

IEC 61850 – MICS

High **PROTEC** | PROTECTION TECHNOLOGY
MADE SIMPLE

MRI4 |

Model Implementation Conformance Statement (MICS)

UCA International Users Group Testing Sub Committee

Version: 3.7

Original document

English

Original reference manual

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1 Introduction

This model implementation conformance statement is applicable to the MRI4 version 3.7.

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 |
| LLNO (Logical Node device) |
| LPHD (Physical device) |
| P: Logical Nodes for protection functions |
| 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) |
| RREC (Autoreclosing) |
| 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) |

2 Logical Nodes

2.1 Logical Nodes List

S: Logical Nodes for sensors and monitoring

SCBR (Circuit breaker monitoring)

2.2 Logical Node Definitions

Abbreviations used in the following table:

- **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_GGIO10 | GGIO | Generic process I/O |
| WW_GGIO11 | GGIO | Generic process I/O |
| WW_GGIO14 | GGIO | Generic process I/O |
| WW_GGIO4 | GGIO | Generic process I/O |
| WW_IHMI1 | IHMI | Human machine interface |
| WW_LLNOCON | LLNO | Logical Node device |
| WW_LLNOMEA | LLNO | Logical Node device |
| WW_LLNOPRO | LLNO | Logical Node device |
| WW_LLNOREC | LLNO | Logical Node device |
| WW_LLNOSYS | LLNO | 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_PHAR1 | PHAR | Harmonic restraint |
| WW_PSO1 | 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_RBRF1 | RBRF | Breaker failure |
| WW_RDRE1 | RDRE | Disturbance recorder function |
| WW_RREC1 | RREC | Autoreclosing |
| WW_SCBR1 | SCBR | Circuit breaker monitoring |
| WW_XCBR2 | XCBR | Circuit Breaker |

2 Logical Nodes

2.2 Logical Node Definitions

| LN Type | LN Class | Description |
|----------------|-----------------|--------------------|
| WW_XSW1 | XSWI | Circuit Switch |

2.3 WW_CILO1

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

2.4 WW_CSWI1

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|-------------------|-------|-------------|
| CSWI class | | | | |
| CSWI | WW_CSWI1 | Switch Controller | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |
| <i>Controls</i> | | | | |
| Pos | WW_DPC2 | Switch position | M | |

2.5 WW_GAPC1

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

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|-----------------|-------|-------------|
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |
| <i>Status Information</i> | | | | |
| Str | WW_ACD1 | Start | M | |
| Op | WW_ACT1 | Operate | M | |

2.6 WW_GGIO4

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|-----------------------------------|-------|-------------|
| GGIO class | | | | |
| GGIO | WW_GGIO4 | Generic process I/O | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| 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 | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|----------------|----------------|-----------------------------------|-------|---------|
| 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 | |

2.7 WW_GGIO10

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|-----------------------------------|-------|-------------|
| GGIO class | | | | |
| GGIO | WW_GGI10 | Generic process I/O | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| Ind1 | WW_SPS1 | General indication (binary input) | O | |
| Ind2 | WW_SPS1 | General indication (binary input) | O | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|----------------|----------------|-----------------------------------|-------|---------|
| Ind3 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind4 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind5 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind6 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind7 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind8 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind9 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind10 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind11 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind12 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind13 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind14 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind15 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind16 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind17 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind18 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind19 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind20 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind21 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind22 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind23 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind24 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind25 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind26 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind27 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind28 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind29 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind30 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind31 | WW_SPS1 | General indication (binary input) | 0 | |
| Ind32 | WW_SPS1 | General indication (binary input) | 0 | |

2.8 WW_GGIO11

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|-------------------|----------------|-------------|-------|---------|
| GGIO class | | | | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|-----------------------------------|-------|-------------|
| GGIO | WW_GGI11 | Generic process I/O | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| 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 | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|----------------|----------------|-----------------------------------|-------|---------|
| 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 | |

2.9 WW_GGIO14

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---|-------|-------------|
| GGIO class | | | | |
| GGIO | WW_GGI14 | Generic process I/O | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| 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 | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|----------------|----------------|---|-------|---------|
| 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 | |

2.10 WW_IHMI1

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

2.11 WW_LLNOCON

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------|-------|---------|
| LLNO class | | | | |
| LLNO | WW_LLNOCON | Logical Node device | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|----------------|----------------|-------------|-------|-------------|
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL2 | Name plate | M | |

2.12 WW_LLNOMEA

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------|-------|-------------|
| LLNO class | | | | |
| LLNO | WW_LLNOMEA | Logical Node device | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL2 | Name plate | M | |

2.13 WW_LLNOPRO

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------|-------|-------------|
| LLNO class | | | | |
| LLNO | WW_LLNOPRO | Logical Node device | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL2 | Name plate | M | |

2.14 WW_LLNOREC

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------|-------|-------------|
| LLNO class | | | | |
| LLNO | WW_LLNOREC | Logical Node device | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL2 | Name plate | M | |

2.15 WW_LLNO5SYS

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------|-------|-------------|
| LLNO class | | | | |
| LLNO | WW_LLNO5SYS | Logical Node device | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL2 | Name plate | M | |

2.16 WW_LPHDCON

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------------------|-------|---------|
| LPHD class | | | | |
| LPHD | WW_LPHDCON | Physical device information | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |

2.17 WW_LPHDMEA

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------------------|-------|---------|
| LPHD class | | | | |
| LPHD | WW_LPHDMEA | Physical device information | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |

2.18 WW_LPHDPRO

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------------------|-------|---------|
| LPHD class | | | | |
| LPHD | WW_LPHDPRO | Physical device information | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |

2.19 WW_LPHDREC

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------------------|-------|---------|
| LPHD class | | | | |
| LPHD | WW_LPHDREC | Physical device information | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |

2.20 WW_LPHDSYS

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------------------|-------|---------|
| LPHD class | | | | |
| LPHD | WW_LPHDSYS | Physical device information | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |

2.21 WW_MMXU7

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|--------------------------------|-------|-------------|
| MMXU class | | | | |
| MMXU | WW_MMXU7 | Measurement | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Measured values</i> | | | | |
| A | WW_WYE2 | Phase currents (IL1, IL2, IL3) | O | |

2.22 WW_MSTA1

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|---------------------|-------|-------------|
| MSTA class | | | | |
| MSTA | WW_MSTA1 | Metering Statistics | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|-----------------------|----------------|---------------------|-------|---------|
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Metered values</i> | | | | |
| 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 | |

2.23 WW_PHAR1

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|--------------------|-------|-------------|
| PHAR class | | | | |
| PHAR | WW_PHAR1 | Harmonic restraint | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| Str | WW_ACD1 | Start | M | |

2.24 WW_PSO1

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|------------------------------|-------|-------------|
| PSOF class | | | | |
| PSOF | WW_PSO1 | Protection Switch Onto fault | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|---------------------------|----------------|-------------|-------|---------|
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL3 | Name plate | M | |
| <i>Status Information</i> | | | | |
| Str | WW_ACD1 | Start | M | |

2.25 WW_PTOC1

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

2.26 WW_PTOC3

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|------------------|-------|-------------|
| PTOC class | | | | |
| PTOC | WW_PTOC3 | Time overcurrent | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| Str | WW_ACD1 | Start | M | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|----------------|----------------|-------------|-------|---------|
| Op | WW_ACT1 | Operate | M | |

2.27 WW_PTOC4

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

2.28 WW_PTTR3

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

2.29 WW_RBRF1

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

2.30 WW_RDRE1

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

2.31 WW_RREC1

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|--|-------|-------------|
| RREC class | | | | |
| RREC | WW_RREC1 | Autoreclosing | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| Mod | WW_INC1 | Mode | M | Status-only |
| Beh | WW_INS1 | Behaviour | M | |
| Health | WW_INS3 | Health | M | |
| NamPlt | WW_LPL1 | Name plate | M | |
| <i>Status Information</i> | | | | |
| Op | WW_ACT1 | Operate (used here to provide close to XCBR) | M | |
| AutoRecSt | WW_INS4 | Autoreclosing Status | M | |

2.32 WW_SCBR1

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

2.33 WW_XCBR2

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|-------------------|----------------|-----------------|-------|---------|
| XCBR class | | | | |
| XCBR | WW_XCBR2 | Circuit Breaker | | |
| Data | | | | |

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|--------------------------------------|-------|-------------|
| <i>Common Logical Node Information</i> | | | | |
| 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 | |
| <i>Status Information</i> | | | | |
| CBOpCap | WW_INS5 | Circuit breaker operating capability | M | |
| <i>Controls</i> | | | | |
| Pos | WW_DPC1 | Switch position | M | |
| BlkOpn | WW_SPC1 | Block opening | M | |
| BlkCls | WW_SPC1 | Block closing | M | |

2.34 WW_XSWI1

| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
|--|----------------|-----------------------------|-------|-------------|
| XSWI class | | | | |
| XSWI | WW_XSWI1 | Circuit switch | | |
| Data | | | | |
| <i>Common Logical Node Information</i> | | | | |
| 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 | |
| <i>Status Information</i> | | | | |
| SwTyp | WW_INS5 | Switch type | M | |
| SwOpCap | WW_INS5 | Switch operating capability | M | |
| <i>Controls</i> | | | | |
| 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 Classes 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_INS4 | 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

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| ACD class | | | | | | |
| 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

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

3.1.3 WW_CMV2

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| CMV class | | | | | | |
| 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

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| DPC class | | | | | | |
| stVal | Dbpos | ST | dchg | Dbpos | M | |

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|----------------|----------------|----|-------|---------------------|-------|---------|
| q | Quality | ST | qchg | | M | |
| t | Timestamp | ST | | | M | |
| ctlModel | Enum | CF | | ctlModel | M | |

3.1.5 WW_DPC2

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| DPC class | | | | | | |
| 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

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| DPL class | | | | | | |
| vendor | VisString255 | DC | | | M | |

3.1.7 WW_INC1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| 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

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

3.1.9 WW_INS2

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

3.1.10 WW_INS3

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

3.1.11 WW_INS4

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

3.1.12 WW_INS5

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

3.1.13 WW_LPL1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| LPL class | | | | | | |
| vendor | visString255 | DC | | | M | |
| swRev | visString255 | DC | | | M | |
| d | visString255 | DC | | | M | |

3.1.14 WW_LPL2

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

3.1.15 WW_LPL3

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

3.1.16 WW_MV1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|-----------------|----------------|----|-------|---------------------|-------|---------|
| MV class | | | | | | |
| 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 | |

3.1.17 WW_SPC1

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

3.1.18 WW_SPC2

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| 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 | |

3.1.19 WW_SPS1

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

3.1.20 WW_WYE2

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|------------------|----------------|----|-------|---------------------|-------|---------|
| WYE class | | | | | | |
| phsAB | WW_CMV2 | | | | | |
| phsBC | WW_CMV2 | | | | | |
| phsCA | WW_CMV2 | | | | | |
| neut | WW_CMV2 | | | | | |

3.2 Common Data Attributes Type Definitions

3.2.1 WW_analogValue1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|--------------------------|----------------|----|-------|---------------------|-------|---------|
| analogValue class | | | | | | |
| f | FLOAT32 | MX | | | M | |

3.2.2 WW_Cancel1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|---------------------|----------------|----|-------|---------------------|-------|---------|
| Cancel class | | | | | | |
| 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

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|-------------------|----------------|----|-------|---------------------|-------|---------|
| Oper class | | | | | | |
| 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

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|---------------------|----------------|----|-------|---------------------|-------|---------|
| origin class | | | | | | |
| orCat | Enum | ST | | orCategory | M | |

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|----------------|----------------|----|-------|---------------------|-------|---------|
| orIdent | Octet64 | ST | | | M | |

3.2.5 WW_units1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|-------------------|----------------|----|-------|---------------------|-------|---------|
| unit class | | | | | | |
| SIUnit | Enum | | | SIUnit | M | |
| multiplier | Enum | | | multiplier | O | |

3.2.6 WW_vector1

| Attribute Name | Attribute Type | FC | TrgOp | Value / Value Range | M/O/E | Remarks |
|---------------------|----------------|----|-------|---------------------|-------|---------|
| vector class | | | | | | |
| mag | Struct | | | WW_analogValue1 | M | |
| ang | Struct | | | WW_analogValue1 | O | |

3.3 Enumerated type definitions

3.3.1 AutoRecSt

| Ordinal | Semantic |
|---------|------------|
| 1 | Ready |
| 2 | InProgress |
| 3 | Successful |

3.3.2 Beh

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

3.3.3 CBOpCap

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

3.3.4 ctlModel

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

| Ordinal | Semantic |
|---------|----------------------------|
| 5 | sbo-with-enhanced-security |

3.3.5 Dbpos

| Ordinal | Semantic |
|---------|--------------|
| 1 | intermediate |
| 2 | off |
| 3 | on |
| 4 | bad |

3.3.6 ACDDir

| Ordinal | Semantic |
|---------|----------|
| 0 | unknown |
| 1 | forward |
| 2 | backward |
| 3 | both |

3.3.7 Health

| Ordinal | Semantic |
|---------|----------|
| 1 | Ok |
| 2 | Warning |
| 3 | Alarm |

3.3.8 Mod

| Ordinal | Semantic |
|---------|------------|
| 1 | on |
| 2 | blocked |
| 3 | test |
| 4 | test/block |

| Ordinal | Semantic |
|---------|----------|
| 5 | off |

3.3.9 MotorCycle

| Ordinal | Semantic |
|---------|----------|
| 0 | Trip/Off |
| 1 | Stop |
| 2 | Start |
| 3 | Run |

3.3.10 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 |

| Ordinal | Semantic |
|---------|----------|
| 21 | Z |
| 24 | Y |

3.3.11 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 |

3.3.12 sboClass

| Ordinal | Semantic |
|---------|--------------|
| 0 | operate-once |
| 1 | operate-many |

3.3.13 SIUnit

| Ordinal | Semantic |
|---------|----------|
| 1 | none |
| 2 | m |
| 3 | kg |
| 4 | s |
| 5 | A |
| 6 | K |
| 7 | mol |
| 8 | cd |

| Ordinal | Semantic |
|---------|-------------------|
| 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 | m ² |
| 42 | m ³ |
| 43 | m/s |
| 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 |

| Ordinal | Semantic |
|----------------|------------------|
| 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 ² t |
| 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](#)”).

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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|--------------------------|-------------|---|
| CSWI1* (WW_CSWI1) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Loc | |
| | Pos | SG[1] . Pos |

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

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

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|----------------------------|-------------|---|
| TCSSCBR1 (WW_SCBR1) | | |
| | Mod | TCS - 74TC . active |
| | Beh | |
| | Health | |
| | NamPlt | |
| | TrCctAlm | TCS - 74TC . Alarm |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|--------------------------|-------------|---|
| XCBR1* (WW_XCBR2) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Loc | |
| | OpCnt | |
| | Pos | SG[1] . Pos |
| | BlkOpn | |
| | BlkCls | |
| | CBOpCap | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|--------------------------|-------------|---|
| XSWI1* (WW_XSWI1) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Loc | |
| | OpCnt | |
| | Pos | SG[1] . Pos |
| | BlkOpn | |
| | BlkCls | |
| | SwTyp | |
| | SwOpCap | |

LDevice::DR

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|--------------------------|-------------|---|
| LLN0 (WW_LLNOREC) | | |
| | Mod | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|--------------------------|-------------|---|
| LLNO (WW_LLNOREC) | | |
| | Beh | |
| | Health | |
| | NamPlt | |

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

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|---|
| 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 | 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 |

4 Appendix
4.1 Register Maps

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-----------------------------|-------------|---|
| COUTGGIO1 (WW_GGIO4) | | |
| | 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 |
| | Ind32 | IEC 61850 . COUTGGIO1.Ind32.stVal-I |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-----------------------------|-------------|---|
| COUTGGIO2 (WW_GGIO4) | | |
| | 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-----------------------------|-------------|---|
| COUTGGIO2 (WW_GGIO4) | | |
| | 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 |
| | 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 (WW_GGIO14) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | SPCSO1 | |
| | SPCSO2 | |
| | SPCSO3 | |
| | SPCSO4 | |
| | SPCSO5 | |

4 Appendix
4.1 Register Maps

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-----------------------------|-------------|--|
| CTLGGIO1 (WW_GGIO14) | | |
| | 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 | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------------|-------------|---|
| GOSINGGIO1 (WW_GGIO11) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Ind1 | |
| | Ind2 | |
| | Ind3 | |
| | Ind4 | |
| | Ind5 | |
| | Ind6 | |

4 Appendix
4.1 Register Maps

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------------|-------------|---|
| GOSINGGIO1 (WW_GGIO11) | | |
| | 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 (WW_GGIO10) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Ind1 | |
| | Ind2 | |
| | Ind3 | |
| | Ind4 | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------------|-------------|---|
| GOSINGGIO2 (WW_GGIO10) | | |
| | 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 (WW_LLNO5YS) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| 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 . 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 (WW_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 |
| | MinAPhsB | CT . IL2 min |
| | MinAPhsC | CT . IL3 min |

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

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|--|
| GFPTOC4 (WW_PTOC3) | | |
| | Mod | IG[4] - 50N, 51N . active IG[4] - 50N, 51N . Blo TripCmd IG[4] - 50N, 51N . ExBlo TripCmd |

4 Appendix
4.1 Register Maps

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| GFPTOC4 (WW_PTOC3) | | |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Str | IG[4] - 50N, 51N . Alarm |
| | Op | IG[4] - 50N, 51N . Trip |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|---|
| IHMI1 (WW_IHMI1) | | |
| | Mod | |
| | Beh | |
| | Health | |
| | NamPlt | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|----------------------------|-------------|---|
| INRPHAR1 (WW_PHAR1) | | |
| | Mod | IH2 . active |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Str | IH2 . 3-ph Blo |

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

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

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|---|
| PSOF1 (WW_PSOF1) | | |
| | Mod | SOTF . active SOTF . ExBlo SOTF . Ex rev Interl |
| | Beh | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|------------------------|-------------|---|
| PSOF1 (WW_PSO1) | | |
| | Health | |
| | NamPlt | |
| | Str | SOTF . enabled |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| PTOC4 (WW_PTOC1) | | |
| | Mod | I[4] - 50, 51 . active I[4] - 50, 51 . Blo TripCmd I[4] - 50, 51 . ExBlo TripCmd |
| | Beh | |

4 Appendix
4.1 Register Maps

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|---|
| PTOC4 (WW_PTOC1) | | |
| | Health | |
| | NamPlt | |
| | Str | I[4] - 50, 51 . Alarm |
| | Op | I[4] - 50, 51 . Trip |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|---|
| RBRF1 (WW_RBRF1) | | |
| | Mod | CBF - 50BF, 62BF . active CBF - 50BF, 62BF . ExBlo CBF - 50BF, 62BF . ExBlo |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Str | CBF - 50BF, 62BF . running |
| | OpEx | CBF - 50BF, 62BF . Alarm |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|--|
| RREC1 (WW_RREC1) | | |
| | Mod | AR - 79 . active AR - 79 . ExBlo AR - 79 . ExBlo |
| | Beh | |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|-------------------------|-------------|---|
| RREC1 (WW_RREC1) | | |
| | Health | |
| | NamPlt | |
| | Op | AR - 79 . CB ON Cmd |
| | AutoRecSt | AR - 79 . ARRecCState |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|---|
| TRPTTR1 (WW_PTTR3) | | |
| | Mod | ThR - 49 . active ThR - 49 . Blo TripCmd ThR - 49 . ExBlo TripCmd |
| | Beh | |
| | Health | |
| | NamPlt | |
| | Op | ThR - 49 . Trip |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|--|
| 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 |

| Logical Node | Data Object | Module (- ANSI/IEEE Device Number) . Name |
|---------------------------|-------------|--|
| 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 |

4.2 Device Planning Dependencies

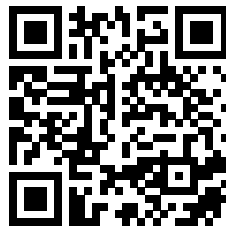
The availability of Logical Node instances in the generated ICD file depends on the settings in the “Device planning” menu.

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 |
|---|--------------------------|
| CILO1 | |
| SG[1] . SwitchgearType | Controlled SG |
| SG[1] . SwitchgearType | Controlled Make Break SG |
| CSWI1 | |
| SG[1] . SwitchgearType | Controlled SG |
| SG[1] . SwitchgearType | Controlled Make Break SG |
| XCBR1 | |
| SG[1] . SwitchgearType | Monitored Make Break SG |
| SG[1] . SwitchgearType | Controlled Make Break SG |
| XSWI1 | |
| SG[1] . SwitchgearType | Monitored SG |
| SG[1] . SwitchgearType | Controlled SG |

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