Model Implementation Conformance Statement

for the IEC 61850 interface in SEL-2411

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UCA International Users Group

Testing Sub Committee

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Schweitzer Engineering Laboratories, Inc.

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1. Introduction

This model implementation conformance statement is applicable for SEL-2411 and SEL-2411-0, with firmware R310:

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: "02411 004.ICD", version R115.

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

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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)
G: Logical Nodes for generic references
GGIO (Generic process I/O)
M: Logical Nodes for metering and measurement
MDST (Demand metering statistics)
MMXU (Measurement)
MTHE (External thermal/RTD measurements)
MTHI (Internal thermal/RTD measurements)

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	

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		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	
MaxA	WYE	Maximum phase currents	E	
MinA	WYE	Minimum phase currents	E	
MaxPhV	WYE	Maximum phase voltages	E	
MinPhV	WYE	Minimum phase voltages	E	
MaxPPV	DEL	Maximum phase-to-phase voltages	E	
MinPPV	DEL	Minimum phase-to-phase voltages	E	
MaxVA	MV	Maximum apparent power	E	
MinVA	MV	Minimum apparent power	E	
MaxW	MV	Maximum real power	E	
MinW	MV	Minimum real power	E	
MaxVAr	MV	Maximum reactive power	E	
MinVAr	MV	Minimum reactive power	E	

3.1.2   MTHE External Thermal/RTD Measurements

This LN shall be used to acquire values from external RTDs and thermocouples to calculate thermal capacity. This is mainly used for Thermal Monitoring.

MTHE class				
Attribute Name	**Attribute Type**	**Explanation**	**M/O/E**	**Remarks**
LNName		Shall be inherited from Logical-Node Class (see IEC 61850-7-2).		
Data				

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Common Logical Node Information				
		LN shall inherit all Mandatory Data from Common Logical Node Class.	M	
EEHealth	INS	External equipment health (RTD Communications Status)	E	
Measured Values				
ExtTmp	MV	Temperature	E	

3.1.3   MTHI Internal Thermal/RTD Measurements

This LN shall be used to acquire values from internal RTDs and thermocouples to calculate thermal capacity. This is mainly used for Thermal Monitoring.

MTHI 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	
EEHealth	INS	External equipment health (RTD Communications Status)	E	
Measured Values				
InTmp	MV	Temperature	E	

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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	