

Model Implementation Conformance Statement
for the IEC 61850 interface in SEL-421

September 02, 2011

UCA International Users Group
Testing Sub Committee

Template version 0.1

Date: April 24, 2008

INDEX

page

| | |
|---|-----------|
| INDEX..... | ii |
| 1. Introduction..... | 5 |
| 2. Logical Nodes List..... | 6 |
| 3. Logical Node Extensions | 7 |
| 3.1. New Logical Nodes | 7 |
| 3.1.1 MDST Demand Metering Statistics | 7 |
| 3.2. Extended Logical Nodes | 8 |
| 3.2.1 GGIO Generic Process I/O | 8 |

1. Introduction

This model implementation conformance statement is applicable for SEL-421-4 and SEL-421-5, with firmware R308:

This MICS document specifies the modelling extensions compared to IEC 61850 edition 1. For the exact details on the standardized model please compare the ICD substation configuration file: "0421 003.ICD", version R103.

Clause 2 contains the list of implemented logical nodes.
Clause 3 describes the new and extended logical nodes.

2. Logical Nodes List

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

| |
|--|
| L: System Logical Nodes |
| LPHD (Physical device information) |
| LLNO (Logical node zero) |
| P: Logical Nodes for protection functions |
| PDIS (Distance) |
| PIOC (Instantaneous overcurrent) |
| PSCH (Protection scheme) |
| PTOC (Time overcurrent) |
| PTRC (Protection trip conditioning) |
| R: Logical nodes for protection related functions |
| RBRF (Breaker failure) |
| RDIR (Directional element) |
| RPSB (Power swing detection/blocking) |
| G: Logical Nodes for generic references |
| GGIO (Generic process I/O) |
| M: Logical Nodes for metering and measurement |
| MDST (Demand metering statistics) |
| MMXU (Measurement) |
| MSQI (Sequence and imbalance) |
| C: Logical Nodes for control |
| CSWI (Switch controller) |
| X: Logical Nodes for switchgear |
| XCBR (Circuit breaker) |
| Z: Logical Nodes for further power system equipment |
| ZBAT (Battery) |

3. Logical Node Extensions

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.

3.1. New Logical Nodes

New logical nodes have the InNs attribute in the Name plate. The value of InNs is a reference to the MICS document.

3.1.1 MDST Demand Metering Statistics

This LN shall be used for calculation of demand currents and energy in a three-phase system. This shall not be used for billing purposes.

| MDST class | | | | |
|---------------------------------|----------------|---|-------|---------|
| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
| LNNName | | Shall be inherited from Logical-Node Class (see IEC 61850-7-2). | | |
| Data | | | | |
| Common Logical Node Information | | | | |
| | | LN shall inherit all Mandatory Data from Common Logical Node Class. | M | |
| Measured Values | | | | |
| A | WYE | Demand currents | E | |
| W | WYE | Demand real power | E | |
| VAr | WYE | Demand reactive power | E | |
| VA | WYE | Demand apparent power | E | |
| SeqA | SEQ | Demand sequence currents | E | |
| TotW | MV | Demand three-phase real | E | |

| | | | | |
|--------|----|--|---|--|
| | | power | | |
| TotVAr | MV | Demand three-phase reactive power | E | |
| TotVA | MV | Demand three-phase apparent power | E | |
| SupWh | MV | Real energy supply (default direction: energy flow towards busbar) | E | |
| DmdWh | MV | Real energy demand (default direction: energy flow from busbar) | E | |

3.2. Extended Logical Nodes

The following logical nodes have been extended with extra data. All extra data has been highlighted in the tables and marked as “E” (Extended), these data contains the “dataNs” attribute.

3.2.1 GGIO Generic Process I/O

| GGIO class | | | | |
|------------------------|----------------|---------------|-------|---------|
| Attribute Name | Attribute Type | Explanation | M/O/E | Remarks |
| Measured Values | | | | |
| Ra | MV | Remote analog | E | |