

Model Implementation Conformance Statement for the IEC
61850 Edition 2 Amendment 1 server interface in SEL-487E-5,
SEL-451-6, SEL-421-7 and SEL-401

Version 1

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Introduction

This model implementation conformance statement is applicable for:
SEL-487E-5 with firmware R411 and data model name space 2007B4,
SEL-451-6 with firmware R411 and data model name space 2007B4,
SEL-421-7 with firmware R414 and data model name space 2007B4 and
SEL-401 with firmware R414 and data model name space 2007B4,

This MICS document specifies the modelling extensions compared to IEC 61850 edition 2. For the exact details on the standardized model please compare the ICD substation configuration file:

“0487E-5P 011 R411.ICD”, version R011,
“0451-6P 011 R411.ICD”, version R009,
“0421-7P 011 R414.ICD”, version R109 and
“0401 011 R414.ICD”, version R010.

Clause 2 contains the list of implemented logical nodes.
Clause 3 describes the new and extended logical nodes (if any).
Clause 4 describes the new and extended enum types (if any).

Logical Nodes List

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

C: Logical Nodes for control	Name space when not <2007B4>
CILO (Interlocking) ⁽¹⁾	
CSWI (Switch controller) ⁽¹⁾	
G: Logical Nodes for generic references	
GGIO (Generic process I/O) ⁽¹⁾	
L: System Logical Nodes	
LCCH (Physical communication channel supervision) ⁽¹⁾	
LGOS (GOOSE subscription) ⁽¹⁾	
LNO (Logical device LN) ⁽¹⁾	
LPHD (Physical device LN) ⁽¹⁾	
LTIM (Time management) ⁽¹⁾	
LTMS (Time master supervision) ⁽¹⁾	
LTRK (Service tracking) ⁽¹⁾	
M: Logical Nodes for metering and measurement	
MDST (Demand and Peak Demand metering statistics) ^{(3) (5)}	
MMTR (Metering 3 phase) ^{(3) (4) (5)}	
MMXN (Non-phase-related AC measurement) ⁽⁴⁾	
MMXU (Measurement) ⁽¹⁾	
MSQI (Sequence and imbalance) ⁽¹⁾	
P: Logical Nodes for protection functions	
PDIF (Differential) ⁽⁴⁾	
PDIS (Distance) ^{(3) (4)}	
PHAR (Harmonic restraint) ⁽⁴⁾	
PHIZ (Ground detector) ⁽⁵⁾	
PIOC (Instantaneous overcurrent) ⁽¹⁾	

PSCH (Protection scheme) ^{(3) (5)}	
PTOC (Time overcurrent) ^{(3) (4) (5)}	
PTOF (Overfrequency) ⁽³⁾	
PTOV (Overvoltage) ^{(3) (4) (5)}	
PTRC (Protection trip conditioning) ⁽¹⁾	
PTTR (Thermal overload) ^{(3) (4) (5)}	
PTUF (Underfrequency) ⁽³⁾	
PTUV (Undervoltage) ⁽¹⁾	
PVPH (Volts per Hz) ⁽⁴⁾	
R: Logical nodes for protection related functions	
RBRF (Breaker Failure) ⁽¹⁾	
RDIR (Directional element) ^{(3) (5)}	
RDRE (Disturbance recorder function) ⁽¹⁾	
RFLO (Fault Locator) ^{(3) (4) (5)}	
RPSB (Power swing detection/blocking) ^{(3) (4)}	
RREC (Autoreclosing) ^{(3) (4) (5)}	
RSYN (Synchronism check) ⁽³⁾	
S: Logical Nodes for supervision and monitoring	
SCBR (Circuit breaker supervision) ⁽¹⁾	
T: Logical Nodes for Instruments	
TCTR (Current transformer) ⁽¹⁾	
TVTR (Voltage transformer) ⁽¹⁾	
X: Logical Nodes for switchgear	
XCBR (Circuit breaker) ⁽¹⁾	
XSWI (Circuit switch) ⁽¹⁾	
Z: Logical Nodes for further power system equipment	
ZBAT (Battery) ⁽¹⁾	

- (1) Supported by all SEL-400 relays in this document.
- (2) Supported by SEL-401.
- (3) Supported by SEL-421-7.
- (4) Supported by SEL-487E-5.
- (5) Supported by SEL-451-6.

Logical Node Extensions

The following table use

- M: Data object is mandatory in the IEC 61850-7-4 Ed2 Amd1.
- O: Data object is optional in the IEC 61850-7-4 Ed2 Amd1 and is used in the device.
- E: Data object is an extension to the IEC 61850-7-4 Ed2 Amd1.

New Logical Nodes

Newly created logical nodes are listed in this clause, with lnNs attribute in the Name plate.

MDST1 Demand Metering

MDST class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data Objects				
Common Logical Node Information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it 'LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
NamPlt	LPL	Name plate of the logical node.	MONamPlt	
Measured and metered values				
A	WYE	Current	E	
W	WYE	Real power	E	
VAr	WYE	Reactive power	E	
VA	WYE	Apparent power	E	
SeqA	SEQ	Sequence currents	E	

TotW	MV	Total real power	E	
TotVAr	MV	Total reactive power	E	
TotVA	MV	Total apparent power	E	
SupWh	BCR	Real energy supply (default direction: energy flow towards busbar)	E	
DmdWh	BCR	Real energy demand (default direction: energy flow from busbar)	E	

MDST2 Peak Demand Metering

MDST class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLNO.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
NamPlt	LPL	Name plate of the logical node.	MONamPlt	
Measured and metered values				
A	WYE	Current	E	
W	WYE	Real power	E	
VAr	WYE	Reactive power	E	
VA	WYE	Apparent power	E	
SeqA	SEQ	Sequence currents	E	
TotW	MV	Total real power	E	
TotVAr	MV	Total reactive power	E	

TotVA	MV	Total apparent power	E	
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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).

NOTE: If the extended data object is already used in other logic nodes in IEC 61850-7-4 Ed.2 Amd1, dataNs is not mandatory, but it's still recommended.

LCCH Physical communication channel supervision

LCCH class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLNO.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
NamPlt	LPL	Name plate of the logical node.	MONamPlt	
Status information				
ChLiv	SPS	Physical channel status	M	
RedChLiv	SPS	Physical channel status of redundant channel	MFcond(2)	
FerCh	INS	Frame error rate on this channel	O	
RedFerCh	INS	Frame error rate on redundant channel	OF(RedChLiv)	
FerChGo	INS	Missing PRP frame rate for GOOSE packets on the primary channel	E	
RedFerChGo	INS	Missing PRP frame rate for GOOSE packets on the redundant channel	E	
FerChSv	INS	Missing PRP frame rate for SV packets on the primary channel	E	

RedFerChSv	INS	Missing PRP frame rate for SV packets on the redundant channel	E	
Measured and metered values				
RxCnt	BCR	Number of received messages	O	
RedRxCnt	BCR	Number of received messages on redundant channel	OF(RedChLiv)	
TxCnt	BCR	Number of sent messages	O	
RxCntGo	BCR	Number of GOOSE frames received over the primary channel	E	
RedRxCntGo	BCR	Number of GOOSE frames received over the redundant channel	E	
RxCntSv	BCR	Number of SV frames received over the primary channel	E	
RedRxCntSv	BCR	Number of SV frames received over the redundant channel	E	
Controls				
RsStat	SPC	Reset device statistics	E	
Settings				
NetMod	ENG	Network Operating Mode	E	
NetModP	ENG	Network Operating Mode of process bus	E	
NetMode	ENG	Network Operating Mode of station bus	E	
BusMode	ENG	Bus Operating Mode	E	
NetPorP	ENG	Primary channel for process bus	E	
NetPort	ENG	Primary channel for station bus	E	
ApNam	VSG	Access point name to which this channel belongs	O	

LGOS GOOSE Subscription

LGOS class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLNO.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
NamPlt	LPL	Name plate of the logical node.	MONamPlt	
Status information				
NdsCom	SPS	If true, the subscription needs commissioning, i.e., the received message does not conform the current subscription configuration (either the 'dataSetRef' is wrong, the data set members, the configuration revision number, ... or no subscription is configured at all).	O	
St	SPS	If true, the subscription is active and valid message forwarded to application, otherwise it is inactive or messages are not forwarded to application. For more details, see IEC 61850-7-1. ConfRevNum and RxConfRevNum can deliver further diagnostic information.	M	
SimSt	SPS	If true, subscription is receiving simulated messages – for more details see IEC 61850-7-1.	O	
LastStNum	INS	Last state number of the received GOOSE message.	O	
LastSqNum	INS	Last sequence number received	E	
LastTal	INS	Last time-allowed-to-live received	E	
ConfRevNum	INS	Expected configuration revision number of the message. If no subscription is configured, the attribute 'q.validity' is set to 'invalid'.	O	
RxConfRevNum	INS	Configuration revision number of the received messages. If no telegram is received, the attribute 'q.validity' is set to 'invalid'.	O	
ErrSt	ENS	Current error status of the subscription	E	

OosCnt	INS	Number of out-of-sequence (OOS) errors	E	
TalCnt	INS	Number of time-allowed-to-live violations	E	
DecErrCnt	INS	Number of messages that failed decoding	E	
BufOvflCnt	INS	Number of messages lost due to buffer overflow	E	
MsgLosCnt	INS	Number of messages lost due to OOS errors (estimated)	E	
MaxMsgLos	INS	Max. number of sequential messages lost due to OOS error (estimated)	E	
InvQualCnt	INS	Number of mapped incoming GOOSE data with invalid quality	E	
Measured and metered values				
TotDwnTm	MV	Total downtime in seconds	E	
MaxDwnTm	MV	Maximum continuous downtime in seconds	E	
Controls				
RsStat	SPC	Reset/clear statistics	E	
Settings				
GoCBRef	ORG	Reference to the subscribed GOOSE control block	M	
DatSet	ORG	Configured dataset reference	E	
GoID	VSG	Configured GOOSE ID	E	
Addr	VSG	Configured multicast MAC address	E	
VlanID	ING	Configured VLAN ID	E	
VlanPri	ING	Configured VLAD priority	E	
AppID	ING	Configured APPID	E	

LPHD Physical device LN

LPHD class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
NamPlt	LPL	Name plate information of LPHD	MONamPlt	
PhyNam	DPL	Physical device name plate.	M	
Status information				
PhyHealth	ENS (HealthKind)	Reflects the state of the physical device related hardware and software.	M	
Proxy	SPS	If true, the physical device is a proxy (i.e., the logical device embedding this logical node is representing another physical device).	M	
SellLibId	VSD	SEL 61850 Library (LIB61850ID) value	E	
NamVariant	VSD	VSD DOType for IEC 61869-9 SV Publisher	E	
NamHzRtg	VSD	VSD DOType for IEC 61869-9 SV Publisher	E	
NamHoldRtg	VSD	VSD DOType for IEC 61869-9 SV Publisher	E	
NamMaxDIRtg	VSD	VSD DOType for IEC 61869-9 SV Publisher	E	
Controls				
Sim	SPC	(controllable) If true, IED will be using simulated GOOSE values or simulated sampled measurand values (instead of original ones) as soon as they are received. See part 7-1, clause 7.8.	O	
Settings				
MaxDI	ING	The maximum processing delay time of samples (typically in microseconds).	MOcond(1)	

LTMS Time master supervision

LTMS class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
Status information				
TmAcc	INS	Number of significant bits in fraction of second in the time accuracy part of the time stamp.	O	
TmSrc	VSS	Current time source identity	M	
TmSrcTyp	ENS	Type of the clock source	M	
TmSyn	ENS	Actual time synchronization applied	O	
TmSynLkd	ENS	Locked status of clock synchronization	O	
Measured and metered values				
TmTosPer	MV	Duration, in milliseconds, between two consecutive top-of-second points on the synchronized time	E	

RDRE Disturbance Recorder Function

RDRE class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
Status information				
RcdMade	SPS	If true, new disturbance recording has been completed and corresponding file is available.	M	
FltNum	INS	Fault number; number allocation is a local issue.	M	
FltTyp	ENS	Affected phases for the latest event.	E	
FltCaus	ENS	Event cause for the latest event.	E	

RFLO Fault locator

RFLO class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	

Status information				
FltTyp	ENS	Affected phases for the latest event	E	
FltCaus	ENS	Event cause for the latest event	E	
Measured and metered values				
FltZ	CMV	Impedance to fault	O	
FltDiskm	MV	Distance to fault	O	
A	WYE	Fault current	E	
Anseq	CMV	Negative-sequence fault current in primary amperes	E	

SCBR Circuit Breaker Supervision

SCBR class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
Status information				
ColOpn	SPS	If true, the opening coil has been operated through the open command	M	
AbrAlm	SPS	If true, the contact abrasion exceeded alarm trigger level setting 'AbrAlmLev'.	O	
MechTmAlm	SPS	Mechanical Slow Operation Alarm	E	
OpTmAlm	SPS	inherited from: SwitchgearSupervisionLN	O	
Measured and metered values				
AccmAbr	MV	Cumulated abrasion	O	

TCTR Current transformer

TCTR class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS (BehaviourModeKind)	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLNO.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
NamPlt	LPL	Name plate of the logical node.	MONamPlt	
Measured and metered values				
AmpSv	SAV	Sampled, non-three-phase current of the current transformer.	O	
Settings				
ARtg	ASG	Rated current (intrinsic property).	M	
HzRtg	ASG	Rated frequency of the voltage/current transformer	M	
Rat	ASG	Ratio between the primary and secondary value of an instrument transformer.	O	
Clip	ASG	Ratio of the clipping limit of the instantaneous value to the rated primary value multiplied with a square root of two.	M	
HoldTmms	ING	The holdover time related to analog-digital conversion of samples.	MOcond(2)	
NamAccRtg	VSD	List of accuracy class ratings	E	
NamARtg	VSD	List of rated primary input currents (IPr) in amperes	E	
NamClipRtg	VSD	List of specified clipping limit ratios	E	
ResMag	SPG	Calculated residual magnitude indication	E	

TVTR Voltage transformer

TVTR class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS (BehaviourModeKind)	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLNO.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
NamPlt	LPL	Name plate of the logical node.	MONamPlt	
Measured and metered values				
VolSv	SAV	Sampled, non-three-phase current of the current transformer.	O	
Settings				
VRtg	ASG	Rated current (intrinsic property).	M	
HzRtg	ASG	Rated frequency of the voltage/current transformer.	M	
Rat	ASG	Ratio between the primary and secondary value of an instrument transformer.	O	
Clip	ASG	Ratio of the clipping limit of the instantaneous value to the rated primary value multiplied with a square root of two.	M	
HoldTmms	ING	The holdover time related to analog-digital conversion of samples.	MOcond(2)	
NamAccRtg	VSD	List of accuracy class ratings	E	
NamVRtg	VSD	List of rated primary input currents (IPr) in amperes	E	
NamClipRtg	VSD	List of specified clipping limit ratios	E	
ResMag	SPG	Calculated residual magnitude indication	E	

XCBR Circuit Breaker

XCBR class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
Status information				
Loc	SPS	If true, the control behaviour is allowed at this level.	M	
LockKey	SPS	If true, the operation has been switched (from remote) to local. This changeover is always done locally with a physical key or toggle switch, which may have a set of contacts from which the position can be read.	OF(Loc)	
OpCnt	INS	Count of operations; not resettable from remote, but may be reset from local.	M	
CBOpCap	ENS	Physical capability of the circuit breaker to operate, which reflects the available energy in the drive.	O	
TukRackPos ⁽¹⁾	SPS	Circuit breaker rack/truck position	E	
TukTestPos ⁽¹⁾	SPS	Circuit breaker rack/truck test position	E	
Controls				
Pos	DPC	(controllable) Circuit breaker/switch position.	M	
BlkOpn	SPC	(controllable) If true, 'open' action has been blocked; can be set from another logical node. Operating capability ('XCBR.CBOpCap' and 'XSWI.SwOpCap' for circuit breaker and switch, respectively) does not reflect the blocked opening.	M	
BlkCls	SPC	(controllable) If true, 'close' action has been blocked; can be set from another logical node. Operating capability ('XCBR.CBOpCap' and 'XSWI.SwOpCap' for circuit breaker and switch, respectively) does not reflect the blocked closing.	M	

(1) Data Object supported by SEL-451-6.

XSWI Circuit Switch

XSWI class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLNO.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
Status information				
Loc	SPS	If true, the control behaviour is allowed at this level.	M	
LockKey	SPS	If true, the operation has been switched (from remote) to local. This changeover is always done locally with a physical key or toggle switch, which may have a set of contacts from which the position can be read.	O	
OpCnt	INS	Count of operations; not resettable from remote, but may be reset from local.	M	
SwTyp	ENS	Type of the switch.	M	
SwOpCap	ENS	Physical capability of the switch to operate. It includes additional blocking due to some local problems.	O	
SwBayCtlEn ⁽¹⁾	SPS	Disconnect switch front-panel control enable status	E	
Controls				
Pos	DPC	(controllable) Circuit breaker/switch position.	M	
BlkOpn	SPC	(controllable) If true, 'open' action has been blocked; can be set from another logical node. Operating capability ('XCBR.CBOPCap' and 'XSWI.SwOpCap' for circuit breaker and switch, respectively) does not reflect the blocked opening.	M	
BlkCls	SPC	(controllable) If true, 'close' action has been blocked; can be set from another logical node. Operating capability ('XCBR.CBOPCap' and 'XSWI.SwOpCap' for circuit breaker and switch,	M	

		respectively) does not reflect the blocked closing.		
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⁽¹⁾ Data Object supported by SEL-451-6.

ZBAT Battery

ZBAT class				
Data object name	Common data class	Explanation	M/O/E	Remarks
Data objects				
Common logical node information				
Beh	ENS	Read-only value, describing the behaviour of a domain logical node. It depends on the current operating mode of the logical node ('DomainLN.Mod'), and the current operating mode of the logical device that contains it ('LLN0.Mod'). Processing of the quality status ('q') of the received data is the prerequisite for correct interpretation of 'DomainLN.Beh'.	M	
Measured and metered values				
Vol	MV	External battery DC voltage.	O	
Status information				
BatWrn	SPS	DC Monitor warning alarm	E	
BatFail	SPS	DC Monitor fail alarm	E	
BatGndFlt	SPS	DC Monitor ground fault alarm	E	
BatDvAlm	SPS	DC Monitor alarm for ac ripple	E	

Enum types Extensions

New Enum types

New enum types are listed in this clause.

BusModeKind_SEL

Value	Description	Remarks
1	Independent	
2	Merged	

FItCauseKind_SEL

Value	Description	Remarks
0	No fault summary	
1	Trigger	
2	Trip	
3	Event Report	
6	87 Zone 1 Differential Trip ⁽¹⁾	
7	87 Zone 2 Differential Trip ⁽¹⁾	
8	Restricted Earth Fault Trip ⁽¹⁾	

⁽¹⁾ Supported by SEL-487E-5.

FItTypeKind_SEL

Value	Description	Remarks
0	Undefined	
1	AG ⁽¹⁾	
2	BG ⁽¹⁾	
3	CG ⁽¹⁾	
4	AB ⁽¹⁾	
5	BC ⁽¹⁾	
6	CA ⁽¹⁾	
7	ABG ⁽¹⁾	
8	BCG ⁽¹⁾	
9	CAG ⁽¹⁾	
10	ABC ⁽¹⁾	

⁽¹⁾ Supported by SEL-487E-5, SEL-451-6 and SEL-421-7.

GOOSEErrSt_SEL

Value	Description	Remarks
0	OK	
1	Device Disabled	
2	ConfRev Mismatch	
3	Needs Commissioning	
4	Message Corrupted	
5	TTL Expired	
6	Out of Sequence	
7	Invalid Data Quality	

NetMod_SEL

Value	Description	Remarks
1	Fixed	
2	Failover	
3	Switched	
4	PRP	
5	IsolateIP	

NetModeKind_SEL

Value	Description	Remarks
1	Fixed	
2	Failover	
3	PRP	
4	HSR	

NetPorPKind_SEL

Value	Description	Remarks
1	Port 5A	
2	Port 5B	

NetPortKind_SEL

Value	Description	Remarks
1	Port 5C	
2	Port 5D	

Extended Enum types

Enum types with extended negative values are listed in this clause. Semantic of these negative values are described.

AutoReclosingKind_SEL⁽¹⁾

Value	Description	Remarks
1	Ready	
2	InProgress	
5	TripFromProtection	
6	FaultDisappeared	
7	WaitToComplete	
8	CBclosed	
12	NotReady	
-2	SinglePoleInProgress	

⁽¹⁾ Not supported by SEL-401.

ClockSyncKind⁽¹⁾

Value	Description	Remarks
0	InternalClock	
1	LocalAreaClock	
2	GlobalAreaClock	

⁽¹⁾ According to TISSUE 1726.

OutputSignalKind_SEL

Value	Description	Remarks
0	pulse	
1	persistent	