T/Guard™ Smart Grid Protocol Guide

(For the TGL-RevB, TG2-B, 405, 408 and 408XT)

Fiber Optic Thermometer Systems for Power Transformers

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1. Warning

High voltages are present inside! Do not open. There are no user serviceable parts inside and opening the enclosure will void the warranty.

Permanent damage may be done to the thermometer if the power supply connections are not done correctly. In particular, do not connect the power input (24 VDC or 110-240 VAC) to any of the analog output connectors. Note that the 20 mA analog output options are self-powered interfaces (by opposition to loop-powered interfaces), and thus do not require any external supply. Maximum loop impedance should be kept at 400 Ω (current outputs); internal impedance is approximately 0.7 Ω (voltage outputs).

Fiber optic probes are fragile, and will break if the bending radius becomes less than 1cm, even temporarily. Furthermore, as the tips of the T2 probes are fragile, please exercise care to:

- **Make sure the last ~1 cm of probes is free standing, and not pressurized by any glue, or by the spacers**
- **Avoid bending the last 1 cm of probes.**

Furthermore, due to the unique construction of the Neoptix T2 type probes, it is important that you avoid applying glue to the last 1 cm of the probes during their installation in transformer windings.

Probe breakages are not covered under the standard Neoptix warranty.

To assure cleanliness of optical connectors, keep caps on unused connectors at all time. This is also required during operation, as parasitic light entering via unused connectors into the T/Guard module may cause false temperature readings, even on other channels.

The Neoptix family of *T/Guard* products is CE marking certified.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2 Important Security Disclaimer

The Ethernet-enabled models of the T/Guard and QGateway **do not support** Secure Sockets Layers (SSL) encrypted communications and therefore should not be connected directly to the Internet.

By design, all T/Guard products (with Ethernet capability) and QGateway devices are intended to be used in closed wide area networks (WANs), supervised by a qualified network administrator.

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3.1 T/Guard and QGateway Warranty Notice

All *T/Guard* instruments are guaranteed (Parts and Workmanship) for one full year from the date of purchase. Upon written notification of any defect, Neoptix will either repair or replace any faulty product or components thereof. A Return Authorization Number (RMA) must be obtained from Neoptix Canada LP or authorized distributor prior to any merchandise return.

Due to the unique nature of the fiber optic probes that are used with the *T/Guard* monitoring system, probes are not warranted.

When using any electrical appliance, basic safety precautions should be followed, including the following:

- Do not operate in wet / damp environments
- Do not operate in explosive atmospheres
- Keep product surface dry and clean.

Always make sure all electrical installations are made in accordance with local authorities' regulations and laws.

4 Introduction

This guide gives all information required to use the smart grid protocols that are built-in the TG2-B, TGL-FL, 405, 408 and 408XT Neoptix signal conditioners: this guide is also applicable for the QGateway product. This information is applicable for both the serial and Ethernet port implementations, when applicable to both communication mechanisms. The Modbus serial port implementation for the TG2-B, 405 and 408 is also described in their respective user guides, documents # g1048, g1035 and g1044.

Some protocols may not be compatible with all T/Guard products; check each specific product for compatibility. For example, the T/Guard 405 does not support the protocols over an Ethernet port, for the simple reason that this transducer does not have an Ethernet port.

The QGateway product will normally be used with a T/Guard system that has a RS-485 interface, typically the T/Guard2[1]. For more information on the QGateway product, please consult its user guide, # G1026.

This guide describes the following 4 protocols:

1- Modbus, through both the serial RS-485 and Ethernet ports
2- DNP3 (also called DNP 3.0), through both the serial RS-485 and Ethernet ports. This protocol is offered in 2 variances:
    a. 16 bit version (no floating point and no ASCII string data format)
    b. 32 bit version (with floating point data). This is the most common implementation
3- IEC 60870-5-101 (through the RS-485 port) and IEC 60870-5-104 (through the Ethernet port)
4- IEC 61850, through the Ethernet port only.

These protocols have been implemented with the idea that the information is read only; in general, writing to a T/Guard system is not allowed; one noticeable exception is the Modbus over the serial port (consult the specific instrument user guide for more information in how to write to these instruments, using the serial Modbus protocol.

As these protocols can be quite complex, we suggest that these be implemented at you site using expert communication consultants. Neoptix can provide a certain level of support, but this will be limited in general to assuring that the protocol implementations are free of software bugs. Furthermore, before starting your implementation effort, it is suggested to download from your specific instrument the point map field applicable to DNP3 and IEC 60870 protocols and the .cid file for the IEC 61850 protocol; see Section 9 for specific instructions on how to do this.

4.1 General definitions

Please note the following information:

- Temperature if no signal: -9996 (-999.6)
- Temperature if channel disabled: -9995 (-999.5)
- Status = with or without signal, such as probe connected or not, etc.
- Channel disable = the user has canceled the use of this channel.
- Relay conditions are not available through these smart protocols
- Empty cells are unavailable for this protocol.

[1] At time of writing this guide, only the T/Guard2 is supported by the QGateway. Please consult Neoptix for more information on other T/Guard family members that might be supported in the future.
A new version of the T/Guard2 system, called the T/Guard-2B, was introduced in September 2014. This updated system is fitted with the same protocols (serial and Ethernet) as the 408XT system.

5 Modbus Protocol

Refer to instructions given in Section 9 below for specific instructions on how to download the point map file applicable to the Modbus over Ethernet protocol. For the serial implementation of this protocol with the T/Guard TG2-B, 405, 408 and TGL-FL, please refer respectively to the G1048, G1034, G1022 and G1041 user guides.

Furthermore, please note that most temperature and other values (such as ratio, which are usually between 0.3 and 2.8) that would have been normally expressed in floating point are multiplied by a factor of 10 or 100 before being made available to the user; thus, it is important for the user to divide these values by the same factor when receiving them at the SCADA end. Some registers may not be applicable to some instruments, if a corresponding feature is not present on a specific instrument.

Please note that you cannot write to any registers via the Ethernet protocol. However, it is possible to write to some registers using the serial protocol. This is documented in the following table.

		SERIAL						ETHERNET				
	Name	**Reg Type Modscan**	**Read Write**	**TGLB**	**408**	**405**	**TG2B**	**Register Types**	**Read Write**	**408**	**TG2B**	**Description (type)**
	Device Internal temperature	03	R	41	41	41	41					
	Number of channels	03	R	42	42	42	42	Read Multiple Regs	R	42	42	(Signed 16 bit integer)
	Soft version	03	R	43	43	43	43	Read Multiple Regs	R	43	43	(Signed 16 bit integer)
	Soft revision	03	R	44	44	44	44	Read Multiple Regs	R	44	44	(Signed 16 bit integer)
	Device type	03	R	45	45	45	45	Read Multiple Regs	R	45	45	See note[2]
	Mode A	03	R	46	46	46	46	Read Multiple Regs	R	46	46	(Signed 16 bit integer)
	Mode B	03	R	47	47	46	47	Read Multiple Regs	R	46	47	(Signed 16 bit integer)
Power %	Powerpct channel 1	03	R	101	101	101	101	Read Multiple Regs	R	101	101	Power % (Signed 16 bit integer)
	Powerpct channel 2	03	R	102	102	102	102	Read Multiple Regs	R	102	102	
	Powerpct channel 3	03	R	103	103	103	103	Read Multiple Regs	R	103	103	
	Powerpct channel 4	03	R	104	104	104	104	Read Multiple Regs	R	104	104	
	Powerpct channel 5	03	R	105	105	105	105	Read Multiple Regs	R	105	105	
	Powerpct channel 6	03	R	106	106	106	106	Read Multiple Regs	R	106	106	
	Powerpct channel 7	03	R	107	107	107	107	Read Multiple Regs	R	107	107	
	Powerpct channel 8	03	R	108	108	108	108	Read Multiple Regs	R	108	108	
	Powerpct channel 9	03	R		109	109	109	Read Multiple Regs	R	109	109	
	Powerpct channel 10	03	R		110	110	110	Read Multiple Regs	R	110	110	
	Powerpct channel 11	03	R		111	111	111	Read Multiple Regs	R	111	111	
	Powerpct channel 12	03	R		112	112	112	Read Multiple Regs	R	112	112	
	Powerpct channel 13	03	R		113	113	113	Read Multiple Regs	R	113	113	
	Powerpct channel 14	03	R		114	114	114	Read Multiple Regs	R	114	114	

[2] Device type for the 408 is 17, for 405 it is 18 and for the TG2B it is 25.

	Powerpct channel 15	03	R		115	115	115	Read Multiple Regs	R	115	115	
	Powerpct channel 16	03	R		116	116	116	Read Multiple Regs	R	116	116	
Lamp attenuation	Lamp attn Channel 1	03	R	201	201	201	201	Read Multiple Regs	R	201	201	Value between 0 and 255
	Lamp attn Channel 2	03	R	202	202	202	202	Read Multiple Regs	R	202	202	
	Lamp attn Channel 3	03	R	203	203	203	203	Read Multiple Regs	R	203	203	
	Lamp attn Channel 4	03	R	204	204	204	204	Read Multiple Regs	R	204	204	
	Lamp attn Channel 5	03	R	205	205	205	205	Read Multiple Regs	R	205	205	
	Lamp attn Channel 6	03	R	206	206	206	206	Read Multiple Regs	R	206	206	
	Lamp attn Channel 7	03	R	207	207	207	207	Read Multiple Regs	R	207	207	
	Lamp attn Channel 8	03	R	208	208	208	208	Read Multiple Regs	R	208	208	
	Lamp attn Channel 9	03	R		209	209	209	Read Multiple Regs	R	209	209	
	Lamp attn Channel 10	03	R		210	210	210	Read Multiple Regs	R	210	210	
	Lamp attn Channel 11	03	R		211	211	211	Read Multiple Regs	R	211	211	
	Lamp attn Channel 12	03	R		212	212	212	Read Multiple Regs	R	212	212	
	Lamp attn Channel 13	03	R		213	213	213	Read Multiple Regs	R	213	213	
	Lamp attn Channel 14	03	R		214	214	214	Read Multiple Regs	R	214	214	
	Lamp attn Channel 15	03	R		215	215	215	Read Multiple Regs	R	215	215	
	Lamp attn Channel 16	03	R		216	216	216	Read Multiple Regs	R	216	216	
CCD Time	CCD time Channel 1	03	R	301	301	301	301	Read Multiple Regs	R	301	301	Non-auto (wtune-) = 50
	CCD time Channel 2	03	R	302	302	302	302	Read Multiple Regs	R	302	302	Auto (wtune+) = 20 to 500, Signed 16 bit integer
	CCD time Channel 3	03	R	303	303	303	303	Read Multiple Regs	R	303	303	
	CCD time Channel 4	03	R	304	304	304	304	Read Multiple Regs	R	304	304	
	CCD time Channel 5	03	R	305	305	305	305	Read Multiple Regs	R	305	305	
	CCD time Channel 6	03	R	306	306	306	306	Read Multiple Regs	R	306	306	
	CCD time Channel 7	03	R	307	307	307	307	Read Multiple Regs	R	307	307	
	CCD time Channel 8	03	R	308	308	308	308	Read Multiple Regs	R	308	308	
	CCD time Channel 9	03	R		309	309	309	Read Multiple Regs	R	309	309	
	CCD time Channel 10	03	R		310	310	310	Read Multiple Regs	R	310	310	
	CCD time Channel 11	03	R		311	311	311	Read Multiple Regs	R	311	311	
	CCD time Channel 12	03	R		312	312	312	Read Multiple Regs	R	312	312	
	CCD time Channel 13	03	R		313	313	313	Read Multiple Regs	R	313	313	
	CCD time Channel 14	03	R		314	314	314	Read Multiple Regs	R	314	314	
	CCD time Channel 15	03	R		315	315	315	Read Multiple Regs	R	315	315	
	CCD time Channel 16	03	R		316	316	316	Read Multiple Regs	R	316	316	
Ratio (signal strength)	Ratio Channel 1	03	R	401	401	401	401	Read Multiple Regs	R	401	401	Ratio * 100 (Signed 16 bit integer)
	Ratio Channel 2	03	R	402	402	402	402	Read Multiple Regs	R	402	402	
	Ratio Channel 3	03	R	403	403	403	403	Read Multiple Regs	R	403	403	
	Ratio Channel 4	03	R	404	404	404	404	Read Multiple Regs	R	404	404	
	Ratio Channel 5	03	R	405	405	405	405	Read Multiple Regs	R	405	405	
	Ratio Channel 6	03	R	406	406	406	406	Read Multiple Regs	R	406	406	
	Ratio Channel 7	03	R	407	407	407	407	Read Multiple Regs	R	407	407	
	Ratio Channel 8	03	R	408	408	408	408	Read Multiple Regs	R	408	408	

	Ratio Channel 9	03	R		409	409	409	Read Multiple Regs	R	409	409	
	Ratio Channel 10	03	R		410	410	410	Read Multiple Regs	R	410	410	
	Ratio Channel 11	03	R		411	411	411	Read Multiple Regs	R	411	411	
	Ratio Channel 12	03	R		412	412	412	Read Multiple Regs	R	412	412	
	Ratio Channel 13	03	R		413	413	413	Read Multiple Regs	R	413	413	
	Ratio Channel 14	03	R		414	414	414	Read Multiple Regs	R	414	414	
	Ratio Channel 15	03	R		415	415	415	Read Multiple Regs	R	415	415	
	Ratio Channel 16	03	R		416	416	416	Read Multiple Regs	R	416	416	
Analog zero	Analog zero Channel 1	03	R/W	2001	2001	2001	2001	Read Multiple Regs	R	2001	2001	Temperature * 10, Signed 16 bit integer
	Analog zero Channel 2	03	R/W	2002	2002	2002	2002	Read Multiple Regs	R	2002	2002	
	Analog zero Channel 3	03	R/W	2003	2003	2003	2003	Read Multiple Regs	R	2003	2003	
	Analog zero Channel 4	03	R/W	2004	2004	2004	2004	Read Multiple Regs	R	2004	2004	
	Analog zero Channel 5	03	R/W	2005	2005	2005	2005	Read Multiple Regs	R	2005	2005	
	Analog zero Channel 6	03	R/W	2006	2006	2006	2006	Read Multiple Regs	R	2006	2006	
	Analog zero Channel 7	03	R/W	2007	2007	2007	2007	Read Multiple Regs	R	2007	2007	
	Analog zero Channel 8	03	R/W	2008	2008	2008	2008	Read Multiple Regs	R	2008	2008	
	Analog zero Channel 9	03	R/W		2009	2009	2009	Read Multiple Regs	R	2009	2009	
	Analog zero Channel 10	03	R/W		2010	2010	2010	Read Multiple Regs	R	2010	2010	
	Analog zero Channel 11	03	R/W		2011	2011	2011	Read Multiple Regs	R	2011	2011	
	Analog zero Channel 12	03	R/W		2012	2012	2012	Read Multiple Regs	R	2012	2012	
	Analog zero Channel 13	03	R/W		2013	2013	2013	Read Multiple Regs	R	2013	2013	
	Analog zero Channel 14	03	R/W		2014	2014	2014	Read Multiple Regs	R	2014	2014	
	Analog zero Channel 15	03	R/W		2015	2015	2015	Read Multiple Regs	R	2015	2015	
	Analog zero Channel 16	03	R/W		2016	2016	2016	Read Multiple Regs	R	2016	2016	
Analog span	Analog span Channel 1	03	R/W	2101	2101	2101	2101	Read Multiple Regs	R	2101	2101	Temperature * 10, Signed 16 bit integer
	Analog span Channel 2	03	R/W	2102	2102	2102	2102	Read Multiple Regs	R	2102	2102	
	Analog span Channel 3	03	R/W	2103	2103	2103	2103	Read Multiple Regs	R	2103	2103	
	Analog span Channel 4	03	R/W	2104	2104	2104	2104	Read Multiple Regs	R	2104	2104	
	Analog span Channel 5	03	R/W	2105	2105	2105	2105	Read Multiple Regs	R	2105	2105	
	Analog span Channel 6	03	R/W	2106	2106	2106	2106	Read Multiple Regs	R	2106	2106	
	Analog span Channel 7	03	R/W	2107	2107	2107	2107	Read Multiple Regs	R	2107	2107	
	Analog span Channel 8	03	R/W	2108	2108	2108	2108	Read Multiple Regs	R	2108	2108	
	Analog span Channel 9	03	R/W		2109	2109	2109	Read Multiple Regs	R	2109	2109	
	Analog span Channel 10	03	R/W		2110	2110	2110	Read Multiple Regs	R	2110	2110	
	Analog span Channel 11	03	R/W		2111	2111	2111	Read Multiple Regs	R	2111	2111	
	Analog span Channel 12	03	R/W		2112	2112	2112	Read Multiple Regs	R	2112	2112	
	Analog span Channel 13	03	R/W		2113	2113	2113	Read Multiple Regs	R	2113	2113	
	Analog span Channel 14	03	R/W		2114	2114	2114	Read Multiple Regs	R	2114	2114	
	Analog span Channel 15	03	R/W		2115	2115	2115	Read Multiple Regs	R	2115	2115	
	Analog span Channel 16	03	R/W		2116	2116	2116	Read Multiple Regs	R	2116	2116	
Offset on channel	Offset Channel 1	03	R/W	2201	2201	2201	2201	Read Multiple Regs	R	2201	2201	Temperature * 10, Signed 16 bit integer
	Offset Channel 2	03	R/W	2202	2202	2202	2202	Read Multiple Regs	R	2202	2202	

	Offset Channel 3	03	R/W	2203	2203	2203	2203	Read Multiple Regs	R	2203	2203	
	Offset Channel 4	03	R/W	2204	2204	2204	2204	Read Multiple Regs	R	2204	2204	
	Offset Channel 5	03	R/W	2205	2205	2205	2205	Read Multiple Regs	R	2205	2205	
	Offset Channel 6	03	R/W	2206	2206	2206	2206	Read Multiple Regs	R	2206	2206	
	Offset Channel 7	03	R/W	2207	2207	2207	2207	Read Multiple Regs	R	2207	2207	
	Offset Channel 8	03	R/W	2208	2208	2208	2208	Read Multiple Regs	R	2208	2208	
	Offset Channel 9	03	R/W		2209	2209	2209	Read Multiple Regs	R	2209	2209	
	Offset Channel 10	03	R/W		2210	2210	2210	Read Multiple Regs	R	2210	2210	
	Offset Channel 11	03	R/W		2211	2211	2211	Read Multiple Regs	R	2211	2211	
	Offset Channel 12	03	R/W		2212	2212	2212	Read Multiple Regs	R	2212	2212	
	Offset Channel 13	03	R/W		2213	2213	2213	Read Multiple Regs	R	2213	2213	
	Offset Channel 14	03	R/W		2214	2214	2214	Read Multiple Regs	R	2214	2214	
	Offset Channel 15	03	R/W		2215	2215	2215	Read Multiple Regs	R	2215	2215	
	Offset Channel 16	03	R/W		2216	2216	2216	Read Multiple Regs	R	2216	2216	
Enable channel	Enable Channel 1	03	R/W	2301	2301	2301	2301	Read Multiple Regs	R	2301	2301	0 = disable ; 1 = enable
	Enable Channel 2	03	R/W	2302	2302	2302	2302	Read Multiple Regs	R	2302	2302	
	Enable Channel 3	03	R/W	2303	2303	2303	2303	Read Multiple Regs	R	2303	2303	
	Enable Channel 4	03	R/W	2304	2304	2304	2304	Read Multiple Regs	R	2304	2304	
	Enable Channel 5	03	R/W	2305	2305	2305	2305	Read Multiple Regs	R	2305	2305	
	Enable Channel 6	03	R/W	2306	2306	2306	2306	Read Multiple Regs	R	2306	2306	
	Enable Channel 7	03	R/W	2307	2307	2307	2307	Read Multiple Regs	R	2307	2307	
	Enable Channel 8	03	R/W	2308	2308	2308	2308	Read Multiple Regs	R	2308	2308	
	Enable Channel 9	03	R/W		2309	2309	2309	Read Multiple Regs	R	2309	2309	
	Enable Channel 10	03	R/W		2310	2310	2310	Read Multiple Regs	R	2310	2310	
	Enable Channel 11	03	R/W		2311	2311	2311	Read Multiple Regs	R	2311	2311	
	Enable Channel 12	03	R/W		2312	2312	2312	Read Multiple Regs	R	2312	2312	
	Enable Channel 13	03	R/W		2313	2313	2313	Read Multiple Regs	R	2313	2313	
	Enable Channel 14	03	R/W		2314	2314	2314	Read Multiple Regs	R	2314	2314	
	Enable Channel 15	03	R/W		2315	2315	2315	Read Multiple Regs	R	2315	2315	
	Enable Channel 16	03	R/W		2316	2316	2316	Read Multiple Regs	R	2316	2316	
Relay failsafe status	Fail safe Relay 1	03	R/W		2401	2401	2401	Read Multiple Regs	R	2401	2401	0 = disable ; 1 = enable
	Fail safe Relay 2	03	R/W		2402	2402	2402	Read Multiple Regs	R	2402	2402	
	Fail safe Relay 3	03	R/W		2403	2403	2403	Read Multiple Regs	R	2403	2403	
	Fail safe Relay 4	03	R/W		2404	2404	2404	Read Multiple Regs	R	2404	2404	
	Fail safe Relay 5	03	R/W		2405	2405	2405	Read Multiple Regs	R	2405	2405	
	Fail safe Relay 6	03	R/W		2406	2406	2406	Read Multiple Regs	R	2406	2406	
	Fail safe Relay 7	03	R/W		2407	2407	2407	Read Multiple Regs	R	2407	2407	
	Fail safe Relay 8	03	R/W		2408	2408	2408	Read Multiple Regs	R	2408	2408	
	Fail safe Relay 9	03	R/W				2409	Read Multiple Regs	R		2409	
	Fail safe Relay 10	03	R/W				2410	Read Multiple Regs	R		2410	
	Fail safe Relay 11	03	R/W				2411	Read Multiple Regs	R		2411	
	Fail safe Relay 12	03	R/W				2412	Read Multiple Regs	R		2412	
	Fail safe Relay 13	03	R/W				2413	Read Multiple Regs	R		2413	

	Fail safe Relay 14	03	R/W				2414	Read Multiple Regs	R		2414	
	Fail safe Relay 15	03	R/W				2415	Read Multiple Regs	R		2415	
	Calibration type	03	R/W	2501	2501	2501	2501	Read Multiple Regs	R	2501	2501	0 = Neoptix ; 1 = Nortech Fibronic
	Unit	03	R/W	2502	2502	2502	2502	Read Multiple Regs	R	2502	2502	0 = °C ; 1 = °F
	wtune	03	R/W	2504	2504	2504	2504	Read Multiple Regs	R	2504	2504	0 = disable ; 1 = enable (optimize CCD time)
	Analog out if error	03	R/W	2505	2505	2505	2505	Read Multiple Regs	R	2505	2505	0 = max if no signal ; 1 = min if no signal
TransLife™	TransLife Delta	03	R				2601	Read Multiple Regs	R	2601	2601	* 10 (Signed 16 bit integer)
	TransLife Unity Temp	03	R				2603	Read Multiple Regs	R	2603	2603	Temperature * 100, Signed 16 bit integer
	TransLife Years Of Life	03	R				2605	Read Multiple Regs	R	2605	2605	
	TransLife Minutes Before	03	R				2607	Read Multiple Regs	R	2607	2607	
	TransLife Minutes After	03	R				2609	Read Multiple Regs	R	2609	2609	
Temperature, actual	Channel 1 temperature	04	R	1	1	1	1	Read Input Regs	R	1	1	Temperature * 10, Signed 16 bit integer
	Channel 2 temperature	04	R	2	2	2	2	Read Input Regs	R	2	2	
	Channel 3 temperature	04	R	3	3	3	3	Read Input Regs	R	3	3	
	Channel 4 temperature	04	R	4	4	4	4	Read Input Regs	R	4	4	
	Channel 5 temperature	04	R	5	5	5	5	Read Input Regs	R	5	5	
	Channel 6 temperature	04	R	6	6	6	6	Read Input Regs	R	6	6	
	Channel 7 temperature	04	R	7	7	7	7	Read Input Regs	R	7	7	
	Channel 8 temperature	04	R	8	8	8	8	Read Input Regs	R	8	8	
	Channel 9 temperature	04	R		9	9	9	Read Input Regs	R	9	9	
	Channel 10 temperature	04	R		10	10	10	Read Input Regs	R	10	10	
	Channel 11 temperature	04	R		11	11	11	Read Input Regs	R	11	11	
	Channel 12 temperature	04	R		12	12	12	Read Input Regs	R	12	12	
	Channel 13 temperature	04	R		13	13	13	Read Input Regs	R	13	13	
	Channel 14 temperature	04	R		14	14	14	Read Input Regs	R	14	14	
	Channel 15 temperature	04	R		15	15	15	Read Input Regs	R	15	15	
	Channel 16 temperature	04	R		16	16	16	Read Input Regs	R	16	16	
								Read Input Regs	R	17	17	
Channel status	Channel 1 status	02	R	17	17	17	17	Read Input Status	R	17	17	0 = No signal * 1 = Probe detected
	Channel 2 status	02	R	18	18	18	18	Read Input Status	R	18	18	
	Channel 3 status	02	R	19	19	19	19	Read Input Status	R	19	19	
	Channel 4 status	02	R	20	20	20	20	Read Input Status	R	20	20	
	Channel 5 status	02	R	21	21	21	21	Read Input Status	R	21	21	
	Channel 6 status	02	R	22	22	22	22	Read Input Status	R	22	22	
	Channel 7 status	02	R	23	23	23	23	Read Input Status	R	23	23	
	Channel 8 status	02	R	24	24	24	24	Read Input Status	R	24	24	
	Channel 9 status	02	R		25	25	25	Read Input Status	R	25	25	
	Channel 10 status	02	R		26	26	26	Read Input Status	R	26	26	
	Channel 11 status	02	R		27	27	27	Read Input Status	R	27	27	

	Channel 12 status	02	R		28	28	28	Read Input Status	R	28	28	
	Channel 13 status	02	R		29	29	29	Read Input Status	R	29	29	
	Channel 14 status	02	R		30	30	30	Read Input Status	R	30	30	
	Channel 15 status	02	R		31	31	31	Read Input Status	R	31	31	
	Channel 16 status	02	R		32	32	32	Read Input Status	R	32	32	
Relay status	Relay 1 status	02	R		201	201	201	Read Input Status	R	201	201	0 = OFF 1 = ON
	Relay 2 status	02	R		202	202	202	Read Input Status	R	202	202	
	Relay 3 status	02	R		203	203	203	Read Input Status	R	203	203	
	Relay 4 status	02	R		204	204	204	Read Input Status	R	204	204	
	Relay 5 status	02	R		205	205	205	Read Input Status	R	205	205	
	Relay 6 status	02	R		206	206	206	Read Input Status	R	206	206	
	Relay 7 status	02	R		207	207	207	Read Input Status	R	207	207	
	Relay 8 status	02	R		208	208	208	Read Input Status	R	208	208	
	Relay 9 status	02	R				209	Read Input Status	R		209	
	Relay 10 status	02	R				210	Read Input Status	R		210	
	Relay 11 status	02	R				211	Read Input Status	R		211	
	Relay 12 status	02	R				212	Read Input Status	R		212	
	Relay 13 status	02	R				213	Read Input Status	R		213	
	Relay 14 status	02	R				214	Read Input Status	R		214	
	Relay 15 status	02	R				215	Read Input Status	R		215	

5.1 Function and exception Modbus codes

Supported Function Codes

TGD, TGL	T/Guard 2	Function code	Name	Usage
x		01 (01h)	Read Coils	Device config and channel enable
x	x	02 (02h)	Read Discrete Inputs	Optical signal present
x	x	03 (03h)	Read Holding Register	Device config and temperatures
	x	04 (04h)	Read Input Register	Measured temperature values
x		05 (05h)	Write Single Coil	Device config and channel enable
x	x	06 (06h)	Write Single Register	Device config
x		15 (0Fh)	Write Multiple Coil	Device config and channel enable
	x	16 (10h)	Write Multiple Registers	Device config

Supported Exception Codes

		Function code	Name	Usage
x	x	01 (01h)	ILLEGAL FUNCTION	The function code received in the query is not an allowable action for the server (or slave).
x	x	02 (02h)	ILLEGAL DATA ADDRESS	The data address received in the query is not an allowable address for the server (or slave)..

6 DNP 3.0 Protocol

Please refer to Section 9 for specific instructions on how to download the map point file for this protocol.

The standard implementation of DNP 3.0 described here assumes that you are using the 32-bit implementation. See next Section for the 16-bit version description.

6.1 DNP 3.0 32-bit Protocol

Legend for DNP3 data types:

Object group 1 is Binary Input
Object group 10 is Binary Output
Object group 20 is accumulators (integers) such as a translife total
Object group 30 is anlaog inputs
Object group 40 is analog outputs
Object group 110 is an octet (byte) string

Object Group 30: current value of the point
var. 1 32-bit integer value with flag
var. 2 16-bit integer value with flag
var. 3 32-bit integer value
var. 4 16-bit integer value
var. 5 32-bit floating value with flag
var. 6 64-bit floating value with flag

	Name	Type of Register Serial and Lan	408 Address	TG2B Address	DNP3 Object Gr.	var.	Decription (type)
Temperature, actual	Temperature Channel 1	Analog Input	10	10	30	5	Temperature
	Temperature Channel 2	Analog Input	11	11	30	5	
	Temperature Channel 3	Analog Input	12	12	30	5	
	Temperature Channel 4	Analog Input	13	13	30	5	
	Temperature Channel 5	Analog Input	14	14	30	5	
	Temperature Channel 6	Analog Input	15	15	30	5	
	Temperature Channel 7	Analog Input	16	16	30	5	
	Temperature Channel 8	Analog Input	17	17	30	5	
	Temperature Channel 9	Analog Input	18	18	30	5	
	Temperature Channel 10	Analog Input	19	19	30	5	
	Temperature Channel 11	Analog Input	20	20	30	5	
	Temperature Channel 12	Analog Input	21	21	30	5	
	Temperature Channel 13	Analog Input	22	22	30	5	
	Temperature Channel 14	Analog Input	23	23	30	5	

	Temperature Channel 15	Analog Input	24	24	30	5	
	Temperature Channel 16	Analog Input	25	25	30	5	
	Internal Temperature	Analog Input	26	26	30	5	
Temperature minimum	ChanTempMin1	Analog Input	30	30	30	5	Minimum temperature
	ChanTempMin2	Analog Input	31	31	30	5	
	ChanTempMin3	Analog Input	32	32	30	5	
	ChanTempMin4	Analog Input	33	33	30	5	
	ChanTempMin5	Analog Input	34	34	30	5	
	ChanTempMin6	Analog Input	35	35	30	5	
	ChanTempMin7	Analog Input	36	36	30	5	
	ChanTempMin8	Analog Input	37	37	30	5	
	ChanTempMin9	Analog Input	38	38	30	5	
	ChanTempMin10	Analog Input	39	39	30	5	
	ChanTempMin11	Analog Input	40	40	30	5	
	ChanTempMin12	Analog Input	41	41	30	5	
	ChanTempMin13	Analog Input	42	42	30	5	
	ChanTempMin14	Analog Input	43	43	30	5	
	ChanTempMin15	Analog Input	44	44	30	5	
	ChanTempMin16	Analog Input	45	45	30	5	
	InternalTempMin	Analog Input	46	46	30	5	
Temperature maximum	ChanTempMax1	Analog Input	50	50	30	5	Maximum temperature
	ChanTempMax2	Analog Input	51	51	30	5	
	ChanTempMax3	Analog Input	52	52	30	5	
	ChanTempMax4	Analog Input	53	53	30	5	
	ChanTempMax5	Analog Input	54	54	30	5	
	ChanTempMax6	Analog Input	55	55	30	5	
	ChanTempMax7	Analog Input	56	56	30	5	
	ChanTempMax8	Analog Input	57	57	30	5	
	ChanTempMax9	Analog Input	58	58	30	5	
	ChanTempMax10	Analog Input	59	59	30	5	
	ChanTempMax11	Analog Input	60	60	30	5	
	ChanTempMax12	Analog Input	61	61	30	5	
	ChanTempMax13	Analog Input	62	62	30	5	
	ChanTempMax14	Analog Input	63	63	30	5	
	ChanTempMax15	Analog Input	64	64	30	5	
	ChanTempMax16	Analog Input	65	65	30	5	
	InternalTempMax	Analog Input	66	46	30	5	
Analog zero	Analog zero Channel 1	Analog Input	70	70	30	5	Temperature zero
	Analog zero Channel 2	Analog Input	71	71	30	5	
	Analog zero Channel 3	Analog Input	72	72	30	5	
	Analog zero Channel 4	Analog Input	73	73	30	5	
	Analog zero Channel 5	Analog Input	74	74	30	5	

	Analog zero Channel 6	Analog Input	75	75	30	5	
	Analog zero Channel 7	Analog Input	76	76	30	5	
	Analog zero Channel 8	Analog Input	77	77	30	5	
	Analog zero Channel 9	Analog Input	78	78	30	5	
	Analog zero Channel 10	Analog Input	79	79	30	5	
	Analog zero Channel 11	Analog Input	80	80	30	5	
	Analog zero Channel 12	Analog Input	81	81	30	5	
	Analog zero Channel 13	Analog Input	82	82	30	5	
	Analog zero Channel 14	Analog Input	83	83	30	5	
	Analog zero Channel 15	Analog Input	84	84	30	5	
	Analog zero Channel 16	Analog Input	85	85	30	5	
Analog span	Analog span Channel 1	Analog Input	90	90	30	5	Temperature span
	Analog span Channel 2	Analog Input	91	91	30	5	
	Analog span Channel 3	Analog Input	92	92	30	5	
	Analog span Channel 4	Analog Input	93	93	30	5	
	Analog span Channel 5	Analog Input	94	94	30	5	
	Analog span Channel 6	Analog Input	95	95	30	5	
	Analog span Channel 7	Analog Input	96	96	30	5	
	Analog span Channel 8	Analog Input	97	97	30	5	
	Analog span Channel 9	Analog Input	98	98	30	5	
	Analog span Channel 10	Analog Input	99	99	30	5	
	Analog span Channel 11	Analog Input	100	100	30	5	
	Analog span Channel 12	Analog Input	101	101	30	5	
	Analog span Channel 13	Analog Input	102	102	30	5	
	Analog span Channel 14	Analog Input	103	103	30	5	
	Analog span Channel 15	Analog Input	104	104	30	5	
	Analog span Channel 16	Analog Input	105	105	30	5	
Offset channel	Offset Channel 1	Analog Input	110	110	30	5	Temperature offset
	Offset Channel 2	Analog Input	111	111	30	5	
	Offset Channel 3	Analog Input	112	112	30	5	
	Offset Channel 4	Analog Input	113	113	30	5	
	Offset Channel 5	Analog Input	114	114	30	5	
	Offset Channel 6	Analog Input	115	115	30	5	
	Offset Channel 7	Analog Input	116	116	30	5	
	Offset Channel 8	Analog Input	117	117	30	5	
	Offset Channel 9	Analog Input	118	118	30	5	
	Offset Channel 10	Analog Input	119	119	30	5	
	Offset Channel 11	Analog Input	120	120	30	5	
	Offset Channel 12	Analog Input	121	121	30	5	
	Offset Channel 13	Analog Input	122	122	30	5	
	Offset Channel 14	Analog Input	123	123	30	5	
	Offset Channel 15	Analog Input	124	124	30	5	
	Offset Channel 16	Analog Input	125	125	30	5	

Power %	Powerpct channel 1	Analog Input	130	130	30	5	Power %
	Powerpct channel 2	Analog Input	131	131	30	5	
	Powerpct channel 3	Analog Input	132	132	30	5	
	Powerpct channel 4	Analog Input	133	133	30	5	
	Powerpct channel 5	Analog Input	134	134	30	5	
	Powerpct channel 6	Analog Input	135	135	30	5	
	Powerpct channel 7	Analog Input	136	136	30	5	
	Powerpct channel 8	Analog Input	137	137	30	5	
	Powerpct channel 9	Analog Input	138	138	30	5	
	Powerpct channel 10	Analog Input	139	139	30	5	
	Powerpct channel 11	Analog Input	140	140	30	5	
	Powerpct channel 12	Analog Input	141	141	30	5	
	Powerpct channel 13	Analog Input	142	142	30	5	
	Powerpct channel 14	Analog Input	143	143	30	5	
	Powerpct channel 15	Analog Input	144	144	30	5	
	Powerpct channel 16	Analog Input	145	145	30	5	
Lamp attenuation	Lamp attn Channel 1	Analog Input	150	150	30	5	Value between 0 and 255
	Lamp attn Channel 2	Analog Input	151	151	30	5	
	Lamp attn Channel 3	Analog Input	152	152	30	5	
	Lamp attn Channel 4	Analog Input	153	153	30	5	
	Lamp attn Channel 5	Analog Input	154	154	30	5	
	Lamp attn Channel 6	Analog Input	155	155	30	5	
	Lamp attn Channel 7	Analog Input	156	156	30	5	
	Lamp attn Channel 8	Analog Input	157	157	30	5	
	Lamp attn Channel 9	Analog Input	158	158	30	5	
	Lamp attn Channel 10	Analog Input	159	159	30	5	
	Lamp attn Channel 11	Analog Input	160	160	30	5	
	Lamp attn Channel 12	Analog Input	161	161	30	5	
	Lamp attn Channel 13	Analog Input	162	162	30	5	
	Lamp attn Channel 14	Analog Input	163	163	30	5	
	Lamp attn Channel 15	Analog Input	164	164	30	5	
	Lamp attn Channel 16	Analog Input	165	165	30	5	
CCD Time	CCD time Channel 1	Analog Input	170	170	30	5	Fixed = 50 msec, auto (wtune+) = 20 to 500 msec
	CCD time Channel 2	Analog Input	171	171	30	5	
	CCD time Channel 3	Analog Input	172	172	30	5	
	CCD time Channel 4	Analog Input	173	173	30	5	
	CCD time Channel 5	Analog Input	174	174	30	5	
	CCD time Channel 6	Analog Input	175	175	30	5	
	CCD time Channel 7	Analog Input	176	176	30	5	
	CCD time Channel 8	Analog Input	177	177	30	5	
	CCD time Channel 9	Analog Input	178	178	30	5	
	CCD time Channel 10	Analog Input	179	179	30	5	

	CCD time Channel 11	Analog Input	180	180	30	5	
	CCD time Channel 12	Analog Input	181	181	30	5	
	CCD time Channel 13	Analog Input	182	182	30	5	
	CCD time Channel 14	Analog Input	183	183	30	5	
	CCD time Channel 15	Analog Input	184	184	30	5	
	CCD time Channel 16	Analog Input	185	185	30	5	
Ratio (signal strength)	Ratio Channel 1	Analog Input	190	190	30	5	Ratio
	Ratio Channel 2	Analog Input	191	191	30	5	
	Ratio Channel 3	Analog Input	192	192	30	5	
	Ratio Channel 4	Analog Input	193	193	30	5	
	Ratio Channel 5	Analog Input	194	194	30	5	
	Ratio Channel 6	Analog Input	195	195	30	5	
	Ratio Channel 7	Analog Input	196	196	30	5	
	Ratio Channel 8	Analog Input	197	197	30	5	
	Ratio Channel 9	Analog Input	198	198	30	5	
	Ratio Channel 10	Analog Input	199	199	30	5	
	Ratio Channel 11	Analog Input	200	200	30	5	
	Ratio Channel 12	Analog Input	201	201	30	5	
	Ratio Channel 13	Analog Input	202	202	30	5	
	Ratio Channel 14	Analog Input	203	203	30	5	
	Ratio Channel 15	Analog Input	204	204	30	5	
	Ratio Channel 16	Analog Input	205	205	30	5	
	Calibration type	Analog Input	208	208	30	5	0 = Neoptix ; 1 = Nortech
	Unit	Analog Input	209	209	30	5	0 = °C ; 1 = °F
	Number of channels	Analog Input	210	210	30	5	
	Soft version	Analog Input	211	211	30	5	Software version
	Soft revision	Analog Input	212	212	30	5	Software revision
	Device type	Analog Input	213	213	30	5	
	ModeA	Analog Input	214	214	30	5	
	ModeB	Analog Input	215	215	30	5	
	Software version	Analog Input	216	216	30	5	
Translife(tm)	Translife Delta	Analog Input	310	310	30	5	value
	Translife Unity Temperature	Analog Input	311	311	30	5	value
	Translife Years of life	Analog Input	312	312	30	5	value
	Translife minutes before	Analog Input	313	313	30	5	Real operating time ; minute
	Translife minutes after	Analog Input	314	314	30	5	Estimated time consumed based on measured temperatures ; minute
Channel status	Channel 1 status	Binary Input	10	10	1		0 = No signal * 1 = Probe detected
	Channel 2 status	Binary Input	11	11	1		
	Channel 3 status	Binary Input	12	12	1		
	Channel 4 status	Binary Input	13	13	1		

	Channel 5 status	Binary Input	14	14	1		
	Channel 6 status	Binary Input	15	15	1		
	Channel 7 status	Binary Input	16	16	1		
	Channel 8 status	Binary Input	17	17	1		
	Channel 9 status	Binary Input	18	18	1		
	Channel 10 status	Binary Input	19	19	1		
	Channel 11 status	Binary Input	20	20	1		
	Channel 12 status	Binary Input	21	21	1		
	Channel 13 status	Binary Input	22	22	1		
	Channel 14 status	Binary Input	23	23	1		
	Channel 15 status	Binary Input	24	24	1		
	Channel 16 status	Binary Input	25	25	1		
Relay status	Relay 1 status	Binary Input	30	30	1		0 = OFF 1 = ON
	Relay 2 status	Binary Input	31	31	1		
	Relay 3 status	Binary Input	32	32	1		
	Relay 4 status	Binary Input	33	33	1		
	Relay 5 status	Binary Input	34	34	1		
	Relay 6 status	Binary Input	35	35	1		
	Relay 7 status	Binary Input	36	36	1		
	Relay 8 status	Binary Input	37	37	1		
	Relay 9 status	Binary Input		38	1		
	Relay 10 status	Binary Input		39	1		
	Relay 11 status	Binary Input		40	1		
	Relay 12 status	Binary Input		41	1		
	Relay 13 status	Binary Input		42	1		
	Relay 14 status	Binary Input		43	1		
	Relay 15 status	Binary Input		44	1		
Relay failsafe status	Fail safe Relay 1	Binary Input	40	50	1		0 = disable 1 = enable
	Fail safe Relay 2	Binary Input	41	51	1		
	Fail safe Relay 3	Binary Input	42	52	1		
	Fail safe Relay 4	Binary Input	43	53	1		
	Fail safe Relay 5	Binary Input	44	54	1		
	Fail safe Relay 6	Binary Input	45	55	1		
	Fail safe Relay 7	Binary Input	46	56	1		
	Fail safe Relay 8	Binary Input	47	57	1		
	Fail safe Relay 9	Binary Input		58	1		
	Fail safe Relay 10	Binary Input		59	1		
	Fail safe Relay 11	Binary Input		60	1		
	Fail safe Relay 12	Binary Input		61	1		
	Fail safe Relay 13	Binary Input		62	1		
	Fail safe Relay 14	Binary Input		63	1		
	Fail safe Relay 15	Binary Input		64	1		

Enable channel	Enable Channel 1	Binary Output Status	10	10	10		0 (Tripped) = disable 1 (Closed) = enable
	Enable Channel 2	Binary Output Status	11	11	10		
	Enable Channel 3	Binary Output Status	12	12	10		
	Enable Channel 4	Binary Output Status	13	13	10		
	Enable Channel 5	Binary Output Status	14	14	10		
	Enable Channel 6	Binary Output Status	15	15	10		
	Enable Channel 7	Binary Output Status	16	16	10		
	Enable Channel 8	Binary Output Status	17	17	10		
	Enable Channel 9	Binary Output Status	18	18	10		
	Enable Channel 10	Binary Output Status	19	19	10		
	Enable Channel 11	Binary Output Status	20	20	10		
	Enable Channel 12	Binary Output Status	21	21	10		
	Enable Channel 13	Binary Output Status	22	22	10		
	Enable Channel 14	Binary Output Status	23	23	10		
	Enable Channel 15	Binary Output Status	24	24	10		
	Enable Channel 16	Binary Output Status	25	25	10		
	SystemName	String Data		10	10		
	Substation	String Data		11	10		
	Location	String Data		12	10		
Channel name	Channel name 1	String Data	20	20	110		32 bytes
	Channel name 2	String Data	21	21	110		32 bytes
	Channel name 3	String Data	22	22	110		32 bytes
	Channel name 4	String Data	23	23	110		32 bytes
	Channel name 5	String Data	24	24	110		32 bytes
	Channel name 6	String Data	25	25	110		32 bytes
	Channel name 7	String Data	26	26	110		32 bytes
	Channel name 8	String Data	27	27	110		32 bytes
	Channel name 9	String Data	28	28	110		32 bytes
	Channel name 10	String Data	29	29	110		32 bytes
	Channel name 11	String Data	30	30	110		32 bytes
	Channel name 12	String Data	31	31	110		32 bytes
	Channel name 13	String Data	32	32	110		32 bytes
	Channel name 14	String Data	33	33	110		32 bytes
	Channel name 15	String Data	34	34	110		32 bytes
	Channel name 16	String Data	35	35	110		32 bytes
Relay name	Relay name 1	String Data	40	40	110		32 bytes
	Relay name 2	String Data	41	41	110		32 bytes
	Relay name 3	String Data	42	42	110		32 bytes
	Relay name 4	String Data	43	43	110		32 bytes
	Relay name 5	String Data	44	44	110		32 bytes
	Relay name 6	String Data	45	45	110		32 bytes
	Relay name 7	String Data	46	46	110		32 bytes

Relay name 8	String Data	47	47	110		32 bytes
Relay name 9	String Data		48	110		32 bytes
Relay name 10	String Data		49	110		32 bytes
Relay name 11	String Data		50	110		32 bytes
Relay name 12	String Data		51	110		32 bytes
Relay name 13	String Data		52	110		32 bytes
Relay name 14	String Data		53	110		32 bytes
Relay name 15	String Data		54	110		32 bytes

6.2 DNP 3.0 16-bit Protocol

This 16-bit protocol should only be used if your master SCADA system does not support the 32-bit version. Furthermore, please note that most temperature and other values (such as ratio, which are usually between 0.3 and 2.8) that would have been normally expressed in floating point are multiplied by a factor of 10 or 100 before being made available to the user; thus, it is important for the user to divide these values by the same factor when receiving them at the SCADA end.

Legend for DNP3 data types:

Object group 1 is binary input
Object group 10 is binary output
Object group 20 is accumulators (integers) such as a translife total
Object group 30 is anlaog input
Object group 40 is analog output
Object group 110 is an octet string

Object Group 30: Current value of the point
var. 1 32-bit integer value with flag
var. 2 16-bit integer value with flag
var. 3 32-bit integer value
var. 4 16-bit integer value
var. 5 32-bit floating value with flag
var. 6 64-bit floating value with flag

	Name	Type of Register Serial and Lan	408 Address	TG2B Address	DNP3 Object Gr.	var.	Decription (type)
Temperature, actual	Temperature Channel 1	Analog Input	10	10	30	4	Temperature
	Temperature Channel 2	Analog Input	11	11	30	4	
	Temperature Channel 3	Analog Input	12	12	30	4	
	Temperature Channel 4	Analog Input	13	13	30	4	
	Temperature Channel 5	Analog Input	14	14	30	4	
	Temperature Channel 6	Analog Input	15	15	30	4	

	Temperature Channel 7	Analog Input	16	16	30	4	
	Temperature Channel 8	Analog Input	17	17	30	4	
	Temperature Channel 9	Analog Input	18	18	30	4	
	Temperature Channel 10	Analog Input	19	19	30	4	
	Temperature Channel 11	Analog Input	20	20	30	4	
	Temperature Channel 12	Analog Input	21	21	30	4	
	Temperature Channel 13	Analog Input	22	22	30	4	
	Temperature Channel 14	Analog Input	23	23	30	4	
	Temperature Channel 15	Analog Input	24	24	30	4	
	Temperature Channel 16	Analog Input	25	25	30	4	
	Internal Temperature	Analog Input	26	26	30	4	
Temperature minimum	ChanTempMin1	Analog Input	30	30	30	4	Minimum temperature
	ChanTempMin2	Analog Input	31	31	30	4	
	ChanTempMin3	Analog Input	32	32	30	4	
	ChanTempMin4	Analog Input	33	33	30	4	
	ChanTempMin5	Analog Input	34	34	30	4	
	ChanTempMin6	Analog Input	35	35	30	4	
	ChanTempMin7	Analog Input	36	36	30	4	
	ChanTempMin8	Analog Input	37	37	30	4	
	ChanTempMin9	Analog Input	38	38	30	4	
	ChanTempMin10	Analog Input	39	39	30	4	
	ChanTempMin11	Analog Input	40	40	30	4	
	ChanTempMin12	Analog Input	41	41	30	4	
	ChanTempMin13	Analog Input	42	42	30	4	
	ChanTempMin14	Analog Input	43	43	30	4	
	ChanTempMin15	Analog Input	44	44	30	4	
	ChanTempMin16	Analog Input	45	45	30	4	
Temperature maximum	ChanTempMax1	Analog Input	50	50	30	4	Maximum temperature
	ChanTempMax2	Analog Input	51	51	30	4	
	ChanTempMax3	Analog Input	52	52	30	4	
	ChanTempMax4	Analog Input	53	53	30	4	
	ChanTempMax5	Analog Input	54	54	30	4	
	ChanTempMax6	Analog Input	55	55	30	4	
	ChanTempMax7	Analog Input	56	56	30	4	
	ChanTempMax8	Analog Input	57	57	30	4	
	ChanTempMax9	Analog Input	58	58	30	4	
	ChanTempMax10	Analog Input	59	59	30	4	
	ChanTempMax11	Analog Input	60	60	30	4	
	ChanTempMax12	Analog Input	61	61	30	4	
	ChanTempMax13	Analog Input	62	62	30	4	
	ChanTempMax14	Analog Input	63	63	30	4	
	ChanTempMax15	Analog Input	64	64	30	4	
	ChanTempMax16	Analog Input	65	65	30	4	

Analog zero	Analog zero Channel 1	Analog Input	70	70	30	4	Temperature zero
	Analog zero Channel 2	Analog Input	71	71	30	4	
	Analog zero Channel 3	Analog Input	72	72	30	4	
	Analog zero Channel 4	Analog Input	73	73	30	4	
	Analog zero Channel 5	Analog Input	74	74	30	4	
	Analog zero Channel 6	Analog Input	75	75	30	4	
	Analog zero Channel 7	Analog Input	76	76	30	4	
	Analog zero Channel 8	Analog Input	77	77	30	4	
	Analog zero Channel 9	Analog Input	78	78	30	4	
	Analog zero Channel 10	Analog Input	79	79	30	4	
	Analog zero Channel 11	Analog Input	80	80	30	4	
	Analog zero Channel 12	Analog Input	81	81	30	4	
	Analog zero Channel 13	Analog Input	82	82	30	4	
	Analog zero Channel 14	Analog Input	83	83	30	4	
	Analog zero Channel 15	Analog Input	84	84	30	4	
	Analog zero Channel 16	Analog Input	85	85	30	4	
Analog span	Analog span Channel 1	Analog Input	90	90	30	4	Temperature span
	Analog span Channel 2	Analog Input	91	91	30	4	
	Analog span Channel 3	Analog Input	92	92	30	4	
	Analog span Channel 4	Analog Input	93	93	30	4	
	Analog span Channel 5	Analog Input	94	94	30	4	
	Analog span Channel 6	Analog Input	95	95	30	4	
	Analog span Channel 7	Analog Input	96	96	30	4	
	Analog span Channel 8	Analog Input	97	97	30	4	
	Analog span Channel 9	Analog Input	98	98	30	4	
	Analog span Channel 10	Analog Input	99	99	30	4	
	Analog span Channel 11	Analog Input	100	100	30	4	
	Analog span Channel 12	Analog Input	101	101	30	4	
	Analog span Channel 13	Analog Input	102	102	30	4	
	Analog span Channel 14	Analog Input	103	103	30	4	
	Analog span Channel 15	Analog Input	104	104	30	4	
	Analog span Channel 16	Analog Input	105	105	30	4	
Offset channel	Offset Channel 1	Analog Input	110	110	30	4	Temperature offset
	Offset Channel 2	Analog Input	111	111	30	4	
	Offset Channel 3	Analog Input	112	112	30	4	
	Offset Channel 4	Analog Input	113	113	30	4	
	Offset Channel 5	Analog Input	114	114	30	4	
	Offset Channel 6	Analog Input	115	115	30	4	
	Offset Channel 7	Analog Input	116	116	30	4	
	Offset Channel 8	Analog Input	117	117	30	4	
	Offset Channel 9	Analog Input	118	118	30	4	
	Offset Channel 10	Analog Input	119	119	30	4	

	Offset Channel 11	Analog Input	120	120	30	4	
	Offset Channel 12	Analog Input	121	121	30	4	
	Offset Channel 13	Analog Input	122	122	30	4	
	Offset Channel 14	Analog Input	123	123	30	4	
	Offset Channel 15	Analog Input	124	124	30	4	
	Offset Channel 16	Analog Input	125	125	30	4	
Power %	Powerpct channel 1	Analog Input	130	130	30	4	Power %
	Powerpct channel 2	Analog Input	131	131	30	4	
	Powerpct channel 3	Analog Input	132	132	30	4	
	Powerpct channel 4	Analog Input	133	133	30	4	
	Powerpct channel 5	Analog Input	134	134	30	4	
	Powerpct channel 6	Analog Input	135	135	30	4	
	Powerpct channel 7	Analog Input	136	136	30	4	
	Powerpct channel 8	Analog Input	137	137	30	4	
	Powerpct channel 9	Analog Input	138	138	30	4	
	Powerpct channel 10	Analog Input	139	139	30	4	
	Powerpct channel 11	Analog Input	140	140	30	4	
	Powerpct channel 12	Analog Input	141	141	30	4	
	Powerpct channel 13	Analog Input	142	142	30	4	
	Powerpct channel 14	Analog Input	143	143	30	4	
	Powerpct channel 15	Analog Input	144	144	30	4	
	Powerpct channel 16	Analog Input	145	145	30	4	
Lamp attenuation	Lamp attn Channel 1	Analog Input	150	150	30	4	Value between 0 and 255
	Lamp attn Channel 2	Analog Input	151	151	30	4	
	Lamp attn Channel 3	Analog Input	152	152	30	4	
	Lamp attn Channel 4	Analog Input	153	153	30	4	
	Lamp attn Channel 5	Analog Input	154	154	30	4	
	Lamp attn Channel 6	Analog Input	155	155	30	4	
	Lamp attn Channel 7	Analog Input	156	156	30	4	
	Lamp attn Channel 8	Analog Input	157	157	30	4	
	Lamp attn Channel 9	Analog Input	158	158	30	4	
	Lamp attn Channel 10	Analog Input	159	159	30	4	
	Lamp attn Channel 11	Analog Input	160	160	30	4	
	Lamp attn Channel 12	Analog Input	161	161	30	4	
	Lamp attn Channel 13	Analog Input	162	162	30	4	
	Lamp attn Channel 14	Analog Input	163	163	30	4	
	Lamp attn Channel 15	Analog Input	164	164	30	4	
	Lamp attn Channel 16	Analog Input	165	165	30	4	
CCD Time	CCD time Channel 1	Analog Input	170	170	30	4	Fixed = 50 msec, auto (wtune+) = 20 to 500 msec
	CCD time Channel 2	Analog Input	171	171	30	4	
	CCD time Channel 3	Analog Input	172	172	30	4	
	CCD time Channel 4	Analog Input	173	173	30	4	

	CCD time Channel 5	Analog Input	174	174	30	4	
	CCD time Channel 6	Analog Input	175	175	30	4	
	CCD time Channel 7	Analog Input	176	176	30	4	
	CCD time Channel 8	Analog Input	177	177	30	4	
	CCD time Channel 9	Analog Input	178	178	30	4	
	CCD time Channel 10	Analog Input	179	179	30	4	
	CCD time Channel 11	Analog Input	180	180	30	4	
	CCD time Channel 12	Analog Input	181	181	30	4	
	CCD time Channel 13	Analog Input	182	182	30	4	
	CCD time Channel 14	Analog Input	183	183	30	4	
	CCD time Channel 15	Analog Input	184	184	30	4	
	CCD time Channel 16	Analog Input	185	185	30	4	
Ratio	Ratio Channel 1	Analog Input	190	190	30	4	Ratio
	Ratio Channel 2	Analog Input	191	191	30	4	
	Ratio Channel 3	Analog Input	192	192	30	4	
	Ratio Channel 4	Analog Input	193	193	30	4	
	Ratio Channel 5	Analog Input	194	194	30	4	
	Ratio Channel 6	Analog Input	195	195	30	4	
	Ratio Channel 7	Analog Input	196	196	30	4	
	Ratio Channel 8	Analog Input	197	197	30	4	
	Ratio Channel 9	Analog Input	198	198	30	4	
	Ratio Channel 10	Analog Input	199	199	30	4	
	Ratio Channel 11	Analog Input	200	200	30	4	
	Ratio Channel 12	Analog Input	201	201	30	4	
	Ratio Channel 13	Analog Input	202	202	30	4	
	Ratio Channel 14	Analog Input	203	203	30	4	
	Ratio Channel 15	Analog Input	204	204	30	4	
	Ratio Channel 16	Analog Input	205	205	30	4	
	Calibration type	Analog Input	208	208	30	4	0 = Neoptix ; 1 = Nortech
	Unit	Analog Input	209	209	30	4	0 = °C ; 1 = °F
	Number of channels	Analog Input	210	210	30	4	
	Soft version	Analog Input	211	211	30	4	Software version
	Soft revision	Analog Input	212	212	30	4	Software revision
	Device type	Analog Input	213	213	30	4	
	ModeA	Analog Input	214	214	30	4	
	ModeB	Analog Input	215	215	30	4	
	Software version	Analog Input	216	216	30	4	
Translife(tm)	Translife Delta	Analog Input	310	310	30	4	value
	Translife Unity Temperature	Analog Input	311	311	30	4	value
	Translife Years of life	Analog Input	312	312	30	4	value
	Translife minutes before	Analog Input	313	313	30	4	Real operating time ; minute
	Translife minutes after	Analog Input	314	314	30	4	Estimated time consumed based on measured temperatures ; minute

Status of channel	Channel 1 status	Binary Input	10	10	1		0 = No signal * 1 = Probe detected
	Channel 2 status	Binary Input	11	11	1		
	Channel 3 status	Binary Input	12	12	1		
	Channel 4 status	Binary Input	13	13	1		
	Channel 5 status	Binary Input	14	14	1		
	Channel 6 status	Binary Input	15	15	1		
	Channel 7 status	Binary Input	16	16	1		
	Channel 8 status	Binary Input	17	17	1		
	Channel 9 status	Binary Input	18	18	1		
	Channel 10 status	Binary Input	19	19	1		
	Channel 11 status	Binary Input	20	20	1		
	Channel 12 status	Binary Input	21	21	1		
	Channel 13 status	Binary Input	22	22	1		
	Channel 14 status	Binary Input	23	23	1		
	Channel 15 status	Binary Input	24	24	1		
	Channel 16 status	Binary Input	25	25	1		
Relay status	Relay 1 status	Binary Input	30	30	1		0 = OFF 1 = ON
	Relay 2 status	Binary Input	31	31	1		
	Relay 3 status	Binary Input	32	32	1		
	Relay 4 status	Binary Input	33	33	1		
	Relay 5 status	Binary Input	34	34	1		
	Relay 6 status	Binary Input	35	35	1		
	Relay 7 status	Binary Input	36	36	1		
	Relay 8 status	Binary Input	37	37	1		
	Relay 9 status	Binary Input		38	1		
	Relay 10 status	Binary Input		39	1		
	Relay 11 status	Binary Input		40	1		
	Relay 12 status	Binary Input		41	1		
	Relay 13 status	Binary Input		42	1		
	Relay 14 status	Binary Input		43	1		
	Relay 15 status	Binary Input		44	1		
Relay failsafe status	Fail safe Relay 1	Binary Input	40	50	1		0 = disable 1 = enable
	Fail safe Relay 2	Binary Input	41	51	1		
	Fail safe Relay 3	Binary Input	42	52	1		
	Fail safe Relay 4	Binary Input	43	53	1		
	Fail safe Relay 5	Binary Input	44	54	1		
	Fail safe Relay 6	Binary Input	45	55	1		
	Fail safe Relay 7	Binary Input	46	56	1		
	Fail safe Relay 8	Binary Input	47	57	1		
	Fail safe Relay 9	Binary Input		58	1		
	Fail safe Relay 10	Binary Input		59	1		
	Fail safe Relay 11	Binary Input		60	1		

	Fail safe Relay 12	Binary Input		61	1		
	Fail safe Relay 13	Binary Input		62	1		
	Fail safe Relay 14	Binary Input		63	1		
	Fail safe Relay 15	Binary Input		64	1		
Enable channel	Enable Channel 1	Binary Output Status	10		10		0 (Tripped) = disable 1 (Closed) = enable
	Enable Channel 2	Binary Output Status	11		10		
	Enable Channel 3	Binary Output Status	12		10		
	Enable Channel 4	Binary Output Status	13		10		
	Enable Channel 5	Binary Output Status	14		10		
	Enable Channel 6	Binary Output Status	15		10		
	Enable Channel 7	Binary Output Status	16		10		
	Enable Channel 8	Binary Output Status	17		10		
	Enable Channel 9	Binary Output Status	18		10		
	Enable Channel 10	Binary Output Status	19		10		
	Enable Channel 11	Binary Output Status	20		10		
	Enable Channel 12	Binary Output Status	21		10		
	Enable Channel 13	Binary Output Status	22		10		
	Enable Channel 14	Binary Output Status	23		10		
	Enable Channel 15	Binary Output Status	24		10		
	Enable Channel 16	Binary Output Status	25		10		
	System Name	String Data		10	10		
	Substation	String Data		11	10		
	Location	String Data		12	10		
Channel name	Channel name 1	String Data	20	20	110		32 bytes
	Channel name 2	String Data	21	21	110		32 bytes
	Channel name 3	String Data	22	22	110		32 bytes
	Channel name 4	String Data	23	23	110		32 bytes
	Channel name 5	String Data	24	24	110		32 bytes
	Channel name 6	String Data	25	25	110		32 bytes
	Channel name 7	String Data	26	26	110		32 bytes
	Channel name 8	String Data	27	27	110		32 bytes
	Channel name 9	String Data	28	28	110		32 bytes
	Channel name 10	String Data	29	29	110		32 bytes
	Channel name 11	String Data	30	30	110		32 bytes
	Channel name 12	String Data	31	31	110		32 bytes
	Channel name 13	String Data	32	32	110		32 bytes
	Channel name 14	String Data	33	33	110		32 bytes
	Channel name 15	String Data	34	34	110		32 bytes
	Channel name 16	String Data	35	35	110		32 bytes
Relay name	Relay name 1	String Data	40	40	110		32 bytes
	Relay name 2	String Data	41	41	110		32 bytes

Relay name 3	String Data	42	42	110		32 bytes
Relay name 4	String Data	43	43	110		32 bytes
Relay name 5	String Data	44	44	110		32 bytes
Relay name 6	String Data	45	45	110		32 bytes
Relay name 7	String Data	46	46	110		32 bytes
Relay name 8	String Data	47	47	110		32 bytes
Relay name 9	String Data		48	110		32 bytes
Relay name 10	String Data		49	110		32 bytes
Relay name 11	String Data		50	110		32 bytes
Relay name 12	String Data		51	110		32 bytes
Relay name 13	String Data		52	110		32 bytes
Relay name 14	String Data		53	110		32 bytes
Relay name 15	String Data		54	110		32 bytes

7 IEC 60870 Protocol

This table is supplied as a reference only. Before attempting to install this protocol in your installation, it is highly suggested to download the point map file before starting working on implementing the protocol; refer to Section 9 for specific instructions on how to download this file.

- AI means Analog Input
- DI means Digital Input

			IEC-60870-5- 101 and 104					
	Name		**Register Type**	**Sector**	**type**	**408 Address**	**TG2B Address**	**Decription (type)**
		IEC60870 / Sector / Interrogation / IOA						
Temperature, actual	Temperature Channel 1	M_ME_NC-1 / 02 / 0001 / 0060	Reset User	2	AI	40	060	Temperature (Floating value)
	Temperature Channel 2	M_ME_NC-1 / 02 / 0001 / 0061	Reset User	2	AI	41	061	
	Temperature Channel 3	M_ME_NC-1 / 02 / 0001 / 0062	Reset User	2	AI	42	062	
	Temperature Channel 4	M_ME_NC-1 / 02 / 0001 / 0063	Reset User	2	AI	43	063	
	Temperature Channel 5	M_ME_NC-1 / 02 / 0001 / 0064	Reset User	2	AI	44	064	
	Temperature Channel 6	M_ME_NC-1 / 02 / 0001 / 0065	Reset User	2	AI	45	065	
	Temperature Channel 7	M_ME_NC-1 / 02 / 0001 / 0066	Reset User	2	AI	46	066	
	Temperature Channel 8	M_ME_NC-1 / 02 / 0001 / 0067	Reset User	2	AI	47	067	
	Temperature Channel 9	M_ME_NC-1 / 02 / 0001 / 0068	Reset User	2	AI	48	068	
	Temperature Channel 10	M_ME_NC-1 / 02 / 0001 / 0069	Reset User	2	AI	49	069	
	Temperature Channel 11	M_ME_NC-1 / 02 / 0001 / 0070	Reset User	2	AI	50	070	
	Temperature Channel 12	M_ME_NC-1 / 02 / 0001 / 0071	Reset User	2	AI	51	071	
	Temperature Channel 13	M_ME_NC-1 / 02 / 0001 / 0072	Reset User	2	AI	52	072	
	Temperature Channel 14	M_ME_NC-1 / 02 / 0001 / 0073	Reset User	2	AI	53	073	
	Temperature Channel 15	M_ME_NC-1 / 02 / 0001 / 0074	Reset User	2	AI	54	074	
	Temperature Channel 16	M_ME_NC-1 / 02 / 0001 / 0075	Reset User	2	AI	55	075	
	Internal temperature	M_ME_NC_1 / 02 / 0002 / 00076	Reset User	2	AI	56	076	
Temperature minimum	ChanTempMin1	M_ME_NC_1 / 02 / 0001 / 00080	Reset User	2	AI	60	080	Minimum temperature (Floating value)
	ChanTempMin2	M_ME_NC_1 / 02 / 0001 / 00081	Reset User	2	AI	61	081	
	ChanTempMin3	M_ME_NC_1 / 02 / 0001 / 00082	Reset User	2	AI	62	082	
	ChanTempMin4	M_ME_NC_1 / 02 / 0001 / 00083	Reset User	2	AI	63	083	
	ChanTempMin5	M_ME_NC_1 / 02 / 0001 / 00084	Reset User	2	AI	64	084	
	ChanTempMin6	M_ME_NC_1 / 02 / 0001 / 00085	Reset User	2	AI	65	085	
	ChanTempMin7	M_ME_NC_1 / 02 / 0001 / 00086	Reset User	2	AI	66	086	
	ChanTempMin8	M_ME_NC_1 / 02 / 0001 / 00087	Reset User	2	AI	67	087	
	ChanTempMin9	M_ME_NC_1 / 02 / 0001 / 00088	Reset User	2	AI	68	088	
	ChanTempMin10	M_ME_NC_1 / 02 / 0001 / 00089	Reset User	2	AI	69	089	
	ChanTempMin11	M_ME_NC_1 / 02 / 0001 / 00090	Reset User	2	AI	70	090	
	ChanTempMin12	M_ME_NC_1 / 02 / 0001 / 00091	Reset User	2	AI	71	091	

	ChanTempMin13	M_ME_NC_1 / 02 / 0001 / 00092	Reset User	2	AI	72	092	
	ChanTempMin14	M_ME_NC_1 / 02 / 0001 / 00093	Reset User	2	AI	73	093	
	ChanTempMin15	M_ME_NC_1 / 02 / 0001 / 00094	Reset User	2	AI	74	094	
	ChanTempMin16	M_ME_NC_1 / 02 / 0001 / 00095	Reset User	2	AI	75	095	
	Internal temperatureMin	M_ME_NC_1 / 02 / 0001 / 00096	Reset User	3	AI	76	096	
Temperature maximum	ChanTempMax1	M_ME_NC_1 / 02 / 0001 / 00100	Reset User	2	AI	80	100	Maximum temperature (Floating value)
	ChanTempMax2	M_ME_NC_1 / 02 / 0001 / 00101	Reset User	2	AI	81	101	
	ChanTempMax3	M_ME_NC_1 / 02 / 0001 / 00102	Reset User	2	AI	82	102	
	ChanTempMax4	M_ME_NC_1 / 02 / 0001 / 00103	Reset User	2	AI	83	103	
	ChanTempMax5	M_ME_NC_1 / 02 / 0001 / 00104	Reset User	2	AI	84	104	
	ChanTempMax6	M_ME_NC_1 / 02 / 0001 / 00105	Reset User	2	AI	85	105	
	ChanTempMax7	M_ME_NC_1 / 02 / 0001 / 00106	Reset User	2	AI	86	106	
	ChanTempMax8	M_ME_NC_1 / 02 / 0001 / 00107	Reset User	2	AI	87	107	
	ChanTempMax9	M_ME_NC_1 / 02 / 0001 / 00108	Reset User	2	AI	88	108	
	ChanTempMax10	M_ME_NC_1 / 02 / 0001 / 00109	Reset User	2	AI	89	109	
	ChanTempMax11	M_ME_NC_1 / 02 / 0001 / 00110	Reset User	2	AI	90	110	
	ChanTempMax12	M_ME_NC_1 / 02 / 0001 / 00111	Reset User	2	AI	91	111	
	ChanTempMax13	M_ME_NC_1 / 02 / 0001 / 00112	Reset User	2	AI	92	112	
	ChanTempMax14	M_ME_NC_1 / 02 / 0001 / 00113	Reset User	2	AI	93	113	
	ChanTempMax15	M_ME_NC_1 / 02 / 0001 / 00114	Reset User	2	AI	94	114	
	ChanTempMax16	M_ME_NC_1 / 02 / 0001 / 00115	Reset User	2	AI	95	115	
	Internal temperatureMax	M_ME_NC_1 / 02 / 0001 / 00116	Reset User	3	AI	96	116	
Analog zero	Analog zero Channel 1	M_ME_NC_1 / 02 / 0001 / 00120	Reset User	2	AI	100	120	Temperature zero (Floating value)
	Analog zero Channel 2	M_ME_NC_1 / 02 / 0001 / 00121	Reset User	2	AI	101	121	
	Analog zero Channel 3	M_ME_NC_1 / 02 / 0001 / 00122	Reset User	2	AI	102	122	
	Analog zero Channel 4	M_ME_NC_1 / 02 / 0001 / 00123	Reset User	2	AI	103	123	
	Analog zero Channel 5	M_ME_NC_1 / 02 / 0001 / 00124	Reset User	2	AI	104	124	
	Analog zero Channel 6	M_ME_NC_1 / 02 / 0001 / 00125	Reset User	2	AI	105	125	
	Analog zero Channel 7	M_ME_NC_1 / 02 / 0001 / 00126	Reset User	2	AI	106	126	
	Analog zero Channel 8	M_ME_NC_1 / 02 / 0001 / 00127	Reset User	2	AI	107	127	
	Analog zero Channel 9	M_ME_NC_1 / 02 / 0001 / 00128	Reset User	2	AI	108	128	
	Analog zero Channel 10	M_ME_NC_1 / 02 / 0001 / 00129	Reset User	2	AI	109	129	
	Analog zero Channel 11	M_ME_NC_1 / 02 / 0001 / 00130	Reset User	2	AI	110	130	
	Analog zero Channel 12	M_ME_NC_1 / 02 / 0001 / 00131	Reset User	2	AI	111	131	
	Analog zero Channel 13	M_ME_NC_1 / 02 / 0001 / 00132	Reset User	2	AI	112	132	
	Analog zero Channel 14	M_ME_NC_1 / 02 / 0001 / 00133	Reset User	2	AI	113	133	
	Analog zero Channel 15	M_ME_NC_1 / 02 / 0001 / 00134	Reset User	2	AI	114	134	
	Analog zero Channel 16	M_ME_NC_1 / 02 / 0001 / 00135	Reset User	2	AI	115	135	
Analog span	Analog span Channel 1	M_ME_NC_1 / 02 / 0001 / 00140	Reset User	2	AI	120	140	Temperature span (Floating value)
	Analog span Channel 2	M_ME_NC_1 / 02 / 0001 / 00141	Reset User	2	AI	121	141	
	Analog span Channel 3	M_ME_NC_1 / 02 / 0001 / 00142	Reset User	2	AI	122	142	

	Analog span Channel 4	M_ME_NC_1 / 02 / 0001 / 00143	Reset User	2	AI	123	143	
	Analog span Channel 5	M_ME_NC_1 / 02 / 0001 / 00144	Reset User	2	AI	124	144	
	Analog span Channel 6	M_ME_NC_1 / 02 / 0001 / 00145	Reset User	2	AI	125	145	
	Analog span Channel 7	M_ME_NC_1 / 02 / 0001 / 00146	Reset User	2	AI	126	146	
	Analog span Channel 8	M_ME_NC_1 / 02 / 0001 / 00147	Reset User	2	AI	127	147	
	Analog span Channel 9	M_ME_NC_1 / 02 / 0001 / 00148	Reset User	2	AI	128	148	
	Analog span Channel 10	M_ME_NC_1 / 02 / 0001 / 00149	Reset User	2	AI	129	149	
	Analog span Channel 11	M_ME_NC_1 / 02 / 0001 / 00150	Reset User	2	AI	130	150	
	Analog span Channel 12	M_ME_NC_1 / 02 / 0001 / 00151	Reset User	2	AI	131	151	
	Analog span Channel 13	M_ME_NC_1 / 02 / 0001 / 00152	Reset User	2	AI	132	152	
	Analog span Channel 14	M_ME_NC_1 / 02 / 0001 / 00153	Reset User	2	AI	133	153	
	Analog span Channel 15	M_ME_NC_1 / 02 / 0001 / 00154	Reset User	2	AI	134	154	
	Analog span Channel 16	M_ME_NC_1 / 02 / 0001 / 00155	Reset User	2	AI	135	155	
Offset on channel	Offset Channel 1	M_ME_NC_1 / 02 / 0001 / 00160	Reset User	2	AI	140	160	Temperature offset (Floating value)
	Offset Channel 2	M_ME_NC_1 / 02 / 0001 / 00161	Reset User	2	AI	141	161	
	Offset Channel 3	M_ME_NC_1 / 02 / 0001 / 00162	Reset User	2	AI	142	162	
	Offset Channel 4	M_ME_NC_1 / 02 / 0001 / 00163	Reset User	2	AI	143	163	
	Offset Channel 5	M_ME_NC_1 / 02 / 0001 / 00164	Reset User	2	AI	144	164	
	Offset Channel 6	M_ME_NC_1 / 02 / 0001 / 00165	Reset User	2	AI	145	165	
	Offset Channel 7	M_ME_NC_1 / 02 / 0001 / 00166	Reset User	2	AI	146	166	
	Offset Channel 8	M_ME_NC_1 / 02 / 0001 / 00167	Reset User	2	AI	147	167	
	Offset Channel 9	M_ME_NC_1 / 02 / 0001 / 00168	Reset User	2	AI	148	168	
	Offset Channel 10	M_ME_NC_1 / 02 / 0001 / 00169	Reset User	2	AI	149	169	
	Offset Channel 11	M_ME_NC_1 / 02 / 0001 / 00170	Reset User	2	AI	150	170	
	Offset Channel 12	M_ME_NC_1 / 02 / 0001 / 00171	Reset User	2	AI	151	171	
	Offset Channel 13	M_ME_NC_1 / 02 / 0001 / 00172	Reset User	2	AI	152	172	
	Offset Channel 14	M_ME_NC_1 / 02 / 0001 / 00173	Reset User	2	AI	153	173	
	Offset Channel 15	M_ME_NC_1 / 02 / 0001 / 00174	Reset User	2	AI	154	174	
	Offset Channel 16	M_ME_NC_1 / 02 / 0001 / 00175	Reset User	2	AI	155	175	
	Internal temperature	M_ME_NC_1 / 02 / 0001 / 00180	Reset User	2	AI	160	180	
	Number of channels	M_ME_NC_1 / 02 / 0001 / 00181	Reset User	2	AI	161	181	
	Soft version	M_ME_NC_1 / 02 / 0001 / 00182	Reset User	2	AI	162	182	soft version
	Soft revision	M_ME_NC_1 / 02 / 0001 / 00183	Reset User	2	AI	163	183	soft revision
	Device type	M_ME_NC_1 / 02 / 0001 / 00184	Reset User	2	AI	164	184	
	Mode A	M_ME_NC_1 / 02 / 0001 / 00185	Reset User	2	AI	165	185	
	Mode B	M_ME_NC_1 / 02 / 0001 / 00186	Reset User	2	AI	166	186	
	Calibration type	M_ME_NC_1 / 02 / 0001 / 00188	Reset User	2	AI	168	188	0 = Neoptix 1 = Nortech
	Unit	M_ME_NC_1 / 02 / 0001 / 00189	Reset User	2	AI	169	189	0 = °C 1 = °F
	SW Version	M_ME_NC_1 / 02 / 0001 / 00190	Reset User	2	AI	170	190	
Power %	Powerpct channel 1	M_ME_NC_1 / 02 / 0001 / 00200	Reset User	2	AI	180	200	Power % (Floating value)
	Powerpct channel 2	M_ME_NC_1 / 02 / 0001 / 00201	Reset User	2	AI	181	201	

	Powerpct channel 3	M_ME_NC_1 / 02 / 0001 / 00202	Reset User	2	AI	182	202	
	Powerpct channel 4	M_ME_NC_1 / 02 / 0001 / 00203	Reset User	2	AI	183	203	
	Powerpct channel 5	M_ME_NC_1 / 02 / 0001 / 00204	Reset User	2	AI	184	204	
	Powerpct channel 6	M_ME_NC_1 / 02 / 0001 / 00205	Reset User	2	AI	185	205	
	Powerpct channel 7	M_ME_NC_1 / 02 / 0001 / 00206	Reset User	2	AI	186	206	
	Powerpct channel 8	M_ME_NC_1 / 02 / 0001 / 00207	Reset User	2	AI	187	207	
	Powerpct channel 9	M_ME_NC_1 / 02 / 0001 / 00208	Reset User	2	AI	188	208	
	Powerpct channel 10	M_ME_NC_1 / 02 / 0001 / 00209	Reset User	2	AI	189	209	
	Powerpct channel 11	M_ME_NC_1 / 02 / 0001 / 00210	Reset User	2	AI	190	210	
	Powerpct channel 12	M_ME_NC_1 / 02 / 0001 / 00211	Reset User	2	AI	191	211	
	Powerpct channel 13	M_ME_NC_1 / 02 / 0001 / 00212	Reset User	2	AI	192	212	
	Powerpct channel 14	M_ME_NC_1 / 02 / 0001 / 00213	Reset User	2	AI	193	213	
	Powerpct channel 15	M_ME_NC_1 / 02 / 0001 / 00214	Reset User	2	AI	194	214	
	Powerpct channel 16	M_ME_NC_1 / 02 / 0001 / 00215	Reset User	2	AI	195	215	
Lamp attenuation	Lamp attn Channel 1	M_ME_NC_1 / 02 / 0001 / 00220	Reset User	2	AI	200	220	Value between 0 and 255
	Lamp attn Channel 2	M_ME_NC_1 / 02 / 0001 / 00221	Reset User	2	AI	201	221	
	Lamp attn Channel 3	M_ME_NC_1 / 02 / 0001 / 00222	Reset User	2	AI	202	222	
	Lamp attn Channel 4	M_ME_NC_1 / 02 / 0001 / 00223	Reset User	2	AI	203	223	
	Lamp attn Channel 5	M_ME_NC_1 / 02 / 0001 / 00224	Reset User	2	AI	204	224	
	Lamp attn Channel 6	M_ME_NC_1 / 02 / 0001 / 00225	Reset User	2	AI	205	225	
	Lamp attn Channel 7	M_ME_NC_1 / 02 / 0001 / 00226	Reset User	2	AI	206	226	
	Lamp attn Channel 8	M_ME_NC_1 / 02 / 0001 / 00227	Reset User	2	AI	207	227	
	Lamp attn Channel 9	M_ME_NC_1 / 02 / 0001 / 00228	Reset User	2	AI	208	228	
	Lamp attn Channel 10	M_ME_NC_1 / 02 / 0001 / 00229	Reset User	2	AI	209	229	
	Lamp attn Channel 11	M_ME_NC_1 / 02 / 0001 / 00230	Reset User	2	AI	210	230	
	Lamp attn Channel 12	M_ME_NC_1 / 02 / 0001 / 00231	Reset User	2	AI	211	231	
	Lamp attn Channel 13	M_ME_NC_1 / 02 / 0001 / 00232	Reset User	2	AI	212	232	
	Lamp attn Channel 14	M_ME_NC_1 / 02 / 0001 / 00233	Reset User	2	AI	213	233	
	Lamp attn Channel 15	M_ME_NC_1 / 02 / 0001 / 00234	Reset User	2	AI	214	234	
	Lamp attn Channel 16	M_ME_NC_1 / 02 / 0001 / 00235	Reset User	2	AI	215	235	
CCD Time	CCD time Channel 1	M_ME_NC_1 / 02 / 0001 / 00240	Reset User	2	AI	220	240	Fixed = 50 msec, auto (wtune+) = 20 to 500 msec
	CCD time Channel 2	M_ME_NC_1 / 02 / 0001 / 00241	Reset User	2	AI	221	241	
	CCD time Channel 3	M_ME_NC_1 / 02 / 0001 / 00242	Reset User	2	AI	222	242	
	CCD time Channel 4	M_ME_NC_1 / 02 / 0001 / 00243	Reset User	2	AI	223	243	
	CCD time Channel 5	M_ME_NC_1 / 02 / 0001 / 00244	Reset User	2	AI	224	244	
	CCD time Channel 6	M_ME_NC_1 / 02 / 0001 / 00245	Reset User	2	AI	225	245	
	CCD time Channel 7	M_ME_NC_1 / 02 / 0001 / 00246	Reset User	2	AI	226	246	
	CCD time Channel 8	M_ME_NC_1 / 02 / 0001 / 00247	Reset User	2	AI	227	247	
	CCD time Channel 9	M_ME_NC_1 / 02 / 0001 / 00248	Reset User	2	AI	228	248	
	CCD time Channel 10	M_ME_NC_1 / 02 / 0001 / 00249	Reset User	2	AI	229	249	
	CCD time Channel 11	M_ME_NC_1 / 02 / 0001 / 00250	Reset User	2	AI	230	250	
	CCD time Channel 12	M_ME_NC_1 / 02 / 0001 / 00251	Reset User	2	AI	231	251	
	CCD time Channel 13	M_ME_NC_1 / 02 / 0001 / 00252	Reset User	2	AI	232	252	

	CCD time Channel 14	M_ME_NC_1 / 02 / 0001 / 00253	Reset User	2	AI	233	253	
	CCD time Channel 15	M_ME_NC_1 / 02 / 0001 / 00254	Reset User	2	AI	234	254	
	CCD time Channel 16	M_ME_NC_1 / 02 / 0001 / 00255	Reset User	2	AI	235	255	
Ratio (signal strength)	Ratio Channel 1	M_ME_NC_1 / 02 / 0001 / 00260	Reset User	2	AI	240	260	Ratio (Floating value)
	Ratio Channel 2	M_ME_NC_1 / 02 / 0001 / 00261	Reset User	2	AI	241	261	
	Ratio Channel 3	M_ME_NC_1 / 02 / 0001 / 00262	Reset User	2	AI	242	262	
	Ratio Channel 4	M_ME_NC_1 / 02 / 0001 / 00263	Reset User	2	AI	243	263	
	Ratio Channel 5	M_ME_NC_1 / 02 / 0001 / 00264	Reset User	2	AI	244	264	
	Ratio Channel 6	M_ME_NC_1 / 02 / 0001 / 00265	Reset User	2	AI	245	265	
	Ratio Channel 7	M_ME_NC_1 / 02 / 0001 / 00266	Reset User	2	AI	246	266	
	Ratio Channel 8	M_ME_NC_1 / 02 / 0001 / 00267	Reset User	2	AI	247	267	
	Ratio Channel 9	M_ME_NC_1 / 02 / 0001 / 00268	Reset User	2	AI	248	268	
	Ratio Channel 10	M_ME_NC_1 / 02 / 0001 / 00269	Reset User	2	AI	249	269	
	Ratio Channel 11	M_ME_NC_1 / 02 / 0001 / 00270	Reset User	2	AI	250	270	
	Ratio Channel 12	M_ME_NC_1 / 02 / 0001 / 00271	Reset User	2	AI	251	271	
	Ratio Channel 13	M_ME_NC_1 / 02 / 0001 / 00272	Reset User	2	AI	252	272	
	Ratio Channel 14	M_ME_NC_1 / 02 / 0001 / 00273	Reset User	2	AI	253	273	
	Ratio Channel 15	M_ME_NC_1 / 02 / 0001 / 00274	Reset User	2	AI	254	274	
	Ratio Channel 16	M_ME_NC_1 / 02 / 0001 / 00275	Reset User	2	AI	255	275	
Translife(tm)	Translife Delta	M_ME_NC_1 / 02 / 0001 / 00400	Reset User	2	AI	400	400	
	Translife Unity Temperature	M_ME_NC_1 / 02 / 0001 / 00401	Reset User	2	AI	401	401	
	Translife Years of life	M_ME_NC_1 / 02 / 0001 / 00402	Reset User	2	AI	402	402	
	Translife minutes before	M_ME_NC_1 / 02 / 0001 / 00403	Reset User	2	AI	403	403	Real operating time ; minute
	Translife minutes after	M_ME_NC_1 / 02 / 0001 / 00404	Reset User	2	AI	404	404	Estimated time consumed based on measured temperatures ; minute
Channel status	Channel 1 status	M_SP_NA_1 / 02 / 0001 / 00001	Reset User	2	DI	1	1	0 = No signal * 1 = Probe detected
	Channel 2 status	M_SP_NA_1 / 02 / 0001 / 00002	Reset User	2	DI	2	2	
	Channel 3 status	M_SP_NA_1 / 02 / 0001 / 00003	Reset User	2	DI	3	3	
	Channel 4 status	M_SP_NA_1 / 02 / 0001 / 00004	Reset User	2	DI	4	4	
	Channel 5 status	M_SP_NA_1 / 02 / 0001 / 00005	Reset User	2	DI	5	5	
	Channel 6 status	M_SP_NA_1 / 02 / 0001 / 00006	Reset User	2	DI	6	6	
	Channel 7 status	M_SP_NA_1 / 02 / 0001 / 00007	Reset User	2	DI	7	7	
	Channel 8 status	M_SP_NA_1 / 02 / 0001 / 00008	Reset User	2	DI	8	8	
	Channel 9 status	M_SP_NA_1 / 02 / 0001 / 00009	Reset User	2	DI	9	9	
	Channel 10 status	M_SP_NA_1 / 02 / 0001 / 00010	Reset User	2	DI	10	10	
	Channel 11 status	M_SP_NA_1 / 02 / 0001 / 00011	Reset User	2	DI	11	11	
	Channel 12 status	M_SP_NA_1 / 02 / 0001 / 00012	Reset User	2	DI	12	12	
	Channel 13 status	M_SP_NA_1 / 02 / 0001 / 00013	Reset User	2	DI	13	13	
	Channel 14 status	M_SP_NA_1 / 02 / 0001 / 00014	Reset User	2	DI	14	14	
	Channel 15 status	M_SP_NA_1 / 02 / 0001 / 00015	Reset User	2	DI	15	15	
	Channel 16 status	M_SP_NA_1 / 02 / 0001 / 00016	Reset User	2	DI	16	16	

Relay status	Relay 1 status	M_SP_NA_1 / 02 / 0001 / 00020	Reset User	2	DI	20	20	0 = OFF 1 = ON
	Relay 2 status	M_SP_NA_1 / 02 / 0001 / 00021	Reset User	2	DI	21	21	
	Relay 3 status	M_SP_NA_1 / 02 / 0001 / 00022	Reset User	2	DI	22	22	
	Relay 4 status	M_SP_NA_1 / 02 / 0001 / 00023	Reset User	2	DI	23	23	
	Relay 5 status	M_SP_NA_1 / 02 / 0001 / 00024	Reset User	2	DI	24	24	
	Relay 6 status	M_SP_NA_1 / 02 / 0001 / 00025	Reset User	2	DI	25	25	
	Relay 7 status	M_SP_NA_1 / 02 / 0001 / 00026	Reset User	2	DI	26	26	
	Relay 8 status	M_SP_NA_1 / 02 / 0001 / 00027	Reset User	2	DI	27	27	
	Relay 9 status	M_SP_NA_1 / 02 / 0001 / 00028	Reset User	2	DI		28	
	Relay 10 status	M_SP_NA_1 / 02 / 0001 / 00029	Reset User	2	DI		29	
	Relay 11 status	M_SP_NA_1 / 02 / 0001 / 00030	Reset User	2	DI		30	
	Relay 12 status	M_SP_NA_1 / 02 / 0001 / 00031	Reset User	2	DI		31	
	Relay 13 status	M_SP_NA_1 / 02 / 0001 / 00032	Reset User	2	DI		32	
	Relay 14 status	M_SP_NA_1 / 02 / 0001 / 00034	Reset User	2	DI		34	
	Relay 15 status	M_SP_NA_1 / 02 / 0001 / 00035	Reset User	2	DI		35	
Relay failsafe status	Failsafe Relay 1	M_SP_NA_1 / 02 / 0001 / 00040	Reset User	2	DI	30	40	0 = disable 1 = enable
	Failsafe Relay 2	M_SP_NA_1 / 02 / 0001 / 00041	Reset User	2	DI	31	41	
	Failsafe Relay 3	M_SP_NA_1 / 02 / 0001 / 00042	Reset User	2	DI	32	42	
	Failsafe Relay 4	M_SP_NA_1 / 02 / 0001 / 00043	Reset User	2	DI	33	43	
	Failsafe Relay 5	M_SP_NA_1 / 02 / 0001 / 00044	Reset User	2	DI	34	44	
	Failsafe Relay 6	M_SP_NA_1 / 02 / 0001 / 00045	Reset User	2	DI	35	45	
	Failsafe Relay 7	M_SP_NA_1 / 02 / 0001 / 00046	Reset User	2	DI	36	46	
	Failsafe Relay 8	M_SP_NA_1 / 02 / 0001 / 00047	Reset User	2	DI	37	47	
	Failsafe Relay 9	M_SP_NA_1 / 02 / 0001 / 00048	Reset User	2	DI		48	
	Failsafe Relay 10	M_SP_NA_1 / 02 / 0001 / 00049	Reset User	2	DI		49	
	Failsafe Relay 11	M_SP_NA_1 / 02 / 0001 / 00050	Reset User	2	DI		50	
	Failsafe Relay 12	M_SP_NA_1 / 02 / 0001 / 00051	Reset User	2	DI		51	
	Failsafe Relay 13	M_SP_NA_1 / 02 / 0001 / 00052	Reset User	2	DI		52	
	Failsafe Relay 14	M_SP_NA_1 / 02 / 0001 / 00053	Reset User	2	DI		53	
	Failsafe Relay 15	M_SP_NA_1 / 02 / 0001 / 00054	Reset User	2	DI		54	

8 IEC 61850 Protocol

This table is given here as a general reference only. Before you start implement the IEC 61850, please download the .icd file from your compatible instrument; see section 8.1.

	Name	Path	408	TG2B	Decription (type) (temperature values always in °C)
Relay status	Relay status 1	GGIO0/SPCSO1/stVal	x	x	0 (FALSE) = OFF 1(TRUE) = ON
	Relay status 2	GGIO0/SPCSO2/stVal	x	x	
	Relay status 3	GGIO0/SPCSO3/stVal	x	x	
	Relay status 4	GGIO0/SPCSO4/stVal	x	x	
	Relay status 5	GGIO0/SPCSO5/stVal	x	x	
	Relay status 6	GGIO0/SPCSO6/stVal	x	x	
	Relay status 7	GGIO0/SPCSO7/stVal	x	x	
	Relay status 8	GGIO0/SPCSO8/stVal	x	x	
	Relay status 9	GGIO0/SPCSO9/stVal		x	
	Relay status 10	GGIO0/SPCS10/stVal		x	
	Relay status 11	GGIO0/SPCS11/stVal		x	
	Relay status 12	GGIO0/SPCS12/stVal		x	
	Relay status 13	GGIO0/SPCS13/stVal		x	
	Relay status 14	GGIO0/SPCS14/stVal		x	
	Relay status 15	GGIO0/SPCS15/stVal		x	
Failsafe relay status	Fail safe Relay 1	GGIO0/RelInv1/setVal	x	x	Off = disable On = enable
	Fail safe Relay 2	GGIO0/RelInv2/setVal	x	x	
	Fail safe Relay 3	GGIO0/RelInv3/setVal	x	x	
	Fail safe Relay 4	GGIO0/RelInv4/setVal	x	x	
	Fail safe Relay 5	GGIO0/RelInv5/setVal	x	x	
	Fail safe Relay 6	GGIO0/RelInv6/setVal	x	x	
	Fail safe Relay 7	GGIO0/RelInv7/setVal	x	x	
	Fail safe Relay 8	GGIO0/RelInv8/setVal	x	x	
	Fail safe Relay 9	GGIO0/RelInv9/setVal		x	
	Fail safe Relay 10	GGIO0/RelInv10/setVal		x	
	Fail safe Relay 11	GGIO0/RelInv11/setVal		x	
	Fail safe Relay 12	GGIO0/RelInv12/setVal		x	
	Fail safe Relay 13	GGIO0/RelInv13/setVal		x	
	Fail safe Relay 14	GGIO0/RelInv14/setVal		x	
	Fail safe Relay 15	GGIO0/RelInv15/setVal		x	
	Serial number	LPHD1/PhyNam/serNum	x	x	(String)
	Device model	LPHD1/PhyNam/model	x	x	(String)
Temperature, maximum	ChanTempMax1	MaxSTMP18 / Tmp/mag/f	x	x	Maximum temperature (Floating32). Since the instrument was turned on.

	ChanTempMax2	MaxSTMP19 / Tmp/mag/f	x	x	
	ChanTempMax3	MaxSTMP20 / Tmp/mag/f	x	x	
	ChanTempMax4	MaxSTMP21 / Tmp/mag/f	x	x	
	ChanTempMax5	MaxSTMP22 / Tmp/mag/f	x	x	
	ChanTempMax6	MaxSTMP23 / Tmp/mag/f	x	x	
	ChanTempMax7	MaxSTMP24 / Tmp/mag/f	x	x	
	ChanTempMax8	MaxSTMP25 / Tmp/mag/f	x	x	
	ChanTempMax9	MaxSTMP26 / Tmp/mag/f	x	x	
	ChanTempMax10	MaxSTMP27 / Tmp/mag/f	x	x	
	ChanTempMax11	MaxSTMP28 / Tmp/mag/f	x	x	
	ChanTempMax12	MaxSTMP29 / Tmp/mag/f	x	x	
	ChanTempMax13	MaxSTMP30 / Tmp/mag/f	x	x	
	ChanTempMax14	MaxSTMP31 / Tmp/mag/f	x	x	
	ChanTempMax15	MaxSTMP32 / Tmp/mag/f	x	x	
	ChanTempMax16	MaxSTMP33 / Tmp/mag/f	x	x	
	ChanTempMaxInternal	MaxSTMP34 / Tmp/mag/f	x	x	
Temperature, minimum	ChanTempMin1	MinSTMP1 / Tmp/mag/f	x	x	Minimum temperature (Floating32). Since the instrument was turned on.
	ChanTempMin2	MinSTMP2 / Tmp/mag/f	x	x	
	ChanTempMin3	MinSTMP3 / Tmp/mag/f	x	x	
	ChanTempMin4	MinSTMP4 / Tmp/mag/f	x	x	
	ChanTempMin5	MinSTMP5 / Tmp/mag/f	x	x	
	ChanTempMin6	MinSTMP6 / Tmp/mag/f	x	x	
	ChanTempMin7	MinSTMP7 / Tmp/mag/f	x	x	
	ChanTempMin8	MinSTMP8 / Tmp/mag/f	x	x	
	ChanTempMin9	MinSTMP9 / Tmp/mag/f	x	x	
	ChanTempMin10	MinSTMP10 / Tmp/mag/f	x	x	
	ChanTempMin11	MinSTMP11 / Tmp/mag/f	x	x	
	ChanTempMin12	MinSTMP12 / Tmp/mag/f	x	x	
	ChanTempMin13	MinSTMP13 / Tmp/mag/f	x	x	
	ChanTempMin14	MinSTMP14 / Tmp/mag/f	x	x	
	ChanTempMin15	MinSTMP15 / Tmp/mag/f	x	x	
	ChanTempMin16	MinSTMP16 / Tmp/mag/f	x	x	
	ChanTempMinInternal	MinSTMP17 / Tmp/mag/f	x	x	
Translife(tm)	Translife Delta	SPTR0 / Delta / setMag / f	x	x	(Floating32)
	Translife Unity Temperature	SPTR0 / UnityTmpSet / setMag / f	x	x	(Floating32)
	Translife Years of life	SPTR0 / TransLifeExpy / setMag / f	x	x	(Floating32)
	Translife minutes before	SPTR0 / OpTmm / setVal	x	x	Real operating time ; minute (Integer32)
	Translife minutes after	SPTR0 / TransLifem / setVal	x	x	Estimated time consumed based on measured temperatures ; minute (Integer32)
Enable channel	Enable Channel 1	TTMP1 / Mod / stVal	x	x	On = enable, Off = disable
	Enable Channel 2	TTMP2 / Mod / stVal	x	x	
	Enable Channel 3	TTMP3 / Mod / stVal	x	x	
	Enable Channel 4	TTMP4 / Mod / stVal	x	x	

	Enable Channel 5	TTMP5 / Mod / stVal	x	x	
	Enable Channel 6	TTMP6 / Mod / stVal	x	x	
	Enable Channel 7	TTMP7 / Mod / stVal	x	x	
	Enable Channel 8	TTMP8 / Mod / stVal	x	x	
	Enable Channel 9	TTMP9 / Mod / stVal	x	x	
	Enable Channel 10	TTMP10 / Mod / stVal	x	x	
	Enable Channel 11	TTMP11 / Mod / stVal	x	x	
	Enable Channel 12	TTMP12 / Mod / stVal	x	x	
	Enable Channel 13	TTMP13 / Mod / stVal	x	x	
	Enable Channel 14	TTMP14 / Mod / stVal	x	x	
	Enable Channel 15	TTMP15 / Mod / stVal	x	x	
	Enable Channel 16	TTMP1 6/ Mod / stVal	x	x	
Channel status	Channel 1 status	TTMP1 / Health / stVal	x	x	Alarm = No signal * OK = Probe detected
	Channel 2 status	TTMP2 / Health / stVal	x	x	
	Channel 3 status	TTMP3 / Health / stVal	x	x	
	Channel 4 status	TTMP4 / Health / stVal	x	x	
	Channel 5 status	TTMP5 / Health / stVal	x	x	
	Channel 6 status	TTMP6 / Health / stVal	x	x	
	Channel 7 status	TTMP7 / Health / stVal	x	x	
	Channel 8 status	TTMP8 / Health / stVal	x	x	
	Channel 9 status	TTMP9 / Health / stVal	x	x	
	Channel 10 status	TTMP10 / Health / stVal	x	x	
	Channel 11 status	TTMP11 / Health / stVal	x	x	
	Channel 12 status	TTMP12 / Health / stVal	x	x	
	Channel 13 status	TTMP13 / Health / stVal	x	x	
	Channel 14 status	TTMP14 / Health / stVal	x	x	
	Channel 15 status	TTMP15 / Health / stVal	x	x	
	Channel 16 status	TTMP16 / Health / stVal	x	x	
CCD Time	CCD time Channel 1	TTMP1 /CCDMs/stVal	x	x	Non-auto = 50 msec, auto (wtune) = 20 to 500 (integer32)
	CCD time Channel 2	TTMP2/CCDMs/stVal	x	x	
	CCD time Channel 3	TTMP3/CCDMs/stVal	x	x	
	CCD time Channel 4	TTMP4/CCDMs/stVal	x	x	
	CCD time Channel 5	TTMP5/CCDMs/stVal	x	x	
	CCD time Channel 6	TTMP6/CCDMs/stVal	x	x	
	CCD time Channel 7	TTMP7/CCDMs/stVal	x	x	
	CCD time Channel 8	TTMP8/CCDMs/stVal	x	x	
	CCD time Channel 9	TTMP9/CCDMs/stVal	x	x	
	CCD time Channel 10	TTMP10/CCDMs/stVal	x	x	
	CCD time Channel 11	TTMP11/CCDMs/stVal	x	x	
	CCD time Channel 12	TTMP12/CCDMs/stVal	x	x	
	CCD time Channel 13	TTMP13/CCDMs/stVal	x	x	
	CCD time Channel 14	TTMP14/CCDMs/stVal	x	x	
	CCD time Channel 15	TTMP15/CCDMs/stVal	x	x	

	CCD time Channel 16	TTMP16/CCDMs/stVal	x	x	
Offset on channel	Offset Channel 1	TTMP1 /Offset / setMag /f	x	x	Temperature offset (Floating32)
	Offset Channel 2	TTMP2/Offset / setMag /f	x	x	
	Offset Channel 3	TTMP3/Offset / setMag /f	x	x	
	Offset Channel 4	TTMP4/Offset / setMag /f	x	x	
	Offset Channel 5	TTMP5/Offset / setMag /f	x	x	
	Offset Channel 6	TTMP6/Offset / setMag /f	x	x	
	Offset Channel 7	TTMP7/Offset / setMag /f	x	x	
	Offset Channel 8	TTMP8/Offset / setMag /f	x	x	
	Offset Channel 9	TTMP9/Offset / setMag /f	x	x	
	Offset Channel 10	TTMP10/Offset / setMag /f	x	x	
	Offset Channel 11	TTMP11/Offset / setMag /f	x	x	
	Offset Channel 12	TTMP12/Offset / setMag /f	x	x	
	Offset Channel 13	TTMP13/Offset / setMag /f	x	x	
	Offset Channel 14	TTMP14/Offset / setMag /f	x	x	
	Offset Channel 15	TTMP15/Offset / setMag /f	x	x	
	Offset Channel 16	TTMP16/Offset / setMag /f	x	x	
Analog zero	Analog zero Channel 1	TTMP1 /AoutZero / setMag /f	x	x	Temperature zero (Floating32)
	Analog zero Channel 2	TTMP2/AoutZero / setMag /f	x	x	
	Analog zero Channel 3	TTMP3/AoutZero / setMag /f	x	x	
	Analog zero Channel 4	TTMP4/AoutZero / setMag /f	x	x	
	Analog zero Channel 5	TTMP5/AoutZero / setMag /f	x	x	
	Analog zero Channel 6	TTMP6/AoutZero / setMag /f	x	x	
	Analog zero Channel 7	TTMP7/AoutZero / setMag /f	x	x	
	Analog zero Channel 8	TTMP8/AoutZero / setMag /f	x	x	
	Analog zero Channel 9	TTMP9/AoutZero / setMag /f	x	x	
	Analog zero Channel 10	TTMP10/AoutZero / setMag /f	x	x	
	Analog zero Channel 11	TTMP11/AoutZero / setMag /f	x	x	
	Analog zero Channel 12	TTMP12/AoutZero / setMag /f	x	x	
	Analog zero Channel 13	TTMP13/AoutZero / setMag /f	x	x	
	Analog zero Channel 14	TTMP14/AoutZero / setMag /f	x	x	
	Analog zero Channel 15	TTMP15/AoutZero / setMag /f	x	x	
	Analog zero Channel 16	TTMP16/AoutZero / setMag /f	x	x	
Analog span	Analog span Channel 1	TTMP1 /AoutSpan / setMag /f	x	x	Temperature span (Floating32)
	Analog span Channel 2	TTMP2/AoutSpan / setMag /f	x	x	
	Analog span Channel 3	TTMP3/AoutSpan / setMag /f	x	x	
	Analog span Channel 4	TTMP4/AoutSpan / setMag /f	x	x	
	Analog span Channel 5	TTMP5/AoutSpan / setMag /f	x	x	
	Analog span Channel 6	TTMP6/AoutSpan / setMag /f	x	x	
	Analog span Channel 7	TTMP7/AoutSpan / setMag /f	x	x	
	Analog span Channel 8	TTMP8/AoutSpan / setMag /f	x	x	
	Analog span Channel 9	TTMP9/AoutSpan / setMag /f	x	x	

	Analog span Channel 10	TTMP10/AoutSpan / setMag /f	x	x	
	Analog span Channel 11	TTMP11/AoutSpan / setMag /f	x	x	
	Analog span Channel 12	TTMP12/AoutSpan / setMag /f	x	x	
	Analog span Channel 13	TTMP13/AoutSpan / setMag /f	x	x	
	Analog span Channel 14	TTMP14/AoutSpan / setMag /f	x	x	
	Analog span Channel 15	TTMP15/AoutSpan / setMag /f	x	x	
	Analog span Channel 16	TTMP16/AoutSpan / setMag /f	x	x	
Temperature, actual	Temperature Channel 1	TTMP1 / TmpSrv / instMag / f	x	x	Temperature (Floating32)
	Temperature Channel 2	TTMP2 / TmpSrv / instMag / f	x	x	
	Temperature Channel 3	TTMP3 / TmpSrv / instMag / f	x	x	
	Temperature Channel 4	TTMP4 / TmpSrv / instMag / f	x	x	
	Temperature Channel 5	TTMP5 / TmpSrv / instMag / f	x	x	
	Temperature Channel 6	TTMP6 / TmpSrv / instMag / f	x	x	
	Temperature Channel 7	TTMP7 / TmpSrv / instMag / f	x	x	
	Temperature Channel 8	TTMP8 / TmpSrv / instMag / f	x	x	
	Temperature Channel 9	TTMP9 / TmpSrv / instMag / f	x	x	
	Temperature Channel 10	TTMP10 / TmpSrv / instMag / f	x	x	
	Temperature Channel 11	TTMP11 / TmpSrv / instMag / f	x	x	
	Temperature Channel 12	TTMP12 / TmpSrv / instMag / f	x	x	
	Temperature Channel 13	TTMP13 / TmpSrv / instMag / f	x	x	
	Temperature Channel 14	TTMP14 / TmpSrv / instMag / f	x	x	
	Temperature Channel 15	TTMP15 / TmpSrv / instMag / f	x	x	
	Temperature Channel 16	TTMP16 / TmpSrv / instMag / f	x	x	
	Temperature Internal	TTMP17 /TmpSrv / instMag / f	x	x	
Ratio (signal strength)	Ratio Channel 1	TTMP1 /Ratio / mag /f	x	x	Ratio (Floating32)
	Ratio Channel 2	TTMP2/Ratio / mag /f	x	x	
	Ratio Channel 3	TTMP3/Ratio / mag /f	x	x	
	Ratio Channel 4	TTMP4/Ratio / mag /f	x	x	
	Ratio Channel 5	TTMP5/Ratio / mag /f	x	x	
	Ratio Channel 6	TTMP6/Ratio / mag /f	x	x	
	Ratio Channel 7	TTMP7/Ratio / mag /f	x	x	
	Ratio Channel 8	TTMP8/Ratio / mag /f	x	x	
	Ratio Channel 9	TTMP9/Ratio / mag /f	x	x	
	Ratio Channel 10	TTMP10/Ratio / mag /f	x	x	
	Ratio Channel 11	TTMP11/Ratio / mag /f	x	x	
	Ratio Channel 12	TTMP12/Ratio / mag /f	x	x	
	Ratio Channel 13	TTMP13/Ratio / mag /f	x	x	
	Ratio Channel 14	TTMP14/Ratio / mag /f	x	x	
	Ratio Channel 15	TTMP15/Ratio / mag /f	x	x	
	Ratio Channel 16	TTMP16/Ratio / mag /f	x	x	
Power %	Powerpct channel 1	TTMP1/PwrPct/mag/ f	x	x	Power % (Floating32)
	Powerpct channel 2	TTMP2/PwrPct/mag/ f	x	x	

	Powerpct channel 3	TTMP3/PwrPct/mag/ f	x	x	
	Powerpct channel 4	TTMP4/PwrPct/mag/ f	x	x	
	Powerpct channel 5	TTMP5/PwrPct/mag/ f	x	x	
	Powerpct channel 6	TTMP6/PwrPct/mag/ f	x	x	
	Powerpct channel 7	TTMP7/PwrPct/mag/ f	x	x	
	Powerpct channel 8	TTMP8/PwrPct/mag/ f	x	x	
	Powerpct channel 9	TTMP9/PwrPct/mag/ f	x	x	
	Powerpct channel 10	TTMP10/PwrPct/mag/ f	x	x	
	Powerpct channel 11	TTMP11/PwrPct/mag/ f	x	x	
	Powerpct channel 12	TTMP12/PwrPct/mag/ f	x	x	
	Powerpct channel 13	TTMP13/PwrPct/mag/ f	x	x	
	Powerpct channel 14	TTMP14/PwrPct/mag/ f	x	x	
	Powerpct channel 15	TTMP15/PwrPct/mag/ f	x	x	
	Powerpct channel 16	TTMP16/PwrPct/mag/ f	x	x	
Lamp attenuation	Lamp attn Channel 1	TTMP1/LmpAtt/mag/ f	x	x	Value between 0 and 255 (Floating32)
	Lamp attn Channel 2	TTMP2/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 3	TTMP3/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 4	TTMP4/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 5	TTMP5/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 6	TTMP6/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 7	TTMP7/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 8	TTMP8/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 9	TTMP9/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 10	TTMP10/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 11	TTMP11/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 12	TTMP12/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 13	TTMP13/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 14	TTMP14/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 15	TTMP15/LmpAtt/mag/ f	x	x	
	Lamp attn Channel 16	TTMP16/LmpAtt/mag/ f	x	x	

8.1 ICD file content (IEC 61850)

This is an example of a typical .cid file (qgateway.icd). Before attempting to implement the IEC 61850 protocol in your environment, it is recommended that download from your instrument the correct and up-to-date file; this can be done using the web server, page “Systems” and “Ethernet protocols”, and then “Configure IEC-61850”.

The ICD file (IED Capability Description) contains the IED information with specific details based on your configuration.

```
<?xml version="1.0"?>
<SCL xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns="http://www.iec.ch/61850/2003/SCL">
  <Header id="QGateway.icd" version="V0.0" revision="R0.0" />
  <Communication>
    <SubNetwork name="SubNet1" type="MMU8">
      <ConnectedAP desc="" iedName="IECBERT" apName="AP1">
        <Address>
         <P type="SA">0</P>
         <P type="IP">192.168.1.241</P>
         <P type="OSI-TSEL">0001</P>
         <P type="OSI-PSEL">00000001</P>
         <P type="OSI-SSEL">0001</P>
        </Address>
      </ConnectedAP>
    </SubNetwork>
  </Communication>
  <IED name="IECBERT" desc="Draft 6" type="QGateway" manufacturer="Qualitrol" configVersion="1">
    <Services />
    <AccessPoint name="AP1">
      <Server>
        <Authentication />
        <LDevice inst="IECBERT">
          <LN0 lnType="lln0_QGateway_1" lnClass="LLN0" inst="1">
            <DOI name="NamPlt">
              <DAI desc="Name of the vendor." name="vendor">
                <Val>Qualitrol</Val>
              </DAI>
              <DAI desc="Description" name="d">
                <Val>Qualitrol Gateway system</Val>
              </DAI>
              <DAI desc="SW-revision." name="swRev" sAddr="GW:swrev" />
              <DAI desc="Uniquely identifies the configuration of a logical device instance. " name="configRev">
                <Val>1</Val>
              </DAI>
            </DOI>
            <DOI name="Mod">
              <DAI desc="Operating status control." name="stVal">
                <Val>on</Val>
              </DAI>
              <DAI desc="Specifies the control model of " name="ctlModel">
                <Val>status-only</Val>
              </DAI>
              <DAI desc="Description" name="d">
                <Val>Gateway device operating status</Val>
              </DAI>
            </DOI>
            <DOI name="Beh">
              <DAI desc="Operating status." name="stVal">
                <Val>on</Val>
              </DAI>
              <DAI desc="Description" name="d">
                <Val>Gateway device operating</Val>
              </DAI>
            </DOI>
            <DOI name="Health">
              <DAI desc="Operational health of the Gateway." name="stVal">
                  <Val>Ok</Val>
                </DAI>
              <DAI desc="Description" name="d">
                <Val>Gateway device system status</Val>
              </DAI>
            </DOI>
          </LN0>
```

```
          <LN lnType="lphd_QGateway_1" lnClass="LPHD" inst="1">
            <DOI name="PhyNam">
              <DAI desc="Vendor specific product name." name="model">
                <Val>Communication Gateway</Val>
              </DAI>
              <DAI desc="Location, where the equipment is installed." name="location">
                <Val>Pascal</Val>
              </DAI>
              <DAI desc="Name of the vendor." name="vendor">
                <Val>Qualitrol</Val>
              </DAI>
              <DAI desc="Serial number." name="serNum">
                <Val>00:0C:C6:76:D1:3C</Val>
              </DAI>
            </DOI>
            <DOI name="PhyHealth">
              <DAI desc="Status value of the data." name="stVal">
                     <Val>Ok</Val>
                   </DAI>
              <DAI desc="Description" name="d">
                <Val>Gateway general health</Val>
              </DAI>
            </DOI>
            <DOI name="Proxy">
              <DAI desc="Description" name="d">
                <Val>Proxy fixed as FALSE</Val>
              </DAI>
              <DAI desc="Status value of the data." name="stVal">
                <Val>FALSE</Val>
              </DAI>
<!--
              <DAI desc="Quality of the data." name="q">
                <Val>0</Val>
              </DAI>
-->
              <DAI desc="Timestamp of the last change" name="t" />
            </DOI>
<!-- control items for future
            <DOI name="MaxMinRs">
              <DAI desc="Status value of the data." name="stVal" sAddr="GW:MAX_MIN_RESET" />
              <DAI desc="Specifies the control model of " name="ctlModel">
                <Val>direct-with-normal-security</Val>
              </DAI>
              <DAI desc="Description" name="d">
                <Val>Reset Max/Min values of input measurement devices</Val>
              </DAI>
            </DOI>
            <DOI name="RelayRs">
              <DAI desc="Status value of the data." name="stVal" sAddr="GW:RESET" />
              <DAI desc="Specifies the control model of " name="ctlModel">
                <Val>direct-with-normal-security</Val>
              </DAI>
              <DAI desc="Description" name="d">
                <Val>Reset latched relay devices</Val>
              </DAI>
            </DOI>
-->
          </LN>
        </LDevice>
        <LDevice inst="N408">
          <LN0 desc="" lnType="lln0_QGateway_1" lnClass="LLN0" inst="">
              <DataSet name="Temps">
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="1" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="2" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="3" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="4" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="5" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="6" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="7" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="8" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="9" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="10" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="11" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="12" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="13" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="14" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="15" doName="TmpSv" fc="MX" />
                <FCDA ldInst="N408" lnClass="TTMP" lnInst="16" doName="TmpSv" fc="MX" />
```

```
  </DataSet>
    <DataSet name="Relays">
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO1" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv1" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO2" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv2" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO3" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv3" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO4" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv4" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO5" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv5" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO6" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv6" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO7" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv7" fc="SP" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="SPCSO8" fc="ST" />
      <FCDA ldInst="N408" lnClass="GGIO" lnInst="0" doName="RelInv8" fc="SP" />
  </DataSet>
  <ReportControl name="urcb1" datSet="Temps" intgPd="5000" confRev="1" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="urcb2" datSet="Relays" intgPd="5000" confRev="1" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="urcb3" datSet="Temps" intgPd="5000" confRev="1" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="urcb4" datSet="Temps" intgPd="5000" confRev="1" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="brcb1" datSet="Temps" intgPd="5000" confRev="1" buffered="true" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="brcb2" datSet="Relays" intgPd="5000" confRev="1" buffered="true" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="brcb3" datSet="Temps" intgPd="5000" confRev="1" buffered="true" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <ReportControl name="brcb4" datSet="Temps" intgPd="5000" confRev="1" buffered="true" bufTime="1000">
    <TrgOps dchg="true" qchg="true" dupd="true" />
    <OptFields seqNum="true" timeStamp="true" dataSet="true" reasonCode="true" entryID="true" configRef="true" />
  </ReportControl>
  <DOI name="NamPlt">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Neoptix408</Val>
    </DAI>
    <DAI desc="SW-revision." name="swRev" sAddr="N408:SWVersion" />
    <DAI desc="Uniquely identifies the configuration of a logical device instance. " name="configRev">
      <Val>1</Val>
    </DAI>
  </DOI>
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommEnable" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommError" />
  </DOI>
</LN0>
<LN lnType="lphd_QGateway_1" lnClass="LPHD" inst="1">
  <DOI name="PhyNam">
```

```
            <DAI desc="Vendor specific product name." name="model">
              <Val>Neoptix408</Val>
            </DAI>
            <DAI desc="Location, where the equipment is installed." name="location" sAddr="N408:Substation" />
            <DAI desc="Name of the vendor." name="vendor">
              <Val>Neoptix</Val>
            </DAI>
            <DAI desc="Serial number." name="serNum" sAddr="N408:SerialNumber" />
          </DOI>
          <DOI name="PhyHealth">
            <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommError" />
            <DAI desc="Quality." name="q" sAddr="N408:CommError" />
            <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommError" />
            <DAI desc="Description" name="d">
              <Val>Neoptix TGuard Communication status</Val>
            </DAI>
          </DOI>
          <DOI name="Proxy">
            <DAI desc="Description" name="d">
              <Val>Proxy fixed as TRUE</Val>
            </DAI>
            <DAI desc="Status value of the data." name="stVal">
              <Val>TRUE</Val>
            </DAI>
<!--
            <DAI desc="Quality." name="q">
              <Val>0</Val>
            </DAI>
-->
            <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" />
          </DOI>
        </LN>
        <LN lnType="ggio_QGateway_7" lnClass="GGIO" inst="0">
          <DOI name="Mod">
            <DAI desc="Status value of the data." name="stVal">
              on
            </DAI>
            <DAI desc="Specifies the control model of " name="ctlModel">
              <Val>status-only</Val>
            </DAI>
          </DOI>
          <DOI name="Beh">
            <DAI desc="Status value of the data." name="stVal">
              on
            </DAI>
          </DOI>
          <DOI name="Health">
            <DAI desc="Status value of the data." name="stVal">
               <Val>Ok</Val>
            </DAI>
          </DOI>
          <DOI name="SPCSO1">
            <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState1" />
            <DAI desc="Quality." name="q" sAddr="N408:RelayState1" />
            <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState1" />
            <DAI desc="Description" name="d">
              <Val>Relay actuated</Val>
            </DAI>
          </DOI>
          <DOI name="RelInv1">
            <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe1" />
            <DAI desc="Description" name="d">
              <Val>Failsafe mode (output is normally on, off when actuated)</Val>
            </DAI>
            <DAI name="dataNs">
              <Val>Neoptix_QGateway.DOC</Val>
            </DAI>
          </DOI>
          <DOI name="SPCSO2">
            <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState2" />
            <DAI desc="Quality." name="q" sAddr="N408:RelayState2" />
            <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState2" />
            <DAI desc="Description" name="d">
              <Val>Relay actuated</Val>
            </DAI>
          </DOI>
          <DOI name="RelInv2">
            <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe2" />
```

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  <DAI desc="Description" name="d">
    <Val>Failsafe mode (output is normally on, off when actuated)</Val>
  </DAI>
  <DAI name="dataNs">
    <Val>Neoptix_QGateway.DOC</Val>
  </DAI>
</DOI>
<DOI name="SPCSO3">
  <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState3" />
  <DAI desc="Quality." name="q" sAddr="N408:RelayState3" />
  <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState3" />
  <DAI desc="Description" name="d">
    <Val>Relay actuated</Val>
  </DAI>
</DOI>
<DOI name="RelInv3">
  <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe3" />
  <DAI desc="Description" name="d">
    <Val>Failsafe mode (output is normally on, off when actuated)</Val>
  </DAI>
  <DAI name="dataNs">
    <Val>Neoptix_QGateway.DOC</Val>
  </DAI>
</DOI>
<DOI name="SPCSO4">
  <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState4" />
  <DAI desc="Quality." name="q" sAddr="N408:RelayState4" />
  <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState4" />
  <DAI desc="Description" name="d">
    <Val>Relay actuated</Val>
  </DAI>
</DOI>
<DOI name="RelInv4">
  <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe4" />
  <DAI desc="Description" name="d">
    <Val>Failsafe mode (output is normally on, off when actuated)</Val>
  </DAI>
  <DAI name="dataNs">
    <Val>Neoptix_QGateway.DOC</Val>
  </DAI>
</DOI>
<DOI name="SPCSO5">
  <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState5" />
  <DAI desc="Quality." name="q" sAddr="N408:RelayState5" />
  <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState5" />
  <DAI desc="Description" name="d">
    <Val>Relay actuated</Val>
  </DAI>
</DOI>
<DOI name="RelInv5">
  <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe5" />
  <DAI desc="Description" name="d">
    <Val>Failsafe mode (output is normally on, off when actuated)</Val>
  </DAI>
  <DAI name="dataNs">
    <Val>Neoptix_QGateway.DOC</Val>
  </DAI>
</DOI>
<DOI name="SPCSO6">
  <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState6" />
  <DAI desc="Quality." name="q" sAddr="N408:RelayState6" />
  <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState6" />
  <DAI desc="Description" name="d">
    <Val>Relay actuated</Val>
  </DAI>
</DOI>
<DOI name="RelInv6">
  <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe6" />
  <DAI desc="Description" name="d">
    <Val>Failsafe mode (output is normally on, off when actuated)</Val>
  </DAI>
  <DAI name="dataNs">
    <Val>Neoptix_QGateway.DOC</Val>
  </DAI>
</DOI>
<DOI name="SPCSO7">
  <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState7" />
  <DAI desc="Quality." name="q" sAddr="N408:RelayState7" />
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    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState7" />
    <DAI desc="Description" name="d">
      <Val>Relay actuated</Val>
    </DAI>
  </DOI>
  <DOI name="RelInv7">
    <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe7" />
    <DAI desc="Description" name="d">
      <Val>Failsafe mode (output is normally on, off when actuated)</Val>
    </DAI>
    <DAI name="dataNs">
      <Val>Neoptix_QGateway.DOC</Val>
    </DAI>
  </DOI>
  <DOI name="SPCSO8">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:RelayState8" />
    <DAI desc="Quality." name="q" sAddr="N408:RelayState8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:RelayState8" />
    <DAI desc="Description" name="d">
      <Val>Relay actuated</Val>
    </DAI>
  </DOI>
  <DOI name="RelInv8">
    <DAI desc="Status value of the data." name="setVal" sAddr="N408:FailSafe8" />
    <DAI desc="Description" name="d">
      <Val>Failsafe mode (output is normally on, off when actuated)</Val>
    </DAI>
    <DAI name="dataNs">
      <Val>Neoptix_QGateway.DOC</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="1">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable1" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable1" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan1status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp1" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp1" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp1" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio1" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio1" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio1" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime1" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime1" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime1" />
```

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      <DAI desc="Description" name="d">
        <Val>Lamp power up time in msecs</Val>
      </DAI>
    </DOI>
    <DOI name="PwrPct">
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanPowerPct1" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct1" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct1" />
      <DAI desc="Description" name="d">
        <Val>Percentage of possible power applied to lamp</Val>
      </DAI>
   </DOI>
    <DOI name="LmpAttn">
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanLampAttn1" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn1" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn1" />
      <DAI desc="Description" name="d">
        <Val>Lamp attenuation</Val>
      </DAI>
   </DOI>
    <DOI name="AoutZero">
      <SDI name="setMag">
        <DAI desc="" name="f" sAddr="N408:AoutZero1" />
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Temperature corresponding to analog out minimum current</Val>
      </DAI>
    </DOI>
    <DOI name="AoutSpan">
      <SDI name="setMag">
        <DAI desc="" name="f" sAddr="N408:AoutSpan1" />
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
      </DAI>
    </DOI>
    <DOI name="Offset">
      <SDI name="setMag">
        <DAI desc="" name="f" sAddr="N408:Offset1" />
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
      </DAI>
   </DOI>
    <DOI name="EEName">
      <DAI desc="Name of the vendor." name="vendor">
        <Val>Neoptix</Val>
      </DAI>
      <DAI desc="Vendor specific product name." name="model">
        <Val>N408:ModelNumber</Val>
      </DAI>
      <DAI desc="Location, where the equipment is installed." name="location">
        <Val>N408:Substation</Val>
      </DAI>
      <DAI desc="Serial number." name="serNum">
        <Val>N408:SerialNumber</Val>
      </DAI>
    </DOI>
    <DOI name="EEHealth">
      <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
      <DAI desc="Quality." name="q" sAddr="N408:CommState" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
      <DAI desc="Description" name="d">
        <Val>Read error for this module</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="1" prefix="Min">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
```

```
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMin1" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin1" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin1" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP1/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MIN</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Minimum value from the input module</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMod">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>TOTAL</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Calculation Mode</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="18" prefix="Max">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
```

```
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax1" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax1" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax1" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP1/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="2">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable2" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable2" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan2status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp2" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp2" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
```

```
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio2" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio2" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime2" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime2" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct2" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct2" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
 </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn2" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn2" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
 </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero2" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan2" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset2" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
 </DOI>
 <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
```

```
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="2" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin2" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin2" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP2/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
```

```
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="19" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax2" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax2" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax2" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP2/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="3">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable3" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
```

```
 <DOI name="Beh">
   <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable3" />
 </DOI>
 <DOI name="Health">
   <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan3status" />
 </DOI>
 <DOI name="TmpSv">
   <SDI name="instMag">
     <DAI desc="" name="f" sAddr="N408:ChanTemp3" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanTemp3" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp3" />
   <SDI name="units">
     <DAI desc="" name="SIUnit">
       <Val>Â°C</Val>
     </DAI>
     <DAI desc="" name="multiplier">
       <Val/>
     </DAI>
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Present value from module</Val>
   </DAI>
 </DOI>
 <DOI name="Ratio">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanRatio3" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanRatio3" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio3" />
   <DAI desc="Description" name="d">
     <Val>Ratio of lamp power to returned power</Val>
   </DAI>
 </DOI>
 <DOI name="CCDMs">
   <DAI name="stVal" sAddr="N408:ChanCCDTime3" />
   <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime3" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime3" />
   <DAI desc="Description" name="d">
     <Val>Lamp power up time in msecs</Val>
   </DAI>
 </DOI>
 <DOI name="PwrPct">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanPowerPct3" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct3" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct3" />
   <DAI desc="Description" name="d">
     <Val>Percentage of possible power applied to lamp</Val>
   </DAI>
</DOI>
 <DOI name="LmpAttn">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanLampAttn3" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn3" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn3" />
   <DAI desc="Description" name="d">
     <Val>Lamp attenuation</Val>
   </DAI>
</DOI>
 <DOI name="AoutZero">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutZero3" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Temperature corresponding to analog out minimum current</Val>
   </DAI>
 </DOI>
 <DOI name="AoutSpan">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutSpan3" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
   </DAI>
 </DOI>
```

```
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset3" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="3" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin3" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin3" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin3" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP3/TmpSv</Val>
    </DAI>
```

```
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MIN</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Minimum value from the input module</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMod">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>TOTAL</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Calculation Mode</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="20" prefix="Max">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMax3" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax3" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax3" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP3/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MAX</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Maximum value from the input module</Val>
```

```
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="4">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable4" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable4" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan4status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp4" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp4" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio4" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio4" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime4" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime4" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct4" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct4" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
 </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn4" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn4" />
    <DAI desc="Description" name="d">
```

```
      <Val>Lamp attenuation</Val>
    </DAI>
  </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero4" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan4" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset4" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="4" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
```

```
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin4" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin4" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP4/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="21" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
```

```
      <DAI desc="" name="f" sAddr="N408:ChanTempMax4" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax4" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax4" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP4/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="5">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable5" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable5" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan5status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp5" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp5" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp5" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio5" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio5" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio5" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime5" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime5" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime5" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
```

```
    </DAI>
   </DOI>
   <DOI name="PwrPct">
     <SDI name="mag">
       <DAI desc="" name="f" sAddr="N408:ChanPowerPct5" />
     </SDI>
     <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct5" />
     <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct5" />
     <DAI desc="Description" name="d">
       <Val>Percentage of possible power applied to lamp</Val>
     </DAI>
  </DOI>
   <DOI name="LmpAttn">
     <SDI name="mag">
       <DAI desc="" name="f" sAddr="N408:ChanLampAttn5" />
     </SDI>
     <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn5" />
     <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn5" />
     <DAI desc="Description" name="d">
       <Val>Lamp attenuation</Val>
     </DAI>
  </DOI>
   <DOI name="AoutZero">
     <SDI name="setMag">
       <DAI desc="" name="f" sAddr="N408:AoutZero5" />
     </SDI>
     <DAI desc="Description" name="d">
       <Val>Temperature corresponding to analog out minimum current</Val>
     </DAI>
   </DOI>
   <DOI name="AoutSpan">
     <SDI name="setMag">
       <DAI desc="" name="f" sAddr="N408:AoutSpan5" />
     </SDI>
     <DAI desc="Description" name="d">
       <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
     </DAI>
   </DOI>
   <DOI name="Offset">
     <SDI name="setMag">
       <DAI desc="" name="f" sAddr="N408:Offset5" />
     </SDI>
     <DAI desc="Description" name="d">
       <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
     </DAI>
  </DOI>
   <DOI name="EEName">
     <DAI desc="Name of the vendor." name="vendor">
       <Val>Neoptix</Val>
     </DAI>
     <DAI desc="Vendor specific product name." name="model">
       <Val>N408:ModelNumber</Val>
     </DAI>
     <DAI desc="Location, where the equipment is installed." name="location">
       <Val>N408:Substation</Val>
     </DAI>
     <DAI desc="Serial number." name="serNum">
       <Val>N408:SerialNumber</Val>
     </DAI>
   </DOI>
   <DOI name="EEHealth">
     <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
     <DAI desc="Quality." name="q" sAddr="N408:CommState" />
     <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
     <DAI desc="Description" name="d">
       <Val>Read error for this module</Val>
     </DAI>
   </DOI>
 </LN>
 <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="5" prefix="Min">
   <DOI name="Mod">
     <DAI desc="Status value of the data." name="stVal">
       <Val>on</Val>
     </DAI>
     <DAI name="ctlModel">
       <Val>status-only</Val>
     </DAI>
     <DAI name="d">
```

```
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin5" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin5" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin5" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP5/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="22" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
```

```
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax5" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax5" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax5" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP5/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="6">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable6" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable6" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan6status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp6" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp6" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
```

```
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio6" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio6" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime6" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime6" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct6" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct6" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
</DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn6" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn6" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
</DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero6" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan6" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset6" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
</DOI>
<DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
```

```
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="6" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin6" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin6" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP6/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
```

```
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="23" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax6" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax6" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax6" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP6/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="7">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable7" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable7" />
```

```
 </DOI>
 <DOI name="Health">
   <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan7status" />
 </DOI>
 <DOI name="TmpSv">
   <SDI name="instMag">
     <DAI desc="" name="f" sAddr="N408:ChanTemp7" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanTemp7" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp7" />
   <SDI name="units">
     <DAI desc="" name="SIUnit">
       <Val>Â°C</Val>
     </DAI>
     <DAI desc="" name="multiplier">
       <Val/>
     </DAI>
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Present value from module</Val>
   </DAI>
 </DOI>
 <DOI name="Ratio">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanRatio7" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanRatio7" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio7" />
   <DAI desc="Description" name="d">
     <Val>Ratio of lamp power to returned power</Val>
   </DAI>
 </DOI>
 <DOI name="CCDMs">
   <DAI name="stVal" sAddr="N408:ChanCCDTime7" />
   <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime7" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime7" />
   <DAI desc="Description" name="d">
     <Val>Lamp power up time in msecs</Val>
   </DAI>
 </DOI>
 <DOI name="PwrPct">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanPowerPct7" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct7" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct7" />
   <DAI desc="Description" name="d">
     <Val>Percentage of possible power applied to lamp</Val>
   </DAI>
</DOI>
 <DOI name="LmpAttn">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanLampAttn7" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn7" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn7" />
   <DAI desc="Description" name="d">
     <Val>Lamp attenuation</Val>
   </DAI>
</DOI>
 <DOI name="AoutZero">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutZero7" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Temperature corresponding to analog out minimum current</Val>
   </DAI>
 </DOI>
 <DOI name="AoutSpan">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutSpan7" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
   </DAI>
 </DOI>
 <DOI name="Offset">
   <SDI name="setMag">
```

```
      <DAI desc="" name="f" sAddr="N408:Offset7" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="7" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin7" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin7" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin7" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP7/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
```

```
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MIN</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Minimum value from the input module</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMod">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>TOTAL</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Calculation Mode</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="24" prefix="Max">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMax7" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax7" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax7" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP7/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MAX</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Maximum value from the input module</Val>
      </DAI>
    </DOI>
```

```
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="8">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable8" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable8" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan8status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp8" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp8" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio8" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio8" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime8" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime8" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct8" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct8" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
 </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn8" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn8" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
```

```
 </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero8" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan8" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset8" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
 </DOI>
 <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="8" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
```

```
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin8" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin8" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP8/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="25" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax8" />
    </SDI>
```

```
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax8" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax8" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP8/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="9">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable9" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable9" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan9status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp9" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp9" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp9" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio9" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio9" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio9" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime9" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime9" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime9" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
```

```
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct9" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct9" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct9" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
  </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn9" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn9" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn9" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
  </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero9" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan9" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset9" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="9" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
```

```
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMin9" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin9" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin9" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP9/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MIN</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Minimum value from the input module</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMod">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>TOTAL</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Calculation Mode</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="26" prefix="Max">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
```

```
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax9" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax9" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax9" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP9/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="10">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable10" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable10" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan10status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp10" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp10" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp10" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
```

```
 </DOI>
 <DOI name="Ratio">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanRatio10" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanRatio10" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio10" />
   <DAI desc="Description" name="d">
     <Val>Ratio of lamp power to returned power</Val>
   </DAI>
 </DOI>
 <DOI name="CCDMs">
   <DAI name="stVal" sAddr="N408:ChanCCDTime10" />
   <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime10" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime10" />
   <DAI desc="Description" name="d">
     <Val>Lamp power up time in msecs</Val>
   </DAI>
 </DOI>
 <DOI name="PwrPct">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanPowerPct10" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct10" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct10" />
   <DAI desc="Description" name="d">
     <Val>Percentage of possible power applied to lamp</Val>
   </DAI>
</DOI>
 <DOI name="LmpAttn">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanLampAttn10" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn10" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn10" />
   <DAI desc="Description" name="d">
     <Val>Lamp attenuation</Val>
   </DAI>
</DOI>
 <DOI name="AoutZero">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutZero10" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Temperature corresponding to analog out minimum current</Val>
   </DAI>
 </DOI>
 <DOI name="AoutSpan">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutSpan10" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
   </DAI>
 </DOI>
 <DOI name="Offset">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:Offset10" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
   </DAI>
</DOI>
<DOI name="EEName">
   <DAI desc="Name of the vendor." name="vendor">
     <Val>Neoptix</Val>
   </DAI>
   <DAI desc="Vendor specific product name." name="model">
     <Val>N408:ModelNumber</Val>
   </DAI>
   <DAI desc="Location, where the equipment is installed." name="location">
     <Val>N408:Substation</Val>
   </DAI>
   <DAI desc="Serial number." name="serNum">
     <Val>N408:SerialNumber</Val>
   </DAI>
 </DOI>
 <DOI name="EEHealth">
```

```
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="10" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin10" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin10" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin10" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP10/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="27" prefix="Max">
  <DOI name="Mod">
```

```
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax10" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax10" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax10" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP10/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="11">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable11" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable11" />
  </DOI>
  <DOI name="Health">
```

```
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan11status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp11" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp11" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio11" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio11" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime11" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime11" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct11" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct11" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
 </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn11" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn11" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
 </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero11" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan11" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset11" />
    </SDI>
```

```
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="11" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin11" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin11" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP11/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
```

```
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="28" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax11" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax11" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax11" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP11/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
```

```
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="12">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable12" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable12" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan12status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp12" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp12" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio12" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio12" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime12" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime12" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct12" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct12" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
 </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn12" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn12" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
 </DOI>
  <DOI name="AoutZero">
```

```
      <SDI name="setMag">
        <DAI desc="" name="f" sAddr="N408:AoutZero12" />
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Temperature corresponding to analog out minimum current</Val>
      </DAI>
    </DOI>
    <DOI name="AoutSpan">
      <SDI name="setMag">
        <DAI desc="" name="f" sAddr="N408:AoutSpan12" />
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
      </DAI>
    </DOI>
    <DOI name="Offset">
      <SDI name="setMag">
        <DAI desc="" name="f" sAddr="N408:Offset12" />
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
      </DAI>
   </DOI>
   <DOI name="EEName">
      <DAI desc="Name of the vendor." name="vendor">
        <Val>Neoptix</Val>
      </DAI>
      <DAI desc="Vendor specific product name." name="model">
        <Val>N408:ModelNumber</Val>
      </DAI>
      <DAI desc="Location, where the equipment is installed." name="location">
        <Val>N408:Substation</Val>
      </DAI>
      <DAI desc="Serial number." name="serNum">
        <Val>N408:SerialNumber</Val>
      </DAI>
    </DOI>
    <DOI name="EEHealth">
      <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
      <DAI desc="Quality." name="q" sAddr="N408:CommState" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
      <DAI desc="Description" name="d">
        <Val>Read error for this module</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="12" prefix="Min">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
```

```
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin12" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin12" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP12/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="29" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax12" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax12" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax12" />
```

```
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP12/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="13">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable13" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable13" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan13status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp13" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp13" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp13" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio13" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio13" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio13" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime13" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime13" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime13" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
```

```
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct13" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct13" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct13" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
  </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn13" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn13" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn13" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
  </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero13" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan13" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset13" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="13" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
```

```
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMin13" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin13" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin13" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP13/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MIN</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Minimum value from the input module</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMod">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>TOTAL</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Calculation Mode</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="30" prefix="Max">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
```

```
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMax13" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax13" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax13" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP13/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>MAX</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Maximum value from the input module</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMod">
      <DAI desc="The value of a status setting." name="setVal">
        <Val>TOTAL</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>Calculation Mode</Val>
      </DAI>
    </DOI>
  </LN>

  <LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="14">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable14" />
      <DAI desc="Specifies the control model of " name="ctlModel">
        <Val>status-only</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable14" />
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan14status" />
    </DOI>
    <DOI name="TmpSv">
      <SDI name="instMag">
        <DAI desc="" name="f" sAddr="N408:ChanTemp14" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTemp14" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp14" />
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <DAI desc="Description" name="d">
        <Val>Present value from module</Val>
      </DAI>
    </DOI>
    <DOI name="Ratio">
```

```
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio14" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio14" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio14" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime14" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime14" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime14" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct14" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct14" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct14" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
  </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn14" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn14" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn14" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
  </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero14" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan14" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset14" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
  </DOI>
  <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
      <Val>N408:SerialNumber</Val>
    </DAI>
  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
```

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    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="14" prefix="Min">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin14" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin14" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin14" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP14/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="31" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
```

```
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax14" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax14" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax14" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP14/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="15">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable15" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable15" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan15status" />
  </DOI>
```

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 <DOI name="TmpSv">
   <SDI name="instMag">
     <DAI desc="" name="f" sAddr="N408:ChanTemp15" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanTemp15" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp15" />
   <SDI name="units">
     <DAI desc="" name="SIUnit">
       <Val>Â°C</Val>
     </DAI>
     <DAI desc="" name="multiplier">
       <Val/>
     </DAI>
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Present value from module</Val>
   </DAI>
 </DOI>
 <DOI name="Ratio">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanRatio15" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanRatio15" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio15" />
   <DAI desc="Description" name="d">
     <Val>Ratio of lamp power to returned power</Val>
   </DAI>
 </DOI>
 <DOI name="CCDMs">
   <DAI name="stVal" sAddr="N408:ChanCCDTime15" />
   <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime15" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime15" />
   <DAI desc="Description" name="d">
     <Val>Lamp power up time in msecs</Val>
   </DAI>
 </DOI>
 <DOI name="PwrPct">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanPowerPct15" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct15" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct15" />
   <DAI desc="Description" name="d">
     <Val>Percentage of possible power applied to lamp</Val>
   </DAI>
</DOI>
 <DOI name="LmpAttn">
   <SDI name="mag">
     <DAI desc="" name="f" sAddr="N408:ChanLampAttn15" />
   </SDI>
   <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn15" />
   <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn15" />
   <DAI desc="Description" name="d">
     <Val>Lamp attenuation</Val>
   </DAI>
</DOI>
 <DOI name="AoutZero">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutZero15" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Temperature corresponding to analog out minimum current</Val>
   </DAI>
 </DOI>
 <DOI name="AoutSpan">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:AoutSpan15" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
   </DAI>
 </DOI>
 <DOI name="Offset">
   <SDI name="setMag">
     <DAI desc="" name="f" sAddr="N408:Offset15" />
   </SDI>
   <DAI desc="Description" name="d">
     <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
```

```
      </DAI>
    </DOI>
    <DOI name="EEName">
      <DAI desc="Name of the vendor." name="vendor">
        <Val>Neoptix</Val>
      </DAI>
      <DAI desc="Vendor specific product name." name="model">
        <Val>N408:ModelNumber</Val>
      </DAI>
      <DAI desc="Location, where the equipment is installed." name="location">
        <Val>N408:Substation</Val>
      </DAI>
      <DAI desc="Serial number." name="serNum">
        <Val>N408:SerialNumber</Val>
      </DAI>
    </DOI>
    <DOI name="EEHealth">
      <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
      <DAI desc="Quality." name="q" sAddr="N408:CommState" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
      <DAI desc="Description" name="d">
        <Val>Read error for this module</Val>
      </DAI>
    </DOI>
  </LN>
  <LN lnType="stmp_QGateway_0" lnClass="STMP" inst="15" prefix="Min">
    <DOI name="Mod">
      <DAI desc="Status value of the data." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="ctlModel">
        <Val>status-only</Val>
      </DAI>
      <DAI name="d">
        <Val>Enable operation</Val>
      </DAI>
    </DOI>
    <DOI name="Beh">
      <DAI desc="Operating mode." name="stVal">
        <Val>on</Val>
      </DAI>
      <DAI name="d">
        <Val>Device is operating</Val>
      </DAI>
    </DOI>
    <DOI name="Health">
      <DAI desc="Status value of the data." name="stVal">
        <Val>Ok</Val>
      </DAI>
      <DAI name="d">
        <Val>Operational status</Val>
      </DAI>
    </DOI>
    <DOI name="Tmp">
      <SDI name="units">
        <DAI desc="" name="SIUnit">
          <Val>Â°C</Val>
        </DAI>
        <DAI desc="" name="multiplier">
          <Val/>
        </DAI>
      </SDI>
      <SDI name="mag">
        <DAI desc="" name="f" sAddr="N408:ChanTempMin15" />
      </SDI>
      <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin15" />
      <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin15" />
    </DOI>
    <DOI name="ClcSrc">
      <DAI desc="" name="setRef">
        <Val>N408:TTMP15/TmpSv</Val>
      </DAI>
      <DAI desc="Description" name="d">
        <Val>The LN supplying the value to the calculation</Val>
      </DAI>
    </DOI>
    <DOI name="ClcMth">
      <DAI desc="The value of a status setting." name="setVal">
```

```
      <Val>MIN</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>
<LN lnType="stmp_QGateway_0" lnClass="STMP" inst="32" prefix="Max">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax15" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax15" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax15" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
      <Val>N408:TTMP15/TmpSv</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MAX</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Maximum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
```

```
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
    </DAI>
  </DOI>
</LN>

<LN lnType="ttmp_QGateway_2" lnClass="TTMP" inst="16">
  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable16" />
    <DAI desc="Specifies the control model of " name="ctlModel">
      <Val>status-only</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:ChanEnable16" />
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:Chan16status" />
  </DOI>
  <DOI name="TmpSv">
    <SDI name="instMag">
      <DAI desc="" name="f" sAddr="N408:ChanTemp16" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTemp16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTemp16" />
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
        <Val/>
      </DAI>
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Present value from module</Val>
    </DAI>
  </DOI>
  <DOI name="Ratio">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanRatio16" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanRatio16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanRatio16" />
    <DAI desc="Description" name="d">
      <Val>Ratio of lamp power to returned power</Val>
    </DAI>
  </DOI>
  <DOI name="CCDMs">
    <DAI name="stVal" sAddr="N408:ChanCCDTime16" />
    <DAI desc="Quality." name="q" sAddr="N408:ChanCCDTime16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanCCDTime16" />
    <DAI desc="Description" name="d">
      <Val>Lamp power up time in msecs</Val>
    </DAI>
  </DOI>
  <DOI name="PwrPct">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanPowerPct16" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanPowerPct16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanPowerPct16" />
    <DAI desc="Description" name="d">
      <Val>Percentage of possible power applied to lamp</Val>
    </DAI>
 </DOI>
  <DOI name="LmpAttn">
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanLampAttn16" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanLampAttn16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanLampAttn16" />
    <DAI desc="Description" name="d">
      <Val>Lamp attenuation</Val>
    </DAI>
 </DOI>
  <DOI name="AoutZero">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutZero16" />
```

```
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Temperature corresponding to analog out minimum current</Val>
    </DAI>
  </DOI>
  <DOI name="AoutSpan">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:AoutSpan16" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Degrees diffenrence from AoutZero corresponding to analog output maximum current</Val>
    </DAI>
  </DOI>
  <DOI name="Offset">
    <SDI name="setMag">
      <DAI desc="" name="f" sAddr="N408:Offset16" />
    </SDI>
    <DAI desc="Description" name="d">
      <Val>Manual adjustment added to temperature reading when presenting temperatures</Val>
    </DAI>
 </DOI>
 <DOI name="EEName">
    <DAI desc="Name of the vendor." name="vendor">
      <Val>Neoptix</Val>
    </DAI>
    <DAI desc="Vendor specific product name." name="model">
      <Val>N408:ModelNumber</Val>
    </DAI>
    <DAI desc="Location, where the equipment is installed." name="location">
      <Val>N408:Substation</Val>
    </DAI>
    <DAI desc="Serial number." name="serNum">
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  </DOI>
  <DOI name="EEHealth">
    <DAI desc="Status value of the data." name="stVal" sAddr="N408:CommState" />
    <DAI desc="Quality." name="q" sAddr="N408:CommState" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:CommState" />
    <DAI desc="Description" name="d">
      <Val>Read error for this module</Val>
    </DAI>
  </DOI>
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  <DOI name="Mod">
    <DAI desc="Status value of the data." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
  </DOI>
  <DOI name="Tmp">
    <SDI name="units">
      <DAI desc="" name="SIUnit">
        <Val>Â°C</Val>
      </DAI>
      <DAI desc="" name="multiplier">
```

```
        <Val/>
      </DAI>
    </SDI>
    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMin16" />
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    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMin16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMin16" />
  </DOI>
  <DOI name="ClcSrc">
    <DAI desc="" name="setRef">
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    </DAI>
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      <Val>The LN supplying the value to the calculation</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMth">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>MIN</Val>
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    <DAI desc="Description" name="d">
      <Val>Minimum value from the input module</Val>
    </DAI>
  </DOI>
  <DOI name="ClcMod">
    <DAI desc="The value of a status setting." name="setVal">
      <Val>TOTAL</Val>
    </DAI>
    <DAI desc="Description" name="d">
      <Val>Calculation Mode</Val>
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      <Val>on</Val>
    </DAI>
    <DAI name="ctlModel">
      <Val>status-only</Val>
    </DAI>
    <DAI name="d">
      <Val>Enable operation</Val>
    </DAI>
  </DOI>
  <DOI name="Beh">
    <DAI desc="Operating mode." name="stVal">
      <Val>on</Val>
    </DAI>
    <DAI name="d">
      <Val>Device is operating</Val>
    </DAI>
  </DOI>
  <DOI name="Health">
    <DAI desc="Status value of the data." name="stVal">
      <Val>Ok</Val>
    </DAI>
    <DAI name="d">
      <Val>Operational status</Val>
    </DAI>
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  <DOI name="Tmp">
    <SDI name="units">
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        <Val>Â°C</Val>
      </DAI>
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    <SDI name="mag">
      <DAI desc="" name="f" sAddr="N408:ChanTempMax16" />
    </SDI>
    <DAI desc="Quality." name="q" sAddr="N408:ChanTempMax16" />
    <DAI desc="Timestamp of the last change in the value of the data or in the q attribute" name="t" sAddr="N408:ChanTempMax16" />
  </DOI>
  <DOI name="ClcSrc">
```

```
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              <Val>N408:TTMP16/TmpSv</Val>
            </DAI>
            <DAI desc="Description" name="d">
              <Val>The LN supplying the value to the calculation</Val>
            </DAI>
          </DOI>
          <DOI name="ClcMth">
            <DAI desc="The value of a status setting." name="setVal">
              <Val>MAX</Val>
            </DAI>
            <DAI desc="Description" name="d">
              <Val>Maximum value from the input module</Val>
            </DAI>
          </DOI>
          <DOI name="ClcMod">
            <DAI desc="The value of a status setting." name="setVal">
              <Val>TOTAL</Val>
            </DAI>
            <DAI desc="Description" name="d">
              <Val>Calculation Mode</Val>
            </DAI>
          </DOI>
        </LN>

      </LDevice>
    </Server>
  </AccessPoint>
</IED>
<DataTypeTemplates>
  <LNodeType id="lln0_QGateway" iedType="QGateway" lnClass="LLN0">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Local operation for complete logical device" name="LocKey" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Switching authority at station level" name="LocSta" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Local Control Behavior" name="Loc" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Operation time" name="OpTmh" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="Run Diagnostics" name="Diag" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="LED reset" name="LEDRs" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Select mode of authority for local control " name="MltLev" type="spg_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="lphd_QGateway" iedType="QGateway" lnClass="LPHD">
    <DO desc="Physical device name plate" name="PhyNam" type="dpl_Ed2_CDV_1" accessControl="" />
    <DO desc="Physical device health" name="PhyHealth" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Output communications buffer overflow" name="OutOv" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Indicates if this LN is a proxy" name="Proxy" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Input communications buffer overflow" name="InOv" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Number of Power ups" name="NumPwrUp" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="Number of Warm Starts" name="WrmStr" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="Number of watchdog device resets detected " name="WacTrg" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="Power Up detected" name="PwrUp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Power Down detected" name="PwrDn" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="External power supply alarm" name="PwrSupAlm" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Reset device statistics" name="RsStat" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Time of next change to daylight saving time" name="TmChgDTm" type="tsg_Ed2_CDV" accessControl="" />
    <DO desc="Time of next change to standard time " name="TmChgSTm" type="tsg_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="ggio_QGateway" iedType="QGateway" lnClass="GGIO">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Start calculation at time operTm" name="ClcStr" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV" accessControl="" />
    <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV" accessControl="" />
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    <DO desc="Calculation interval typ" name="ClcIntvTyp" type="engItv_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period in milliseconds. " name="ClcP" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Calculation " name="ClcTyp" type="engTyp_Ed2_CDV" accessControl="" />
    <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="External equipment health (external sensor)" name="EEHealth" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
    <DO desc="Local or remote key" name="LocKey" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Remote Control Blocked" name="LocSta" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Local Control Behavior" name="Loc" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Resetable operation counter" name="OpCntRs" type="inc_Ed2_CDV" accessControl="" />
    <DO desc="Analogue input" name="AnIn1" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Controllable analogue output" name="AnOut1" type="apc_Ed2_CDV" accessControl="" />
    <DO desc="Single point controllable status output" name="SPCSO1" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Double point controllable status output" name="DPCSO1" type="dpc_Ed2_CDV" accessControl="" />
    <DO desc="Integer status controllable status output" name="ISCSO1" type="inc_Ed2_CDV" accessControl="" />
    <DO desc="Counter, resetable" name="CntRs1" type="bcr_Ed2_CDV" accessControl="" />
    <DO desc="Integer status input" name="IntIn1" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="General single alarm " name="Alm1" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="General single warning" name="Wrn1" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="General indication (binary input)" name="Ind1" type="sps_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="mmdc_QGateway" iedType="QGateway" lnClass="MMDC">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Start calculation at time operTm" name="ClcStr" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV" accessControl="" />
    <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV" accessControl="" />
    <DO desc="Calculation interval typ" name="ClcIntvTyp" type="engItv_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period in milliseconds. " name="ClcP" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Calculation " name="ClcTyp" type="engTyp_Ed2_CDV" accessControl="" />
    <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Power" name="Watt" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Current (DC current)" name="Amp" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Voltage (DC voltage) between poles" name="Vol" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Voltage between positive pole and earth" name="VolPsGnd" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Voltage between negative pole and earth" name="VolNgGnd" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Resistance in DC circuit" name="Ris" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Resistance between positive pole and earth" name="RisPsGnd" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Resistance between negative pole and earth" name="RisNgGnd" type="mv_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="mmxn_QGateway" iedType="QGateway" lnClass="MMXN">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Start calculation at time operTm" name="ClcStr" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV" accessControl="" />
    <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV" accessControl="" />
    <DO desc="Calculation interval typ" name="ClcIntvTyp" type="engItv_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period in milliseconds. " name="ClcP" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Calculation " name="ClcTyp" type="engMod_Ed2_CDV" accessControl="" />
    <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Current I not allocated to a phase" name="Amp" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Voltage V not allocated to a phase" name="Vol" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Power (P) not allocated to a phase" name="Watt" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Reactive Power (Q) not allocated to a phase" name="VolAmpr" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Apparent Power (S) not allocated to a phase" name="VolAmp" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Power Factor not allocated to a phase" name="PwrFact" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Impedance" name="Imp" type="cmv_Ed2_CDV" accessControl="" />
    <DO desc="Frequency" name="Hz" type="mv_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="ccgr_QGateway" iedType="QGateway" lnClass="CCGR">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
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    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Start calculation at time operTm" name="ClcStr" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV" accessControl="" />
    <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV" accessControl="" />
    <DO desc="Calculation interval typ" name="ClcIntvTyp" type="engItv_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period in milliseconds. " name="ClcP" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Calculation " name="ClcTyp" type="engMod_Ed2_CDV" accessControl="" />
    <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
    <DO desc="Operation time" name="OpTmh" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="Temperature of environment" name="EnvTmp" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Oil temperature cooler in" name="OilTmpIn" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Oil temperature cooler out" name="OilTmpOut" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Oil circulation motor drive current" name="OilMotA" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Air flow in fan" name="FanFlw" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Temperature of secundary cooling medium in" name="CETmpIn" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Temperature of secundary cooling medium out" name="CETmpOut" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Pressure of secundary cooling medium" name="CEPres" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Flow of secundary cooling medium" name="CEFlw" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Motor drive current fan" name="FanA" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Control of automatic / manual operation" name="CGRBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Control of complete cooling group (pumps and fans)" name="CECtl" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Control of all pumps" name="PmpCtlGen" type="enc_ccgr_Ed2_CDV" accessControl="" />
    <DO desc="Control of a single pump" name="PmpCtl" type="enc_ccgr_Ed2_CDV" accessControl="" />
    <DO desc="Control of all fans" name="FanCtlGen" type="enc_ccgr_Ed2_CDV" accessControl="" />
    <DO desc="Control of a single fan" name="FanCtl" type="enc_ccgr_Ed2_CDV" accessControl="" />
    <DO desc="Automatic or manual" name="Auto" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Fan overcurrent trip" name="FanOvCur" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Pump overcurrent trip" name="PmpOvCur" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Loss of pump" name="PmpAlm" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Set point for oil temperature" name="OilTmpSet" type="asg_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="kfan_QGateway" iedType="QGateway" lnClass="KFAN">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Start calculation at time operTm" name="ClcStr" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV" accessControl="" />
    <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV" accessControl="" />
    <DO desc="Calculation interval typ" name="ClcIntvTyp" type="engItv_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period in milliseconds. " name="ClcP" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Calculation " name="ClcTyp" type="engTyp_Ed2_CDV" accessControl="" />
    <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="External equipment nameplate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
    <DO desc="Operation time" name="OpTmh" type="ins_Ed2_CDV" accessControl="" />
    <DO desc="Minimum operation time in minutes" name="MinOpTmm" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Maximum operation time in minutes" name="MaxOpTmm" type="ing_Ed2_CDV" accessControl="" />
    <DO desc="Rotational speed of the fan" name="Spd" type="mv_Ed2_CDV" accessControl="" />
    <DO desc="Operate fan" name="Ope" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Speed set-point (in case of speed regulated motor)" name="SpdSpt" type="apc_Ed2_CDV" accessControl="" />
  </LNodeType>
  <LNodeType id="kpmp_QGateway" iedType="QGateway" lnClass="KPMP">
    <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
    <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
    <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
    <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
    <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
    <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
    <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
    <DO desc="Calculation period expired" name="ClcExp" type="sps_Ed2_CDV" accessControl="" />
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  <DO desc="Start calculation at time operTm" name="ClcStr" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV" accessControl="" />
  <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV" accessControl="" />
  <DO desc="Calculation interval typ" name="ClcIntvTyp" type="engItv_Ed2_CDV" accessControl="" />
  <DO desc="Calculation period in milliseconds. " name="ClcP" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Calculation " name="ClcTyp" type="engTyp_Ed2_CDV" accessControl="" />
  <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV" accessControl="" />
  <DO desc="External equipment nameplate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Operation time" name="OpTmh" type="ins_Ed2_CDV" accessControl="" />
  <DO desc="Minimum operation time in minutes" name="MinOpTmm" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Maximum operation time in minutes" name="MaxOpTmm" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Rotational speed of the pump" name="Spd" type="mv_Ed2_CDV" accessControl="" />
  <DO desc="Operate pump" name="Oper" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Speed set-point (in case of speed regulated motor)" name="SpdSpt" type="apc_Ed2_CDV" accessControl="" />
</LNodeType>
<LNodeType id="glog_QGateway" iedType="QGateway" lnClass="GLOG">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
  <DO desc="General input" name="InRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
  <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Counts the events logged (resettable)" name="OpCntRs" type="inc_Ed2_CDV" accessControl="" />
  <DO desc="TriggerLogging by operator" name="LogTrg" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Reference to Log" name="LogRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Trigger reference shows the receiving trigger signal" name="TrgRef1" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Reference to data objects / data attributes to include in LOG acc. " name="InRef1" type="org_Ed2_CDV" accessControl="" />
</LNodeType>
<LNodeType id="rdre_QGateway" iedType="QGateway" lnClass="RDRE">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
  <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
  <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Trigger recorder" name="RcdTrg" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Reset recorder memory" name="MemRs" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Clear Memory" name="MemClr" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Resetable operation counter" name="OpCntRs" type="inc_Ed2_CDV" accessControl="" />
  <DO desc="Recording made" name="RcdMade" type="sps_Ed2_CDV" accessControl="" />
  <DO desc="Fault Number" name="FltNum" type="ins_Ed2_CDV" accessControl="" />
  <DO desc="Grid Fault Number" name="GriFltNum" type="ins_Ed2_CDV" accessControl="" />
  <DO desc="Recording started" name="RcdStr" type="sps_Ed2_CDV" accessControl="" />
  <DO desc="Memory used in %" name="MemUsed" type="ins_Ed2_CDV" accessControl="" />
  <DO desc="Trigger mode (internal trigger, external or both)" name="TrgMod" type="engTrg_Ed2_CDV" accessControl="" />
  <DO desc="Level Trigger Mode" name="LevMod" type="engLev_Ed2_CDV" accessControl="" />
  <DO desc="Pre-trigger time" name="PreTmms" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Post-trigger time" name="PstTmms" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Memory full level" name="MemFull" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Maximum number of records" name="MaxNumRcd" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Retrigger Mode" name="ReTrgMod" type="engRet_Ed2_CDV" accessControl="" />
  <DO desc="Periodic trigger time in s" name="PerTrgTms" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Exclusion time" name="ExclTmms" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Operation mode (Saturation, Overwrite)" name="OpMod" type="engOp_Ed2_CDV" accessControl="" />
  <DO desc="Storage rate, i.e. sampling rate of the disturbance recorder" name="StoRte" type="ing_Ed2_CDV" accessControl="" />
</LNodeType>
<LNodeType id="rbdr_QGateway" iedType="QGateway" lnClass="RBDR">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV" accessControl="" />
  <DO desc="General input" name="InRef1" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Blocking reference shows the receiving" name="BlkRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Dynamically blocking of function described by the LN" name="Blk" type="sps_Ed2_CDV" accessControl="" />
  <DO desc="Blocking of control sequences of controllable data objects" name="CmdBlk" type="spc_Ed2_CDV" accessControl="" />
  <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV" accessControl="" />
  <DO desc="Channel triggered" name="ChTrg" type="sps_Ed2_CDV" accessControl="" />
  <DO desc="Resetable operation counter" name="OpCntRs" type="inc_Ed2_CDV" accessControl="" />
  <DO desc="Channel number" name="ChNum" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Trigger mode (internal trigger, external or both)" name="TrgMod" type="engTrg_Ed2_CDV" accessControl="" />
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  <DO desc="Level Trigger Mode" name="LevMod" type="engLev_Ed2_CDV" accessControl="" />
  <DO desc="Pre-trigger time" name="PreTmms" type="ing_Ed2_CDV" accessControl="" />
  <DO desc="Post-trigger time" name="PstTmms" type="ing_Ed2_CDV" accessControl="" />
</LNodeType>
<LNodeType id="lln0_QGateway_1" iedType="QGateway" lnClass="LLN0">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
</LNodeType>
<LNodeType id="lphd_QGateway_0" iedType="QGateway" lnClass="LPHD">
  <DO desc="Physical device name plate" name="PhyNam" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Physical device health" name="PhyHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Indicates if this LN is a proxy" name="Proxy" type="sps_Ed2_CDV_0" accessControl="" />
  <DO desc="Reset input module Max/Min values" name="MaxMinRs" type="spc_Ed2_CDV_1" accessControl="" />
  <DO desc="Reset Cooling Monitor Max/Min values" name="CMMaxMinRs" type="spc_Ed2_CDV_1" accessControl="" />
  <DO desc="Reset latched relays" name="RelayRs" type="spc_Ed2_CDV_1" accessControl="" />
</LNodeType>
<LNodeType id="lphd_QGateway_1" iedType="QGateway" lnClass="LPHD">
  <DO desc="Physical device name plate" name="PhyNam" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Physical device health" name="PhyHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Indicates if this LN is a proxy" name="Proxy" type="sps_Ed2_CDV_0" accessControl="" />
</LNodeType>
<LNodeType id="ttmp_QGateway_1" iedType="QGateway" lnClass="TTMP">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Temperature" name="TmpSv" type="sav_Ed2_CDV_2" accessControl="" />
</LNodeType>
<LNodeType id="ttmp_QGateway_2" iedType="QGateway" lnClass="TTMP">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Temperature" name="TmpSv" type="sav_Ed2_CDV_2" accessControl="" />
  <DO desc="Ratio of returned value signal strength" name="Ratio" type="mv_Ed2_CDV_2" accessControl="" />
  <DO desc="CCD integration time in milliseconds" name="CCDMs" type="ins_Ed2_CDV_1" accessControl="" />
  <DO desc="Power percentage" name="PwrPct" type="mv_Ed2_CDV_2" accessControl="" />
  <DO desc="Lamp attenuation" name="LmpAttn" type="mv_Ed2_CDV_2" accessControl="" />
  <DO desc="Analog output current corresponding to 0 degrees" name="AoutZero" type="asg_Ed2_CDV_3" accessControl="" />
  <DO desc="Degrees corresponding to analog output max current" name="AoutSpan" type="asg_Ed2_CDV_3" accessControl="" />
  <DO desc="Analog reading manual offset" name="Offset" type="asg_Ed2_CDV_3" accessControl="" />
</LNodeType>
<LNodeType id="ttmp_QGateway_3" iedType="QGateway" lnClass="TTMP">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Temperature" name="TmpSv" type="sav_Ed2_CDV_2" accessControl="" />
</LNodeType>
<LNodeType id="tvtr_QGateway_0" iedType="QGateway" lnClass="TVTR">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Voltage (sampled value)" name="VolSv" type="sav_Ed2_CDV_2" accessControl="" />
</LNodeType>
<LNodeType id="ggio_QGateway_1" iedType="QGateway" lnClass="GGIO">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health (external sensor)" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="General indication (binary input)" name="Ind1" type="sps_Ed2_CDV_0" accessControl="" />
</LNodeType>
<LNodeType id="ggio_QGateway_2" iedType="QGateway" lnClass="GGIO">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health (external sensor)" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
```

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      <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
      <DO desc="General indication (integer input)" name="IntIn1" type="sps_Ed2_CDV_0" accessControl="" />
    </LNodeType>
    <LNodeType id="ggio_QGateway_3" iedType="QGateway" lnClass="GGIO">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Control value input parameter 1" name="InRef1" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Control value input parameter 2" name="InRef2" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Control value input parameter 3" name="InRef3" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Controlable analog output" accessControl="" name="AnOut1" type="apc_Ed2_CDV_0" transient="false"/>
      <DO desc="Control value input operator 1" name="Op1" type="eng_opertype_Ed2_CDV" accessControl="" />
      <DO desc="Control value input operator 2" name="Op2" type="eng_opertype_Ed2_CDV" accessControl="" />
      <DO desc="Output value range clamping enabled" name="RngEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Maximum clamped output value" name="RngMax" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Maximum clamped output value" name="RngMin" type="asg_Ed2_CDV_5" accessControl="" />
<!-- don't use this for now - 0-1 mA or 4-20 mA choice
      <DO desc="Output control loop type" name="OutTyp" type="eng_looptype_Ed2_CDV" accessControl="" />
-->
    </LNodeType>
    <LNodeType id="ggio_QGateway_4" iedType="QGateway" lnClass="GGIO">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Controlable binary output" accessControl="" name="SPCSO1" type="spc_Ed2_CDV_0" transient="false"/>
      <DO desc="Control value input parameter 1" name="InRef1" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Control value input parameter 2" name="InRef2" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Control value input parameter 3" name="InRef3" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Control value input parameter 4" name="InRef4" type="org_Ed2_CDV_0" accessControl="" />
<!-- not for now - I think this should refer back to controlling relay (gotten from his configuration!)
      <DO desc="Bank switch control relay 4" name="InRef5" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Bankswitch enabled" name="BkswEnb" type="spg_Ed2_CDV_1" accessControl="" />
-->
      <DO desc="Control value setpoint 1" name="InSet1" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint 2" name="InSet2" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint 3" name="InSet3" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint 4" name="InSet4" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint hysteresis 1" name="InHys1" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint hysteresis 2" name="InHys2" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint hysteresis 3" name="InHys3" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint hysteresis 4" name="InHys4" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Control value setpoint hyst direction 1" name="InDir1" type="eng_hysdirtype_Ed2_CDV" accessControl="" />
      <DO desc="Control value setpoint hyst direction 2" name="InDir2" type="eng_hysdirtype_Ed2_CDV" accessControl="" />
      <DO desc="Control value setpoint hyst direction 3" name="InDir3" type="eng_hysdirtype_Ed2_CDV" accessControl="" />
      <DO desc="Control value setpoint hyst direction 4" name="InDir4" type="eng_hysdirtype_Ed2_CDV" accessControl="" />
      <DO desc="Relay lockout" name="RelLck" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Failsafe (inverted actuation)" name="RelInv" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Exerciser enable" name="ExerEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Seasonal setting group enabled" name="SeasonEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Lookback enabled" name="LkbEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Actuate on error" name="ActErrEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Latching relay - never leaves actuation" name="LatchEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Manual control actuation" name="ManAct" type="spc_Ed2_CDV_1" accessControl="" />
      <DO desc="Operation time delay enable" name="OpDlEnb" type="spc_Ed2_CDV_1" accessControl="" />
      <DO desc="Operation time delay" name="OpDls" type="ing_Ed2_CDV_0" accessControl="" />
      <DO desc="Relation operator 1" name="Op1" type="eng_opertype_Ed2_CDV_1" accessControl="" />
      <DO desc="Relation operator 2" name="Op2" type="eng_opertype_Ed2_CDV_1" accessControl="" />
      <DO desc="Relation operator 3" name="Op3" type="eng_opertype_Ed2_CDV_1" accessControl="" />
    </LNodeType>
    <LNodeType id="ggio_QGateway_5" iedType="QGateway" lnClass="GGIO">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Controlable binary output" accessControl="" name="SPCSO1" type="spc_Ed2_CDV_0" transient="false"/>
      <DO desc="Control value input parameter 1" name="InRef1" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Latching relay - never leaves actuation" name="LatchEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Manual control actuation" name="ManAct" type="spc_Ed2_CDV_1" accessControl="" />
    </LNodeType>
    <LNodeType id="ggio_QGateway_6" iedType="QGateway" lnClass="GGIO">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Controllable binary output" accessControl="" name="SPCSO1" type="spc_Ed2_CDV_0" transient="false"/>
      <DO desc="Controllable binary output" accessControl="" name="SPCSO2" type="spc_Ed2_CDV_0" transient="false"/>
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</LNodeType>
<LNodeType id="ggio_QGateway_7" iedType="QGateway" lnClass="GGIO">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv1" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv2" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv3" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv4" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv5" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv6" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv7" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Failsafe (inverted actuation)" name="RelInv8" type="spg_Ed2_CDV_1" accessControl="" />
  <DO desc="Controllable binary output" accessControl="" name="SPCSO1" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO2" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO3" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO4" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO5" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO6" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO7" type="spc_Ed2_CDV_0" transient="false"/>
  <DO desc="Controllable binary output" accessControl="" name="SPCSO8" type="spc_Ed2_CDV_0" transient="false"/>
</LNodeType>
<LNodeType id="tpos_QGateway_0" iedType="QGateway" lnClass="TPOS">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Position given as percentage of full movement" name="PosPc" type="sav_Ed2_CDV_2" accessControl="" />
</LNodeType>
<LNodeType id="tctr_QGateway_0" iedType="QGateway" lnClass="TCTR">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Current (Sampled value)" name="AmpSv" type="sav_Ed2_CDV_1" accessControl="" />
  <DO desc="Rated Current" name="ARtg" type="asg_Ed2_CDV_0" accessControl="" />
</LNodeType>
<LNodeType id="tctr_QGateway_1" iedType="QGateway" lnClass="TCTR">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment health" name="EEHealth" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="External equipment name plate" name="EEName" type="dpl_Ed2_CDV_1" accessControl="" />
  <DO desc="Current (Sampled value)" name="AmpSv" type="sav_Ed2_CDV_2" accessControl="" />
</LNodeType>
<LNodeType id="mmxn_QGateway_4" iedType="QGateway" lnClass="MMXN">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV_0" accessControl="" />
  <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV_0" accessControl="" />
  <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV_1" accessControl="" />
  <DO desc="Current I not allocated to a phase" name="Amp" type="mv_Ed2_CDV_0" accessControl="" />
</LNodeType>
<LNodeType id="mmxn_QGateway_5" iedType="QGateway" lnClass="MMXN">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV_0" accessControl="" />
  <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV_0" accessControl="" />
  <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV_1" accessControl="" />
  <DO desc="Voltage V not allocated to a phase" name="Vol" type="mv_Ed2_CDV_0" accessControl="" />
</LNodeType>
<LNodeType id="mmxn_QGateway_6" iedType="QGateway" lnClass="MMXN">
  <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
  <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
  <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
  <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
  <DO desc="Difference input parameter 1" name="InRef1" type="org_Ed2_CDV_0" accessControl="" />
  <DO desc="Difference input parameter 2" name="InRef2" type="org_Ed2_CDV_0" accessControl="" />
```

```
      <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV_0" accessControl="" />
      <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV_0" accessControl="" />
      <DO desc="Calculated difference" name="DifClc" type="mv_Ed2_CDV_2" accessControl="" />
    </LNodeType>
    <LNodeType id="mmxn_QGateway_7" iedType="QGateway" lnClass="MMXN">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Calculation Method of statistical " name="ClcMth" type="engMth_Ed2_CDV_0" accessControl="" />
      <DO desc="Calculation mode. Allowed values:" name="ClcMod" type="engMod_Ed2_CDV_0" accessControl="" />
      <DO desc="Object Reference to Source logical node" name="ClcSrc" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Calculated difference" name="DifClc" type="mv_Ed2_CDV_2" accessControl="" />
    </LNodeType>
    <LNodeType id="ccgr_QGateway_0" iedType="QGateway" lnClass="CCGR">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Cooling relay input" name="InRef1" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Current sense input" name="InRef2" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Flow rate input" name="InRef3" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Flow rate alarm enable" name="FlowAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Flow rate alarm setpoint" name="FlowSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Differential test input" name="InRef4" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Difference alarm enable" name="DifAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Difference alarm setpoint" name="DifSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Difference alarm hysteresis" name="DifHys" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Operating time" name="OpTmh" type="ins_Ed2_CDV_0" accessControl="" />
      <DO desc="Operating time alarm enable" name="OpTmhAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Operating time alarm setpoint" name="OpTmhSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Temperature of environment" name="EnvTmp" type="mv_Ed2_CDV_0" accessControl="" />
<!-- These are in the diff device!
      <DO desc="Oil temperature cooler in" name="OilTmpIn" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Oil temperature cooler out" name="OilTmpOut" type="mv_Ed2_CDV_0" accessControl="" />
-->
      <DO desc="Motor drive current" name="MotA" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Motor current alarm enable" name="MotAAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Motor current alarm setpoint" name="MotAHiSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Motor current alarm setpoint" name="MotALoSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Motor drive current" name="MotStA" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Motor inrush current alarm enable" name="MotInrAAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Motor inrush current alarm setpoint" name="MotInrALoSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Motor inrush current alarm setpoint" name="MotInrAHiSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Flow rate input value" name="Flw" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Cooling system actuation count" name="OpCnt" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Cooling system actuation alarm enable" name="OpCntEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Cooling system actuation setpoint" name="OpCntSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Loss of pump" name="PmpAlm" type="sps_Ed2_CDV_0" accessControl="" />
    </LNodeType>
    <LNodeType id="stmp_QGateway_0" iedType="QGateway" lnClass="STMP">
      <DO desc="Mode" accessControl="" name="Mod" type="enc_mod_Ed2_CDV_0"/>
      <DO desc="Behaviour" accessControl="" name="Beh" type="ens_beh_Ed2_CDV_0"/>
      <DO desc="Health" accessControl="" name="Health" type="ens_health_Ed2_CDV_0"/>
      <DO desc="Name plate" accessControl="" name="NamPlt" type="lpl_Ed2_CDV_0"/>
      <DO desc="General input" accessControl="" name="InRef1" type="org_Ed2_CDV_1" />
      <DO desc="Calculation Method of statistical " accessControl="" name="ClcMth" type="engMth_Ed2_CDV_0"/>
      <DO desc="Calculation mode. Allowed values:" accessControl="" name="ClcMod" type="engMod_Ed2_CDV_0"/>
      <DO desc="Object Reference to Source logical node" accessControl="" name="ClcSrc" type="org_Ed2_CDV_1"/>
      <DO desc="Temperature" name="Tmp" type="mv_Ed2_CDV_0" accessControl="" />
    </LNodeType>
    <LNodeType id="sptr_QGateway_1" iedType="QGateway" lnClass="SPTR">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Winding temperature input" name="InRef1" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Ambient temperature input" name="InRef2" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Load current input" name="InRef3" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Oil temperature input" name="InRef4" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Reference to a higher level Logical Device" name="GrRef" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Aging rate " name="Age" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Aging rate last day" name="AgeDay" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Aging rate last hour" name="AgeHour" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Life consumpion rate" name="LifeConsh" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Remaining life" name="RemLifey" type="mv_Ed2_CDV_1" accessControl="" />
<!-- not available in 509
      <DO desc="Calculated w" name="HPTmp" type="mv_Ed2_CDV_0" accessControl="" />
```

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-->
<!-- TmTmpPrf name changed to present in hours
      <DO desc="Transformer life data" name="TmTmpPrf" type="hst_Ed2_CDV_tl_0" accessControl="" />
-->
      <DO desc="Transformer life data" name="TmhTmpPrf" type="hst_Ed2_CDV_tl_0" accessControl="" />
      <DO desc="Life calculation constant A" name="ConASet" type="asg_Ed2_CDV_3" accessControl="" />
      <DO desc="Life calculation constant B" name="ConBSet" type="asg_Ed2_CDV_3" accessControl="" />
      <DO desc="Unity temperature" name="UnityTmpSet" type="asg_Ed2_CDV_3" accessControl="" />
      <DO desc="Critical temperature setting 1" name="CritSet1" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Critical temperature setting 2" name="CritSet2" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Critical temperature setting 3" name="CritSet3" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Time to critical point 1" name="CritTmh1" type="ins_Ed2_CDV_1" accessControl="" />
      <DO desc="Time to critical point 2" name="CritTmh2" type="ins_Ed2_CDV_1" accessControl="" />
      <DO desc="Time to critical point 3" name="CritTmh3" type="ins_Ed2_CDV_1" accessControl="" />
    </LNodeType>
    <LNodeType id="yptr_QGateway_1" iedType="QGateway" lnClass="YPTR">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Operation time" name="OpTmh" type="ins_Ed2_CDV_0" accessControl="" />
    </LNodeType>
    <LNodeType id="siml_QGateway_1" iedType="QGateway" lnClass="SIML">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="General input" name="InRef1" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Insulation liquid temperature" name="Tmp" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid level" name="Lev" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid pressure" name="Pres" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Relative saturation of moisture in insulating " name="H2O" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Relative saturation of moisture in insulating " name="H2OPap" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Relative saturation of moisture in " name="H2OAir" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Temperature of insulating " name="H2OTmp" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of Hydrogen (H" name="H2" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of N" name="N2" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of CO in ppm" name="CO" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of CO" name="CO2" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of CH" name="CH4" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of C" name="C2H2" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of C" name="C2H4" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of C" name="C2H6" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of O" name="O2" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Measurement of total dissolved combustable gases (TDCG)" name="TDCG" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Fault gas volume in Buchholz relay" name="FltGas" type="mv_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid" name="InsAlm" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation " name="InsBlk" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation " name="InsTr" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid temperature alarm" name="TmpAlm" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Gas in insulation liquid alarm (may be used for Buchholz alarm)" name="GasInsAlm" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Gas in insulation liquid trip (may be used for Buchholz trip)" name="GasInsTr" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid flow trip because of gas (may be used for Buchholz trip)" name="GasFlwTr" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid level maximum" name="InsLevMax" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Insulation liquid level minimum" name="InsLevMin" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="H" name="H2Alm" type="sps_Ed2_CDV_0" accessControl="" />
      <DO desc="Moisture sensor alarm" name="MstAlm" type="sps_Ed2_CDV_0" accessControl="" />
    </LNodeType>
    <LNodeType id="sltc_QGateway_0" iedType="QGateway" lnClass="SLTC">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="Tap Position module input" name="InRef1" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Motor current input" name="InRef2" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Load current input" name="InRef3" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Contact switch input" name="InRef4" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Second contact switch input" name="InRef5" type="org_Ed2_CDV_1" accessControl="" />
<!-- high prority alarm settings -->
      <DO desc="Differential alarm input" name="HiDifRef" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Differential input alarm enable" name="HiDifAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Differential input setpoint" name="HiDifSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Differential input setpoint hysteresis" name="HiDifHys" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap count alarm enable" name="HiTapAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap count setpoint" name="HiTapSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Multiple tap alarm enable" name="HiMulTapAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap count period limit alarm enable" name="HiTapPerAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap run time limit alarm enable" name="HiTapRunAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
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      <DO desc="Tap run time limit setpoint" name="HiTapRunSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap actuation limit alarm enable" name="HiTapActAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap actuation limit setpoint" name="HiTapActSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap inrush current alarm enable" name="HiTapInrAAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap inrush current upper setpoint" name="HiTapInrHiSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap inrush current lower setpoint" name="HiTapInrLoSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap run current alarm enable" name="HiTapRunAAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap run current upper setpoint" name="HiTapRunAAlmHiSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap run current lower setpoint" name="HiTapRunAAlmLoSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap motor runtime limit alarm enable" name="HiTapMotRunAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap motor runtime limit setpoint" name="HiTapMotRunSet" type="asg_Ed2_CDV_5" accessControl="" />
<!-- Low prority alarm settings -->
      <DO desc="Differential alarm input" name="LoDifRef" type="org_Ed2_CDV_0" accessControl="" />
      <DO desc="Differential input alarm enable" name="LoDifAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Differential input setpoint" name="LoDifSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Differential input  setpoint hysteresis" name="LoDifHys" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap count alarm enable" name="LoTapAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap count setpoint" name="LoTapSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Multiple tap alarm enable" name="LoMulTapAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap count period limit alarm enable" name="LoTapPerAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap count setpoint" name="LoTapPerSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap run time limit alarm enable" name="LoTapRunAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap run time limit setpoint" name="LoTapRunSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap actuation limit alarm enable" name="LoTapActAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap actuation limit setpoint" name="LoTapActSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap inrush current alarm enable" name="LoTapInrAAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap inrush current upper setpoint" name="LoTapInrHiSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap inrush current lower setpoint" name="LoTapInrLoSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap run current alarm enable" name="LoTapRunAAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap run current upper setpoint" name="LoTapRunAAlmHiSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap run current lower setpoint" name="LoTapRunAAlmLoSet" type="asg_Ed2_CDV_4" accessControl="" />
      <DO desc="Tap motor runtime limit alarm enable" name="LoTapMotRunAlmEnb" type="spg_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap motor runtime limit setpoint" name="LoTapMotRunSet" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Time period for the tap count" name="TapTmh" type="asg_Ed2_CDV_5" accessControl="" />
      <DO desc="Tap period count" name="TapCnt" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap previous period count" name="PrvTapCnt" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Total motor count" name="TapAct" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap previous motor on time" name="TapActTms" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap previous run current" name="PrvRunA" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap previous inrush current" name="PrvInrA" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Motor drive current" name="MotDrvA" type="mv_Ed2_CDV_1" accessControl="" />
      <DO desc="Tap changer counts" name="CntTapPrf" type="hst_Ed2_CDV_ltc" accessControl="" />
<!-- OpTmTapPrf name changed to present in hours
      <DO desc="Tap changer runtime" name="OpTmTapPrf" type="hst_Ed2_CDV_ltc" accessControl="" />
-->
      <DO desc="Tap changer runtime" name="OpTmhTapPrf" type="hst_Ed2_CDV_ltc" accessControl="" />
      <DO desc="Tap changer make current" name="MkCurTapPrf" type="hst_Ed2_CDV_ltc" accessControl="" />
      <DO desc="Tap changer break current" name="BkCurTapPrf" type="hst_Ed2_CDV_ltc" accessControl="" />
    </LNodeType>
    <LNodeType id="yltc_QGateway_0" iedType="QGateway" lnClass="YLTC">
      <DO desc="Mode" name="Mod" type="enc_mod_Ed2_CDV_0" accessControl="" />
      <DO desc="Behaviour" name="Beh" type="ens_beh_Ed2_CDV_0" accessControl="" />
      <DO desc="Health" name="Health" type="ens_health_Ed2_CDV_0" accessControl="" />
      <DO desc="Name plate" name="NamPlt" type="lpl_Ed2_CDV_0" accessControl="" />
      <DO desc="General input" name="InRef1" type="org_Ed2_CDV_1" accessControl="" />
      <DO desc="Operation counter" name="OpCnt" type="ins_Ed2_CDV_0" accessControl="" />
    </LNodeType>
    <DOType id="ins_Ed2_CDV" desc="This data object indicates the Operation time in h" iedType="QGateway" cdc="INS">
      <DA desc="Status value of the data." name="stVal" bType="INT32" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="INT32" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="enc_mod_Ed2_CDV" desc="Controllable " iedType="QGateway" cdc="ENC">
      <DA desc="As a status attribute (FC=ST), this c" name="origin" bType="Struct" type="Originator" fc="ST" />
      <DA desc="If the change of the status was caused by a control, the content " name="ctlNum" bType="INT8U" fc="ST" />
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="Mod" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="The controllable data is selected." name="stSeld" bType="BOOLEAN" dchg="true" fc="ST" />
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      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="Enum" type="Mod" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Specifies the timeout " name="sboTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Specifies the SBO-class according to the control model" name="sboClass" bType="Enum" type="sboClass" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="This attribute specifies the timeout used to supervise an operation" name="operTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="enc_ccgr_Ed2_CDV" desc="Controllable " iedType="QGateway" cdc="ENC">
      <DA desc="As a status attribute (FC=ST), this c" name="origin" bType="Struct" type="Originator" fc="ST" />
      <DA desc="If the change of the status was caused by a control, the content " name="ctlNum" bType="INT8U" fc="ST" />
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="PmpCtl" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="The controllable data is selected." name="stSeld" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="Enum" type="PmpCtl" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Specifies the timeout " name="sboTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Specifies the SBO-class according to the control model" name="sboClass" bType="Enum" type="sboClass" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="This attribute specifies the timeout used to supervise an operation" name="operTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="ens_health_Ed2_CDV" desc="Since the logical device controls all logical nodes that are part of the logical device, the mode of the logical device (â€œLDModeâ€ □ = LLN0.Mod)
mode of a specific logical node (â€œLNModeâ€ □ = XXXX.Mod) are related. The " iedType="QGateway" cdc="ENS">
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="Health" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="Enum" type="Health" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="ens_beh_Ed2_CDV" desc="Since the logical device controls all logical nodes that are part of the logical device, the mode of the logical device (â€œLDModeâ€ N0÷Mod) and the mode
of a specific logical node (â€œLNModeâ€ □ = XXXX.Mod) are related. The " iedType="QGateway" cdc="ENS">
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="Beh" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="Enum" type="Beh" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="ing_Ed2_CDV" iedType="QGateway" cdc="ING">
      <DA desc="The value of a status setting." name="setVal" bType="INT32" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
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      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="ing_Ed2_CDV_0" iedType="QGateway" cdc="ING">
      <DA desc="The value of a status setting." name="setVal" bType="INT32" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="eng_looptype_Ed2_CDV" cdc="ENG" iedType="QGateway">
      <DA desc="The value of a status setting." bType="Enum" count="0" name="setVal" valKind="Set" type="LoopType" dchg="true" dupd="false" fc="SP" qchg="false"/>
      <DA desc="Description" bType="VisString255" count="0" name="d" valKind="Set" dchg="false" dupd="false" fc="DC" qchg="false"/>
      <DA desc="Data name space." bType="VisString255" count="0" name="dataNs" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
    </DOType>
    <DOType id="eng_opertype_Ed2_CDV" cdc="ENG" iedType="QGateway">
      <DA desc="The value of a status setting." bType="Enum" count="0" name="setVal" valKind="Set" type="ITMOpType" dchg="true" dupd="false" fc="SP" qchg="false"/>
      <DA desc="Description" bType="VisString255" count="0" name="d" valKind="Set" dchg="false" dupd="false" fc="DC" qchg="false"/>
      <DA desc="Data name space." bType="VisString255" count="0" name="dataNs" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
    </DOType>
    <DOType id="eng_opertype_Ed2_CDV_1" cdc="ENG" iedType="QGateway">
      <DA desc="The value of a status setting." bType="Enum" count="0" name="setVal" valKind="Set" type="ITMOpType_1" dchg="true" dupd="false" fc="SP" qchg="false"/>
      <DA desc="Description" bType="VisString255" count="0" name="d" valKind="Set" dchg="false" dupd="false" fc="DC" qchg="false"/>
      <DA desc="Data name space." bType="VisString255" count="0" name="dataNs" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
    </DOType>
    <DOType id="eng_hysdirtype_Ed2_CDV" cdc="ENG" iedType="QGateway">
      <DA desc="The value of a status setting." bType="Enum" count="0" name="setVal" valKind="Set" type="HysDirType" dchg="true" dupd="false" fc="SP" qchg="false"/>
      <DA desc="Description" bType="VisString255" count="0" name="d" valKind="Set" dchg="false" dupd="false" fc="DC" qchg="false"/>
      <DA desc="Data name space." bType="VisString255" count="0" name="dataNs" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
    </DOType>
    <DOType id="org_Ed2_CDV" desc="Reference to the object what is binded to this input" iedType="QGateway" cdc="ORG">
      <DA desc="" name="setRef" bType="VisString64" dchg="true" fc="SP" />
      <DA desc="this value represents a manufacturer specific internal address" name="intAddr" bType="VisString255" dchg="true" fc="SP" />
      <DA desc="Description of the purpose of the object reference." name="purpose" bType="VisString255" fc="SP" />
      <DA desc="Switch between original data source and test data source." name="tstEna" bType="BOOLEAN" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="sps_Ed2_CDV" iedType="QGateway" cdc="SPS">
      <DA desc="Status value of the data." name="stVal" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="lpl_Ed2_CDV" desc="This is the name plate of the logical node." iedType="QGateway" cdc="LPL">
      <DA desc="Name of the vendor." name="vendor" bType="VisString255" fc="DC" />
      <DA desc="SW-revision." name="swRev" bType="VisString255" fc="DC" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Uniquely identifies the configuration of a logical device instance. ConfigRev in LLN0 (at LD level) has to be changed at least on any semantic change of the data model of this LD
related to the client functionality. How this is detected and performed is left to the user. Also the semantics of configRev concerning other LNs is left to the user." name="configRev"
bType="VisString255" fc="DC" />
      <DA desc="Uniquely identifies the parameter revision of a logical device" name="paramRev" bType="INT32" dchg="true" fc="ST" />
      <DA desc="Uniquely identifies the revision of the preconfiguration of configuration values (" name="valRev" bType="INT32" dchg="true" fc="ST" />
      <DA desc="Logical device name space." name="ldNs" bType="VisString255" fc="EX" />
      <DA desc="Logical node name space." name="lnNs" bType="VisString255" fc="EX" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engMth_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="CalcMthd" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
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    </DOType>
    <DOType id="engMod_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="ClcMod" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engMod_Ed2_CDV_0" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all
" iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="ClcMod" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="engItv_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="ClcIntvTyp" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engTyp_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="ClcTyp" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engLev_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="LevMod" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engOp_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="OpMod" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engRet_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="ReTrMod" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engTrg_Ed2_CDV" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all "
iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="TrgMod" dchg="true" fc="SP" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
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      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="spg_Ed2_CDV" desc="Select mode of authority for local control (True â€“ control from multiple leves above the selected one is allowed, False â€“ no other control level above allowed)"
iedType="QGateway" cdc="SPG">
      <DA desc="The value of a status setting." name="setVal" bType="BOOLEAN" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="spg_Ed2_CDV_0" desc="Select mode of authority for local control (True â€“ control from multiple leves above the selected one is allowed, False â€“ no other control level above
allowed)" iedType="QGateway" cdc="SPG">
      <DA desc="The value of a status setting." name="setVal" bType="BOOLEAN" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="spg_Ed2_CDV_1" desc="Select mode of authority for local control (True â€“ control from multiple leves above the selected one is allowed, False â€“ no other control level above
allowed)" iedType="QGateway" cdc="SPG">
      <DA desc="The value of a status setting." name="setVal" bType="BOOLEAN" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="spc_Ed2_CDV" desc="Command blocking. TRUE" iedType="QGateway" cdc="SPC">
      <DA desc="As a status attribute (FC=ST), this c" name="origin" bType="Struct" type="Originator" fc="ST" />
      <DA desc="If the change of the status was caused by a control, the content " name="ctlNum" bType="INT8U" fc="ST" />
      <DA desc="Status value of the data." name="stVal" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="The controllable data is selected." name="stSeld" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Used to configure the output pulse generated with the command if applicable." name="pulseConfig" bType="Struct" type="PulseConfig" dchg="true" fc="CF" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Specifies the timeout " name="sboTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Specifies the SBO-class according to the control model" name="sboClass" bType="Enum" type="sboClass" dchg="true" fc="CF" />
      <DA desc="This attribute specifies the timeout used to supervise an operation" name="operTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="spc_Ed2_CDV_0" desc="Command blocking. TRUE" iedType="QGateway" cdc="SPC">
      <DA desc="Status value of the data." name="stVal" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="spc_Ed2_CDV_1" desc="Command blocking. TRUE" iedType="QGateway" cdc="SPC">
      <DA desc="Status value of the data." name="stVal" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="tsg_Ed2_CDV" desc="Time of next change to daylight saving time" iedType="QGateway" cdc="TSG">
      <DA desc="" name="setTm " bType="Timestamp" dchg="true" fc="SP" />
      <DA desc="" name="setCal" bType="Struct" type="CalendarTime" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="asg_Ed2_CDV" desc="Rated current, intrinsic property of the device, which cannot be set/changed from remote." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogueValue" dchg="true" fc="SP" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Scaled value configuration." name="sVC" bType="Struct" type="ScaledValueConfig" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="Struct" type="AnalogueValue" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="Struct" type="AnalogueValue" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="Struct" type="AnalogueValue" dchg="true" fc="CF" />
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      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="mv_Ed2_CDV" iedType="QGateway" cdc="MV">
      <DA desc="Magnitude of the instantaneous value of a measured value." name="instMag" bType="Struct" type="AnalogueValue" fc="MX" />
      <DA desc="Deadbanded value. Shall be based on a dead band calculation from" name="mag" bType="Struct" type="AnalogueValue" dchg="true" fc="MX" />
      <DA desc="Range in which the current value of instMag or instCVal.mag is." name="range" bType="Enum" type="range" dchg="true" fc="MX" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute instMag." name="subMag" bType="Struct" type="AnalogueValue" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Deadband.in units of 0,001 %." name="db" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Configuration parameter used to calculate the range around zero, where the analogue value will be forced to zero. The value shall represent the percentage of difference between max
and min in units of 0,001 %. For the different CDCs zeroDb applies to the following data attributes:" name="zeroDb" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Scaled value configuration." name="sVC" bType="Struct" type="ScaledValueConfig" dchg="true" fc="CF" />
      <DA desc="Configuration parameters as used in the context with the range attribute." name="rangeC" bType="Struct" type="RangeConfig" dchg="true" fc="CF" />
      <DA desc="" name="smpRate" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="bcr_Ed2_CDV" iedType="QGateway" cdc="BCR">
      <DA desc="Binary counter status represented as an integer value." name="actVal" bType="INT64" dchg="true" fc="ST" />
      <DA desc="Frozen binary counter status represented as an integer value." name="frVal" bType="INT64" dupd="true" fc="ST" />
      <DA desc="Time of the last counter freeze." name="frTm" bType="Timestamp" dupd="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Magnitude of the counted value per count." name="pulsQty" bType="FLOAT32" dchg="true" fc="CF" />
      <DA desc="BOOLEAN value, which controls the freeze" name="frEna" bType="BOOLEAN" dchg="true" fc="CF" />
      <DA desc="Starting time of the freeze process." name="strTm" bType="Timestamp" dchg="true" fc="CF" />
      <DA desc="Time interval in ms between freeze operations." name="frPd" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Indicates that counter is to be automatically reset to zero" name="frRs" bType="BOOLEAN" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="apc_Ed2_CDV" iedType="QGateway" cdc="APC">
      <DA desc="As a status attribute (FC=ST), this c" name="origin" bType="Struct" type="Originator" fc="MX" />
      <DA desc="If the change of the status was caused by a control, the content " name="ctlNum" bType="INT8U" fc="MX" />
      <DA desc="Measured analogue process value. The " name="mxVal" bType="Struct" type="AnalogueValue" dchg="true" fc="MX" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
      <DA desc="The controllable data is selected." name="stSeld" bType="BOOLEAN" dchg="true" fc="MX" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="Struct" type="AnalogueValue" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Specifies the timeout " name="sboTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Specifies the SBO-class according to the control model" name="sboClass" bType="Enum" type="sboClass" dchg="true" fc="CF" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Deadband.in units of 0,001 %." name="db" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Scaled value configuration." name="sVC" bType="Struct" type="ScaledValueConfig" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="Struct" type="AnalogueValue" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="Struct" type="AnalogueValue" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="Struct" type="AnalogueValue" dchg="true" fc="CF" />
      <DA desc="This attribute specifies the timeout used to supervise an operation" name="operTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="apc_Ed2_CDV_0" iedType="QGateway" cdc="APC">
      <DA desc="Measured analogue process value. The " name="mxVal" bType="Struct" type="AnalogValue_0" dchg="true" fc="MX" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
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      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="inc_Ed2_CDV" desc="This data object represents a resetable LN operations counter. The use of the INC Common Data Class, permits setting the counter to something other than â€œ0â€ □." 
iedType="QGateway" cdc="INC">
      <DA desc="As a status attribute (FC=ST), this c" name="origin" bType="Struct" type="Originator" fc="ST" />
      <DA desc="If the change of the status was caused by a control, the content " name="ctlNum" bType="INT8U" fc="ST" />
      <DA desc="Status value of the data." name="stVal" bType="INT32" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="The controllable data is selected." name="stSeld" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="INT32" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Specifies the control model" name="ctlModel" bType="CtlModels" dchg="true" fc="CF" />
      <DA desc="Specifies the timeout " name="sboTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Specifies the SBO-class according to the control model" name="sboClass" bType="SboClasses" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="INT32" dchg="true" fc="CF" />
      <DA desc="Defines the step between individual values that ctlVal" name="stepSize" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="This attribute specifies the timeout used to supervise an operation" name="operTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="dpc_Ed2_CDV" iedType="QGateway" cdc="DPC">
      <DA desc="As a status attribute (FC=ST), this c" name="origin" bType="Struct" type="Originator" fc="ST" />
      <DA desc="If the change of the status was caused by a control, the content " name="ctlNum" bType="INT8U" fc="ST" />
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="stVal" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="The controllable data is selected." name="stSeld" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the attribute" name="subVal" bType="Enum" type="subVal" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Used to configure the output pulse generated with the command if applicable." name="pulseConfig" bType="Struct" type="PulseConfig" dchg="true" fc="CF" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Specifies the timeout " name="sboTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Specifies the SBO-class according to the control model" name="sboClass" bType="Enum" type="sboClass" dchg="true" fc="CF" />
      <DA desc="This attribute specifies the timeout used to supervise an operation" name="operTimeout" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="asg_Ed2_CDV_0" desc="Rated current, intrinsic property of the device, which cannot be set/changed from remote." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogValue_0" dchg="true" fc="SP" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="Struct" type="AnalogValue_0" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="Struct" type="AnalogValue_0" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="asg_Ed2_CDV_1" desc="C57.91-1995 constant, which cannot be set/changed from remote." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogValue_0" dchg="true" fc="SP" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Defines together with maxVal the setting range for ctlVal" name="minVal" bType="Struct" type="AnalogValue_0" dchg="true" fc="CF" />
      <DA desc="Defines together with minVal the setting range for ctlVal" name="maxVal" bType="Struct" type="AnalogValue_0" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="asg_Ed2_CDV_2" desc="C57.91-1995 constant, which cannot be set/changed from remote." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogValue_0" dchg="true" fc="SP" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="asg_Ed2_CDV_3" desc="Unity temperature, which cannot be set/changed from remote." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogValue_0" dchg="true" fc="SP" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="asg_Ed2_CDV_4" desc="Setting value." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogValue_0" dchg="true" fc="SP" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
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      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="asg_Ed2_CDV_5" desc="Setting value." iedType="QGateway" cdc="ASG">
      <DA desc="The value of an analogue setting or set point." name="setMag" bType="Struct" type="AnalogValue_0" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="cmv_Ed2_CDV" iedType="QGateway" cdc="CMV">
      <DA desc="Instant value of a vector type value." name="instCVal" bType="Struct" type="Vector" fc="MX" />
      <DA desc="Deadbanded complex value. Based on a deadband calculation from instCVal. The deadband calculation is done both on instCVal.mag " name="cVal" bType="Struct" type="Vector" dchg="true"
fc="MX" />
      <DA desc="Range in which the current value of instMag or instCVal.mag is." name="range" bType="Enum" type="range" dchg="true" fc="MX" />
      <DA desc="Range in which the current value of instCVal.ang is. For further details see range" name="rangeAng" bType="Enum" type="rangeAng" dchg="true" fc="MX" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
      <DA desc="Used to enable substitution." name="subEna" bType="BOOLEAN" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute instCVal." name="subCVal" bType="Struct" type="Vector" dchg="true" fc="SV" />
      <DA desc="Value used to substitute the data attribute q." name="subQ" bType="Quality" dchg="true" fc="SV" />
      <DA desc="Shows the address of the device that made the substitution." name="subID" bType="VisString64" dchg="true" fc="SV" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Deadband.in units of 0,001 %." name="db" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Deadband for angles. Shall represent a configuration parameter used to calculate deadbanded attributes for the angle in the case the data attribute is" name="dbAng" bType="INT32U"
dchg="true" fc="CF" />
      <DA desc="Configuration parameter used to calculate the range around zero, where the analogue value will be forced to zero. The value shall represent the percentage of difference between max
and min in units of 0,001 %. For the different CDCs zeroDb applies to the following data attributes:" name="zeroDb" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Configuration parameters as used in the context with the range attribute." name="rangeC" bType="Struct" type="RangeConfig" dchg="true" fc="CF" />
      <DA desc="Configuration parameters as used in the context with the rangeAng attribute." name="rangeAngC" bType="Struct" type="RangeConfig" dchg="true" fc="CF" />
      <DA desc="Scaled value configuration for magnitude. Shall be used to configure the scaled value representation of the magnitude in a vector." name="magSVC" bType="Struct"
type="ScaledValueConfig" dchg="true" fc="CF" />
      <DA desc="Scaled value configuration for angles. Shall be used to configure the scaled value representation of the angle in a vector." name="angSVC" bType="Struct" type="ScaledValueConfig"
dchg="true" fc="CF" />
      <DA desc="Angle reference. Indicates the quantity that is used as reference for the phase angle." name="angRef" bType="Enum" type="angRef" dchg="true" fc="CF" />
      <DA desc="" name="smpRate" bType="INT32U" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Textual description of the data using unicode characters" name="dU" bType="VisString255" fc="DC" />
      <DA desc="Common data class name space." name="cdcNs" bType="VisString255" fc="EX" />
      <DA desc="Name of the common data class." name="cdcName" bType="VisString255" fc="EX" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType desc="Represents the discrete adjustment of a transformer such as used in a load tap changer to a specified tap position." id="isc_Ed2_CDV" cdc="ISC" iedType="QGateway">
      <DA desc="As a status attribute (FC=ST), this c" bType="Struct" count="0" name="origin" valKind="Set" type="Originator" dchg="false" dupd="false" fc="ST" qchg="false"/>
      <DA desc="If the change of the status was caused by a control, the content " bType="INT8U" count="0" name="ctlNum" valKind="Set" dchg="false" dupd="false" fc="ST" qchg="false"/>
      <DA desc="Value with transient indication." bType="Struct" count="0" name="valWTr" valKind="Set" type="ValWithTrans" dchg="true" dupd="false" fc="ST" qchg="false"/>
      <DA desc="Quality." bType="Quality" count="0" name="q" valKind="Set" dchg="false" dupd="false" fc="ST" qchg="true"/>
      <DA desc="Timestamp of the last change in the data or in the q attribute." bType="Timestamp" count="0" name="t" valKind="Set" dchg="false" dupd="false" fc="ST" qchg="false"/>
      <DA desc="The controllable data is selected." bType="BOOLEAN" count="0" name="stSeld" valKind="Set" dchg="true" dupd="false" fc="ST" qchg="false"/>
      <DA desc="Used to enable substitution." bType="BOOLEAN" count="0" name="subEna" valKind="Set" dchg="true" dupd="false" fc="SV" qchg="false"/>
      <DA desc="Value used to substitute the attribute" bType="Struct" count="0" name="subVal" valKind="Set" type="ValWithTrans" dchg="true" dupd="false" fc="SV" qchg="false"/>
      <DA desc="Value used to substitute the data attribute q." bType="Quality" count="0" name="subQ" valKind="Set" dchg="true" dupd="false" fc="SV" qchg="false"/>
      <DA desc="Shows the address of the device that made the substitution." bType="VisString64" count="0" name="subID" valKind="Set" dchg="true" dupd="false" fc="SV" qchg="false"/>
      <DA desc="Specifies the control model" bType="Enum" count="0" name="ctlModel" valKind="Set" type="ctlModel" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="Specifies the timeout " bType="INT32U" count="0" name="sboTimeout" valKind="Set" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="Specifies the SBO-class according to the control model" bType="Enum" count="0" name="sboClass" valKind="Set" type="sboClass" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="Defines together with maxVal the setting range for ctlVal" bType="INT8" count="0" name="minVal" valKind="Set" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="Defines together with minVal the setting range for ctlVal" bType="INT8" count="0" name="maxVal" valKind="Set" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="Defines the step between individual values that ctlVal" bType="INT8U" count="0" name="stepSize" valKind="Set" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="This attribute specifies the timeout used to supervise an operation" bType="INT32U" count="0" name="operTimeout" valKind="Set" dchg="true" dupd="false" fc="CF" qchg="false"/>
      <DA desc="Description" bType="VisString255" count="0" name="d" valKind="Set" dchg="false" dupd="false" fc="DC" qchg="false"/>
      <DA desc="Textual description of the data using unicode characters" bType="VisString255" count="0" name="dU" valKind="Set" dchg="false" dupd="false" fc="DC" qchg="false"/>
      <DA desc="Common data class name space." bType="VisString255" count="0" name="cdcNs" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
      <DA desc="Name of the common data class." bType="VisString255" count="0" name="cdcName" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
      <DA desc="Data name space." bType="VisString255" count="0" name="dataNs" valKind="Set" dchg="false" dupd="false" fc="EX" qchg="false"/>
    </DOType>
    <DOType id="hst_Ed2_CDV_ltc" cdc="HST">
      <DA desc="" name="hstCnt" bType="INT32" count="33" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Number of points used to define a curve" name="numPts" bType="INT16U" fc="CF" />
      <DA desc="This array shall contain the values for the configuration of the ranges for the histogram.hst" name="hstRangeC" bType="Struct" type="Cell" count="33" dchg="true" fc="CF" />
      <DA desc="" name="xUnits" bType="Struct" type="Unit" fc="CF" />
      <DA desc="" name="yUnits" bType="Struct" type="Unit" fc="CF" />
      <DA desc="Description of the value of the x-axis of a curve." name="xD" bType="VisString255" fc="DC" />
      <DA desc="Description of the value of the y-axis of a curve." name="yD" bType="VisString255" fc="DC" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="enc_mod_Ed2_CDV_0" desc="Controllable " iedType="QGateway" cdc="ENC">
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      <DA desc="Status value of the data." name="stVal" bType="Enum" type="Mod" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Specifies the control model" name="ctlModel" bType="Enum" type="ctlModel" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="ens_beh_Ed2_CDV_0" desc="Since the logical device controls all logical nodes that are part of the logical device, the mode of the logical device (â€œLDModeâ€ □ = LLN0.M
of a specific logical node (â€œLNModeâ€ □ = XXXX.Mod) are related. The " iedType="QGateway" cdc="ENS">
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="Beh" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="ens_health_Ed2_CDV_0" desc="Since the logical device controls all logical nodes that are part of the logical device, the mode of the logical device (â€œLDModeâ€ □ = LLN0.Mod
mode of a specific logical node (â€œLNModeâ€ □ = XXXX.Mod) are related. The " iedType="QGateway" cdc="ENS">
      <DA desc="Status value of the data." name="stVal" bType="Enum" type="Health" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="lpl_Ed2_CDV_0" desc="This is the name plate of the logical node." iedType="QGateway" cdc="LPL">
      <DA desc="Name of the vendor." name="vendor" bType="VisString255" fc="DC" />
      <DA desc="SW-revision." name="swRev" bType="VisString255" fc="DC" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Uniquely identifies the configuration of a logical device instance. ConfigRev in LLN0 (at LD level) has to be changed at least on any semantic change of the data model of this LD
related to the client functionality. How this is detected and performed is left to the user. Also the semantics of configRev concerning other LNs is left to the user." name="configRev"
bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="dpl_Ed2_CDV_1" desc="This is the name plate of the physical device." iedType="QGateway" cdc="DPL">
      <DA desc="Name of the vendor." name="vendor" bType="VisString255" fc="DC" />
      <DA desc="Serial number." name="serNum" bType="VisString255" fc="DC" />
      <DA desc="Vendor specific product name." name="model" bType="VisString255" fc="DC" />
      <DA desc="Location, where the equipment is installed." name="location" bType="VisString255" fc="DC" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="sps_Ed2_CDV_0" iedType="QGateway" cdc="SPS">
      <DA desc="Status value of the data." name="stVal" bType="BOOLEAN" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="ins_Ed2_CDV_0" desc="This data object indicates the Operation time in h" iedType="QGateway" cdc="INS">
      <DA desc="Status value of the data." name="stVal" bType="INT32" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="ins_Ed2_CDV_1" desc="This data object indicates the Operation time in h" iedType="QGateway" cdc="INS">
      <DA desc="Status value of the data." name="stVal" bType="INT32" dchg="true" fc="ST" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
      <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
    </DOType>
    <DOType id="engMth_Ed2_CDV_0" desc="The calculation method specifies how the Data Attributes that represent analogue values have been calculated. The calculation method shall be the same for all
" iedType="QGateway" cdc="ENG">
      <DA desc="The value of a status setting." name="setVal" bType="Enum" type="CalcMthd" dchg="true" fc="SP" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="sav_Ed2_CDV_1" desc="The temperature of a specified component or in a specified volume." iedType="QGateway" cdc="SAV">
      <DA desc="Magnitude of the instantaneous value of a measured value." bType="Struct" name="instMag" valKind="Set" type="AnalogValue_0" dchg="false" dupd="false" fc="MX" qchg="false"/>
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Minimum process measurement for which values" name="min" bType="Struct" type="AnalogValue_0" dchg="true" fc="CF" />
      <DA desc="Maximum process measurement for which values" name="max" bType="Struct" type="AnalogValue_0" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="sav_Ed2_CDV_2" desc="The temperature of a specified component or in a specified volume." iedType="QGateway" cdc="SAV">
      <DA desc="Magnitude of the instantaneous value of a measured value." bType="Struct" name="instMag" valKind="Set" type="AnalogValue_0" dchg="false" dupd="false" fc="MX" qchg="false"/>
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
      <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
      <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
      <DA desc="Description" name="d" bType="VisString255" fc="DC" />
    </DOType>
    <DOType id="mv_Ed2_CDV_0" iedType="QGateway" cdc="MV">
      <DA desc="Deadbanded value. Shall be based on a dead band calculation from" name="mag" bType="Struct" type="AnalogValue_0" dchg="true" fc="MX" />
      <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
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  <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
  <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
  <DA desc="Description" name="d" bType="VisString255" fc="DC" />
</DOType>
<DOType id="mv_Ed2_CDV_1" iedType="QGateway" cdc="MV">
  <DA desc="Deadbanded value. Shall be based on a dead band calculation from" name="mag" bType="Struct" type="AnalogValue_0" dchg="true" fc="MX" />
  <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
  <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
  <DA desc="Units of the attribute(s) representing the value of the data." name="units" bType="Struct" type="Unit" dchg="true" fc="CF" />
  <DA desc="Description" name="d" bType="VisString255" fc="DC" />
  <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
</DOType>
<DOType id="mv_Ed2_CDV_2" iedType="QGateway" cdc="MV">
  <DA desc="Deadbanded value. Shall be based on a dead band calculation from" name="mag" bType="Struct" type="AnalogValue_0" dchg="true" fc="MX" />
  <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="MX" />
  <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="MX" />
  <DA desc="Description" name="d" bType="VisString255" fc="DC" />
  <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
</DOType>
<DOType id="org_Ed2_CDV_0" desc="Reference to the object what is binded to this input" iedType="QGateway" cdc="ORG">
  <DA desc="" name="setRef" bType="VisString64" dchg="true" fc="SP" />
  <DA desc="Description" name="d" bType="VisString255" fc="DC" />
  <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
</DOType>
<DOType id="org_Ed2_CDV_1" desc="Reference to the object what is binded to this input" iedType="QGateway" cdc="ORG">
  <DA desc="" name="setRef" bType="VisString64" dchg="true" fc="SP" />
  <DA desc="Description" name="d" bType="VisString255" fc="DC" />
</DOType>
<DOType id="hst_Ed2_CDV_tl_0" cdc="HST">
  <DA desc="" name="hstCnt" bType="INT32" count="12" fc="ST" />
  <DA desc="Quality." name="q" bType="Quality" qchg="true" fc="ST" />
  <DA desc="Timestamp of the last change in the data or in the q attribute." name="t" bType="Timestamp" fc="ST" />
  <DA desc="Number of points used to define a curve" name="numPts" bType="INT16U" fc="CF" />
  <DA desc="This array shall contain the values for the configuration of the ranges for the histogram.hst" name="hstRangeC" bType="Struct" type="Cell" count="12" dchg="true" fc="CF" />
  <DA desc="" name="xUnits" bType="Struct" type="Unit" fc="CF" />
  <DA desc="" name="yUnits" bType="Struct" type="Unit" fc="CF" />
  <DA desc="Description of the value of the x-axis of a curve." name="xD" bType="VisString255" fc="DC" />
  <DA desc="Description of the value of the y-axis of a curve." name="yD" bType="VisString255" fc="DC" />
  <DA desc="Description" name="d" bType="VisString255" fc="DC" />
  <DA desc="Data name space." name="dataNs" bType="VisString255" fc="EX" />
</DOType>
<DAType id="Originator" iedType="QGateway">
  <BDA desc="" name="orCat" bType="Enum" type="orCat" />
  <BDA desc="" name="orIdent" bType="VisString64" />
</DAType>
<DAType id="PulseConfig" iedType="QGateway">
  <BDA desc="" name="cmdQual" bType="Enum" type="cmdQual" />
  <BDA desc="" name="onDur" bType="INT32U" />
  <BDA desc="" name="offDur" bType="INT32U" />
  <BDA desc="" name="numPls" bType="INT32U" />
</DAType>
<DAType id="CalendarTime" iedType="QGateway">
  <BDA desc="" name="occ" bType="INT16U" />
  <BDA desc="" name="occType" bType="Enum" type="occType" />
  <BDA desc="" name="occPer" bType="Enum" type="occPer" />
  <BDA desc="" name="wkDay" bType="Enum" type="wkDay" />
  <BDA desc="" name="mth" bType="Enum" type="mth" />
  <BDA desc="" name="day" bType="INT8U" />
  <BDA desc="" name="hr" bType="INT8U" />
  <BDA desc="" name="mn" bType="INT8U" />
</DAType>
<DAType id="ScaledValueConfig" iedType="QGateway">
  <BDA desc="" name="scaleFactor" bType="FLOAT32" />
  <BDA desc="" name="offset" bType="FLOAT32" />
</DAType>
<DAType id="Unit" iedType="QGateway">
  <BDA desc="" name="SIUnit" bType="Enum" type="SIUnit" />
  <BDA desc="" name="multiplier" bType="Enum" type="multiplier" />
</DAType>
<DAType id="AnalogueValue" iedType="QGateway">
  <BDA desc="" name="i" bType="INT32" />
  <BDA desc="" name="f" bType="FLOAT32" />
</DAType>
<DAType id="AnalogValue_0" iedType="QGateway">
  <BDA desc="" name="f" bType="FLOAT32" />
</DAType>
<DAType id="RangeConfig" iedType="QGateway">
  <BDA desc="" name="hhLim" bType="Struct" type="AnalogueValue" />
```

```
  <BDA desc="" name="hLim" bType="Struct" type="AnalogueValue" />
  <BDA desc="" name="lLim" bType="Struct" type="AnalogueValue" />
  <BDA desc="" name="llLim" bType="Struct" type="AnalogueValue" />
  <BDA desc="Minimum process measurement for which values" name="min" bType="Struct" type="AnalogueValue" />
  <BDA desc="Maximum process measurement for which values" name="max" bType="Struct" type="AnalogueValue" />
  <BDA desc="" name="limDb" bType="INT32U" />
</DAType>
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  <BDA desc="" name="hhLim" bType="Struct" type="AnalogValue_0" />
  <BDA desc="" name="hLim" bType="Struct" type="AnalogValue_0" />
  <BDA desc="" name="lLim" bType="Struct" type="AnalogValue_0" />
  <BDA desc="" name="llLim" bType="Struct" type="AnalogValue_0" />
  <BDA desc="Minimum process measurement for which values" name="min" bType="Struct" type="AnalogValue_0" />
  <BDA desc="Maximum process measurement for which values" name="max" bType="Struct" type="AnalogValue_0" />
  <BDA desc="" name="limDb" bType="INT32U" />
</DAType>
<DAType id="Vector" iedType="QGateway">
  <BDA desc="Deadbanded value. Shall be based on a dead band calculation from" name="mag" bType="Struct" type="AnalogValue_0" />
  <BDA desc="" name="ang" bType="Struct" type="AnalogValue_0" />
</DAType>
<DAType id="Cell">
  <BDA name="xStart" bType="FLOAT32" />
  <BDA name="xEnd" bType="FLOAT32" />
  <BDA name="yStart" bType="FLOAT32" />
  <BDA name="yEnd" bType="FLOAT32" />
</DAType>
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  <EnumVal ord="1">persistent</EnumVal>
</EnumType>
<EnumType id="orCat">
  <EnumVal ord="0">not-supported</EnumVal>
  <EnumVal ord="1">bay-control</EnumVal>
  <EnumVal ord="2">station-control</EnumVal>
  <EnumVal ord="3">remote-control</EnumVal>
  <EnumVal ord="4">automatic-bay</EnumVal>
  <EnumVal ord="5">automatic-station</EnumVal>
  <EnumVal ord="6">automatic-remote</EnumVal>
  <EnumVal ord="7">maintenance</EnumVal>
  <EnumVal ord="8">process</EnumVal>
</EnumType>
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  <EnumVal ord="1">January</EnumVal>
  <EnumVal ord="2">February</EnumVal>
  <EnumVal ord="3">March</EnumVal>
  <EnumVal ord="4">April</EnumVal>
  <EnumVal ord="5">May</EnumVal>
  <EnumVal ord="6">June</EnumVal>
  <EnumVal ord="7">July</EnumVal>
  <EnumVal ord="8">August</EnumVal>
  <EnumVal ord="9">September</EnumVal>
  <EnumVal ord="10">October</EnumVal>
  <EnumVal ord="11">November</EnumVal>
  <EnumVal ord="12">December</EnumVal>
</EnumType>
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  <EnumVal ord="2">WeekDay</EnumVal>
  <EnumVal ord="3">WeekOfYear</EnumVal>
  <EnumVal ord="4">DayOfMonth</EnumVal>
  <EnumVal ord="5">DayOfYear</EnumVal>
</EnumType>
<EnumType id="occPer">
  <EnumVal ord="1">Hour</EnumVal>
  <EnumVal ord="2">Day</EnumVal>
  <EnumVal ord="3">Week</EnumVal>
  <EnumVal ord="4">Month</EnumVal>
  <EnumVal ord="5">Year</EnumVal>
</EnumType>
<EnumType id="wkDay">
  <EnumVal ord="1">Monday</EnumVal>
  <EnumVal ord="2">Tuesday</EnumVal>
  <EnumVal ord="3">Wednesday</EnumVal>
  <EnumVal ord="4">Thursday</EnumVal>
  <EnumVal ord="5">Friday</EnumVal>
  <EnumVal ord="6">Saturday</EnumVal>
  <EnumVal ord="7">Sunday</EnumVal>
</EnumType>
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  <EnumVal ord="0">intermediate-state</EnumVal>
  <EnumVal ord="1">off</EnumVal>
  <EnumVal ord="2">on</EnumVal>
  <EnumVal ord="3">bad-state</EnumVal>
</EnumType>
<EnumType id="range">
  <EnumVal ord="0">normal</EnumVal>
  <EnumVal ord="1">high</EnumVal>
  <EnumVal ord="2">low</EnumVal>
  <EnumVal ord="3">high-high</EnumVal>
  <EnumVal ord="4">low-low</EnumVal>
</EnumType>
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  <EnumVal ord="1">off</EnumVal>
  <EnumVal ord="2">on</EnumVal>
  <EnumVal ord="3">bad-state</EnumVal>
</EnumType>
<EnumType id="angRef">
  <EnumVal ord="0">V</EnumVal>
  <EnumVal ord="1">A</EnumVal>
  <EnumVal ord="2">other â€¦</EnumVal>
</EnumType>
<EnumType id="rangeAng">
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  <EnumVal ord="1">high</EnumVal>
  <EnumVal ord="2">low</EnumVal>
  <EnumVal ord="3">high-high</EnumVal>
  <EnumVal ord="4">low-low</EnumVal>
</EnumType>
<EnumType id="SIUnit">
  <EnumVal ord="1">none</EnumVal>
  <EnumVal ord="2">m</EnumVal>
  <EnumVal ord="3">kg</EnumVal>
  <EnumVal ord="4">s</EnumVal>
  <EnumVal ord="5">A</EnumVal>
  <EnumVal ord="6">K</EnumVal>
  <EnumVal ord="7">mol</EnumVal>
  <EnumVal ord="8">cd</EnumVal>
  <EnumVal ord="9">deg</EnumVal>
  <EnumVal ord="10">rad</EnumVal>
  <EnumVal ord="11">sr</EnumVal>
  <EnumVal ord="21">Gy</EnumVal>
  <EnumVal ord="22">q</EnumVal>
  <EnumVal ord="23">Â°C</EnumVal>
  <EnumVal ord="24">Sv</EnumVal>
  <EnumVal ord="25">F</EnumVal>
  <EnumVal ord="26">C</EnumVal>
  <EnumVal ord="27">S</EnumVal>
  <EnumVal ord="28">H</EnumVal>
  <EnumVal ord="29">V</EnumVal>
  <EnumVal ord="30">ohm</EnumVal>
  <EnumVal ord="31">J</EnumVal>
  <EnumVal ord="32">N</EnumVal>
  <EnumVal ord="33">Hz</EnumVal>
  <EnumVal ord="34">lx</EnumVal>
  <EnumVal ord="35">Lm</EnumVal>
  <EnumVal ord="36">Wb</EnumVal>
  <EnumVal ord="37">T</EnumVal>
  <EnumVal ord="38">W</EnumVal>
  <EnumVal ord="39">Pa</EnumVal>
  <EnumVal ord="41">mÂ²</EnumVal>
  <EnumVal ord="42">mÂ³</EnumVal>
  <EnumVal ord="43">m/s</EnumVal>
  <EnumVal ord="44">m/sÂ²</EnumVal>
  <EnumVal ord="45">mÂ³/s</EnumVal>
  <EnumVal ord="46">m/mÂ³</EnumVal>
  <EnumVal ord="47">M</EnumVal>
  <EnumVal ord="48">kg/mÂ³</EnumVal>
  <EnumVal ord="49">mÂ²/s</EnumVal>
  <EnumVal ord="50">W/m K</EnumVal>
  <EnumVal ord="51">J/K</EnumVal>
  <EnumVal ord="52">ppm</EnumVal>
  <EnumVal ord="53">1/s</EnumVal>
  <EnumVal ord="54">rad/s</EnumVal>
  <EnumVal ord="61">VA</EnumVal>
  <EnumVal ord="62">Watts</EnumVal>
```

```
      <EnumVal ord="63">VAr</EnumVal>
      <EnumVal ord="64">theta</EnumVal>
      <EnumVal ord="65">Cos (theta)</EnumVal>
      <EnumVal ord="66">Vs</EnumVal>
      <EnumVal ord="67">VÂ²</EnumVal>
      <EnumVal ord="68">As</EnumVal>
      <EnumVal ord="69">AÂ²</EnumVal>
      <EnumVal ord="70">AÂ²t</EnumVal>
      <EnumVal ord="71">VAh</EnumVal>
      <EnumVal ord="72">Wh</EnumVal>
      <EnumVal ord="73">VArh</EnumVal>
      <EnumVal ord="74">V/Hz</EnumVal>
    </EnumType>
    <EnumType id="multiplier">
      <EnumVal ord="-24">y</EnumVal>
      <EnumVal ord="-21">z</EnumVal>
      <EnumVal ord="-18">a</EnumVal>
      <EnumVal ord="-15">f</EnumVal>
      <EnumVal ord="-12">p</EnumVal>
      <EnumVal ord="-9">n</EnumVal>
      <EnumVal ord="-6">Âµ</EnumVal>
      <EnumVal ord="-3">m</EnumVal>
      <EnumVal ord="-2">c</EnumVal>
      <EnumVal ord="-1">d</EnumVal>
      <EnumVal ord="0" />
      <EnumVal ord="1">da</EnumVal>
      <EnumVal ord="2">h</EnumVal>
      <EnumVal ord="3">k</EnumVal>
      <EnumVal ord="6">M</EnumVal>
      <EnumVal ord="9">G</EnumVal>
      <EnumVal ord="12">T</EnumVal>
      <EnumVal ord="15">P</EnumVal>
      <EnumVal ord="18">E</EnumVal>
      <EnumVal ord="21">Z</EnumVal>
      <EnumVal ord="24">Y</EnumVal>
    </EnumType>
    <EnumType id="Beh">
      <EnumVal ord="1">on</EnumVal>
      <EnumVal ord="2">blocked</EnumVal>
      <EnumVal ord="3">test</EnumVal>
      <EnumVal ord="4">test/blocked</EnumVal>
      <EnumVal ord="5">off</EnumVal>
    </EnumType>
    <EnumType id="Mod">
      <EnumVal ord="1">on</EnumVal>
      <EnumVal ord="2">blocked</EnumVal>
      <EnumVal ord="3">test</EnumVal>
      <EnumVal ord="4">test/blocked</EnumVal>
      <EnumVal ord="5">off</EnumVal>
    </EnumType>
    <EnumType id="Health">
      <EnumVal ord="1">Ok</EnumVal>
      <EnumVal ord="2">Warning</EnumVal>
      <EnumVal ord="3">Alarm</EnumVal>
    </EnumType>
    <EnumType id="ctlModel">
      <EnumVal ord="0">status-only</EnumVal>
      <EnumVal ord="1">direct-with-normal-security</EnumVal>
      <EnumVal ord="2">sbo-with-normal-security</EnumVal>
      <EnumVal ord="3">direct-with-enhanced-security</EnumVal>
      <EnumVal ord="4">sbo-with-enhanced-security</EnumVal>
    </EnumType>
    <EnumType id="sboClass">
      <EnumVal ord="0">operate-once</EnumVal>
      <EnumVal ord="1">operate-many</EnumVal>
    </EnumType>
    <EnumType id="PmpCtl">
      <EnumVal ord="1">Inactive</EnumVal>
      <EnumVal ord="2">Stage1</EnumVal>
      <EnumVal ord="3">Stage2</EnumVal>
      <EnumVal ord="4">Stage3</EnumVal>
    </EnumType>
    <EnumType id="CalcMthd">
      <EnumVal ord="1">PRES</EnumVal>
      <EnumVal ord="2">MIN</EnumVal>
      <EnumVal ord="3">MAX</EnumVal>
      <EnumVal ord="4">TOTMIN</EnumVal>
      <EnumVal ord="5">TOTMAX</EnumVal>
```

```
      <EnumVal ord="6">AVG</EnumVal>
      <EnumVal ord="7">SDV</EnumVal>
    </EnumType>
    <EnumType id="ClcMod">
      <EnumVal ord="1">TOTAL</EnumVal>
      <EnumVal ord="2">PERIOD</EnumVal>
      <EnumVal ord="3">SLIDING</EnumVal>
    </EnumType>
    <EnumType id="ClcIntvTyp">
      <EnumVal ord="1">ANYTIME</EnumVal>
      <EnumVal ord="2">CYCLE</EnumVal>
      <EnumVal ord="3">PER_CYCLE</EnumVal>
      <EnumVal ord="4">HOUR</EnumVal>
      <EnumVal ord="5">DAY</EnumVal>
      <EnumVal ord="6">WEEK</EnumVal>
    </EnumType>
    <EnumType id="ClcTyp">
      <EnumVal ord="1">TrueRMS</EnumVal>
      <EnumVal ord="2">PeakAmplitude</EnumVal>
      <EnumVal ord="3">RMSfundamental</EnumVal>
    </EnumType>
    <EnumType id="LevMod">
      <EnumVal ord="1">Positive or Rising</EnumVal>
      <EnumVal ord="2">Negative or Falling</EnumVal>
      <EnumVal ord="3">Both</EnumVal>
      <EnumVal ord="4">Other</EnumVal>
    </EnumType>
    <EnumType id="OpMod">
      <EnumVal ord="1">Overwrite existing values</EnumVal>
      <EnumVal ord="2">Stop when full or saturated</EnumVal>
    </EnumType>
    <EnumType id="ReTrMod">
      <EnumVal ord="1">Off</EnumVal>
      <EnumVal ord="2">Without Check</EnumVal>
      <EnumVal ord="3">With Current Check</EnumVal>
      <EnumVal ord="4">With Breaker Status Check</EnumVal>
      <EnumVal ord="5">With Current and Breaker Status Check</EnumVal>
      <EnumVal ord="6">Other Checks</EnumVal>
    </EnumType>
    <EnumType id="TrgMod">
      <EnumVal ord="1">Internal</EnumVal>
      <EnumVal ord="2">External</EnumVal>
      <EnumVal ord="3">Both</EnumVal>
    </EnumType>
    <EnumType id="LoopType">
      <EnumVal ord="0">0-1mA</EnumVal>
      <EnumVal ord="1">4-20mA</EnumVal>
    </EnumType>
    <EnumType id="ITMOpType">
      <EnumVal ord="0">No operation</EnumVal>
      <EnumVal ord="1">Maximum</EnumVal>
      <EnumVal ord="2">Not valid</EnumVal>
      <EnumVal ord="3">Minus</EnumVal>
    </EnumType>
    <EnumType id="ITMOpType_1">
      <EnumVal ord="0">No operation</EnumVal>
      <EnumVal ord="1">Or</EnumVal>
      <EnumVal ord="2">And</EnumVal>
      <EnumVal ord="3">Minus</EnumVal>
    </EnumType>
    <EnumType id="HysDirType">
      <EnumVal ord="0">Down</EnumVal>
      <EnumVal ord="1">Up</EnumVal>
    </EnumType>
  </DataTypeTemplates>
</SCL>
```

9 DNP 3 and IEC 60870: How to download the corresponding point map file?

Warning: These files become active and thus available for downloading only after the corresponding protocol was started. So, if you get a message such as “file not available”, you should start the corresponding protocol first before you being able to download the file.

Note the serial port protocols on the 408: As the serial port is shared for both setting up parameters (usually in Neoptix mode) and for the protocols, the protocols will need to be started and stopped using the keypad. Refer to the 408 user guide for more information on how to do this (menu “Prtl”).

9.1 Protocols over Ethernet

For Modbus, DNP 3.0 and IEC 60870-5-104: Downloading point map files over the Ethernet is very simple. Please refer to the user guide for the product you are using (G1048 for the TG2-B, G1022 for the T/Guard-408XT or G1026 for the QGateway).

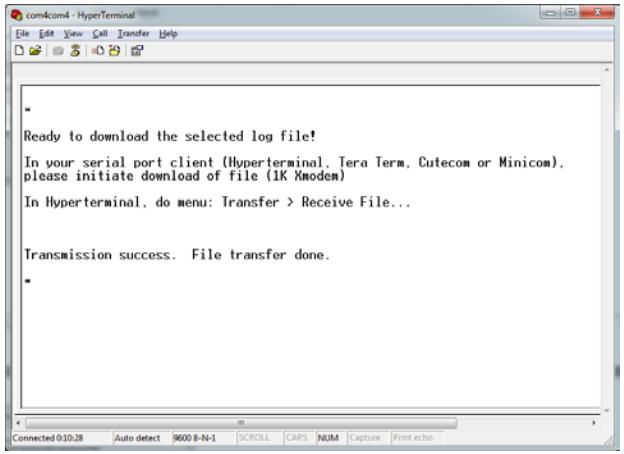
9.2 Protocols over the serial port (408 and TG2-B)

Recommendation: If you can use the new Neoptix software package OptiLink-II, you should!!! It would make your life much easier.

The procedure below implies the use of the HyperTerminal software tool, which some users may not like. Neoptix has recently dev eloped a new software tool, called OptiLink-II, that can be used to download the point map files; the use of this new tool is highly recommended. A copy is on the CD that comes with all Neoptix instruments, or you can download the most recent version from the Internet; contact Neoptix for the latest information. Refer to the 408 User Guide for more information on how to use OptiLink-II.

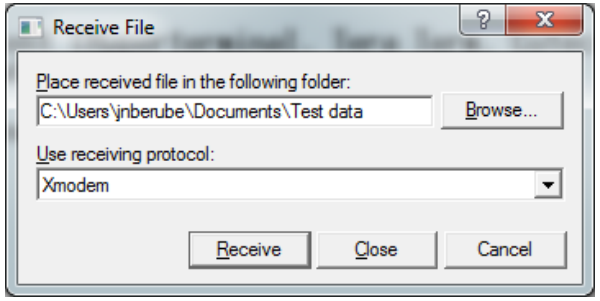
Working over the serial RS-485 port is somewhat more complicated. You will need to use the xmodem protocol to download the appropriate file. This can be best done with HyperTerminal or with Tera-Term. The following shows an example while using HyperTerminal. You can download the following two files only: dnp3pt.txt and 60870pt.txt. The following is an example for the DNP 3.0 protocol.

Start HyperTerminal and make sure it is properly connected to the 408 or the TG2-B (you should receive a “*” in response to a <cr> character. Then enter this command: “d:dnp3pt.txt <cr>” (sorry, no echoes with HyperTerminal).

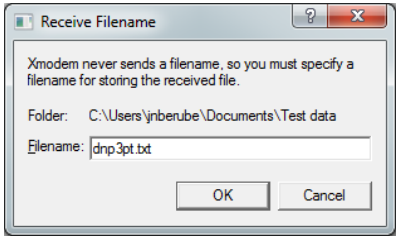


Note: the above window content shows the whole transfer process.

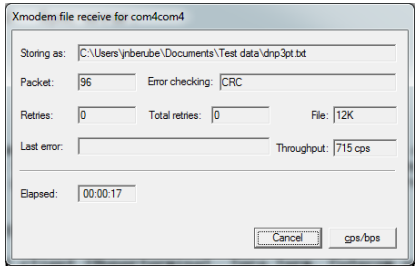
Select “Transfer” from the HyperTerminal menu bar, and then “Receive File…” this window will appear:



Make sure “Xmodem” protocol is selected. Click the “Receive” button. You will then be prompted for a file name, as follows: Click “OK” to start the file download.



During data transmission, this progress window should show up until the download is finished (about 10 to 15 seconds).



The resulting file should be read with WordPad (notepad not recommended).

9.3 Protocols over the serial port (405)

With the new 405 T/Guard instrument, the download of the point map files must be done using the OptiLink-II facility (HyperTerminal cannot be used). Refer to the 405 User Guide for more information on how to use the OptiLink-II software.

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