGIO	BEH
CMBWEAR1	CBCM wear 1 status		GGIO	HEALTH
CMBWEAR1	CBCM wear 1 name plate		GGIO	NAMPLT
CMBWEAR1	CBCM wear 1 alarm		GGIO	ALM
CMBWEAR2	Circuit breaker electic wear, CBCM wear 2	CBEWGGIO188	GGIO	
CMBWEAR2	CBCM wear 2 operation mode		GGIO	MOD
CMBWEAR2	CBCM wear 2 behaviour		GGIO	BEH
CMBWEAR2	CBCM wear 2 status		GGIO	HEALTH
CMBWEAR2	CBCM wear 2 name plate		GGIO	NAMPLT
CMBWEAR2	CBCM wear 2 alarm		GGIO	ALM
CMCU3	Current input circuit supervision, MCS 3I	SCCGGIO181	GGIO	
CMCU3	MCS 3I operation mode		GGIO	MOD
CMCU3	MCS 3I behaviour		GGIO	BEH
CMCU3	MCS 3I status		GGIO	HEALTH
CMCU3	MCS 3I name plate		GGIO	NAMPLT
CMCU3	Current input circuit MCS 3I alarm		GGIO	ALM
CMGAS1	Gas pressure monitoring, CBCM gas	SIMG186	SIMG	

RED500 FB	Description	LN instance name	LN class	Data
CMGAS1	CBCM gas operation mode		SIMG	MOD
CMGAS1	CBCM gas behaviour		SIMG	BEH
CMGAS1	CBCM gas status		SIMG	HEALTH
CMGAS1	CBCM gas name plate		SIMG	NAMPLT
CMGAS1	CBCM gas pressure low		SIMG	INSALM
CMGAS3	Three-pole gas pressure monitoring, CBCM 3-pole gas	SIMG194	SIMG	
CMGAS3	CBCM 3-pole gas operation mode		SIMG	MOD
CMGAS3	CBCM 3-pole gas behaviour		SIMG	BEH
CMGAS3	CBCM 3-pole gas status		SIMG	HEALTH
CMGAS3	CBCM 3-pole gas name plate		SIMG	NAMPLT
CMGAS3	CBCM 3-pole gas pressure low		SIMG	INSALM
CMSCHED	Scheduled maintenance, CBCM maintenance	CHEDGGIO189	GGIO	
CMSCHED	CBCM maintenance operation mode		GGIO	MOD
CMSCHED	CBCM maintenance behaviour		GGIO	BEH
CMSCHED	CBCM maintenance status		GGIO	HEALTH
CMSCHED	CBCM maintenance name plate		GGIO	NAMPLT
CMSCHED	CBCM scheduled maintenance alarm		GGIO	ALM
CMSPRC1	Spring charging control, CBCM spring	SPRVGGIO190	GGIO	
CMSPRC1	CBCM spring operation mode		GGIO	MOD
CMSPRC1	CBCM spring behaviour		GGIO	BEH
CMSPRC1	CBCM spring status		GGIO	HEALTH
CMSPRC1	CBCM spring name plate		GGIO	NAMPLT
CMSPRC1	CBCM spring charging time too long alarm		GGIO	ALM
CMSPRC1	CBCM spring charging time too short alarm		GGIO	ALM1
CMTCS1	Trip circuit supervision, TCS 1	TCSGGIO191	GGIO	
CMTCS1	TCS 1 operation mode		GGIO	MOD
CMTCS1	TCS 1 behaviour		GGIO	BEH
CMTCS1	TCS 1 status		GGIO	HEALTH
CMTCS1	TCS 1 name plate		GGIO	NAMPLT
CMTCS1	Trip circuit TCS 1 alarm		GGIO	ALM
CMTCS2	Trip circuit supervision, TCS 2	TCSGGIO192	GGIO	
CMTCS2	TCS 2 operation mode		GGIO	MOD
CMTCS2	TCS 2 behaviour		GGIO	BEH
CMTCS2	TCS 2 status		GGIO	HEALTH
CMTCS2	TCS 2 name plate		GGIO	NAMPLT
CMTCS2	Trip circuit TCS 2 alarm		GGIO	ALM
CMTIME1	Operate time counter 1 for used operate time (motors), CBCM opr. time 1	TGGIO184	GGIO	
CMTIME1	CBCM opr. time 1 operation mode		GGIO	MOD
CMTIME1	CBCM opr. time 1 behaviour		GGIO	BEH

RED500 FB	Description	LN instance name	LN class	Data
CMTIME1	CBCM opr. time 1 status		GGIO	HEALTH
CMTIME1	CBCM opr. time 1 name plate		GGIO	NAMPLT
CMTIME1	CBCM operate time 1 alarm		GGIO	ALM
CMTIME2	Operate time counter 2 for used operate time (motors), CBCM opr. time 2	TGGIO185	GGIO	
CMTIME2	CBCM opr. time 2 operation mode		GGIO	MOD
CMTIME2	CBCM opr. time 2 behaviour		GGIO	BEH
CMTIME2	CBCM opr. time 2 status		GGIO	HEALTH
CMTIME2	CBCM opr. time 2 name plate		GGIO	NAMPLT
CMTIME2	CBCM operate time 2 alarm		GGIO	ALM
CMVO3	Supervision of the Energizing Voltage Input Circuit, MCS U	SVCGGIO182	GGIO	
CMVO3	MCS U operation mode		GGIO	MOD
CMVO3	MCS U behaviour		GGIO	BEH
CMVO3	MCS U status		GGIO	HEALTH
CMVO3	MCS U name plate		GGIO	NAMPLT
CMVO3	Voltage input circuit MCS U alarm		GGIO	ALM
CMTRAV1	Circuit breaker travel time, CBCM CB travel	TRTGGIO193	GGIO	
CMTRAV1	CBCM CB travel operation mode		GGIO	MOD
CMTRAV1	CBCM CB travel behaviour		GGIO	BEH
CMTRAV1	CBCM CB travel status		GGIO	HEALTH
CMTRAV1	CBCM CB travel name plate		GGIO	NAMPLT
CMTRAV1	CBCM circuit breaker travel time alarm		GGIO	ALM
COCB1	Circuit breaker 1 interlocking	CBCILO120	CILO	
COCB1	CB 1 interlocking operation mode		CILO	MOD
COCB1	CB 1 interlocking behaviour		CILO	BEH
COCB1	CB 1 interlocking status		CILO	HEALTH
COCB1	CB 1 interlocking name plate		CILO	NAMPLT
COCB1	Circuit breaker 1 enable open		CILO	ENAOPN
COCB1	Circuit breaker 1 enable close		CILO	ENACLS
COCB1	Circuit breaker 1 control, I<->O CB1	CBCSWI120	CSWI	
COCB1	CB 1 operation mode		CSWI	MOD
COCB1	CB 1 behaviour		CSWI	BEH
COCB1	CB 1 status		CSWI	HEALTH
COCB1	CB 1 name plate		CSWI	NAMPLT
COCB1	Circuit breaker 1 position		CSWI	POS
COCB1	Circuit breaker 1 information, I<->O CB1	CBXCBR120	XCBR	
COCB1	CB 1 operation mode		XCBR	MOD
COCB1	CB 1 behaviour		XCBR	BEH
COCB1	CB 1 status		XCBR	HEALTH
COCB1	CB 1 name plate		XCBR	NAMPLT

RED500 FB	Description	LN instance name	LN class	Data
COCB1	Circuit breaker 1 local operation		XCBR	LOC
COCB1	Circuit breaker 1 operation counter		XCBR	OPCNT
COCB1	Circuit breaker 1 position		XCBR	POS
COCB1	Circuit breaker 1 opening blocked"		XCBR	BLKOPN
COCB1	Circuit breaker 1 closing blocked		XCBR	BLKCLS
COCB1	Circuit breaker 1 operating capability		XCBR	CBOPCAP
COCB2	Circuit breaker 2 interlocking	CBCILO121	CILO	
COCB2	CB 2 interlocking operation mode		CILO	MOD
COCB2	CB 2 interlocking behaviour		CILO	BEH
COCB2	CB 2 interlocking status		CILO	HEALTH
COCB2	CB 2 interlocking name plate		CILO	NAMPLT
COCB2	Circuit breaker 2 enable open		CILO	ENAOPN
COCB2	Circuit breaker 2 enable close		CILO	ENACLS
COCB2	Circuit breaker 2 control, I<->O CB2	CBCSWI121	CSWI	
COCB2	CB 2 operation mode		CSWI	MOD
COCB2	CB 2 behaviour		CSWI	BEH
COCB2	CB 2 status		CSWI	HEALTH
COCB2	CB 2 name plate		CSWI	NAMPLT
COCB2	Circuit breaker 2 position		CSWI	POS
COCB2	Circuit breaker 2 information, I<->O CB2	CBXCBR121	XCBR	
COCB2	CB 2 operation mode		XCBR	MOD
COCB2	CB 2 behaviour		XCBR	BEH
COCB2	CB 2 status		XCBR	HEALTH
COCB2	CB 2 name plate		XCBR	NAMPLT
COCB2	Circuit breaker 2 local operation		XCBR	LOC
COCB2	Circuit breaker 2 operation counter		XCBR	OPCNT
COCB2	Circuit breaker 2 position		XCBR	POS
COCB2	Circuit breaker 2 opening blocked"		XCBR	BLKOPN
COCB2	Circuit breaker 2 closing blocked		XCBR	BLKCLS
COCB2	Circuit breaker 2 operating capability		XCBR	CBOPCAP
CODC1	Disconnector 1 interlocking	DCOCILO122	CILO	
CODC1	DISC 1 interlocking operation mode		CILO	MOD
CODC1	DISC 1 interlocking behaviour		CILO	BEH
CODC1	DISC 1 interlocking status		CILO	HEALTH
CODC1	DISC 1 interlocking name plate		CILO	NAMPLT
CODC1	Disconnector 1 enable open		CILO	ENAOPN
CODC1	Disconnector 1 enable close		CILO	ENACLS
CODC1	Disconnector 1 control, I<->O DISC1	DCOCSWI122	CSWI	
CODC1	DISC 1 operation mode		CSWI	MOD
CODC1	DISC 1 behaviour		CSWI	BEH
CODC1	DISC 1 status		CSWI	HEALTH
CODC1	DISC 1 name plate		CSWI	NAMPLT
CODC1	Disconnector 1 position		CSWI	POS

RED500 FB	Description	LN instance name	LN class	Data
CODC1	Disconnector 1 information, I<->O DISC1	DCOXSWI122	XSWI	
CODC1	DISC 1 operation mode		XSWI	MOD
CODC1	DISC 1 behaviour		XSWI	BEH
CODC1	DISC 1 status		XSWI	HEALTH
CODC1	DISC 1 name plate		XSWI	NAMPLT
CODC1	Disconnector 1 local operation		XSWI	LOC
CODC1	Disconnector 1 operation counter		XSWI	OPCNT
CODC1	Disconnector 1 position		XSWI	POS
CODC1	Disconnector 1 opening blocked		XSWI	BLKOPN
CODC1	Disconnector 1 closing blocked		XSWI	BLKCLS
CODC1	Disconnector 1 operating capability		XSWI	SWOPCAP
CODC1	Disconnector 1 type		XSWI	SWTYP
CODC2	Disconnector 2 interlocking	DCOCILO123	CILO	
CODC2	DISC 2 interlocking operation mode		CILO	MOD
CODC2	DISC 2 interlocking behaviour		CILO	BEH
CODC2	DISC 2 interlocking status		CILO	HEALTH
CODC2	DISC 2 interlocking name plate		CILO	NAMPLT
CODC2	Disconnector 2 enable open		CILO	ENAOPN
CODC2	Disconnector 2 enable close		CILO	ENACLS
CODC2	Disconnector 2 control, I<->O DISC2	DCOCSWI23	CSWI	
CODC2	DISC 2 operation mode		CSWI	MOD
CODC2	DISC 2 behaviour		CSWI	BEH
CODC2	DISC 2 status		CSWI	HEALTH
CODC2	DISC 2 name plate		CSWI	NAMPLT
CODC2	Disconnector 2 position		CSWI	POS
CODC2	Disconnector 2 information, I<->O DISC2	DCOXSWI123	XSWI	
CODC2	DISC 2 operation mode		XSWI	MOD
CODC2	DISC 2 behaviour		XSWI	BEH
CODC2	DISC 2 status		XSWI	HEALTH
CODC2	DISC 2 name plate		XSWI	NAMPLT
CODC2	Disconnector 2 local operation		XSWI	LOC
CODC2	Disconnector 2 operation counter		XSWI	OPCNT
CODC2	Disconnector 2 position		XSWI	POS
CODC2	Disconnector 2 opening blocked		XSWI	BLKOPN
CODC2	Disconnector 2 closing blocked		XSWI	BLKCLS
CODC2	Disconnector 2 operating capability		XSWI	SWOPCAP
CODC2	Disconnector 2 type		XSWI	SWTYP
CODC3	Disconnector 3 interlocking	DCOCILO124	CILO	
CODC3	DISC 3 interlocking operation mode		CILO	MOD
CODC3	DISC 3 interlocking behaviour		CILO	BEH
CODC3	DISC 3 interlocking status		CILO	HEALTH
CODC3	DISC 3 interlocking name plate		CILO	NAMPLT

RED500 FB	Description	LN instance name	LN class	Data
CODC3	Disconnector 3 enable open		CILO	ENAOPN
CODC3	Disconnector 3 enable close		CILO	ENACLS
CODC3	Disconnector 3 control, I<->O DISC3	DCOCSWI124	CSWI	
CODC3	DISC 3 operation mode		CSWI	MOD
CODC3	DISC 3 behaviour		CSWI	BEH
CODC3	DISC 3 status		CSWI	HEALTH
CODC3	DISC 3 name plate		CSWI	NAMPLT
CODC3	Disconnector 3 position		CSWI	POS
CODC3	Disconnector 3 information, I<->O DISC3	DCOXSWI124	XSWI	
CODC3	DISC 3 operation mode		XSWI	MOD
CODC3	DISC 3 behaviour		XSWI	BEH
CODC3	DISC 3 status		XSWI	HEALTH
CODC3	DISC 3 name plate		XSWI	NAMPLT
CODC3	Disconnector 3 local operation		XSWI	LOC
CODC3	Disconnector 3 operation counter		XSWI	OPCNT
CODC3	Disconnector 3 position		XSWI	POS
CODC3	Disconnector 3 opening blocked		XSWI	BLKOPN
CODC3	Disconnector 3 closing blocked		XSWI	BLKCLS
CODC3	Disconnector 3 operating capability		XSWI	SWOPCAP
CODC3	Disconnector 3 type		XSWI	SWTYP
CODC4	Disconnector 4 interlocking	DCOCILO125	CILO	
CODC4	DISC 3 interlocking operation mode		CILO	MOD
CODC4	DISC 3 interlocking behaviour		CILO	BEH
CODC4	DISC 3 interlocking status		CILO	HEALTH
CODC4	DISC 3 interlocking name plate		CILO	NAMPLT
CODC4	Disconnector 3 enable open		CILO	ENAOPN
CODC4	Disconnector 3 enable close		CILO	ENACLS
CODC4	Disconnector 4 control, I<->O DISC4	DCOCSWI125	CSWI	
CODC4	DISC 4 operation mode		CSWI	MOD
CODC4	DISC 4 behaviour		CSWI	BEH
CODC4	DISC 4 status		CSWI	HEALTH
CODC4	DISC 4 name plate		CSWI	NAMPLT
CODC4	Disconnector 4 position		CSWI	POS
CODC4	Disconnector 4 information, I<->O DISC4	DCOXSWI125	XSWI	
CODC4	DISC 4 operation mode		XSWI	MOD
CODC4	DISC 4 behaviour		XSWI	BEH
CODC4	DISC 4 status		XSWI	HEALTH
CODC4	DISC 4 name plate		XSWI	NAMPLT
CODC4	Disconnector 4 local operation		XSWI	LOC
CODC4	Disconnector 4 operation counter		XSWI	OPCNT
CODC4	Disconnector 4 position		XSWI	POS
CODC4	Disconnector 4 opening blocked		XSWI	BLKOPN

RED500 FB	Description	LN instance name	LN class	Data
CODC4	Disconnector 4 closing blocked		XSWI	BLKCLS
CODC4	Disconnector 4 operating capability		XSWI	SWOPCAP
CODC4	Disconnector 4 type		XSWI	SWTYP
CODC5	Disconnector 5 interlocking	DCOCILO126	CILO	
CODC5	DISC 5 interlocking operation mode		CILO	MOD
CODC5	DISC 5 interlocking behaviour		CILO	BEH
CODC5	DISC 5 interlocking status		CILO	HEALTH
CODC5	DISC 5 interlocking name plate		CILO	NAMPLT
CODC5	Disconnector 5 enable open		CILO	ENAOPN
CODC5	Disconnector 5 enable close		CILO	ENACLS
CODC5	Disconnector 5 control, I<->O DISC5	DCOCSWI126	CSWI	
CODC5	DISC 5 operation mode		CSWI	MOD
CODC5	DISC 5 behaviour		CSWI	BEH
CODC5	DISC 5 status		CSWI	HEALTH
CODC5	DISC 5 name plate		CSWI	NAMPLT
CODC5	Disconnector 5 position		CSWI	POS
CODC5	Disconnector 5 information, I<->O DISC5	DCOXSWI126	XSWI	
CODC5	DISC 5 operation mode		XSWI	MOD
CODC5	DISC 5 behaviour		XSWI	BEH
CODC5	DISC 5 status		XSWI	HEALTH
CODC5	DISC 5 name plate		XSWI	NAMPLT
CODC5	Disconnector 5 local operation		XSWI	LOC
CODC5	Disconnector 5 operation counter		XSWI	OPCNT
CODC5	Disconnector 5 position		XSWI	POS
CODC5	Disconnector 5 opening blocked		XSWI	BLKOPN
CODC5	Disconnector 5 closing blocked		XSWI	BLKCLS
CODC5	Disconnector 5 operating capability		XSWI	SWOPCAP
CODC5	Disconnector 5 type		XSWI	SWTYP
COIND1	Earth switch 1 control, I<->O ESW1	ESWCSWI127	CSWI	
COIND1	ESW 1 operation mode		CSWI	MOD
COIND1	ESW 1 behaviour		CSWI	BEH
COIND1	ESW 1 status		CSWI	HEALTH
COIND1	ESW 1 name plate		CSWI	NAMPLT
COIND1	Earth switch 1 position		CSWI	POS
COIND1	Earth switch 1 information, I<->O ESW1	ESWXSWI127	XSWI	
COIND1	ESW 1 operation mode		XSWI	MOD
COIND1	ESW 1 behaviour		XSWI	BEH
COIND1	ESW 1 status		XSWI	HEALTH
COIND1	ESW 1 name plate		XSWI	NAMPLT
COIND1	Earth switch 1 local operation		XSWI	LOC
COIND1	Earth switch 1 operation counter		XSWI	OPCNT
COIND1	Earth switch 1 position		XSWI	POS

RED500 FB	Description	LN instance name	LN class	Data
COIND1	Earth switch 1 opening blocked		XSWI	BLKOPN
COIND1	Earth switch 1 closing blocked		XSWI	BLKCLS
COIND1	Earth switch 1 operating capability		XSWI	SWOPCAP
COIND1	Earth switch 1 type		XSWI	SWTYP
COIND2	Earth switch 2 control, I<->O ESW2	ESWCSWI128	CSWI	
COIND2	ESW 2 operation mode		CSWI	MOD
COIND2	ESW 2 behaviour		CSWI	BEH
COIND2	ESW 2 status		CSWI	HEALTH
COIND2	ESW 2 name plate		CSWI	NAMPLT
COIND2	Earth switch 2 position		CSWI	POS
COIND2	Earth switch 2 information, I<->O ESW2	ESWXSWI128	XSWI	
COIND2	ESW 2 operation mode		XSWI	MOD
COIND2	ESW 2 behaviour		XSWI	BEH
COIND2	ESW 2 status		XSWI	HEALTH
COIND2	ESW 2 name plate		XSWI	NAMPLT
COIND2	Earth switch 2 local operation		XSWI	LOC
COIND2	Earth switch 2 operation counter		XSWI	OPCNT
COIND2	Earth switch 2 position		XSWI	POS
COIND2	Earth switch 2 opening blocked		XSWI	BLKOPN
COIND2	Earth switch 2 closing blocked		XSWI	BLKCLS
COIND2	Earth switch 2 operating capability		XSWI	SWOPCAP
COIND2	Earth switch 2 type		XSWI	SWTYP
COIND3	Object indication 3 control, I<->O IND3	ESWCSWI129	CSWI	
COIND3	IND 3 operation mode		CSWI	MOD
COIND3	IND 3 behaviour		CSWI	BEH
COIND3	IND 3 status		CSWI	HEALTH
COIND3	IND 3 name plate		CSWI	NAMPLT
COIND3	Object indication 3 position		CSWI	POS
COIND3	Object indication 3 information, I<->O IND3	ESWXSWI129	XSWI	
COIND3	IND 3 operation mode		XSWI	MOD
COIND3	IND 3 behaviour		XSWI	BEH
COIND3	IND 3 status		XSWI	HEALTH
COIND3	IND 3 name plate		XSWI	NAMPLT
COIND3	Object indication 3 local operation		XSWI	LOC
COIND3	Object indication 3 operation counter		XSWI	OPCNT
COIND3	Object indication 3 position		XSWI	POS
COIND3	Object indication 3 opening blocked		XSWI	BLKOPN
COIND3	Object indication 3 closing blocked		XSWI	BLKCLS
COIND3	Object indication 3 operating capability		XSWI	SWOPCAP
COIND3	Object indication 3 type		XSWI	SWTYP

RED500 FB	Description	LN instance name	LN class	Data
COIND4	Object indication 4 control, I<->O IND4	ESWCSWI130	CSWI	
COIND4	IND 4 operation mode		CSWI	MOD
COIND4	IND 4 behaviour		CSWI	BEH
COIND4	IND 4 status		CSWI	HEALTH
COIND4	IND 4 name plate		CSWI	NAMPLT
COIND4	Object indication 4 position		CSWI	POS
COIND4	Object indication 4 information, I<->O IND4	ESWXSWI130	XSWI	
COIND4	IND 4 operation mode		XSWI	MOD
COIND4	IND 4 behaviour		XSWI	BEH
COIND4	IND 4 status		XSWI	HEALTH
COIND4	IND 4 name plate		XSWI	NAMPLT
COIND4	Object indication 4 local operation		XSWI	LOC
COIND4	Object indication 4 operation counter		XSWI	OPCNT
COIND4	Object indication 4 position		XSWI	POS
COIND4	Object indication 4 opening blocked		XSWI	BLKOPN
COIND4	Object indication 4 closing blocked		XSWI	BLKCLS
COIND4	Object indication 4 operating capability		XSWI	SWOPCAP
COIND4	Object indication 4 type		XSWI	SWTYP
COIND5	Object indication 5 control, I<->O IND5	ESWCSWI131	CSWI	
COIND5	IND 5 operation mode		CSWI	MOD
COIND5	IND 5 behaviour		CSWI	BEH
COIND5	IND 5 status		CSWI	HEALTH
COIND5	IND 5 name plate		CSWI	NAMPLT
COIND5	Object indication 5 position		CSWI	POS
COIND5	Object indication 5 information, I<->O IND5	ESWXSWI131	XSWI	
COIND5	IND 5 operation mode		XSWI	MOD
COIND5	IND 5 behaviour		XSWI	BEH
COIND5	IND 5 status		XSWI	HEALTH
COIND5	IND 5 name plate		XSWI	NAMPLT
COIND5	Object indication 5 local operation		XSWI	LOC
COIND5	Object indication 5 operation counter		XSWI	OPCNT
COIND5	Object indication 5 position		XSWI	POS
COIND5	Object indication 5 opening blocked		XSWI	BLKOPN
COIND5	Object indication 5 closing blocked		XSWI	BLKCLS
COIND5	Object indication 5 operating capability		XSWI	SWOPCAP
COIND5	Object indication 5 type		XSWI	SWTYP
COIND6	Object indication 6 control, I<->O IND6	ESWCSWI132	CSWI	
COIND6	IND 6 operation mode		CSWI	MOD

RED500 FB	Description	LN instance name	LN class	Data
COIND6	IND 6 behaviour		CSWI	BEH
COIND6	IND 6 status		CSWI	HEALTH
COIND6	IND 6 name plate		CSWI	NAMPLT
COIND6	Object indication 6 position		CSWI	POS
COIND6	Object indication 6 information, I<->O IND6	ESWXSWI132	XSWI	
COIND6	IND 6 operation mode		XSWI	MOD
COIND6	IND 6 behaviour		XSWI	BEH
COIND6	IND 6 status		XSWI	HEALTH
COIND6	IND 6 name plate		XSWI	NAMPLT
COIND6	Object indication 6 local operation		XSWI	LOC
COIND6	Object indication 6 operation counter		XSWI	OPCNT
COIND6	Object indication 6 position		XSWI	POS
COIND6	Object indication 6 opening blocked		XSWI	BLKOPN
COIND6	Object indication 6 closing blocked		XSWI	BLKCLS
COIND6	Object indication 6 operating capability		XSWI	SWOPCAP
COIND6	Object indication 6 type		XSWI	SWTYP
COIND7	Object indication 7 control, I<->O IND7	ESWCSWI133	CSWI	
COIND7	IND 7 operation mode		CSWI	MOD
COIND7	IND 7 behaviour		CSWI	BEH
COIND7	IND 7 status		CSWI	HEALTH
COIND7	IND 7 name plate		CSWI	NAMPLT
COIND7	Object indication 7 position		CSWI	POS
COIND7	Object indication 7 information, I<->O IND7	ESWXSWI133	XSWI	
COIND7	IND 7 operation mode		XSWI	MOD
COIND7	IND 7 behaviour		XSWI	BEH
COIND7	IND 7 status		XSWI	HEALTH
COIND7	IND 7 name plate		XSWI	NAMPLT
COIND7	Object indication 7 local operation		XSWI	LOC
COIND7	Object indication 7 operation counter		XSWI	OPCNT
COIND7	Object indication 7 position		XSWI	POS
COIND7	Object indication 7 opening blocked		XSWI	BLKOPN
COIND7	Object indication 7 closing blocked		XSWI	BLKCLS
COIND7	Object indication 7 operating capability		XSWI	SWOPCAP
COIND7	Object indication 7 type		XSWI	SWTYP
COIND8	Object indication 8 control, I<->O IND8	ESWCSWI134	CSWI	
COIND8	IND 8 operation mode		CSWI	MOD
COIND8	IND 8 behaviour		CSWI	BEH
COIND8	IND 8 status		CSWI	HEALTH
COIND8	IND 8 name plate		CSWI	NAMPLT

RED500 FB	Description	LN instance name	LN class	Data
COIND8	Object indication 8 position		CSWI	POS
COIND8	Object indication 8 information, I<->O IND8	ESWXSWI134	XSWI	
COIND8	IND 8 operation mode		XSWI	MOD
COIND8	IND 8 behaviour		XSWI	BEH
COIND8	IND 8 status		XSWI	HEALTH
COIND8	IND 8 name plate		XSWI	NAMPLT
COIND8	Object indication 8 local operation		XSWI	LOC
COIND8	Object indication 8 operation counter		XSWI	OPCNT
COIND8	Object indication 8 position		XSWI	POS
COIND8	Object indication 8 opening blocked		XSWI	BLKOPN
COIND8	Object indication 8 closing blocked		XSWI	BLKCLS
COIND8	Object indication 8 operating capability		XSWI	SWOPCAP
COIND8	Object indication 8 type		XSWI	SWTYP
CO3DC1	Three-state disconnector 1 interlocking, I<->O 3-state DISC1	DCO3CILO139	CILO	
CO3DC1	3-state DISC 1 interlocking operation mode		CILO	MOD
CO3DC1	3-state DISC 1 interlocking behaviour		CILO	BEH
CO3DC1	3-state DISC 1 interlocking status		CILO	HEALTH
CO3DC1	3-state DISC 1 interlocking name plate		CILO	NAMPLT
CO3DC1	Three-state disconnector 1 enable open		CILO	ENAOPN
CO3DC1	Three-state disconnector 1 enable close		CILO	ENACLS
CO3DC1	Three-state disconnector 1 control, I<->O 3-state DISC1	DCO3CSWI139	CSWI	
CO3DC1	3-state DISC 1 operation mode		CSWI	MOD
CO3DC1	3-state DISC 1 behaviour		CSWI	BEH
CO3DC1	3-state DISC 1 status		CSWI	HEALTH
CO3DC1	3-state DISC 1 name plate		CSWI	NAMPLT
CO3DC1	Three-state disconnector 1 position OC		CSWI	POS
CO3DC1	Three-state disconnector 1 information, I<->O 3-state DISC1	DCO3XSWI139	XSWI	
CO3DC1	3-state DISC 1 operation mode		XSWI	MOD
CO3DC1	3-state DISC 1 behaviour		XSWI	BEH
CO3DC1	3-state DISC 1 status		XSWI	HEALTH
CO3DC1	3-state DISC 1 name plate		XSWI	NAMPLT
CO3DC1	Three-state disconnector 1 local operation		XSWI	LOC
CO3DC1	Three-state disconnector 1 operation counter		XSWI	OPCNT
CO3DC1	Three-state disconnector 1 position OC		XSWI	POS

RED500 FB	Description	LN instance name	LN class	Data
CO3DC1	Three-state disconnector 1 opening blocked		XSWI	BLKOPN
CO3DC1	Three-state disconnector 1 closing blocked		XSWI	BLKCLS
CO3DC1	Three-state disconnector 1 operating capability		XSWI	SWOPCAP
CO3DC1	Three-state disconnector 1 type		XSWI	SWTYP
CO3DC1	Three-state disconnector 1 interlocking, I<->O 3-state DISC1	ESW3CILO139	CILO	
CO3DC1	3-state DISC 1 interlocking operation mode		CILO	MOD
CO3DC1	3-state DISC 1 interlocking behaviour		CILO	BEH
CO3DC1	3-state DISC 1 interlocking status		CILO	HEALTH
CO3DC1	3-state DISC 1 interlocking name plate		CILO	NAMPLT
CO3DC1	Three-state disconnector 1 enable free		CILO	ENAOPN
CO3DC1	Three-state disconnector 1 enable earth		CILO	ENACLS
CO3DC1	Three-state disconnector 1 control, I<->O 3-state DISC1	ESWCSWI139	CSWI	
CO3DC1	3-state DISC 1 operation mode		CSWI	MOD
CO3DC1	3-state DISC 1 behaviour		CSWI	BEH
CO3DC1	3-state DISC 1 status		CSWI	HEALTH
CO3DC1	3-state DISC 1 name plate		CSWI	NAMPLT
CO3DC1	Three-state disconnector 1 position FE		CSWI	POS
CO3DC1	Three-state disconnector 1 information, I<->O 3-state DISC1	ESW3XSWI139	XSWI	
CO3DC1	3-state DISC 1 operation mode		XSWI	MOD
CO3DC1	3-state DISC 1 behaviour		XSWI	BEH
CO3DC1	3-state DISC 1 status		XSWI	HEALTH
CO3DC1	3-state DISC 1 name plate		XSWI	NAMPLT
CO3DC1	Three-state disconnector 1 local operation		XSWI	LOC
CO3DC1	Three-state disconnector 1 operation counter		XSWI	OPCNT
CO3DC1	Three-state disconnector 1 position FE		XSWI	POS
CO3DC1	Three-state disconnector 1 freeing blocked		XSWI	BLKOPN
CO3DC1	Three-state disconnector 1 earthing blocked		XSWI	BLKCLS
CO3DC1	Three-state disconnector 1 operating capability		XSWI	SWOPCAP
CO3DC1	Three-state disconnector 1 type		XSWI	SWTYP
CO3DC2	Three-state disconnector 2 interlocking, I<->O 3-state DISC2	DCO3CILO140	CILO	

RED500 FB	Description	LN instance name	LN class	Data
CO3DC2	3-state DISC 2 interlocking operation mode		CILO	MOD
CO3DC2	3-state DISC 2 interlocking behaviour		CILO	BEH
CO3DC2	3-state DISC 2 interlocking status		CILO	HEALTH
CO3DC2	3-state DISC 2 interlocking name plate		CILO	NAMPLT
CO3DC2	Three-state disconnector 2 enable open		CILO	ENAOPN
CO3DC2	Three-state disconnector 2 enable close		CILO	ENACLS
CO3DC2	Three-state disconnector 2 control, I<->O 3-state DISC2	DCO3CSWI140	CSWI	
CO3DC2	3-state DISC 2 operation mode		CSWI	MOD
CO3DC2	3-state DISC 2 behaviour		CSWI	BEH
CO3DC2	3-state DISC 2 status		CSWI	HEALTH
CO3DC2	3-state DISC 2 name plate		CSWI	NAMPLT
CO3DC2	Three-state disconnector 2 position OC		CSWI	POS
CO3DC2	Three-state disconnector 2 information, I<->O 3-state DISC2	DCO3XSWI140	XSWI	
CO3DC2	3-state DISC 2 operation mode		XSWI	MOD
CO3DC2	3-state DISC 2 behaviour		XSWI	BEH
CO3DC2	3-state DISC 2 status		XSWI	HEALTH
CO3DC2	3-state DISC 2 name plate		XSWI	NAMPLT
CO3DC2	Three-state disconnector 2 local operation		XSWI	LOC
CO3DC2	Three-state disconnector 2 operation counter		XSWI	OPCNT
CO3DC2	Three-state disconnector 2 position OC		XSWI	POS
CO3DC2	Three-state disconnector 2 opening blocked		XSWI	BLKOPN
CO3DC2	Three-state disconnector 2 closing blocked		XSWI	BLKCLS
CO3DC2	Three-state disconnector 2 operating capability		XSWI	SWOPCAP
CO3DC2	Three-state disconnector 2 type		XSWI	SWTYP
CO3DC2	Three-state disconnector 2 interlocking, I<->O 3-state DISC2	ESW3CILO140	CILO	
CO3DC2	3-state DISC 2 interlocking operation mode		CILO	MOD
CO3DC2	3-state DISC 2 interlocking behaviour		CILO	BEH
CO3DC2	3-state DISC 2 interlocking status		CILO	HEALTH
CO3DC2	3-state DISC 2 interlocking name plate		CILO	NAMPLT
CO3DC2	Three-state disconnector 2 enable free		CILO	ENAOPN

RED500 FB	Description	LN instance name	LN class	Data
CO3DC2	Three-state disconnector 2 enable earth		CILO	ENACLS
CO3DC2	Three-state disconnector 2 control, I<->O 3-state DISC2	ESWCSWI140	CSWI	
CO3DC2	3-state DISC 2 operation mode		CSWI	MOD
CO3DC2	3-state DISC 2 behaviour		CSWI	BEH
CO3DC2	3-state DISC 2 status		CSWI	HEALTH
CO3DC2	3-state DISC 2 name plate		CSWI	NAMPLT
CO3DC2	Three-state disconnector 2 position FE		CSWI	POS
CO3DC2	Three-state disconnector 2 information, I<->O 3-state DISC2	ESWXSWI140	XSWI	
CO3DC2	3-state DISC 2 operation mode		XSWI	MOD
CO3DC2	3-state DISC 2 behaviour		XSWI	BEH
CO3DC2	3-state DISC 2 status		XSWI	HEALTH
CO3DC2	3-state DISC 2 name plate		XSWI	NAMPLT
CO3DC2	Three-state disconnector 2 local operation		XSWI	LOC
CO3DC2	Three-state disconnector 2 operation counter		XSWI	OPCNT
CO3DC2	Three-state disconnector 2 position FE		XSWI	POS
CO3DC2	Three-state disconnector 2 freeing blocked		XSWI	BLKOPN
CO3DC2	Three-state disconnector 2 earthing blocked		XSWI	BLKCLS
CO3DC2	Three-state disconnector 2 operating capability		XSWI	SWOPCAP
CO3DC2	Three-state disconnector 2 type		XSWI	SWTYP
COPFC	Power factor controller, I<->O pf	PFCARCO143	ARCO	
COPFC	I<->O pf operation mode		ARCO	MOD
COPFC	I<->O pf behaviour		ARCO	BEH
COPFC	I<->O pf status		ARCO	HEALTH
COPFC	I<->O pf name plate		ARCO	NAMPLT
COPFC	Power factor controller local operation		ARCO	LOC
COPFC	Power factor controller manual stepping command		ARCO	TAPCHG
DOC6LOW	Three-phase directional O/C function, low-set stage, 3I>->	DIRPTOC35	PTOC	
DOC6LOW	3I>-> operation mode		PTOC	MOD
DOC6LOW	3I>-> behaviour		PTOC	BEH
DOC6LOW	3I>-> health		PTOC	HEALTH
DOC6LOW	3I>-> name plate		PTOC	NAMPLT
DOC6LOW	3I>-> start		PTOC	STR
DOC6LOW	3I>-> trip		PTOC	OP

RED500 FB	Description	LN instance name	LN class	Data
DOC6LOW	CB failure protection of three-phase directional O/C function, low-set stage, 3I>->	DIRRBRF35	RBRF	
DOC6LOW	3I>-> CB failure protection operation mode		RBRF	MOD
DOC6LOW	3I>-> CB failure protection behaviour		RBRF	BEH
DOC6LOW	3I>-> CB failure protection status		RBRF	HEALTH
DOC6LOW	3I>-> CB failure protection name plate		RBRF	NAMPLT
DOC6LOW	3I>-> circuit breaker failure		RBRF	OPEX
DOC6INST	Three-phase directional o/c, instantaneous stage, 3I>>>->	DIRPTOC37	PTOC	
DOC6INST	3I>>>-> operation mode		PTOC	MOD
DOC6INST	3I>>>-> behaviour		PTOC	BEH
DOC6INST	3I>>>-> health		PTOC	HEALTH
DOC6INST	3I>>>-> name plate		PTOC	NAMPLT
DOC6INST	3I>>>-> start		PTOC	STR
DOC6INST	3I>>>-> trip		PTOC	OP
DOC6INST	CBFP of three-phase directional o/c function, instantaneous stage, 3I>>>->	DIRPTOC37	RBRF	
DOC6INST	3I>>>-> CB failure protection operation mode		RBRF	MOD
DOC6INST	3I>>>-> CB failure protection behaviour		RBRF	BEH
DOC6INST	3I>>>-> CB failure protection status		RBRF	HEALTH
DOC6INST	3I>>>-> CB failure protection name plate		RBRF	NAMPLT
DOC6INST	3I>>>-> circuit breaker failure		RBRF	OPEX
DOC6HIGH	Three-phase directional o/c, high-set stage, 3I>>->	DIRPTOC36	PTOC	
DOC6HIGH	3I>>-> operation mode		PTOC	MOD
DOC6HIGH	3I>>-> behaviour		PTOC	BEH
DOC6HIGH	3I>>-> health		PTOC	HEALTH
DOC6HIGH	3I>>-> name plate		PTOC	NAMPLT
DOC6HIGH	3I>>-> start		PTOC	STR
DOC6HIGH	3I>>-> trip		PTOC	OP
DOC6HIGH	CB failure protection of three-phase directional o/c function, high-set stage, 3I>>->	DIRRBRF36	RBRF	
DOC6HIGH	3I>>-> CB failure protection operation mode		RBRF	MOD
DOC6HIGH	3I>>-> CB failure protection behaviour		RBRF	BEH
DOC6HIGH	3I>>-> CB failure protection status		RBRF	HEALTH
DOC6HIGH	3I>>-> CB failure protection name plate		RBRF	NAMPLT

RED500 FB	Description	LN instance name	LN class	Data
DOC6HIGH	3I>>-> circuit breaker failure		RBRF	OPEX
DEF2LOW	Directional earth-fault, low-set stage, Io>->	DEFPTOC40	PTOC	
DEF2LOW	Io>-> operation mode		PTOC	MOD
DEF2LOW	Io>-> behaviour		PTOC	BEH
DEF2LOW	Io>-> health		PTOC	HEALTH
DEF2LOW	Io>-> name plate		PTOC	NAMPLT
DEF2LOW	Io>-> start		PTOC	STR
DEF2LOW	Io>-> trip		PTOC	OP
DEF2LOW	Circuit breaker failure protection of directional earth-fault, low-set stage, Io>->	DEFRBRF40	RBRF	
DEF2LOW	Io>-> CB failure protection operation mode		RBRF	MOD
DEF2LOW	Io>-> CB failure protection behaviour		RBRF	BEH
DEF2LOW	Io>-> CB failure protection status		RBRF	HEALTH
DEF2LOW	Io>-> CB failure protection name plate		RBRF	NAMPLT
DEF2LOW	Io>-> circuit breaker failure		RBRF	OPEX
DEF2INST	Directional earth-fault, instantaneous stage, Io>>>->	DEFPTOC42	PTOC	
DEF2INST	Io>>>-> operation mode		PTOC	MOD
DEF2INST	Io>>>-> behaviour		PTOC	BEH
DEF2INST	Io>>>-> health		PTOC	HEALTH
DEF2INST	Io>>>-> name plate		PTOC	NAMPLT
DEF2INST	Io>>>-> start		PTOC	STR
DEF2INST	Io>>>-> trip		PTOC	OP
DEF2INST	Circuit breaker failure protection of directional earth-fault, instantaneous stage, Io>>>->	DEFRBRF42	RBRF	
DEF2INST	Io>>>-> CB failure protection operation mode		RBRF	MOD
DEF2INST	Io>>>-> CB failure protection behaviour		RBRF	BEH
DEF2INST	Io>>>-> CB failure protection status		RBRF	HEALTH
DEF2INST	Io>>>-> CB failure protection name plate		RBRF	NAMPLT
DEF2INST	Io>>>-> circuit breaker failure		RBRF	OPEX
DEF2HIGH	Directional earth-fault, high-set stage, Io>>->	DEFPTOC41	PTOC	
DEF2HIGH	Io>>-> operation mode		PTOC	MOD
DEF2HIGH	Io>>-> behaviour		PTOC	BEH
DEF2HIGH	Io>>-> health		PTOC	HEALTH
DEF2HIGH	Io>>-> name plate		PTOC	NAMPLT
DEF2HIGH	Io>>-> start		PTOC	STR
DEF2HIGH	Io>>-> trip		PTOC	OP

RED500 FB	Description	LN instance name	LN class	Data
DEF2HIGH	Circuit breaker failure protection of directional earth-fault, high-set stage, Io>>->	DEFRBRF41	RBRF	
DEF2HIGH	Io>>-> CB failure protection operation mode		RBRF	MOD
DEF2HIGH	Io>>-> CB failure protection behaviour		RBRF	BEH
DEF2HIGH	Io>>-> CB failure protection status		RBRF	HEALTH
DEF2HIGH	Io>>-> CB failure protection name plate		RBRF	NAMPLT
DEF2HIGH	Io>>-> circuit breaker failure		RBRF	OPEX
CUB3LOW	Phase discontinuity protection, Iub>	CUBPTOC51	PTOC	
CUB3LOW	Iub> operation mode		PTOC	MOD
CUB3LOW	Iub> behaviour		PTOC	BEH
CUB3LOW	Iub> status		PTOC	HEALTH
CUB3LOW	Iub> name plate		PTOC	NAMPLT
CUB3LOW	Iub> start		PTOC	STR
CUB3LOW	Iub> trip		PTOC	OP
CUB3LOW	Circuit breaker failure protection of phase discontinuity protection, Iub>	CUBPTOC51	RBRF	
CUB3LOW	Iub> CB failure protection operation mode		RBRF	MOD
CUB3LOW	Iub> CB failure protection behaviour		RBRF	BEH
CUB3LOW	Iub> CB failure protection status		RBRF	HEALTH
CUB3LOW	Iub> CB failure protection name plate		RBRF	NAMPLT
CUB3LOW	Iub> circuit breaker failure		RBRF	OPEX
CUB3CAP	Three-phase unbalance protection, 3dI>C	CUBPTOC52	PTOC	
CUB3CAP	3dI>C operation mode		PTOC	MOD
CUB3CAP	3dI>C behaviour		PTOC	BEH
CUB3CAP	3dI>C status		PTOC	HEALTH
CUB3CAP	3dI>C name plate		PTOC	NAMPLT
CUB3CAP	3dI>C start		PTOC	STR
CUB3CAP	3dI>C trip		PTOC	OP
CUB3CAP	3dI>C alarm start		PTOC	STR1
CUB3CAP	3dI>C alarm		PTOC	OP1
CUB3CAP	Circuit breaker for failure protection of three-phase unbalance protection, 3dI>C	CUBRBRF52	RBRF	
CUB3CAP	3dI>C CB failure protection operation mode		RBRF	MOD
CUB3CAP	3dI>C CB failure protection behaviour		RBRF	BEH
CUB3CAP	3dI>C CB failure protection status		RBRF	HEALTH
CUB3CAP	3dI>C CB failure protection name plate		RBRF	NAMPLT
CUB3CAP	3dI>C circuit breaker failure		RBRF	OPEX

RED500 FB	Description	LN instance name	LN class	Data
CUB1CAP	Unbalance protection for capacitor banks, dI>C	CUBPTOC117	PTOC	
CUB1CAP	dI>C operation mode		PTOC	MOD
CUB1CAP	dI>C behaviour		PTOC	BEH
CUB1CAP	dI>C status		PTOC	HEALTH
CUB1CAP	dI>C name plate		PTOC	NAMPLT
CUB1CAP	dI>C start		PTOC	STR
CUB1CAP	dI>C trip		PTOC	OP
CUB1CAP	dI>C alarm start		PTOC	STR1
CUB1CAP	dI>C alarm		PTOC	OP1
CUB1CAP	Circuit breaker for failure protection for unbalance protection for capacitor banks, dI>C	CUBRBRF117	RBRF	
CUB1CAP	dI>C CB failure protection operation mode		RBRF	MOD
CUB1CAP	dI>C CB failure protection behaviour		RBRF	BEH
CUB1CAP	dI>C CB failure protection status		RBRF	HEALTH
CUB1CAP	IdI>C CB failure protection name plate		RBRF	NAMPLT
CUB1CAP	dI>C circuit breaker failure		RBRF	OPEX
FUSEFAIL	Fuse failure supervision, FUSEF	RFUF118	RFUF	
FUSEFAIL	FUSEF operation mode		RFUF	MOD
FUSEFAIL	FUSEF behaviour		RFUF	BEH
FUSEFAIL	FUSEF status		RFUF	HEALTH
FUSEFAIL	FUSEF name plate		RFUF	NAMPLT
FUSEFAIL	FUSEF local operation		RFUF	LOC
FUSEFAIL	FUSEF fuse failure		RFUF	FUFAIL
FREQ1ST1	Overfrequency protection stage 1, timer 1, f>	T1PTOF72	PTOF	
FREQ1ST1	f> stage 1 operation mode		PTOF	MOD
FREQ1ST1	f> stage 1 behaviour		PTOF	BEH
FREQ1ST1	f> stage 1 status		PTOF	HEALTH
FREQ1ST1	f> stage 1 name plate		PTOF	NAMPLT
FREQ1ST1	f> stage 1, timer 1 start		PTOF	STR
FREQ1ST1	f> stage 1, timer 1 trip		PTOF	OP
FREQ1ST1	Underfrequency protection stage 1, timer 1, f<	T1PTUF72	PTUF	
FREQ1ST1	f< stage 1 operation mode		PTUF	MOD
FREQ1ST1	f< stage 1 behaviour		PTUF	BEH
FREQ1ST1	f< stage 1 status		PTUF	HEALTH
FREQ1ST1	f< stage 1 name plate		PTUF	NAMPLT
FREQ1ST1	f< stage 1, timer 1 start		PTUF	STR
FREQ1ST1	f< stage 1, timer 1 trip		PTUF	OP
FREQ1ST1	Overfrequency protection stage 1, timer 2, f>	T2PTOF72	PTOF	
FREQ1ST1	f> stage 1 operation mode		PTOF	MOD

RED500 FB	Description	LN instance name	LN class	Data
FREQ1ST1	f> stage 1 behaviour		PTOF	BEH
FREQ1ST1	f> stage 1 status		PTOF	HEALTH
FREQ1ST1	f> stage 1 name plate		PTOF	NAMPLT
FREQ1ST1	f> stage 1, timer 2 start		PTOF	STR
FREQ1ST1	f> stage 1, timer 2 trip		PTOF	OP
FREQ1ST1	Underfrequency protection stage 1, timer 2, f<	T2PTUF72	PTUF	
FREQ1ST1	f< stage 1 operation mode		PTUF	MOD
FREQ1ST1	f< stage 1 behaviour		PTUF	BEH
FREQ1ST1	f< stage 1 status		PTUF	HEALTH
FREQ1ST1	f< stage 1 name plate		PTUF	NAMPLT
FREQ1ST1	f< stage 1, timer 2 start		PTUF	STR
FREQ1ST1	f< stage 1, timer 2 trip		PTUF	OP
FREQ1ST1	Frequency rate of change protection stage 1, df/dt	PFRC72	PFRC	
FREQ1ST1	df/dt stage 1 operation mode		PFRC	MOD
FREQ1ST1	df/dt stage 1 behaviour		PFRC	BEH
FREQ1ST1	df/dt stage 1 status		PFRC	HEALTH
FREQ1ST1	df/dt stage 1 name plate		PFRC	NAMPLT
FREQ1ST1	df/dt stage 1 start		PFRC	STR
FREQ1ST1	df/dt stage 1 trip		PFRC	OP
FREQ1ST2	Overfrequency protection stage 2, timer 1, f>	T1PTOF73	PTOF	
FREQ1ST2	f> stage 2 operation mode		PTOF	MOD
FREQ1ST2	f> stage 2 behaviour		PTOF	BEH
FREQ1ST2	f> stage 2 status		PTOF	HEALTH
FREQ1ST2	f> stage 2 name plate		PTOF	NAMPLT
FREQ1ST2	f> stage 2, timer 1 start		PTOF	STR
FREQ1ST2	f> stage 2, timer 1 trip		PTOF	OP
FREQ1ST2	Underfrequency protection stage 2, timer 1, f<	T1PTUF73	PTUF	
FREQ1ST2	f< stage 2 operation mode		PTUF	MOD
FREQ1ST2	f< stage 2 behaviour		PTUF	BEH
FREQ1ST2	f< stage 2 status		PTUF	HEALTH
FREQ1ST2	f< stage 2 name plate		PTUF	NAMPLT
FREQ1ST2	f< stage 2, timer 1 start		PTUF	STR
FREQ1ST2	f< stage 2, timer 1 trip		PTUF	OP
FREQ1ST2	Overfrequency protection stage 2, timer 2, f>	T2PTOF73	PTOF	
FREQ1ST2	f> stage 2 operation mode		PTOF	MOD
FREQ1ST2	f> stage 2 behaviour		PTOF	BEH
FREQ1ST2	f> stage 2 status		PTOF	HEALTH
FREQ1ST2	f> stage 2 name plate		PTOF	NAMPLT
FREQ1ST2	f> stage 2, timer 2 start		PTOF	STR
FREQ1ST2	f> stage 2, timer 2 trip		PTOF	OP

RED500 FB	Description	LN instance name	LN class	Data
FREQ1ST2	Underfrequency protection stage 2, timer 2, f<	T2PTUF73	PTUF	
FREQ1ST2	f< stage 2 operation mode		PTUF	MOD
FREQ1ST2	f< stage 2 behaviour		PTUF	BEH
FREQ1ST2	f< stage 2 status		PTUF	HEALTH
FREQ1ST2	f< stage 2 name plate		PTUF	NAMPLT
FREQ1ST2	f< stage 2, timer 2 start		PTUF	STR
FREQ1ST2	f< stage 2, timer 2 trip		PTUF	OP
FREQ1ST2	Frequency rate of change protection stage 2, df/dt	PFRC73	PFRC	
FREQ1ST2	df/dt stage 2 operation mode		PFRC	MOD
FREQ1ST2	df/dt stage 2 behaviour		PFRC	BEH
FREQ1ST2	df/dt stage 2 status		PFRC	HEALTH
FREQ1ST2	df/dt stage 2 name plate		PFRC	NAMPLT
FREQ1ST2	df/dt stage 2 start		PFRC	STR
FREQ1ST2	df/dt stage 2 trip		PFRC	OP
FREQ1ST3	Overfrequency protection stage 3, timer 1, f>	T1PTOF74	PTOF	
FREQ1ST3	f> stage 3 operation mode		PTOF	MOD
FREQ1ST3	f> stage 3 behaviour		PTOF	BEH
FREQ1ST3	f> stage 3 status		PTOF	HEALTH
FREQ1ST3	f> stage 3 name plate		PTOF	NAMPLT
FREQ1ST3	f> stage 3, timer 1 start		PTOF	STR
FREQ1ST3	f> stage 3, timer 1 trip		PTOF	OP
FREQ1ST3	Underfrequency protection stage 3, timer 1, f<	T1PTUF74	PTUF	
FREQ1ST3	f< stage 3 operation mode		PTUF	MOD
FREQ1ST3	f< stage 3 behaviour		PTUF	BEH
FREQ1ST3	f< stage 3 status		PTUF	HEALTH
FREQ1ST3	f< stage 3 name plate		PTUF	NAMPLT
FREQ1ST3	f< stage 3, timer 1 start		PTUF	STR
FREQ1ST3	f< stage 3, timer 1 trip		PTUF	OP
FREQ1ST3	Overfrequency protection stage 3, timer 2, f>	T2PTOF74	PTOF	
FREQ1ST3	f> stage 3 operation mode		PTOF	MOD
FREQ1ST3	f> stage 3 behaviour		PTOF	BEH
FREQ1ST3	f> stage 3 status		PTOF	HEALTH
FREQ1ST3	f> stage 3 name plate		PTOF	NAMPLT
FREQ1ST3	f> stage 3, timer 2 start		PTOF	STR
FREQ1ST3	f> stage 3, timer 2 trip		PTOF	OP
FREQ1ST3	Underfrequency protection stage 3, timer 2, f<	T2PTUF74	PTUF	
FREQ1ST3	f< stage 3 operation mode		PTUF	MOD
FREQ1ST3	f< stage 3 behaviour		PTUF	BEH
FREQ1ST3	f< stage 3 status		PTUF	HEALTH

RED500 FB	Description	LN instance name	LN class	Data
FREQ1ST3	f< stage 3 name plate		PTUF	NAMPLT
FREQ1ST3	f< stage 3, timer 2 start		PTUF	STR
FREQ1ST3	f< stage 3, timer 2 trip		PTUF	OP
FREQ1ST3	Frequency rate of change protection stage 3, df/dt	PFRC74	PFRC	
FREQ1ST3	df/dt stage 3 operation mode		PFRC	MOD
FREQ1ST3	df/dt stage 3 behaviour		PFRC	BEH
FREQ1ST3	df/dt stage 3 status		PFRC	HEALTH
FREQ1ST3	df/dt stage 3 name plate		PFRC	NAMPLT
FREQ1ST3	df/dt stage 3 start		PFRC	STR
FREQ1ST3	df/dt stage 3 trip		PFRC	OP
FREQ1ST4	Overfrequency protection stage 4, timer 1, f>	T1PTOF75	PTOF	
FREQ1ST4	f> stage 4 operation mode		PTOF	MOD
FREQ1ST4	f> stage 4 behaviour		PTOF	BEH
FREQ1ST4	f> stage 4 status		PTOF	HEALTH
FREQ1ST4	f> stage 4 name plate		PTOF	NAMPLT
FREQ1ST4	f> stage 4, timer 1 start		PTOF	STR
FREQ1ST4	f> stage 4, timer 1 trip		PTOF	OP
FREQ1ST4	Underfrequency protection stage 4, timer 1, f<	T1PTUF75	PTUF	
FREQ1ST4	f< stage 4 operation mode		PTUF	MOD
FREQ1ST4	f< stage 4 behaviour		PTUF	BEH
FREQ1ST4	f< stage 4 status		PTUF	HEALTH
FREQ1ST4	f< stage 4 name plate		PTUF	NAMPLT
FREQ1ST4	f< stage 4, timer 1 start		PTUF	STR
FREQ1ST4	f< stage 4, timer 1 trip		PTUF	OP
FREQ1ST4	Overfrequency protection stage 4, timer 2, f>	T2PTOF75	PTOF	
FREQ1ST4	f> stage 4 operation mode		PTOF	MOD
FREQ1ST4	f> stage 4 behaviour		PTOF	BEH
FREQ1ST4	f> stage 4 status		PTOF	HEALTH
FREQ1ST4	f> stage 4 name plate		PTOF	NAMPLT
FREQ1ST4	f> stage 4, timer 2 start		PTOF	STR
FREQ1ST4	f> stage 4, timer 2 trip		PTOF	OP
FREQ1ST4	Underfrequency protection stage 4, timer 2, f<	T2PTUF75	PTUF	
FREQ1ST4	f< stage 4 operation mode		PTUF	MOD
FREQ1ST4	f< stage 4 behaviour		PTUF	BEH
FREQ1ST4	f< stage 4 status		PTUF	HEALTH
FREQ1ST4	f< stage 4 name plate		PTUF	NAMPLT
FREQ1ST4	f< stage 4, timer 2 start		PTUF	STR
FREQ1ST4	f< stage 4, timer 2 trip		PTUF	OP
FREQ1ST4	Frequency rate of change protection stage 4, df/dt	PFRC75	PFRC	

RED500 FB	Description	LN instance name	LN class	Data
FREQ1ST4	df/dt stage 4 operation mode		PFRC	MOD
FREQ1ST4	df/dt stage 4 behaviour		PFRC	BEH
FREQ1ST4	df/dt stage 4 status		PFRC	HEALTH
FREQ1ST4	df/dt stage 4 name plate		PFRC	NAMPLT
FREQ1ST4	df/dt stage 4 start		PFRC	STR
FREQ1ST4	df/dt stage 4 trip		PFRC	OP
FREQ1ST5	Overfrequency protection stage 5, timer 1, f>	T1PTOF76	PTOF	
FREQ1ST5	f> stage 5 operation mode		PTOF	MOD
FREQ1ST5	f> stage 5 behaviour		PTOF	BEH
FREQ1ST5	f> stage 5 status		PTOF	HEALTH
FREQ1ST5	f> stage 5 name plate		PTOF	NAMPLT
FREQ1ST5	f> stage 5, timer 1 start		PTOF	STR
FREQ1ST5	f> stage 5, timer 1 trip		PTOF	OP
FREQ1ST5	Underfrequency protection stage 5, timer 1, f<	T1PTUF76	PTUF	
FREQ1ST5	f< stage 5 operation mode		PTUF	MOD
FREQ1ST5	f< stage 5 behaviour		PTUF	BEH
FREQ1ST5	f< stage 5 status		PTUF	HEALTH
FREQ1ST5	f< stage 5 name plate		PTUF	NAMPLT
FREQ1ST5	f< stage 5, timer 1 start		PTUF	STR
FREQ1ST5	f< stage 5, timer 1 trip		PTUF	OP
FREQ1ST5	Overfrequency protection stage 5, timer 2, f>	T2PTOF76	PTOF	
FREQ1ST5	f> stage 5 operation mode		PTOF	MOD
FREQ1ST5	f> stage 5 behaviour		PTOF	BEH
FREQ1ST5	f> stage 5 status		PTOF	HEALTH
FREQ1ST5	f> stage 5 name plate		PTOF	NAMPLT
FREQ1ST5	f> stage 5, timer 2 start		PTOF	STR
FREQ1ST5	f> stage 5, timer 2 trip		PTOF	OP
FREQ1ST5	Underfrequency protection stage 5, timer 2, f<	T2PTUF76	PTUF	
FREQ1ST5	f< stage 5 operation mode		PTUF	MOD
FREQ1ST5	f< stage 5 behaviour		PTUF	BEH
FREQ1ST5	f< stage 5 status		PTUF	HEALTH
FREQ1ST5	f< stage 5 name plate		PTUF	NAMPLT
FREQ1ST5	f< stage 5, timer 2 start		PTUF	STR
FREQ1ST5	f< stage 5, timer 2 trip		PTUF	OP
FREQ1ST5	Frequency rate of change protection stage 5, df/dt	PFRC76	PFRC	
FREQ1ST5	df/dt stage 5 operation mode		PFRC	MOD
FREQ1ST5	df/dt stage 5 behaviour		PFRC	BEH
FREQ1ST5	df/dt stage 5 status		PFRC	HEALTH
FREQ1ST5	df/dt stage 5 name plate		PFRC	NAMPLT
FREQ1ST5	df/dt stage 5 start		PFRC	STR

RED500 FB	Description	LN instance name	LN class	Data
FREQ1ST5	df/dt stage 5 trip		PFRC	OP
INRUSH3	Three-phase transformer inrush and motor start-up current detector, 3I2f>	INRPHR34	PHAR	
INRUSH3	3I2f> operation mode		PHAR	MOD
INRUSH3	3I2f> behaviour		PHAR	BEH
INRUSH3	3I2f> status		PHAR	HEALTH
INRUSH3	3I2f> name plate		PHAR	NAMPLT
INRUSH3	3I2f> start		PHAR	STR
MEAI1	General measurement 1, MEAS1	GMGGIO213	GGIO	
MEAI1	MEAS 1 operation mode		GGIO	MOD
MEAI1	MEAS 1 behaviour		GGIO	BEH
MEAI1	MEAS 1 status		GGIO	HEALTH
MEAI1	MEAS 1 name plate		GGIO	NAMPLT
MEAI1	MEAS 1 measured value		GGIO	ANIN
MEAI2	General measurement 1, MEAS2	GMGGIO214	GGIO	
MEAI2	MEAS 2 operation mode		GGIO	MOD
MEAI2	MEAS 2 behaviour		GGIO	BEH
MEAI2	MEAS 2 status		GGIO	HEALTH
MEAI2	MEAS 2 name plate		GGIO	NAMPLT
MEAI2	MEAS 2 measured value		GGIO	ANIN
MEAI3	General measurement 1, MEAS3	GMGGIO215	GGIO	
MEAI3	MEAS 3 operation mode		GGIO	MOD
MEAI3	MEAS 3 behaviour		GGIO	BEH
MEAI3	MEAS 3 status		GGIO	HEALTH
MEAI3	MEAS 3 name plate		GGIO	NAMPLT
MEAI3	MEAS 3 measured value		GGIO	ANIN
MEAI4	General measurement 1, MEAS4	GMGGIO216	GGIO	
MEAI4	MEAS 4 operation mode		GGIO	MOD
MEAI4	MEAS 4 behaviour		GGIO	BEH
MEAI4	MEAS 4 status		GGIO	HEALTH
MEAI4	MEAS 4 name plate		GGIO	NAMPLT
MEAI4	MEAS 4 measured value		GGIO	ANIN
MEAI5	General measurement 1, MEAS5	GMGGIO217	GGIO	
MEAI5	MEAS 5 operation mode		GGIO	MOD
MEAI5	MEAS 5 behaviour		GGIO	BEH
MEAI5	MEAS 5 status		GGIO	HEALTH
MEAI5	MEAS 5 name plate		GGIO	NAMPLT
MEAI5	MEAS 5 measured value		GGIO	ANIN
MEAI6	General measurement 1, MEAS6	GMGGIO218	GGIO	
MEAI6	MEAS 6 operation mode		GGIO	MOD
MEAI6	MEAS 6 behaviour		GGIO	BEH
MEAI6	MEAS 6 status		GGIO	HEALTH
MEAI6	MEAS 6 name plate		GGIO	NAMPLT
MEAI6	MEAS 6 measured value		GGIO	ANIN

RED500 FB	Description	LN instance name	LN class	Data
MEAI7	General measurement 1, MEAS7	GMGGIO219	GGIO	
MEAI7	MEAS 7 operation mode		GGIO	MOD
MEAI7	MEAS 7 behaviour		GGIO	BEH
MEAI7	MEAS 7 status		GGIO	HEALTH
MEAI7	MEAS 7 name plate		GGIO	NAMPLT
MEAI7	MEAS 7 measured value		GGIO	ANIN
MEAI8	General measurement 1, MEAS8	GMGGIO220	GGIO	
MEAI8	MEAS 8 operation mode		GGIO	MOD
MEAI8	MEAS 8 behaviour		GGIO	BEH
MEAI8	MEAS 8 status		GGIO	HEALTH
MEAI8	MEAS 8 name plate		GGIO	NAMPLT
MEAI8	MEAS 8 measured value		GGIO	ANIN
MECU1A	Neutral current measurement, stage A, Io	IMMXU200	MMXU	
MECU1A	Io stage A operation mode		MMXU	MOD
MECU1A	Io stage A behaviour		MMXU	BEH
MECU1A	Io stage A status		MMXU	HEALTH
MECU1A	Io stage A name plate		MMXU	NAMPLT
MECU1A	Io neutral current measurement		MMXU	A
MECU1B	Neutral current measurement, stage B, Io	IMMXU203	MMXU	
MECU1B	Io stage B operation mode		MMXU	MOD
MECU1B	Io stage B behaviour		MMXU	BEH
MECU1B	Io stage B status		MMXU	HEALTH
MECU1B	Io stage B name plate		MMXU	NAMPLT
MECU1B	Io neutral current measurement		MMXU	A
MECU3A	Three-phase current measurement, stage A, 3I	IMMXU200	MMXU	
MECU3A	3I stage A operation mode		MMXU	MOD
MECU3A	3I stage A behaviour		MMXU	BEH
MECU3A	3I stage A status		MMXU	HEALTH
MECU3A	3I stage A name plate		MMXU	NAMPLT
MECU3A	3I 3-phase current measurement		MMXU	A
MECU3B	Three-phase current measurement, stage B, 3I	IMMXU202	MMXU	
MECU3B	3I stage B operation mode		MMXU	MOD
MECU3B	3I stage B behaviour		MMXU	BEH
MECU3B	3I stage B status		MMXU	HEALTH
MECU3B	3I stage B name plate		MMXU	NAMPLT
MECU3B	3I 3-phase current measurement		MMXU	A
MEVO1A	Residual voltage measurement, stage A, Uo	UMMXU205	MMXU	
MEVO1A	Uo stage A operation mode		MMXU	MOD
MEVO1A	Uo stage A behaviour		MMXU	BEH
MEVO1A	Uo stage A status		MMXU	HEALTH

RED500 FB	Description	LN instance name	LN class	Data
MEVO1A	Uo stage A name plate		MMXU	NAMPLT
MEVO1A	Uo phase to phase voltage		MMXU	PPV
MEVO1A	Uo phase to ground voltage		MMXU	PHV
MEVO1B	Residual voltage measurement, stage B, Uo	UMMXU226	MMXU	
MEVO1B	Uo stage B operation mode		MMXU	MOD
MEVO1B	Uo stage B behaviour		MMXU	BEH
MEVO1B	Uo stage B status		MMXU	HEALTH
MEVO1B	Uo stage B name plate		MMXU	NAMPLT
MEVO1B	Uo phase to phase voltage		MMXU	PPV
MEVO1B	Uo phase to ground voltage		MMXU	PHV
MEVO3A	Three-phase voltage measurement, stage A, 3U	UMMXU204	MMXU	
MEVO3A	3U stage A operation mode		MMXU	MOD
MEVO3A	3U stage A behaviour		MMXU	BEH
MEVO3A	3U stage A status		MMXU	HEALTH
MEVO3A	3U stage A name plate		MMXU	NAMPLT
MEVO3A	3U phase to phase voltages		MMXU	PPV
MEVO3A	3U phase to ground voltages		MMXU	PHV
MEVO3B	Three-phase voltage measurement, stage B, 3U	UMMXU206	MMXU	
MEVO3B	3U stage B operation mode		MMXU	MOD
MEVO3B	3U stage B behaviour		MMXU	BEH
MEVO3B	3U stage B status		MMXU	HEALTH
MEVO3B	3U stage B name plate		MMXU	NAMPLT
MEVO3B	3U phase to phase voltages		MMXU	PPV
MEVO3B	3U phase to ground voltages		MMXU	PHV
MEFR1	System frequency measurement, f	FMMXU208	MMXU	
MEFR1	f operation mode		MMXU	MOD
MEFR1	f behaviour		MMXU	BEH
MEFR1	f status		MMXU	HEALTH
MEFR1	f name plate		MMXU	NAMPLT
MEFR1	f system frequency		MMXU	HZ
MEPE7	Three-phase energy metering, E	WMMTR207	MMTR	
MEPE7	E operation mode		MMTR	MOD
MEPE7	E behaviour		MMTR	BEH
MEPE7	E status		MMTR	HEALTH
MEPE7	E name plate		MMTR	NAMPLT
MEPE7	Active energy measurement		MMTR	SUPWH
MEPE7	Reactive energy measurement		MMTR	SUPVARH
MEPE7	Active energy demand measurement		MMTR	DMDWH
MEPE7	Reactive energy demand measurement		MMTR	DMDVARH
MEPE7	Three-phase power and energy measurement, P,Q,pf	PMMXU207	MMXU	

RED500 FB	Description	LN instance name	LN class	Data
MEPE7	P,Q,pf operation mode		MMXU	MOD
MEPE7	P,Q,pf behaviour		MMXU	BEH
MEPE7	P,Q,pf status		MMXU	HEALTH
MEPE7	P,Q,pf name plate		MMXU	NAMPLT
MEPE7	P active power measurement		MMXU	TOTW
MEPE7	Q reactive power measurement		MMXU	TOTVAR
MEPE7	pf power factor measurement		MMXU	TOTPF
MOTSTART	Three-phase start-up supervision for motors, Is2t n<	PMSS54	PMSS	
MOTSTART	Is2t n< operation mode		PMSS	MOD
MOTSTART	Is2t n< behaviour		PMSS	BEH
MOTSTART	Is2t n< status		PMSS	HEALTH
MOTSTART	Is2t n< name plate		PMSS	NAMPLT
MOTSTART	Is2t n< start		PMSS	STR
MOTSTART	Is2t n< trip		PMSS	OP
MOTSTART	Three-phase start-up supervision for motors, restart inhibition, Is2t n<	PMRI54	PMRI	
MOTSTART	Is2t n< restart inh. operation mode		PMRI	MOD
MOTSTART	Is2t n< restart inh. behaviour		PMRI	BEH
MOTSTART	Is2t n< restart inh. status		PMRI	HEALTH
MOTSTART	Is2t n< restart inh. name plate		PMRI	NAMPLT
MOTSTART	Is2t n< restart inhibited		PMRI	STRINH
OV3HIGH	Three-phase overvoltage, high-set stage, 3U>>	PHPTOV63	PTOV	
OV3HIGH	3U>> operation mode		PTOV	MOD
OV3HIGH	3U>> behaviour		PTOV	BEH
OV3HIGH	3U>> status		PTOV	HEALTH
OV3HIGH	3U>> name plate		PTOV	NAMPLT
OV3HIGH	3U>> start		PTOV	STR
OV3HIGH	3U>> trip		PTOV	OP
OV3LOW	Three-phase overvoltage, low-set stage, 3U>	PHPTOV62	PTOV	
OV3LOW	3U> operation mode		PTOV	MOD
OV3LOW	3U> behaviour		PTOV	BEH
OV3LOW	3U> status		PTOV	HEALTH
OV3LOW	3U> name plate		PTOV	NAMPLT
OV3LOW	3U> start		PTOV	STR
OV3LOW	3U> trip		PTOV	OP
NEF1HIGH	Non-directional earth-fault protection function, high-set stage, Io>>	EFPTOC39	PTOC	
NEF1HIGH	Io>> operation mode		PTOC	MOD
NEF1HIGH	Io>> behaviour		PTOC	BEH
NEF1HIGH	Io>> status		PTOC	HEALTH
NEF1HIGH	Io>> name plate		PTOC	NAMPLT
NEF1HIGH	Io>> start		PTOC	STR

RED500 FB	Description	LN instance name	LN class	Data
NEF1HIGH	Io>> trip		PTOC	OP
NEF1HIGH	CBFP of non-directional earth-fault protection function, high-set stage, I0>>	EFRBRF39	RBRF	
NEF1HIGH	Io>> CB failure protection operation mode		RBRF	MOD
NEF1HIGH	Io>> CB failure protection behaviour		RBRF	BEH
NEF1HIGH	Io>> CB failure protection status		RBRF	HEALTH
NEF1HIGH	Io>> CB failure protection name plate		RBRF	NAMPLT
NEF1HIGH	Io>> circuit breaker failure		RBRF	OPEX
NEF1INST	Non-directional earth-fault protection function, instantaneous stage, Io>>>	EFPTOC90	PTOC	
NEF1INST	Io>>> operation mode		PTOC	MOD
NEF1INST	Io>>> behaviour		PTOC	BEH
NEF1INST	Io>>> status		PTOC	HEALTH
NEF1INST	Io>>> name plate		PTOC	NAMPLT
NEF1INST	Io>>> start		PTOC	STR
NEF1INST	Io>>> trip		PTOC	OP
NEF1INST	CBFP of non-directional earth-fault protection function, instantaneous stage, Io>>>	EFRBRF90	RBRF	
NEF1INST	Io>>> CB failure protection operation mode		RBRF	MOD
NEF1INST	Io>>> CB failure protection behaviour		RBRF	BEH
NEF1INST	Io>>> CB failure protection status		RBRF	HEALTH
NEF1INST	Io>>> CB failure protection name plate		RBRF	NAMPLT
NEF1INST	Io>>> circuit breaker failure		RBRF	OPEX
NEF1LOW	Non-directional earth-fault protection function, low-set stage, Io>	EFPTOC38	PTOC	
NEF1LOW	Io> operation mode		PTOC	MOD
NEF1LOW	Io> behaviour		PTOC	BEH
NEF1LOW	Io> status		PTOC	HEALTH
NEF1LOW	Io> name plate		PTOC	NAMPLT
NEF1LOW	Io> start		PTOC	STR
NEF1LOW	Io> trip		PTOC	OP
NEF1LOW	CB failure protection of non-directional earth-fault protection function, low-set stage, Io>	EFRBRF38	RBRF	
NEF1LOW	Io> CB failure protection operation mode		RBRF	MOD
NEF1LOW	Io> CB failure protection behaviour		RBRF	BEH
NEF1LOW	Io> CB failure protection status		RBRF	HEALTH
NEF1LOW	Io> CB failure protection name plate		RBRF	NAMPLT
NEF1LOW	Io> circuit breaker failure		RBRF	OPEX

RED500 FB	Description	LN instance name	LN class	Data
NOC3HIGH	Three-phase non-directional overcurrent function, high-set stage, 3I>>	PHPTOC32	PTOC	
NOC3HIGH	3I>> operation mode		PTOC	MOD
NOC3HIGH	3I>> behaviour		PTOC	BEH
NOC3HIGH	3I>> status		PTOC	HEALTh
NOC3HIGH	3I>> name plate		PTOC	NAMPLT
NOC3HIGH	3I>> start		PTOC	STR
NOC3HIGH	3I>> trip		PTOC	OP
NOC3HIGH	CBFP of three-phase non-directional overcurrent function, high-set stage, 3I>>	PHRBRF32	RBRF	
NOC3HIGH	3I>> CB failure protection operation mode		RBRF	MOD
NOC3HIGH	3I>> CB failure protection behaviour		RBRF	BEH
NOC3HIGH	3I>> CB failure protection status		RBRF	HEALTh
NOC3HIGH	3I>> CB failure protection name plate		RBRF	NAMPLT
NOC3HIGH	3I>> circuit breaker failure		RBRF	OPEX
NOC3INST	Three-phase non-directional overcurrent protection function, instantaneous stage, 3I>>>	PHPTOC33	PTOC	
NOC3INST	3I>>> operation mode		PTOC	MOD
NOC3INST	3I>>> behaviour		PTOC	BEH
NOC3INST	3I>>> status		PTOC	HEALTh
NOC3INST	3I>>> name plate		PTOC	NAMPLT
NOC3INST	3I>>> start		PTOC	STR
NOC3INST	3I>>> trip		PTOC	OP
NOC3INST	Three-phase non-directional overcurrent protection function, instantaneous stage, 3I>>>	PHPIOC33	PIOC	
NOC3INST	3I>>> operation mode		PIOC	MOD
NOC3INST	3I>>> behaviour		PIOC	BEH
NOC3INST	3I>>> status		PIOC	HEALTh
NOC3INST	3I>>> name plate		PIOC	NAMPLT
NOC3INST	3I>>> start		PIOC	STR
NOC3INST	3I>>> trip		PIOC	OP
NOC3INST	CBFP of 3-phase non-directional overcurrent protection function, inst. stage, 3I>>>	PHRBRF33	RBRF	
NOC3INST	3I>>> CB failure protection operation mode		RBRF	MOD
NOC3INST	3I>>> CB failure protection behaviour		RBRF	BEH
NOC3INST	3I>>> CB failure protection status		RBRF	HEALTh
NOC3INST	3I>>> CB failure protection name plate		RBRF	NAMPLT
NOC3INST	3I>>> circuit breaker failure		RBRF	OPEX

RED500 FB	Description	LN instance name	LN class	Data
NOC3LOW	Three-phase non-directional overcurrent function, low-set stage, 3I>	PHPTOC31	PTOC	
NOC3LOW	3I> operation mode		PTOC	MOD
NOC3LOW	3I> behaviour		PTOC	BEH
NOC3LOW	3I> status		PTOC	HEALTh
NOC3LOW	3I> name plate		PTOC	NAMPLT
NOC3LOW	3I> start		PTOC	STR
NOC3LOW	3I> trip		PTOC	OP
NOC3LOW	CBFP of three-phase non-directional overcurrent function, low-set stage, 3I>	PHRBRF33	RBRF	
NOC3LOW	3I> CB failure protection operation mode		RBRF	MOD
NOC3LOW	3I> CB failure protection behaviour		RBRF	BEH
NOC3LOW	3I> CB failure protection status		RBRF	HEALTh
NOC3LOW	3I> CB failure protection name plate		RBRF	NAMPLT
NOC3LOW	3I> circuit breaker failure		RBRF	OPEX
OL3CAP	Three-phase overload protection for shunt capacitor banks, 3I>	OLCPTOC116	PTOC	
OL3CAP	3I> operation mode		PTOC	MOD
OL3CAP	3I> behaviour		PTOC	BEH
OL3CAP	3I> status		PTOC	HEALTH
OL3CAP	3I> name plate		PTOC	NAMPLT
OL3CAP	3I> start		PTOC	STR
OL3CAP	3I> trip		PTOC	OP
OL3CAP	3I> alarm		PTOC	OP1
OL3CAP	Circuit breaker failure protection of three-phase overload protection for capacitors, 3I>	OLCRBRF116	RBRF	
OL3CAP	3I> 3I< CB failure protection operation mode		RBRF	MOD
OL3CAP	3I> 3I< CB failure protection behaviour		RBRF	BEH
OL3CAP	3I> 3I< CB failure protection status		RBRF	HEALTH
OL3CAP	3I> 3I< CB failure protection name plate		RBRF	NAMPLT
OL3CAP	3I> 3I< circuit breaker failure		RBRF	OPEX
OL3CAP	Undercurrent protection for capacitor banks, 3I<	OLCPTUC116	PTUC	
OL3CAP	3I< operation mode		PTUC	MOD
OL3CAP	3I< behaviour		PTUC	BEH
OL3CAP	3I< status		PTUC	HEALTH
OL3CAP	3I< name plate		PTUC	NAMPLT
OL3CAP	3I< start		PTUC	STR
OL3CAP	3I< trip		PTUC	OP

RED500 FB	Description	LN instance name	LN class	Data
UV3LOW	Three-phase undervoltage, low-set stage, 3U<	PHPTUV64	PTUV	
UV3LOW	3U< operation mode		PTUV	MOD
UV3LOW	3U< behaviour		PTUV	BEH
UV3LOW	3U< status		PTUV	HEALTH
UV3LOW	3U< name plate		PTUV	NAMPLT
UV3LOW	3U< start		PTUV	STR
UV3LOW	3U< trip		PTUV	OP
UV3HIGH	Three-phase undervoltage, high-set stage, 3U<<	PHPTUV65	PTUV	
UV3HIGH	3U<< operation mode		PTUV	MOD
UV3HIGH	3U<< behaviour		PTUV	BEH
UV3HIGH	3U<< status		PTUV	HEALTH
UV3HIGH	3U<< name plate		PTUV	NAMPLT
UV3HIGH	3U<< start		PTUV	STR
UV3HIGH	3U<< trip		PTUV	OP
TOL3DEV	Three-phase thermal protection for devices, 3Ithdev>	DEVPTTR48	PTTR	
TOL3DEV	3Ithdev> operation mode		PTTR	MOD
TOL3DEV	3Ithdev> behaviour		PTTR	BEH
TOL3DEV	3Ithdev> status		PTTR	HEALTH
TOL3DEV	3Ithdev> name plate		PTTR	NAMPLT
TOL3DEV	3Ithdev> trip combined		PTTR	OP
TOL3DEV	3Ithdev> trip stator		PTTR	OP1
TOL3DEV	3Ithdev> trip rotor		PTTR	OP2
TOL3DEV	3Ithdev> thermal alarm		PTTR	ALMTHM
TOL3DEV	3Ithdev> thermal alarm stator		PTTR	ALMTHM1
TOL3DEV	3Ithdev> thermal alarm rotor		PTTR	ALMTHM2
TOL3CAB	Three-phase thermal protection for cables, 3Ith>	CABPTTR47	PTTR	
TOL3CAB	3Ith> operation mode		PTTR	MOD
TOL3CAB	3Ith> behaviour		PTTR	BEH
TOL3CAB	3Ith> status		PTTR	HEALTH
TOL3CAB	3Ith> name plate		PTTR	NAMPLT
TOL3CAB	3Ith> trip		PTTR	OP
TOL3CAB	3Ith> thermal alarm		PTTR	ALMTHM
PQCU3H	Current waveform distortion measurement, 3I~harm	PQMHAI512	MHAI	
PQCU3H	3I~harm operation mode		MHAI	MOD
PQCU3H	3I~harm behaviour		MHAI	BEH
PQCU3H	3I~harm status		MHAI	HEALTH
PQCU3H	3I~harm name plate		MHAI	NAMPLT
PQCU3H	3I~harm current total harmonic distortion		MHAI	THDA

RED500 FB	Description	LN instance name	LN class	Data
PQCU3H	3I~harm 3 s aver. value of total harmonic distortion (%)		MHAI	THDA1
PQCU3H	3I~harm short time sliding aver. value of total harmonic distortion (%)		MHAI	THDA2
PQVO3H	Voltage waveform distortion measurement, 3U~harm	PQMHAI513	MHAI	
PQVO3H	3U~harm operation mode		MHAI	MOD
PQVO3H	3U~harm behaviour		MHAI	BEH
PQVO3H	3U~harm status		MHAI	HEALTH
PQVO3H	3U~harm name plate		MHAI	NAMPLT
PQVO3H	3U~harm sequence of harmonics and interharmonics phase to phase voltages		MHAI	HPPV
PQVO3H	3U~harm current total harmonic or interharmonic distortion		MHAI	THDODDA
PSV3ST1	Negative-phase-sequence overvoltage protection, stage 1, U2>	NSPTOV112	PTOV	
PSV3ST1	U2> stage 1 operation mode		PTOV	MOD
PSV3ST1	U2> stage 1 behaviour		PTOV	BEH
PSV3ST1	U2> stage 1 status		PTOV	HEALTH
PSV3ST1	U2> stage 1 name plate		PTOV	NAMPLT
PSV3ST1	U2> start		PTOV	STR
PSV3ST1	U2> trip		PTOV	OP
PSV3ST1	Positive-phase-sequence undervoltage protection, stage 1, U1<	PSPTUV112	PTUV	
PSV3ST1	U1< stage 1 operation mode		PTUV	MOD
PSV3ST1	U1< stage 1 behaviour		PTUV	BEH
PSV3ST1	U1< stage 1 status		PTUV	HEALTH
PSV3ST1	U1< stage 1 name plate		PTUV	NAMPLT
PSV3ST1	U1< start		PTUV	STR
PSV3ST1	U1< trip		PTUV	OP
PSV3ST1	Positive-phase-sequence overvoltage protection, stage 1, U1>	PSPTOV112	PTOV	
PSV3ST1	U1> stage 1 operation mode		PTOV	MOD
PSV3ST1	U1> stage 1 behaviour		PTOV	BEH
PSV3ST1	U1> stage 1 status		PTOV	HEALTH
PSV3ST1	U1> stage 1 name plate		PTOV	NAMPLT
PSV3ST1	U1> start		PTOV	STR
PSV3ST1	U1> trip		PTOV	OP
PSV3ST2	Negative-phase-sequence overvoltage protection, stage 2, U2>	NSPTOV113	PTOV	
PSV3ST2	U2> stage 2 operation mode		PTOV	MOD
PSV3ST2	U2> stage 2 behaviour		PTOV	BEH
PSV3ST2	U2> stage 2 status		PTOV	HEALTH
PSV3ST2	U2> stage 2 name plate		PTOV	NAMPLT
PSV3ST2	U2> start		PTOV	STR

RED500 FB	Description	LN instance name	LN class	Data
PSV3ST2	U2> trip		PTOV	OP
PSV3ST2	Positive-phase-sequence undervoltage protection, stage 2, U1<	PSPTUV113	PTUV	
PSV3ST2	U1< stage 2 operation mode		PTUV	MOD
PSV3ST2	U1< stage 2 behaviour		PTUV	BEH
PSV3ST2	U1< stage 2 status		PTUV	HEALTH
PSV3ST2	U1< stage 2 name plate		PTUV	NAMPLT
PSV3ST2	U1< start		PTUV	STR
PSV3ST2	U1< trip		PTUV	OP
PSV3ST2	Positive-phase-sequence overvoltage protection, stage 2, U1>	PSPTOV113	PTOV	
PSV3ST2	U1> stage 2 operation mode		PTOV	MOD
PSV3ST2	U1> stage 2 behaviour		PTOV	BEH
PSV3ST2	U1> stage 2 status		PTOV	HEALTH
PSV3ST2	U1> stage 2 name plate		PTOV	NAMPLT
PSV3ST2	U1> start		PTOV	STR
PSV3ST2	U1> trip		PTOV	OP
ROV1HIGH	Residual overvoltage, high-set stage, Uo>>	RESPTOV45	PTOV	
ROV1HIGH	Uo>> operation mode		PTOV	MOD
ROV1HIGH	Uo>> behaviour		PTOV	BEH
ROV1HIGH	Uo>> status		PTOV	HEALTH
ROV1HIGH	Uo>> name plate		PTOV	NAMPLT
ROV1HIGH	Uo>> start		PTOV	STR
ROV1HIGH	Uo>> trip		PTOV	OP
ROV1INST	Residual overvoltage, instantaneous stage, Uo>>>	RESPTOV46	PTOV	
ROV1INST	Uo>>> operation mode		PTOV	MOD
ROV1INST	Uo>>> behaviour		PTOV	BEH
ROV1INST	Uo>>> status		PTOV	HEALTH
ROV1INST	Uo>>> name plate		PTOV	NAMPLT
ROV1INST	Uo>>> start		PTOV	STR
ROV1INST	Uo>>> trip		PTOV	OP
ROV1LOW	Residual overvoltage, low-set stage, Uo>	RESPTOV44	PTOV	
ROV1LOW	Uo> operation mode		PTOV	MOD
ROV1LOW	Uo> behaviour		PTOV	BEH
ROV1LOW	Uo> status		PTOV	HEALTH
ROV1LOW	Uo> name plate		PTOV	NAMPLT
ROV1LOW	Uo> start		PTOV	STR
ROV1LOW	Uo> trip		PTOV	OP
SCVCST1	Synchro-check/voltage check, stage 1, SYNC	RSYN70	RSYN	
SCVCST1	SYNC stage 1 operation mode		RSYN	MOD
SCVCST1	SYNC stage 1 behaviour		RSYN	BEH

RED500 FB	Description	LN instance name	LN class	Data
SCVCST1	SYNC stage 1 status		RSYN	HEALTH
SCVCST1	SYNC stage 1 name plate		RSYN	NAMPLT
SCVCST1	SYNC closing permission given		RSYN	REL
SCVCST2	Synchro-check/voltage check, stage 2, SYNC	RSYN71	RSYN	
SCVCST2	SYNC stage 2 operation mode		RSYN	MOD
SCVCST2	SYNC stage 2 behaviour		RSYN	BEH
SCVCST2	SYNC stage 2 status		RSYN	HEALTH
SCVCST2	SYNC stage 2 name plate		RSYN	NAMPLT
SCVCST2	SYNC closing permission given		RSYN	REL
DIFF6T	Stabilized three-phase differential protection for generators, 3DI>, 3DI>>	GENPDIF106	PDIF	
DIFF6T	Operation mode		PDIF	MOD
DIFF6T	Behaviour		PDIF	BEH
DIFF6T	Status		PDIF	HEALTH
DIFF6T	Name plate		PDIF	NAMPLT
DIFF6T	3DI> trip		PDIF	OP
DIFF6T	3DI>> trip		PDIF	OP1
DIFF6T	CB failure protection of stabilized three-phase differential protection for generators	GENRBRF106	RBRF	
DIFF6T	CB failure protection operation mode		RBRF	MOD
DIFF6T	CB failure protection behaviour		RBRF	BEH
DIFF6T	CB failure protection status		RBRF	HEALTH
DIFF6T	CB failure protection name plate		RBRF	NAMPLT
DIFF6T	3DI>/3DI>> circuit breaker failure		RBRF	OPEX
UE6HIGH	Three-phase underexcitation protection, high-set stage, X<<	PDIR67	PDIR	
UE6HIGH	X<< operation mode		PDIR	MOD
UE6HIGH	X<< behaviour		PDIR	BEH
UE6HIGH	X<< status		PDIR	HEALTH
UE6HIGH	X<< name plate		PDIR	NAMPLT
UE6HIGH	X<< start		PDIR	STR
UE6HIGH	X<< trip		PDIR	OP
UE6HIGH	Directional underpower of three-phase underexcitation protection, high-set stage, X<<	PDUP67	PDUP	
UE6HIGH	X<< operation mode		PDUP	MOD
UE6HIGH	X<< behaviour		PDUP	BEH
UE6HIGH	X<< status		PDUP	HEALTH
UE6HIGH	X<< name plate		PDUP	NAMPLT
UE6HIGH	X<< start		PDUP	STR
UE6HIGH	X<< operate		PDUP	OP

RED500 FB	Description	LN instance name	LN class	Data
UE6HIGH	CB failure protection of three-phase underexcitation protection, high-set stage, X<<	RBRF67	RBRF	
UE6HIGH	X<< CB failure protection operation mode		RBRF	MOD
UE6HIGH	X<< CB failure protection behaviour		RBRF	BEH
UE6HIGH	X<< CB failure protection status		RBRF	HEALTH
UE6HIGH	X<< CB failure protection name plate		RBRF	NAMPLT
UE6HIGH	X<< Circuit breaker failure		RBRF	OPEX
UE6LOW	Three-phase underexcitation protection, low-set stage, X<	UEPDIS66	PDIS	
UE6LOW	X< operation mode		PDIS	MOD
UE6LOW	X< behaviour		PDIS	BEH
UE6LOW	X< status		PDIS	HEALTH
UE6LOW	X< name plate		PDIS	NAMPLT
UE6LOW	X< start		PDIS	STR
UE6LOW	X< trip		PDIS	OP
UE6LOW	Circuit breaker failure protection of phase underexcitation protection, low-set stage, X<	UERBRF66	RBRF	
UE6LOW	X< CB failure protection operation mode		RBRF	MOD
UE6LOW	X< CB failure protection behaviour		RBRF	BEH
UE6LOW	X< CB failure protection status		RBRF	HEALTH
UE6LOW	X< CB failure protection name plate		RBRF	NAMPLT
UE6LOW	X< circuit breaker failure		RBRF	OPEX
UI6HIGH	Three-phase underimpedance protection, high-set stage, Z<<	PDIS111	PDIS	
UI6HIGH	Z<< operation mode		PDIS	MOD
UI6HIGH	Z<< behaviour		PDIS	BEH
UI6HIGH	Z<< status		PDIS	HEALTH
UI6HIGH	Z<< name plate		PDIS	NAMPLT
UI6HIGH	Z<< start		PDIS	STR
UI6HIGH	Z<< trip		PDIS	OP
UI6HIGH	CB failure protection of three-phase underimpedance protection, high-set stage, Z<<	RBRF111	RBRF	
UI6HIGH	Z<< CB failure protection operation mode		RBRF	MOD
UI6HIGH	Z<< CB failure protection behaviour		RBRF	BEH
UI6HIGH	Z<< CB failure protection status		RBRF	HEALTH
UI6HIGH	Z<< CB failure protection name plate		RBRF	NAMPLT
UI6HIGH	Z<< circuit breaker failure		RBRF	OPEX
UI6LOW	Three-phase underimpedance protection, low-set stage, Z<	UIPDIS110	PDIS	
UI6LOW	Z< operation mode		PDIS	MOD

RED500 FB	Description	LN instance name	LN class	Data
UI6LOW	Z< behaviour		PDIS	BEH
UI6LOW	Z< status		PDIS	HEALTH
UI6LOW	Z< name plate		PDIS	NAMPLT
UI6LOW	Z< start		PDIS	STR
UI6LOW	Z< trip		PDIS	OP
UI6LOW	CB failure protection of three-phase underimpedance protection, low-set stage, Z<	UIRBRF110	RBRF	
UI6LOW	Z< CB failure protection operation mode		RBRF	MOD
UI6LOW	Z< CB failure protection behaviour		RBRF	BEH
UI6LOW	Z< CB failure protection status		RBRF	HEALTH
UI6LOW	Z< CB failure protection name plate		RBRF	NAMPLT
UI6LOW	Z< circuit breaker failure		RBRF	OPEX
UPOW6ST1	Three-phase underpower or rewerse power, stage 1, S>	PHPDIR95	PDIR	
UPOW6ST1	S> operation mode		PDIR	MOD
UPOW6ST1	S> behaviour		PDIR	BEH
UPOW6ST1	S> status		PDIR	HEALTH
UPOW6ST1	S> name plate		PDIR	NAMPLT
UPOW6ST1	S> start		PDIR	STR
UPOW6ST1	S> trip		PDIR	OP
UPOW6ST1	Directional underpower, S>	PHPDUP95	PDUP	
UPOW6ST1	S> operation mode		PDUP	MOD
UPOW6ST1	S> behaviour		PDUP	BEH
UPOW6ST1	S> status		PDUP	HEALTH
UPOW6ST1	S> name plate		PDUP	NAMPLT
UPOW6ST1	S> start		PDUP	STR
UPOW6ST1	S> trip		PDUP	OP
UPOW6ST1	CB failure protection of three-phase underpower or rewerse power, stage 1, S>	PHRBRF95	RBRF	
UPOW6ST1	S> CB failure protection operation mode		RBRF	MOD
UPOW6ST1	S> CB failure protection behaviour		RBRF	BEH
UPOW6ST1	S> CB failure protection status		RBRF	HEALTH
UPOW6ST1	S> CB failure protection name plate		RBRF	NAMPLT
UPOW6ST1	S> circuit breaker failure		RBRF	OPEX
UPOW6ST2	Three-phase underpower or rewerse power, stage 2, S>	PHPDIR96	PDIR	
UPOW6ST2	S> operation mode		PDIR	MOD
UPOW6ST2	S> behaviour		PDIR	BEH
UPOW6ST2	S> status		PDIR	HEALTH
UPOW6ST2	S> name plate		PDIR	NAMPLT
UPOW6ST2	S> start		PDIR	STR
UPOW6ST2	S> trip		PDIR	OP

RED500 FB	Description	LN instance name	LN class	Data
UPOW6ST2	Directional underpower, S>	PHPDUP96	PDUP	
UPOW6ST2	S> operation mode		PDUP	MOD
UPOW6ST2	S> behaviour		PDUP	BEH
UPOW6ST2	S> status		PDUP	HEALTH
UPOW6ST2	S> name plate		PDUP	NAMPLT
UPOW6ST2	S> start		PDUP	STR
UPOW6ST2	S> trip		PDUP	OP
UPOW6ST2	CB failure protection of three-phase underpower or rewerse power, stage 2, S>	PHRBRF96	RBRF	
UPOW6ST2	S> CB failure protection operation mode		RBRF	MOD
UPOW6ST2	S> CB failure protection behaviour		RBRF	BEH
UPOW6ST2	S> CB failure protection status		RBRF	HEALTH
UPOW6ST2	S> CB failure protection name plate		RBRF	NAMPLT
UPOW6ST2	S> circuit breaker failure		RBRF	OPEX
UPOW6ST3	Three-phase underpower or rewerse power, stage 3, S>	PHPDIR97	PDIR	
UPOW6ST3	S> operation mode		PDIR	MOD
UPOW6ST3	S> behaviour		PDIR	BEH
UPOW6ST3	S> status		PDIR	HEALTH
UPOW6ST3	S> name plate		PDIR	NAMPLT
UPOW6ST3	S> start		PDIR	STR
UPOW6ST3	S> operate		PDIR	OP
UPOW6ST3	Directional underpower, S>	PHPDUP97	PDUP	
UPOW6ST3	S> operation mode		PDUP	MOD
UPOW6ST3	S> behaviour		PDUP	BEH
UPOW6ST3	S> status		PDUP	HEALTH
UPOW6ST3	S> name plate		PDUP	NAMPLT
UPOW6ST3	S> start		PDUP	STR
UPOW6ST3	S> trip		PDUP	OP
UPOW6ST3	CB failure protection of three-phase underpower or rewerse power, stage 3, S>	PHRBRF97	RBRF	
UPOW6ST3	S> CB failure protection operation mode		RBRF	MOD
UPOW6ST3	S> CB failure protection behaviour		RBRF	BEH
UPOW6ST3	S> CB failure protection status		RBRF	HEALTH
UPOW6ST3	S> CB failure protection name plate		RBRF	NAMPLT
UPOW6ST3	S> circuit breaker failure		RBRF	OPEX
VOC6HIGH	Voltage-dependent overcurrent, high-set stage, I(U)>>	PVOC107	PVOC	
VOC6HIGH	I(U)>> operation mode		PVOC	MOD
VOC6HIGH	I(U)>> behaviour		PVOC	BEH
VOC6HIGH	I(U)>> status		PVOC	HEALTH
VOC6HIGH	I(U)>> name plate		PVOC	NAMPLT

RED500 FB	Description	LN instance name	LN class	Data
VOC6HIGH	I(U)>> start		PVOC	STR
VOC6HIGH	I(U)>> trip		PVOC	OP
VOC6HIGH	Circuit breaker failure protection of votage-dependent overcurrent, high-set stage, I(U)>>	RBRF107	RBRF	
VOC6HIGH	I(U)>> CB failure protection operation mode		RBRF	MOD
VOC6HIGH	I(U)>> CB failure protectionbehaviour		RBRF	BEH
VOC6HIGH	I(U)>> CB failure protection status		RBRF	HEALTH
VOC6HIGH	I(U)>> CB failure protection name plate		RBRF	NAMPLT
VOC6HIGH	I(U)>> circuit breaker failure		RBRF	OPEX
VOC6LOW	Voltage-dependent overcurrent, high-set stage, I(U)>	PHPVOC91	PVOC	
VOC6LOW	I(U)> operation mode		PVOC	MOD
VOC6LOW	I(U)> behaviour		PVOC	BEH
VOC6LOW	I(U)> status		PVOC	HEALTH
VOC6LOW	I(U)> name plate		PVOC	NAMPLT
VOC6LOW	I(U)> start		PVOC	STR
VOC6LOW	I(U)> trip		PVOC	OP
VOC6LOW	Circuit breaker failure protection of voltage-dependent overcurrent, high-set stage, I(U)>	PHRBRF91	RBRF	
VOC6LOW	I(U)> CB failure protection operation mode		RBRF	MOD
VOC6LOW	I(U)> CB failure protection behaviour		RBRF	BEH
VOC6LOW	I(U)> CB failure protection status		RBRF	HEALTH
VOC6LOW	I(U)> CB failure protection name plate		RBRF	NAMPLT
VOC6LOW	I(U)> circuit breaker failure		RBRF	OPEX
REF4A	Stabilized restricted earth-fault protection (high voltage side), DIoa>	REFPDIF101	PDIF	
REF4A	DIoa> operation mode		PDIF	MOD
REF4A	DIoa> behaviour		PDIF	BEH
REF4A	DIoa> status		PDIF	HEALTH
REF4A	DIoa> name plate		PDIF	NAMPLT
REF4A	DIoa> start		PDIF	STR
REF4A	DIoa> trip		PDIF	OP
REF4A	CBFP of stabilized restricted earth-fault protection (high voltage side), DIoa>	REFRBRF101	RBRF	
REF4A	DIoa> CB failure protection operation mode		RBRF	MOD
REF4A	DIoa> CB failure protection behaviour		RBRF	BEH
REF4A	DIoa> CB failure protection status		RBRF	HEALTH
REF4A	DIoa> CB failure protection name plate		RBRF	NAMPLT
REF4A	DIoa> circuit breaker failure		RBRF	OPEX

RED500 FB	Description	LN instance name	LN class	Data
REF4B	Stabilized restricted earth-fault protection (low voltage side), DIob>	REFPDIF119	PDIF	
REF4B	DIob> operation mode		PDIF	MOD
REF4B	DIob> behaviour		PDIF	BEH
REF4B	DIob> status		PDIF	HEALTH
REF4B	DIob> name plate		PDIF	NAMPLT
REF4B	DIob> start		PDIF	STR
REF4B	DIob> trip		PDIF	OP
REF4B	CBFP of stabilized restricted earth-fault protection (low voltage side), DIoa>	REFRBRF119	RBRF	
REF4B	DIob> CB failure protection operation mode		RBRF	MOD
REF4B	DIob> CB failure protection behaviour		RBRF	BEH
REF4B	DIob> CB failure protection status		RBRF	HEALTH
REF4B	DIob> CB failure protection name plate		RBRF	NAMPLT
REF4B	DIob> circuit breaker failure		RBRF	OPEX
REF1A	High-impedance based restricted earth-fault protection, dIo>	REFPDIF102	PDIF	
REF1A	dIo> operation mode		PDIF	MOD
REF1A	dIo> behaviour		PDIF	BEH
REF1A	dIo> status		PDIF	HEALTH
REF1A	dIo> name plate		PDIF	NAMPLT
REF1A	dIo> trip		PDIF	OP
REF1A	CB failure protection of three-phase underimpedance protection, low-set stage, Z<	REFRBRF102	RBRF	
REF1A	Z< CB failure protection operation mode		RBRF	MOD
REF1A	Z< CB failure protection behaviour		RBRF	BEH
REF1A	Z< CB failure protection status		RBRF	HEALTH
REF1A	Z< CB failure protection name plate		RBRF	NAMPLT
REF1A	Z< circuit breaker failure		RBRF	OPEX
OE1LOW	Overexcitation protection, low-set stage, U/f>	PVPH68	PVPH	
OE1LOW	U/f> operation mode		PVPH	MOD
OE1LOW	U/f> behaviour		PVPH	BEH
OE1LOW	U/f> status		PVPH	HEALTH
OE1LOW	U/f> name plate		PVPH	NAMPLT
OE1LOW	U/f> start		PVPH	STR
OE1LOW	U/f> trip		PVPH	OP
OE1LOW	Circuit breaker failure protection of overexcitation protection, low-set stage, U/f>	RBRF68	RBRF	
OE1LOW	U/f> CB failure protection operation mode		RBRF	MOD

RED500 FB	Description	LN instance name	LN class	Data
OE1LOW	U/f> CB failure protection behaviour		RBRF	BEH
OE1LOW	U/f> CB failure protection status		RBRF	HEALTH
OE1LOW	U/f> CB failure protection name plate		RBRF	NAMPLT
OE1LOW	U/f> circuit breaker failure		RBRF	OPEX
OE1HIGH	Overexcitation protection, high-set stage, U/f>>	PVPH69	PVPH	
OE1HIGH	U/f>> operation mode		PVPH	MOD
OE1HIGH	U/f>> behaviour		PVPH	BEH
OE1HIGH	U/f>> status		PVPH	HEALTH
OE1HIGH	U/f>> name plate		PVPH	NAMPLT
OE1HIGH	U/f>> start		PVPH	STR
OE1HIGH	U/f>> trip		PVPH	OP
OE1HIGH	Circuit breaker failure protection of overexcitation protection, high-set stage, U/f>>	RBRF69	RBRF	
OE1HIGH	U/f>> CB failure protection operation mode		RBRF	MOD
OE1HIGH	U/f>> CB failure protection behaviour		RBRF	BEH
OE1HIGH	U/f>> CB failure protection status		RBRF	HEALTH
OE1HIGH	U/f>> CB failure protection name plate		RBRF	NAMPLT
OE1HIGH	U/f>> circuit breaker failure		RBRF	OPEX
NPS3LOW	Negative-phase-sequence (NPS) protection, low-set stage, I2>	NSPTOC77	PTOC	
NPS3LOW	I2> operation mode		PTOC	MOD
NPS3LOW	I2> behaviour		PTOC	BEH
NPS3LOW	I2> status		PTOC	HEALTH
NPS3LOW	I2> name plate		PTOC	NAMPLT
NPS3LOW	I2> start		PTOC	STR
NPS3LOW	I2> trip		PTOC	OP
NPS3LOW	CB failure protection of negative-phase-sequence (NPS) protection, low-set stage, I2>	NSRBRF77	RBRF	
NPS3LOW	I2> CB failure protection operation mode		RBRF	MOD
NPS3LOW	I2> CB failure protection behaviour		RBRF	BEH
NPS3LOW	I2> CB failure protection status		RBRF	HEALTH
NPS3LOW	I2> CB failure protection name plate		RBRF	NAMPLT
NPS3LOW	I2> circuit breaker failure		RBRF	OPEX
NPS3HIGH	Negative-phase-sequence (NPS) protection, high-set stage, I2>>	NSPTOC78	PTOC	
NPS3HIGH	I2>> operation mode		PTOC	MOD
NPS3HIGH	I2>> behaviour		PTOC	BEH
NPS3HIGH	I2>> status		PTOC	HEALTH
NPS3HIGH	I2>> name plate		PTOC	NAMPLT
NPS3HIGH	I2>> start		PTOC	STR

RED500 FB	Description	LN instance name	LN class	Data
NPS3HIGH	I2>> trip		PTOC	OP
NPS3HIGH	CB failure protection of negative-phase-sequence (NPS) protection, high-set stage, I2>>	NSRBRF78	RBRF	
NPS3HIGH	I2>> CB failure protection operation mode		RBRF	MOD
NPS3HIGH	I2>> CB failure protection behaviour		RBRF	BEH
NPS3HIGH	I2>> CB failure protection status		RBRF	HEALTH
NPS3HIGH	I2>> CB failure protection name plate		RBRF	NAMPLT
NPS3HIGH	I2>> circuit breaker failure		RBRF	OPEX
NOC3LOWB	Three-phase non-directional overcurrent function, low-set stage, 3I>	PHPTOC53	PTOC	
NOC3LOWB	3I> operation mode		PTOC	MOD
NOC3LOWB	3I> behaviour		PTOC	BEH
NOC3LOWB	3I> status		PTOC	HEALTH
NOC3LOWB	3I> name plate		PTOC	NAMPLT
NOC3LOWB	3I> start		PTOC	STR
NOC3LOWB	3I> trip		PTOC	OP
NOC3LOWB	CBFP of three-phase non-directional overcurrent function, low-set stage, 3I>	PHRBRF53	RBRF	
NOC3LOWB	3I> operation mode		RBRF	MOD
NOC3LOWB	3I> behaviour		RBRF	BEH
NOC3LOWB	3I> status		RBRF	HEALTH
NOC3LOWB	3I> name plate		RBRF	NAMPLT
NOC3LOWB	3I> circuit breaker failure		RBRF	OPEX
DIFF6G	Stabilized three-phase differential protection for generators, 3DI>, 3DI>>	GENPDIF99	PDIF	
DIFF6G	3DI>/3DI>> operation mode		PDIF	MOD
DIFF6G	3DI>/3DI>> behaviour		PDIF	BEH
DIFF6G	3DI>/3DI>> status		PDIF	HEALTH
DIFF6G	3DI>/3DI>> name plate		PDIF	NAMPLT
DIFF6G	3DI> trip		PDIF	OP
DIFF6G	3DI>> trip		PDIF	OP1
DIFF6G	CB failure protection of stabilized three-phase differential protection for generators	GENRBRF99	RBRF	
DIFF6G	CB failure protection operation mode		RBRF	MOD
DIFF6G	CB failure protection behaviour		RBRF	BEH
DIFF6G	CB failure protection status		RBRF	HEALTH
DIFF6G	CB failure protection name plate		RBRF	NAMPLT
DIFF6G	3DI>/3DI>> circuit breaker failure		RBRF	OPEX
DIFF3	High-impedance based differential protection for generators and motors, 3DI>	HIZPDIF100	PDIF	

RED500 FB	Description	LN instance name	LN class	Data
DIFF3	3DI> operation mode		PDIF	MOD
DIFF3	3DI> behaviour		PDIF	BEH
DIFF3	3DI> status		PDIF	HEALTH
DIFF3	3DI> name plate		PDIF	NAMPLT
DIFF3	3DI> start		PDIF	STR
DIFF3	3DI> trip		PDIF	OP
DIFF3	CBFP of high-impedance based differential protection for generators and motors	HIZRBRF100	RBRF	
DIFF3	CB failure protection operation mode		RBRF	MOD
DIFF3	CB failure protection behaviour		RBRF	BEH
DIFF3	CB failure protection status		RBRF	HEALTH
DIFF3	CB failure protection name plate		RBRF	NAMPLT
DIFF3	3DI> circuit breaker failure		RBRF	OPEX
NUC3ST1	Three-phase non-directional undercurrent protection, stage 1, 3I<	PHPTUC88	PTUC	
NUC3ST1	3I< stage 1 operation mode		PTUC	MOD
NUC3ST1	3I< stage 1 behaviour		PTUC	BEH
NUC3ST1	3I< stage 1 status		PTUC	HEALTH
NUC3ST1	3I< stage 1 name plate		PTUC	NAMPLT
NUC3ST1	3I< stage 1 start		PTUC	STR
NUC3ST1	3I< stage 1 trip		PTUC	OP
NUC3ST1	3I< stage 1 alarm		PTUC	OP1
NUC3ST1	CB failure protection of three-phase non-directional undercurrent protection, stage 1, 3I<	PHRBRF88	RBRF	
NUC3ST1	3I< stage 1 CB failure protection operation mode		RBRF	MOD
NUC3ST1	3I< stage 1 CB failure protection behaviour		RBRF	BEH
NUC3ST1	3I< stage 1 CB failure protection status		RBRF	HEALTH
NUC3ST1	3I< stage 1 CB failure protection name plate		RBRF	NAMPLT
NUC3ST1	3I< stage 1 circuit breaker failure		RBRF	OPEX
NUC3ST2	Three-phase non-directional undercurrent protection, stage 2, 3I<	PHPTUC89	PTUC	
NUC3ST2	3I< stage 2 operation mode		PTUC	MOD
NUC3ST2	3I< stage 2 behaviour		PTUC	BEH
NUC3ST2	3I< stage 2 status		PTUC	HEALTH
NUC3ST2	3I< stage 2 name plate		PTUC	NAMPLT
NUC3ST2	3I< stage 2 start		PTUC	STR
NUC3ST2	3I< stage 2 trip		PTUC	OP
NUC3ST2	3I< stage 2 alarm		PTUC	OP1
NUC3ST2	CBFP of three-phase non-directional undercurrent protection, stage 2, 3I<	PHRBRF89	RBRF	

RED500 FB	Description	LN instance name	LN class	Data
NUC3ST2	3I< stage 2 CB failure protection operation mode		RBRF	MOD
NUC3ST2	3I< stage 2 CB failure protection behaviour		RBRF	BEH
NUC3ST2	3I< stage 2 CB failure protection status		RBRF	HEALTH
NUC3ST2	3I< stage 2 CB failure protection name plate		RBRF	NAMPLT
NUC3ST2	3I< stage 2 circuit breaker failure		RBRF	OPEX
OPOW6ST1	Three-phase directional overpower, stage 1, S>	PHPDIR92	PDIR	
OPOW6ST1	S> stage 1 operation mode		PDIR	MOD
OPOW6ST1	S> stage 1 behaviour		PDIR	BEH
OPOW6ST1	S> stage 1 status		PDIR	HEALTH
OPOW6ST1	S> stage 1 name plate		PDIR	NAMPLT
OPOW6ST1	S> stage 1 start		PDIR	STR
OPOW6ST1	S> stage 1 trip		PDIR	OP
OPOW6ST1	Three-phase directional overpower, stage 1, S>	PHPDOP92	PDOP	
OPOW6ST1	S> stage 1 operation mode		PDOP	MOD
OPOW6ST1	S> stage 1 behaviour		PDOP	BEH
OPOW6ST1	S> stage 1 status		PDOP	HEALTH
OPOW6ST1	S> stage 1 name plate		PDOP	NAMPLT
OPOW6ST1	S> stage 1 start		PDOP	STR
OPOW6ST1	S> stage 1 trip		PDOP	OP
OPOW6ST1	Circuit breaker failure protection of three-phase directional overpower, stage 1, S>	PHRBRF92	RBRF	
OPOW6ST1	S> stage 1 CB failure protection operation mode		RBRF	MOD
OPOW6ST1	S> stage 1 CB failure protection behaviour		RBRF	BEH
OPOW6ST1	S> stage 1 CB failure protection status		RBRF	HEALTH
OPOW6ST1	S> stage 1 CB failure protection name plate		RBRF	NAMPLT
OPOW6ST1	S> stage 1 circuit breaker failure		RBRF	OPEX
OPOW6ST2	Three-phase directional overpower, stage 2, S>	PHPDIR93	PDIR	
OPOW6ST2	S> stage 2 operation mode		PDIR	MOD
OPOW6ST2	S> stage 2 behaviour		PDIR	BEH
OPOW6ST2	S> stage 2 status		PDIR	HEALTH
OPOW6ST2	S> stage 2 name plate		PDIR	NAMPLT
OPOW6ST2	S> stage 2 start		PDIR	STR
OPOW6ST2	S> stage 2 trip		PDIR	OP
OPOW6ST2	Three-phase directional overpower, stage 2, S>	PHPDOP93	PDOP	

RED500 FB	Description	LN instance name	LN class	Data
OPOW6ST2	S> stage 2 operation mode		PDOP	MOD
OPOW6ST2	S> stage 2 behaviour		PDOP	BEH
OPOW6ST2	S> stage 2 status		PDOP	HEALTH
OPOW6ST2	S> stage 2 name plate		PDOP	NAMPLT
OPOW6ST2	S> stage 2 start		PDOP	STR
OPOW6ST2	S> stage 2 trip		PDOP	OP
OPOW6ST2	Circuit breaker failure protection of three-phase directional overpower, stage 2, S>	PHRBRF93	RBRF	
OPOW6ST2	S> stage 2 CB failure protection operation mode		RBRF	MOD
OPOW6ST2	S> stage 2 CB failure protection behaviour		RBRF	BEH
OPOW6ST2	S> stage 2 CB failure protection status		RBRF	HEALTH
OPOW6ST2	S> stage 2 CB failure protection name plate		RBRF	NAMPLT
OPOW6ST2	S> stage 2 circuit breaker failure		RBRF	OPEX
OPOW6ST3	Three-phase directional overpower, stage 3, S>	PHPDIR94	PDIR	
OPOW6ST3	S> stage 3 operation mode		PDIR	MOD
OPOW6ST3	S> stage 3 behaviour		PDIR	BEH
OPOW6ST3	S> stage 3 status		PDIR	HEALTH
OPOW6ST3	S> stage 3 name plate		PDIR	NAMPLT
OPOW6ST3	S> stage 3 start		PDIR	STR
OPOW6ST3	S> stage 3 trip		PDIR	OP
OPOW6ST3	Three-phase directional overpower, stage 3, S>	PHPDOP94	PDOP	
OPOW6ST3	S> stage 3 operation mode		PDOP	MOD
OPOW6ST3	S> stage 3 behaviour		PDOP	BEH
OPOW6ST3	S> stage 3 status		PDOP	HEALTH
OPOW6ST3	S> stage 3 name plate		PDOP	NAMPLT
OPOW6ST3	S> stage 3 start		PDOP	STR
OPOW6ST3	S> stage 3 trip		PDOP	OP
OPOW6ST3	Circuit breaker failure protection of three-phase directional overpower, stage 3, S>	PHRBRF94	RBRF	
OPOW6ST3	S> stage 3 CB failure protection operation mode		RBRF	MOD
OPOW6ST3	S> stage 3 CB failure protection behaviour		RBRF	BEH
OPOW6ST3	S> stage 3 CB failure protection status		RBRF	HEALTH
OPOW6ST3	S> stage 3 CB failure protection name plate		RBRF	NAMPLT
OPOW6ST3	S> stage 3 circuit breaker failure		RBRF	OPEX
PREV3	Phase reversal protection, 3Irev	PRVPPAM55	PPAM	

RED500 FB	Description	LN instance name	LN class	Data
PREV3	3Irev operation mode		PPAM	MOD
PREV3	3Irev behaviour		PPAM	BEH
PREV3	3Irev status		PPAM	HEALTH
PREV3	3Irev name plate		PPAM	NAMPLT
PREV3	3Irev start		PPAM	STR
PREV3	3Irev trip		PPAM	OP
FLOC	Fault locator, FLOC	LCTRRFLO58	RFLO	
FLOC	FLOC operation mode		RFLO	MOD
FLOC	FLOC behaviour		RFLO	BEH
FLOC	FLOC status		RFLO	HEALTH
FLOC	FLOC name plate		RFLO	NAMPLT
FLOC	FLOC fault loop R		RFLO	FLTR
FLOC	FLOC fault loop X		RFLO	FLTX
FLOC	FLOC fault resistance		RFLO	FLTRF
FLOC	FLOC fault distance		RFLO	FLTDISKM
FLOC	FLOC fault loop		RFLO	FLTLOOP
FLOC	FLOC output alarm		RFLO	FLTDISALM
FLOC	FLOC output trigg		RFLO	TRG
PQVO3SD	Short duration voltage variation, PQ 3U<>	UVQVVR514	QVVR	
PQVO3SD	PQ 3U<> operation mode		QVVR	MOD
PQVO3SD	PQ 3U<> behaviour		QVVR	BEH
PQVO3SD	PQ 3U<> status		QVVR	HEALTH
PQVO3SD	PQ 3U<> name plate		QVVR	NAMPLT
PQVO3SD	PQ 3U<> start (voltage variation event in progress)		QVVR	STR
PQVO3SD	PQ 3U<> start (voltage swell event in progress)		QVVR	SWLSTR
PQVO3SD	PQ 3U<> start (voltage dip event in progress)		QVVR	DIPSTR
PQVO3SD	PQ 3U<> start (voltage interruption event in progress)		QVVR	INTSTR
MEDREC16	Disturbance recorder function, MEDREC	RDRE225	RDRE	
MEDREC16	MEDREC operation mode		RDRE	MOD
MEDREC16	MEDREC behaviour		RDRE	BEH
MEDREC16	MEDREC status		RDRE	HEALTH
MEDREC16	MEDREC name plate		RDRE	NAMPLT
MEDREC16	MEDREC Recording made		RDRE	RCDMADE
MEDREC16	MEDREC fault number		RDRE	FLTNUM

6.2. Logical node mapping for REU 610, REF 610 and REM 610

Table 6.2.-1 LN mapping for REU 610

Function	Logical Node Prefix	Logical Node Class	Logical Node Instance	Description
Protection				
U>	DO	PTOV	1	Overvoltage protection, low-set stage
U>>	DO	PTOV	2	Overvoltage protection, high-set stage
U_2>	DO	PTOV	2	Negative phase-sequence overvoltage protection
U<	DU	PTUV	1	Undervoltage protection, low-set stage
U<<	DU	PTUV	2	Undervoltage protection, high-set stage
U_1<	DU	PTUV	2	Positive phase-sequence undervoltage protection
U_0>	ZS	PTOV	3	Residual overvoltage protection, low-set stage
U_0>>	ZS	PTOV	4	Residual overvoltage protection, high-set stage
CBFP		RBRF	1	Circuit-breaker failure protection
Measurements				
U_{12}	U	MMXU	1	Measured phase-to-phase voltage U_{12}
U_{23}	U	MMXU	1	Measured phase-to-phase voltage U_{23}
U_{31}	U	MMXU	1	Measured phase-to-phase voltage U_{31}
U_0	U	MMXU	1	Measured residual voltage U_0
U_{1s}		MSQI	1	Positive phase-sequence voltage
U_{2s}		MSQI	1	Negative phase-sequence voltage
DR		RDRE	1	Disturbance recorder function

Table 6.2.-2 LN mapping for REF 610

Function	Logical Node Prefix	Logical Node Class	Logical Node Instance	Description
Protection				
I>	PH	PTOC	1	Three-phase non-directional overcurrent protection, low-set stage
I>>	PH	PTOC	2	Three-phase non-directional overcurrent protection, high-set stage
I>>>	PH	PIOC	1	Three-phase non-directional overcurrent protection, instantaneous stage
ΔI>	CUB	PTOC	5	Phase discontinuity protection
θ>	CAB	PTTR	1	Three-phase thermal overload protection for cables
I_0>	EF	PTOC	3	Non-directional earth-fault protection, low-set stage
I_0>>	EF	PTOC	4	Non-directional earth-fault protection, high-set stage
ARC		SARC	1	ARC protection
CBFP		RBRF	1	Circuit-breaker failure protection

Function	Logical Node Prefix	Logical Node Class	Logical Node Instance	Description
0→1		RREC	1	Automatic reclosing
ARC		PIOC	2	Light detected
Measurements				
L_1	I	MMXU	1	Current measured on phase IL_1
L_2	I	MMXU	1	Current measured on phase IL_2
L_3	I	MMXU	1	Current measured on phase IL_3
DR		RDRE	1	Disturbance recorder function

Table 6.2.-3 LN mapping for REM 610

Function	Logical Node Prefix	Logical Node Class	Logical Node Instance	Description
Protection				
θ>	TOL	PTTR	1	Thermal overload protection
I_s^2 x t_s or I_s	S	PMSS	1	Start-up supervision
I>>	SC	PTOC	1	Short-circuit protection
I<	UI	PTUC	1	Undercurrent protection
I_0>	EF	PTOC	2	Earth-fault protection
I_2>	CUB	PTOC	3	Unbalance protection
REV	PRV	PPAM	1	Phase reversal protection
Σt_s	CS	PMRI	1	Cumulative start-up time counter
CBFP	CB	RBRF	1	Circuit-breaker failure protection
ThA>	T	PTTR	2	Temperature protection
ThB>	T	PTTR	2	Temperature protection
Measurements				
I_{L1}	I	MMXU	1	Current measured on phase I_{L1}
I_{L2}	I	MMXU	1	Current measured on phase I_{L2}
I_{L3}	I	MMXU	1	Current measured on phase I_{L3}
I_0	I	MMXU	1	Measured earth-fault current
DR		RDRE	1	Disturbance recorder function

6.2.1. REU 610 logical node naming and mapping to IEC 61850

Table 6.2.1.-1 REU 610 logical node naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
REU 610	Logical node zero	LLN0	LN0	
REU 610	Operation mode		LN0	MOD
REU 610	Behaviour		LN0	BEH
REU 610	Status		LN0	HEALTH
REU 610	ABB		LN0	NAMPLT
REU 610	LPHD logical node	LPHD1	LPHD	
REU 610	Physical device name plate		LPHD	PHYNAM
REU 610	Physical device health		LPHD	PHYHEALTH
REU 610	Input communication buffer overflow		LPHD	INOV
REU 610	Indicates if this LD is a proxy		LPHD	PROXY
U12U23U31	Three-phase voltage measurement	UMMXU1	MMXU	
U12U23U31	Measurement operation mode		MMXU	MOD
U12U23U31	Measurement behaviour		MMXU	BEH
U12U23U31	Measurement status		MMXU	HEALTH
U12U23U31	Measurement name plate		MMXU	NAMPLT
U12U23U31	Phase to phase voltages		MMXU	PPV
U12U23U31	Phase to ground voltages		MMXU	PHV
U1sU2s	Positive, negative and zero sequence voltage	MSQI1	MSQI	
U1sU2s	Positive-negative-phase-sequency voltage operation mode		MSQI	MOD
U1sU2s	Positive-negative-phase-sequency voltage behaviour		MSQI	BEH
U1sU2s	Positive-negative phase sequency voltage status		MSQI	HEALTH
U1sU2s	Positive-negative phase sequency voltage name plate		MSQI	NAMPLT
U1sU2s	Positive-negative-phase-sequency voltage		MSQI	SEQV
U>	Definite or inverse-time overvoltage protection, low-set stage U>	DOPTOV1	PTOV	
U>	U> operation mode		PTOV	MOD
U>	U> behaviour		PTOV	BEH
U>	U> status		PTOV	HEALTH
U>	U> name plate		PTOV	NAMPLT
U>	U> start		PTOV	STR
U>	U> trip		PTOV	OP
U>>	Definite or inverse-time overvoltage protection, high-set stage U>> or U2>	DOPTOV2	PTOV	
U>>	U>> or U2> operation mode		PTOV	MOD
U>>	U>> or U2> behavioiur		PTOV	BEH
U>>	U>> or U2>; status		PTOV	HEALTH
U>>	U>> or U2> name plate		PTOV	NAMPLT

Function	Description	LN instance name	LN class	Data
U>>	U>> or U2> start		PTOV	STR
U>>	U>> or U2> trip		PTOV	OP
U<	Definite or inverse-time undervoltage protection, low-set stage U<	DUPTUV1	PTUV	
U<	U< operation mode		PTUV	MOD
U<	U< behaviour		PTUV	BEH
U<	U< status		PTUV	HEALTH
U<	U< name plate		PTUV	NAMPLT
U<	U< start		PTUV	STR
U<	U< trip		PTUV	OP
U<< or U1<	Definite or inverse-time undervoltage protection, low-set stage U<< or U1<	DUPTUV2	PTUV	
U<< or U1<	U<< or U1< operation mode		PTUV	MOD
U<< or U1<	U<< or U1< behaviour		PTUV	BEH
U<< or U1<	U<< or U1< status		PTUV	HEALTH
U<< or U1<	U<< or U1< name plate		PTUV	NAMPLT
U<< or U1<	U<< or U1< start		PTUV	STR
U<< or U1<	U<< or U1< trip		PTUV	OP
Uo>	Definite time residual voltage protection, low-set stage Uo>	ZSPTOV3	PTOV	
Uo>	Uo> operation mode		PTOV	MOD
Uo>	Uo> behaviour		PTOV	BEH
Uo>	Uo> status		PTOV	HEALTH
Uo>	Uo> name plate		PTOV	NAMPLT
Uo>	Uo> start		PTOV	STR
Uo>	Uo> trip		PTOV	OP
Uo>>	Definite time residual voltage protection, high-set stage Uo>>	ZSPTOV4	PTOV	
Uo>>	Uo>> operation mode		PTOV	MOD
Uo>>	Uo>> behaviour		PTOV	BEH
Uo>>	Uo>> status		PTOV	HEALTH
Uo>>	Uo>> name plate		PTOV	NAMPLT
Uo>>	Uo>> start		PTOV	STR
Uo>>	Uo>> trip		PTOV	OP
CBFP	Circuit breaker failure protection	RBRF1	RBRF	
CBFP	CB operation mode		RBRF	MOD
CBFP	CB behaviour		RBRF	BEH
CBFP	CB failure protection status		RBRF	HEALTH
CBFP	CB failure protection name plate		RBRF	NAMPLT
CBFP	Circuit breaker failure		RBRF	OPEX
DR	Disturbance recorder function	RDRE1	RDRE	
DR	DR operation mode		RDRE	MOD
DR	DR behaviour		RDRE	BEH
DR	DR health		RDRE	HEALTH
DR	DR name plate		RDRE	NAMPLT

Function	Description	LN instance name	LN class	Data
DR	DR recording made		RDRE	RCDMADE
DR	DR fault number		RDRE	FLTNUM

6.3. Logical node mapping for SPACOM and SACO series

Table 6.3.-1 LN mapping for SPACOM and SACO

Function Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance	
SPCD2D55 [Earth-fault module]				
Directional differential current $Id_1\cos\varphi_1$ on HV side	I	MDIF	1	Differential current on HV side
Directional differential current $Id_2\cos\varphi_2$ on LV side	I	MDIF	2	Differential current on LV side
HV side currents L_1, L_2,L_3,$I0_1$	I	MMXU	1	Measured currents on HV side
LV side currents L_1, L_2,L_3,$I0_2$	I	MMXU	2	Measured currents on LV side
HV side protection stage $dI0_1$>	GEN	PDIF	1	HV side protection stage $dI0_1$>
LV side protection stage $dI0_2$>	GEN	PDIF	2	LV side protection stage $dI0_2$>
Harmonic blocking ratio $I_2f/I_1f(I0_1)$>	INR	PHAR	1	Blocking based on the second harmonic of HV side
Harmonic blocking ratio $I_2f/I_1f(I0_2)$>	INR	PHAR	2	Blocking based on the second harmonic of LV side
CBFP	PH	RBRF	1	Circuit breaker failure protection
SPCD3D53 [Differential module]				
Differential current of phase L_1,L_2,L_3	I	MIDF	3	Differential currents phase L_1,L_2,L_3
Current on HV side phase L_1,L_2,L_3	I	MMXU	3	Measured currents on HV side
Current on LV side phase L_1, L_2, L_3	I	MMXU	4	Measured currents on LV side
Stabilized differential current stage, 3dI>	GEN	PDIF	3	Stabilized differential current stage, 3dI> operated
Instantaneous differential current stage, 3dI>>	GEN	PDIF	4	Instantaneous differential current stage, 3dI>> operated
Blocking based on the second harmonic, Id_2f/Id_1f>	INR	PHAR	3	Blocking based on the second harmonic of the differential current
Blocking based on the fifth harmonic, Id_5f/Id_1f>	INR	PHAR	4	Blocking based on the fifth harmonic of the differential current
CBFP	PH	RBRF	2	Circuit breaker failure protection

Function Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance	
SPCJ4D28 [Overcurrent and earth-fault module]				
Measured currents IL_1,IL_2,IL_3,I_0	I	MMXU	5	Measured currents IL_1,IL_2,IL_3,I_0
Low-set overcurrent stage, I>	PH	PTOC	1	Low-set overcurrent stage, I>
High-set overcurrent stage, I>>	PH	PTOC	2	High-set overcurrent stage, I>>
Superhigh-set overcurrent stage, I>>>	PH	PTOC	3	Superhigh-set overcurrent stage, I>>>
Low-set neutral overcurrent stage, I_0>	PH	PTOC	4	Low-set neutral overcurrent stage, I_0>
High-set neutral overcurrent stage, I_0>>	PH	PTOC	5	High-set neutral overcurrent stage, I_0>>
Phase discontinuity stage, ΔI>	PH	PTOC	6	Phase discontinuity stage, ΔI>
CBFP	PH	RBRF	3	Circuit breaker failure protection
SPCJ4D29 [Three-phase overcurrent and earth-fault module]				
Measured currents IL_1,IL_2,IL_3,I_0	I	MMXU	1	Measured currents IL_1,IL_2,IL_3,I_0
Low-set overcurrent stage, I>	PH	PTOC	1	Low-set overcurrent stage, I>
High-set overcurrent stage, I>>	PH	PTOC	2	High-set overcurrent stage, I>>
Low-set neutral overcurrent stage, I_0>	PH	PTOC	3	Low-set neutral overcurrent stage, I_0>
High-set neutral overcurrent stage, I_0>>	PH	PTOC	4	High-set neutral overcurrent stage, I_0>>
SPCJ4D24 [Three-phase overcurrent and earth-fault module]				
Measured currents IL_1,IL_2,IL_3,I_0	I	MMXU	1	Measured currents IL_1,IL_2,IL_3,I_0
Low-set overcurrent stage, I>	PH	PTOC	1	Low-set overcurrent stage, I>
High-set overcurrent stage, I>>	PH	PTOC	2	High-set overcurrent stage, I>>
Low-set neutral overcurrent stage, I_0>	PH	PTOC	3	Low-set neutral overcurrent stage, I_0>
High-set neutral overcurrent stage, I_0>>	PH	PTOC	4	High-set neutral overcurrent stage, I_0>>
SACO16D2B [Annunciator module]				
Output relays 1 to 16	ALM	GGIO	1, 2, 3 or 4	State of output relays 1 to 16

Function Name	IEC 61850 Logical Node Name			Description
	Logical Node Prefix	Logical Node Class	Logical Node Instance	
State of alarm channels 1 to 16	IND	GGIO	2, 3, 4 or 5	State of alarm channels 1 to 16
Local Remote Position	LRP	GGIO	3, 4, 5 or 6	Local Remote switch position
Reset Audiable Alarm	RSA	GGIO	4, 5, 6 or 7	Reset Audiable Alarm
Acknowledge Alarm signal	AKA	GGIO	5, 6, 7 or 8	Acknowledge alarm signal
Reset of Alarm Channel	RAC	GGIO	6, 7, 8 or 9	Reset of alarm channel

6.3.1. SPACOM/SACO logical node naming and mapping to IEC 61850

Table 6.3.1.-1 SPCD2D55 Logical Node Naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
SPCD2D55	Logical node zero	LLN0	LN0	
SPCD2D55	Operation mode		LN0	MOD
SPCD2D55	Behaviour		LN0	BEH
SPCD2D55	Status		LN0	HEALTH
SPCD2D55	ABB		LN0	NAMPLT
SPCD2D55	LPHD logical node	LPHD1	LPHD	
SPCD2D55	Physical device name plate		LPHD	PHYNAM
SPCD2D55	Physical device health		LPHD	PHYHEALTH
SPCD2D55	Input communication buffer overflow		LPHD	INOV
SPCD2D55	Indicates if this LD is a proxy		LPHD	PROXY
Id1cosphi1	Differential directional current Id1cosphi1 on HV side	IMDIF1	MDIF	
Id1cosphi1	Id1cosphi1 operational mode		MDIF	MOD
Id1cosphi1	Id1cosphi1 behaviour		MDIF	BEH
Id1cosphi1	Id1cosphi1 status		MDIF	HEALTH
Id1cosphi1	Id1cosphi1 name plate		MDIF	NAMPLT
Id1cosphi1	Differential directional current Id1cosphi1 on HV side		MDIF	OPAREM
Id1cosphi1	Phase difference between residual current and neutral current on HV side		MDIF	PHDIF
Id1cosphi2	Differential directional current Id2cosphi2 on LV side	IMDIF2	MDIF	
Id1cosphi2	Id2cosphi2 operational mode		MDIF	MOD
Id1cosphi2	Id2cosphi2 behaviour		MDIF	BEH
Id1cosphi2	Id2cosphi2 status		MDIF	HEALTH
Id1cosphi2	Id2cosphi2 name plate		MDIF	NAMPLT
Id1cosphi2	Differential directional current Id2cosphi2 on LV side		MDIF	OPAREM

Function	Description	LN instance name	LN class	Data
Id1cosphi2	Phase difference between residual current and neutral current on LV side		MDIF	PHDIF
I_{L1}, I_{L2}, I_{L3}, $I_0$1	Three-phase current measurement HV side	IMMXU1	MMXU	
I_{L1}, I_{L2}, I_{L3}, $I_0$1	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}, $I_0$1	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}, $I_0$1	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}, $I_0$1	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}, $I_0$1	Measured currents on HV side I_{L1}, I_{L2}, I_{L3}, $I_0$1		MMXU	A
I_{L1}, I_{L2}, I_{L3}, $I_0$2	Three-phase current measurement LV side	IMMXU2	MMXU	
I_{L1}, I_{L2}, I_{L3}, $I_0$2	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}, $I_0$2	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}, $I_0$2	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}, $I_0$2	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}, $I_0$2	Measured currents on LV side I_{L1}, I_{L2}, I_{L3}, $I_0$2		MMXU	A
$DI_0$1>	HV side protection stage, $DI_0$1>	GENPDIF1	PDIF	
$DI_0$1>	$DI_0$1> mode		PDIF	MOD
$DI_0$1>	$DI_0$1> behaviour		PDIF	BEH
$DI_0$1>	$DI_0$1> status		PDIF	HEALTH
$DI_0$1>	$DI_0$1> name plate		PDIF	NAMPLT
$DI_0$1>	Start of HV protection stage,$DI_0$1>		PDIF	STR
$DI_0$1>	Operation of HV protection stage, $DI_0$1>		PDIF	OP
$DI_0$2>	LV side protection stage, $DI_0$2>	GENPDIF2	PDIF	
$DI_0$2>	$DI_0$2> mode		PDIF	MOD
$DI_0$2>	$DI_0$2> behaviour		PDIF	BEH
$DI_0$2>	$DI_0$2> status		PDIF	HEALTH
$DI_0$2>	$DI_0$2> name plate		PDIF	NAMPLT
$DI_0$2>	Start of LV protection stage,$DI_0$2>		PDIF	STR
$DI_0$2>	Operation of LV protection stage, $DI_0$2>		PDIF	OP
$I_2f/I_1f(I_0$1)>	Blocking based on the second harmonic of HV side	INRPHAR1	PHAR	
$I_2f/I_1f(I_0$1)>	$I_2f/I_1f(I_0$1)> mode		PHAR	MOD
$I_2f/I_1f(I_0$1)>	$I_2f/I_1f(I_0$1)> behaviour		PHAR	BEH
$I_2f/I_1f(I_0$1)>	$I_2f/I_1f(I_0$1)> status		PHAR	HEALTH
$I_2f/I_1f(I_0$1)>	$I_2f/I_1f(I_0$1)> name plate		PHAR	NAMPLT
$I_2f/I_1f(I_0$1)>	Start of harmonics blocking on HV side,$I_2f/I_1f(I_0$1)>		PHAR	STR
$I_2f/I_1f(I_0$2)>	Blocking based on the second harmonic of LV side	INRPHAR2	PHAR	
$I_2f/I_1f(I_0$2)>	$I_2f/I_1f(I_0$2)> mode		PHAR	MOD
$I_2f/I_1f(I_0$2)>	$I_2f/I_1f(I_0$2)> behaviour		PHAR	BEH

Function	Description	LN instance name	LN class	Data
$I_2f/I_1f(I_02)$>	$I_2f/I_1f(I_02)$> status		PHAR	HEALTH
$I_2f/I_1f(I_02)$>	$I_2f/I_1f(I_02)$> name plate		PHAR	NAMPLT
$I_2f/I_1f(I_02)$>	Start of harmonics blocking on HV side, $I_2f/I_1f(I_01)$>		PHAR	STR
CBFP	Circuit breaker failure protection	PHRBRF1	RBRF	
CBFP	CB operation mode		RBRF	MOD
CBFP	CB behaviour		RBRF	BEH
CBFP	CB failure protection status		RBRF	HEALTH
CBFP	CB failure protection name plate		RBRF	NAMPLT
CBFP	Circuit breaker failure		RBRF	OPEX

Table 6.3.1.-2 SPCD3D53 Logical Node Naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
SPCD3D53	Logical node zero	LLN0	LN0	
SPCD3D53	Operation mode		LN0	MOD
SPCD3D53	Behaviour		LN0	BEH
SPCD3D53	Status		LN0	HEALTH
SPCD3D53	ABB		LN0	NAMPLT
SPCD3D53	LPHD logical node	LPHD1	LPHD	
SPCD3D53	Physical device name plate		LPHD	PHYNAM
SPCD3D53	Physical device health		LPHD	PHYHEALTH
SPCD3D53	Input communication buffer overflow		LPHD	INOV
SPCD3D53	Indicates if this LD is a proxy		LPHD	PROXY
L_1, L_2, L_3	Differential currents phase L_1, L_2, L_3	IMDIF3	MDIF	
L_1, L_2, L_3	Differential currents phase L_1, L_2, L_3 operational mode		MDIF	MOD
L_1, L_2, L_3	Differential currents phase L_1, L_2, L_3 behaviour		MDIF	BEH
L_1, L_2, L_3	Differential currents phase L_1, L_2, L_3 status		MDIF	HEALTH
L_1, L_2, L_3	Differential currents phase L_1, L_2, L_3 name plate		MDIF	NAMPLT
L_1, L_2, L_3	Differential currents for phase L_1, L_2, L_3		MDIF	OPAREM
L_1, L_2, L_3	Phase difference of the currents on HV side phases L_1 and L_2		MDIF	PHDIF1
L_1, L_2, L_3	Phase difference of the currents on HV side phases L_2 and L_3		MDIF	PHDIF2
L_1, L_2, L_3	Phase difference of the currents on HV side phases L_3 and L_1		MDIF	PHDIF3
L_1, L_2, L_3	Phase difference of HV and LV side phase currents on phase L_1		MDIF	PHDIF4
L_1, L_2, L_3	Phase difference of HV and LV side phase currents on phase L_2		MDIF	PHDIF5
L_1, L_2, L_3	Phase difference of HV and LV side phase currents on phase L_3		MDIF	PHDIF6

Function	Description	LN instance name	LN class	Data
L_1, L_2, L_3	Phase difference of the currents on LV side phases L_1 and L_2		MDIF	PHDIF7
L_1, L_2, L_3	Phase difference of the currents on LV side phases L_2 and L_3		MDIF	PHDIF8
L_1, L_2, L_3	Phase difference of the currents on LV side phases L_3 and L_1		MDIF	PHDIF9
Id1cosphi2	Differential directional current Id2cosphi2 on LV side	IMDIF2	MDIF	
Id1cosphi2	Id2cosphi2 operational mode		MDIF	MOD
Id1cosphi2	Id2cosphi2 behaviour		MDIF	BEH
Id1cosphi2	Id2cosphi2 status		MDIF	HEALTH
Id1cosphi2	Id2cosphi2 name plate		MDIF	NAMPLT
Id1cosphi2	Differential directional current Id2cosphi2 on LV side		MDIF	OPAREM
Id1cosphi2	Phase difference between residual current and neutral current on LV side		MDIF	PHDIF
I_{L1}, I_{L2}, I_{L3}	Three-phase current measurement HV side	IMMXU3	MMXU	
I_{L1}, I_{L2}, I_{L3}	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}	Measured currents on HV side I_{L1}, I_{L2}, I_{L3}		MMXU	A
I_{L1}, I_{L2}, I_{L3}	Three-phase current measurement LV side	IMMXU4	MMXU	
I_{L1}, I_{L2}, I_{L3}	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}	Measured currents on LV side I_{L1}, I_{L2}, I_{L3}		MMXU	A
3DI>	Stabilized differential current stage, 3DI>	GENPDIF3	PDIF	
3DI>	3DI> mode		PDIF	MOD
3DI>	3DI> behaviour		PDIF	BEH
3DI>	3DI> status		PDIF	HEALTH
3DI>	3DI> name plate		PDIF	NAMPLT
3DI>	Operation of Stabilized differential current stage, 3DI>		PDIF	OP
3DI>>	Instantaneous differential current stage, 3DI>>	GENPDIF4	PDIF	
3DI>>	3DI>> mode		PDIF	MOD
3DI>>	3DI>> behaviour		PDIF	BEH
3DI>>	3DI>> status		PDIF	HEALTH
3DI>>	3DI>> name plate		PDIF	NAMPLT

Function	Description	LN instance name	LN class	Data
3DI>>	Operation of Instantaneous differential current stage, 3DI>>		PDIF	OP
$I_2f/I_1f(I)>$	Blocking based on the second harmonic of the differential current	INRPHAR3	PHAR	
$I_2f/I_1f(I)>$	$I_2f/I_1f(I)>$ mode		PHAR	MOD
$I_2f/I_1f(I)>$	$I_2f/I_1f(I)>$ behaviour		PHAR	BEH
$I_2f/I_1f(I)>$	$I_2f/I_1f(I)>$ status		PHAR	HEALTH
$I_2f/I_1f(I)>$	$I_2f/I_1f(I)>$ name plate		PHAR	NAMPLT
$I_2f/I_1f(I)>$	Start of harmonics blocking,$I_2f/I_1f(I)>$		PHAR	STR
$I_5f/I_1f(I)>$	Blocking based on the fifth harmonic of the differential current	INRPHAR4	PHAR	
$I_5f/I_1f(I)>$	$I_5f/I_1f(I)>$ mode		PHAR	MOD
$I_5f/I_1f(I)>$	$I_5f/I_1f(I)>$ behaviour		PHAR	BEH
$I_5f/I_1f(I)>$	$I_5f/I_1f(I)>$ status		PHAR	HEALTH
$I_5f/I_1f(I)>$	$I_5f/I_1f(I)>$ name plate		PHAR	NAMPLT
$I_5f/I_1f(I)>$	Start of harmonics blocking,$I_5f/I_1f(I)>$		PHAR	STR
CBFP	Circuit breaker failure protection	PHRBRF2	RBRF	
CBFP	CB operation mode		RBRF	MOD
CBFP	CB behaviour		RBRF	BEH
CBFP	CB failure protection status		RBRF	HEALTH
CBFP	CB failure protection name plate		RBRF	NAMPLT
CBFP	Circuit breaker failure		RBRF	OPEX

Table 6.3.1.-3 SPCD4D28 Logical Node Naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
SPCD4D28	Logical node zero	LLN0	LN0	
SPCD4D28	Operation mode		LN0	MOD
SPCD4D28	Behaviour		LN0	BEH
SPCD4D28	Status		LN0	HEALTH
SPCD4D28	ABB		LN0	NAMPLT
SPCD4D28	LPHD logical node	LPHD1	LPHD	
SPCD4D28	Physical device name plate		LPHD	PHYNAM
SPCD4D28	Physical device health		LPHD	PHYHEALTH
SPCD4D28	Input communication buffer overflow		LPHD	INOV
SPCD4D28	Indicates if this LD is a proxy		LPHD	PROXY
I_{L1}, I_{L2}, I_{L3}	Three-phase current measurement HV side	IMMXU3	MMXU	
I_{L1}, I_{L2}, I_{L3}	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}	Measured currents on HV side I_{L1}, I_{L2}, I_{L3}		MMXU	A
I_{L1}, I_{L2}, I_{L3}	Three-phase current measurement LV side	IMMXU4	MMXU	

Function	Description	LN instance name	LN class	Data
I_{L1}, I_{L2}, I_{L3}	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}	Measured currents on LV side I_{L1}, I_{L2}, I_{L3}		MMXU	A
I>	Low-set overcurrent stage I>	PHPTOC1	PTOC	
I>	I> mode		PTOC	MOD
I>	I> behaviour		PTOC	BEH
I>	I> status		PTOC	HEALTH
I>	I> name plate		PTOC	NAMPLT
I>	Start of Low-set overcurrent stage I>		PTOC	STR
I>	Operation of Low-set overcurrent stage I>		PTOC	OP
I>>	High-set overcurrent stage, I>>	PHPTOC2	PTOC	
I>>	I>> mode		PTOC	MOD
I>>	I>> behaviour		PTOC	BEH
I>>	I>> status		PTOC	HEALTH
I>>	I>> name plate		PTOC	NAMPLT
I>>	Start of High-set overcurrent stage, I>>		PTOC	STR
I>>	Operation of High-set overcurrent stage, I>>		PTOC	OP
I>>>	Superhigh-set overcurrent stage, I>>>	PHPTOC3	PTOC	
I>>>	I>>> mode		PTOC	MOD
I>>>	I>>> behaviour		PTOC	BEH
I>>>	I>>> status		PTOC	HEALTH
I>>>	I>>> name plate		PTOC	NAMPLT
I>>>	Start of Low-set neutral overcurrent stage, I_0>		PTOC	STR
I>>>	Operation of Low-set neutral overcurrent stage, I_0>		PTOC	OP
I_0>	Low-set neutral overcurrent stage, I_0>	PHPTOC4	PTOC	
I_0>	I_0> mode		PTOC	MOD
I_0>	I_0> behaviour		PTOC	BEH
I_0>	I_0> status		PTOC	HEALTH
I_0>	I_0> name plate		PTOC	NAMPLT
I_0>	Start of Low-set neutral overcurrent stage, I_0>		PTOC	STR
I_0>	Operation of Low-set neutral overcurrent stage, I_0>		PTOC	OP
I_0>>	High-set neutral overcurrent stage, I_0>>	PHPTOC5	PTOC	
I_0>>	I_0>> mode		PTOC	MOD
I_0>>	I_0>> behaviour		PTOC	BEH

Function	Description	LN instance name	LN class	Data
I_0>>	I_0>> status		PTOC	HEALTH
I_0>>	I_0>> name plate		PTOC	NAMPLT
I_0>>	Start of High-set neutral overcurrent stage, I_0>>		PTOC	STR
I_0>>	Operation of High-set neutral overcurrent stage, I_0>>		PTOC	OP
delta I>	Phase discontinuity stage, delta I>	PHPTOC6	PTOC	
delta I>	delta I> mode		PTOC	MOD
delta I>	delta I> behaviour		PTOC	BEH
delta I>	delta I> status		PTOC	HEALTH
delta I>	delta I> name plate		PTOC	NAMPLT
delta I>	Start of Phase discontinuity stage, delta I>		PTOC	STR
delta I>	Operation of Phase discontinuity stage, delta I>		PTOC	OP
CBFP	Circuit breaker failure protection	PHRBRF3	RBRF	
CBFP	CB operation mode		RBRF	MOD
CBFP	CB behaviour		RBRF	BEH
CBFP	CB failure protection status		RBRF	HEALTH
CBFP	CB failure protection name plate		RBRF	NAMPLT
CBFP	Circuit breaker failure		RBRF	OPEX

Table 6.3.1.-4 SPCD4D24 Logical Node Naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
SPCD4D24	Logical node zero	LLN0	LN0	
SPCD4D24	Operation mode		LN0	MOD
SPCD4D24	Behaviour		LN0	BEH
SPCD4D24	Status		LN0	HEALTH
SPCD4D24	ABB		LN0	NAMPLT
SPCD4D24	LPHD logical node	LPHD1	LPHD	
SPCD4D24	Physical device name plate		LPHD	PHYNAM
SPCD4D24	Physical device health		LPHD	PHYHEALTH
SPCD4D24	Input communication buffer overflow		LPHD	INOV
SPCD4D24	Indicates if this LD is a proxy		LPHD	PROXY
I_{L1}, I_{L2}, I_{L3}, I_0	Current measurement	IMMXU1	MMXU	
I_{L1}, I_{L2}, I_{L3}, I_0	I operation mode		MMXU	MOD
I_{L1}, I_{L2}, I_{L3}, I_0	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}, I_0	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}, I_0	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}, I_0	Measured currents I_{L1}, I_{L2}, I_{L3}, I_0		MMXU	A
I>	Low-set overcurrent stage I>	PHPTOC1	PTOC	
I>	I> mode		PTOC	MOD
I>	I> behaviour		PTOC	BEH
I>	I> status		PTOC	HEALTH
I>	I> name plate		PTOC	NAMPLT

Function	Description	LN instance name	LN class	Data
I>	Start of Low-set overcurrent stage I>		PTOC	STR
I>	Operation of Low-set overcurrent stage I>		PTOC	OP
I>>	High-set overcurrent stage, I>>	PHPTOC2	PTOC	
I>>	I>> mode		PTOC	MOD
I>>	I>> behaviour		PTOC	BEH
I>>	I>> status		PTOC	HEALTH
I>>	I>> name plate		PTOC	NAMPLT
I>>	Start of High-set overcurrent stage, I>>		PTOC	STR
I>>	Operation of High-set overcurrent stage, I>>		PTOC	OP
I_0>	Low-set neutral overcurrent stage, I_0>	PHPTOC3	PTOC	
I_0>	I_0> mode		PTOC	MOD
I_0>	I_0> behaviour		PTOC	BEH
I_0>	I_0> status		PTOC	HEALTH
I_0>	I_0> name plate		PTOC	NAMPLT
I_0>	Start of Low-set neutral overcurrent stage, I_0>		PTOC	STR
I_0>	Operation of Low-set neutral overcurrent stage, I_0>		PTOC	OP
I_0>>	High-set neutral overcurrent stage, I_0>>	PHPTOC4	PTOC	
I_0>>	I_0>> mode		PTOC	MOD
I_0>>	I_0>> behaviour		PTOC	BEH
I_0>>	I_0>> status		PTOC	HEALTH
I_0>>	I_0>> name plate		PTOC	NAMPLT
I_0>>	Start of High-set neutral overcurrent stage, I_0>>		PTOC	STR
I_0>>	Operation of High-set neutral overcurrent stage, I_0>>		PTOC	OP

Table 6.3.1.-5 SPCD4D29 Logical Node Naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
SPCD4D29	Logical node zero	LLN0	LN0	
SPCD4D29	Operation mode		LN0	MOD
SPCD4D29	Behaviour		LN0	BEH
SPCD4D29	Status		LN0	HEALTH
SPCD4D29	ABB		LN0	NAMPLT
SPCD4D29	LPHD logical node	LPHD1	LPHD	
SPCD4D29	Physical device name plate		LPHD	PHYNAM
SPCD4D29	Physical device health		LPHD	PHYHEALTH
SPCD4D29	Input communication buffer overflow		LPHD	INOV
SPCD4D29	Indicates if this LD is a proxy		LPHD	PROXY
I_{L1}, I_{L2}, I_{L3}, I_0	Current measurement	IMMXU1	MMXU	
I_{L1}, I_{L2}, I_{L3}, I_0	I operation mode		MMXU	MOD

Function	Description	LN instance name	LN class	Data
I_{L1}, I_{L2}, I_{L3}, I_0	I behaviour		MMXU	BEH
I_{L1}, I_{L2}, I_{L3}, I_0	I status		MMXU	HEALTH
I_{L1}, I_{L2}, I_{L3}, I_0	I name plate		MMXU	NAMPLT
I_{L1}, I_{L2}, I_{L3}, I_0	Measured currents I_{L1}, I_{L2}, I_{L3}, I_0		MMXU	A
I>	Low-set overcurrent stage I>	PHPTOC1	PTOC	
I>	I> mode		PTOC	MOD
I>	I> behaviour		PTOC	BEH
I>	I> status		PTOC	HEALTH
I>	I> name plate		PTOC	NAMPLT
I>	Start of Low-set overcurrent stage I>		PTOC	STR
I>	Operation of Low-set overcurrent stage I>		PTOC	OP
I>>	High-set overcurrent stage, I>>	PHPTOC2	PTOC	
I>>	I>> mode		PTOC	MOD
I>>	I>> behaviour		PTOC	BEH
I>>	I>> status		PTOC	HEALTH
I>>	I>> name plate		PTOC	NAMPLT
I>>	Start of High-set overcurrent stage, I>>		PTOC	STR
I>>	Operation of High-set overcurrent stage, I>>		PTOC	OP
I_0>	Low-set neutral overcurrent stage, I_0>	PHPTOC3	PTOC	
I_0>	I_0> mode		PTOC	MOD
I_0>	I_0> behaviour		PTOC	BEH
I_0>	I_0> status		PTOC	HEALTH
I_0>	I_0> name plate		PTOC	NAMPLT
I_0>	Start of Low-set neutral overcurrent stage, I_0>		PTOC	STR
I_0>	Operation of Low-set neutral overcurrent stage, I_0>		PTOC	OP
I_0>>	High-set neutral overcurrent stage, I_0>>	PHPTOC4	PTOC	
I_0>>	I_0>> mode		PTOC	MOD
I_0>>	I_0>> behaviour		PTOC	BEH
I_0>>	I_0>> status		PTOC	HEALTH
I_0>>	I_0>> name plate		PTOC	NAMPLT
I_0>>	Start of High-set neutral overcurrent stage, I_0>>		PTOC	STR
I_0>>	Operation of High-set neutral overcurrent stage, I_0>>		PTOC	OP

Table 6.3.1.-6 SACO162B logical node naming and mapping to IEC 61850

Function	Description	LN instance name	LN class	Data
SACO162B	Logical node zero	LLN0	LN0	
SACO162B	Operation mode		LN0	MOD
SACO162B	Behaviour		LN0	BEH
SACO162B	Status		LN0	HEALTH
SACO162B	ABB		LN0	NAMPLT
SACO162B	LPHD logical node	LPHD1	LPHD	
SACO162B	Physical device name plate		LPHD	PHYNAM
SACO162B	Physical device health		LPHD	PHYHEALTH
SACO162B	Input communication buffer overflow		LPHD	INOV
SACO162B	Indicates if this LD is a proxy		LPHD	PROXY
State of output relays	State of output relays	ALMGGIO1	GGIO	
State of output relays	State of output relays mode		GGIO	MOD
State of output relays	State of output relays behaviour		GGIO	BEH
State of output relays	State of output relays status		GGIO	HEALTH
State of output relays	State of output relays name plate		GGIO	NAMPLT
State of output relays	State of output relay 1		GGIO	ALM1
State of output relays	State of output relay 2		GGIO	ALM2
State of output relays	State of output relay 3		GGIO	ALM3
State of output relays	State of output relay 4		GGIO	ALM4
State of output relays	State of output relay 5		GGIO	ALM5
State of output relays	State of output relay 6		GGIO	ALM6
State of output relays	State of output relay 7		GGIO	ALM7
State of output relays	State of output relay 8		GGIO	ALM8
State of output relays	State of output relay 9		GGIO	ALM9
State of output relays	State of output relay 10		GGIO	ALM10
State of output relays	State of output relay 11		GGIO	ALM11
State of output relays	State of output relay 12		GGIO	ALM12
State of output relays	State of output relay 13		GGIO	ALM13
State of output relays	State of output relay 14		GGIO	ALM14
State of output relays	State of output relay 15		GGIO	ALM15
State of output relays	State of output relay 16		GGIO	ALM16
State of alarm channels	State of alarm channels relays	INDGGIO2	GGIO	
State of alarm channels	State of alarm channels mode		GGIO	MOD
State of alarm channels	State of alarm channels behaviour		GGIO	BEH
State of alarm channels	State of alarm channels status		GGIO	HEALTH
State of alarm channels	State of alarm channels name plate		GGIO	NAMPLT
State of alarm channels	State of alarm channel 1		GGIO	IND1
State of alarm channels	State of alarm channel 2		GGIO	IND2
State of alarm channels	State of alarm channel 3		GGIO	IND3
State of alarm channels	State of alarm channel 4		GGIO	IND4
State of alarm channels	State of alarm channel 5		GGIO	IND5
State of alarm channels	State of alarm channel 6		GGIO	IND6
State of alarm channels	State of alarm channel 7		GGIO	IND7

Function	Description	LN instance name	LN class	Data
State of alarm channels	State of alarm channel 8		GGIO	IND8
State of alarm channels	State of alarm channel 9		GGIO	IND9
State of alarm channels	State of alarm channel 10		GGIO	IND10
State of alarm channels	State of alarm channel 11		GGIO	IND11
State of alarm channels	State of alarm channel 12		GGIO	IND12
State of alarm channels	State of alarm channel 13		GGIO	IND13
State of alarm channels	State of alarm channel 14		GGIO	IND14
State of alarm channels	State of alarm channel 15		GGIO	IND15
State of alarm channels	State of alarm channel 16		GGIO	IND16
Local Remote position	Local Remote position	LRPGGIO3	GGIO	
Local Remote position	Local Remote position mode		GGIO	MOD
Local Remote position	Local Remote position behaviour		GGIO	BEH
Local Remote position	Local Remote position status		GGIO	HEALTH
Local Remote position	Local Remote position name plate		GGIO	NAMPLT
Local Remote position	Local Remote position		GGIO	INTIN
Reset audiable alarm	Reset audiable alarm	RSAGGIO4	GGIO	
Reset audiable alarm	Reset audiable alarm mode		GGIO	MOD
Reset audiable alarm	Reset audiable alarm behaviour		GGIO	BEH
Reset audiable alarm	Reset audiable alarm status		GGIO	HEALTH
Reset audiable alarm	Reset audiable alarm name plate		GGIO	NAMPLT
Reset audiable alarm	Reset audiable alarm		GGIO	SPCSO
Acknowledge alarm signal	Acknowledge alarm signal	AKAGGIO5	GGIO	
Acknowledge alarm signal	Acknowledge alarm signal mode		GGIO	MOD
Acknowledge alarm signal	Acknowledge alarm signal behaviour		GGIO	BEH
Acknowledge alarm signal	Acknowledge alarm signal status		GGIO	HEALTH
Acknowledge alarm signal	Acknowledge alarm signal name plate		GGIO	NAMPLT
Acknowledge alarm signal	Acknowledge alarm signal		GGIO	SPCSO
Acknowledge alarm signal	Acknowledge alarm signal	AKAGGIO5	GGIO	
Acknowledge alarm signal	Acknowledge alarm signal mode		GGIO	MOD
Acknowledge alarm signal	Acknowledge alarm signal behaviour		GGIO	BEH
Acknowledge alarm signal	Acknowledge alarm signal status		GGIO	HEALTH
Acknowledge alarm signal	Acknowledge alarm signal name plate		GGIO	NAMPLT
Acknowledge alarm signal	Acknowledge alarm signal		GGIO	SPCSO
Reset of alarm channel	Reset of alarm channel	RCAGGIO6	GGIO	

Function	Description	LN instance name	LN class	Data
Reset of alarm channel	Reset of alarm channel mode		GGIO	MOD
Reset of alarm channel	Reset of alarm channel behaviour		GGIO	BEH
Reset of alarm channel	Reset of alarm channel status		GGIO	HEALTH
Reset of alarm channel	Reset of alarm channel name plate		GGIO	NAMPLT
Reset of alarm channel	Reset of alarm channel		GGIO	SPCSO

7. Abbreviations

Abbreviation	Description
CAP	Computer Aided Programming system (a tool used to configure, maintain and operate the protection and control IEDs)
CET	Communication Engineering Tool
COMTRADE	Common Format for Transient Data Exchange
HMI	Human-machine interface
ID	Identifier; identification
IEC	International Electrotechnical Commission
IED	Intelligent electronic device
LD	Logical device
LN	Logical node
LON	Local operating network
OPC	OLE (Object linking and embedding) for process control
SCL	Substation configuration description language (defined by IEC 61850)
SLD	Single-line diagram
SPA	Data communication protocol developed by ABB

8. Terminology

Term	Description
Communication Engineering Tool	Also known as CET. Software for configuring and monitoring communication gateways or communication front ends.
connectivity concept	The connectivity concept separates the IED specific information from system products and tools. Applications and tools supporting the connectivity concept can be updated easily with the latest versions of the IED-specific information.
connectivity package	Connectivity package is a collection of software and information related to a specific protection and control terminal (IED), providing system products and tools to connect and interact with the IED.
Connectivity Package Manager	Software that helps the user to define right connectivity package versions for different applications and tools.
IEC 61850	A communication protocol based on the IEC 61850 standard series and a standard for substation modeling.
Intelligent Electronic Device	Also known as IED. Devices containing advanced logics such as meters, protection and control relays and trip units.
Substation Configuration description Language	Also known as SCL. XML-based description language for configurations of electrical substation IEDs. Defined in the IEC 61850 standard.
system products and tools	A system product is a product that administers one of the supported tools, for example, different CETs or PCM 600. A tool is one of the supported tools, for example, SCL Importer or Event Viewer.

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