

MANUAL

EMU PROFESSIONAL LON



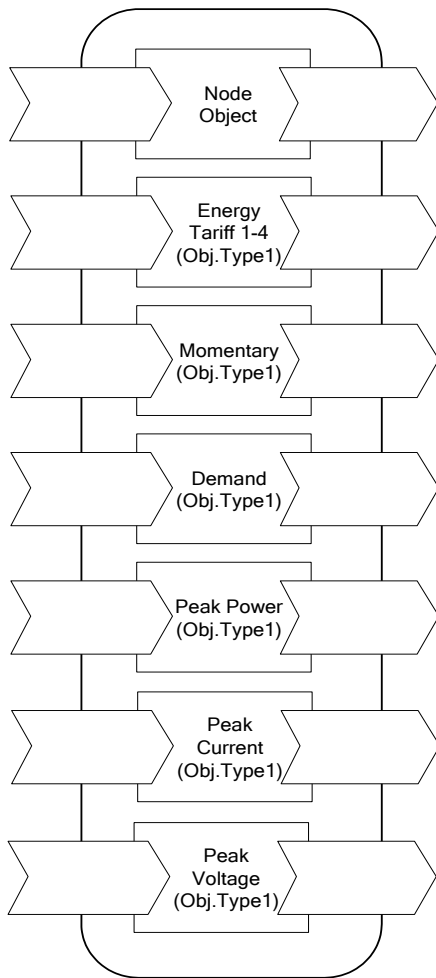
EMU_011904

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1 EMU_011904

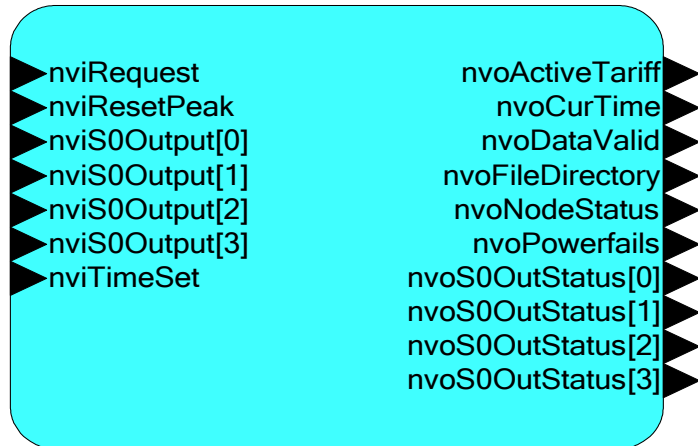
1.1 Overview



Overview of Objects

1.2 Device object

1.2.1 Network interface



Geräte Objekt

Nr.	Network variable	Type	Description
1	nviRequest	SNVT_obj_request	Request for object status
2	nvoNodeStatus	SNVT_obj_status	Object status
3	nviTimeSet	SNVT_time_stamp	Control input for EMU clock
4	nvoFileDirectory	(SNVT_address) &	System variable (SCTP address config.)
5	nvoActTime	SNVT_time_stamp	Time of internal RTC (updated every minute)
6	nvoPowerfails	SNVT_count	Number of power outages
7	nvoActiveTariff	SNVT_count	Active tariff 1..4 (updated every minute).
8	nviResetMinMax	SNVT_switch	Reset of peak values (Min- and Max.) When changing from 0 to 1.
9.. 12	nvoS0OutStatus[4]	SNVT_switch	Status of S0 output 1...4 (-1 = not configured, 0 = off, 1 = on) (is updated every minute).
13. 16	nviS0Output[4]	SNVT_switch	Set S0 output 1 ... 4 (0 = off, 1 = on), only possible if the corresponding nvoS0OutStatus is not -1 (not configured).
17	nvoDataValid	SNVT_switch	State of the communication by the LON module EMU and thus all of the data from the EMU. (-1 = Initialize, 0 = Invalid, 1 = Valid)

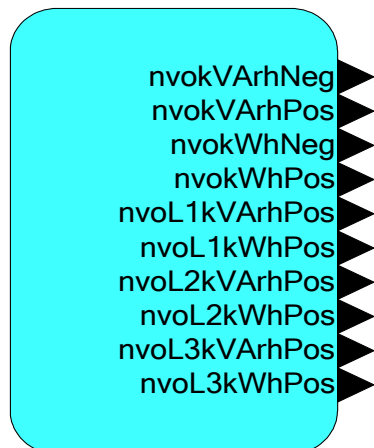
1.2.2 Configuration of device object

Nr.	CPT	Description	Default
1	SCPTneuronId (SCP_Type301)	Neuron ID of the LON node, this can only be determined online. (requires at least LonMark® Resource Files V13 is otherwise displayed SCP_Type301)	0x00000000
2	SCPTdevMajVer	Version number of the LON application. The first digit refers to major changes in the network or configuration interface which are not compatible with older versions. The second priority is for extensions on network or configuration interface. These changes are compatible with older versions, older versions can be updated by "load".	00
3	SCPTdevMinVer	This configuration property is read directly from the LON node and can only be found online. At this point, subsequent corrections and improvements to the LON interface are listed.	00
4	SCPTserialNumber	Serial number, version and checksum of the EMU. (Ex. "Snr: 1234 Ver: 1.0 Chk: 4F65") This configuration property is read directly from the node and can only be determined online.	Spaces
5	SCPTlocation	User-defined device name or location (up to 30 ASCII characters)	Spaces

1.2.3 Energy Tariff 1..4

The object displays Energy. Import or Export, active and reactive energy per tariff.

1.2.4 Network interface



Energy Tariff 1

Nr.	Network variable	Type	Description
1	nvokWhPos	SNVT_elec_kwh_I	Active Energy Import all phases
2	nvokWhNeg	SNVT_elec_kwh_I	Active Energy Export all phases
3	nvokVArhPos	SNVT_elec_kwh_I	Reactive Energy Import all phases
4	nvokVArhNeg	SNVT_elec_kwh_I	Reactive Energy Export all phases
5	nvoL1kWhPos	SNVT_elec_kwh_I	Active Energy Import Phase L1
6	nvoL2kWhPos	SNVT_elec_kwh_I	Active Energy Import Phase L2
7	nvoL3kWhPos	SNVT_elec_kwh_I	Active Energy Import Phase L3
8	nvoL1kVArhPos	SNVT_elec_kwh_I	Reactive Energy Import Phase L1
9	nvoL2kVArhPos	SNVT_elec_kwh_I	Reactive Energy Import Phase L2
10	nvoL3kVArhPos	SNVT_elec_kwh_I	Reactive Energy Import Phase L3

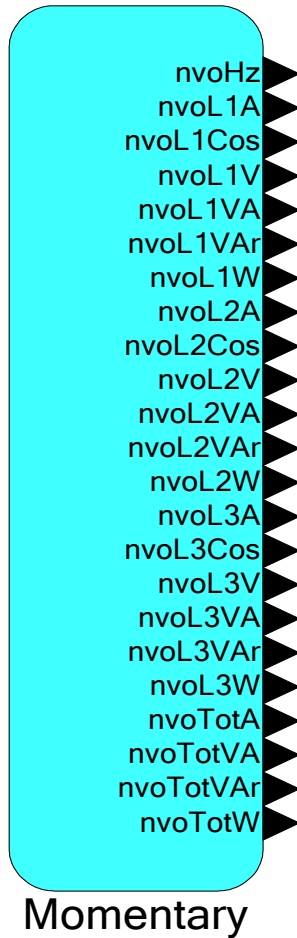
1.2.5 Configuration of Energy Tariff (Configuratin for all tariffs)

Nr.	CPT	Unit	Description	Default
1	SCPTmaxSndT	D hh:mm:ss. mmm	The network variables are updated periodically after the set time. The range is 1 minute to 17h 59m, resolution 1 minute.	0 00:01:00. 000

1.3 Momentary

The object Momentary displays current values of the active, reactive and apparent power, as well as current, voltage and power factor.

1.3.1 Network interface



Nr.	Network variable	Type	Description
1	nvoTotW	SNVT_power_f	Instantaneous active power of all phases
2	nvoL1W	SNVT_power_f	Instantaneous active power of Phase 1
3	nvoL2W	SNVT_power_f	Instantaneous active power of Phase 2
4	nvoL3W	SNVT_power_f	Instantaneous active power of Phase 3
5	nvoTotVAr	SNVT_power_f	Instantaneous reactive power of all phases
6	nvoL1VAr	SNVT_power_f	Instantaneous reactive power of Phase 1
7	nvoL2VAr	SNVT_power_f	Instantaneous reactive power of Phase 2
8	nvoL3VAr	SNVT_power_f	Instantaneous reactive power of Phase 3

9	nvoTotVA	SNVT_power_f	Instantaneous apparent power of all phases
10	nvoL1VA	SNVT_power_f	Instantaneous apparent power of Phase 1
11	nvoL2VA	SNVT_power_f	Instantaneous apparent power of Phase 2
12	nvoL3VA	SNVT_power_f	Instantaneous apparent power of Phase 3
13	nvoTotA	SNVT_amp_f	Current of all phases
14	nvoL1A	SNVT_amp_f	Current Phase 1
15	nvoL2A	SNVT_amp_f	Current Phase 2
16	nvoL3A	SNVT_amp_f	Current Phase 3
17	nvoL1V	SNVT_volt_f	Voltage Phase 1
18	nvoL2V	SNVT_volt_f	Voltage Phase 2
19	nvoL3V	SNVT_volt_f	Voltage Phase 3
20	nvoHz	SNVT_freq_f	Frequency
21	nvoL1Cos	SNVT_pwr_fact	power factor of phase 1
22	nvoL2Cos	SNVT_pwr_fact	power factor of phase 2
23	nvoL3Cos	SNVT_pwr_fact	power factor of phase 3

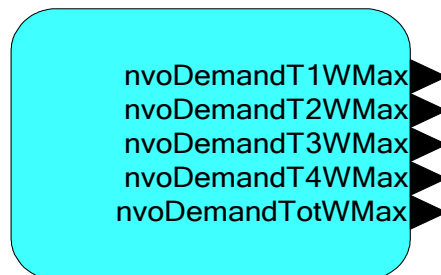
Tabelle 1 Netzwerkinterface Momentary

1.3.2 Configuration of Momentary

Nr.	CPT	Unit	Description	Default
1	SCPTmaxSndT	D hh:mm:s s. mmm	The network variables are updated periodically after the set time. The range is from 1 second to 17h 59m, 1-second resolution.	0 00:00:04. 000

1.4 Demand

The object demand displays values of maximum active power-measurement period.



Demand

Nr.	Network variable	Type	Description
1	nvoDemandTotWMax	SNVT_power_f	Maximum active power all tariffs
2	nvoDemandT1WMax	SNVT_power_f	Maximum active power tariff 1
3	nvoDemandT2WMax	SNVT_power_f	Maximum active power tariff 2
4	nvoDemandT3WMax	SNVT_power_f	Maximum active power tariff 3
5	nvoDemandT4WMax	SNVT_power_f	Maximum active power tariff 4

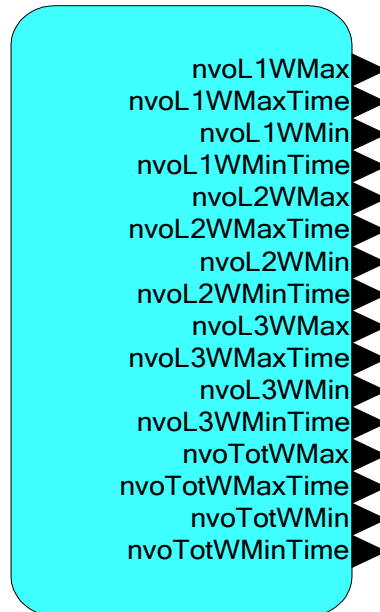
1.4.1 Configuration of Demand

Nr.	CPT	Unit	Description	Default
1	SCPTmaxSndT	D hh:mm:s s. mmm	The network variables are updated periodically after the set time. The range is 1 minute to 17h 59m, resolution 1 minute..	0 00:01:00. 000

1.5 Peak Power

The object peak power displays peak values (min and max) of active power with timestamp.

1.5.1 Network interface



Peak Power

Nr.	Network variable	Type	Description
1	nvoTotWMin	SNVT_power_f	Min. Active Power all phase
2	nvoTotWMinTime	SNVT_time_stamp	Timestamp of nvoTotWMin
3	nvoL1WMin	SNVT_power_f	Min. Active Power of Phase 1
4	nvoL1WMinTime	SNVT_time_stamp	Timestamp of nvoL1WMin
5	nvoL2WMin	SNVT_power_f	Min. Active Power of Phase 2
6	nvoL2WMinTime	SNVT_time_stamp	Timestamp of nvoL2WMin
7	nvoL3WMin	SNVT_power_f	Min. Active Power of Phase 3
8	nvoL3WMinTime	SNVT_time_stamp	Timestamp of nvoL3WMin
9	nvoTotWMax	SNVT_power_f	Max. Active Power aller Phasen
10	nvoTotWMaxTime	SNVT_time_stamp	Timestamp of nvoTotWMax
11	nvoL1WMax	SNVT_power_f	Max. Active Power of Phase 1
12	nvoL1WMaxTime	SNVT_time_stamp	Timestamp of nvoL1WMax
13	nvoL2WMax	SNVT_power_f	Max. Active Power of Phase 2

14	nvoL2WMaxTime	SNVT_time_stamp	Timestamp of nvoL2WMax
15	nvoL3WMax	SNVT_power_f	Max. Active Power of Phase 3
16	nvoL3WMaxTime	SNVT_time_stamp	Timestamp of nvoL3WMax

1.5.2 Konfiguration Peak Power

Nr.	CPT	Unit	Description	Default
1	SCPTmaxSndT	D hh:mm:s s. mmm	The network variables are updated periodically after the set time. The range is 1 minute to 17h 59m, resolution 1 minute.	0 00:01:00. 000

1.6 Peak Current

The object peak current (minimum and maximum) shows current of each phase with timestamp.

1.6.1 Network interface

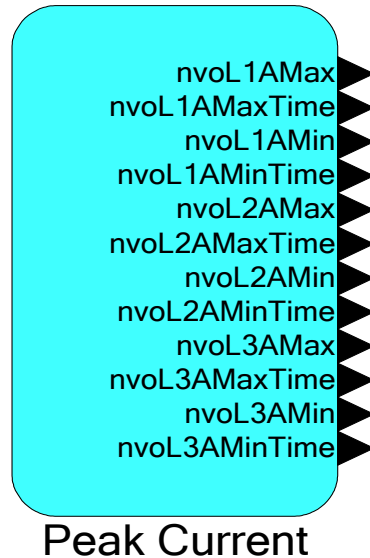


Abbildung 1 Netzwerkinterface Peak Current

Nr.	Network variable	Type	Description
1	nvoL1AMin	SNVT_amp_f	Min. Current Phase 1
2	nvoL1AMinTime	SNVT_time_stamp	Timestamp of nvoL1AMin
3	nvoL2AMin	SNVT_amp_f	Min. Current Phase 2
4	nvoL2AMinTime	SNVT_time_stamp	Timestamp of nvoL2AMin
5	nvoL3AMin	SNVT_amp_f	Min. Current Phase 3
6	nvoL3AMinTime	SNVT_time_stamp	Timestamp of nvoL3AMin
7	nvoL1AMax	SNVT_amp_f	Max. Current Phase 1
8	nvoL1AMaxTime	SNVT_time_stamp	Timestamp of nvoL1AMax
9	nvoL2AMax	SNVT_amp_f	Max. Current Phase 2
10	nvoL2AMaxTime	SNVT_time_stamp	Timestamp of nvoL2AMax
11	nvoL3AMax	SNVT_amp_f	Max. Current Phase 3
12	nvoL3AMaxTime	SNVT_time_stamp	Timestamp of nvoL3AMax

Tabelle 2 Netzwerkinterface Peak Current

1.6.2 Configuration of Peak Current

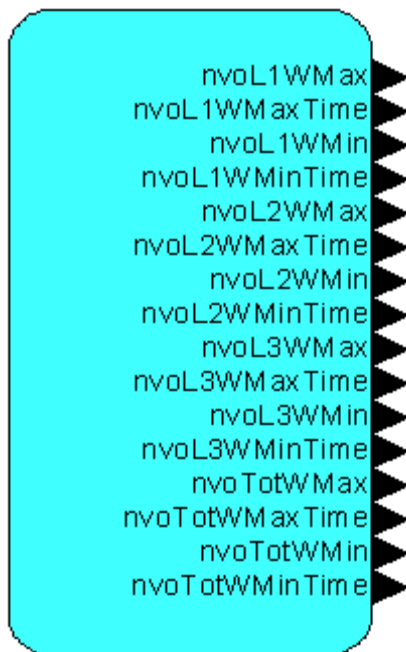
Nr.	CPT	Unit	Description	Default
1	SCPTmaxSndT	D hh:mm:s s. mmm	The network variables are updated periodically after the set time. The range is 1 minute to 17h 59m, resolution 1 minute.	0 00:01:00. 000

Abbildung 2 Konfigurationsvariablen

1.7 Peak Voltage

The object peak voltage (minimum and maximum) shows voltage of each phase with timestamp.

1.7.1 Network interface



Peak Voltage

Nr.	Network variable	Type	Description
1	nvoL1VMin	SNVT_volt_f	Min. Voltage of Phase 1
2	nvoL1VMinTime	SNVT_time_stamp	Timestamp of nvoL1VMin
3	nvoL2VMin	SNVT_volt_f	Min. Voltage of Phase 2
4	nvoL2VMinTime	SNVT_time_stamp	Timestamp of nvoL2VMin
5	nvoL3VMin	SNVT_volt_f	Min. Voltage of Phase 3
6	nvoL3VMinTime	SNVT_time_stamp	Timestamp of nvoL3VMin

7	nvoL1VMax	SNVT_volt_f	Max. Voltage of Phase 1
8	nvoL1VMaxTime	SNVT_time_stamp	Timestamp of nvoL1VMax
9	nvoL2VMax	SNVT_volt_f	Max. Voltage of Phase 2
10	nvoL2VMaxTime	SNVT_time_stamp	Timestamp of nvoL2VMax
11	nvoL3VMax	SNVT_volt_f	Max. Voltage of Phase 3
12	nvoL3VMaxTime	SNVT_time_stamp	Timestamp of nvoL3VMax

1.7.2 Configuration of Peak Voltage

Nr.	CPT	Unit	Description	Default
1	SCPTmaxSndT	D hh:mm:s s. mmm	The network variables are updated periodically after the set time. The range is 1 minute to 17h 59m, resolution 1 minute.	0 00:01:00. 000

1.8 Hardware

Detailed information can be found in the data sheet of the counter.

1.8.1 LON-Interface

Bus-specification	FT-10 (polarity independent)
Baud rate	78 kbps