WOODWARD

HighPROTEC

IEC 61850 | MICS

MRDT4

Software-Version: 3.0.c

Model Implementation Conformance Statement (MICS)

UCA International Users Group Testing Sub Committee

English

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1. Introduction

This model implementation conformance statement is applicable to the device MRDT4, Version 3.0.c (Firmware-Build 28185).

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

Clause 2 contains the list of implemented logical nodes.

Clause 3 describes the new and extended logical nodes.

Clause 4 describes the existing common data classes.

Clause 5 describes the existing enum types.

2. Logical Nodes

2.1. Logical Nodes List

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

L : System Logical Nodes
LLN0 (Logical Node device)
LPHD (Physical device)
P : Logical Nodes for protection functions
PDIF (Differential)
PHAR (Harmonic restraint)
PSOF (Switch Onto Fault)
PTOC (Time overcurrent)
PTTR (Thermal overload protection)
R : Logical Nodes for protection related functions
RBRF (Breaker failure)
RDRE (Disturbance recorder function)
G : Logical Nodes for generic references
GAPC (Generic automatic process control)
GGIO (Generic process I/O)
M : Logical Nodes for metering and measurement
MMXU (Measurement)
MSTA (Metering Statistics)
X : Logical Nodes for switchgear
XCBR (Circuit Breaker)

XSWI (Circuit Switch)
C : Logical Nodes for control
CILO (Interlocking)
CSWI (Switch controller)
I : Logical Nodes for interfacing and archiving
IHMI (Human machine interface)
S : Logical Nodes for sensors and monitoring
SCBR (Circuit breaker monitoring)

2.2. Logical Node definitions

The following table use

- M: Data is mandatory in the IEC-61850-7-4.
- O: Data is optional in the IEC-61850-7-4 and is used in the device.
- E: Data is an extension to the IEC-61850-7-4.

LN Type	LN Class	Description
WW_CILO1	CILO	Interlocking
WW_CSWI1	CSWI	Switch controller
WW_GAPC1	GAPC	Generic automatic process control
WW_GGIO3	GGIO	Generic process I/O
WW_GGIO4	GGIO	Generic process I/O
WW_GGIO5	GGIO	Generic process I/O
WW_IHMI1	IHMI	Human machine interface
WW_LLN0CON	LLN0	Logical Node device
WW_LLN0MEA	LLN0	Logical Node device

Logical Nodes

LN Type	LN Class	Description
WW_LLN0PRO	LLN0	Logical Node device
WW_LLN0REC	LLN0	Logical Node device
WW_LLN0SYS	LLN0	Logical Node device
WW_LPHDCON	LPHD	Physical device
WW_LPHDMEA	LPHD	Physical device
WW_LPHDPRO	LPHD	Physical device
WW_LPHDREC	LPHD	Physical device
WW_LPHDSYS	LPHD	Physical device
WW_MMXU7	MMXU	Measurement
WW_MSTA1	MSTA	Metering Statistics
WW_PDIF1	PDIF	Differential
WW_PDIF2	PDIF	Differential
WW_PDIF3	PDIF	Differential
WW_PDIF4	PDIF	Differential
WW_PHAR1	PHAR	Harmonic restraint
WW_PSOF1	PSOF	Switch Onto Fault
WW_PTOC1	PTOC	Time overcurrent
WW_PTOC3	PTOC	Time overcurrent
WW_PTOC4	PTOC	Time overcurrent
WW_PTTR3	PTTR	Thermal overload protection
WW_PTTR4	PTTR	Thermal overload protection
WW_RBRF1	RBRF	Breaker failure

LN Type	LN Class	Description
WW_RDRE1	RDRE	Disturbance recorder function
WW_SCBR1	SCBR	Circuit breaker monitoring
WW_XCBR2	XCBR	Circuit Breaker
WW_XSWI1	XSWI	Circuit Switch

2.2.1 WW_CILO1

CILO class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
CILO	WW_CILO1	Interlocking		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behavior	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
EnaOpn	WW_SPS1	Enable Open	M	
EnaCls	WW_SPS1	Enable Close	M	

2.2.2 WW_CSWI1

CSWI class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
CSWI	WW_CSWI1	Switch Controller		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Loc	WW_SPS1	Local operation	O	
Controls				
Pos	WW_DPC2	Switch position	M	

2.2.3 WW_GAPC1

GAPC class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
GAPC	WW_GAPC1	Generic automatic process control		

Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Loc	WW_SPS1	Local operation	O	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.4 WW_GGIO3

GGIO class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
GGIO		Generic process I/O		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status information				
Ind1	WW_SPS1	General indication (binary input)	O	
Ind2	WW_SPS1	General indication (binary input)	O	
Ind3	WW_SPS1	General indication (binary input)	O	
Ind4	WW_SPS1	General indication (binary input)	O	
Ind5	WW_SPS1	General indication (binary input)	O	
Ind6	WW_SPS1	General indication (binary input)	O	
Ind7	WW_SPS1	General indication (binary input)	O	
Ind8	WW_SPS1	General indication (binary input)	O	
Ind9	WW_SPS1	General indication (binary input)	O	
Ind10	WW_SPS1	General indication (binary input)	O	
Ind11	WW_SPS1	General indication (binary input)	O	
Ind12	WW_SPS1	General indication (binary input)	O	
Ind13	WW_SPS1	General indication (binary input)	O	
Ind14	WW_SPS1	General indication (binary input)	O	
Ind15	WW_SPS1	General indication (binary input)	O	
Ind16	WW_SPS1	General indication (binary input)	O	
Ind17	WW_SPS1	General indication (binary input)	O	
Ind18	WW_SPS1	General indication (binary input)	O	
Ind19	WW_SPS1	General indication (binary input)	O	
Ind20	WW_SPS1	General indication (binary input)	O	
Ind21	WW_SPS1	General indication (binary input)	O	
Ind22	WW_SPS1	General indication (binary input)	O	
Ind23	WW_SPS1	General indication (binary input)	O	
Ind24	WW_SPS1	General indication (binary input)	O	
Ind25	WW_SPS1	General indication (binary input)	O	
Ind26	WW_SPS1	General indication (binary input)	O	

Ind27	WW_SPS1	General indication (binary input)	O	
Ind28	WW_SPS1	General indication (binary input)	O	
Ind29	WW_SPS1	General indication (binary input)	O	
Ind30	WW_SPS1	General indication (binary input)	O	
Ind31	WW_SPS1	General indication (binary input)	O	
Ind32	WW_SPS1	General indication (binary input)	O	

2.2.5 WW_GGIO4

GGIO class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
GGIO		Generic process I/O		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status information				
Ind1	WW_SPS1	General indication (binary input)	O	
Ind2	WW_SPS1	General indication (binary input)	O	
Ind3	WW_SPS1	General indication (binary input)	O	
Ind4	WW_SPS1	General indication (binary input)	O	
Ind5	WW_SPS1	General indication (binary input)	O	
Ind6	WW_SPS1	General indication (binary input)	O	
Ind7	WW_SPS1	General indication (binary input)	O	
Ind8	WW_SPS1	General indication (binary input)	O	
Ind9	WW_SPS1	General indication (binary input)	O	
Ind10	WW_SPS1	General indication (binary input)	O	
Ind11	WW_SPS1	General indication (binary input)	O	
Ind12	WW_SPS1	General indication (binary input)	O	
Ind13	WW_SPS1	General indication (binary input)	O	
Ind14	WW_SPS1	General indication (binary input)	O	
Ind15	WW_SPS1	General indication (binary input)	O	
Ind16	WW_SPS1	General indication (binary input)	O	
Ind17	WW_SPS1	General indication (binary input)	O	
Ind18	WW_SPS1	General indication (binary input)	O	
Ind19	WW_SPS1	General indication (binary input)	O	
Ind20	WW_SPS1	General indication (binary input)	O	
Ind21	WW_SPS1	General indication (binary input)	O	
Ind22	WW_SPS1	General indication (binary input)	O	
Ind23	WW_SPS1	General indication (binary input)	O	
Ind24	WW_SPS1	General indication (binary input)	O	
Ind25	WW_SPS1	General indication (binary input)	O	
Ind26	WW_SPS1	General indication (binary input)	O	
Ind27	WW_SPS1	General indication (binary input)	O	
Ind28	WW_SPS1	General indication (binary input)	O	
Ind29	WW_SPS1	General indication (binary input)	O	
Ind30	WW_SPS1	General indication (binary input)	O	

Ind31	WW_SPS1	General indication (binary input)	O	
Ind32	WW_SPS1	General indication (binary input)	O	

2.2.6 WW_GGIO5

GGIO class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
GGIO		Generic process I/O		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status information				
SPCSO1	WW_SPC2	Single point controllable status output	O	
SPCSO2	WW_SPC2	Single point controllable status output	O	
SPCSO3	WW_SPC2	Single point controllable status output	O	
SPCSO4	WW_SPC2	Single point controllable status output	O	
SPCSO5	WW_SPC2	Single point controllable status output	O	
SPCSO6	WW_SPC2	Single point controllable status output	O	
SPCSO7	WW_SPC2	Single point controllable status output	O	
SPCSO8	WW_SPC2	Single point controllable status output	O	
SPCSO9	WW_SPC2	Single point controllable status output	O	
SPCSO10	WW_SPC2	Single point controllable status output	O	
SPCSO11	WW_SPC2	Single point controllable status output	O	
SPCSO12	WW_SPC2	Single point controllable status output	O	
SPCSO13	WW_SPC2	Single point controllable status output	O	
SPCSO14	WW_SPC2	Single point controllable status output	O	
SPCSO15	WW_SPC2	Single point controllable status output	O	
SPCSO16	WW_SPC2	Single point controllable status output	O	
SPCSO17	WW_SPC2	Single point controllable status output	O	
SPCSO18	WW_SPC2	Single point controllable status output	O	
SPCSO19	WW_SPC2	Single point controllable status output	O	
SPCSO20	WW_SPC2	Single point controllable status output	O	
SPCSO21	WW_SPC2	Single point controllable status output	O	
SPCSO22	WW_SPC2	Single point controllable status output	O	
SPCSO23	WW_SPC2	Single point controllable status output	O	
SPCSO24	WW_SPC2	Single point controllable status output	O	
SPCSO25	WW_SPC2	Single point controllable status output	O	
SPCSO26	WW_SPC2	Single point controllable status output	O	
SPCSO27	WW_SPC2	Single point controllable status output	O	
SPCSO28	WW_SPC2	Single point controllable status output	O	
SPCSO29	WW_SPC2	Single point controllable status output	O	
SPCSO30	WW_SPC2	Single point controllable status output	O	
SPCSO31	WW_SPC2	Single point controllable status output	O	
SPCSO32	WW_SPC2	Single point controllable status output	O	

2.2.7 WW_IHMI1

IHMI class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
IHMI	WW_IHMI1	Human machine interface		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	

2.2.8 WW_LLN0CON

LLN0 class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LLN0	WW_LLN0CON	Logical Node device		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL2	Name plate	M	

2.2.9 WW_LLN0MEA

LLN0 class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LLN0	WW_LLN0MEA	Logical Node device		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL2	Name plate	M	

2.2.10 WW_LLN0PRO

LLN0 class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LLN0	WW_LLN0PRO	Logical Node device		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	

NamPlt	WW_LPL2	Name plate	M	

2.2.11 WW_LLN0REC

LLN0 class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LLN0	WW_LLN0REC	Logical Node device		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL2	Name plate	M	

2.2.12 WW_LLN0SYS

LLN0 class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LLN0	WW_LLN0SYS	Logical Node device		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL2	Name plate	M	

2.2.13 WW_LPHDCON

LPHD class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LPHD	WW_LPHDCON	Physical device information		
Data				
Common Logical Node Information				
PhyNam	WW_DPL1	Physical device name plate	M	
PhyHealth	WW_INS3	Physical Device Health	M	
Proxy	WW_SPS1	Indicates if this LN is a proxy	M	

2.2.14 WW_LPHDMEA

LPHD class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LPHD	WW_LPHDMEA	Physical device information		
Data				
Common Logical Node Information				
PhyNam	WW_DPL1	Physical device name plate	M	
PhyHealth	WW_INS3	Physical Device Health	M	

Proxy	WW_SPS1	Indicates if this LN is a proxy	M	

2.2.15 WW_LPHDPRO

LPHD class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LPHD	WW_LPHDPRO	Physical device information		
Data				
Common Logical Node Information				
PhyNam	WW_DPL1	Physical device name plate	M	
PhyHealth	WW_INS3	Physical Device Health	M	
Proxy	WW_SPS1	Indicates if this LN is a proxy	M	

2.2.16 WW_LPHDREC

LPHD class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LPHD	WW_LPHDREC	Physical device information		
Data				
Common Logical Node Information				
PhyNam	WW_DPL1	Physical device name plate	M	
PhyHealth	WW_INS3	Physical Device Health	M	
Proxy	WW_SPS1	Indicates if this LN is a proxy	M	

2.2.17 WW_LPHDSYS

LPHD class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LPHD	WW_LPHDSYS	Physical device information		
Data				
Common Logical Node Information				
PhyNam	WW_DPL1	Physical device name plate	M	
PhyHealth	WW_INS3	Physical Device Health	M	
Proxy	WW_SPS1	Indicates if this LN is a proxy	M	

2.2.18 WW_MMXU7

MMXU class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
MMXU	WW_MMXU5	Measurement		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	

Measured values				
A	WW_WYE2	Phase currents (IL1, IL2, IL3)	O	

2.2.19 WW_MSTA1

MSTA class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
MSTA	WW_MSTA1	Metering Statistics		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Metered values				
AvAPhA	WW_MV1	Average current IL1	E	
AvAPhB	WW_MV1	Average current IL2	E	
AvAPhC	WW_MV1	Average current IL3	E	
MaxAPhA	WW_MV1	Maximum current IL1	E	
MaxAPhB	WW_MV1	Maximum current IL2	E	
MaxAPhC	WW_MV1	Maximum current IL3	E	
MinAPhA	WW_MV1	Minimum current IL1	E	
MinAPhB	WW_MV1	Minimum current IL2	E	
MinAPhC	WW_MV1	Minimum current IL3	E	

2.2.20 WW_PDIF1

PDIF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PDIF	WW_PDIF1	Differential		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.21 WW_PDIF2

PDIF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PDIF	WW_PDIF2	Differential		
Data				
Common Logical Node Information				

Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.22 WW_PDIF3

PDIF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PDIF	WW_PDIF3	Differential		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.23 WW_PDIF4

PDIF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PDIF	WW_PDIF4	Differential		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.24 WW_PHAR1

PHAR class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PHAR	WW_PHAR1	Harmonic restraint		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	

Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	

2.2.25 WW_PSOF1

PSOF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PSOF	WW_PSOF1	Protection Switch Onto fault		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL3	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	

This is new logical node.

2.2.26 WW_PTOC1

PTOC class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PTOC	WW_PTOC1	Time overcurrent		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.27 WW_PTOC3

PTOC class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PTOC	WW_PTOC3	Time overcurrent		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				

Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.28 WW_PTOC4

PTOC class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PTOC	WW_PTOC4	Time overcurrent		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
Op	WW_ACT1	Operate	M	

2.2.29 WW_PTTR3

PTTR class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PTTR	WW_PTTR3	Thermal overload		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Op	WW_ACT1	Operate	M	

2.2.30 WW_PTTR4

PTTR class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
PTTR	WW_PTTR4	Thermal overload		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Op	WW_ACT1	Operate	M	

2.2.31 WW_RBRF1

RBRF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
RBRF	WW_RBRF1	Breaker failure		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
Str	WW_ACD1	Start	M	
OpEx	WW_ACT1	Breaker failure trip	M	

2.2.32 WW_RDRE1

RDRE class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
RDRE	WW_RDRE1	Disturbance recorder function		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
RcdMade	WW_SPS1	Recording made	M	
FltNum	WW_INS2	Fault Number	M	
GriFltNum	WW_INS2	Grid Fault Number	O	
RcdStr	WW_SPS1	Recording startet	O	

2.2.33 WW_SCBR1

RBRF class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
SCBR	WW_SCBR1	Circuit breaker monitoring		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Status Information				
TrCctAlm	WW_ACD1	Alarm signal	E	

2.2.34 WW_XCBR2

XCBR class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
XCBR	WW_XCBR2	Circuit Breaker		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Loc	WW_SPS1	Local operation	M	
OpCnt	WW_INS2	Operation counter	M	
Status Information				
CBOpCap	WW_INS5	Circuit breaker operating capability	M	
Controls				
Pos	WW_DPC1	Switch position	M	
BlkOpn	WW_SPC1	Block opening	M	
BlkCls	WW_SPC1	Block closing	M	

2.2.35 WW_XSWI1

XSWI class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
XSWI	WW_XSWI1	Circuit switch		
Data				
Common Logical Node Information				
Mod	WW_INC1	Mode	M	Status-only
Beh	WW_INS1	Behaviour	M	
Health	WW_INS3	Health	M	
NamPlt	WW_LPL1	Name plate	M	
Loc	WW_SPS1	Local operation	M	
OpCnt	WW_INS2	Operation counter	M	
Status Information				
SwTyp	WW_INS5	Switch type	M	
SwOpCap	WW_INS5	Switch operating capability	M	
Controls				
Pos	WW_DPC1	Switch position	M	
BlkOpn	WW_SPC1	Block opening	M	
BlkCls	WW_SPC1	Block closing	M	

3. Common Data Class

3.1. Common Data Class definitions

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

CDC Type	CDC Class	Description
WW_ACD1	ACD	Directional Protection activation information
WW_ACT1	ACT	Protection Activation Information
WW_analogValue1	analogValue	Analogue value
WW_Cancel1	Cancel	Cancel operating
WW_CMV2	CMV	Complex measured value
WW_DPC1	DPC	Controllable Double Point
WW_DPC2	DPC	Controllable Double Point
WW_DPL1	DPL	Device name plate
WW_INC1	INC	Controllable Integer Status
WW_INS1	INS	Integer Status
WW_INS2	INS	Integer Status
WW_INS3	INS	Integer Status
WW_INS5	INS	Integer Status
WW_LPL1	LPL	Logical node name plate
WW_LPL2	LPL	Logical node name plate
WW_LPL3	LPL	Logical node name plate
WW_MV1	MV	Measured Value
WW_Oper1	Oper	Start/Select operating
WW_origin1	origin	Originator
WW_SPC1	SPC	Controllable Single Point
WW_SPC2	SPC	Controllable Single Point
WW_SPS1	SPS	Single Point Status
WW_units1	units	Unit definition
WW_vector1	vector	Vector definition
WW_WYE2	WYE	Phase to ground related measured values of a three phase system

3.1.1 WW_ACD1

ACD class

Attribute Name	Attribute Type	FC	TrgOp	Value/Value range	M/O/E	Remarks
General	BOOLEAN	ST	dchg		M	
dirGeneral	Enum	ST	dchg	ACDdir	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.2 WW_ACT1

ACT class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
General	BOOLEAN	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.3 WW_CMV2

CMV class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
cVal	Struct	MX		WW_vector1	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
instCVal	Struct	MX		WW_vector1	O	
units	Struct	CF		WW_units1	O	
db	INT32U	CF			O	
dbAng	INT32U	CF			E	

3.1.4 WW_DPC1

DPC class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	Dbpos	ST	dchg	Dbpos	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
ctlModel	Enum	CF		ctlmodel	M	

3.1.5 WW_DPC2

DPC class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
origin	Struct	ST		WW_origin1	O	
ctlNum	INT8U	ST			O	
stVal	Dbpos	ST	dchg	Dbpos	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
stSeld	BOOLEAN	ST	dchg		O	

ctlModel	Enum	CF		ctlmodel	M	
sboTimeout	INT32U	CF			O	
sboClass	Enum	CF		sboClass	O	
cdcNs	VisString255	EX			O	
Oper	Struct	CO		WW_Oper1		
SBOw	Struct	CO		WW_Oper1		
Cancel	Struct	CO		WW_Cancel1		

3.1.6 WW_DPL1

DPL class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
vendor	VisString255	DC			M	

3.1.7 WW_INC1

INC class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	Enum	ST	dchg	Mode	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
ctlModel	Enum	CF		ctlModel	M	

3.1.8 WW_INS1

INS class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	Enum	ST	dchg	Behaviour	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.9 WW_INS2

INS class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	INT32	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.10 WW_INS3

INS class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	Enum	ST	dchg	AutoRecSt	M	
q	Quality	ST	qchg		M	

t	Timestamp	ST			M	

3.1.11 WW_INS5

INS class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	Enum	ST	dchg	CBOpCap	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.12 WW_LPL1

LPL class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
vendor	visString255	DC			M	
swRev	visString255	DC			M	
d	visString255	DC			M	

3.1.13 WW_LPL2

LPL class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
vendor	visString255	DC			M	
swRev	visString255	DC			M	
d	visString255	DC			M	
ldNs	visString255	EX				

3.1.14 WW_LPL3

LPL class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
vendor	visString255	DC			M	
swRev	visString255	DC			M	
d	visString255	DC			M	
LnNS	visString255	EX				

3.1.15 WW_MV1

MV class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
mag	Struct	MX		WW_analogValue1	M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	
units	Struct	CF		WW_units1	O	
db	INT32U	CF			O	

d	visString255	DC			O	
dataNs	visString255	DC			O	

3.1.16 WW_SPC1

SPC class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	BOOLEAN	ST	dchg		M	
q	Quality	ST	dchg		M	
t	Timestamp	ST			M	
ctlModel	Enum	CF		ctlModel	M	

3.1.17 WW_SPC2

SPC class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
Oper	Struct	CO		WW_Oper1		
stVal	BOOLEAN	ST	dchg		M	
q	Quality	ST	dchg		M	
t	Timestamp	ST			M	
ctlModel	Enum	CF		ctlModel	M	

3.1.18 WW_SPS1

SPS class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
stVal	BOOLEAN	ST	dchg		M	
q	Quality	ST	qchg		M	
t	Timestamp	ST			M	

3.1.19 WW_WYE2

WYE class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
phsAB	WW_CMV2					
phsBC	WW_CMV2					
phsCA	WW_CMV2					
neut	WW_CMV2					

3.2. Common Data Attributes type definitions

3.2.1 WW_analogValue1

analogValue class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**

f	FLOAT32	MX			M	

3.2.2 WW_Cancel1

Cancel class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
ctlval	BOOLEAN	CO			M	
origin	Struct	ST		WW_origin1	O	
ctlNum	INT8U	ST			O	
T	Timestamp	CO			O	
Test	BOOLEAN	CO			O	

3.2.3 WW_Oper1

Oper class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
ctlval	BOOLEAN	CO			M	
origin	Struct	ST		WW_origin1	O	
ctlNum	INT8U	ST			O	
T	Timestamp	CO			O	
Test	BOOLEAN	CO			O	
Check	Check	CO			O	

3.2.4 WW_origin1

origin class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
orCat	Enum	ST		orCategory	M	
orIdent	Octet64	ST			M	

3.2.5 WW_units1

unit class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
SIUnit	Enum			SIUnit	M	
multiplier	Enum			multiplier	O	

3.2.6 WW_vector1

vector class						
Attribute Name	**Attribute Type**	**FC**	**TrgOp**	**Value/Value range**	**M/O/E**	**Remarks**
mag	Struct			WW_analogValue1	M	
ang	Struct			WW_analogValue1	O	

3.3. Enumerated type definitions

3.3.1 Beh

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

3.3.2 CBOpCap

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

3.3.3 ctlModel

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

3.3.4 Dbpos

Ordinal	Semantic
1	intermediate
2	off
3	on
4	bad

3.3.5 dir

Ordinal	Semantic
1	unknown
2	forward
3	backward
4	both

3.3.6 Health

Ordinal	Semantic
1	Ok
2	Warning

3	Alarm

3.3.7 Mod

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

3.3.8 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
2	h
3	k
6	M
9	G
12	T
15	P
18	E
21	Z
24	Y

3.3.9 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

3.3.10 sboClass

Ordinal	Semantic
0	operate-once
1	operate-many

3.3.11 SIUnit

Ordinal	Semantic
1	none
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	ºC
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
44	m/s²
45	m³/s
46	m/m³
47	M
48	kg/m³
49	m²/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 – Register Maps

LDevice::CTRL

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
CILO1* (WW_CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	SG[1] . Interl OFF
	EnaCls	SG[1] . Interl ON
CILO2* (WW_CILO1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	EnaOpn	SG[2] . Interl OFF
	EnaCls	SG[2] . Interl ON
CSWI1* (WW_CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	
	Pos	SG[1] . Pos
CSWI2* (WW_CSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	
	Pos	SG[2] . Pos
LLN0 (WW_LLN0CON)		
	Mod	

	Beh	
	Health	
	NamPlt	
LPHD1 (WW_LPHDCON)		
	PhyNam	
	PhyHealth	
	Proxy	
TCSSCBR1 (WW_SCBR1)		
	Mod	TCS[1] - 74TC . active
	Beh	
	Health	
	NamPlt	
	TrCctAlm	TCS[1] - 74TC . Alarm
TCSSCBR2 (WW_SCBR1)		
	Mod	TCS[2] - 74TC . active
	Beh	
	Health	
	NamPlt	
	TrCctAlm	TCS[2] - 74TC . Alarm
XCBR1* (WW_XCBR2)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	
	OpCnt	
	Pos	SG[1] . Pos
	BlkOpn	
	BlkCls	
	CBOpCap	
XCBR2* (WW_XCBR2)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	
	OpCnt	

	Pos	SG[2] . Pos
	BlkOpn	
	BlkCls	
	CBOpCap	
XSWI1* (WW_XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	
	OpCnt	
	Pos	SG[1] . Pos
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	
XSWI2* (WW_XSWI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Loc	
	OpCnt	
	Pos	SG[2] . Pos
	BlkOpn	
	BlkCls	
	SwTyp	
	SwOpCap	

LDevice::DR

Logical Node	**Data Object**	**Module (- ANSI/IEEE Device Number) . Name**
LLN0 (WW_LLN0REC)		
	Mod	
	Beh	
	Health	
	NamPlt	
LPHD1 (WW_LPHDREC)		

	PhyNam	
	PhyHealth	
	Proxy	
RDRE1 (WW_RDRE1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	RcdMade	Disturb rec . recording
	FltNum	
	GriFltNum	
	RcdStr	Disturb rec . recording

LDevice::EXT

Logical Node	**Data Object**	**Module (- ANSI/IEEE Device Number) . Name**
COUTGGIO1 (WW_GGIO4)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Ind1	IEC61850 . VirtOut1-I
	Ind2	IEC61850 . VirtOut2-I
	Ind3	IEC61850 . VirtOut3-I
	Ind4	IEC61850 . VirtOut4-I
	Ind5	IEC61850 . VirtOut5-I
	Ind6	IEC61850 . VirtOut6-I
	Ind7	IEC61850 . VirtOut7-I
	Ind8	IEC61850 . VirtOut8-I
	Ind9	IEC61850 . VirtOut9-I
	Ind10	IEC61850 . VirtOut10-I
	Ind11	IEC61850 . VirtOut11-I
	Ind12	IEC61850 . VirtOut12-I
	Ind13	IEC61850 . VirtOut13-I
	Ind14	IEC61850 . VirtOut14-I
	Ind15	IEC61850 . VirtOut15-I
	Ind16	IEC61850 . VirtOut16-I
	Ind17	IEC61850 . VirtOut17-I

	Ind18	IEC61850 . VirtOut18-I
	Ind19	IEC61850 . VirtOut19-I
	Ind20	IEC61850 . VirtOut20-I
	Ind21	IEC61850 . VirtOut21-I
	Ind22	IEC61850 . VirtOut22-I
	Ind23	IEC61850 . VirtOut23-I
	Ind24	IEC61850 . VirtOut24-I
	Ind25	IEC61850 . VirtOut25-I
	Ind26	IEC61850 . VirtOut26-I
	Ind27	IEC61850 . VirtOut27-I
	Ind28	IEC61850 . VirtOut28-I
	Ind29	IEC61850 . VirtOut29-I
	Ind30	IEC61850 . VirtOut30-I
	Ind31	IEC61850 . VirtOut31-I
	Ind32	IEC61850 . VirtOut32-I
CTLGGIO1 (WW_GGIO5)		
	Mod	
	Beh	
	Health	
	NamPlt	
	SPCSO1	
	SPCSO2	
	SPCSO3	
	SPCSO4	
	SPCSO5	
	SPCSO6	
	SPCSO7	
	SPCSO8	
	SPCSO9	
	SPCSO10	
	SPCSO11	
	SPCSO12	
	SPCSO13	
	SPCSO14	
	SPCSO15	
	SPCSO16	
	SPCSO17	

	SPCSO18	
	SPCSO19	
	SPCSO20	
	SPCSO21	
	SPCSO22	
	SPCSO23	
	SPCSO24	
	SPCSO25	
	SPCSO26	
	SPCSO27	
	SPCSO28	
	SPCSO29	
	SPCSO30	
	SPCSO31	
	SPCSO32	
EPGAPC1 (WW_GAPC1)		
	Mod	ExP[1] . active ExP[1] . Blo TripCmd ExP[1] . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	ExP[1] . Alarm
	Op	ExP[1] . Trip
EPGAPC2 (WW_GAPC1)		
	Mod	ExP[2] . active ExP[2] . Blo TripCmd ExP[2] . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	ExP[2] . Alarm
	Op	ExP[2] . Trip
EPGAPC3 (WW_GAPC1)		
	Mod	ExP[3] . active ExP[3] . Blo TripCmd ExP[3] . ExBlo TripCmd
	Beh	
	Health	

	NamPlt	
	Str	ExP[3] . Alarm
	Op	ExP[3] . Trip
EPGAPC4 (WW_GAPC1)		
	Mod	ExP[4] . active ExP[4] . Blo TripCmd ExP[4] . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	ExP[4] . Alarm
	Op	ExP[4] . Trip
EPGAPC5 (WW_GAPC1)		
	Mod	Ext Sudd Press . active Ext Sudd Press . Blo TripCmd Ext Sudd Press . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	Ext Sudd Press . Alarm
	Op	Ext Sudd Press . Trip
EPGAPC6 (WW_GAPC1)		
	Mod	Ex Oil Temp . active Ex Oil Temp . Blo TripCmd Ex Oil Temp . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	Ex Oil Temp . Alarm
	Op	Ex Oil Temp . Trip
EPGAPC7 (WW_GAPC1)		
	Mod	Ext Temp Superv[1] . active Ext Temp Superv[1] . Blo TripCmd Ext Temp Superv[1] . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	Ext Temp Superv[1] . Alarm
	Op	Ext Temp Superv[1] . Trip
EPGAPC8 (WW_GAPC1)		

	Mod	Ext Temp Superv[2] . active Ext Temp Superv[2] . Blo TripCmd Ext Temp Superv[2] . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	Ext Temp Superv[2] . Alarm
	Op	Ext Temp Superv[2] . Trip
EPGAPC9 (WW_GAPC1)		
	Mod	Ext Temp Superv[3] . active Ext Temp Superv[3] . Blo TripCmd Ext Temp Superv[3] . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	Ext Temp Superv[3] . Alarm
	Op	Ext Temp Superv[3] . Trip
GOSINGGIO1 (WW_GGIO3)		
	Mod	
	Beh	
	Health	
	NamPlt	
	Ind1	
	Ind2	
	Ind3	
	Ind4	
	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	
LLN0 (WW_LLN0SYS)		
	Mod	
	Beh	
	Health	
	NamPlt	
LPHD1 (WW_LPHDSYS)		
	PhyNam	
	PhyHealth	
	Proxy	

LDevice::MEAS

Logical Node	**Data Object**	**Module (- ANSI/IEEE Device Number) . Name**
CMMXU1 (WW_MMXU7)		
	Mod	
	Beh	
	Health	
	NamPlt	

	A	CT W1 . IL1 RMS CT W1 . phi IL1 CT W1 . IL2 RMS CT W1 . phi IL2 CT W1 . IL3 RMS CT W1 . phi IL3 CT W1 . IG meas RMS CT W1 . phi IG meas CT W1 . IG calc RMS CT W1 . phi IG calc
CMMXU2 (WW_MMXU7)		
	Mod	
	Beh	
	Health	
	NamPlt	
	A	CT W2 . IL1 RMS CT W2 . phi IL1 CT W2 . IL2 RMS CT W2 . phi IL2 CT W2 . IL3 RMS CT W2 . phi IL3 CT W2 . IG meas RMS CT W2 . phi IG meas CT W2 . IG calc RMS CT W2 . phi IG calc
CMSTA1 (WW_MSTA1)		
	Mod	
	Beh	
	Health	
	NamPlt	
	AvAPhsA	CT W1 . IL1 avg
	AvAPhsB	CT W1 . IL2 avg
	AvAPhsC	CT W1 . IL3 avg
	MaxAPhsA	CT W1 . IL1 max
	MaxAPhsB	CT W1 . IL2 max
	MaxAPhsC	CT W1 . IL3 max
	MinAPhsA	CT W1 . IL1 min
	MinAPhsB	CT W1 . IL2 min
	MinAPhsC	CT W1 . IL3 min
CMSTA2 (WW_MSTA1)		
	Mod	
	Beh	
	Health	

	NamPlt	
	AvAPhsA	CT W2 . IL1 avg
	AvAPhsB	CT W2 . IL2 avg
	AvAPhsC	CT W2 . IL3 avg
	MaxAPhsA	CT W2 . IL1 max
	MaxAPhsB	CT W2 . IL2 max
	MaxAPhsC	CT W2 . IL3 max
	MinAPhsA	CT W2 . IL1 min
	MinAPhsB	CT W2 . IL2 min
	MinAPhsC	CT W2 . IL3 min
LLN0 (WW_LLN0MEA)		
	Mod	
	Beh	
	Health	
	NamPlt	
LPHD1 (WW_LPHDMEA)		
	PhyNam	
	PhyHealth	
	Proxy	

LDevice::PROT

Logical Node	Data Object	Module (- ANSI/IEEE Device Number) . Name
GFPTOC1 (WW_PTOC3)		
	Mod	IG[1] - 50N, 51N . active IG[1] - 50N, 51N . Blo TripCmd IG[1] - 50N, 51N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IG[1] - 50N, 51N . Alarm
	Op	IG[1] - 50N, 51N . Trip
GFPTOC2 (WW_PTOC3)		
	Mod	IG[2] - 50N, 51N . active IG[2] - 50N, 51N . Blo TripCmd IG[2] - 50N, 51N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IG[2] - 50N, 51N . Alarm

	Op	IG[2] - 50N, 51N . Trip
GFPTOC3 (WW_PTOC3)		
	Mod	IG[3] - 50N, 51N . active IG[3] - 50N, 51N . Blo TripCmd IG[3] - 50N, 51N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IG[3] - 50N, 51N . Alarm
	Op	IG[3] - 50N, 51N . Trip
GFPTOC4 (WW_PTOC3)		
	Mod	IG[4] - 50N, 51N . active IG[4] - 50N, 51N . Blo TripCmd IG[4] - 50N, 51N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IG[4] - 50N, 51N . Alarm
	Op	IG[4] - 50N, 51N . Trip
GPDIF1 (WW_PDIF3)		
	Mod	IdGH[1] - 87N . active IdGH[1] - 87N . Blo TripCmd IdGH[1] - 87N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IdGH[1] - 87N . Alarm
	Op	IdGH[1] - 87N . TripCmd
GPDIF2 (WW_PDIF3)		
	Mod	IdGH[2] - 87N . active IdGH[2] - 87N . Blo TripCmd IdGH[2] - 87N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IdGH[2] - 87N . Alarm
	Op	IdGH[2] - 87N . TripCmd
HRGPDIF1 (WW_PDIF4)		

	Mod	IdH - 87 . active IdH - 87 . Blo TripCmd IdH - 87 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IdH - 87 . Alarm
	Op	IdH - 87 . TripCmd
HSPPDIF1 (WW_PDIF2)		
	Mod	IdG[1] - 87N . active IdG[1] - 87N . Blo TripCmd IdG[1] - 87N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IdG[1] - 87N . Alarm
	Op	IdG[1] - 87N . Trip
HSPPDIF2 (WW_PDIF2)		
	Mod	IdG[2] - 87N . active IdG[2] - 87N . Blo TripCmd IdG[2] - 87N . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	IdG[2] - 87N . Alarm
	Op	IdG[2] - 87N . Trip
IHMI1 (WW_IHMI1)		
	Mod	
	Beh	
	Health	
	NamPlt	
INRPHAR1 (WW_PHAR1)		
	Mod	IH2[1] . active
	Beh	
	Health	
	NamPlt	
	Str	IH2[1] . 3-ph Blo
INRPHAR2 (WW_PHAR1)		
	Mod	IH2[2] . active

	Beh	
	Health	
	NamPlt	
	Str	IH2[2] . 3-ph Blo
LLN0 (WW_LLN0PRO)		
	Mod	
	Beh	
	Health	
	NamPlt	
LPHD1 (WW_LPHDPRO)		
	PhyNam	
	PhyHealth	
	Proxy	
PPDIF1 (WW_PDIF1)		
	Mod	Id - 87 . active Id - 87 . Blo TripCmd Id - 87 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	Id - 87 . Alarm
	Op	Id - 87 . TripCmd
PSOF1 (WW_PSOF1)		
	Mod	SOTF . active SOTF . ExBlo SOTF . Ex rev Interl
	Beh	
	Health	
	NamPlt	
	Str	SOTF . enabled
PTOC1 (WW_PTOC1)		
	Mod	I[1] - 50, 51 . active I[1] - 50, 51 . Blo TripCmd I[1] - 50, 51 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I[1] - 50, 51 . Alarm
	Op	I[1] - 50, 51 . Trip

PTOC2 (WW_PTOC1)		
	Mod	I[2] - 50, 51 . active I[2] - 50, 51 . Blo TripCmd I[2] - 50, 51 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I[2] - 50, 51 . Alarm
	Op	I[2] - 50, 51 . Trip
PTOC3 (WW_PTOC1)		
	Mod	I[3] - 50, 51 . active I[3] - 50, 51 . Blo TripCmd I[3] - 50, 51 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I[3] - 50, 51 . Alarm
	Op	I[3] - 50, 51 . Trip
PTOC4 (WW_PTOC1)		
	Mod	I[4] - 50, 51 . active I[4] - 50, 51 . Blo TripCmd I[4] - 50, 51 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I[4] - 50, 51 . Alarm
	Op	I[4] - 50, 51 . Trip
PTOC5 (WW_PTOC1)		
	Mod	I[5] - 50, 51 . active I[5] - 50, 51 . Blo TripCmd I[5] - 50, 51 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I[5] - 50, 51 . Alarm
	Op	I[5] - 50, 51 . Trip
PTOC6 (WW_PTOC1)		
	Mod	I[6] - 50, 51 . active I[6] - 50, 51 . Blo TripCmd I[6] - 50, 51 . ExBlo TripCmd

	Beh	
	Health	
	NamPlt	
	Str	I[6] - 50, 51 . Alarm
	Op	I[6] - 50, 51 . Trip
RBRF1 (WW_RBRF1)		
	Mod	CBF[1] - 50BF, 62BF . active CBF[1] - 50BF, 62BF . ExBlo CBF[1] - 50BF, 62BF . ExBlo
	Beh	
	Health	
	NamPlt	
	Str	CBF[1] - 50BF, 62BF . running
	OpEx	CBF[1] - 50BF, 62BF . Alarm
RBRF2 (WW_RBRF1)		
	Mod	CBF[2] - 50BF, 62BF . active CBF[2] - 50BF, 62BF . ExBlo CBF[2] - 50BF, 62BF . ExBlo
	Beh	
	Health	
	NamPlt	
	Str	CBF[2] - 50BF, 62BF . running
	OpEx	CBF[2] - 50BF, 62BF . Alarm
RTDPTTR1 (WW_PTTR4)		
	Mod	RTD . active RTD . Blo TripCmd RTD . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Op	RTD . Trip
TRPTTR1 (WW_PTTR3)		
	Mod	ThR - 49 . active ThR - 49 . Blo TripCmd ThR - 49 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Op	ThR - 49 . Trip
ULPTOC1 (WW_PTOC4)		

	Mod	I2>[1] - 46 . active I2>[1] - 46 . Blo TripCmd I2>[1] - 46 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I2>[1] - 46 . Alarm
	Op	I2>[1] - 46 . Trip
ULPTOC2 (WW_PTOC4)		
	Mod	I2>[2] - 46 . active I2>[2] - 46 . Blo TripCmd I2>[2] - 46 . ExBlo TripCmd
	Beh	
	Health	
	NamPlt	
	Str	I2>[2] - 46 . Alarm
	Op	I2>[2] - 46 . Trip

* Logical Node is dependent from settings in the “Device Planing”. (See 4.1 Device Planing Dependencies)

4.1. Device Planing Dependencies

Depending on the settings in the Device Planing section Logical Node instances will be available in the generated ICD file. The following list will give you an overview about the different selections for each Module which have an effect on the existence of a Logical Node.

Module (- ANSI/IEEE Device Number) . Name	**Value**
CILO1	
SG[1] . SwitchgearType	Controlled SG
	Controlled Make Break SG
CILO2	
SG[2] . SwitchgearType	Controlled SG
	Controlled Make Break SG
CSWI1	
SG[1] . SwitchgearType	Controlled SG
	Controlled Make Break SG
CSWI2	
SG[2] . SwitchgearType	Controlled SG
	Controlled Make Break SG
XCBR1	

Module (- ANSI/IEEE Device Number) . Name	Value
SG[1] . SwitchgearType	Monitored Make Break SG
	Controlled Make Break SG
XCBR2	
SG[2] . SwitchgearType	Monitored Make Break SG
	Controlled Make Break SG
XSWI1	
SG[1] . SwitchgearType	Monitored SG
	Controlled SG
XSWI2	
SG[2] . SwitchgearType	Monitored SG
	Controlled SG