Model Implementation Conformance Statement for the IEC 61850 interface in SEL-351S

February 20, 2012

UCA International Users Group
Testing Sub Committee

Template version 0.1
Date: April 24, 2008

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1. Introduction

This model implementation conformance statement is applicable for SEL-351S-5, SEL-351S-6 and SEL-351S-7, with firmware R511:

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: “0351S 004.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)
LLN0 (Logical node zero)
P: Logical Nodes for protection functions
PFRC (Rate of change of frequency)
PIOC (Instantaneous overcurrent)
PTOC (Time overcurrent)
PTOF (Overfrequency)
PTOV (Overvoltage)
PTRC (Protection trip conditioning)
PSCH (Protection scheme)
PTUV (Undervoltage)
R: Logical nodes for protection related functions
RBRF (Breaker failure)
RDIR (Directional element)
RFLO (Fault locator)
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)
S: Logical nodes for sensors and monitoring
SCBR (Circuit breaker supervision)
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 lnNs attribute in the Name plate. The value of lnNs 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**
LNName		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				
DmdA	WYE	Demand currents	E	
PkDmdA	WYE	Peak demand currents	E	
SupWh	MV	Real energy supply (default direction: energy flow towards busbar)	E	
SupVArh	MV	Reactive energy supply (default direction: energy flow towards	E	

		busbar)		
DmdWh	MV	Real energy demand (default direction: energy flow from busbar)	E	
DmdVArh	MV	Reactive energy demand (default direction: energy flow from busbar)	E	

3.1.2 SCBR Circuit Breaker Supervision

This LN shall be used for supervision of circuit breakers.

MDST class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LNName		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	
Status Information				
ColOpn	SPS	Open command of trip coil	E	
OpTmAlm	SPS	Switch operating time exceeded	E	
OpCnt	INS	Operation counter	E	
Measured Values				
OpTmOpn	MV	Operation time open	E	
OpTmCls	MV	Operation time close	E	
AbrPrt	MV	Abrasion (in %) of parts subject to wear	E	