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Introduction

This model implementation conformance statement is applicable for Electro Industries, Nexus 1450(Electro Industries NX1450) , with firmware 4.000 .

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: [filename.icd], version [version].

Clause 2 contains the list of implemented logical nodes.
Clause 3 describes the new and extended logical nodes.
Clause 4 describes the new and extended common data classes (if any).
Clause 5 describes the new and extended enum types.
Clause 6 describes any other extensions.

IEC 61850 Data Model Definitions

IEDs within Nexus 1450 ICD

IED Name	Type	Manufacturer	Config Version
IEC61850SRV	Nexus 1450	Electro Industries	4.000

Logical Device list

Logical Device Instances within IED IEC61850SRV (Electro Industries NX1450); AccessPoint: S1(); Server: ():

Instance	Description	Default Namespace
Meas	Power Meter	IEC 61850-7-4:2007

Proprietary Logical Nodes

Proprietary Logical Nodes within IED IEC61850SRV:

Logical Device IEC61850SRVMeas (Instance Meas of IEC61850SRV): Power Meter

Name	LN Type	Description	InNs
ctrtnTCTR1	NX1450_TCTR	Configuration: CT ratios - Phase A	xsl:value-of select="\$ourNsTemplate" />
ctrtnTCTR2	NX1450_TCTR	Configuration: CT ratios - Phase B	xsl:value-of select="\$ourNsTemplate" />
ctrtnTCTR3	NX1450_TCTR	Configuration: CT ratios - Phase C	xsl:value-of select="\$ourNsTemplate" />
ctrtnTCTR4	NX1450_TCTR	Configuration: CT ratios - Neutral	xsl:value-of select="\$ourNsTemplate" />
ptrtanTVTR1	NX1450_TVTR	Configuration: PT ratios - Phase A	xsl:value-of select="\$ourNsTemplate" />
ptrtanTVTR2	NX1450_TVTR	Configuration: PT ratios - Phase B	xsl:value-of select="\$ourNsTemplate" />
ptrtanTVTR3	NX1450_TVTR	Configuration: PT ratios - Phase C	xsl:value-of select="\$ourNsTemplate" />
ptrtanTVTR4	NX1450_TVTR	Configuration: PT ratios - Phase AUX	xsl:value-of select="\$ourNsTemplate" />

Proprietary Data Objects

Proprietary Data Objects within IED IEC61850SRV:

Logical Device IEC61850SRVMeas (Instance Meas of IEC61850SRV): Power Meter

LDevice	LN	DO	dataNs	cdcNs
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Subscribed GOOSEs for IED IEC61850SRV

No GOOSE subscriptions in IED IEC61850SRV

Published GOOSEs for IED IEC61850SRV

A maximum of 10 GOOSE(s) can be published.

AP	LD	LN	Publisher	Subnet	MAC	AppID	minTime	maxTime
S1	Meas	LLN0	IEC61850SRV_Meas/LLN0	Subnet_MMS	01-0c-cd-01-00-00	0000		

GoCBRef	datset	goID	ConfRev	VLAN-ID	VLAN-Priority
IEC61850SRVMeas/LLN0\$GO\$gocbpub	IEC61850SRVMeas/LLN0\$GoosePub	IEC61850SRVMeas/LLN0.GoosePub	1	000	4

Logical Node list

Logical Nodes within Logical Device IEC61850SRVMeas (Instance Meas of IEC61850SRV)

L: System Logical Nodes		
Name	LN Type	Description

LLNO	NX1450_LLNO	Logical Device Description
LPHD1	NX1450_LPHD	Physical Device Description

G: Generic Function References		
Name	LN Type	Description
gimGGIO1	NX1450_GGIO_GIM	Goose Input for data from subscribed publishers
alarmGGIO1	NX1450_GGIO_ALARM	Limit Alarms
intdiGGIO1	NX1450_GGIO_INT	Digital Measurements: Built-in High speed digital input
extdiGGIO1	NX1450_GGIO_EXT	Digital Measurements: Digital Inputs Module 1
extdiGGIO2	NX1450_GGIO_EXT	Digital Measurements: Digital Inputs Module 2
extdiGGIO3	NX1450_GGIO_EXT	Digital Measurements: Digital Inputs Module 3
extdiGGIO4	NX1450_GGIO_EXT	Digital Measurements: Digital Inputs Module 4

M: Metering and Measurement		
Name	LN Type	Description
nsMMXU1	NX1450_MMXU	Analogue Measurements: Normal speed update rate
hsMFLK1	NX1450_MFLK	Analogue Measurements: High speed update rate
lsMHAI1	NX1450_MHAI	Analogue Measurements: Low speed update rate
lsMSQI1	NX1450_MSQI	Analogue Measurements: Low speed update rate
eneMMTR1	NX1450_MMTR	Analogue Measurements: Energy

T: Instrument Transformer (Transducers)		
Name	LN Type	Description
ctrtnTCTR1	NX1450_TCTR	Configuration: CT ratios - Phase A
ctrtnTCTR2	NX1450_TCTR	Configuration: CT ratios - Phase B
ctrtnTCTR3	NX1450_TCTR	Configuration: CT ratios - Phase C
ctrtnTCTR4	NX1450_TCTR	Configuration: CT ratios - Neutral
ptrtnTVTR1	NX1450_TVTR	Configuration: PT ratios - Phase A
ptrtnTVTR2	NX1450_TVTR	Configuration: PT ratios - Phase B
ptrtnTVTR3	NX1450_TVTR	Configuration: PT ratios - Phase C
ptrtaxTVTR4	NX1450_TVTR	Configuration: PT ratios - Phase AUX

DataSet List

DataSets within Logical Device Instance Meas of AccessPoint S1 of IED IEC61850SRV

(Note: all datasets within this IED are identically configured)
 3 pre-defined datasets exist within this Logical Device/AccessPoint.
 Datasets are read-only
 Dataset directory services are supported
 Datasets cannot be created at runtime.

Logical Node	Name	Description
Meas/LLNO	GoosePub	
	Meas/LLNO.NamPlt	[DC]
Meas/LLNO	ANABASIC	
	Meas/nsMMXU1.PhV.phsA	[MX]
	Meas/nsMMXU1.PhV.phsB	[MX]
	Meas/nsMMXU1.PhV.phsC	[MX]

Meas/LLNO	DIBASIC	
	Meas/intdiGGIO1.Ind1	[ST]
	Meas/intdiGGIO1.Ind2	[ST]
	Meas/intdiGGIO1.Ind3	[ST]

Logical Node Definitions based upon IED declarations

Logical Nodes within: IEC61850SRV, LD inst=Meas

Logical node IEC61850SRVMeas/LLNO: type= NX1450_LLNO, base class= LLNO: Logical Device Description

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctlModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_LLNO	M	Name Plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Device Nameplate					
NamPlt.configRev: (Template) (Spec)1.0					
NamPlt.ldNs: (Template) (RO)IEC 61850-7-4:2007					

Logical node IEC61850SRVMeas/LPHD1: type= NX1450_LPHD, base class= LPHD: Physical Device Description

DATA	Type	M/O	Description	Transient	Access Control
PhyNam	NX1450_DPL	O	Physical device name plate		
PhyNam.vendor: (Template) (RO)Electro Industries					
PhyNam.swRev: (Template) (RO)					
PhyNam.serNum: (Template) (RO)					
PhyNam.model: (Template) (RO)					
PhyHealth	NX1450_ENS_Health	O	Physical device health		
PhyHealth.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
Proxy	NX1450_SPS	M	Indicates if this LN is a proxy		
Proxy.stVal: (Instance) (Set>false					
Proxy.d: (Instance) (RO)True if this LD is a proxy for an external device					

Logical node IEC61850SRVMeas/nsMMXU1: type= NX1450_MMXU, base class= MMXU: Analogue Measurements:
Normal speed update rate

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctlModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					

Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
TotW	NX1450_MV	O	Total real power		
TotW.db: (Instance) (RO)100000					
TotW.d: (Instance) (RO)Total real power					
TotVAr	NX1450_MV	O	Total reactive power		
TotVAr.db: (Instance) (RO)100000					
TotVAr.d: (Instance) (RO)Total reactive power					
TotVA	NX1450_MV	O	Total active power		
TotVA.db: (Instance) (RO)100000					
TotVA.d: (Instance) (RO)Total apparent power					
TotPF	NX1450_MV	O	Total power factor		
TotPF.db: (Instance) (RO)100000					
TotPF.d: (Instance) (RO)Total Power Factor					
Hz	NX1450_MV	O	Frequency		
Hz.db: (Instance) (RO)100000					
Hz.d: (Instance) (RO)Frequency					
PPV	NX1450_DEL	O	Voltage phase-to-phase		
PhV	NX1450_WYE	O	Voltage phase-to-neutral		
A	NX1450_WYE_A	O	Current per phase		
W	NX1450_WYE	O	Real power per phase		
VAr	NX1450_WYE	O	Reactive power per phase		
VA	NX1450_WYE	O	Active power per phase		
PF	NX1450_WYE	O	Power factor per phase		

Logical node IEC61850SRVMeas/hsMFLK1: type= NX1450_MFLK, base class= MFLK: Analogue Measurements: High speed update rate

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_MFLK	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
PPPst	NX1450_DEL	O	Pst of last complete interval for phase to phase measurements		
PhPst	NX1450_WYE	O	Pst of last complete interval for phase to ground measurements		

PPPlt	NX1450_DEL	O	Plt of last complete interval for phase to phase measurements		
PhPlt	NX1450_WYE	O	Plt of last complete interval for phase to ground measurements		

Logical node IEC61850SRVMeas/IsMHAI1: type= NX1450_MHAI, base class= MHAI: Analogue Measurements: Low speed update rate

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
ThdA	NX1450_WYE	O	Current Total Harmonic or Interharmonic Distortion (different methods)		
ThdOddA	NX1450_WYE	O	Current Total Harmonic or Interharmonic Distortion (different methods): odd components		
ThdEvnA	NX1450_WYE	O	Current Total Harmonic or Interharmonic Distortion (different methods): even components		
TddA	NX1450_WYE	O	Current Total Demand Distortion per IEEE 519		
ThdPhV	NX1450_WYE	O	Voltage Total Harmonic or Interharmonic Distortion (different methods) for phase to ground		
ThdOddPhV	NX1450_WYE	O	Voltage Total Harmonic or Interharmonic Distortion (different methods) for phase to ground: odd components		
ThdEvnPhV	NX1450_WYE	O	Voltage Total Harmonic or Interharmonic Distortion (different methods) for phase to ground: even components		
ThdPPV	NX1450_DEL	O	Voltage Total Harmonic or Interharmonic Distortion (different methods) for phase to phase		
ThdOddPPV	NX1450_DEL	O	Voltage Total Harmonic or Interharmonic Distortion (different methods) for phase to phase: odd components		
ThdEvnPPV	NX1450_DEL	O	Voltage Total Harmonic or Interharmonic Distortion (different methods) for phase to phase: even components		
NomA	NX1450_ASG	O	Normalising demand current used in IEEE 519 TDD calculation		
NomA.setMag.f: (Instance) (RO)					
NomA.d: (Instance) (RO)TDD Maximum Demand Reference Value					

Logical node IEC61850SRVMeas/IsMSQI1: type= NX1450_MSQI, base class= MSQI: Analogue Measurements: Low speed update rate

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					

Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
SeqA	NX1450_SEQ	O	Positive, Negative and Zero Sequence Current		
SeqA.seqT: (Instance) (RO)pos-neg-zero					
SeqA.d: (Instance) (RO)Symm. comp. mag/ang ph-n current					
SeqV	NX1450_SEQ	O	Positive, Negative and Zero Sequence Voltage		
SeqV.seqT: (Instance) (RO)pos-neg-zero					
SeqV.d: (Instance) (RO)Symm. comp. mag/ang ph-n voltage					
ImbNgA	NX1450_MV	O	Imbalance negative sequence current		
ImbNgA.db: (Instance) (RO)100000					
ImbNgA.d: (Instance) (RO)Imbalance negative sequence current					
ImbNgV	NX1450_MV	O	Imbalance negative sequence voltage		
ImbNgV.db: (Instance) (RO)100000					
ImbNgV.d: (Instance) (RO)Imbalance negative sequence voltage					
ImbZroA	NX1450_MV	O	Imbalance zero sequence current		
ImbZroA.db: (Instance) (RO)100000					
ImbZroA.d: (Instance) (RO)Imbalance zero sequence current					
ImbZroV	NX1450_MV	O	Imbalance zero sequence voltage		
ImbZroV.db: (Instance) (RO)100000					
ImbZroV.d: (Instance) (RO)Imbalance zero sequence voltage					

Logical node IEC61850SRVMeas/eneMMTR1: type= NX1450_MMTR, base class= MMTR: Analogue Measurements: Energy

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct!Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
TotVAh	NX1450_BCR	O	Net apparent energy since last reset		
TotVAh.pulsQty: (Instance) (RO)1.0					
TotVAh.d: (Instance) (RO)Total VA-hours per pulsQty unit					
SupWh	NX1450_BCR	O	Real energy supply (default supply direction: energy flow towards busbar)		
SupWh.pulsQty: (Instance) (RO)1.0					
SupWh.d: (Instance) (RO)Consumed Watt-hours per pulsQty unit					

SupVArh	NX1450_BCR	O	Reactive energy supply (default supply direction: energy flow towards busbar)		
SupVArh.pulsQty: (Instance) (RO)1.0					
SupVArh.d: (Instance) (RO)Consumed VAR-hours per pulsQty unit					
DmdWh	NX1450_BCR	O	Real energy demand (default demand direction: energy flow from busbar away)		
DmdWh.pulsQty: (Instance) (RO)1.0					
DmdWh.d: (Instance) (RO)Generated Watt-hours per pulsQty unit					
DmdVArh	NX1450_BCR	O	Reactive energy demand (default demand direction: energy flow from busbar away)		
DmdVArh.pulsQty: (Instance) (RO)1.0					
DmdVArh.d: (Instance) (RO)Generated VAR-hours per pulsQty unit					

Logical node IEC61850SRVMeas/gimGGIO1: type= NX1450_GGIO_GIM, base class= GGIO: Goose Input for data from subscribed publishers

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Ind1	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #01		
Ind1.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #01					
Ind2	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #02		
Ind2.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #02					
Ind3	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #03		
Ind3.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #03					
Ind4	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #04		
Ind4.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #04					
Ind5	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #05		
Ind5.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #05					
Ind6	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #06		
Ind6.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #06					
Ind7	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #07		
Ind7.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #07					
Ind8	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #08		
Ind8.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #08					
Ind9	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #09		
Ind9.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #09					
Ind10	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #10		
Ind10.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #10					
Ind11	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #11		

Ind11.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #11				
Ind12	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #12	
Ind12.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #12				
Ind13	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #13	
Ind13.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #13				
Ind14	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #14	
Ind14.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #14				
Ind15	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #15	
Ind15.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #15				
Ind16	NX1450_SPS	O	GOOSE INPUT: BOOLEAN #16	
Ind16.d: (Instance) (RO)GOOSE INPUT: BOOLEAN #16				
Ind17	NX1450_SPS	O	GOOSE INPUT: SPS #01	
Ind17.d: (Instance) (RO)GOOSE INPUT: SPS #01				
Ind18	NX1450_SPS	O	GOOSE INPUT: SPS #02	
Ind18.d: (Instance) (RO)GOOSE INPUT: SPS #02				
Ind19	NX1450_SPS	O	GOOSE INPUT: SPS #03	
Ind19.d: (Instance) (RO)GOOSE INPUT: SPS #03				
Ind20	NX1450_SPS	O	GOOSE INPUT: SPS #04	
Ind20.d: (Instance) (RO)GOOSE INPUT: SPS #04				
Ind21	NX1450_SPS	O	GOOSE INPUT: SPS #05	
Ind21.d: (Instance) (RO)GOOSE INPUT: SPS #05				
Ind22	NX1450_SPS	O	GOOSE INPUT: SPS #06	
Ind22.d: (Instance) (RO)GOOSE INPUT: SPS #06				
Ind23	NX1450_SPS	O	GOOSE INPUT: SPSN #07	
Ind23.d: (Instance) (RO)GOOSE INPUT: SPS #07				
Ind24	NX1450_SPS	O	GOOSE INPUT: SPS #08	
Ind24.d: (Instance) (RO)GOOSE INPUT: SPS #08				
Ind25	NX1450_SPS	O	GOOSE INPUT: SPS #09	
Ind25.d: (Instance) (RO)GOOSE INPUT: SPS #09				
Ind26	NX1450_SPS	O	GOOSE INPUT: SPS #10	
Ind26.d: (Instance) (RO)GOOSE INPUT: SPS #10				
Ind27	NX1450_SPS	O	GOOSE INPUT: SPS #11	
Ind27.d: (Instance) (RO)GOOSE INPUT: SPS #11				
Ind28	NX1450_SPS	O	GOOSE INPUT: SPSN #12	
Ind28.d: (Instance) (RO)GOOSE INPUT: SPS #12				
Ind29	NX1450_SPS	O	GOOSE INPUT: SPS #13	
Ind29.d: (Instance) (RO)GOOSE INPUT: SPS #13				
Ind30	NX1450_SPS	O	GOOSE INPUT: SPS #14	
Ind30.d: (Instance) (RO)GOOSE INPUT: SPS #14				
Ind31	NX1450_SPS	O	GOOSE INPUT: SPS #15	
Ind31.d: (Instance) (RO)GOOSE INPUT: SPS #15				
Ind32	NX1450_SPS	O	GOOSE INPUT: SPS #16	
Ind32.d: (Instance) (RO)GOOSE INPUT: SPS #16				
AnIn1	NX1450_MV_INTEGER	O	GOOSE INPUT: INTEGER #01	
AnIn1.d: (Instance) (RO)GOOSE INPUT: INTEGER #01				
AnIn2	NX1450_MV_INTEGER	O	GOOSE INPUT: INTEGER #02	
AnIn2.d: (Instance) (RO)GOOSE INPUT: INTEGER #02				
AnIn3	NX1450_MV_INTEGER	O	GOOSE INPUT: INTEGER #03	

AnIn3.d: (Instance) (RO)GOOSE INPUT: INTEGER #03				
AnIn4	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #04	
AnIn4.d: (Instance) (RO)GOOSE INPUT: INTEGER #04				
AnIn5	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #05	
AnIn5.d: (Instance) (RO)GOOSE INPUT: INTEGER #05				
AnIn6	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #06	
AnIn6.d: (Instance) (RO)GOOSE INPUT: INTEGER #06				
AnIn7	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #07	
AnIn7.d: (Instance) (RO)GOOSE INPUT: INTEGER #07				
AnIn8	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #08	
AnIn8.d: (Instance) (RO)GOOSE INPUT: INTEGER #08				
AnIn9	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #09	
AnIn9.d: (Instance) (RO)GOOSE INPUT: INTEGER #09				
AnIn10	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #10	
AnIn10.d: (Instance) (RO)GOOSE INPUT: INTEGER #10				
AnIn11	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #11	
AnIn11.d: (Instance) (RO)GOOSE INPUT: INTEGER #11				
AnIn12	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #12	
AnIn12.d: (Instance) (RO)GOOSE INPUT: INTEGER #12				
AnIn13	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #13	
AnIn13.d: (Instance) (RO)GOOSE INPUT: INTEGER #13				
AnIn14	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #14	
AnIn14.d: (Instance) (RO)GOOSE INPUT: INTEGER #14				
AnIn15	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #15	
AnIn15.d: (Instance) (RO)GOOSE INPUT: INTEGER #15				
AnIn16	NX1450_MV_INTEGER	<input type="radio"/>	GOOSE INPUT: INTEGER #16	
AnIn16.d: (Instance) (RO)GOOSE INPUT: INTEGER #16				
AnIn17	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #01	
AnIn17.d: (Instance) (RO)GOOSE INPUT: FLOAT #01				
AnIn18	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #02	
AnIn18.d: (Instance) (RO)GOOSE INPUT: FLOAT #02				
AnIn19	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #03	
AnIn19.d: (Instance) (RO)GOOSE INPUT: FLOAT #03				
AnIn20	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #04	
AnIn20.d: (Instance) (RO)GOOSE INPUT: FLOAT #04				
AnIn21	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #05	
AnIn21.d: (Instance) (RO)GOOSE INPUT: FLOAT #05				
AnIn22	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #06	
AnIn22.d: (Instance) (RO)GOOSE INPUT: FLOAT #06				
AnIn23	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #07	
AnIn23.d: (Instance) (RO)GOOSE INPUT: FLOAT #07				
AnIn24	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #08	
AnIn24.d: (Instance) (RO)GOOSE INPUT: FLOAT #08				
AnIn25	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #09	
AnIn25.d: (Instance) (RO)GOOSE INPUT: FLOAT #09				
AnIn26	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #10	
AnIn26.d: (Instance) (RO)GOOSE INPUT: FLOAT #10				
AnIn27	NX1450_MV_FLOAT	<input type="radio"/>	GOOSE INPUT: FLOAT #11	

AnIn27.d: (Instance) (RO)GOOSE INPUT: FLOAT #11					
AnIn28	NX1450_MV_FLOAT	O	GOOSE INPUT: FLOAT #12		
AnIn28.d: (Instance) (RO)GOOSE INPUT: FLOAT #12					
AnIn29	NX1450_MV_FLOAT	O	GOOSE INPUT: FLOAT #13		
AnIn29.d: (Instance) (RO)GOOSE INPUT: FLOAT #13					
AnIn30	NX1450_MV_FLOAT	O	GOOSE INPUT: FLOAT #14		
AnIn30.d: (Instance) (RO)GOOSE INPUT: FLOAT #14					
AnIn31	NX1450_MV_FLOAT	O	GOOSE INPUT: FLOAT #15		
AnIn31.d: (Instance) (RO)GOOSE INPUT: FLOAT #15					
AnIn32	NX1450_MV_FLOAT	O	GOOSE INPUT: FLOAT #16		
AnIn32.d: (Instance) (RO)GOOSE INPUT: FLOAT #16					

Logical node IEC61850SRVMeas/alarmGGIO1: type= NX1450_GGIO_ALARM, base class= GGIO: Limit Alarms

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Alm1	NX1450_SPS	O	General alarm indication chn 01		
Alm1.d: (Instance) (RO)Alarm chn #01					
Alm2	NX1450_SPS	O	General alarm indication chn 02		
Alm2.d: (Instance) (RO)Alarm chn #02					
Alm3	NX1450_SPS	O	General alarm indication chn 03		
Alm3.d: (Instance) (RO)Alarm chn #03					
Alm4	NX1450_SPS	O	General alarm indication chn 04		
Alm4.d: (Instance) (RO)Alarm chn #04					
Alm5	NX1450_SPS	O	General alarm indication chn 05		
Alm5.d: (Instance) (RO)Alarm chn #05					
Alm6	NX1450_SPS	O	General alarm indication chn 06		
Alm6.d: (Instance) (RO)Alarm chn #06					
Alm7	NX1450_SPS	O	General alarm indication chn 07		
Alm7.d: (Instance) (RO)Alarm chn #07					
Alm8	NX1450_SPS	O	General alarm indication chn 08		
Alm8.d: (Instance) (RO)Alarm chn #08					
Alm9	NX1450_SPS	O	General alarm indication chn 09		
Alm9.d: (Instance) (RO)Alarm chn #09					
Alm10	NX1450_SPS	O	General alarm indication chn 10		
Alm10.d: (Instance) (RO)Alarm chn #10					
Alm11	NX1450_SPS	O	General alarm indication chn 11		
Alm11.d: (Instance) (RO)Alarm chn #11					

Alm12	NX1450_SPS	O	General alarm indication chn 12		
Alm12.d: (Instance) (RO)Alarm chn #12					
Alm13	NX1450_SPS	O	General alarm indication chn 13		
Alm13.d: (Instance) (RO)Alarm chn #13					
Alm14	NX1450_SPS	O	General alarm indication chn 14		
Alm14.d: (Instance) (RO)Alarm chn #14					
Alm15	NX1450_SPS	O	General alarm indication chn 15		
Alm15.d: (Instance) (RO)Alarm chn #15					
Alm16	NX1450_SPS	O	General alarm indication chn 16		
Alm16.d: (Instance) (RO)Alarm chn #16					
Alm17	NX1450_SPS	O	General alarm indication chn 17		
Alm17.d: (Instance) (RO)Alarm chn #17					
Alm18	NX1450_SPS	O	General alarm indication chn 18		
Alm18.d: (Instance) (RO)Alarm chn #18					
Alm19	NX1450_SPS	O	General alarm indication chn 19		
Alm19.d: (Instance) (RO)Alarm chn #19					
Alm20	NX1450_SPS	O	General alarm indication chn 20		
Alm20.d: (Instance) (RO)Alarm chn #20					
Alm21	NX1450_SPS	O	General alarm indication chn 21		
Alm21.d: (Instance) (RO)Alarm chn #21					
Alm22	NX1450_SPS	O	General alarm indication chn 22		
Alm22.d: (Instance) (RO)Alarm chn #22					
Alm23	NX1450_SPS	O	General alarm indication chn 23		
Alm23.d: (Instance) (RO)Alarm chn #23					
Alm24	NX1450_SPS	O	General alarm indication chn 24		
Alm24.d: (Instance) (RO)Alarm chn #24					
Alm25	NX1450_SPS	O	General alarm indication chn 25		
Alm25.d: (Instance) (RO)Alarm chn #25					
Alm26	NX1450_SPS	O	General alarm indication chn 26		
Alm26.d: (Instance) (RO)Alarm chn #26					
Alm27	NX1450_SPS	O	General alarm indication chn 27		
Alm27.d: (Instance) (RO)Alarm chn #27					
Alm28	NX1450_SPS	O	General alarm indication chn 28		
Alm28.d: (Instance) (RO)Alarm chn #28					
Alm29	NX1450_SPS	O	General alarm indication chn 29		
Alm29.d: (Instance) (RO)Alarm chn #29					
Alm30	NX1450_SPS	O	General alarm indication chn 30		
Alm30.d: (Instance) (RO)Alarm chn #30					
Alm31	NX1450_SPS	O	General alarm indication chn 31		
Alm31.d: (Instance) (RO)Alarm chn #31					
Alm32	NX1450_SPS	O	General alarm indication chn 32		
Alm32.d: (Instance) (RO)Alarm chn #32					

**Logical node IEC61850SRVMeas/intdiGGIO1: type= NX1450_GGIO_INT, base class= GGIO: Digital Measurements:
Built-in High speed digital input**

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		

Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Ind1	NX1450_SPS	O	General indication (binary input - channel 01)		
Ind1.d: (Instance) (RO)Built-in digital input: channel 1					
Ind2	NX1450_SPS	O	General indication (binary input - channel 02)		
Ind2.d: (Instance) (RO)Built-in digital input: channel 2					
Ind3	NX1450_SPS	O	General indication (binary input - channel 03)		
Ind3.d: (Instance) (RO)Built-in digital input: channel 3					
Ind4	NX1450_SPS	O	General indication (binary input - channel 04)		
Ind4.d: (Instance) (RO)Built-in digital input: channel 4					
Ind5	NX1450_SPS	O	General indication (binary input - channel 05)		
Ind5.d: (Instance) (RO)Built-in digital input: channel 5					
Ind6	NX1450_SPS	O	General indication (binary input - channel 06)		
Ind6.d: (Instance) (RO)Built-in digital input: channel 6					
Ind7	NX1450_SPS	O	General indication (binary input - channel 07)		
Ind7.d: (Instance) (RO)Built-in digital input: channel 7					
Ind8	NX1450_SPS	O	General indication (binary input - channel 08)		
Ind8.d: (Instance) (RO)Built-in digital input: channel 8					

Logical node IEC61850SRVMeas/extdiGGIO1: type= NX1450_GGIO_EXT, base class= GGIO: Digital Measurements: Digital Inputs Module 1

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Ind1	NX1450_SPS	O	General indication (binary input - channel 01)		
Ind1.d: (Instance) (RO)Digital Inputs Module 1 Channel 1					
Ind2	NX1450_SPS	O	General indication (binary input - channel 02)		
Ind2.d: (Instance) (RO)Digital Inputs Module 1 Channel 2					
Ind3	NX1450_SPS	O	General indication (binary input - channel 03)		
Ind3.d: (Instance) (RO)Digital Inputs Module 1 Channel 3					

Ind4	NX1450_SPS	O	General indication (binary input - channel 04)		
Ind4.d: (Instance) (RO)Digital Inputs Module 1 Channel 4					
Ind5	NX1450_SPS	O	General indication (binary input - channel 05)		
Ind5.d: (Instance) (RO)Digital Inputs Module 1 Channel 5					
Ind6	NX1450_SPS	O	General indication (binary input - channel 06)		
Ind6.d: (Instance) (RO)Digital Inputs Module 1 Channel 6					
Ind7	NX1450_SPS	O	General indication (binary input - channel 07)		
Ind7.d: (Instance) (RO)Digital Inputs Module 1 Channel 7					
Ind8	NX1450_SPS	O	General indication (binary input - channel 08)		
Ind8.d: (Instance) (RO)Digital Inputs Module 1 Channel 8					

Logical node IEC61850SRVMeas/extdiGGIO2: type= NX1450_GGIO_EXT, base class= GGIO: Digital Measurements: Digital Inputs Module 2

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Ind1	NX1450_SPS	O	General indication (binary input - channel 01)		
Ind1.d: (Instance) (RO)Digital Inputs Module 2 Channel 1					
Ind2	NX1450_SPS	O	General indication (binary input - channel 02)		
Ind2.d: (Instance) (RO)Digital Inputs Module 2 Channel 2					
Ind3	NX1450_SPS	O	General indication (binary input - channel 03)		
Ind3.d: (Instance) (RO)Digital Inputs Module 2 Channel 3					
Ind4	NX1450_SPS	O	General indication (binary input - channel 04)		
Ind4.d: (Instance) (RO)Digital Inputs Module 2 Channel 4					
Ind5	NX1450_SPS	O	General indication (binary input - channel 05)		
Ind5.d: (Instance) (RO)Digital Inputs Module 2 Channel 5					
Ind6	NX1450_SPS	O	General indication (binary input - channel 06)		
Ind6.d: (Instance) (RO)Digital Inputs Module 2 Channel 6					
Ind7	NX1450_SPS	O	General indication (binary input - channel 07)		
Ind7.d: (Instance) (RO)Digital Inputs Module 2 Channel 7					
Ind8	NX1450_SPS	O	General indication (binary input - channel 08)		
Ind8.d: (Instance) (RO)Digital Inputs Module 2 Channel 8					

Logical node IEC61850SRVMeas/extdiGGIO3: type= NX1450_GGIO_EXT, base class= GGIO: Digital Measurements: Digital Inputs Module 3

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		

Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Ind1	NX1450_SPS	O	General indication (binary input - channel 01)		
Ind1.d: (Instance) (RO)Digital Inputs Module 3 Channel 1					
Ind2	NX1450_SPS	O	General indication (binary input - channel 02)		
Ind2.d: (Instance) (RO)Digital Inputs Module 3 Channel 2					
Ind3	NX1450_SPS	O	General indication (binary input - channel 03)		
Ind3.d: (Instance) (RO)Digital Inputs Module 3 Channel 3					
Ind4	NX1450_SPS	O	General indication (binary input - channel 04)		
Ind4.d: (Instance) (RO)Digital Inputs Module 3 Channel 4					
Ind5	NX1450_SPS	O	General indication (binary input - channel 05)		
Ind5.d: (Instance) (RO)Digital Inputs Module 3 Channel 5					
Ind6	NX1450_SPS	O	General indication (binary input - channel 06)		
Ind6.d: (Instance) (RO)Digital Inputs Module 3 Channel 6					
Ind7	NX1450_SPS	O	General indication (binary input - channel 07)		
Ind7.d: (Instance) (RO)Digital Inputs Module 3 Channel 7					
Ind8	NX1450_SPS	O	General indication (binary input - channel 08)		
Ind8.d: (Instance) (RO)Digital Inputs Module 3 Channel 8					

Logical node IEC61850SRVMeas/extdiGGIO4: type= NX1450_GGIO_EXT, base class= GGIO: Digital Measurements: Digital Inputs Module 4

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ct Model: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
Ind1	NX1450_SPS	O	General indication (binary input - channel 01)		
Ind1.d: (Instance) (RO)Digital Inputs Module 4 Channel 1					
Ind2	NX1450_SPS	O	General indication (binary input - channel 02)		
Ind2.d: (Instance) (RO)Digital Inputs Module 4 Channel 2					
Ind3	NX1450_SPS	O	General indication (binary input - channel 03)		
Ind3.d: (Instance) (RO)Digital Inputs Module 4 Channel 3					

Ind4	NX1450_SPS	O	General indication (binary input - channel 04)		
Ind4.d: (Instance) (RO)Digital Inputs Module 4 Channel 4					
Ind5	NX1450_SPS	O	General indication (binary input - channel 05)		
Ind5.d: (Instance) (RO)Digital Inputs Module 4 Channel 5					
Ind6	NX1450_SPS	O	General indication (binary input - channel 06)		
Ind6.d: (Instance) (RO)Digital Inputs Module 4 Channel 6					
Ind7	NX1450_SPS	O	General indication (binary input - channel 07)		
Ind7.d: (Instance) (RO)Digital Inputs Module 4 Channel 7					
Ind8	NX1450_SPS	O	General indication (binary input - channel 08)		
Ind8.d: (Instance) (RO)Digital Inputs Module 4 Channel 8					

Logical node IEC61850SRVMeas/ctrTanTCTR1: type= NX1450_TCTR, base class= TCTR: Configuration: CT ratios - Phase A

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctIModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRVTTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.InNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of an external current transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)CT Ratio Phase A					

Logical node IEC61850SRVMeas/ctrbnTCTR2: type= NX1450_TCTR, base class= TCTR: Configuration: CT ratios - Phase B

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctIModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRVTTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					

NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.InNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of an external current transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)CT Ratio Phase B					

Logical node IEC61850SRVMeas/ctrctnTCTR3: type= NX1450_TCTR, base class= TCTR: Configuration: CT ratios - Phase C

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctlModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRVTTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.InNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of an external current transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)CT Ratio Phase C					

Logical node IEC61850SRVMeas/ctrtnnTCTR4: type= NX1450_TCTR, base class= TCTR: Configuration: CT ratios - Neutral

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctlModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRVTTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.InNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of an external current transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					

Rat.d: (Instance) (RO)CT Ratio Neutral

Logical node IEC61850SRVMeas/ptrtanTVTR1: type= NX1450_TVTR, base class= TVTR: Configuration: PT ratios - Phase A

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctIModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRTVTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.lnNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of external voltage transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)PT Ratio Phase A					

Logical node IEC61850SRVMeas/ptrtbnTVTR2: type= NX1450_TVTR, base class= TVTR: Configuration: PT ratios - Phase B

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctIModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRTVTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.lnNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of external voltage transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)PT Ratio Phase B					

Logical node IEC61850SRVMeas/ptrtcnTVTR3: type= NX1450_TVTR, base class= TVTR: Configuration: PT ratios - Phase C

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctIModel: (Template) (RO)status-only					

Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRTVTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.lnNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of external voltage transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)PT Ratio Phase C					

Logical node IEC61850SRVMeas/ptrtaxTVTR4: type= NX1450_TVTR, base class= TVTR: Configuration: PT ratios - Phase AUX

DATA	Type	M/O	Description	Transient	Access Control
Mod	NX1450_ENC_Mod	M	Mode		
Mod.ctlModel: (Template) (RO)status-only					
Mod.d: (Template) (RO)Operating Mode					
Beh	NX1450_ENS_Beh	M	Behaviour		
Beh.d: (Template) (RO)Operating Mode Behavior					
Health	NX1450_ENS_Health	M	Health		
Health.d: (Template) (RO)1=Ok,2=Warning,3=Alarm					
NamPlt	NX1450_LPL_TCTRTVTR	M	Name plate		
NamPlt.vendor: (Template) (RO)Electro Industries					
NamPlt.swRev: (Template) (RO)					
NamPlt.d: (Template) (RO)Logical Node Nameplate					
NamPlt.lnNs: (Template) (RO)IEC 61850-7-4:2007A					
Rat	NX1450_ASG	O	Winding ratio of external voltage transformer (transducer) if applicable		
Rat.setMag.f: (Instance) (RO)					
Rat.d: (Instance) (RO)PT Ratio Phase AUX					

Common Data Class Definitions

Common DATA class ENC of variant NX1450_ENC_Mod:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Status					
stVal	Enum ModBeh	ST		dchg	
q	Quality	ST		qchg	
t	Timestamp	ST			
Configuration, Description					
ctlModel	Enum CtlModels	CF			RO(status-only)
d	VisString255	DC	Text		RO(Operating Mode)

Common DATA class ENS of variant NX1450_ENS_Beh:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Status					
stVal	Enum ModBeh	ST		dchg	
q	Quality	ST		qchg	
t	Timestamp	ST			
Configuration, Description					
d	VisString255	DC	Text		RO(Operating Mode Behavior)

Common DATA class ENS of variant NX1450_ENS_Health:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Status					
stVal	Enum Health	ST		dchg	
q	Quality	ST		qchg	
t	Timestamp	ST			
Configuration, Description					
d	VisString255	DC	Text		RO(1=Ok,2=Warning,3=Alarm)

Common DATA class LPL of variant NX1450_LPL_LLNO:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Configuration, Description					
vendor	VisString255	DC			RO(Electro Industries)
swRev	VisString255	DC			RO
d	VisString255	DC			RO(Logical Device Nameplate)
configRev	VisString255	DC			Spec(1.0)
Extension					
ldNs	VisString255	EX	shall be included in LLNO only;		RO(IEC 61850-7-4:2007)

Common DATA class LPL of variant NX1450_LPL:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Configuration, Description					
vendor	VisString255	DC			RO(Electro Industries)
swRev	VisString255	DC			RO
d	VisString255	DC			RO(Logical Node Nameplate)

Common DATA class LPL of variant NX1450_LPL_MFLK:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Configuration, Description					
vendor	VisString255	DC			RO(Electro Industries)
swRev	VisString255	DC			RO
d	VisString255	DC			RO(Logical Node Nameplate)

Common DATA class LPL of variant NX1450_LPL_TCTRTVTR:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Configuration, Description					

vendor	VisString255	DC			RO(Electro Industries)
swRev	VisString255	DC			RO
d	VisString255	DC			RO(Logical Node Nameplate)
Extension					
InNs	VisString255	EX			RO(IEC 61850-7-4:2007A)

Common DATA class DPL of variant NX1450_DPL:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Configuration, Description					
vendor	VisString255	DC			RO(Electro Industries)
swRev	VisString255	DC			RO
serNum	VisString255	DC			RO
model	VisString255	DC			RO

Common DATA class SPS of variant NX1450_SPS:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Status					
stVal	BOOLEAN	ST		dchg	
q	Quality	ST		qchg	
t	Timestamp	ST			
Configuration, Description					
d	VisString255	DC	Text		

Common DATA class WYE of variant NX1450_WYE:

Attribute	Type	FC	Description	TrgOp	R/W(value)
phsA	NX1450_CMV				
phsB	NX1450_CMV				
phsC	NX1450_CMV				

Common DATA class WYE of variant NX1450_WYE_A:

Attribute	Type	FC	Description	TrgOp	R/W(value)
phsA	NX1450_CMV				
phsB	NX1450_CMV				
phsC	NX1450_CMV				
neut	NX1450_CMV				
res	NX1450_CMV				

Common DATA class DEL of variant NX1450_DEL:

Attribute	Type	FC	Description	TrgOp	R/W(value)
phsAB	NX1450_CMV				
phsBC	NX1450_CMV				
phsCA	NX1450_CMV				

Common DATA class SEQ of variant NX1450_SEQ:

Attribute	Type	FC	Description	TrgOp	R/W(value)
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c1	NX1450_CMV_SEQ			
c2	NX1450_CMV_SEQ			
c3	NX1450_CMV_SEQ			
Measurand				
seqT	Enum SeqT	MX	pos-neg-zero dir-quad-zero	
Configuration, Description				
d	VisString255	DC	Text	

Common DATA class BCR of variant NX1450_BCR:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Status					
actVal	INT64	ST		dchg	
q	Quality	ST		qchg	
t	Timestamp	ST			
Configuration, Description					
pulsQty	FLOAT32	CF	Energy Multiplier		RO
d	VisString255	DC			

Common DATA class MV of variant NX1450_MV_INTEGER:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Measurand					
mag	NX1450_ANALOGUE_VALUE_INTEGER	MX		dchg	
q	Quality	MX		qchg	
t	Timestamp	MX			
Configuration, Description					
d	VisString255	DC	Text		

Common DATA class MV of variant NX1450_MV_FLOAT:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Measurand					
mag	NX1450_ANALOGUE_VALUE_FLOAT	MX		dchg	
q	Quality	MX		qchg	
t	Timestamp	MX			
Configuration, Description					
d	VisString255	DC	Text		

Common DATA class CMV of variant NX1450_CMV:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Measurand					
instCVal	NX1450_VECTOR	MX			
cVal	NX1450_VECTOR	MX		dchg	
q	Quality	MX		qchg	
t	Timestamp	MX			
Configuration, Description					
db	INT32U	CF			
rangeC	NX1450_RANGE_CONFIG	CF			

d	VisString255	DC	Text		
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Common DATA class CMV of variant NX1450_CMV_SEQ:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Measurand					
instCVal	NX1450_VECTOR_ANG	MX			
cVal	NX1450_VECTOR_ANG	MX		dchg	
q	Quality	MX		qchg	
t	Timestamp	MX			
Configuration, Description					
db	INT32U	CF			
dbAng	INT32U	CF			
rangeC	NX1450_RANGE_CONFIG	CF			
d	VisString255	DC	Text		

Common DATA class MV of variant NX1450_MV:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Measurand					
instMag	NX1450_ANALOGUE_VALUE_FLOAT	MX			
mag	NX1450_ANALOGUE_VALUE_FLOAT	MX		dchg	
q	Quality	MX		qchg	
t	Timestamp	MX			
Configuration, Description					
db	INT32U	CF			
rangeC	NX1450_RANGE_CONFIG	CF			
d	VisString255	DC	Text		

Common DATA class ASG of variant NX1450_ASG:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Settings					
setMag	NX1450_ANALOGUE_VALUE_FLOAT	SP			
Configuration, Description					
d	VisString255	DC	Text		

Common DATA class SAV of variant NX1450_SV:

Attribute	Type	FC	Description	TrgOp	R/W(value)
Measurand					
instMag	NX1450_ANALOGUE_VALUE_FLOAT	MX			
q	Quality	MX			
Configuration, Description					
d	VisString255	DC			RO(Logical Device Nameplate)

Data Attribute Definitions

Attribute structure NX1450_VECTOR_ANG:

Attribute	Type	Description	R/W
mag	NX1450_ANALOGUE_VALUE_FLOAT		
ang	NX1450_ANALOGUE_VALUE_FLOAT		

Attribute structure NX1450_VECTOR:

Attribute	Type	Description	R/W
mag	NX1450_ANALOGUE_VALUE_FLOAT		

Attribute structure NX1450_ANALOGUE_VALUE_INTEGER:

Attribute	Type	Description	R/W
i	INT32		

Attribute structure NX1450_ANALOGUE_VALUE_FLOAT:

Attribute	Type	Description	R/W
f	FLOAT32		

Attribute structure NX1450_ANALOGUE_VALUE_LIM:

Attribute	Type	Description	R/W
f	FLOAT32		RO(0)

Attribute structure NX1450_RANGE_CONFIG:

Attribute	Type	Description	R/W
hhLim	NX1450_ANALOGUE_VALUE_LIM		
hLim	NX1450_ANALOGUE_VALUE_LIM		
lLim	NX1450_ANALOGUE_VALUE_LIM		
llLim	NX1450_ANALOGUE_VALUE_LIM		
min	NX1450_ANALOGUE_VALUE_FLOAT		
max	NX1450_ANALOGUE_VALUE_FLOAT		

Enumeration Definitions

Enumeration definition ModBeh:

Enum string	Value	Description
on	1	
blocked	2	
test	3	
test/blocked	4	
off	5	

Enumeration definition Health:

Enum string	Value	Description
Ok	1	
Warning	2	
Alarm	3	

Enumeration definition SeqT:

Enum string	Value	Description
pos-neg-zero	0	
dir-quad-zero	1	

Enumeration definition range:

Enum string	Value	Description
normal	0	
high	1	
low	2	
high-high	3	
low-low	4	

Enumeration definition CtlModels:

Enum string	Value	Description
status-only	0	
direct-with-normal-security	1	
sbo-with-normal-security	2	
direct-with-enhanced-security	3	
sbo-with-enhanced-security	4	

Annex A - Notes on Contents

Logical Device list:

This section lists the Logical Devices within the IED. The "Default Namespace" should point to an IEC standard (for example, "IEC61850-7-4:2003")

New Logical Node list

This section lists the proprietary Logical Nodes (i.e., those whose namespace differ from the Default Namespace of teh Logical device)

Logical Device list

This section lists all of the Logical Nodes grouped by Logical Device then by function (for example, all "L" logical nodes are listed first)

Logical Node Definitions

This section lists the Data Objects within each Logical Node. It has two options depending upon the setting of a variable within the XSLT file:

- based upon IED declarations: Lists each Logical Node found within the Instance section (the <IED> section).
- based upon DataTypeTemplates declarations: Lists each of the Logical Nodes found in the templates section once. It is shorter than the full Logical Node list.

Within this section are entries for pre-defined and configuration-defined values. They are listed as:

- Name (DataObject.attribute.attribute...)

- (DefinitionLocation) where the location is either "Instance" (IED section) or "Template" (DataTypeTemplates section)
- (valKind) which is either "Set" (read/write at runtime) or "Conf" (assignable at configuration startup time) or "RO" (read-only)
- Value (The actual value of the attribute). Note that attributes may be marked as read-only without a value (for example, the device serial number is of this type)

Common Data Class Definitions

This section lists the Data Object definitions found within the dataTypeTemplates section. The "Common Data Class" (CDC) name is listed as well as the specific variant name. The attributes are grouped by function and NOT necessarily by the order of the variables (although the resulting order is very close to the definitions).

Enumeration Definitions

This section list the named attribute values as well as the associated integer. The "Enumeration string" is the value appearing in the SCL file while the integer is the value served "on-the-wire"

Contents of ReadMe.txt File

The SCL-to-MICS converter is an XSLT (eXtensible Style Language for Transformation). It executes within a browser without needing additional "plug-ins" (IE 9 and FireFox 15.0.1 tested).

To use it, follow these instructions:

- Place the file IcdToMisc.xslt in the same folder as the ICD file
- Open the file IcdToMisc.xslt in NotePad (or your favorite text editor) and copy the line `<?xml-stylesheet type="text/xsl" href="IcdToMics.xslt"?>` to the Windows clipboard. Close the file.
- Open the ICD or CID or SCD file with a text editor and paste the line just after first line `<?xml version="1.0" encoding="UTF-8"?>`

The resulting file should now beign with:

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="IcdToMics.xslt"?>
```

...

- Save the file with an extension "XML" in place of the original extension
- Open the file with a browser (in Windows, this means right-click on file, select "Open with" and select your browser)
- Wait a few seconds and view the file with embedded links

The XSLT file transforms the XML file into an appropriate HTML file which approximates the format of the MICS template. The file is plain text if you wish to modify it, but be aware that it is VERY complex.

Also, please be aware that portions of this translator were "borrowed" from Wolfgang Wimmer (ABB Switzerland).

The translator is still in draft form with a list of enhancements listed near the top of the document.

The sample file in this folder "WIMMER_FILE_ExampleFDIS2_BAM_fixed.xml" is based upon the example in Annex D.2 of 61850-6 (Edition 1).

If you find this program useful, please include the name of the authors in any derived works:

Bruce Muschlitz (EnerNex)

Wolfgang Wimmer (ABB Baden)

(unannounced company)