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HighPROTEC

MCA4

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1 Introduction

This model implementation conformance statement is applicable to the MCA4 version 3.10.

This MICS document specifies the modelling extensions compared to IEC 61850 edition 1.

2 Logical Nodes

2.1 Logical Nodes List

The following table contains the list of logical nodes implemented in the device:

C	Supervisory control
CILO	Interlocking
CSWI	Switch controller

G	Generic Function References
GAPC	Generic automatic process control
GGIO	Generic process I/O

I	Interfacing and Archiving
IHMI	Human machine interface

L	System Logical Nodes
LLN0	Logical node zero
LPHD	Physical device information

M	Metering and Measurement
MMTR	Metering
MMXU	Measurement
MSTA	Metering Statistics

P	Protection Functions
PDOP	Directional overpower
PDUP	Directional underpower
PFRC	Rate of change of frequency
PHAR	Harmonic restraint
PPAM	Phase angle measuring
PSDE	Sensitive directional earthfault
PSOF	Switch onto fault
PTOC	Time overcurrent
PTOF	Overfrequency
PTOV	Overvoltage
PTRC	Protection trip conditioning
PTTR	Thermal overload
PTUF	Underfrequency

P	Protection Functions
PTUV	Undervoltage
PUPF	Underpower factor

R	Protection Related Functions
RBRF	Breaker failure
RDRE	Disturbance recorder function
RREC	Autoreclosing
RSYN	Synchronism-check or synchronising

S	Sensors, Monitoring
SCBR	Circuit breaker supervision

X	Switchgear
XCBR	Circuit breaker
XSWI	Circuit switch

2.2 Logical Node Definitions

Abbreviations used in the following table:

- **T**: Data is a transient data object in the IEC 61850-7-4 Ed. 1.
- **M**: Data is mandatory in the IEC 61850-7-4 Ed. 1.
- **O**: Data is optional in the IEC 61850-7-4 Ed. 1 and is used in the device.
- **C**: Data is conditional in the IEC 61850-7-4 Ed. 1.
- **E**: Data is an extension to the IEC 61850-7-4 Ed. 1.

LN Type	LN Class	Description
CILO1	CILO	Interlocking
CSWI1	CSWI	Switch controller
GAPC1	GAPC	Generic automatic process control
GGIO1	GGIO	Generic process I/O
GGIO2	GGIO	Generic process I/O
GGIO3	GGIO	Generic process I/O
GGIO4	GGIO	Generic process I/O
IHMI1	IHMI	Human machine interface
LLN0CON	LLN0	Logical node zero
LLN0EXT	LLN0	Logical node zero
LLN0MEA	LLN0	Logical node zero
LLN0PRO	LLN0	Logical node zero
LLN0REC	LLN0	Logical node zero
LPHDCON	LPHD	Physical device information
LPHDEXT	LPHD	Physical device information
LPHDMEA	LPHD	Physical device information
LPHDPRO	LPHD	Physical device information
LPHDREC	LPHD	Physical device information
MMTR1	MMTR	Metering
MMXU1	MMXU	Measurement
MMXU2	MMXU	Measurement
MMXU3	MMXU	Measurement
MSTA1	MSTA	Metering Statistics
MSTA2	MSTA	Metering Statistics
MSTA3	MSTA	Metering Statistics
PDOP1	PDOP	Directional overpower
PDUP1	PDUP	Directional underpower
PFRC1	PFRC	Rate of change of frequency

LN Type	LN Class	Description
PFRC2	PFRC	Rate of change of frequency
PHAR1	PHAR	Harmonic restraint
PPAM1	PPAM	Phase angle measuring
PSDE1	PSDE	Sensitive directional earthfault
PSDE2	PSDE	Sensitive directional earthfault
PSOF1	PSOF	Switch onto fault
PTOC1	PTOC	Time overcurrent
PTOC2	PTOC	Time overcurrent
PTOC3	PTOC	Time overcurrent
PTOF1	PTOF	Overfrequency
PTOV1	PTOV	Overvoltage
PTOV2	PTOV	Overvoltage
PTOV3	PTOV	Overvoltage
PTRC1	PTRC	Protection trip conditioning
PTRC2	PTRC	Protection trip conditioning
PTTR1	PTTR	Thermal overload
PTUF1	PTUF	Underfrequency
PTUV1	PTUV	Undervoltage
PTUV2	PTUV	Undervoltage
PTUV3	PTUV	Undervoltage
PTUV4	PTUV	Undervoltage
PTUV5	PTUV	Undervoltage
PUPF1	PUPF	Underpower factor
RBRF1	RBRF	Breaker failure
RDRE1	RDRE	Disturbance recorder function
RREC1	RREC	Autoreclosing
RSYN1	RSYN	Synchronism-check or synchronising
SCBR1	SCBR	Circuit breaker supervision
XCBR1	XCBR	Circuit breaker
XSWI1	XSWI	Circuit switch

2.3 Logical Nodes Types

2.3.1 CILO1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
CILO class				
CILO	CILO1	Interlocking		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
EnaOpn	SPS1	Enable Open	M	
EnaCls	SPS1	Enable Close	M	

2.3.2 CSWI1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
CSWI class				
CSWI	CSWI1	Switch controller		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Logical Node Information				
Loc	SPS1	Local operation	O	
Controls				
Pos	DPC2	Position	M	

2.3.3 GAPC1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
GAPC class				
GAPC	GAPC1	Generic automatic process control		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Trip	M	

2.3.4 GGIO1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
GGIO class				
GGIO	GGIO1	Generic process I/O		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Ind1	SPS1	General indication (binary input)	O	
Ind2	SPS1	General indication (binary input)	O	
Ind3	SPS1	General indication (binary input)	O	
Ind4	SPS1	General indication (binary input)	O	
Ind5	SPS1	General indication (binary input)	O	
Ind6	SPS1	General indication (binary input)	O	
Ind7	SPS1	General indication (binary input)	O	
Ind8	SPS1	General indication (binary input)	O	
Ind9	SPS1	General indication (binary input)	O	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Ind10	SPS1	General indication (binary input)	O	
Ind11	SPS1	General indication (binary input)	O	
Ind12	SPS1	General indication (binary input)	O	
Ind13	SPS1	General indication (binary input)	O	
Ind14	SPS1	General indication (binary input)	O	
Ind15	SPS1	General indication (binary input)	O	
Ind16	SPS1	General indication (binary input)	O	
Ind17	SPS1	General indication (binary input)	O	
Ind18	SPS1	General indication (binary input)	O	
Ind19	SPS1	General indication (binary input)	O	
Ind20	SPS1	General indication (binary input)	O	
Ind21	SPS1	General indication (binary input)	O	
Ind22	SPS1	General indication (binary input)	O	
Ind23	SPS1	General indication (binary input)	O	
Ind24	SPS1	General indication (binary input)	O	
Ind25	SPS1	General indication (binary input)	O	
Ind26	SPS1	General indication (binary input)	O	
Ind27	SPS1	General indication (binary input)	O	
Ind28	SPS1	General indication (binary input)	O	
Ind29	SPS1	General indication (binary input)	O	
Ind30	SPS1	General indication (binary input)	O	
Ind31	SPS1	General indication (binary input)	O	
Ind32	SPS1	General indication (binary input)	O	

2.3.5 GGIO2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
GGIO class				
GGIO	GGIO2	Generic process I/O		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Status Information				
Ind1	SPS1	General indication (binary input)	O	
Ind2	SPS1	General indication (binary input)	O	
Ind3	SPS1	General indication (binary input)	O	
Ind4	SPS1	General indication (binary input)	O	
Ind5	SPS1	General indication (binary input)	O	
Ind6	SPS1	General indication (binary input)	O	
Ind7	SPS1	General indication (binary input)	O	
Ind8	SPS1	General indication (binary input)	O	
Ind9	SPS1	General indication (binary input)	O	
Ind10	SPS1	General indication (binary input)	O	
Ind11	SPS1	General indication (binary input)	O	
Ind12	SPS1	General indication (binary input)	O	
Ind13	SPS1	General indication (binary input)	O	
Ind14	SPS1	General indication (binary input)	O	
Ind15	SPS1	General indication (binary input)	O	
Ind16	SPS1	General indication (binary input)	O	
Ind17	SPS1	General indication (binary input)	O	
Ind18	SPS1	General indication (binary input)	O	
Ind19	SPS1	General indication (binary input)	O	
Ind20	SPS1	General indication (binary input)	O	
Ind21	SPS1	General indication (binary input)	O	
Ind22	SPS1	General indication (binary input)	O	
Ind23	SPS1	General indication (binary input)	O	
Ind24	SPS1	General indication (binary input)	O	
Ind25	SPS1	General indication (binary input)	O	
Ind26	SPS1	General indication (binary input)	O	
Ind27	SPS1	General indication (binary input)	O	
Ind28	SPS1	General indication (binary input)	O	
Ind29	SPS1	General indication (binary input)	O	
Ind30	SPS1	General indication (binary input)	O	
Ind31	SPS1	General indication (binary input)	O	
Ind32	SPS1	General indication (binary input)	O	

2.3.6 GGIO3

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
GGIO class				
GGIO	GGIO3	Generic process I/O		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Ind1	SPS1	General indication (binary input)	O	
Ind2	SPS1	General indication (binary input)	O	
Ind3	SPS1	General indication (binary input)	O	
Ind4	SPS1	General indication (binary input)	O	
Ind5	SPS1	General indication (binary input)	O	
Ind6	SPS1	General indication (binary input)	O	
Ind7	SPS1	General indication (binary input)	O	
Ind8	SPS1	General indication (binary input)	O	
Ind9	SPS1	General indication (binary input)	O	
Ind10	SPS1	General indication (binary input)	O	
Ind11	SPS1	General indication (binary input)	O	
Ind12	SPS1	General indication (binary input)	O	
Ind13	SPS1	General indication (binary input)	O	
Ind14	SPS1	General indication (binary input)	O	
Ind15	SPS1	General indication (binary input)	O	
Ind16	SPS1	General indication (binary input)	O	
Ind17	SPS1	General indication (binary input)	O	
Ind18	SPS1	General indication (binary input)	O	
Ind19	SPS1	General indication (binary input)	O	
Ind20	SPS1	General indication (binary input)	O	
Ind21	SPS1	General indication (binary input)	O	
Ind22	SPS1	General indication (binary input)	O	
Ind23	SPS1	General indication (binary input)	O	
Ind24	SPS1	General indication (binary input)	O	
Ind25	SPS1	General indication (binary input)	O	
Ind26	SPS1	General indication (binary input)	O	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Ind27	SPS1	General indication (binary input)	O	
Ind28	SPS1	General indication (binary input)	O	
Ind29	SPS1	General indication (binary input)	O	
Ind30	SPS1	General indication (binary input)	O	
Ind31	SPS1	General indication (binary input)	O	
Ind32	SPS1	General indication (binary input)	O	

2.3.7 GGIO4

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
GGIO class				
GGIO	GGIO4	Generic process I/O		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Controls				
SPCSO1	SPC2	Single point controllable status output	O	
SPCSO2	SPC2	Single point controllable status output	O	
SPCSO3	SPC2	Single point controllable status output	O	
SPCSO4	SPC2	Single point controllable status output	O	
SPCSO5	SPC2	Single point controllable status output	O	
SPCSO6	SPC2	Single point controllable status output	O	
SPCSO7	SPC2	Single point controllable status output	O	
SPCSO8	SPC2	Single point controllable status output	O	
SPCSO9	SPC2	Single point controllable status output	O	
SPCSO10	SPC2	Single point controllable status output	O	
SPCSO11	SPC2	Single point controllable status output	O	
SPCSO12	SPC2	Single point controllable status output	O	
SPCSO13	SPC2	Single point controllable status output	O	
SPCSO14	SPC2	Single point controllable status output	O	
SPCSO15	SPC2	Single point controllable status output	O	
SPCSO16	SPC2	Single point controllable status output	O	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
SPCSO17	SPC2	Single point controllable status output	O	
SPCSO18	SPC2	Single point controllable status output	O	
SPCSO19	SPC2	Single point controllable status output	O	
SPCSO20	SPC2	Single point controllable status output	O	
SPCSO21	SPC2	Single point controllable status output	O	
SPCSO22	SPC2	Single point controllable status output	O	
SPCSO23	SPC2	Single point controllable status output	O	
SPCSO24	SPC2	Single point controllable status output	O	
SPCSO25	SPC2	Single point controllable status output	O	
SPCSO26	SPC2	Single point controllable status output	O	
SPCSO27	SPC2	Single point controllable status output	O	
SPCSO28	SPC2	Single point controllable status output	O	
SPCSO29	SPC2	Single point controllable status output	O	
SPCSO30	SPC2	Single point controllable status output	O	
SPCSO31	SPC2	Single point controllable status output	O	
SPCSO32	SPC2	Single point controllable status output	O	

2.3.8 IHMI1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
IHMI class				
IHMI	IHMI1	Human machine interface		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	

2.3.9 LLN0CON

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LLN0 class				
LLN0	LLN0CON	Logical node zero		

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL2	Name plate	M	

2.3.10 LLN0EXT

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LLN0 class				
LLN0	LLN0EXT	Logical node zero		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL2	Name plate	M	

2.3.11 LLN0MEA

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LLN0 class				
LLN0	LLN0MEA	Logical node zero		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL2	Name plate	M	

2.3.12 LLN0PRO

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LLN0 class				
LLN0	LLN0PRO	Logical node zero		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL2	Name plate	M	

2.3.13 LLN0REC

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LLN0 class				
LLN0	LLN0REC	Logical node zero		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL2	Name plate	M	

2.3.14 LLN0SYS

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LLN0 class				
LLN0	LLN0SYS	Logical node zero		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
NamPlt	LPL2	Name plate	M	

2.3.15 LPHDCON

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LPHD class				
LPHD	LPHDCON	Physical device information		
Data				
PhyNam	DPL1	Physical device name plate	M	
PhyHealth	INS_Health	Physical device health	M	
Proxy	SPS1	Indicates if this LN is a proxy	M	

2.3.16 LPHDEXT

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LPHD class				
LPHD	LPHDEXT	Physical device information		
Data				
PhyNam	DPL1	Physical device name plate	M	
PhyHealth	INS_Health	Physical device health	M	
Proxy	SPS1	Indicates if this LN is a proxy	M	

2.3.17 LPHDMEA

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LPHD class				
LPHD	LPHDMEA	Physical device information		
Data				
PhyNam	DPL1	Physical device name plate	M	
PhyHealth	INS_Health	Physical device health	M	
Proxy	SPS1	Indicates if this LN is a proxy	M	

2.3.18 LPHDPRO

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LPHD class				
LPHD	LPHDPRO	Physical device information		
Data				
PhyNam	DPL1	Physical device name plate	M	
PhyHealth	INS_Health	Physical device health	M	
Proxy	SPS1	Indicates if this LN is a proxy	M	

2.3.19 LPHDREC

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LPHD class				
LPHD	LPHDREC	Physical device information		
Data				
PhyNam	DPL1	Physical device name plate	M	
PhyHealth	INS_Health	Physical device health	M	
Proxy	SPS1	Indicates if this LN is a proxy	M	

2.3.20 LPHDSYS

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
LPHD class				
LPHD	LPHDSYS	Physical device information		
Data				
PhyNam	DPL1	Physical device name plate	M	
PhyHealth	INS_Health	Physical device health	M	
Proxy	SPS1	Indicates if this LN is a proxy	M	

2.3.21 MMTR1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MMTR class				

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MMTR	MMTR1	Metering		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Metered Values				
SupWh	BCR1	Consumed Active Energy	O	
DmdWh	BCR1	Fed Active Energy	O	
SupVArh	BCR1	Consumed Reactive Energy	O	
DmdVArh	BCR1	Fed Reactive Energy	O	
TotWh	BCR1	Absolute Active Power Hours	O	
TotVArh	BCR1	Absolute Reactive Power Hours	O	
TotVAh	BCR1	Absolute Apparent Power Hours	O	

2.3.22 MMXU1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MMXU class				
MMXU	MMXU1	Measurement		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Measured values				
TotW	MV1	Total Active Power (Total P)	O	
TotVAr	MV1	Total Reactive Power (Total Q)	O	
TotVA	MV1	Total Apparent Power (Total S)	O	
TotPF	MV1	Average Power factor (Total PF)	O	

2.3.23 MMXU2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MMXU class				
MMXU	MMXU2	Measurement		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Measured values				
PPV	DEL1	Phase to phase voltages (UL12, UL23, UL31)	O	
PhV	WYE1	Phase to ground voltages (UL1, UL2, UL3)	O	
Hz	MV1	frequency	O	

2.3.24 MMXU3

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MMXU class				
MMXU	MMXU3	Measurement		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Measured values				
A	WYE1	Phase currents (IL1, IL2, IL3)	O	

2.3.25 MSTA1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MSTA class				
MSTA	MSTA1	Metering Statistics		

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Extensions				
AvAPhsA	MV1	Average current IL1	E	
AvAPhsB	MV1	Average current IL2	E	
AvAPhsC	MV1	Average current IL3	E	
MaxAPhsA	MV1	Maximum current IL1	E	
MaxAPhsB	MV1	Maximum current IL2	E	
MaxAPhsC	MV1	Maximum current IL3	E	
MinAPhsA	MV1	Minimum current IL1	E	
MinAPhsB	MV1	Minimum current IL2	E	
MinAPhsC	MV1	Minimum current IL3	E	

2.3.26 MSTA2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MSTA class				
MSTA	MSTA2	Metering Statistics		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Extensions				
AvVPhsAB	MV1	Average voltage UL12	E	
AvVPhsBC	MV1	Average voltage UL23	E	
AvVPhsCA	MV1	Average voltage UL31	E	
MaxVPhsAB	MV1	Maximum voltage UL12	E	
MaxVPhsBC	MV1	Maximum voltage UL23	E	
MaxVPhsCA	MV1	Maximum voltage UL31	E	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MinVPhsAB	MV1	Minimum voltage UL12	E	
MinVPhsBC	MV1	Minimum voltage UL23	E	
MinVPhsCA	MV1	Minimum voltage UL31	E	
AvVPhsA	MV1	Average voltage UL1	E	
AvVPhsB	MV1	Average voltage UL2	E	
AvVPhsC	MV1	Average voltage UL3	E	
MaxVPhsA	MV1	Maximum voltage UL1	E	
MaxVPhsB	MV1	Maximum voltage UL2	E	
MaxVPhsC	MV1	Maximum voltage UL3	E	
MinVPhsA	MV1	Minimum voltage UL1	E	
MinVPhsB	MV1	Minimum voltage UL2	E	
MinVPhsC	MV1	Minimum voltage UL3	E	

2.3.27 MSTA3

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
MSTA class				
MSTA	MSTA3	Metering Statistics		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Metered Values				
AvVA	MV1	Average apparent power	O	
MaxVA	MV1	Maximum apparent power	O	
MinVA	MV1	Minimum apparent power	O	
AvW	MV1	Average real power	O	
MaxW	MV1	Maximum real power	O	
MinW	MV1	Minimum real power	O	
AvVAr	MV1	Average reactive power	O	
MaxVAr	MV1	Maximum reactive power	O	
MinVAr	MV1	Minimum reactive power	O	

2.3.28 PDOP1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PDOP class				
PDOP	PDOP1	Directional overpower		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.29 PDUP1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PDUP class				
PDUP	PDUP1	Directional underpower		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.30 PFRC1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PFRC class				
PFRC	PFRC1	Rate of change of frequency		

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.31 PFRC2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PFRC class				
PFRC	PFRC2	Rate of change of frequency		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.32 PHAR1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PHAR class				
PHAR	PHAR1	Harmonic restraint		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	

2.3.33 PPAM1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PPAM class				
PPAM	PPAM1	Phase angle measuring		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.34 PSDE1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PSDE class				
PSDE	PSDE1	Sensitive directional earthfault		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Str	ACD1	Start	M	

2.3.35 PSDE2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PSDE class				
PSDE	PSDE2	Sensitive directional earthfault		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	

2.3.36 PSOF1 – (Extension)

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PSOF class				
PSOF	PSOF1	Switch onto fault		
Data				
Extensions				
Mod	INC_Mod1	Mode	E	Status-only
Beh	INS_Beh1	Behaviour	E	
Health	INS_Health	Health	E	
NamPlt	LPL3	Name plate	E	
Str	ACD1	Start	E	

2.3.37 PTOC1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOC class				
PTOC	PTOC1	Time overcurrent		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.38 PTOC2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOC class				
PTOC	PTOC2	Time overcurrent		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.39 PTOC3

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOC class				
PTOC	PTOC3	Time overcurrent		

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.40 PTOF1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOF class				
PTOF	PTOF1	Overfrequency		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.41 PTOV1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOV class				
PTOV	PTOV1	Overvoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	O	

2.3.42 PTOV2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOV class				
PTOV	PTOV2	Overvoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	O	

2.3.43 PTOV3

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTOV class				
PTOV	PTOV3	Overvoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Op	ACT1	Operate	O	

2.3.44 PTRC1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTRC class				
PTRC	PTRC1	Protection trip conditioning		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Op	ACT1	Operate	C	

2.3.45 PTRC2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTRC class				
PTRC	PTRC2	Protection trip conditioning		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	O	
Op	ACT1	Operate	C	

2.3.46 PTTR1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTTR class				
PTTR	PTTR1	Thermal overload		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Op	ACT1	Operate	M	

2.3.47 PTUF1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTUF class				
PTUF	PTUF1	Underfrequency		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.48 PTUV1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTUV class				
PTUV	PTUV1	Undervoltage		
Data				

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.49 PTUV2

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTUV class				
PTUV	PTUV2	Undervoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.50 PTUV3

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTUV class				
PTUV	PTUV3	Undervoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.51 PTUV4

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTUV class				
PTUV	PTUV4	Undervoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.52 PTUV5

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PTUV class				
PTUV	PTUV5	Undervoltage		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Op	ACT1	Operate	M	

2.3.53 PUPF1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
PUPF class				
PUPF	PUPF1	Underpower factor		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	M	
Op	ACT1	Operate	M	

2.3.54 RBRF1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
RBRF class				
RBRF	RBRF1	Breaker failure		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Str	ACD1	Start	O	
OpEx	ACT1	Breaker failure trip	C	

2.3.55 RDRE1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
RDRE class				
RDRE	RDRE1	Disturbance recorder function		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
RcdMade	SPS1	Recording made	M	
FltNum	INS1	Fault Number	M	
GriFltNum	INS1	Grid Fault Number	O	
RcdStr	SPS1	Recording started	O	

2.3.56 RREC1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
RREC class				
RREC	RREC1	Autoreclosing		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Op	ACT1	Operate	M	
AutoRecSt	INS_AutoRecSt	Auto Reclosing Status	M	

2.3.57 RSYN1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
RSYN class				
RSYN	RSYN1	Synchronism-check or synchronising		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod1	Mode	M	Status-only
Beh	INS_Beh1	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Status Information				
Rel	SPS1	Ready to Close	M	
AngInd	SPS1	Phase Angle difference too high	O	
HzInd	SPS1	Frequency difference too high	O	
VInd	SPS1	Voltage difference too high	O	
Measured values				
DifAngClc	MV1	Phase Angle difference value	O	
DifHzClc	MV1	Frequency difference value	O	
DifVClc	MV1	Voltage difference value	O	

2.3.58 SCBR1 – (Extension)

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
SCBR class				
SCBR	SCBR1	Circuit breaker supervision		
Data				
Extensions				
Mod	INC_Mod1	Mode	E	Status-only
Beh	INS_Beh1	Behaviour	E	
Health	INS_Health	Health	E	
NamPlt	LPL1	Name plate	E	
TrCctAlm	ACD1	Alarm signal	E	

2.3.59 XCBR1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
XCBR class				
XCBR	XCBR1	Circuit breaker		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Logical Node Information				
Loc	SPS1	Local operation	M	
OpCnt	INS1	Operation counter	M	
Controls				
Pos	DPC1	Switch Position	M	
BlkOpn	SPC1	Block opening	M	
BlkCls	SPC1	Block closing	M	
Status Information				
CBOpCap	INS_CBOpCap	Circuit breaker operating capability	M	

2.3.60 XSWI1

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
XSWI class				
XSWI	XSWI1	Circuit switch		
Data				
Common Mandatory Logical Node Information				
Mod	INC_Mod2	Mode	M	Status-only
Beh	INS_Beh2	Behaviour	M	
Health	INS_Health	Health	M	
NamPlt	LPL1	Name plate	M	
Logical Node Information				
Loc	SPS1	Local operation	M	
OpCnt	INS1	Operation counter	M	
Controls				

Attribute Name	Attribute Type	Explanation	T, M/O/C/E	Remarks
Pos	DPC1	Switch Position	M	
BlkOpn	SPC1	Block opening	M	
BlkCls	SPC1	Block closing	M	
Status Information				
SwTyp	INS_CBOpCap	Switch type	M	
SwOpCap	INS_CBOpCap	Switch operating capability	M	

3 Common Data Class

3.1 Common Data Class Definitions

The following table contains the list of Common Data Classes implemented in the device:

CDC Type	CDC Class	Description
ACD1	ACD	Directional protection activation information
ACT1	ACT	Protection activation information
BCR1	BCR	Binary counter reading
CMV1	CMV	Complex measured value
Cancel1		
DEL1	DEL	Phase to phase related measured values of a three phase system
DPC1	DPC	Controllable double point
DPC2	DPC	Controllable double point
DPL1	DPL	Device name plate
INC_Mod1	INC	Controllable integer status
INC_Mod2	INC	Controllable integer status
INS1	INS	Integer status
INS_AutoRecSt	INS	Integer status
INS_Beh1	INS	Integer status
INS_Beh2	INS	Integer status
INS_CBOpCap	INS	Integer status
INS_Health	INS	Integer status
LPL1	LPL	Logical node name plate
LPL2	LPL	Logical node name plate
LPL3	LPL	Logical node name plate
MV1	MV	Measured value
Oper1		
PulseConfig1		
SPC1	SPC	Controllable single point
SPC2	SPC	Controllable single point
SPS1	SPS	Single point status
WYE1	WYE	Phase to ground related measured values of a three phase system
analogValue1		
origin1		
units1		
vector1		

3.1.1 Data Objects Type Definitions

3.1.1.1 ACD1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
ACD class – Directional protection activation information						
status						
general	BOOLEAN	ST	dchg		M	
dirGeneral	Enum	ST	dchg	dir	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.2 ACT1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
ACT class – Protection activation information						
status						
general	BOOLEAN	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.3 BCR1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
BCR class – Binary counter reading						
status						
actVal	INT64	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
configuration, description and extension						
pulsQty	FLOAT32	CF	dchg		M	
units	Struct	CF		units1	O	

3.1.1.4 CMV1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
CMV class – Complex measured value						
measured attributes						
instCVal	Struct	MX		vector1	O	
cVal	Struct	MX	dchg dupd	vector1	M	
q	Quality	MX	qchg		M	
t	Timestamp	MX			M	
configuration, description and extension						
units	Struct	CF		units1	O	
db	INT32U	CF	dchg		O	
Extensions						
dbAng	INT32U	CF	dchg		E	

3.1.1.5 DEL1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
DEL class – Phase to phase related measured values of a three phase system						
SubDataObject						
phsAB	CMV1				E	
phsBC	CMV1				E	
phsCA	CMV1				E	

3.1.1.6 DPC1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
DPC class – Controllable double point						
control and status						
stVal	Dbpos	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
configuration, description and extension						

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
ctlModel	Enum	CF		ctlModel	M	

3.1.1.7 DPC2

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
DPC class – Controllable double point						
control and status						
origin	Struct	ST		origin1	C	
ctlNum	INT8U	ST			C	
stVal	Dbpos	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
stSeld	BOOLEAN	ST	dchg		C	
configuration, description and extension						
ctlModel	Enum	CF		ctlModel	M	
sboTimeout	INT32U	CF			C	
sboClass	Enum	CF		sboClass	C	
Extensions						
SBOw	Struct	CO		Oper1	E	
Oper	Struct	CO		Oper1	E	
Cancel	Struct	CO		Cancel1	E	
operTimeout	INT32U	CF			E	

3.1.1.8 DPL1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
DPL class – Device name plate						
configuration, description and extension						
vendor	VisString255	DC			M	

3.1.1.9 INC_Mod1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INC class – Controllable integer status						
control and status						
stVal	Enum	ST	dchg	Mod1	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
configuration, description and extension						
ctlModel	Enum	CF		ctlModel	M	

3.1.1.10 INC_Mod2

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INC class – Controllable integer status						
control and status						
stVal	Enum	ST	dchg	Mod2	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
configuration, description and extension						
ctlModel	Enum	CF		ctlModel	M	

3.1.1.11 INS1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INS class – Integer status						
status						
stVal	INT32	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.12 INS_AutoRecSt

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INS class – Integer status						
status						
stVal	Enum	ST	dchg	AutoRecSt	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.13 INS_Beh1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INS class – Integer status						
status						
stVal	Enum	ST	dchg	Beh1	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.14 INS_Beh2

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INS class – Integer status						
status						
stVal	Enum	ST	dchg	Beh2	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.15 INS_CBOpCap

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INS class – Integer status						
status						
stVal	Enum	ST	dchg	CBOpCap	M	
q	Quality	ST	qchg		M	

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
t	Timestamp	ST			M	

3.1.1.16 INS_Health

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
INS class – Integer status						
status						
stVal	Enum	ST	dchg	Health	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.17 LPL1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
LPL class – Logical node name plate						
configuration, description and extension						
vendor	VisString255	DC			M	
swRev	VisString255	DC			M	
d	VisString255	DC			M	

3.1.1.18 LPL2

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
LPL class – Logical node name plate						
configuration, description and extension						
vendor	VisString255	DC			M	
swRev	VisString255	DC			M	
d	VisString255	DC			M	
ldNs	VisString255	EX			C	
configRev	VisString255	DC			C	

3.1.1.19 LPL3

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
LPL class – Logical node name plate						
configuration, description and extension						
vendor	VisString255	DC			M	
swRev	VisString255	DC			M	
d	VisString255	DC			M	
lnNs	VisString255	EX			C	

3.1.1.20 MV1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
MV class – Measured value						
measured attributes						
mag	Struct	MX	dchg dupd	analogValue1	M	
q	Quality	MX	qchg		M	
t	Timestamp	MX			M	
configuration, description and extension						
units	Struct	CF		units1	O	
db	INT32U	CF	dchg		O	
d	VisString255	DC			O	
dataNs	VisString255	EX			C	

3.1.1.21 SPC1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
SPC class – Controllable single point						
control and status						
stVal	BOOLEAN	ST	dchg		C	
q	Quality	ST	qchg		C	
t	Timestamp	ST			C	
configuration, description and extension						

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
ctlModel	Enum	CF		ctlModel	M	

3.1.1.22 SPC2

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
SPC class – Controllable single point						
control and status						
stVal	BOOLEAN	ST	dchg		C	
q	Quality	ST	qchg		C	
t	Timestamp	ST			C	
configuration, description and extension						
ctlModel	Enum	CF		ctlModel	M	
pulseConfig	Struct	CF		PulseConfig1	C	
Extensions						
Oper	Struct	CO		Oper1	E	

3.1.1.23 SPS1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
SPS class – Single point status						
status						
stVal	BOOLEAN	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.1.24 WYE1

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
WYE class – Phase to ground related measured values of a three phase system						
SubDataObject						
phsA	CMV1				E	
phsB	CMV1				E	
phsC	CMV1				E	

Attribute Name	Attribute Type	FC	TrgOp	Value / Value Range	M/O/C/E	Remarks
neut	CMV1				E	

3.2 Data Attributes Type Definitions

3.2.1 analogValue1

Attribute Name	Attribute Type	Value / Value Range
f	FLOAT32	

3.2.2 Cancel1

Attribute Name	Attribute Type	Value / Value Range
ctlVal	BOOLEAN	
origin	Struct	origin1
ctlNum	INT8U	
T	Timestamp	
Test	BOOLEAN	

3.2.3 Oper1

Attribute Name	Attribute Type	Value / Value Range
ctlVal	BOOLEAN	
origin	Struct	origin1
ctlNum	INT8U	
T	Timestamp	
Test	BOOLEAN	
Check	Check	

3.2.4 origin1

Attribute Name	Attribute Type	Value / Value Range
orCat	Enum	orCategory
orIdent	Octet64	

3.2.5 PulseConfig1

Attribute Name	Attribute Type	Value / Value Range
cmdQual	Enum	cmdQual
onDur	INT32U	
offDur	INT32U	
numPls	INT32U	

3.2.6 units1

Attribute Name	Attribute Type	Value / Value Range
SIUnit	Enum	SIUnit
multiplier	Enum	multiplier

3.2.7 vector1

Attribute Name	Attribute Type	Value / Value Range
mag	Struct	analogValue1
ang	Struct	analogValue1

3.3 Enumerated Type Definitions

3.3.1 AutoRecSt

Ordinal	Semantic
1	Ready
2	InProgress
3	Successful

3.3.2 Beh1

Ordinal	Semantic
1	on
2	blocked
3	test
4	test/blocked
5	off

3.3.3 Beh2

Ordinal	Semantic
1	on
3	test

3.3.4 CBOpCap

Ordinal	Semantic
1	None
2	Open
3	Close-Open
4	Open-Close-Open
5	Close-Open-Close-Open

3.3.5 cmdQual

Ordinal	Semantic
0	pulse
1	persistent

3.3.6 ctlModel

Ordinal	Semantic
0	status-only
1	direct-with-normal-security
2	sbo-with-normal-security
3	direct-with-enhanced-security
4	sbo-with-enhanced-security

3.3.7 Dbpos

Ordinal	Semantic
0	intermediate
1	off
2	on
3	bad

3.3.8 dir

Ordinal	Semantic
0	unknown
1	forward
2	backward
3	both

3.3.9 Health

Ordinal	Semantic
1	Ok

Ordinal	Semantic
2	Warning
3	Alarm

3.3.10 Mod1

Ordinal	Semantic
1	on
2	blocked
3	test
4	test/blocked
5	off

3.3.11 Mod2

Ordinal	Semantic
1	on
3	test

3.3.12 multiplier

Ordinal	Semantic
-24	y
-21	z
-18	a
-15	f
-12	p
-9	n
-6	µ
-3	m
-2	c
-1	d
0	
1	da

Ordinal	Semantic
2	h
3	k
6	M
9	G
12	T
15	P
18	E
21	Z
24	Y

3.3.13 orCategory

Ordinal	Semantic
0	not-supported
1	bay-control
2	station-control
3	remote-control
4	automatic-bay
5	automatic-station
6	automatic-remote
7	maintenance
8	process

3.3.14 sboClass

Ordinal	Semantic
0	operate-once
1	operate-many

3.3.15 SIUnit

Ordinal	Semantic
1	

Ordinal	Semantic
2	m
3	kg
4	s
5	A
6	K
7	mol
8	cd
9	deg
10	rad
11	sr
21	Gy
22	q
23	°C
24	Sv
25	F
26	C
27	S
28	H
29	V
30	ohm
31	J
32	N
33	Hz
34	lx
35	Lm
36	Wb
37	T
38	W
39	Pa
41	m²
42	m³
43	m/s

Ordinal	Semantic
44	m/s^2
45	m^3/s
46	m/m^3
47	M
48	kg/m^3
49	m^2/s
50	W/m K
51	J/K
52	ppm
53	1/s
54	rad/s
61	VA
62	Watts
63	VAr
64	phi
65	cos(phi)
66	Vs
67	V^2
68	As
69	A^2
70	A^2t
71	VAh
72	Wh
73	VArh
74	V/Hz

4 Appendix

4.1 Register Maps

Legend: * The Logical Node is dependent on the settings in the “Device planning”. (See ↪4.2 Device Planning Dependencies).

4.1.1 LDevice::CTRL

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO1* (CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	*»SG[1] . Interl OFF«*
	EnaCls	*»SG[1] . Interl ON«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO2* (CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	*»SG[2] . Interl OFF«*
	EnaCls	*»SG[2] . Interl ON«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO3* (CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	*»SG[3] . Interl OFF«*
	EnaCls	*»SG[3] . Interl ON«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO4* (CILO1)		
	Mod	
	Beh	
	Health	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO4* (CILO1)		
	NamPlt	
	EnaOpn	*»SG[4] . Interl OFF«*
	EnaCls	*»SG[4] . Interl ON«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO5* (CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	*»SG[5] . Interl OFF«*
	EnaCls	*»SG[5] . Interl ON«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO6* (CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	*»SG[6] . Interl OFF«*
	EnaCls	*»SG[6] . Interl ON«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI1* (CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	Pos	*»SG[1] . Pos«* *»SG[1] . t-Move ON«* *»SG[1] . t-Move OFF«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI2* (CSWI1)		
	Mod	
	Beh	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI2* (CSWI1)		
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	Pos	*»SG[2] . Pos«* *»SG[2] . t-Move ON«* *»SG[2] . t-Move OFF«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI3* (CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	Pos	*»SG[3] . Pos«* *»SG[3] . t-Move ON«* *»SG[3] . t-Move OFF«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI4* (CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	Pos	*»SG[4] . Pos«* *»SG[4] . t-Move ON«* *»SG[4] . t-Move OFF«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI5* (CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI5* (CSWI1)		
	Pos	*»SG[5] . Pos«* *»SG[5] . t-Move ON«* *»SG[5] . t-Move OFF«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CSWI6* (CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	Pos	*»SG[6] . Pos«* *»SG[6] . t-Move ON«* *»SG[6] . t-Move OFF«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LLN0 (LLN0CON)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LPHD1 (LPHDCON)		
	PhyNam	
	PhyHealth	
	Proxy	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
TCSSCBR1 (SCBR1)		
	Mod	*»TCS . Active«*
	Beh	
	Health	
	NamPlt	
	TrCctAlm	*»TCS . Alarm«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XCBR1* (XCBR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[1] . TripCmd Cr«*
	Pos	*»SG[1] . Pos«*
	BlkOpn	
	BlkCls	
	CBOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XCBR2* (XCBR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[2] . TripCmd Cr«*
	Pos	*»SG[2] . Pos«*
	BlkOpn	
	BlkCls	
	CBOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XCBR3* (XCBR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[3] . TripCmd Cr«*
	Pos	*»SG[3] . Pos«*
	BlkOpn	
	BlkCls	
	CBOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XCBR4* (XCBR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[4] . TripCmd Cr«*
	Pos	*»SG[4] . Pos«*
	BlkOpn	
	BlkCls	
	CBOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XCBR5* (XCBR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[5] . TripCmd Cr«*
	Pos	*»SG[5] . Pos«*
	BlkOpn	
	BlkCls	
	CBOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XCBR6* (XCBR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[6] . TripCmd Cr«*
	Pos	*»SG[6] . Pos«*
	BlkOpn	
	BlkCls	
	CBOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI1* (XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[1] . TripCmd Cr«*
	Pos	*»SG[1] . Pos«*
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI2* (XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[2] . TripCmd Cr«*
	Pos	*»SG[2] . Pos«*
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI3* (XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[3] . TripCmd Cr«*
	Pos	*»SG[3] . Pos«*
	BlkOpn	
	BlkCls	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI3* (XSWI1)		
	SwTyp	
	SwOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI4* (XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[4] . TripCmd Cr«*
	Pos	*»SG[4] . Pos«*
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI5* (XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[5] . TripCmd Cr«*
	Pos	*»SG[5] . Pos«*
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI6* (XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
XSWI6* (XSWI1)		
	Loc	*»Ctrl . Remote«*
	OpCnt	*»SG[6] . TripCmd Cr«*
	Pos	*»SG[6] . Pos«*
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	

4.1.2 LDevice::DR

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LLN0 (LLN0REC)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LPHD1 (LPHDREC)		
	PhyNam	
	PhyHealth	
	Proxy	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
RDRE1 (RDRE1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	RcdMade	*»Disturb rec . recording«*
	FltNum	*»Prot . Fault No.«*
	GriFltNum	*»Prot . No. of Grid Faults«*
	RcdStr	*»Disturb rec . recording«*

4.1.3 LDevice::EXT

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
COUTGGIO1 (GGIO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Ind1	*»IEC 61850 . COUTGGIO1.Ind1.stVal-I«*
	Ind2	*»IEC 61850 . COUTGGIO1.Ind2.stVal-I«*
	Ind3	*»IEC 61850 . COUTGGIO1.Ind3.stVal-I«*
	Ind4	*»IEC 61850 . COUTGGIO1.Ind4.stVal-I«*
	Ind5	*»IEC 61850 . COUTGGIO1.Ind5.stVal-I«*
	Ind6	*»IEC 61850 . COUTGGIO1.Ind6.stVal-I«*
	Ind7	*»IEC 61850 . COUTGGIO1.Ind7.stVal-I«*
	Ind8	*»IEC 61850 . COUTGGIO1.Ind8.stVal-I«*
	Ind9	*»IEC 61850 . COUTGGIO1.Ind9.stVal-I«*
	Ind10	*»IEC 61850 . COUTGGIO1.Ind10.stVal-I«*
	Ind11	*»IEC 61850 . COUTGGIO1.Ind11.stVal-I«*
	Ind12	*»IEC 61850 . COUTGGIO1.Ind12.stVal-I«*
	Ind13	*»IEC 61850 . COUTGGIO1.Ind13.stVal-I«*
	Ind14	*»IEC 61850 . COUTGGIO1.Ind14.stVal-I«*
	Ind15	*»IEC 61850 . COUTGGIO1.Ind15.stVal-I«*
	Ind16	*»IEC 61850 . COUTGGIO1.Ind16.stVal-I«*
	Ind17	*»IEC 61850 . COUTGGIO1.Ind17.stVal-I«*
	Ind18	*»IEC 61850 . COUTGGIO1.Ind18.stVal-I«*
	Ind19	*»IEC 61850 . COUTGGIO1.Ind19.stVal-I«*
	Ind20	*»IEC 61850 . COUTGGIO1.Ind20.stVal-I«*
	Ind21	*»IEC 61850 . COUTGGIO1.Ind21.stVal-I«*
	Ind22	*»IEC 61850 . COUTGGIO1.Ind22.stVal-I«*
	Ind23	*»IEC 61850 . COUTGGIO1.Ind23.stVal-I«*
	Ind24	*»IEC 61850 . COUTGGIO1.Ind24.stVal-I«*
	Ind25	*»IEC 61850 . COUTGGIO1.Ind25.stVal-I«*
	Ind26	*»IEC 61850 . COUTGGIO1.Ind26.stVal-I«*
	Ind27	*»IEC 61850 . COUTGGIO1.Ind27.stVal-I«*
	Ind28	*»IEC 61850 . COUTGGIO1.Ind28.stVal-I«*
	Ind29	*»IEC 61850 . COUTGGIO1.Ind29.stVal-I«*
	Ind30	*»IEC 61850 . COUTGGIO1.Ind30.stVal-I«*
	Ind31	*»IEC 61850 . COUTGGIO1.Ind31.stVal-I«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
COUTGGIO1 (GGIO1)		
	Ind32	*»IEC 61850 . COUTGGIO1.Ind32.stVal-I«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
COUTGGIO2 (GGIO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Ind1	*»IEC 61850 . COUTGGIO2.Ind1.stVal-I«*
	Ind2	*»IEC 61850 . COUTGGIO2.Ind2.stVal-I«*
	Ind3	*»IEC 61850 . COUTGGIO2.Ind3.stVal-I«*
	Ind4	*»IEC 61850 . COUTGGIO2.Ind4.stVal-I«*
	Ind5	*»IEC 61850 . COUTGGIO2.Ind5.stVal-I«*
	Ind6	*»IEC 61850 . COUTGGIO2.Ind6.stVal-I«*
	Ind7	*»IEC 61850 . COUTGGIO2.Ind7.stVal-I«*
	Ind8	*»IEC 61850 . COUTGGIO2.Ind8.stVal-I«*
	Ind9	*»IEC 61850 . COUTGGIO2.Ind9.stVal-I«*
	Ind10	*»IEC 61850 . COUTGGIO2.Ind10.stVal-I«*
	Ind11	*»IEC 61850 . COUTGGIO2.Ind11.stVal-I«*
	Ind12	*»IEC 61850 . COUTGGIO2.Ind12.stVal-I«*
	Ind13	*»IEC 61850 . COUTGGIO2.Ind13.stVal-I«*
	Ind14	*»IEC 61850 . COUTGGIO2.Ind14.stVal-I«*
	Ind15	*»IEC 61850 . COUTGGIO2.Ind15.stVal-I«*
	Ind16	*»IEC 61850 . COUTGGIO2.Ind16.stVal-I«*
	Ind17	*»IEC 61850 . COUTGGIO2.Ind17.stVal-I«*
	Ind18	*»IEC 61850 . COUTGGIO2.Ind18.stVal-I«*
	Ind19	*»IEC 61850 . COUTGGIO2.Ind19.stVal-I«*
	Ind20	*»IEC 61850 . COUTGGIO2.Ind20.stVal-I«*
	Ind21	*»IEC 61850 . COUTGGIO2.Ind21.stVal-I«*
	Ind22	*»IEC 61850 . COUTGGIO2.Ind22.stVal-I«*
	Ind23	*»IEC 61850 . COUTGGIO2.Ind23.stVal-I«*
	Ind24	*»IEC 61850 . COUTGGIO2.Ind24.stVal-I«*
	Ind25	*»IEC 61850 . COUTGGIO2.Ind25.stVal-I«*
	Ind26	*»IEC 61850 . COUTGGIO2.Ind26.stVal-I«*
	Ind27	*»IEC 61850 . COUTGGIO2.Ind27.stVal-I«*
	Ind28	*»IEC 61850 . COUTGGIO2.Ind28.stVal-I«*
	Ind29	*»IEC 61850 . COUTGGIO2.Ind29.stVal-I«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
COUTGGIO2 (GGIO1)		
	Ind30	*»IEC 61850 . COUTGGIO2.Ind30.stVal-I«*
	Ind31	*»IEC 61850 . COUTGGIO2.Ind31.stVal-I«*
	Ind32	*»IEC 61850 . COUTGGIO2.Ind32.stVal-I«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CTLGGIO1 (GGIO4)		
	Mod	
	Beh	
	Health	
	NamPlt	
	SPCSO1	*»IEC 61850 . CTLGGIO1.SPCSO1.stVal«*
	SPCSO2	*»IEC 61850 . CTLGGIO1.SPCSO2.stVal«*
	SPCSO3	*»IEC 61850 . CTLGGIO1.SPCSO3.stVal«*
	SPCSO4	*»IEC 61850 . CTLGGIO1.SPCSO4.stVal«*
	SPCSO5	*»IEC 61850 . CTLGGIO1.SPCSO5.stVal«*
	SPCSO6	*»IEC 61850 . CTLGGIO1.SPCSO6.stVal«*
	SPCSO7	*»IEC 61850 . CTLGGIO1.SPCSO7.stVal«*
	SPCSO8	*»IEC 61850 . CTLGGIO1.SPCSO8.stVal«*
	SPCSO9	*»IEC 61850 . CTLGGIO1.SPCSO9.stVal«*
	SPCSO10	*»IEC 61850 . CTLGGIO1.SPCSO10.stVal«*
	SPCSO11	*»IEC 61850 . CTLGGIO1.SPCSO11.stVal«*
	SPCSO12	*»IEC 61850 . CTLGGIO1.SPCSO12.stVal«*
	SPCSO13	*»IEC 61850 . CTLGGIO1.SPCSO13.stVal«*
	SPCSO14	*»IEC 61850 . CTLGGIO1.SPCSO14.stVal«*
	SPCSO15	*»IEC 61850 . CTLGGIO1.SPCSO15.stVal«*
	SPCSO16	*»IEC 61850 . CTLGGIO1.SPCSO16.stVal«*
	SPCSO17	*»IEC 61850 . CTLGGIO1.SPCSO17.stVal«*
	SPCSO18	*»IEC 61850 . CTLGGIO1.SPCSO18.stVal«*
	SPCSO19	*»IEC 61850 . CTLGGIO1.SPCSO19.stVal«*
	SPCSO20	*»IEC 61850 . CTLGGIO1.SPCSO20.stVal«*
	SPCSO21	*»IEC 61850 . CTLGGIO1.SPCSO21.stVal«*
	SPCSO22	*»IEC 61850 . CTLGGIO1.SPCSO22.stVal«*
	SPCSO23	*»IEC 61850 . CTLGGIO1.SPCSO23.stVal«*
	SPCSO24	*»IEC 61850 . CTLGGIO1.SPCSO24.stVal«*
	SPCSO25	*»IEC 61850 . CTLGGIO1.SPCSO25.stVal«*
	SPCSO26	*»IEC 61850 . CTLGGIO1.SPCSO26.stVal«*
	SPCSO27	*»IEC 61850 . CTLGGIO1.SPCSO27.stVal«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CTLGGIO1 (GGIO4)		
	SPCSO28	*»IEC 61850 . CTLGGIO1.SPCSO28.stVal«*
	SPCSO29	*»IEC 61850 . CTLGGIO1.SPCSO29.stVal«*
	SPCSO30	*»IEC 61850 . CTLGGIO1.SPCSO30.stVal«*
	SPCSO31	*»IEC 61850 . CTLGGIO1.SPCSO31.stVal«*
	SPCSO32	*»IEC 61850 . CTLGGIO1.SPCSO32.stVal«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
EPGAPC1 (GAPC1)		
	Mod	*»Intertripping . Active«* *»Intertripping . Blo TripCmd«* *»Intertripping . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»Intertripping . Alarm«*
	Op	*»Intertripping . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
EPGAPC2 (GAPC1)		
	Mod	*»ExP[1] . Active«* *»ExP[1] . Blo TripCmd«* *»ExP[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»ExP[1] . Alarm«*
	Op	*»ExP[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
EPGAPC3 (GAPC1)		
	Mod	*»ExP[2] . Active«* *»ExP[2] . Blo TripCmd«* *»ExP[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
EPGAPC3 (GAPC1)		
	Str	*»ExP[2] . Alarm«*
	Op	*»ExP[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
EPGAPC4 (GAPC1)		
	Mod	*»ExP[3] . Active«* *»ExP[3] . Blo TripCmd«* *»ExP[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»ExP[3] . Alarm«*
	Op	*»ExP[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
EPGAPC5 (GAPC1)		
	Mod	*»ExP[4] . Active«* *»ExP[4] . Blo TripCmd«* *»ExP[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»ExP[4] . Alarm«*
	Op	*»ExP[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GOSINGGIO1 (GGIO3)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Ind1	
	Ind2	
	Ind3	
	Ind4	
	Ind5	
	Ind6	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GOSINGGIO1 (GGIO3)		
	Ind7	
	Ind8	
	Ind9	
	Ind10	
	Ind11	
	Ind12	
	Ind13	
	Ind14	
	Ind15	
	Ind16	
	Ind17	
	Ind18	
	Ind19	
	Ind20	
	Ind21	
	Ind22	
	Ind23	
	Ind24	
	Ind25	
	Ind26	
	Ind27	
	Ind28	
	Ind29	
	Ind30	
	Ind31	
	Ind32	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GOSINGGIO2 (GGIO2)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Ind1	
	Ind2	
	Ind3	
	Ind4	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GOSINGGIO2 (GGIO2)		
	Ind5	
	Ind6	
	Ind7	
	Ind8	
	Ind9	
	Ind10	
	Ind11	
	Ind12	
	Ind13	
	Ind14	
	Ind15	
	Ind16	
	Ind17	
	Ind18	
	Ind19	
	Ind20	
	Ind21	
	Ind22	
	Ind23	
	Ind24	
	Ind25	
	Ind26	
	Ind27	
	Ind28	
	Ind29	
	Ind30	
	Ind31	
	Ind32	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LLN0 (LLN0EXT)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LPHD1 (LPHDEXT)		
	PhyNam	
	PhyHealth	
	Proxy	

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Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CMMXU1 (MMXU3)		
	Mod	
	Beh	
	Health	
	NamPlt	
	A	*»CT . IL1 RMS«* *»CT . phi IL1«* *»CT . IL2 RMS«* *»CT . phi IL2«* *»CT . IL3 RMS«* *»CT . phi IL3«* *»CT . IG meas RMS«* *»CT . phi IG meas«* *»CT . IG calc RMS«* *»CT . phi IG calc«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CMSTA1 (MSTA1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	AvAPhsA	*»CT . IL1 avg «*
	AvAPhsB	*»CT . IL2 avg «*
	AvAPhsC	*»CT . IL3 avg «*
	MaxAPhsA	*»CT . IL1 max «*
	MaxAPhsB	*»CT . IL2 max «*
	MaxAPhsC	*»CT . IL3 max «*
	MinAPhsA	*»CT . IL1 min «*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CMSTA1 (MSTA1)		
	MinAPhsB	*»CT . IL2 min «*
	MinAPhsC	*»CT . IL3 min «*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
ECMMTR1 (MMTR1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	SupWh	*»PQSCr . Wp+«*
	DmdWh	*»PQSCr . Wp-«*
	SupVArh	*»PQSCr . Wq+«*
	DmdVArh	*»PQSCr . Wq-«*
	TotWh	*»PQSCr . Wp Net«*
	TotVArh	*»PQSCr . Wq Net«*
	TotVAh	*»PQSCr . Ws Net«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LLN0 (LLN0MEA)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LPHD1 (LPHDMEA)		
	PhyNam	
	PhyHealth	
	Proxy	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PMMXU1 (MMXU1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	TotW	*»PQSCr . P RMS«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PMMXU1 (MMXU1)		
	TotVAr	*»PQSCr . Q «*
	TotVA	*»PQSCr . S RMS«*
	TotPF	*»PQSCr . cos phi RMS«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PMSTA1 (MSTA3)		
	Mod	
	Beh	
	Health	
	NamPlt	
	AvVA	*»PQSCr . S avg (Demand)«*
	MaxVA	*»PQSCr . S max«*
	MinVA	*»PQSCr . S min«*
	AvW	*»PQSCr . P avg«*
	MaxW	*»PQSCr . P max«*
	MinW	*»PQSCr . P min«*
	AvVAr	*»PQSCr . Q avg (Demand)«*
	MaxVAr	*»PQSCr . Q max«*
	MinVAr	*»PQSCr . Q min«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VMMXU1 (MMXU2)		
	Mod	
	Beh	
	Health	
	NamPlt	
	PPV	*»VT . VL12 RMS«* *»VT . phi VL12«* *»VT . VL23 RMS«* *»VT . phi VL23«* *»VT . VL31 RMS«* *»VT . phi VL31«*
	PhV	*»VT . VL1 RMS«* *»VT . phi VL1«* *»VT . VL2 RMS«* *»VT . phi VL2«* *»VT . VL3 RMS«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VMMXU1 (MMXU2)		
		»VT . phi VL3« *»VT . VX meas RMS«* *»VT . phi VX meas«* *»VT . VG calc RMS«* *»VT . phi VG calc«*
	Hz	*»VT . f«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VMSTA1 (MSTA2)		
	Mod	
	Beh	
	Health	
	NamPlt	
	AvVPhsAB	*»VT . VL12 avg «*
	AvVPhsBC	*»VT . VL23 avg «*
	AvVPhsCA	*»VT . VL31 avg «*
	MaxVPhsAB	*»VT . VL12 max «*
	MaxVPhsBC	*»VT . VL23 max «*
	MaxVPhsCA	*»VT . VL31 max «*
	MinVPhsAB	*»VT . VL12 min «*
	MinVPhsBC	*»VT . VL23 min «*
	MinVPhsCA	*»VT . VL31 min «*
	AvVPhsA	*»VT . VL1 avg «*
	AvVPhsB	*»VT . VL2 avg «*
	AvVPhsC	*»VT . VL3 avg «*
	MaxVPhsA	*»VT . VL1 max «*
	MaxVPhsB	*»VT . VL2 max «*
	MaxVPhsC	*»VT . VL3 max «*
	MinVPhsA	*»VT . VL1 min «*
	MinVPhsB	*»VT . VL2 min «*
	MinVPhsC	*»VT . VL3 min «*

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Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC1 (PTOC2)		
	Mod	*»IG[1] . Active«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC1 (PTOC2)		
		»IG[1] . Blo TripCmd« *»IG[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»IG[1] . Alarm«*
	Op	*»IG[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC2 (PTOC2)		
	Mod	*»IG[2] . Active«* *»IG[2] . Blo TripCmd«* *»IG[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»IG[2] . Alarm«*
	Op	*»IG[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC3 (PTOC2)		
	Mod	*»IG[3] . Active«* *»IG[3] . Blo TripCmd«* *»IG[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»IG[3] . Alarm«*
	Op	*»IG[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC4 (PTOC2)		
	Mod	*»IG[4] . Active«* *»IG[4] . Blo TripCmd«* *»IG[4] . ExBlo TripCmd«*
	Beh	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC4 (PTOC2)		
	Health	
	NamPlt	
	Str	*»IG[4] . Alarm«*
	Op	*»IG[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
IHMI1 (IHMI1)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
INRPHAR1 (PHAR1)		
	Mod	*»IH2 . Active«*
	Beh	
	Health	
	NamPlt	
	Str	*»IH2 . 3-ph Blo«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LLN0 (LLN0PRO)		
	Mod	
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LPHD1 (LPHDPRO)		
	PhyNam	
	PhyHealth	
	Proxy	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LSPFDPFRC1 (PFRC2)		
	Mod	*»UFLS . Active«* *»UFLS . ExBlo«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LSPFDPFRC1 (PFRC2)		
		»UFLS . Fuse Fail VT Blo«
	Beh	
	Health	
	NamPlt	
	Str	*»UFLS . Alarm«*
	Op	*»UFLS . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LVRTPTUV1 (PTUV4)		
	Mod	*»LVRT[1] . Active«* *»LVRT[1] . Blo TripCmd«* *»LVRT[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»LVRT[1] . Alarm«*
	Op	*»LVRT[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
LVRTPTUV2 (PTUV4)		
	Mod	*»LVRT[2] . Active«* *»LVRT[2] . Blo TripCmd«* *»LVRT[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»LVRT[2] . Alarm«*
	Op	*»LVRT[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP1* (PDOP1)		
	Mod	*»P . Active«* *»P . Blo TripCmd«* *»P . ExBlo TripCmd«*
	Beh	
	Health	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP1* (PDOP1)		
	NamPlt	
	Str	*»P . Alarm«*
	Op	*»P . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP2* (PDOP1)		
	Mod	*»Q . Active«* *»Q . Blo TripCmd«* *»Q . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»Q . Alarm«*
	Op	*»Q . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP3* (PDOP1)		
	Mod	*»PQS[1] . Active«* *»PQS[1] . Blo TripCmd«* *»PQS[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[1] . Alarm«*
	Op	*»PQS[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP4* (PDOP1)		
	Mod	*»PQS[2] . Active«* *»PQS[2] . Blo TripCmd«* *»PQS[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[2] . Alarm«*
	Op	*»PQS[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP5* (PDOP1)		
	Mod	*»PQS[3] . Active«* *»PQS[3] . Blo TripCmd«* *»PQS[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[3] . Alarm«*
	Op	*»PQS[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP6* (PDOP1)		
	Mod	*»PQS[4] . Active«* *»PQS[4] . Blo TripCmd«* *»PQS[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[4] . Alarm«*
	Op	*»PQS[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP7* (PDOP1)		
	Mod	*»PQS[5] . Active«* *»PQS[5] . Blo TripCmd«* *»PQS[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[5] . Alarm«*
	Op	*»PQS[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP8* (PDOP1)		
	Mod	*»PQS[6] . Active«* *»PQS[6] . Blo TripCmd«* *»PQS[6] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDOP8* (PDOP1)		
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[6] . Alarm«*
	Op	*»PQS[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP3* (PDUP1)		
	Mod	*»PQS[1] . Active«* *»PQS[1] . Blo TripCmd«* *»PQS[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[1] . Alarm«*
	Op	*»PQS[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP4* (PDUP1)		
	Mod	*»PQS[2] . Active«* *»PQS[2] . Blo TripCmd«* *»PQS[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[2] . Alarm«*
	Op	*»PQS[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP5* (PDUP1)		
	Mod	*»PQS[3] . Active«* *»PQS[3] . Blo TripCmd«* *»PQS[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP5* (PDUP1)		
	Str	*»PQS[3] . Alarm«*
	Op	*»PQS[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP6* (PDUP1)		
	Mod	*»PQS[4] . Active«* *»PQS[4] . Blo TripCmd«* *»PQS[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[4] . Alarm«*
	Op	*»PQS[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP7* (PDUP1)		
	Mod	*»PQS[5] . Active«* *»PQS[5] . Blo TripCmd«* *»PQS[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[5] . Alarm«*
	Op	*»PQS[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PDUP8* (PDUP1)		
	Mod	*»PQS[6] . Active«* *»PQS[6] . Blo TripCmd«* *»PQS[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PQS[6] . Alarm«*
	Op	*»PQS[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC1* (PFRC1)		
	Mod	*»df/dt . Active«* *»df/dt . Blo TripCmd«* *»df/dt . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»df/dt . Alarm«*
	Op	*»df/dt . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC3* (PFRC1)		
	Mod	*»f[1] . Active«* *»f[1] . Blo TripCmd«* *»f[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[1] . Alarm«*
	Op	*»f[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC4* (PFRC1)		
	Mod	*»f[2] . Active«* *»f[2] . Blo TripCmd«* *»f[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[2] . Alarm«*
	Op	*»f[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC5* (PFRC1)		
	Mod	*»f[3] . Active«* *»f[3] . Blo TripCmd«* *»f[3] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC5* (PFRC1)		
	Beh	
	Health	
	NamPlt	
	Str	*»f[3] . Alarm«*
	Op	*»f[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC6* (PFRC1)		
	Mod	*»f[4] . Active«* *»f[4] . Blo TripCmd«* *»f[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[4] . Alarm«*
	Op	*»f[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC7* (PFRC1)		
	Mod	*»f[5] . Active«* *»f[5] . Blo TripCmd«* *»f[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[5] . Alarm«*
	Op	*»f[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC8* (PFRC1)		
	Mod	*»f[6] . Active«* *»f[6] . Blo TripCmd«* *»f[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PFRC8* (PFRC1)		
	Str	*»f[6] . Alarm«*
	Op	*»f[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM2* (PPAM1)		
	Mod	*»delta phi . Active«* *»delta phi . Blo TripCmd«* *»delta phi . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»delta phi . Alarm«*
	Op	*»delta phi . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM3* (PPAM1)		
	Mod	*»f[1] . Active«* *»f[1] . Blo TripCmd«* *»f[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[1] . Alarm«*
	Op	*»f[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM4* (PPAM1)		
	Mod	*»f[2] . Active«* *»f[2] . Blo TripCmd«* *»f[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[2] . Alarm«*
	Op	*»f[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM5* (PPAM1)		
	Mod	*»f[3] . Active«* *»f[3] . Blo TripCmd«* *»f[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[3] . Alarm«*
	Op	*»f[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM6* (PPAM1)		
	Mod	*»f[4] . Active«* *»f[4] . Blo TripCmd«* *»f[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[4] . Alarm«*
	Op	*»f[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM7* (PPAM1)		
	Mod	*»f[5] . Active«* *»f[5] . Blo TripCmd«* *»f[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[5] . Alarm«*
	Op	*»f[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM8* (PPAM1)		
	Mod	*»f[6] . Active«* *»f[6] . Blo TripCmd«* *»f[6] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PPAM8* (PPAM1)		
	Beh	
	Health	
	NamPlt	
	Str	*»f[6] . Alarm«*
	Op	*»f[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PROTPTRC1 (PTRC2)		
	Mod	*»Prot . Active«* *»Prot . Blo TripCmd«* *»Prot . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»Prot . Alarm«*
	Op	*»Prot . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PSDE1 (PSDE1)		
	Mod	*»VT . IG meas dir sin/cos«*
	Beh	
	Health	
	NamPlt	
	Str	*»Prot . IG meas dir fwd«* *»Prot . IG meas dir rev«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PSDE2 (PSDE2)		
	Mod	*»VT . IG calc dir sin/cos«*
	Beh	
	Health	
	NamPlt	
	Str	*»Prot . IG calc dir fwd«* *»Prot . IG calc dir rev«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PSOF1 (PSOF1)		
	Mod	*»SOTF . Active«* *»SOTF . ExBlo«* *»SOTF . Ex rev Interl«*
	Beh	
	Health	
	NamPlt	
	Str	*»SOTF . enabled«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC1 (PTOC1)		
	Mod	*»I[1] . Active«* *»I[1] . Blo TripCmd«* *»I[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»I[1] . Alarm«*
	Op	*»I[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC2 (PTOC1)		
	Mod	*»I[2] . Active«* *»I[2] . Blo TripCmd«* *»I[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»I[2] . Alarm«*
	Op	*»I[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC3 (PTOC1)		
	Mod	*»I[3] . Active«* *»I[3] . Blo TripCmd«* *»I[3] . ExBlo TripCmd«*
	Beh	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC3 (PTOC1)		
	Health	
	NamPlt	
	Str	*»I[3] . Alarm«*
	Op	*»I[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC4 (PTOC1)		
	Mod	*»I[4] . Active«* *»I[4] . Blo TripCmd«* *»I[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»I[4] . Alarm«*
	Op	*»I[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC5 (PTOC1)		
	Mod	*»I[5] . Active«* *»I[5] . Blo TripCmd«* *»I[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»I[5] . Alarm«*
	Op	*»I[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC6 (PTOC1)		
	Mod	*»I[6] . Active«* *»I[6] . Blo TripCmd«* *»I[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»I[6] . Alarm«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOC6 (PTOC1)		
	Op	*»I[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOF3* (PTOF1)		
	Mod	*»f[1] . Active«* *»f[1] . Blo TripCmd«* *»f[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[1] . Alarm«*
	Op	*»f[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOF4* (PTOF1)		
	Mod	*»f[2] . Active«* *»f[2] . Blo TripCmd«* *»f[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[2] . Alarm«*
	Op	*»f[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOF5* (PTOF1)		
	Mod	*»f[3] . Active«* *»f[3] . Blo TripCmd«* *»f[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[3] . Alarm«*
	Op	*»f[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOF6* (PTOF1)		
	Mod	*»f[4] . Active«* *»f[4] . Blo TripCmd«* *»f[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[4] . Alarm«*
	Op	*»f[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOF7* (PTOF1)		
	Mod	*»f[5] . Active«* *»f[5] . Blo TripCmd«* *»f[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[5] . Alarm«*
	Op	*»f[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOF8* (PTOF1)		
	Mod	*»f[6] . Active«* *»f[6] . Blo TripCmd«* *»f[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[6] . Alarm«*
	Op	*»f[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV1* (PTOV2)		
	Mod	*»V[1] . Active«* *»V[1] . Blo TripCmd«* *»V[1] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV1* (PTOV2)		
	Beh	
	Health	
	NamPlt	
	Str	*»V[1] . Alarm«*
	Op	*»V[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV2* (PTOV2)		
	Mod	*»V[2] . Active«* *»V[2] . Blo TripCmd«* *»V[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[2] . Alarm«*
	Op	*»V[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV3* (PTOV2)		
	Mod	*»V[3] . Active«* *»V[3] . Blo TripCmd«* *»V[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[3] . Alarm«*
	Op	*»V[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV4* (PTOV2)		
	Mod	*»V[4] . Active«* *»V[4] . Blo TripCmd«* *»V[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV4* (PTOV2)		
	Str	*»V[4] . Alarm«*
	Op	*»V[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV5* (PTOV2)		
	Mod	*»V[5] . Active«* *»V[5] . Blo TripCmd«* *»V[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[5] . Alarm«*
	Op	*»V[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTOV6* (PTOV2)		
	Mod	*»V[6] . Active«* *»V[6] . Blo TripCmd«* *»V[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[6] . Alarm«*
	Op	*»V[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC1* (PTRC1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Op	*»SG[1] . TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC2* (PTRC1)		
	Mod	
	Beh	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC2* (PTRC1)		
	Health	
	NamPlt	
	Op	*»SG[2] . TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC3* (PTRC1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Op	*»SG[3] . TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC4* (PTRC1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Op	*»SG[4] . TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC5* (PTRC1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Op	*»SG[5] . TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTRC6* (PTRC1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Op	*»SG[6] . TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF3* (PTUF1)		
	Mod	*»f[1] . Active«* *»f[1] . Blo TripCmd«* *»f[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[1] . Alarm«*
	Op	*»f[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF4* (PTUF1)		
	Mod	*»f[2] . Active«* *»f[2] . Blo TripCmd«* *»f[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[2] . Alarm«*
	Op	*»f[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF5* (PTUF1)		
	Mod	*»f[3] . Active«* *»f[3] . Blo TripCmd«* *»f[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[3] . Alarm«*
	Op	*»f[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF6* (PTUF1)		
	Mod	*»f[4] . Active«* *»f[4] . Blo TripCmd«* *»f[4] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF6* (PTUF1)		
	Beh	
	Health	
	NamPlt	
	Str	*»f[4] . Alarm«*
	Op	*»f[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF7* (PTUF1)		
	Mod	*»f[5] . Active«* *»f[5] . Blo TripCmd«* *»f[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[5] . Alarm«*
	Op	*»f[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUF8* (PTUF1)		
	Mod	*»f[6] . Active«* *»f[6] . Blo TripCmd«* *»f[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»f[6] . Alarm«*
	Op	*»f[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV1* (PTUV2)		
	Mod	*»V[1] . Active«* *»V[1] . Blo TripCmd«* *»V[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV1* (PTUV2)		
	Str	*»V[1] . Alarm«*
	Op	*»V[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV2* (PTUV2)		
	Mod	*»V[2] . Active«* *»V[2] . Blo TripCmd«* *»V[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[2] . Alarm«*
	Op	*»V[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV3* (PTUV2)		
	Mod	*»V[3] . Active«* *»V[3] . Blo TripCmd«* *»V[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[3] . Alarm«*
	Op	*»V[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV4* (PTUV2)		
	Mod	*»V[4] . Active«* *»V[4] . Blo TripCmd«* *»V[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[4] . Alarm«*
	Op	*»V[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV5* (PTUV2)		
	Mod	*»V[5] . Active«* *»V[5] . Blo TripCmd«* *»V[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[5] . Alarm«*
	Op	*»V[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PTUV6* (PTUV2)		
	Mod	*»V[6] . Active«* *»V[6] . Blo TripCmd«* *»V[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V[6] . Alarm«*
	Op	*»V[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PUPF1 (PUPF1)		
	Mod	*»PF[1] . Active«* *»PF[1] . Blo TripCmd«* *»PF[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»PF[1] . Alarm«*
	Op	*»PF[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PUPF2 (PUPF1)		
	Mod	*»PF[2] . Active«* *»PF[2] . Blo TripCmd«* *»PF[2] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
PUPF2 (PUPF1)		
	Beh	
	Health	
	NamPlt	
	Str	*»PF[2] . Alarm«*
	Op	*»PF[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
QVPTUV1 (PTUV5)		
	Mod	*»Q->&V< . Active«* *»Q->&V< . ExBlo«* *»Q->&V< . Fuse Fail VT Blo«*
	Beh	
	Health	
	NamPlt	
	Str	*»Q->&V< . Alarm«*
	Op	*»Q->&V< . Decoupling Gen.«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
RBRF1 (RBRF1)		
	Mod	*»CBF . Active«* *»CBF . ExBlo«* *»CBF . ExBlo«*
	Beh	
	Health	
	NamPlt	
	Str	*»CBF . running«*
	OpEx	*»CBF . Alarm«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
RREC1 (RREC1)		
	Mod	*»AR . Active«* *»AR . ExBlo«* *»AR . ExBlo«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
RREC1 (RREC1)		
	Op	*»AR . CB ON Cmd«*
	AutoRecSt	*»AR . ARRecCState«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
RSYN1 (RSYN1)		
	Mod	*»Sync . Active«* *»Sync . ExBlo«* *»Sync . ExBlo«*
	Beh	
	Health	
	NamPlt	
	Rel	*»Sync . Ready to Close«*
	AngInd	*»Sync . AngleDiffTooHigh«*
	HzInd	*»Sync . SlipTooHigh«*
	VInd	*»Sync . VDiffTooHigh«*
	DifAngClc	*»Sync . Angle Diff«*
	DifHzClc	*»Sync . Slip Freq«*
	DifVClc	*»Sync . Volt Diff«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
TRPTTR1 (PTTR1)		
	Mod	*»ThR . Active«* *»ThR . Blo TripCmd«* *»ThR . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Op	*»ThR . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
ULPTOC1 (PTOC3)		
	Mod	*»I2>[1] . Active«* *»I2>[1] . Blo TripCmd«* *»I2>[1] . ExBlo TripCmd«*
	Beh	
	Health	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
ULPTOC1 (PTOC3)		
	NamPlt	
	Str	*»I2>[1] . Alarm«*
	Op	*»I2>[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
ULPTOC2 (PTOC3)		
	Mod	*»I2>[2] . Active«* *»I2>[2] . Blo TripCmd«* *»I2>[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»I2>[2] . Alarm«*
	Op	*»I2>[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV1* (PTOV3)		
	Mod	*»V012[1] . Active«* *»V012[1] . Blo TripCmd«* *»V012[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[1] . Alarm«*
	Op	*»V012[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV2* (PTOV3)		
	Mod	*»V012[2] . Active«* *»V012[2] . Blo TripCmd«* *»V012[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[2] . Alarm«*
	Op	*»V012[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV3* (PTOV3)		
	Mod	*»V012[3] . Active«* *»V012[3] . Blo TripCmd«* *»V012[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[3] . Alarm«*
	Op	*»V012[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV4* (PTOV3)		
	Mod	*»V012[4] . Active«* *»V012[4] . Blo TripCmd«* *»V012[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[4] . Alarm«*
	Op	*»V012[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV5* (PTOV3)		
	Mod	*»V012[5] . Active«* *»V012[5] . Blo TripCmd«* *»V012[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[5] . Alarm«*
	Op	*»V012[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV6* (PTOV3)		
	Mod	*»V012[6] . Active«* *»V012[6] . Blo TripCmd«* *»V012[6] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTOV6* (PTOV3)		
	Beh	
	Health	
	NamPlt	
	Str	*»V012[6] . Alarm«*
	Op	*»V012[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV1* (PTUV3)		
	Mod	*»V012[1] . Active«* *»V012[1] . Blo TripCmd«* *»V012[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[1] . Alarm«*
	Op	*»V012[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV2* (PTUV3)		
	Mod	*»V012[2] . Active«* *»V012[2] . Blo TripCmd«* *»V012[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[2] . Alarm«*
	Op	*»V012[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV3* (PTUV3)		
	Mod	*»V012[3] . Active«* *»V012[3] . Blo TripCmd«* *»V012[3] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV3* (PTUV3)		
	Str	*»V012[3] . Alarm«*
	Op	*»V012[3] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV4* (PTUV3)		
	Mod	*»V012[4] . Active«* *»V012[4] . Blo TripCmd«* *»V012[4] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[4] . Alarm«*
	Op	*»V012[4] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV5* (PTUV3)		
	Mod	*»V012[5] . Active«* *»V012[5] . Blo TripCmd«* *»V012[5] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[5] . Alarm«*
	Op	*»V012[5] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VAPTUV6* (PTUV3)		
	Mod	*»V012[6] . Active«* *»V012[6] . Blo TripCmd«* *»V012[6] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»V012[6] . Alarm«*
	Op	*»V012[6] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VSPTOV1* (PTOV1)		
	Mod	*»VG[1] . Active«* *»VG[1] . Blo TripCmd«* *»VG[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»VG[1] . Alarm«*
	Op	*»VG[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VSPTOV2* (PTOV1)		
	Mod	*»VG[2] . Active«* *»VG[2] . Blo TripCmd«* *»VG[2] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»VG[2] . Alarm«*
	Op	*»VG[2] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VSPTUV1* (PTUV1)		
	Mod	*»VG[1] . Active«* *»VG[1] . Blo TripCmd«* *»VG[1] . ExBlo TripCmd«*
	Beh	
	Health	
	NamPlt	
	Str	*»VG[1] . Alarm«*
	Op	*»VG[1] . Trip«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VSPTUV2* (PTUV1)		
	Mod	*»VG[2] . Active«* *»VG[2] . Blo TripCmd«* *»VG[2] . ExBlo TripCmd«*

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
VSPTUV2* (PTUV1)		
	Beh	
	Health	
	NamPlt	
	Str	*»VG[2] . Alarm«*
	Op	*»VG[2] . Trip«*

4.2 Device Planning Dependencies

The availability of Logical Node instances in the generated ICD file depends on the settings in the “Device planning” menu.

The following list gives an overview about those settings for every module that have an effect on the availability of a Logical Node.

Module (- ANSI/IEEE Device Number) . Name	Value
XSWI1	
»SG[1] . SwitchgearType«	“Monitored SG”
	“Controlled SG”
XCBR1	
»SG[1] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
XSWI2	
»SG[2] . SwitchgearType«	“Monitored SG”
	“Controlled SG”
XCBR2	
»SG[2] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
XSWI3	
»SG[3] . SwitchgearType«	“Monitored SG”
	“Controlled SG”
XCBR3	
»SG[3] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
XSWI4	
»SG[4] . SwitchgearType«	“Monitored SG”
	“Controlled SG”
XCBR4	
»SG[4] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
XSWI5	
»SG[5] . SwitchgearType«	“Monitored SG”
	“Controlled SG”
XCBR5	
»SG[5] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
XSWI6	

Module (- ANSI/IEEE Device Number) . Name	Value
»SG[6] . SwitchgearType«	“Monitored SG”
	“Controlled SG”
XCBR6	
»SG[6] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
CSWI1	
»SG[1] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CILO1	
»SG[1] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CSWI2	
»SG[2] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CILO2	
»SG[2] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CSWI3	
»SG[3] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CILO3	
»SG[3] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CSWI4	
»SG[4] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CILO4	
»SG[4] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CSWI5	
»SG[5] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CILO5	
»SG[5] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
CSWI6	
»SG[6] . SwitchgearType«	“Controlled SG”

Module (- ANSI/IEEE Device Number) . Name	Value
	“Controlled Make Break SG”
CILO6	
»SG[6] . SwitchgearType«	“Controlled SG”
	“Controlled Make Break SG”
PTRC1	
»SG[1] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
PTUV1	
»V[1] . Mode«	“V<”
	“use”
PTOV1	
»V[1] . Mode«	“V>”
PFRC1	
»df/dt . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PDOP1	
»P . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
VSPTOV1	
»VG[1] . Mode«	“V>”
VSPTUV1	
»VG[1] . Mode«	“V<”

Module (- ANSI/IEEE Device Number) . Name	Value
	“use”
VAPTUV1	
»V012[1] . Mode«	“V1<”
VAPTOV1	
»V012[1] . Mode«	“V1>”
	“V2>”
	“use”
PTRC2	
»SG[2] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
PTUV2	
»V[2] . Mode«	“V<”
	“use”
PTOV2	
»V[2] . Mode«	“V>”
PPAM2	
»delta phi . Mode«	“delta phi”
	“use”
PDOP2	
»Q . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
VSPTOV2	
»VG[2] . Mode«	“V>”
VSPTUV2	
»VG[2] . Mode«	“V<”
	“use”

Module (- ANSI/IEEE Device Number) . Name	Value
VAPTUV2	
»V012[2] . Mode«	“V1<”
VAPTOV2	
»V012[2] . Mode«	“V1>”
	“V2>”
	“use”
PTRC3	
»SG[3] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
PTUV3	
»V[3] . Mode«	“V<”
	“use”
PTOV3	
»V[3] . Mode«	“V>”
VAPTUV3	
»V012[3] . Mode«	“V1<”
VAPTOV3	
»V012[3] . Mode«	“V1>”
	“V2>”
	“use”
PTOF3	
»f[1] . Mode«	“f>”
PTUF3	
»f[1] . Mode«	“f<”
PFRC3	
»f[1] . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PPAM3	
»f[1] . Mode«	“delta phi”
	“use”
PDUP3	
»PQS[1] . Mode«	“P<”
	“Pr<”

Module (- ANSI/IEEE Device Number) . Name	Value
	“Q<”
	“Qr<”
	“S<”
	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PDOP3	
»PQS[1] . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PTRC4	
»SG[4] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
PTUV4	
»V[4] . Mode«	“V<”
	“use”
PTOV4	
»V[4] . Mode«	“V>”
VAPTUV4	
»V012[4] . Mode«	“V1<”
VAPTOV4	
»V012[4] . Mode«	“V1>”

Module (- ANSI/IEEE Device Number) . Name	Value
	“V2>”
	“use”
PTOF4	
»f[2] . Mode«	“f>”
PTUF4	
»f[2] . Mode«	“f<”
PFRC4	
»f[2] . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PPAM4	
»f[2] . Mode«	“delta phi”
	“use”
PDUP4	
»PQS[2] . Mode«	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“S<”
	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PDOP4	
»PQS[2] . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”

Module (- ANSI/IEEE Device Number) . Name	Value
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PTRC5	
»SG[5] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
PTUV5	
»V[5] . Mode«	“V<”
	“use”
PTOV5	
»V[5] . Mode«	“V>”
VAPTUV5	
»V012[5] . Mode«	“V1<”
VAPTOV5	
»V012[5] . Mode«	“V1>”
	“V2>”
	“use”
PTOF5	
»f[3] . Mode«	“f>”
PTUF5	
»f[3] . Mode«	“f<”
PFRC5	
»f[3] . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PPAM5	
»f[3] . Mode«	“delta phi”
	“use”
PDUP5	
»PQS[3] . Mode«	“P<”

Module (- ANSI/IEEE Device Number) . Name	Value
	“Pr<”
	“Q<”
	“Qr<”
	“S<”
	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PDOP5	
»PQS[3] . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PTRC6	
»SG[6] . SwitchgearType«	“Monitored Make Break SG”
	“Controlled Make Break SG”
PTUV6	
»V[6] . Mode«	“V<”
	“use”
PTOV6	
»V[6] . Mode«	“V>”
VAPTUV6	
»V012[6] . Mode«	“V1<”
VAPTOV6	

Module (- ANSI/IEEE Device Number) . Name	Value
»V012[6] . Mode«	“V1>”
	“V2>”
	“use”
PTOF6	
»f[4] . Mode«	“f>”
PTUF6	
»f[4] . Mode«	“f<”
PFRC6	
»f[4] . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PPAM6	
»f[4] . Mode«	“delta phi”
	“use”
PDUP6	
»PQS[4] . Mode«	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“S<”
	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PDOP6	
»PQS[4] . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”

Module (- ANSI/IEEE Device Number) . Name	Value
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PTOF7	
»f[5] . Mode«	“f>”
PTUF7	
»f[5] . Mode«	“f<”
PFRC7	
»f[5] . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PPAM7	
»f[5] . Mode«	“delta phi”
	“use”
PDUP7	
»PQS[5] . Mode«	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“S<”
	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PDOP7	

Module (- ANSI/IEEE Device Number) . Name	Value
»PQS[5] . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PTOF8	
»f[6] . Mode«	“f>”
PTUF8	
»f[6] . Mode«	“f<”
PFRC8	
»f[6] . Mode«	“f< and df/dt”
	“f> and df/dt”
	“f< and DF/DT”
	“f> and DF/DT”
	“df/dt”
	“use”
PPAM8	
»f[6] . Mode«	“delta phi”
	“use”
PDUP8	
»PQS[6] . Mode«	“P<”
	“Pr<”
	“Q<”
	“Qr<”
	“S<”
	“P<”
	“Pr<”
	“Q<”
	“Qr<”

Module (- ANSI/IEEE Device Number) . Name	Value
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”
PDOP8	
»PQS[6] . Mode«	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“S>”
	“P>”
	“Pr>”
	“Q>”
	“Qr>”
	“PAV,E P1>”
	“PAV,E P1r>”
	“PAV,E P1<”
	“PAV,E P1r<”

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