Relion® 615 Series

Motor Protection and Control
REM615 ANSI
Modbus Point List Manual

Power and productivity
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Conformity

This product complies with the directive of the Council of the European Communities on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive 2004/108/EC) and concerning electrical equipment for use within specified voltage limits (Low-voltage directive 2006/95/EC). This conformity is the result of tests conducted by ABB in accordance with the product standards EN 50263 and EN 60255-26 for the EMC directive, and with the product standards EN 60255-6 and EN 60255-27 for the low voltage directive. The IED is designed in accordance with the international standards of the IEC 60255 series and ANSI C37.90.

Table of contents

Section 1 Introduction

1.1 This manual

The point list manual describes the outlook and properties of the data points specific to the IED. The manual should be used in conjunction with the corresponding communication protocol manual.

1.2 Intended audience

This manual addresses the communication system engineer or system integrator responsible for pre-engineering and engineering for communication setup in a substation from an IED perspective.

The system engineer or system integrator must have a basic knowledge of communication in protection and control systems and thorough knowledge of the specific communication protocol.

1.3 Product documentation

1.3.1 Product documentation set

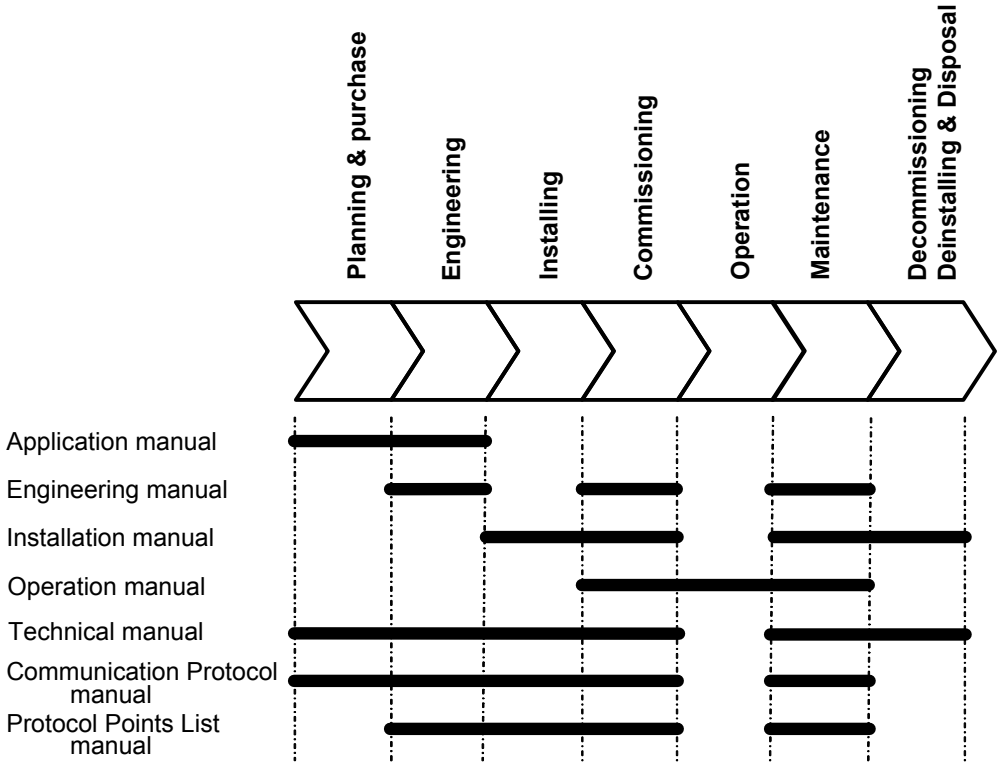

Figure 1: The intended use of manuals in different lifecycles

The engineering manual contains instructions on how to engineer the IEDs using the different tools in PCM600. The manual provides instructions on how to set up a PCM600 project and insert IEDs to the project structure. The manual also recommends a sequence for engineering of protection and control functions, LHMI functions as well as communication engineering for IEC 61850 and DNP3.

The installation manual contains instructions on how to install the IED. The manual provides procedures for mechanical and electrical installation. The chapters are organized in chronological order in which the IED should be installed.

The operation manual contains instructions on how to operate the IED once it has been commissioned. The manual provides instructions for monitoring, controlling and setting the IED. The manual also describes how to identify disturbances and how to view calculated and measured power grid data to determine the cause of a fault.

The application manual contains application descriptions and setting guidelines sorted per function. The manual can be used to find out when and for what purpose a typical protection function can be used. The manual can also be used when calculating settings.

The technical manual contains application and functionality descriptions and lists function blocks, logic diagrams, input and output signals, setting parameters and technical data

sorted per function. The manual can be used as a technical reference during the engineering phase, installation and commissioning phase, and during normal service.

The communication protocol manual describes a communication protocol supported by the IED. The manual concentrates on vendor-specific implementations. The point list manual describes the outlook and properties of the data points specific to the IED. The manual should be used in conjunction with the corresponding communication protocol manual.

1.3.2 Document revision history

Document revision/date	Product series version	History
A/01/20/2010	2.0	First release
B/03/31/2011	4.0	Contents updated for 615 series v4.0 ANSI release
C/06/09/2015	4.2	Contents updated for 615 series v4.2 ANSI release

Download the latest documents from the ABB web site http://www.abb.com/substationautomation.

1.3.3 Related documentation

Name of the document	Document ID
Modbus Communication Protocol Manual	1MAC052634-MB

1.4 Symbols and conventions

1.4.1 Safety indication symbols

The caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in corruption of software or damage to equipment or property.

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

The tip icon indicates advice on, for example, how to design your project or how to use a certain function.

Although warning hazards are related to personal injury, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, comply fully with all warning and caution notices.

1.4.2 Manual conventions

Conventions used in IED manuals. A particular convention may not be used in this manual.

- Abbreviations and acronyms in this manual are spelled out in the glossary. The glossary also contains definitions of important terms.
- Push button navigation in the LHMI menu structure is presented by using the push button icons, for example:

  To navigate between the options, use  and  .
- HMI menu paths are presented in bold, for example:

  Select **Main menu > Settings**.
- LHMI messages are shown in Courier font, for example:

  To save the changes in non-volatile memory, select `Yes` and press  .
- Parameter names are shown in italics, for example:

  The function can be enabled and disabled with the *Operation* setting.
- Parameter values are indicated with quotation marks, for example:

  The corresponding parameter values are "Enabled" and "Disabled".
- IED input/output messages and monitored data names are shown in Courier font, for example:

  When the function picks up, the `PICKUP` output is set to TRUE.
- Dimensions are provided both in inches and mm. If it is not specifically mentioned then the dimension is in mm.

1.4.3 Functions, codes and symbols

Table 1: Functions included in standard configurations

Standard configuration functionality	IEC 61850	ANSI/C37.2 - 2008	IEC60617
Protection			
Three-phase non-directional overcurrent protection, low stage, instance 1	PHLPTOC1	51P	3I> (1)
Three-phase non-directional overcurrent protection, high stage, instance 1	PHHPTOC1	50P-1	3I>> (1)
Three-phase non-directional overcurrent protection, high stage, instance 2	PHHPTOC2	50P-2	3I>> (2)
Non-directional ground-fault protection, low stage, instance 1	EFLPTOC1	51G	Io> (1)
Non-directional ground-fault protection, high stage, instance 1	EFHPTOC1	50G-1	Io>> (1)
Non-directional ground-fault protection, high stage, instance 2	EFHPTOC2	50G-2	Io>> (2)
Directional ground-fault protection, low stage, instance 1	DEFLPDEF1	67/51N	Io> -> (1)
Residual overvoltage protection, instance 1	ROVPTOV1	59G	Uo> (1)
Residual overvoltage protection, instance 2	ROVPTOV2	59N	Uo> (2)
Three-phase under-voltage protection, instance 1	PHPTUV1	27-1	3U< (1)
Three-phase under-voltage protection, instance 2	PHPTUV2	27-2	3U< (2)
Three-phase overvoltage protection, instance 1	PHPTOV1	59-1	3U> (1)
Three-phase overvoltage protection, instance 2	PHPTOV2	59-2	3U> (2)
Positive-sequence undervoltage protection, instance 1	PSPTUV1	27PS	U1<(1)
Negative-sequence overvoltage protection, instance 1	NSPTOV1	47-1	U2>(1)
Negative-sequence overvoltage protection, instance 2	NSPTOV2	47-2	U2>(2)
Frequency protection, instance 1	FRPFRQ1	81-1	f>/f<,df/dt(1)
Frequency protection, instance 2	FRPFRQ2	81-2	f>/f<,df/dt(2)
Negative-sequence overcurrent protection for motors, instance 1	MNSPTOC1	46M-1	I2>M(1)
Negative-sequence overcurrent protection for motors, instance 2	MNSPTOC2	46M-2	I2>M(2)
Loss of load supervision, instance 1	LOFLPTUC1	37M-1	3I<(1)
Loss of load supervision, instance 2	LOFLPTUC2	37M-2	3I<(2)
Motor load jam protection, instance 1	JAMPTOC1	51LR-1	Ist>(1)
Motor load jam protection, instance 2	JAMPTOC2	51LR-2	Ist>(2)
Motor start-up supervision	STTPMSU1	66/51LRS	Is2t n<
Phase reversal protection	PREVPTOC1	46R	I2>>
Thermal overload protection for motors	MPTTR1	49M	3Ith>M
Motor differential protection	MPDIF1	87M	3dI>M
Circuit breaker failure protection, instance 1	CCBRBRF1	50BF	3I>/Io>BF(1)
Master trip, instance 1	TRPPTRC1	86/94-1	Master Trip(1)

Standard configuration functionality	IEC 61850	ANSI/C37.2 - 2008	IEC60617
Master trip, instance 2	TRPPTRC2	86/94-2	Master Trip (2)
Arc protection, instance 1	ARCSARC1	AFD-1	ARC (1)
Arc protection, instance 2	ARCSARC2	AFD-2	ARC (2)
Arc protection, instance 3	ARCSARC3	AFD-3	ARC (3)
RTD based thermal protection, instance 1	MAPGAPC1	MAP(1) Trip	MAP(1)
RTD based thermal protection, instance 2	MAPGAPC2	MAP(2) Trip	MAP(2)
RTD based thermal protection, instance 3	MAPGAPC3	MAP(3) Trip	MAP(3)
RTD based thermal protection, instance 4	MAPGAPC4	MAP(4) Trip	MAP(4)
RTD based thermal protection, instance 5	MAPGAPC5	MAP(5) Trip	MAP(5)
RTD based thermal protection, instance 6	MAPGAPC6	MAP(6) Trip	MAP(6)
RTD based thermal protection, instance 7	MAPGAPC7	MAP(7) Trip	MAP(7)
RTD based thermal protection, instance 8	MAPGAPC8	MAP(8) Trip	MAP(8)
Three phase directional over power protection, instance 1	DOPPDPR1	32O-1	P> (1)
Three phase directional over power protection, instance 2	DOPPDPR2	32O-2	P> (2)
Three phase directional over power protection, instance 3	DOPPDPR3	32O-3	P> (3)
Three phase directional under power protection, instance 1	DUPPDPR1	32U-1	P< (1)
Three phase directional under power protection, instance 2	DUPPDPR2	32U-2	P< (2)
Three-phase remnant undervoltage protection	REMPTUV1	27R	3U< (1)
High impedance differential protection, instance 1	HIPDIF1	87A Trip	dHi> (1)
High impedance differential protection, instance 2	HIPDIF2	87B Trip	dHi> (2)
High impedance differential protection, instance 3	HIPDIF3	87C Trip	dHi> (3)
Voltage per hertz protection, instance 1	OEPVPH1	24-1	U/f> (1)
Voltage per hertz protection, instance 2	OEPVPH2	24-2	U/f> (2)
Control			
Circuit-breaker control, instance 1	CBXCBR1	52	I <-> O CB (1)
Emergency startup	ESMGAPC1	62EST	ESTART
Condition Monitoring			
Circuit-breaker condition monitoring, instance 1	SSCBR1	52CM	CBCM(1)
Trip circuit supervision, instance 1	TCSSCBR1	TCM-1	TCS(1)
Trip circuit supervision, instance 2	TCSSCBR2	TCM-2	TCS(2)
Current circuit supervision	CCRDIF1	CCM	MCS 3I
Fuse Failure supervision, instance 1	SEQRFUF1	60	FUSEF(1)
Runtime counter for machines and devices, instance 1	MDSOPT1	OPTM-1	OPTS(1)
Runtime counter for machines and devices, instance 2	MDSOPT2	OPTM-2	OPTS(2)
Measurement			
Three-phase current measurement, instance 1	CMMXU1	IA, IB, IC	3I

Standard configuration functionality	IEC 61850	ANSI/C37.2 - 2008	IEC60617
Three-phase current measurement, instance 2	CMMXU2	IA, IB, IC (2)	3I(B)
Sequence current measurement, instance 1	CSMSQI1	I1, I2, I0	I1, I2, I0
Sequence current measurement, instance 2	CSMSQI2	I1, I2, I0 (2)	I1, I2, I0(B)
Residual current measurement, instance 1	RESCMMXU1	IG	Io
Three-phase voltage measurement, instance 1	VMMXU1	VA, VB, VC	3U
Residual voltage measurement	RESVMMXU1	VG	Uo
Sequence voltage measurement, instance 1	VSMSQI1	V1, V2, V0	U1, U2, U0
Single-phase power and energy measurement, instance 1	SPEMMXU1	SP, SE	SP, SE
Three-phase power and energy measurement, instance 1	PEMMXU1	P, E	P, E
Recorder			
Disturbance recorder	RDRE1	DFR	-
Fault recorder	FLTMSTA1	FR	-
Sequence event recorder	SER	SER	-
Other Functions			
Minimum pulse timer (2 pcs), instance 1	TPGAPC1	TP - 1	TP (1)
Minimum pulse timer (2 pcs), instance 2	TPGAPC2	TP - 2	TP (2)
Minimum pulse timer (2 pcs), instance 3	TPGAPC3	TP - 3	TP (3)
Minimum pulse timer (2 pcs), instance 4	TPGAPC4	TP - 4	TP (4)
Pulse timer (8 pcs), instance 1	PTGAPC1	PT-1	PT (1)
Pulse timer (8 pcs), instance 2	PTGAPC2	PT-2	PT (2)
Time delay off (8 pcs), instance 1	TOFGAPC1	TOF-1	TOF (1)
Time delay off (8 pcs), instance 2	TOFGAPC2	TOF-2	TOF (2)
Time delay on (8 pcs), instance 1	TONGAPC1	TON -1	TON (1)
Time delay on (8 pcs), instance 2	TONGAPC2	TON -2	TON (2)
Set reset (8 pcs), instance 1	SRGAPC1	SR-1	SR (1)
Set reset (8 pcs), instance 2	SRGAPC2	SR-2	SR (2)
Move (8 pcs), instance 1	MVGAPC1	MV-1	MV (1)
Move (8 pcs), instance 2	MVGAPC2	MV-2	MV (2)
Minimum pulse timer (2 pcs, second resolution), instance 1	TPSGAPC1	62CLD-1	TPS (1)
Minimum pulse timer (2 pcs, second resolution), instance 2	TPSGAPC2	62CLD-3	TPS (2)
Minimum pulse timer (2 pcs, minute resolution), instance 1	TPMGAPC1	62CLD-2	TPM (1)
Minimum pulse timer (2 pcs, minute resolution), instance 2	TPMGAPC2	62CLD-4	TPM (2)
Generic control points, instance 1	SPCGGIO1	CNTRL-1	SPC(1)
Generic control points, instance 2	SPCGGIO2	CNTRL-2	SPC(2)
Generic Up-Down Counters, instance 1	UDFCNT1	CTR-1	CTR(1)
Generic Up-Down Counters, instance 2	UDFCNT2	CTR-2	CTR(2)
Generic Up-Down Counters, instance 3	UDFCNT3	CTR-3	CTR(3)

Standard configuration functionality	IEC 61850	ANSI/C37.2 - 2008	IEC60617
Generic Up-Down Counters, instance 4	UDFCNT4	CTR-4	CTR(4)

Section 2 Modbus data mappings

2.1 Overview

This document describes the Modbus data points and structures available in REM615 Ver. 4.2.

Point list table columns

0x addr	Coil (0X) PLC address, base address = 1
AFL-Common SA name	AFL name of the corresponding data signal
Bit addr	Bit (1X and 0X) PLC address, base address = 1
Ctrl bit	Control bit (0..15) within control structure
Ctrl struct	Control structure number
Dc	Data category
DS	Object resides as default in some IEC 61850 data set (Y = yes, N = no)
FD Num	Unique number of the platform SW component
Identification	IED's internal IEC 61850 signal name
Item	Unique number of an data item within the data object
Mode	Control object mode: unsecured or secured
Object	Unique number of a data object within the SW component
Offset	Offset factor, default setting
Reg addr	Modbus register address (3X or 4X). PLC address, base address = 1
Reg.bit addr	Register PLC address (3X and 4X) and bit within register (0..15)
Scale	Scale factor, default setting
Signal name	IEC 61850 signal description
Type	Register type and value interpretation: signed or unsigned
UID	Unique ID combination of FD Num, Object and Item
W	Writable register

2.2 Point list for REM615 v4.2 ANSI

Table 2: System Status Registers

Coil Addr	Register(:Bit) Addr	Dc	Type	Scale	OffSet	Description	IEC61850 Data Attribute Name
	129	0	u16			System Status Register, 1	
	130	0	u16			System Status Register, 2	
	131	0	u16			System Status Register, 3	
	132	0	u16			System Status Register, 4	
	133	0	u16			System Status Register, 5	
	134	0	u16			System Status Register, 6	
	135	0	u16			Device Information	
	..	0	u16				
	225	0	u16				
	245		u16			Parameter Setting Group in Use	

Table 3: Time Stamp of Last Device Reset

Coil Addr	Register(:Bit) Addr	Dc	Type	Scale	OffSet	Description	IEC61850 Data Attribute Name
	226	0	u16			Year(High Byte)/Month(Low Byte)	
	227	0	u16			Day(High Byte)/Hour(Low Byte)	
	228	0	u16			Min(High Byte)/Sec(Low Byte)	
	229	0	u16			MilliSecond	
	230	0	u16			Time Quality	
	231	0	u16			Cause of Reset (1-Power Reset, 2-Watchdog Reset, 3-Warm Reset)	

Table 4: Device Real-Time clock in local Time

Coil Addr	Register(:Bit) Addr	W	Type	Scale	OffSet	Description	IEC61850 Data Attribute Name
	497	x	u16			Real-time struct - Control register(0..2)	
	498	x	u16			Real-time struct - Year (2000-2999)	
	499	x	u16			Real-time struct - Month (1..12)	
	500	x	u16			Real-time struct - Day (1..31)	
	501	x	u16			Real-time struct - Hour (0..23)	
	502	x	u16			Real-time struct - Minute (0..59)	
	503	x	u16			Real-time struct - Seconds (0..59)	
	504	x	u16			Real-time struct - Milliseconds (0..999)	

Table 5: Device Real-Time clock in UTC Time

Coil Addr	Register(:Bit) Addr	W	Type	Scale	OffSet	Description	IEC61850 Data Attribute Name
	516	x	u16			Real-time struct - Control register(0..2)	
	517	x	u16			Real-time struct - Year (2000-2999)	
	518	x	u16			Real-time struct - Month (1..12)	
	519	x	u16			Real-time struct - Day (1..31)	
	520	x	u16			Real-time struct - Hour (0..23)	
	521	x	u16			Real-time struct - Minute (0..59)	
	522	x	u16			Real-time struct - Seconds (0..59)	
	523	x	u16			Real-time struct - Milliseconds (0..999)	

Table 6: Event Records

Coil Addr	Register(:Bit) Addr	W	Type	Scale	OffSet	Description	IEC61850 Data Attribute Name
	1561	x	u16			Number of Events to Read	
	1562	x	u16	1		Event Selection	
	1563		u16	1		Sequence Number	
	1564		u16	1		Number of Unread Records	
	1565		u16	1		Year(High Byte)/Month(Low Byte)	
	1566		u16	1		Day(High Byte)/Hour(Low Byte)	
	1567		u16	1		Min(High Byte)/Sec(Low Byte)	
	1568		u16	1		MilliSecond	
	1569		u16	1		Event Type	
	1570		u16	1		Data Object ID 1 [1)]	
	1571		u16	1		Data Object ID 2 [1)]	
	1572		u16	1		Event Data Value	
	1573		u16	1		Event Data Value	

1) See Decoding of Data Object ID1 and 1

Decoding of Data Object ID1 and Data Object ID2

The base 4x Modbus address is Data Object ID2/16. Bit offset is the remainder of DataObject ID2/16.

For Instance, Bit 10 in register of 2500 would appear in Data Object ID2 as 0x9C4A = 40010. The base address is 40010/16 = 2500. The bit is 0.625 x 16 = 10.

Data Object ID1 is the most significant 16 bits. If Data Object ID1 is non-zero then a 32 bit number is composed of Data Object ID1 as bits 31-16 and Data Object ID2 are bits 15-0.

Table 7: Fault records

Coil Addr	Register(:Bit) Addr	W	Dc	Type	Scale	Description	IEC61850 Data Attribute Name
	1712	x		u16	1	Fault Record Selection	
	1713			u16	1	Sequence Number	
	1714			u16	1	Number of Unread Records	
	1715			u16	1	Year(High Byte)/Month(Low Byte)	
	1716			u16	1	Day(High Byte)/Hour(Low Byte)	
	1717			u16	1	Min(High Byte)/Sec(Low Byte)	
	1718			u16	1	MilliSecond	
	1719			u16	1	Time Quality	
	1720		100	u16	100	Last Fault: Max Phase A Current Magnitude	LD0.FLTMSTA1.MaxAmpsA.mag.f
	1721		100	u16	100	Last Fault: Max Phase B Current Magnitude	LD0.FLTMSTA1.MaxAmpsB.mag.f
	1722		100	u16	100	Last Fault: Max Phase C Current Magnitude	LD0.FLTMSTA1.MaxAmpsC.mag.f
	1723		100	u16	100	Last Fault: Max Neutral Current Magnitude	LD0.FLTMSTA1.MaxAmpsN.mag.f
	1724		100	u16	100	Last Fault: Phase A Current Magnitude	LD0.FLTMSTA1.AmpsA.mag.f
	1725		100	u16	100	Last Fault: Phase B Current Magnitude	LD0.FLTMSTA1.AmpsB.mag.f
	1726		100	u16	100	Last Fault: Phase C Current Magnitude	LD0.FLTMSTA1.AmpsC.mag.f
	1727		100	u16	100	Last Fault: Neutral Current Magnitude	LD0.FLTMSTA1.AmpsN.mag.f
	1728		100	u16	100	Last Fault: Calculated Residual Current Magnitude	LD0.FLTMSTA1.AmpsNClc.mag.f
	1729		100	u16	100	Last Fault: Negative Sequence Current Mag.	LD0.FLTMSTA1.AmpsNgSeq.mag.f
	1730		100	u16	100	Last Fault: Positive Sequence Current Mag.	LD0.FLTMSTA1.AmpsPsSeq.mag.f
	1731		100	u16	100	Last Fault: Phase A Voltage Magnitude	LD0.FLTMSTA1.VoltsA.mag.f
	1732		100	u16	100	Last Fault: Phase B Voltage Magnitude	LD0.FLTMSTA1.VoltsB.mag.f
	1733		100	u16	100	Last Fault: Phase C Voltage Magnitude	LD0.FLTMSTA1.VoltsC.mag.f
	1734		100	u16	100	Last Fault: Measured Residual Voltage Magnitude	LD0.FLTMSTA1.VoltsN.mag.f
	1735		100	u16	100	Last Fault: Negative Sequence Voltage Magnitude	LD0.FLTMSTA1.VNgSeq.mag.f

Coil Addr	Register(:Bit) Addr	W	Dc	Type	Scale	Description	IEC61850 Data Attribute Name
	1736		100	u16	100	Last Fault: Positive Sequence Voltage Magnitude	LD0.FLTMSTA1.VPsSeq.mag.f
	1737		100	u16	100	Last Fault: Zero Sequence Voltage Magnitude	LD0.FLTMSTA1.VZroSeq.mag.f
	1738		100	u16	100	Last Fault: Phase AB Voltage Magnitude	LD0.FLTMSTA1.VoltsAB.mag.f
	1739		100	u16	100	Last Fault: Phase BC Voltage Magnitude	LD0.FLTMSTA1.VoltsBC.mag.f
	1740		100	u16	100	Last Fault: Phase CA Voltage Magnitude	LD0.FLTMSTA1.VoltsCA.mag.f
	1741		100	u16	100	Maximum phase A current (b)	LD0.FLTMSTA1.MaxAmpsAb.mag.f
	1742		100	u16	100	Maximum phase B current (b)	LD0.FLTMSTA1.MaxAmpsBb.mag.f
	1743		100	u16	100	Maximum phase C current (b)	LD0.FLTMSTA1.MaxAmpsCb.mag.f
	1744		100	u16	100	Maximum residual current (b)	LD0.FLTMSTA1.MaxAmpsNb.mag.f
	1745		100	u16	100	Phase A current (b)	LD0.FLTMSTA1.AmpsAb.mag.f
	1746		100	u16	100	Phase B current (b)	LD0.FLTMSTA1.AmpsBb.mag.f
	1747		100	u16	100	Phase C current (b)	LD0.FLTMSTA1.AmpsCb.mag.f
	1748		100	u16	100	Residual current (b)	LD0.FLTMSTA1.AmpsNb.mag.f
	1749		100	u16	100	Calculated residual current (b)	LD0.FLTMSTA1.AmpsNClcb.mag.f
	1750		100	u16	100	Negative sequence current (b)	LD0.FLTMSTA1.AmpsNgSeqb.mag.f
	1751		100	u16	100	Positive sequence current (b)	LD0.FLTMSTA1.AmpsPsSeqb.mag.f
	1752		100	u16	100	Phase A voltage (b)	LD0.FLTMSTA1.VoltsAb.mag.f
	1753		100	u16	100	Phase B voltage (b)	LD0.FLTMSTA1.VoltsBb.mag.f
	1754		100	u16	100	Phase C voltage (b)	LD0.FLTMSTA1.VoltsCb.mag.f
	1755		100	u16	100	Residual voltage (b)	LD0.FLTMSTA1.VoltsNb.mag.f
	1756		100	u16	100	Negative sequence voltage (b)	LD0.FLTMSTA1.VNgSeqb.mag.f
	1757		100	u16	100	Positive sequence voltage (b)	LD0.FLTMSTA1.VPsSeqb.mag.f
	1758		100	u16	100	Zero sequence voltage (b)	LD0.FLTMSTA1.VZroSeqb.mag.f
	1759		100	u16	100	Phase A to phase B voltage (b)	LD0.FLTMSTA1.VoltsABb.mag.f
	1760		100	u16	100	Phase B to phase C voltage (b)	LD0.FLTMSTA1.VoltsBCb.mag.f
	1761		100	u16	100	Phase C to phase A voltage (b)	LD0.FLTMSTA1.VoltsCAb.mag.f
	1762		100	u16	100	Maximum differential current phase A	LD0.FLTMSTA1.MxDifAClcA.mag.f

Coil Addr	Register(:Bit) Addr	W	Dc	Type	Scale	Description	IEC61850 Data Attribute Name
	1763		100	u16	100	Maximum differential current phase B	LD0.FLTMSTA1.MxDifAClcB.mag.f
	1764		100	u16	100	Maximum differential current phase C	LD0.FLTMSTA1.MxDifAClcC.mag.f
	1765		100	u16	100	Differential current phase A	LD0.FLTMSTA1.DifAmpsA.mag.f
	1766		100	u16	100	Differential current phase B	LD0.FLTMSTA1.DifAmpsB.mag.f
	1767		100	u16	100	Differential current phase C	LD0.FLTMSTA1.DifAmpsC.mag.f
	1768		100	u16	100	Differential current residual	LD0.FLTMSTA1.DifAmpsN.mag.f
	1769		100	u16	100	Maximum bias current phase A	LD0.FLTMSTA1.MxRstAClcA.mag.f
	1770		100	u16	100	Maximum bias current phase B	LD0.FLTMSTA1.MxRstAClcB.mag.f
	1771		100	u16	100	Maximum bias current phase C	LD0.FLTMSTA1.MxRstAClcC.mag.f
	1772		100	u16	100	Bias current phase A	LD0.FLTMSTA1.RstAmpsA.mag.f
	1773		100	u16	100	Bias current phase B	LD0.FLTMSTA1.RstAmpsB.mag.f
	1774		100	u16	100	Bias current phase C	LD0.FLTMSTA1.RstAmpsC.mag.f
	1775		100	u16	100	Bias current residual	LD0.FLTMSTA1.RstAmpsN.mag.f
	1776		100	u16	100	Last Fault: I2/I1 Ratio Fault	LD0.FLTMSTA1.PDNS1MxRat.mag.f
	1777		100	u16	100	Last Fault: Max Temperature	LD0.FLTMSTA1.MaxTmpRl.mag.f
	1778		100	u16	100	Last Fault: Fault Record Operation Counter	LD0.FLTMSTA1.OpCnt.stVal
	1779		100	u16	100	Last Fault: Frequency At The Time The Fault Is Cleared	LD0.FLTMSTA1.Hz.mag.f
	1780		100	u16	100	Last Fault: Frequency Gradient At The Time The Fault Is Cleared	LD0.FLTMSTA1.HzS.mag.f
	1781		100	u16	100	Last Fault: Conductance Yo	LD0.FLTMSTA1.CondN.mag.f
	1782		100	u16	100	Last Fault: Susceptance Yo	LD0.FLTMSTA1.SusN.mag.f
	1783		100	u16	100	Last Fault: Max Pickup (Start) Duration Of All Stages During The Fault	LD0.FLTMSTA1.StrDur.mag.f
	1784		100	u16	100	Distance to fault measured in pu	LD0.FLTMSTA1.FltDisKm.mag.f

Table 8: General Device Information (LLN0)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5576	235:0	0					Local / Remote (1- Local; 0-Remote)	CTRL.LLN0.Loc.stVal
5577	235:1	0	Yes					
	244:0	0					Protection LLN0 Settings Reservation	LD0.LLN0.SetSeld.stVal
	244:1	0	Yes					
	245:0	0					Protection LLN0 Settings Change	LD0.LLN0.SetChg.stVal
	245:1	0	Yes					
	236	0		u16	1	0	Local / Remote state	CTRL.LLN0.LocRem.stVal

Table 9: Device Physical Information (LPHD1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	IEC61850 Data Attribute Name	Description
	232	0		u16	1	0	LD0.LPHD1.NumPwrUp.stVal	Number Of Power Ups
	233	0		u16	1	0	LD0.LPHD1.WrmStr.stVal	Number Of Warm Starts
	234	0		u16	1	0	LD0.LPHD1.WacTrg.stVal	Number Of Watchdog Device Resets
	237	0		s16	1	0	LD0.LPHD1.PhyHealth.stVal	General Device State
	238	0		u16	1	0	LD0.LPHD1.PhyHealth1.stVal	Physical Sevice Warning
	239	0		u16	1	0	LD0.LPHD1.PhyHealth2.stVal	Internal Fault

Table 10: LED Condition monitoring (LEDPTRC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	IEC61850 Data Attribute Name	Description
2894	2199:2	0					LD0.LEDPTRC1.Op.general	Global Conditioning Trip (Operate)
2895	2199:3	0	Yes					
3824	2245:8	0					LD0.LEDPTRC1.Op.phsA	Global Conditioning Phase-A Trip (Operate)
3825	2245:9	0	Yes					
3826	2245:10	0					LD0.LEDPTRC1.Op.phsB	Global Conditioning Phase-B Trip (Operate)
3827	2245:11	0	Yes					
3828	2245:12	0					LD0.LEDPTRC1.Op.phsC	Global Conditioning Phase-C Trip (Operate)
3829	2245:13	0	Yes					

Table 11: LED Status (LEDGGIO1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5020	2476:0	0					5020	LD0.LEDGGIO1.SPCSO1.stVal
5020	2476:1	0					Led 1 On	LD0.LEDGGIO1.SPCSO1.stVal

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5021	2476:2	0	Yes					
5022	2476:3	0					Led 2 On	LD0.LEDGGIO1.SPCSO2.stVal
5023	2476:4	0	Yes					
5024	2476:5	0					Led 3 On	LD0.LEDGGIO1.SPCSO3.stVal
5025	2476:6	0	Yes					
5026	2476:7	0					Led 4 On	LD0.LEDGGIO1.SPCSO4.stVal
5027	2476:8	0	Yes					
5028	2476:9	0					Led 5 On	LD0.LEDGGIO1.SPCSO5.stVal
5029	2476:10	0	Yes					
5030	2476:11	0					Led 6 On	LD0.LEDGGIO1.SPCSO6.stVal
5031	2476:12	0	Yes					
5032	2476:13	0					Led 7 On	LD0.LEDGGIO1.SPCSO7.stVal
5033	2476:14	0	Yes					
5034	2476:15	0					Led 8 On	LD0.LEDGGIO1.SPCSO8.stVal
5035	2477:0	0	Yes					
5036	2477:1	0					Led 9 On	LD0.LEDGGIO1.SPCSO9.stVal
5037	2477:2	0	Yes					
5038	2477:3	0					Led 10 On	LD0.LEDGGIO1.SPCSO10.stVal
5039	2477:4	0	Yes					
5040	2477:5	0					Led 11 On	LD0.LEDGGIO1.SPCSO11.stVal
5041	2476:0	0	Yes					

Table 12: X100-Binary Inputs/Outputs (XGGIO100)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2148	2162:0	2					X100-Output 1 PSM	LD0.XGGIO100.SPCSO1.stVal
2149	2162:1	2	Yes					
2150	2162:2	2					X100-Output 2 PSM	LD0.XGGIO100.SPCSO2.stVal
2151	2162:3	2	Yes					
2152	2162:4	2					X100-Output 3 PSM	LD0.XGGIO100.SPCSO3.stVal
2153	2162:5	2	Yes					
2154	2162:6	2					X100-Output 4 PSM	LD0.XGGIO100.SPCSO4.stVal
2155	2162:7	2	Yes					
2156	2162:8	2					X100-Output 5 PSM	LD0.XGGIO100.SPCSO5.stVal
2157	2162:9	2	Yes					
2158	2162:10	2					X100-Output 6 PSM	LD0.XGGIO100.SPCSO6.stVal
2159	2162:11	2	Yes					

Table 13: X110-Binary Inputs/Outputs (XGGIO110)

Coil Addr	Input Addr (1x)	Register (:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2132			2					X110-Output 1 BIO	LD0.XGGIO110.SPCSO1.stVal
2133			2	Yes					
2134			2					X110-Output 2 BIO	LD0.XGGIO110.SPCSO2.stVal
2135			2	Yes					
2136			2					X110-Output 3 BIO	LD0.XGGIO110.SPCSO3.stVal
2137			2	Yes					
2138			2					X110-Output 4 BIO	LD0.XGGIO110.SPCSO4.stVal
2139			2	Yes					
	2164	2320:0	1					X110-Input 1 BIO	LD0.XGGIO110.Ind1.stVal
	2165	2320:1	1	Yes					
	2166	2320:2	1					X110-Input 2 BIO	LD0.XGGIO110.Ind2.stVal
	2167	2320:3	1	Yes					
	2168	2320:4	1					X110-Input 3 BIO	LD0.XGGIO110.Ind3.stVal
	2169	2320:5	1	Yes					
	2170	2320:6	1					X110-Input 4 BIO	LD0.XGGIO110.Ind4.stVal
	2171	2320:7	1	Yes					
	2172	2320:8	1					X110-Input 5 BIO	LD0.XGGIO110.Ind5.stVal
	2173	2320:9	1	Yes					
	2174	2320:10	1					X110-Input 6 BIO	LD0.XGGIO110.Ind6.stVal
	2175	2320:11	1	Yes					
	2176	2320:12	1					X110-Input 7 BIO	LD0.XGGIO110.Ind7.stVal
	2177	2320:13	1	Yes					
	2178	2320:14	1					X110-Input 8 BIO	LD0.XGGIO110.Ind8.stVal
	2179	2320:15	1	Yes					

Table 14: X130-Binary Inputs/Outputs (XGGIO130)

Coil Addr	Input Addr (1x)	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2100			2					X130-Output 1	LD0.XGGIO130.SPCSO1.stVal
2101			2	Yes					
2102			2					X130-Output 2	LD0.XGGIO130.SPCSO2.stVal
2103			2	Yes					
2104			2					X130-Output 3	LD0.XGGIO130.SPCSO3.stVal
2105			2	Yes					
	2100	2316:0	1					X130-Input 1	LD0.XGGIO130.Ind1.stVal
	2101	2316:1	1	Yes					

Coil Addr	Input Addr (1x)	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	2102	2316:2	1					X130-Input 2	LD0.XGGIO130.Ind2.stVal
	2103	2316:3	1	Yes					
	2104	2316:4	1					X130-Input 3	LD0.XGGIO130.Ind3.stVal
	2105	2316:5	1	Yes					
	2106	2316:6	1					X130-Input 4	LD0.XGGIO130.Ind4.stVal
	2107	2316:7	1	Yes					
	2108	2316:8	1					X130-Input 5	LD0.XGGIO130.Ind5.stVal
	2109	2316:9	1	Yes					
	2110	2316:10	1					X130-Input 6	LD0.XGGIO130.Ind6.stVal
	2111	2316:11	1	Yes					

Table 15: 51P:Three-phase non-directional overcurrent protection-low stage - instance 1 (PHLPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2230	2167:0	0					51P Trip (Operate)	LD0.PHLPTOC1.Op.general
2231	2167:1	0	Yes					
3400	2224:0	0					51P Phase A Trip (Operate)	LD0.PHLPTOC1.Op.phsA
3401	2224:1	0	Yes					
3402	2224:2	0					51P Phase B Trip (Operate)	LD0.PHLPTOC1.Op.phsB
3403	2224:3	0	Yes					
3404	2224:4	0					51P Phase C Trip (Operate)	LD0.PHLPTOC1.Op.phsC
3405	2224:5	0	Yes					
	2326:0	0					51P Enable Signal For Current Multiplier	LD0.PHLPTOC1.InEnaMult.stVal
	2326:1	0	Yes					

Table 16: 50P:Three-phase non-directional overcurrent protection-high stage - instance 1 (PHHPTOC1)

Coil Addr	Input addr (1x)	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2232		2167:2	0					50P Trip (Operate)	LD0.PHHPTOC1.Op.general
2233		2167:3	0	Yes					
3406		2224:6	0					50P Phase A Trip (Operate)	LD0.PHHPTOC1.Op.phsA
3407		2224:7	0	Yes					
3408		2224:8	0					50P Phase B Trip (Operate)	LD0.PHHPTOC1.Op.phsB
3409		2224:9	0	Yes					
3410		2224:10	0					50P Phase C Trip (Operate)	LD0.PHHPTOC1.Op.phsC
3411		2224:11	0	Yes					
	2302	2326:2	0					50P Enable Signal For Current Multiplier	LD0.PHHPTOC1.InEnaMult.stVal
	2303	2326:3	0	Yes					

Table 17: 51G:Non-directional ground-fault protection-low stage - instance 1 (EFLPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2246	2168:0	0					51G Trip (Operate)	LD0.EFLPTOC1.Op.general
2247	2168:1	0	Yes					
	2326:8	0					51G Enable Current Multiplier	LD0.EFLPTOC1.InEnaMult.stVal
	2326:9	0	Yes					

Table 18: 50G:Non-directional ground-fault protection-high stage - instance 1 (EFHPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2248	2168:2	0					50G Trip (Operate)	LD0.EFHPTOC1.Op.general
2249	2168:3	0	Yes					
	2326:10	0					50G Enable Current Multiplier	LD0.EFHPTOC1.InEnaMult.stVal
	2326:11	0	Yes					

Table 19: 67/51N:Directional ground-fault protection-low stage - instance 1 (DEFLPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2278	2170:0	0					67/51N Trip (Operate)	LD0.DEFLPTOC1.Op.general
2279	2170:1	0	Yes					

Table 20: 59G:Residual overvoltage protection-instance 1 (ROVPTOV1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2308	2171:14	0					59G Trip (Operate)	LD0.ROVPTOV1.Op.general
2309	2171:15	0	Yes					

Table 21: 59N:Residual overvoltage protection-instance 2 (ROVPTOV2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3146	2210:12	0					59N Trip (Operate)	LD0.ROVPTOV2.Op.general
3147	2210:13	0	Yes					

Table 22: 27:Three-phase undervoltage protection-instance 1 (PHPTUV1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2292	2170:14	0					27 Trip (Operate)	LD0.PHPTUV1.Op.general
2293	2170:15	0	Yes					
3478	2228:14	0					27 Phase A Trip (Operate)	LD0.PHPTUV1.Op.phsA
3479	2228:15	0	Yes					
3480	2229:0	0					27 Phase B Trip (Operate)	LD0.PHPTUV1.Op.phsB
3481	2229:1	0	Yes					
3482	2229:2	0					27 Phase C Trip (Operate)	LD0.PHPTUV1.Op.phsC
3483	2229:3	0	Yes					

Table 23: 59:Three-phase overvoltage protection-instance 1 (PHPTOV1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2298	2171:4	0					59 Trip (Operate)	LD0.PHPTOV1.Op.general
2299	2171:5	0	Yes					
3490	2229:10	0					59 Phase A Trip (Operate)	LD0.PHPTOV1.Op.phsA
3491	2229:11	0	Yes					
3492	2229:12	0					59 Phase B Trip (Operate)	LD0.PHPTOV1.Op.phsB
3493	2229:13	0	Yes					
3494	2229:14	0					59 Phase C Trip (Operate)	LD0.PHPTOV1.Op.phsC
3495	2229:15	0	Yes					

Table 24: 27PS:Positive-sequence undervoltage protection-instance 1 (PSPTUV1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2340	2173:14	0					27PS Positive Sequence Under Voltage 1	LD0.PSPTUV1.Op.general
2341	2173:15	0	Yes					

Table 25: 47:Negative-sequence overvoltage protection-instance 1 (NSPTOV1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2342	2174:0	0					47 Trip (Operate)	LD0.NSPTOV1.Op.general
2343	2174:1	0	Yes					

Table 26: 81:Frequency protection-instance 1 (FRPTRC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3154	2211:4	0					81 Frequency Gradient Trip (Operate)	LD0.FRPTRC1.Op.general
3155	2211:5	0	Yes					
	841	6		u16	100	0	81 Ratio Of Pickup (Start) Time / Trip (Operate) Time Instance 1	LD0.FRPTRC1.StrDur.mag.f

Table 27: 81:Frequency protection-instance 1 (FRPTOF1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3158	2211:8	0					81 Over-Frequency Trip (Operate)	LD0.FRPTOF1.Op.general
3159	2211:9	0	Yes					
	843	6		u16	100	0	81 Ratio Of Pickup (Start) Time / Trip (Operate) Time Overfrequency Instance 1	LD0.FRPTOF1.StrDur.mag.f

Table 28: 81:Frequency protection-instance 1 (FRPTUF1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3162	2211:12	0					81 Under-Frequency Trip (Operate)	LD0.FRPTUF1.Op.general
3163	2211:13	0	Yes					
	845	6		u16	100	0	81 Ratio Of Pickup (Start) Time / Trip (Operate) Time Underfrequency Instance 1	LD0.FRPTUF1.StrDur.mag.f

Table 29: 81:Frequency protection-instance 1 (FRPFRC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3166	2212:0	0					81 Frequency Gradient Trip (Operate)	LD0.FRPFRC1.Op.general
3167	2212:1	0	Yes					
	847	6		u16	100	0	81 Ratio Of Pickup (Start) Time / Trip (Operate) Time Frequency Gradient Instance 1	LD0.FRPFRC1.StrDur.mag.f

Table 30: 46M-1:Negative-sequence overcurrent protection for motors-instance 1 (MNSPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2910	2200:2	0					46M-1 Negative Sequence Overcurrent Protection For Motors 1	LD0.MNSPTOC1.Op.general
2911	2200:3	0	Yes					

Table 31: 46M-2:Negative-sequence overcurrent protection for motors-instance 2 (MNSPTOC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2912	2200:4	0					46M-2 Negative Sequence Overcurrent Protection For Motors 2	LD0.MNSPTOC2.Op.general
2913	2200:5	0	Yes					

Table 32: 37M-1:Loss of load supervision-instance 1 (LOFLPTUC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2332	2173:6	0					37M-1 Loss Of Load Supervision 1	LD0.LOFLPTUC1.Op.general
2333	2173:7	0	Yes					

Table 33: 37M-2:Loss of load supervision -instance 2 (LOFLPTUC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2334	2173:8	0					37M-2 Loss Of Load Supervision 2	LD0.LOFLPTUC2.Op.general
2335	2173:9	0	Yes					

Table 34: 51LR-1:Motor load jam protection (JAMPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2906	2199:14	0					51LR-1 Motor Jam Trip (Operate)	LD0.JAMPTOC1.Op.general
2907	2199:15		Yes					
7192	4014:02	0					51LR-1 Phase A Motor Jam Trip (Operate)	LD0.JAMPTOC1.Op.phsA
7193	4014:03		Yes					
7194	4014:04	0					51LR-1 Phase B Motor Jam Trip (Operate)	LD0.JAMPTOC1.Op.phsB
7195	4014:05		Yes					
7196	4014:06	0					51LR-1 Phase C Motor Jam Trip (Operate)	LD0.JAMPTOC1.Op.phsC
7197	4014:07		Yes					

Table 35: 51LR-2:Motor load jam protection (JAMPTOC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7026	4001:10	0					51LR-2 Motor Jam Trip (Operate)	LD0.JAMPTOC2.Op.general
7027	4001:11		Yes					
7028	4001:12	0					51LR-2 Phase A Motor Jam Trip (Operate)	LD0.JAMPTOC2.Op.phsA
7029	4001:13		Yes					
7030	4001:14	0					51LR-2 Phase B Motor Jam Trip (Operate)	LD0.JAMPTOC2.Op.phsB
7031	4001:15		Yes					
7032	4002:00	0					51LR-2 Phase C Motor Jam Trip (Operate)	LD0.JAMPTOC2.Op.phsC
7033	4002:01		Yes					

Table 36: 66/51LRS:Motor start-up supervision (STTPMSS1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2916	2200:8	0					66/51LRS Trip (Operate)/Trip Signal For Stalling Protection	LD0.STTPMSS1.Op.general
2917	2200:9	0	Yes					

Table 37: 66/51LRS:Motor start-up supervision (STTPMRI1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2918	2200:10	0					66/51LRS Trip (Operate)/Trip Signal For Thermal Stress	LD0.STTPMRI1.Op.general
2919	2200:11	0	Yes					

Table 38: 46R:Phase reversal protection (PREVPTOC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2904	2199:12	0					46R Phase Reversal Protection	LD0.PREVPTOC1.Op.general

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2905	2199:13	0	Yes					

Table 39: 49M:Thermal overload protection for motors (MPTTR1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2908	2200:0	0					49M Motor Trip (Operate)	LD0.MPTTR1.Op.general
2909	2200:1	0	Yes					
5514	2505:8	0					49M Motor Thermal Alarm	LD0.MPTTR1.AlmThm.general
5515	2505:9	0	Yes					
	806	6		u16	100	0	49M Thermal Level	LD0.MPTTR1.TmpRl.mag.f
	807	6		u16	100	0	49M The Ambient Temperature Used In The Calculation	LD0.MPTTR1.TmpUsed.mag.f
	808	6		u16	100	0	49M Thermal Level At Beginning Of Motor Startup	LD0.MPTTR1.ThmLevSt.mag.f
	809	6		u16	100	0	49M Thermal Level At The End Of Motor Startup Situation	LD0.MPTTR1.ThmLevEnd.mag.f
	810	0		u16	1	0	49M Estimated Time To Reset Of Block Restart	LD0.MPTTR1.StrInhTms.stVal

Table 40: 87M:Motor differential protection (MPDIF1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3214	2215:0	0					87M Motor Differential Protection	LD0.MPDIF1.Op.general
3215	2215:1	0	Yes					
3216	2215:2	0					87M Motor Differential Protection Block	LD0.MPDIF1.BlkInSt.general
3217	2215:3	0	Yes					

Table 41: 50BF:Circuit breaker failure protection-instance 1 (CCBRBRF1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2310	2172:0	0					50BF Recloser External Operation Failure 1	LD0.CCBRBRF1.OpEx.general
2311	2172:1	0	Yes					
2312	2172:2	0					50BF Recloser Retrip (Internal Trip) 1	LD0.CCBRBRF1.OpIn.general
2313	2172:3	0	Yes					
5526	2506:4	0					50BF Recloser Close Position 1	LD0.CCBRBRF1.InPosCls.stVal
5527	2506:5	0	Yes					
5528	2506:6	0					50BF Recloser Faulty And Unable To Trip 1	LD0.CCBRBRF1.InCBFlt.stVal
5529	2506:7	0	Yes					
5532	2506:10	0					50BF Recloser Trip Start 1	LD0.CCBRBRF1.InStr.stVal
5533	2506:11	0	Yes					

Table 42: 86/94-1:Master trip-instance 1 (TRPPTRC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2896	2199:4	0					86/94-1 Master Trip Trip (Operate) Input 1	LD0.TRPPTRC1.Op.general
2897	2199:5	0	Yes					
2898	2199:6	0					86/94-1 Master Trip General Output 1	LD0.TRPPTRC1.Tr.general
2899	2199:7	0	Yes					

Table 43: 86/94-2:Master trip-instance 2 (TRPPTRC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2900	2199:8	0					86/94-2 Master Trip Trip (Operate) Input 2	LD0.TRPPTRC2.Op.general
2901	2199:9	0	Yes					
2902	2199:10	0					86/94-2 Master Trip General Output 2	LD0.TRPPTRC2.Tr.general
2903	2199:11	0	Yes					

Table 44: AFD-1:Arc protection-instance 1 (ARCSARC11)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2320	2172:10	0					AFD-1 Fault Arc Detected 1	LD0.ARCSARC11.FADet.stVal
2321	2172:11	0	Yes					
2326	2173:0	0					AFD-1 Remote Fault Arc Detected 1	LD0.ARCSARC11.InRemFA.stVal
2327	2173:1	0	Yes					

Table 45: AFD-1:Arc protection-instance 1 (ARCPTRC11))

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2314	2172:4	0					AFD-1 Arc Detected Trip (Operate) 1	LD0.ARCPTRC11.Op.general
2315	2172:5	0	Yes					

Table 46: AFD-2:Arc protection-instance 2 (ARCSARC21)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2322	2172:12	0					AFD-2 Fault Arc Detected 2	LD0.ARCSARC21.FADet.stVal
2323	2172:13	0	Yes					
2328	2173:2	0					AFD-2 Remote Fault Arc Detected 2	LD0.ARCSARC21.InRemFA.stVal
2329	2173:3	0	Yes					

Table 47: AFD-2:Arc protection-instance 2 (ARCPTRC21)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2316		0					AFD-2 Arc Detected Trip (Operate) 2	LD0.ARCPTRC21.Op.general
2317		0	Yes					
	2172:6	0					AFD-2 Arc Detected Trip (Operate) 2	LD0.ARCPTRC21.Op.general
	2172:7	0	Yes					

Table 48: AFD-3:Arc protection-instance 3 (ARCSARC31)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2324	2172:14	0					AFD-3 Fault Arc Detected 3	LD0.ARCSARC31.FADet.stVal
2325	2172:15	0	Yes					
2330	2173:4	0					AFD-3 Remote Fault Arc Detected 3	LD0.ARCSARC31.InRemFA.stVal
2331	2173:5	0	Yes					

Table 49: AFD-3:Arc protection-instance 3 (ARCPTRC31)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2318	2172:8	0					AFD-3 Arc Detected Trip (Operate) 3	LD0.ARCPTRC31.Op.general
2319	2172:9	0	Yes					

Table 50: MAP(1):Multi-purpose protection-instance 1 (MAPGAPC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3218	2215:4	0					MAP 1 Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC1.Op.general
3219	2215:5	0	Yes					

Table 51: MAP(2):Multi-purpose protection-instance 2 (MAPGAPC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3220	2215:6	0					MAP 2 Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC2.Op.general
3221	2215:7	0	Yes					

Table 52: MAP(3):Multi-purpose protection-instance 3 (MAPGAPC3)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3222	2215:8	0					MAP 3 Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC3.Op.general
3223	2215:9	0	Yes					

Table 53: MAP(4):ulti-purpose protection - instance 4 (MAPGAPC4)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7000	4000:00	0					MAP(4) Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC4.Op.general
7001	4000:01		Yes					

Table 54: MAP(5):Multi-purpose protection - instance 5 (MAPGAPC5)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7002	4000:02	0					MAP(5) Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC5.Op.general
7003	4000:03		Yes					

Table 55: MAP(6):Multi-purpose protection - instance 6 (MAPGAPC6)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7004	4000:04	0					MAP(6) Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC6.Op.general
7005	4000:05		Yes					

Table 56: MAP(7):Multi-purpose protection - instance 7 (MAPGAPC7)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7006	4000:06	0					MAP(7) Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC7.Op.general
7007	4000:07		Yes					

Table 57: MAP(8):Multi-purpose protection - instance 8 (MAPGAPC8)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7008	4000:08	0					MAP(8) Multi-Purpose Protection Trip (Operate)	LD0.MAPGAPC8.Op.general
7009	4000:09		Yes					

Table 58: 32O-1:Reverse power / Directional over power protection - instance 1 (DPPDOP1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7034	4002:02	0					32O-1 Trip (Operate)	LD0.DPPDOP1.Op.general
7035	4002:03		Yes					

Table 59: 32O-2:Reverse power / Directional over power protection - instance 2 (DPPDOP2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7036	4002:04	0					32O-2 Trip (Operate)	LD0.DPPDOP2.Op.general
7037	4002:05		Yes					

Table 60: 32O-3:Reverse power / Directional over power protection - instance 3 (DPPDOP3)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7038	4002:06	0					32O-3 Trip (Operate)	LD0.DPPDOP3.Op.general
7039	4002:07		Yes					

Table 61: 32U-1:Under power protection - instance 1 (DPPDUP1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7040	4002:08	0					32U-1 Trip (Operate)	LD0.DPPDUP1.Op.general
7041	4002:09		Yes					

Table 62: 32U-2:Under power protection - instance 2 (DPPDUP2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7042	4002:10	0					32U-2 Trip (Operate)	LD0.DPPDUP2.Op.general
7043	4002:11		Yes					

Table 63: 27R:Three phase remanent undervoltage blocking (REMPTUV1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7044	4002:12	0					27R Trip (Operate)	LD0.REMPTUV1.Op.general
7045	4002:13	0	Yes					

Table 64: 50P-2:Three-phase non-directional overcurrent protection-high stage - instance 2 (PHHPTOC2)

Coil Addr	Input Addr (1x)	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2234		2167:04	0					50P-2 Trip (Operate)	LD0.PHHPTOC2.Op.general
2235		2167:05	0	Yes					
3412		2224:12	0					50P-2 Phase A Trip (Operate)	LD0.PHHPTOC2.Op.phsA
3413		2224:13	0	Yes					
3414		2224:14	0					50P-2 Phase B Trip (Operate)	LD0.PHHPTOC2.Op.phsB
3415		2224:15	0	Yes					
3416		2225:00	0					50P-2 Phase C Trip (Operate)	LD0.PHHPTOC2.Op.phsC
3417		2225:01	0	Yes					
	2304	2326:04	0					50P-2 Enable Signal For Current Multiplier	LD0.PHHPTOC2.InEnaMult.stVal
	2305	2326:05	0	Yes					

Table 65: 50G-2:Non-directional ground-fault protection-high stage - instance 2 (EFHPTOC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2250	2168:04	0					50G-2 Trip (Operate)	LD0.EFHPTOC2.Op.general
2251	2168:05		Yes					

Table 66: 27 - 2:Three-phase undervoltage protection-instance 2 (PHPTUV2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2294	2171:00	0					27-2 Trip (Operate)	LD0.PHPTUV2.Op.general
2295	2171:01		Yes					
3484	2229:04	0					27-2 Phase A Trip (Operate)	LD0.PHPTUV2.Op.phsA
3485	2229:05		Yes					
3486	2229:06	0					27-2 Phase B Trip (Operate)	LD0.PHPTUV2.Op.phsB
3487	2229:07		Yes					
3488	2229:08	0					27-2 Phase C Trip (Operate)	LD0.PHPTUV2.Op.phsC
3489	2229:09		Yes					

Table 67: 59 - 2:Three-phase undervoltage protection-instance 2 (PHPTOV2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2300	2171:06	0					59-2 Trip (Operate)	LD0.PHPTOV2.Op.general
2301	2171:07		Yes					
3496	2230:00	0					59-2 Phase A Trip (Operate)	LD0.PHPTOV2.Op.phsA
3497	2230:01		Yes					
3498	2230:02	0					59-2 Phase B Trip (Operate)	LD0.PHPTOV2.Op.phsB
3499	2230:03		Yes					
3500	2230:04	0					59-2 Phase C Trip (Operate)	LD0.PHPTOV2.Op.phsC
3501	2230:05		Yes					

Table 68: 47-2:Negative-sequence overvoltage protection-instance 2 (NSPTOV2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3152	2211:02						47-2 Trip (Operate)	LD0.NSPTOV2.Op.general
3153	2211:03		Yes					

Table 69: 81-2:Frequency protection-instance 2 (FRPFRC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3168	2212:02						81-2 Frequency Gradient Trip (Operate)	LD0.FRPFRC2.Op.general
3169	2212:03		Yes					
	848	6			100	0	81-2 Ratio Of Start Time / Operate Time Frequency Gradient Instance 2	LD0.FRPFRC2.StrDur.mag.f

Table 70: 24-1:Voltage per hertz protection, instance 1 (OEPVPH1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3224	2215:10	0					24-1 Trip (Operate)	LD0.OEPVPH1.Op.general
3225	2215:11		Yes					

Table 71: 24-2:Voltage per hertz protection, instance 2 (OEPVPH2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
3226	2215:12	0					24-2 Trip (Operate)	LD0.OEPVPH2.Op.general
3227	2215:13		Yes					

Table 72: 87A:High impedance differential protection, instance 1 (HIPDIF1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7048	4003:00	0					87A Trip (Operate)	LD0.HIPDIF1.Op.general
7049	4003:01		Yes					

Table 73: 87B:High impedance differential protection, instance 2 (HIPDIF2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7050	4003:02	0					87B Trip (Operate)	LD0.HIPDIF2.Op.general
7051	4003:03		Yes					

Table 74: 87C:High impedance differential protection, instance 3 (HIPDIF3)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7052	4003:04	0					87C Trip (Operate)	LD0.HIPDIF3.Op.general
7053	4003:05		Yes					

Table 75: X110-High Speed Binary Inputs/Outputs (XBGGIO110)

Coil Addr	Input Addr.(1x)	Register(:Bit)	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7216		4016:00						X110 (BIO-H) Connectors 15no-16no	LD0.XBGGIO110.SPCSO1.stVal
7217		4016:01		Yes					
7218		4016:02						X110 (BIO-H) Connectors 19no-20no	LD0.XBGGIO110.SPCSO2.stVal
7219		4016:03		Yes					
7220		4016:04						X110 (BIO-H) Connectors 23no-24no	LD0.XBGGIO110.SPCSO3.stVal
7221		4016:05		Yes					
	7200	4015:00						X110 (BIO-H) Connectors 1-5c	LD0.XBGGIO110.Ind1.stVal
	7201	4015:01		Yes					
	7202	4015:02						X110 (BIO-H) Connectors 2-5c	LD0.XBGGIO110.Ind2.stVal
	7203	4015:03		Yes					
	7204	4015:04						X110 (BIO-H) Connectors 3-5c	LD0.XBGGIO110.Ind3.stVal
	7205	4015:05		Yes					
	7206	4015:06						X110 (BIO-H) Connectors 4-5c	LD0.XBGGIO110.Ind4.stVal

Coil Addr	Input Addr.(1x)	Register(:Bit)	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	7207	4015:07		Yes					
	7208	4015:08						X110 (BIO-H) Connectors 5-5c	LD0.XBGGIO110.Ind5.stVal
	7209	4015:09		Yes					
	7210	4015:10						X110 (BIO-H) Connectors 6-5c	LD0.XBGGIO110.Ind6.stVal
	7211	4015:11		Yes					
	7212	4015:12						X110 (BIO-H) Connectors 7-5c	LD0.XBGGIO110.Ind7.stVal
	7213	4015:13		Yes					
	7214	4015:14						X110 (BIO-H) Connectors 8-5c	LD0.XBGGIO110.Ind8.stVal
	7215	4015:15		Yes					

Table 76: CNTRL-1:Generic control points instance 1 (SPCGGIO1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7064	4004:00	0					CNTRL-1 Output 1 status	LD0.SPCGGIO1.SPCSO1.stVal
7065	4004:01		Yes					
7066	4004:02	0					CNTRL-1 Output 2 status	LD0.SPCGGIO1.SPCSO2.stVal
7067	4004:03		Yes					
7068	4004:04	0					CNTRL-1 Output 3 status	LD0.SPCGGIO1.SPCSO3.stVal
7069	4004:05		Yes					
7070	4004:06	0					CNTRL-1 Output 4 status	LD0.SPCGGIO1.SPCSO4.stVal
7071	4004:07		Yes					
7072	4004:08	0					CNTRL-1 Output 5 status	LD0.SPCGGIO1.SPCSO5.stVal
7073	4004:09		Yes					
7074	4004:10	0					CNTRL-1 Output 6 status	LD0.SPCGGIO1.SPCSO6.stVal
7075	4004:11		Yes					
7076	4004:12	0					CNTRL-1 Output 7 status	LD0.SPCGGIO1.SPCSO7.stVal
7077	4004:13							
7078	4004:14	0	Yes				CNTRL-1 Output 8 status	LD0.SPCGGIO1.SPCSO8.stVal
7079	4004:15							
7080	4005:00	0	Yes				CNTRL-1 Output 9 status	LD0.SPCGGIO1.SPCSO9.stVal
7081	4005:01							
7082	4005:02	0	Yes				CNTRL-1 Output 10 status	LD0.SPCGGIO1.SPCSO10.stVal
7083	4005:03							
7084	4005:04	0	Yes				CNTRL-1 Output 11 status	LD0.SPCGGIO1.SPCSO11.stVal
7085	4005:05							
7086	4005:06	0	Yes				CNTRL-1 Output 12 status	LD0.SPCGGIO1.SPCSO12.stVal
7087	4005:07							
7088	4005:08	0	Yes				CNTRL-1 Output 13 status	LD0.SPCGGIO1.SPCSO13.stVal

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7089	4005:09							
7090	4005:10	0					CNTRL-1 Output 14 status	LD0.SPCGGIO1.SPCSO14.stVal
7091	4005:11		Yes					
7092	4005:12	0					CNTRL-1 Output 15 status	LD0.SPCGGIO1.SPCSO15.stVal
7093	4005:13		Yes					
7094	4005:14	0					CNTRL-1 Output 16 status	LD0.SPCGGIO1.SPCSO16.stVal
7095	4005:15		Yes					

Table 77: CNTRL-2:Generic control points instance 2 (SPCGGIO2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7096	4006:00	0					CNTRL-2 Output 1 status	LD0.SPCGGIO2.SPCSO1.stVal
7097	4006:01		Yes					
7098	4006:02	0					CNTRL-2 Output 2 status	LD0.SPCGGIO2.SPCSO2.stVal
7099	4006:03		Yes					
7100	4006:04	0					CNTRL-2 Output 3 status	LD0.SPCGGIO2.SPCSO3.stVal
7101	4006:05		Yes					
7102	4006:06	0					CNTRL-2 Output 4 status	LD0.SPCGGIO2.SPCSO4.stVal
7103	4006:07		Yes					
7104	4006:08	0					CNTRL-2 Output 5 status	LD0.SPCGGIO2.SPCSO5.stVal
7105	4006:09		Yes					
7106	4006:10	0					CNTRL-2 Output 6 status	LD0.SPCGGIO2.SPCSO6.stVal
7107	4006:11		Yes					
7108	4006:12	0					CNTRL-2 Output 7 status	LD0.SPCGGIO2.SPCSO7.stVal
7109	4006:13		Yes					
7110	4006:14	0					CNTRL-2 Output 8 status	LD0.SPCGGIO2.SPCSO8.stVal
7111	4006:15		Yes					
7112	4007:00	0					CNTRL-2 Output 9 status	LD0.SPCGGIO2.SPCSO9.stVal
7113	4007:01		Yes					
7114	4007:02	0					CNTRL-2 Output 10 status	LD0.SPCGGIO2.SPCSO10.stVal
7115	4007:03		Yes					
7116	4007:04	0					CNTRL-2 Output 11 status	LD0.SPCGGIO2.SPCSO11.stVal
7117	4007:05		Yes					
7118	4007:06	0					CNTRL-2 Output 12 status	LD0.SPCGGIO2.SPCSO12.stVal
7119	4007:07		Yes					
7120	4007:08	0					CNTRL-2 Output 13 status	LD0.SPCGGIO2.SPCSO13.stVal
7121	4007:09		Yes					
7122	4007:10	0					CNTRL-2 Output 14 status	LD0.SPCGGIO2.SPCSO14.stVal
7123	4007:11		Yes					
7124	4007:12	0					CNTRL-2 Output 15 status	LD0.SPCGGIO2.SPCSO15.stVal
7125	4007:13		Yes					

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7126	4007:14	0					CNTRL-2 Output 16 status	LD0.SPCGGIO2.SPCSO16.stVal
7127	4007:15		Yes					

Table 78: CTR-1:Generic Up-Down Counters instance 1 (UDFCNT1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7010	4000:10	0					CTR-1 Status of the down counting	LD0.UDFCNT1.DnCntSt.stVal
7011	4000:11		Yes					
7012	4000:12	0					CTR-1 Status of the up counting	LD0.UDFCNT1.UpCntSt.stVal
7013	4000:13		Yes					

Table 79: CTR-2:Generic Up-Down Counters instance 2 (UDFCNT2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7014	4000:14	0					CTR-2 Status of the down counting	LD0.UDFCNT2.DnCntSt.stVal
7015	4000:15		Yes					
7016	4001:00	0					CTR-2 Status of the up counting	LD0.UDFCNT2.UpCntSt.stVal
7017	4001:01		Yes					

Table 80: CTR-3:Generic Up-Down Counters instance 1 (UDFCNT3)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7018	4001:02	0					CTR-3 Status of the down counting	LD0.UDFCNT3.DnCntSt.stVal
7019	4001:03		Yes					
7020	4001:04	0					CTR-3 Status of the up counting	LD0.UDFCNT3.UpCntSt.stVal
7021	4001:05		Yes					

Table 81: CTR-4:Generic Up-Down Counters instance 1 (UDFCNT4)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
7022	4001:06	0					CTR-4 Status of the down counting	LD0.UDFCNT4.DnCntSt.stVal
7023	4001:07		Yes					
7024	4001:08	0					CTR-4 Status of the up counting	LD0.UDFCNT4.UpCntSt.stVal
7025	4001:09		Yes					

Table 82: TPS (1):Minimum pulse timer (2 pcs, second resolution), instance 1 (TPSGAPC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2880	2198:04	0					TPSGAPC1 IN1/OUT1	LD0.TPSGAPC1.Str.general
2881	2198:05		Yes					

Table 83: TPS (2):Minimum pulse timer (2 pcs, second resolution), instance 2 (TPSGAPC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2924	2201:00	0					TPSGAPC2 IN1/OUT1	LD0.TPSGAPC2.Str.general
2925	2201:01		Yes					

Table 84: TPM (1):Minimum pulse timer (2 pcs, minute resolution), instance 1 (TPMGAPC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2882	2198:06	0					TPMGAPC1 IN1/OUT1	LD0.TPMGAPC1.Str.general
2883	2198:07		Yes					

Table 85: TPM (2):Minimum pulse timer (2 pcs, minute resolution), instance 2 (TPMGAPC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2926	2201:02	0					TPMGAPC2 IN1/OUT1	LD0.TPMGAPC2.Str.general
2927	2201:03		Yes					

Table 86: RTD:6 RTD + 2 mA measurement (XRGGIO130)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
6612	3038:04						X130 (RTD) Alarm	LD0.XRGGIO130.Alm.stVal
6613	3038:05		Yes					
6614	3038:06						X130 (RTD) Warning	LD0.XRGGIO130.Wrn.stVal
6615	3038:07		Yes					
	820	6		u32	100	0	(XRGGIO130) Analog In 1	LD0.XRGGIO130.AnIn1.mag.f
	821	6						
	822	6		u32	100	0	(XRGGIO130) Analog In 2	LD0.XRGGIO130.AnIn2.mag.f
	823	6						
	824	6		u32	100	0	(XRGGIO130) Analog In 3	LD0.XRGGIO130.AnIn3.mag.f
	825	6						
	826	6		u32	100	0	(XRGGIO130) Analog In 4	LD0.XRGGIO130.AnIn4.mag.f
	827	6						
	828	6		u32	100	0	(XRGGIO130) Analog In 5	LD0.XRGGIO130.AnIn5.mag.f
	829	6						
	830	6		u32	100	0	(XRGGIO130) Analog In 6	LD0.XRGGIO130.AnIn6.mag.f
	831	6						
	832	6		u32	100	0	(XRGGIO130) Analog In 7	LD0.XRGGIO130.AnIn7.mag.f
	833	6						
	804	6		u32	100	0	(XRGGIO130) Analog In 8	LD0.XRGGIO130.AnIn8.mag.f
	805	6						

Table 87: RTD: 5VT with 2 RTD +1 mA (XARGGIO130)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
6608	3038:00						X130 (AIM+RTD) Alarm	LD0.XARGGIO130.Alm.stVal
6609	3038:01		Yes					
6610	3038:02						X130 (AIM+RTD) Warning	LD0.XARGGIO130.Wrn.stVal
6611	3038:03		Yes					
	814	6		u32	100	0	X130 (AIM+RTD) Analogue input 1	LD0.XARGGIO130.AnIn1.mag.f
	815							
	816	6		u32	100	0	X130 (AIM+RTD) Analogue input 2	LD0.XARGGIO130.AnIn2.mag.f
	817							
	818	6		u32	100	0	X130 (AIM+RTD) Analogue input 3	LD0.XARGGIO130.AnIn3.mag.f
	819							

Table 88: 52:Circuit-breaker control-instance 1 (CBCILO1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5442	2501:0	0					52 Breaker Interlock Enable Open 1	CTRL.CBCILO1.EnaOpn.stVal
5443	2501:1	0	Yes					
5444	2501:2	0					52 Breaker Interlock Enable Close 1	CTRL.CBCILO1.EnaCls.stVal
5445	2501:3	0	Yes					
5472	2502:14	0					52 Breaker Interlock Bypass 1	CTRL.CBCILO1.ItlByPss.stVal
5473	2502:15	0	Yes					

Table 89: 52:Circuit-breaker control-instance 1 (CBCSWI1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5110	2481:2	0					52 Breaker Switch Position Open	CTRL.CBCSWI1.Pos.stVal
5111	2481:3	0	Yes					
5112	2481:0	0					52 Breaker Switch Position Closed	CTRL.CBCSWI1.Pos.stVal
5113	2481:1	0	Yes					
5114	2481:4	0					52 Breaker Switch Position valid	CTRL.CBCSWI1.Pos.stVal
5115	2481:5	0	Yes					

Table 90: 52:Circuit-breaker control-instance 1 (CBXCBR1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5150	2490:0	0					52 Breaker Block Open	CTRL.CBXCBR1.BlkOpn.stVal
5151	2490:1	0	Yes					
5152	2490:2	0					52 Breaker Block Close	CTRL.CBXCBR1.BlkCls.stVal
5153	2490:3	0	Yes					

Table 91: 62EST:Emergergency startup (ESMGAPC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2914	2200:6	0					62EST Emergency start	LD0.ESMGAPC1.Str.general
2915	2200:7	0	Yes					
5516	2505:10	0					62EST Emergency Start Required	LD0.ESMGAPC1.RqEmgStr.stVal
5517	2505:11	0	Yes					

Table 92: 52CM:Circuit-breaker condition monitoring-instance 1 (SSCBR1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5410	2499:0	0					52CM Recloser Open Travel Time Exceeded Set Value 1	LD0.SSCBR1.OpnAlm.stVal
5411	2499:1	0	Yes					
5412	2499:2	0					52CM Recloser Close Travel Time Exceeded Set Value 1	LD0.SSCBR1.ClsAlm.stVal
5413	2499:3	0	Yes					
5418	2499:8	0					52CM Spring Charging Time Has Crossed The Set Value 1	LD0.SSCBR1.SprChaAlm.stVal
5419	2499:9	0	Yes					
5420	2499:10	0					52CM Number Of Recloser Operations Exceeds Alarm Limit 1	LD0.SSCBR1.OpNumAlm.stVal
5421	2499:11	0	Yes					
5422	2499:12	0					52CM Number Of Recloser Operations Exceeds Lockout Limit 1	LD0.SSCBR1.OpNumLO.stVal
5423	2499:13	0	Yes					
5424	2499:14	0					52CM Accumulated Currents Power (Iyt) Exceeded Alarm Limit 1	LD0.SSCBR1.APwrAlm.stVal
5425	2499:15	0	Yes					
5426	2500:0	0					52CM Accumulated Currents Power (Iyt) Exceeded Lockout Limit 1	LD0.SSCBR1.APwrLO.stVal
5427	2500:1	0	Yes					
5428	2500:2	0					52CM Remaining Life Of Recloser Exceeded Alarm Limit 1	LD0.SSCBR1.CBLifAlm.stVal
5429	2500:3	0	Yes					
5430	2500:4	0					52CM Recloser Not Trip (Operate)d For Long Time Alarm 1	LD0.SSCBR1.LonTmAlm.stVal
5431	2500:5	0	Yes					
5432	2500:6	0					52CM Pressure Below Alarm Level 1	LD0.SSCBR1.PresAlm.stVal
5433	2500:7	0	Yes					
5434	2500:8	0					52CM Pressure Below Lockout Level 1	LD0.SSCBR1.PresLO.stVal
5435	2500:9	0	Yes					
5436	2500:10	0					52CM Recloser Position Is Open 1	LD0.SSCBR1.PosOpn.stVal
5437	2500:11	0	Yes					
5438	2500:12	0					52CM Invalid Position 1	LD0.SSCBR1.PosIvd.stVal

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5439	2500:13	0	Yes					
5440	2500:14	0					52CM Recloser Position Is Closed 1	LD0.SSCBR1.PosCls.stVal
5441	2500:15	0	Yes					
5534	2506:12	0					52CM Recloser Spring Charging Started Input 1	LD0.SSCBR1.InSprChStr.stVal
5535	2506:13	0	Yes					
5536	2506:14	0					52CM Recloser Spring Charged Input 1	LD0.SSCBR1.InSprCha.stVal
5537	2506:15	0	Yes					
5538	2507:0	0					52CM Binary Pressure Input For Alarm 1	LD0.SSCBR1.InPresAlm.stVal
5539	2507:1	0	Yes					
5540	2507:2	0					52CM Binary Pressure Input For Lockout Indication 1	LD0.SSCBR1.InPresLO.stVal
5541	2507:3	0	Yes					
5542	2507:4	0					52CM Posopen 1	LD0.SSCBR1.InPosOpn.stVal
5543	2507:5	0	Yes					
5544	2507:6	0					52CM Posclose 1	LD0.SSCBR1.InPosCls.stVal
5545	2507:7	0	Yes					
	834	6		u16	100	0	52CM Travel Time Of The Recloser During Opening Operation 1	LD0.SSCBR1.TmmsOpn.mag.f
	835	6		u16	100	0	52CM Travel Time Of The Recloser During Closing Operation 1	LD0.SSCBR1.TmmsCls.mag.f
	836	6		u16	100	0	52CM The Charging Time Of The Recloser Spring 1	LD0.SSCBR1.TmsSprCha.mag.f
	2010	5		s32	1	0	52CM Phase A Accumulated Currents Power (Iyt) 1	LD0.SSCBR1.AccAPwrPhA.mag.f
	2011	5						
	2012	5		s32	1	0	52CM Phase B Accumulated Currents Power (Iyt) 1	LD0.SSCBR1.AccAPwrPhB.mag.f
	2013	5						
	2014	5		s32	1	0	52CM Phase C Accumulated Currents Power (Iyt) 1	LD0.SSCBR1.AccAPwrPhC.mag.f
	2015	5						
	2016	0		u16	1	0	52CM Phase A Recloser Monitoring Remaining Life 1	LD0.SSCBR1.RmnLifPhA.stVal
	2018	0		u16	1	0	52CM Phase B Recloser Monitoring Remaining Life 1	LD0.SSCBR1.RmnLifPhB.stVal
	2020	0		u16	1	0	52CM Phase C Recloser Monitoring Remaining Life 1	LD0.SSCBR1.RmnLifPhC.stVal
	2022	4		u16	1	0	52CM The Number Of Days Recloser Has Been Inactive 1	LD0.SSCBR1.InaTmdCnt.stVal

Table 93: TCM-1:Trip circuit supervision-instance 1 (TCSSCBR1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5474	2503:0	0					TCM-1 Trip Circuit Supervision Alarm 1	LD0.TCSSCBR1.CirAlm.stVal
5475	2503:1	0	Yes					

Table 94: TCM-2:Trip circuit supervision-instance 2 (TCSSCBR2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5476	2503:2	0					TCM-2 Trip Circuit Supervision Alarm 2	LD0.TCSSCBR2.CirAlm.stVal
5477	2503:3	0	Yes					

Table 95: CCM:Current circuit supervision (CCRDIF1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5478	2503:4	0					CCM Current Circuit Supervision Trip (Operate)	LD0.CCRDIF1.Op.general
5479	2503:5	0	Yes					
5480	2503:6	0					CCM Current Circuit Supervision Alarm	LD0.CCRDIF1.Alm.stVal
5481	2503:7	0	Yes					

Table 96: OPTM-1:Runtime counter for machines and devices-instance 1 (MDSOPT1))

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5518	2505:12	0					OPTM-1 Motor Runtime Counter Operation Time Warning 1	LD0.MDSOPT1.OpTmWrn.stVal
5519	2505:13	0	Yes					
5520	2505:14	0					OPTM-1 Motor Runtime Counter Operation Time Alarm 1	LD0.MDSOPT1.OpTmAlm.stVal
5521	2505:15	0	Yes					

Table 97: OPTM-2:Runtime counter for machines and devices-instance 2 (MDSOPT2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5522	2506:0	0					OPTM-2 Motor Runtime Counter Operation Time Warning 2	LD0.MDSOPT2.OpTmWrn.stVal
5523	2506:1	0	Yes					
5524	2506:2	0					OPTM-2 Motor Runtime Counter Operation Time Alarm 2	LD0.MDSOPT2.OpTmAlm.stVal
5525	2506:3	0	Yes					

Table 98: IA-IB-IC:Three-phase current measurement-instance 1 (CMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5446	2501:4	0					IA IB IC (1) High Alarm	LD0.CMMXU1.HiAlm.stVal
5447	2501:5	0	Yes					
5448	2501:6	0					IA IB IC (1) High Warning	LD0.CMMXU1.HiWrn.stVal
5449	2501:7	0	Yes					
5450	2501:8	0					IA IB IC (1) Low Warning	LD0.CMMXU1.LoWrn.stVal
5451	2501:9	0	Yes					
5452	2501:10	0					IA IB IC (1) Low Alarm	LD0.CMMXU1.LoAlm.stVal
5453	2501:11	0	Yes					
	536	6		u32	100	0	IA IB IC (1) Phase A Mag (RMS)	LD0.CMMXU1.A.phsA.instCVal.mag.f
	537	6						
	538	6		u32	100	0	IA IB IC (1) Phase B Mag (RMS)	LD0.CMMXU1.A.phsB.instCVal.mag.f
	539	6						
	540	6		u32	100	0	IA IB IC (1) Phase C Mag (RMS)	LD0.CMMXU1.A.phsC.instCVal.mag.f
	541	6						

Table 99: IA-IB-IC (1):Three-phase current measurement-instance 1 (CMSTA1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	899	5		u32	100	0	IA IB IC (1) Phase A Average Demand	LD0.CMSTA1.AvAmpsA.mag.f
	900	5						
	901	5		u32	100	0	IA IB IC (1) Phase B Average Demand	LD0.CMSTA1.AvAmpsB.mag.f
	902	5						
	903	5		u32	100	0	IA IB IC (1) Phase C Average Demand	LD0.CMSTA1.AvAmpsC.mag.f
	904	5						
	1000	5		u32	100	0	IA IB IC (1) Phase A Maximum Demand	LD0.CMSTA1.MaxAmpsA.mag.f
	1001	5						

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	1002	5					IA IB IC (1) Phase A Maximum Demand Timestamp Year(High Byte)/Month(Low Byte)	
	1003	5					Day(High Byte)/Hour(Low Byte)	
	1004	5					Min(High Byte)/Sec(Low Byte)	
	1005	5					MilliSecond	
	1006	5					Time Quality	
	1010	5		u32	100	0	IA IB IC (1) Phase B Maximum Demand	LD0.CMSTA1.MaxAmpsB.mag.f
	1011	5						
	1012	5					IA IB IC (1) Phase B Maximum Demand Timestamp Year(High Byte)/Month(Low Byte)	
	1013	5					Day(High Byte)/Hour(Low Byte)	
	1014	5					Min(High Byte)/Sec(Low Byte)	
	1015	5					MilliSecond	
	1016	5					Time Quality	
	1020	5		u32	100	0	IA IB IC (1) Phase C Maximum Demand	LD0.CMSTA1.MaxAmpsC.mag.f
	1021	5						
	1022	5					IA IB IC (1) Phase B Maximum Demand Timestamp Year(High Byte)/Month(Low Byte)	
	1023	5					Day(High Byte)/Hour(Low Byte)	
	1024	5					Min(High Byte)/Sec(Low Byte)	
	1025	5					MilliSecond	
	1026	5					Time Quality	

Table 100: IA-IB-IC (2):Three-phase current measurement-instance 2 (CMMXU2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5486	2503:12	0					IA IB IC (2) High Alarm	LD0.CMMXU2.HiAlm.stVal
5487	2503:13	0	Yes					
5488	2503:14	0					IA IB IC (2) High Warning	LD0.CMMXU2.HiWrn.stVal
5489	2503:15	0	Yes					
5490	2504:0	0					IA IB IC (2) Low Warning	LD0.CMMXU2.LoWrn.stVal
5491	2504:1	0	Yes					
5492	2504:2	0					IA IB IC (2) Low Alarm	LD0.CMMXU2.LoAlm.stVal
5493	2504:3	0	Yes					
	548	6		u32	100	0	IA IB IC (2) Phase A Mag (RMS)	LD0.CMMXU2.A.phsA.instCVal.mag.f
	549	6						
	550	6		u32	100	0	IA IB IC (2) Phase B Mag (RMS)	LD0.CMMXU2.A.phsB.instCVal.mag.f
	551	6						

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	552	6		u32	100	0	IA IB IC (2) Phase C Mag (RMS)	LD0.CMMXU2.A.phsC.instCVal.mag.f
	553	6						

Table 101: IA-IB-IC (2):Three-phase current measurement-instance 2 (CMSTA2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	907	5		u32	100	0	IA IB IC (2) Phase A Average Demand	LD0.CMSTA2.AvAmpsA.mag.f
	908	5						
	909	5		u32	100	0	IA IB IC (2) Phase B Average Demand	LD0.CMSTA2.AvAmpsB.mag.f
	910	5						
	911	5		u32	100	0	IA IB IC (2) Phase C Average Demand	LD0.CMSTA2.AvAmpsC.mag.f
	912	5						
	1120	5		u32	100	0	IA IB IC (2) Phase A Maximum Demand	LD0.CMSTA2.MaxAmpsA.mag.f
	1121	5						
	1122	5					IA IB IC (2) Phase A Maximum Demand Timestamp Year(High Byte)/Month(Low Byte)	
	1123	5					Day(High Byte)/Hour(Low Byte)	
	1124	5					Min(High Byte)/Sec(Low Byte)	
	1125	5					MilliSecond	
	1126	5					Time Quality	
	1130	5		u32	100	0	IA IB IC (2) Phase B Maximum Demand	LD0.CMSTA2.MaxAmpsB.mag.f
	1131	5						
	1132	5					IA IB IC (2) Phase B Maximum Demand Timestamp Year(High Byte)/Month(Low Byte)	
	1133	5					Day(High Byte)/Hour(Low Byte)	
	1134	5					Min(High Byte)/Sec(Low Byte)	
	1135	5					MilliSecond	
	1136	5					Time Quality	
	1140	5		u32	100	0	IA IB IC (2) Phase C Maximum Demand	LD0.CMSTA2.MaxAmpsC.mag.f
	1141	5						
	1142	5					IA IB IC (2) Phase C Maximum Demand Timestamp Year(High Byte)/Month(Low Byte)	
	1143	5					Day(High Byte)/Hour(Low Byte)	
	1144	5					Min(High Byte)/Sec(Low Byte)	
	1145	5					MilliSecond	
	1146	5					Time Quality	

Table 102: I1-I2-I0 (1):Sequence current measurement-instance 1 (CSMSQI1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	614	6		u32	100	0	I1-I2-I0 (1) Positive Sequence Mag (RMS)	LD0.CSMSQI1.SeqA.c1.instCVal.mag.f
	615	6						
	616	6		u32	100	0	I1-I2-I0 (1) Negative Sequence Mag (RMS)	LD0.CSMSQI1.SeqA.c2.instCVal.mag.f
	617	6						
	618	6		u32	100	0	I1-I2-I0 (1) Zero Sequence Mag (RMS)	LD0.CSMSQI1.SeqA.c3.instCVal.mag.f
	619	6						

Table 103: I1-I2-I0 (2):Sequence current measurement-instance 2 (CSMSQI2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	623	6		u32	100	0	I1-I2-I0 (2) Positive Sequence Mag (RMS)	LD0.CSMSQI2.SeqA.c1.instCVal.mag.f
	624	6						
	625	6		u32	100	0	I1-I2-I0 (2) Negative Sequence Mag (RMS)	LD0.CSMSQI2.SeqA.c2.instCVal.mag.f
	626	6						
	627	6		u32	100	0	I1-I2-I0 (2) Zero Sequence Mag (RMS)	LD0.CSMSQI2.SeqA.c3.instCVal.mag.f
	628	6						

Table 104: IG:Residual current measurement-instance 1 (RESCMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5454	2501:12	0					IG High Trip (Operate)	LD0.RESCMMXU1.HiAlm.stVal
5455	2501:13	0	Yes					
5456	2501:14	0					IG High Warning	LD0.RESCMMXU1.HiWrn.stVal
5457	2501:15	0	Yes					
	542	6		u16	100	0	IG-Mag (RMS) 1	LD0.RESCMMXU1.A.res.instCVal.mag.f

Table 105: VA-VB-VC:Three-phase voltage measurement-instance 1 (VMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5460	2502:2	0					VA VB VC High Trip (Operate)	LD0.VMMXU1.HiAlm.stVal
5461	2502:3	0	Yes					
5462	2502:4	0					VA VB VC High Warning	LD0.VMMXU1.HiWrn.stVal
5463	2502:5	0	Yes					
5464	2502:6	0					VA VB VC Low Warning	LD0.VMMXU1.LoWrn.stVal
5465	2502:7	0	Yes					
5466	2502:8	0					VA VB VC Low Trip (Operate)	LD0.VMMXU1.LoAlm.stVal

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5467	2502:9	0	Yes					
	590	6		u16	100	0	VA VB VC Phase A Mag	LD0.VMMXU1.PhV.phsA.cVal.mag.f
	591	6		u16	100	0	VA VB VC Phase B Mag	LD0.VMMXU1.PhV.phsB.cVal.mag.f
	592	6		u16	100	0	VA VB VC Phase C Mag	LD0.VMMXU1.PhV.phsC.cVal.mag.f
	596	6		u16	100	0	VA VB VC Phase AB Mag (RMS)	LD0.VMMXU1.PPV.phsAB.instCVal.mag.f
	597	6		u16	100	0	VA VB VC Phase BC Mag (RMS)	LD0.VMMXU1.PPV.phsBC.instCVal.mag.f
	598	6		u16	100	0	VA VB VC Phase CA Mag (RMS)	LD0.VMMXU1.PPV.phsCA.instCVal.mag.f

Table 106: VG:Residual voltage measurement-instance 1 (RESVMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5468	2502:10	0					VG High Alarm	LD0.RESVMMXU1.HiAlm.stVal
5469	2502:11	0	Yes					
5470	2502:12	0					VG High Warning	LD0.RESVMMXU1.HiWrn.stVal
5471	2502:13	0	Yes					
	662	6		u16	100	0	VG Mag (RMS)	LD0.RESVMMXU1.PhV.res.instCVal.mag.f

Table 107: V1-V2-V0:Sequence voltage measurement-instance 1 (VSMSQI1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	650	6		u16	100	0	V1 V2 V0 Positive Sequence Mag (RMS)	LD0.VSMSQI1.SeqV.c1.instCVal.mag.f
	651	6		u16	100	0	V1 V2 V0 Negative Sequence Mag (RMS)	LD0.VSMSQI1.SeqV.c2.instCVal.mag.f
	652	6		u16	100	0	V1 V2 V0 Zero Sequence Mag (RMS)	LD0.VSMSQI1.SeqV.c3.instCVal.mag.f

Table 108: SP-SE:Single-phase power and energy measurement-instance 1 (SPEMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	668	6		s32	100	0	SP SE Phase A Active Power 1	LD0.SPEMMXU1.W.phsA.cVal.mag.f
	669	6						
	670	6		s32	100	0	SP SE Phase B Active Power 1	LD0.SPEMMXU1.W.phsB.cVal.mag.f
	671	6						
	672	6		s32	100	0	SP SE Phase C Active Power 1	LD0.SPEMMXU1.W.phsC.cVal.mag.f
	673	6						
	676	6		s32	100	0	SP SE Phase A Reactive Power 1	LD0.SPEMMXU1.VAr.phsA.cVal.mag.f
	677	6						

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	678	6		s32	100	0	SP SE Phase B Reactive Power 1	LD0.SPEMMXU1.VAr.phsB.cVal.mag.f
	679	6						
	680	6		s32	100	0	SP SE Phase C Reactive Power 1	LD0.SPEMMXU1.VAr.phsC.cVal.mag.f
	681	6						
	704	6		s32	100	0	SP SE Phase A Apparent Power 1	LD0.SPEMMXU1.VA.phsA.cVal.mag.f
	705	6						
	706	6		s32	100	0	SP SE Phase B Apparent Power 1	LD0.SPEMMXU1.VA.phsB.cVal.mag.f
	707	6						
	708	6		s32	100	0	SP SE Phase C Apparent Power 1	LD0.SPEMMXU1.VA.phsC.cVal.mag.f
	709	6						
	716	6		s16	100	0	SP SE Average A Power Factor 1	LD0.SPEMMXU1.PF.phsA.cVal.mag.f
	717	6		s16	100	0	SP SE Average B Power Factor 1	LD0.SPEMMXU1.PF.phsB.cVal.mag.f
	718	6		s16	100	0	SP SE Average C Power Factor 1	LD0.SPEMMXU1.PF.phsC.cVal.mag.f

Table 109: P-E:Three-phase power and energy measurement-instance 1 (PEMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	674	6		s32	100	0	P E Total Active Power 1	LD0.PEMMXU1.TotW.instMag.f
	675	6						
	682	6		s32	100	0	P E Total Reactive Power 1	LD0.PEMMXU1.TotVAr.instMag.f
	683	6						
	684	6		s32	100	0	P E Total Apparent Power 1	LD0.PEMMXU1.TotVA.instMag.f
	685	6						
	774	6		s16	100	0	P E Average Power Factor 1	LD0.PEMMXU1.TotPF.instMag.f

Table 110: f:Frequency measurement-instance 1 (FMMXU1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
	786	6		u16	100	0	Frequency	LD0.FMMXU1.Hz.instMag.f

Table 111: TP - 1:Minimum pulse timer (2 pcs)-instance 1 (TPGAPC1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2942	2202:2	0					TP - 1 In2/Out2	LD0.TPGAPC1.Op.general
2943	2202:3	0	Yes					

Table 112: TP - 2:Minimum pulse timer (2 pcs)-instance 2 (TPGAPC2)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2944	2202:4	0					TP - 2 In2/Out2	LD0.TPGAPC2.Op.general
2945	2202:5	0	Yes					

Table 113: TP - 3:Minimum pulse timer (2 pcs)-instance 3 (TPGAPC3)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2946	2202:6	0					TP - 3 In2/Out2	LD0.TPGAPC3.Op.general
2947	2202:7	0	Yes					

Table 114: P (4):Minimum pulse timer (2 pcs)-instance 4 (TPGAPC4)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2948	2202:8	0					TP - 4 In2/Out2	LD0.TPGAPC4.Op.general
2949	2202:9	0	Yes					

Table 115: DFR:Disturbance recorder (RDRE1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
5458	2502:0	0					DFR Disturbance Recording Made	DR.RDRE1.RcdMade.stVal
5459	2502:1	0	Yes					
	241	0		u16	1	0	DFR Recording Memory Used %	DR.RDRE1.MemUsed.stVal
	2108	0		u16	1	0	DFR Number Of Recordings	DR.RDRE1.FltNum.stVal

Table 116: FLO:Fault location (DRFLO1)

Coil Addr	Register(:Bit) Addr	Dc	MCD	Type	Scale	Offset	Description	IEC61850 Data Attribute Name
2932	2201:8	0					FLO Relay Trip	LD0.DRFLO1.Tr.general
2933	2201:9	0	Yes					
	862	6		u16	100	0	FLO Distance to fault measured in Km/Miles	LD0.DRFLO1.FltDisKm.mag.f

Table 117: Control Structures

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
1	2513		Control Structure 1 Execute Register	
	2514		Control Structure 1 Password 1	
	2515		Control Structure 1 Password 2	
	2516	0	Turn Off Trip LEDs	LD0.LLN0.LEDRs1.Oper.ctlVal
	2516	1	Turn Off Alarm Indication LEDs	LD0.LLN0.LEDRs2.Oper.ctlVal
	2516	2	52 Select Open Breaker 1	CTRL.CBCSWI1.Pos.Oper.ctlVal
	2516	3	52 Select Close Breaker 1	CTRL.CBCSWI1.Pos.Oper.ctlVal
	2516	4	52 Cancel Select Breaker 1	CTRL.CBCSWI1.Pos.Oper.ctlVal
	2516	5	52 Trip (Operate) Select Breaker 1	CTRL.CBCSWI1.Pos.Oper.ctlVal
	2516	6	52 Direct Open Breaker 1	CTRL.CBCSWI1.Pos.Oper.ctlVal
	2516	7	52 Direct Close Breaker 1	CTRL.CBCSWI1.Pos.Oper.ctlVal
	2516	8	Reserved	
	2516	9	Reserved	
	2516	10	Reserved	
	2516	11	Reserved	
	2516	12	Reserved	
	2516	13	Reserved	
	2516	14	Clear Power Quality Data	LD0.LLN0.PQRs.Oper.ctlVal
	2516	15	Reserved	
	2517		Control Structure 1 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
2	2518		Control Structure 2 Execute Register	
	2519		Control Structure 2 Password 1	
	2520		Control Structure 2 Password 2	
	2521	0	FLO Reset Fault Record Counter	LD0.FLTMSTA1.RecRs.Oper.ctlVal
	2521	1	DFR Trigger Disturbance Recording	DR.RDRE1.RcdTrg.Oper.ctlVal
	2521	2	DFR Clear Disturbance Records	DR.RDRE1.MemClr.Oper.ctlVal
	2521	3	Reserved	
	2521	4	Reserved	
	2521	5	Clear Current Demand Metering Source 1	LD0.CMSTA1.RecRs.Oper.ctlVal
	2521	6	52CM-1 Reset Breaker Accumulated Power	LD0.SSCBR1.RsAccAPwr.Oper.ctlVal
	2521	7	52CM-1 Reset Breaker remaining life	LD0.SSCBR1.RsCBWear.Oper.ctlVal
	2521	8	86/94-1 Clear Lockout Master Trip1	LD0.TRPPTRC1.LORs.Oper.ctlVal
	2521	9	86/94-1 Clear Master Trip1	LD0.TRPPTRC1.TrRs.Oper.ctlVal
	2521	10	86/94-2 Clear Lockout Master Trip2	LD0.TRPPTRC2.LORs.Oper.ctlVal
	2521	11	86/94-2 Clear Master Trip2	LD0.TRPPTRC2.TrRs.Oper.ctlVal
	2521	12	Reserved	
	2521	13	Reserved	
	2521	14	Reserved	
	2521	15	Reserved	
	2522		Control Structure 2 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
3	2523		Control Structure 3 Execute Register	
	2524		Control Structure 3 Password 1	
	2525		Control Structure 3 Password 2	
	2526	0	52CM Reset Breaker Tavel Time	LD0.SSCBR1.RsTrvTm.Oper.ctlVal
	2526	1	52CM Reset Breaker Spring Charging time	LD0.SSCBR1.RsSprChaTm.Oper.ctlVal
	2526	2	P E Reset Three Phase Power Meter	LD0.PEMMTR1.SupDmdRs.Oper.ctlVal
	2526	3	Reset Device	LD0.LPHD1.RsDev.Oper.ctlVal
	2526	4	Reserved	
	2526	5	Reserved	
	2526	6	Clear Current Demand Metering Source 1	LD0.CMSTA2.RecRs.Oper.ctlVal
	2526	7	Reserved	
	2526	8	Reserved	
	2526	9	Reserved	
	2526	10	Reserved	
	2526	11	Reserved	
	2526	12	Reserved	
	2526	13	Reserved	
	2526	14	Reserved	
	2526	15	Reserved	
	2527		Control Structure 3 Confirmation Register	
4	2528		Control Structure 4 Execute Register	
	2529		Control Structure 4 Password 1	
	2530		Control Structure 4 Password 2	
	2531	8	Reserved	
	2531	9	Reserved	
	2531	10	Reserved	
	2531	11	Reserved	
	2531	12	Reserved	
	2531	13	Reserved	
	2531	14	Reserved	
	2531	15	Reserved	
	2532		Control Structure 4 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
5	2533		Control Structure 5 Execute Register	
	2534		Control Structure 5 Password 1	
	2535		Control Structure 5 Password 2	
	2536	0	CTR-1 Loads the counter to preset value	LD0.UDFCNT1.LodCnt.Oper.ctlVal
	2536	1	CTR-1 Resets counter value	LD0.UDFCNT1.RsCnt.Oper.ctlVal
	2536	2	CTR-2 Loads the counter to preset value	LD0.UDFCNT2.LodCnt.Oper.ctlVal
	2536	3	CTR-2 Resets counter value	LD0.UDFCNT2.RsCnt.Oper.ctlVal
	2536	4	CTR-3 Loads the counter to preset value	LD0.UDFCNT3.LodCnt.Oper.ctlVal
	2536	5	CTR-3 Resets counter value	LD0.UDFCNT3.RsCnt.Oper.ctlVal
	2536	6	CTR-4 Loads the counter to preset value	LD0.UDFCNT4.LodCnt.Oper.ctlVal
	2536	7	CTR-4 Resets counter value	LD0.UDFCNT4.RsCnt.Oper.ctlVal
	2536	8	Spare	
	2536	9	Spare	
	2536	10	Spare	
	2536	11	Spare	
	2536	12	Spare	
	2536	13	Spare	
	2536	14	Spare	
	2536	15	Spare	
	2537		Control Structure 5 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
7	2547		Control Structure 7 Execute Register	
	2548		Control Structure 7 Password 1	
	2549		Control Structure 7 Password 2	
	2550	0	CNTRL-1 Trig output 1 Reset	LD0.SPCGGIO1.SPCSO1.Oper.ctlVal
	2550	1	CNTRL-1 Trig output 1 Set	
	2550	2	CNTRL-1 Trig output 2 Reset	LD0.SPCGGIO1.SPCSO2.Oper.ctlVal
	2550	3	CNTRL-1 Trig output 2 Set	
	2550	4	CNTRL-1 Trig output 3 Reset	LD0.SPCGGIO1.SPCSO3.Oper.ctlVal
	2550	5	CNTRL-1 Trig output 3 Set	
	2550	6	CNTRL-1 Trig output 4 Reset	LD0.SPCGGIO1.SPCSO4.Oper.ctlVal
	2550	7	CNTRL-1 Trig output 4 Set	
	2550	8	CNTRL-1 Trig output 5 Reset	LD0.SPCGGIO1.SPCSO5.Oper.ctlVal
	2550	9	CNTRL-1 Trig output 5 Set	
	2550	10	CNTRL-1 Trig output 6 Reset	LD0.SPCGGIO1.SPCSO6.Oper.ctlVal
	2550	11	CNTRL-1 Trig output 6 Set	
	2550	12	CNTRL-1 Trig output 7 Reset	LD0.SPCGGIO1.SPCSO7.Oper.ctlVal
	2550	13	CNTRL-1 Trig output 7 Set	
	2550	14	CNTRL-1 Trig output 8 Reset	LD0.SPCGGIO1.SPCSO8.Oper.ctlVal
	2550	15	CNTRL-1 Trig output 8 Set	
	2551		Control Structure 7 Confirmation Register	
8	2548		Control Structure 8 Execute Register	
	2549		Control Structure 8 Password 1	
	2550		Control Structure 8 Password 2	
	2551	8	OPTM-1Reset runtime counter	LD0.MDSOPT1.OpTmRs.Oper.ctlVal
	2551	9	OPTM-2Reset runtime counter	LD0.MDSOPT2.OpTmRs.Oper.ctlVal
	2551	10	CFD Reset	LD0.RCFD1.Rst.Oper.ctlVal
	2551	11	66/51LRS Counter Reset	LD0.STTPMRI1.RsStUpCnt.Oper.ctlVal
	2551	12	49M Reset Temperature	LD0.MPTTR1.RsTmp.Oper.ctlVal
	2552		Control Structure 8 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
10	2558		Control Structure 10 Execute Register	
	2559		Control Structure 10 Password 1	
	2560		Control Structure 10 Password 2	
	2561	0	CNTRL-1 Trig output 9 Reset	LD0.SPCGGIO1.SPCSO9.Oper.ctlVal
	2561	1	CNTRL-1 Trig output 9 Set	
	2561	2	CNTRL-1 Trig output 10 Reset	LD0.SPCGGIO1.SPCSO10.Oper.ctlVal
	2561	3	CNTRL-1 Trig output 10 Set	
	2561	4	CNTRL-1 Trig output 11 Reset	LD0.SPCGGIO1.SPCSO11.Oper.ctlVal
	2561	5	CNTRL-1 Trig output 11 Set	
	2561	6	CNTRL-1 Trig output 12 Reset	LD0.SPCGGIO1.SPCSO12.Oper.ctlVal
	2561	7	CNTRL-1 Trig output 12 Set	
	2561	8	CNTRL-1 Trig output 13 Reset	LD0.SPCGGIO1.SPCSO13.Oper.ctlVal
	2561	9	CNTRL-1 Trig output 13 Set	
	2561	10	CNTRL-1 Trig output 14 Reset	LD0.SPCGGIO1.SPCSO14.Oper.ctlVal
	2561	11	CNTRL-1 Trig output 14 Set	
	2561	12	CNTRL-1 Trig output 15 Reset	LD0.SPCGGIO1.SPCSO15.Oper.ctlVal
	2561	13	CNTRL-1 Trig output 15 Set	
	2561	14	CNTRL-1 Trig output 16 Reset	LD0.SPCGGIO1.SPCSO16.Oper.ctlVal
	2561	15	CNTRL-1 Trig output 16 Set	
	2562		Control Structure 10 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
11	2563		Control Structure 11 Execute Register	
	2564		Control Structure 11 Password 1	
	2565		Control Structure 11 Password 2	
	2566	0	CNTRL-2 Trig output 1 Reset	LD0.SPCGGIO2.SPCSO1.Oper.ctlVal
	2566	1	CNTRL-2 Trig output 1 Set	
	2566	2	CNTRL-2 Trig output 2 Reset	LD0.SPCGGIO2.SPCSO2.Oper.ctlVal
	2566	3	CNTRL-2 Trig output 2 Set	
	2566	4	CNTRL-2 Trig output 3 Reset	LD0.SPCGGIO2.SPCSO3.Oper.ctlVal
	2566	5	CNTRL-2 Trig output 3 Set	
	2566	6	CNTRL-2 Trig output 4 Reset	LD0.SPCGGIO2.SPCSO4.Oper.ctlVal
	2566	7	CNTRL-2 Trig output 4 Set	
	2566	8	CNTRL-2 Trig output 5 Reset	LD0.SPCGGIO2.SPCSO5.Oper.ctlVal
	2566	9	CNTRL-2 Trig output 5 Set	
	2566	10	CNTRL-2 Trig output 6 Reset	LD0.SPCGGIO2.SPCSO6.Oper.ctlVal
	2566	11	CNTRL-2 Trig output 6 Set	
	2566	12	CNTRL-2 Trig output 7 Reset	LD0.SPCGGIO2.SPCSO7.Oper.ctlVal
	2566	13	CNTRL-2 Trig output 7 Set	
	2566	14	CNTRL-2 Trig output 8 Reset	LD0.SPCGGIO2.SPCSO8.Oper.ctlVal
	2566	15	CNTRL-2 Trig output 8 Set	
	2567		Control Structure 11 Confirmation Register	

Control Structure	Control Register Addr	Control bit number	Description	IEC61850 Data Attribute Name
12	2568		Control Structure 11 Execute Register	
	2569		Control Structure 11 Password 1	
	2570		Control Structure 11 Password 2	
	2571	0	CNTRL-2 Trig output 9 Reset	LD0.SPCGGIO2.SPCSO9.Oper.ctlVal
	2571	1	CNTRL-2 Trig output 9 Set	
	2571	2	CNTRL-2 Trig output 10 Reset	LD0.SPCGGIO2.SPCSO10.Oper.ctlVal
	2571	3	CNTRL-2 Trig output 10 Set	
	2571	4	CNTRL-2 Trig output 11 Reset	LD0.SPCGGIO2.SPCSO11.Oper.ctlVal
	2571	5	CNTRL-2 Trig output 11 Set	
	2571	6	CNTRL-2 Trig output 12 Reset	LD0.SPCGGIO2.SPCSO12.Oper.ctlVal
	2571	7	CNTRL-2 Trig output 12 Set	
	2571	8	CNTRL-2 Trig output 13 Reset	LD0.SPCGGIO2.SPCSO13.Oper.ctlVal
	2571	9	CNTRL-2 Trig output 13 Set	
	2571	10	CNTRL-2 Trig output 14 Reset	LD0.SPCGGIO2.SPCSO14.Oper.ctlVal
	2571	11	CNTRL-2 Trig output 14 Set	
	2571	12	CNTRL-2 Trig output 15 Reset	LD0.SPCGGIO2.SPCSO15.Oper.ctlVal
	2571	13	CNTRL-2 Trig output 15 Set	
	2571	14	CNTRL-2 Trig output 16 Reset	LD0.SPCGGIO2.SPCSO16.Oper.ctlVal
	2571	15	CNTRL-2 Trig output 16 Set	
	2572		Control Structure 11 Confirmation Register	

Section 3 Glossary

AFL	Application function block library
ANSI	American National Standards Institute
AR	Autoreclosing
CB	Circuit breaker
CT	Current transformer
CTRL	Control logical device
DFR	Digital fault recorder
DNP3	A distributed network protocol originally developed by Westronic. The DNP3 Users Group has the ownership of the protocol and assumes responsibility for its evolution.
DR	Disturbance recorder
EMC	Electromagnetic compatibility
HMI	Human-machine interface
I/O	Input/output
ID	Identifier or identification
IEC 61850	International standard for substation communication and modelling
IED	Intelligent electronic device
LD0	Logical device zero (0)
LED	Light-emitting diode
LHMI	Local human-machine interface
LLN0	Logical node zero (0)
MCD	Momentary change detect
Modbus	A serial communication protocol developed by the Modicon company in 1979. Originally used for communication in PLCs and RTU devices.
MOM	Momentary position
PCM600	Protection and Control IED Manager
PLC	Programmable logic controller
SBO	Select-before-operate

stVal	Status value
SW	Software
UTC	Coordinated universal time
Val	Value

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