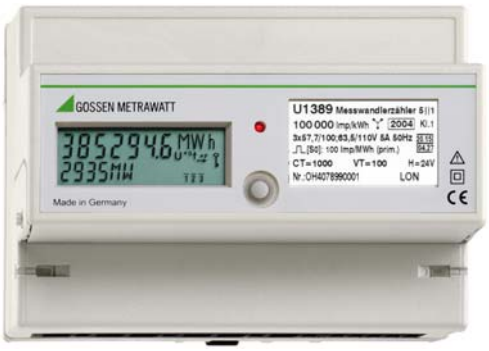
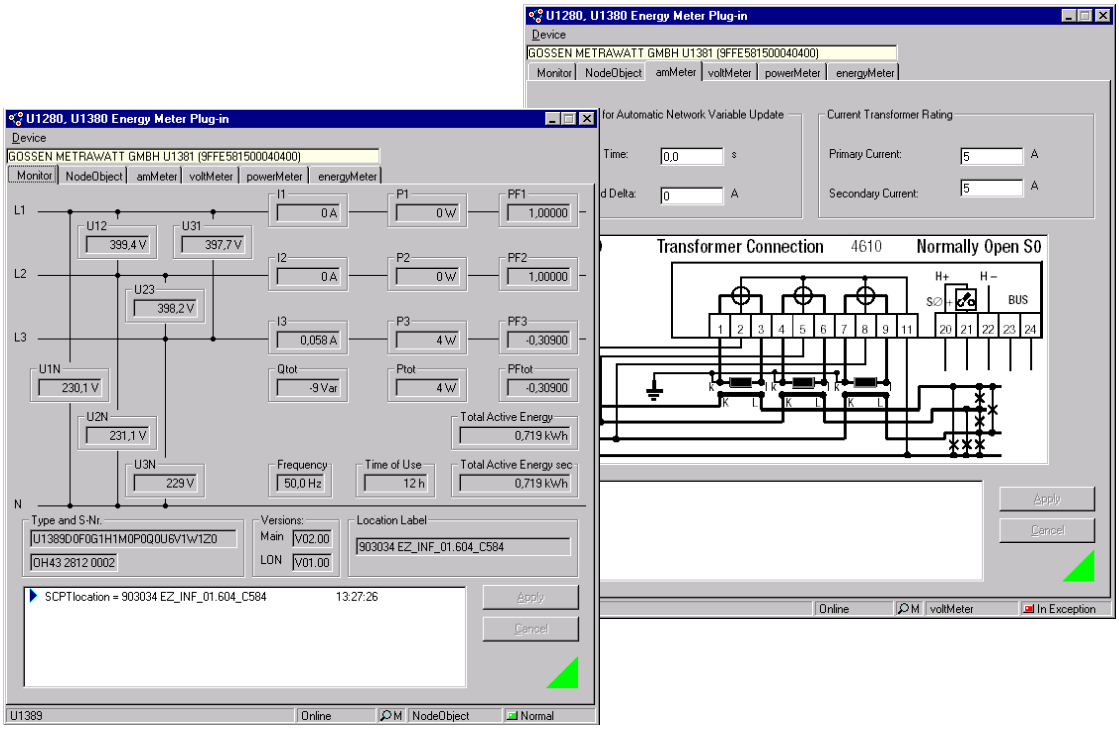
GOSSEN METRAWATT

U128x-W1 and U138x-W1

Electronic Active and reactive Energy Meters with LON Interface LONWORKS®

3-349-312-03
7/2.13





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1 General Information Regarding the LON Bus

LON (local operating network) is a multi-network compatible communication system for distributed applications.
Central control tasks are broken down into subtasks which are then executed in a decentralized fashion. The subtasks are executed at so-called nodes without placing any load on the bus system.
Functional units are assigned to the nodes, for example units required for ascertaining measured quantities.
The system can be centrally controlled, operated and configured via the LON interface by means of an LNS plug-in for a Windows application.

LON is used primarily in building automation applications.

2 Overview

Series U128x-W1 and U138x-W1 energy meters consist of 5 objects:

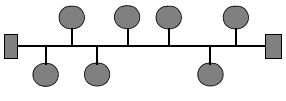
Node	nodeObject
Voltmeter	voltMeter
Ammeter	amMeter
Energy meter	energyMeter
Power meter	powerMeter

3 Wiring

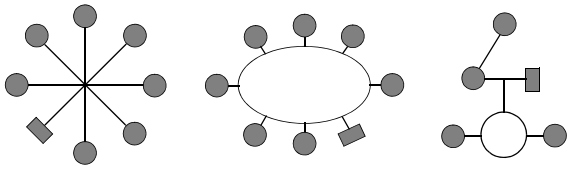
The most commonly utilized transmission medium for industrial and building management applications is twisted pair copper cable, which is used together with the electrically isolated FTT-10A transceiver. Both of the conductors can be connected to either pole, and installation is thus reverse polarity protected.

Maximum transmission distances are influenced by the electrical characteristics of the cable, and network topology.
Utilized cables should comply with the stipulated specifications in order to prevent interference during communication. Due to the possibility of reflections, only one cable type may be used in any given bus segment.

3.1 Network Topologies



Bus Topology
(bus terminator at both ends)



Free Topology
(bus terminator at one end)

Where bus topologies are used, the individual devices are connected in parallel one after the other. A bus terminating resistor must be used at each end. Only one bus terminator is required with free topologies, but transmission distances are limited in this case.

The energy meters are not equipped with internal bus terminating resistors (see chapter 3.6 on page 3).

3.2 Recommendations

The following recommendation is based upon experience gained by GMC-I Messtechnik GmbH during installation and start-up of LON systems. The environment within which the cable is laid has a decisive influence on correct cable selection, and must therefore be taken into consideration during the planning stage. All generally applicable directives for laying control and telecommunications cables must be adhered to during installation.

3.3 Use of Repeaters

If repeaters are used the bus signal can be refreshed, thus increasing maximum possible transmission distance. Due to response characteristics, only one passive repeater may be included within any given bus segment. The transition to other physical transmission media, and/or targeted forwarding of data packets to individual bus segments, is accomplished by means of routers.

3.4 Maximum Cable Lengths

Cable Type / Cable Designation	Bus Topology (bus terminator at both ends)	Free Topology (bus terminator at one end)
JY (ST) Y 2 ea. 2 x 0.8 mm	900 m	500 m, max. 320 m device to device
UNITRONIC bus cable	900 m	500 m, max. 320 m device to device
Level IV, 22AWG	1400 m	500 m, max. 400 m device to device
Belden 8471	2700 m	500 m, max. 400 m device to device
Belden 85102	2700 m	500 m

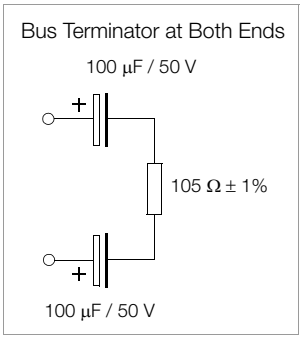
Specified values apply to total cable length, and are only valid for the FTT-10A transceiver.

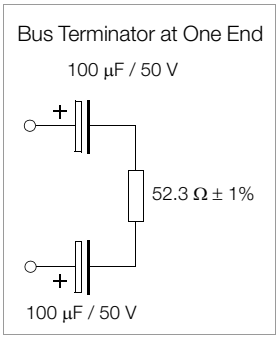
3.5 Cable Type

Inexpensive wiring is possible for applications in environments with minimal interference using the following cable type:
JY (ST) Y 2 ea. 2 x 0.8 mm with twisted wire pairs. The above specified dimension of 0.8 mm refers to the diameter of the wire, which results in a wire cross-section of 0.5 square mm.

In most cases no shielding is required. It may be possible to eliminate communications problems occurring in environments with excessive interference by connecting the shield at one end. If cables are used which contain several wire pairs, it may be advantageous if the individual pairs are shielded. Special LON bus cable can be used for highly demanding requirements.

3.6 Bus Termination





An adjustable bus terminator is frequently included in master stations, which must be set in accordance with the utilized topology. Additional bus terminators are required for bus topologies, and where repeaters are utilized. These can be purchased as auxiliary LON component U1664 in top-hat rail mount housing. Each unit includes a one-ended and a two-ended bus terminator.

4 Network Interface

4.1 Network Variables

Measured quantities and energy meter status information available within the network are defined as standard network variable types (SNVT).

The software tools can be furnished with all information necessary for integration by accessing the GMC-I Messtechnik GmbH website at www.gossenmetrawatt.com.

Node – nodeObject ObjectId: 0

Nv Index	Network Variable	Data Type	Description
0	nviRequest	SNVT_obj_request	Query the object status
2	nvoStatus	SNVT_obj_status	Read out the object status
3	nvoFileDirectory	SNVT_address	Start address of the configuration file
1	nviTimeSet	SNVT_time_stamp	Set date and time
4	nvoOemType	SNVT_str_asc	Device type and features
5	nvoSerialNumber	SNVT_str_asc	Serial number and firmware version of the master program
6	nvoPowerUpHours	SNVT_time_hour	Operating hours since the last time operating voltage was switched on
Import	**Configuration Property**	**Data Type**	**Description**
Nv 1	cpMaxStsSendT	SCPTmaxSndT (SNVT_elapsed_tm)	Maximum time until transmission of nvoStatus
Device	cpDevMajVer	SCPTdevMajVer (unsigned short)	LON firmware version, read-only
Device	cpDevMinVer	SCPTdevMinVer (unsigned short)	LON firmware version, read-only
Device	cpLocation	SCPTlocation (SNVT_str_asc)	Installation location and meter number

Ammeter – amMeter ObjectId: 1

Nv Index	Network Variable	Data Type	Description
Phase current			
7	nvoI1	SNVT_amp_f	Current in phase L1
9	nvoI2	SNVT_amp_f	Current in phase L2
8	nvoI3	SNVT_amp_f	Current in phase L3
10	nvoIAvg	SNVT_amp_f	Phase current mean value
Import	**Configuration Property**	**Data Type**	**Description**
Current transformer data			
Object	cpAmpMaxSndT	SCPTmaxSendTime (SNVT_time_sec)	Send condition: maximum time until transmission of network variables
Object	cpAmpSndDelta	UCPTampSendDelta (SNVT_amp_f)	Send condition: delta current
Object	cpCTConnType	UCPTconnType (conn_type)	Current transformer connection type, read-only
Object	cpCTPrimary	UCPTctCurrentPrim (SNVT_amp_f)	Nominal primary transformer current
Object	cpCTSecondary	UCPTctCurrentSec (SNVT_amp_f)	Nominal secondary transformer current

Power meter – powerMeter ObjectId: 2

Index	Network Variable	Data Type	Description
Active Power			
11	nvoWatTot	SNVT_power_f	Total active power, all 3 phases
12	nvoWat1	SNVT_power_f	Active power in phase L1
13	nvoWat2	SNVT_power_f	Active power in phase L2
14	nvoWat3	SNVT_power_f	Active power in phase L3
Reactive Power			
15	nvoVarTot	SNVT_power_f	Total reactive power, all 3 phases
Power Factor			
16	nvoPwrFactrTot	SNVT_pwr_fact	Overall power factor
17	nvoPwrFactr1	SNVT_pwr_fact	Power factor in phase L1
18	nvoPwrFactr2	SNVT_pwr_fact	Power factor in phase L2
19	nvoPwrFactr3	SNVT_pwr_fact	Power factor in phase L3
Im-port	**Configuration Property**	**Data Type**	**Description**
Nv 11 ... 15	cpPwrSndDelta	UCPTpwrSendDelta (SNVT_power_f)	Send condition: delta power (active and reactive power)
Nv 16 ... 19	cpPwrFacSndDelta	UCPTpwrFactSendDelta (SNVT_pwr_fact)	Send condition: delta power factor
Object	cpPwrMaxSndT	SCPTmaxSendTime (SNVT_time_sec)	Send condition: maximum time until transmission of network variables

Voltmeter – voltMeter ObjectId: 3

Nv Index	Network Variable	Data Type	Description
Phase Voltages			
20	nvoU12	SNVT_ volt_f	Phase-to-phase voltage, L1 and L2
21	nvoU23	SNVT_ volt_f	Phase-to-phase voltage, L2 and L3
22	nvoU31	SNVT_ volt_f	Phase-to-phase voltage, L3 and L1
23	nvoU1N	SNVT_ volt_f	Phase-to-neutral voltage, L1 and N
24	nvoU2N	SNVT_ volt_f	Phase-to-neutral voltage, L2 and N
25	nvoU3N	SNVT_ volt_f	Phase-to-neutral voltage, L3 and N
27	nvoUAvg	SNVT_ volt_f	Phase voltage mean value
26	nvoFreq	SNVT_ freq_hz	Fundamental voltage frequency
Im-port	**Configuration Property**	**Data Type**	**Description**
Object	cpVoltMaxSndT	SCPTmaxSendTime (SNVT_time_sec)	Send condition: maximum time until transmission of network variables
Nv 20 ...26, 27	cpVoltSndDelta	UCPTvoltSendDelta (SNVT_volt_f)	Send condition: delta voltage
Nv 26	cpFreqSndDelta	UCPTfreqSendDelta (SNVT_freq_hz)	Send condition: delta frequency
Object	cpPTConnType	UCPTconnType (conn_type)	Voltage transformer connection type,
Object	cpPTPrimary	UCPTptVoltagePrim (SNVT_volt_f)	Nominal primary transformer voltage
Object	cpPTSecondary	UCPTptVoltageSec (SNVT_volt_f)	Nominal secondary transformer voltage

Energy meter – energyMeter ObjectId: 4

Nv Index	Network Variable	Data Type	Description
28	nviEnergyClr [1]	SNVT_switch	Reset nvoWhTot
30	nvoWhTot	SNVT_elec_whr_f	Total active energy, all 3 phases
31	nvoVarhTot	SNVT_elec_whr_f	Total reactive energy, all 3 phases
32	nvoEnergyClrTs	SNVT_time_stamp	Date and time of resetting of nvoWhTot and nvoVarhTot
29	nviEnergyFreeze [2]	SNVT_switch	Freeze active energy meter reading
36	nvoRegValWhFr	SNVT_reg_val_ts	Frozen meter reading with date and time
38	nvoRegValWhTot	SNVT_reg_val	Total active energy, all 3 phases, cannot be reset
37	nvoRegValWhSec	SNVT_reg_val	Total secondary active energy, all 3 phases, cannot be reset
39	nvoRegValVarhTot	SNVT_reg_val	Total reactive energy, all 3 phases, cannot be reset
34	nvoEnergyPwrPri	UNVT_energyPower	Energy, power and fault for use with U1601
35	nvoEnergyPwrSec	UNVT_energyPower	Secondary energy, secondary power and fault for use with U1601
40	nvoEnergyPwrVarh	UNVT_energyPower	Reactive energy, reactive power and fault for use with U1601
33	nvoEnergyFlowHrs	SNVT_time_hour	Operating hours exceeded with the meter's start-up threshold

[1] **Clear the meter reading (clear).**
The nvoWhTot meter reading can be set to zero with nviEnrgyClr.
The nvoRegValWhTot meter reading remains unaffected.

[2] **Save the meter reading (freeze).**
If the nviEnergyFreeze network variable is transmitted to the meter, the meter saves its current meter reading along with a time stamp, nvoRegValWhFr.

Im-port	Configuration Property	Data Type	Description
Object	cpEnergyMaxSndT	SCPTmaxSendTime (SNVT_time_sec)	Send condition: maximum time until transmission of network variables
Object	cpEnergySndDelta	UCPTenergySendDelta (SNVT_elec_whr_f)	Send condition: delta energy
Object	cpEngyAccumMode	UCPTenergyAccumMode (acc_mode)	Energy meter operating mode, read-only
Object	cpPulseRate	UCPTpulseRate (SNVT_count_f)	Pulse rate, S0 output 1, pulses per kWh, with reference to secondary energy, writeable with features V2 and V4, otherwise read-only

4.2 Units and Resolutions

Ammeter – amMeter ObjectId: 1

Current

CT	Display	LON Unit	LON Resolution
U128x	xx.xx A	A	10 mA
1	x.xxx A	A	1 mA
2 ... 10	xx.xx A	A	10 mA
11 ... 100	xxx.x A	A	100 mA
101 ... 1000	xxxx A	A	1 A
1001 ... 10 000	xx.xx kA	A	10 A

Voltmeter – voltMeter ObjectId: 3

Voltage

VT at U3 (100 V)	VT at U5 ... U7	Display	LON Unit	LON Resolution
--	U128x	xxx.x V	V	0.1 V
1 ... 4	1	xxx.x V	V	0.1 V
5 ... 40	2 ... 10	xxxx V	V	1 V
41 ... 400	11 ... 100	xx.xx kV	V	10 V
401 ... 1000	101 ... 1000	xxx.x kV	V	100 V

Power Meter – powerMeter ObjectId: 2

Power

CTxVT at U3	CTxVT at U5 ... U7	Display	LON Unit	LON Resolution
---	U128x	xx.xx kW	W	10 W
1 ... 4	1	xxxx W	W	1 W
5 ... 40	2 ... 10	xx.xx kW	W	10 W
41 ... 400	11 ... 100	xxx.x kW	W	100 W
401 ... 4000	101 ... 1000	xxxx kW	W	1 kW
4001 ... 40 000	1001 ... 10 000	xx.xx MW	W	10 kW
40 001 ... 400 000	10 001 ... 100 000	xxx.x MW	W	100 kW
400 001 ... 1000 000	100 001 ... 1000 000	xxxx MW	W	1 MW

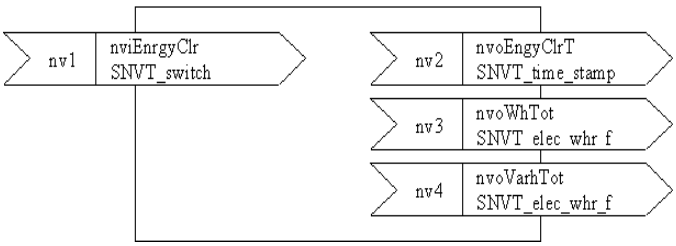
Energy Meter – energy Meter ObjectId: 4

Energy

CTxVT	Display	LON Unit	LON Resolution	LON cWh
U128x	xxxxx.xx kWh	kWh	10 Wh	0.1 Wh
1 ... 10	xxxxxxx Wh	kWh	1 Wh	0.01 Wh
11 ... 100	xxxxx.xx kWh	kWh	10 Wh	0.1 Wh
101 ... 1000	xxxxxx.x kWh	kWh	100 Wh	1 Wh
1001 ... 10000	xxxxxxx kWh	kWh	1 kWh	10 Wh
10 001 ... 100 000	xxxxx.xx MWh	MWh	10 kWh	100 Wh
100 001 ... 1 000 000	xxxxxx.x MWh	MWh	100 kWh	1 kWh

4.3 Functions of the Energy Meter Object

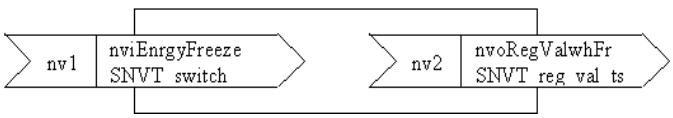
4.3.1 Resetable Energy Meter



Clearing the Meter Reading

Meter readings nvoWhTot and nvoVarhTot are set to zero with nviEnergyClr (value>0, state=1). nvoEnergyClrTs takes time and date from nviTimeSet at the node object

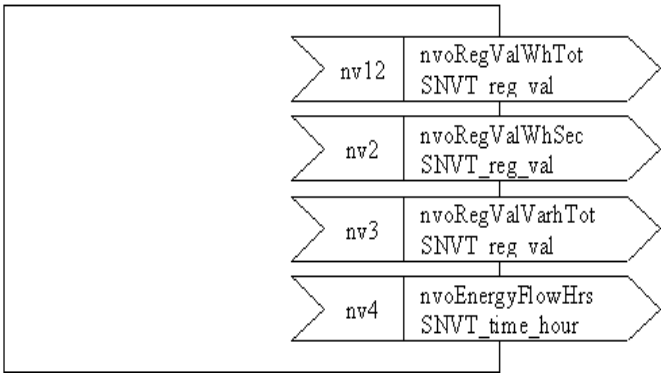
4.3.2 Freezable Energy Meter



Freezing the Meter Reading

If the nviEnergyFreeze network variable (value > 0, state = 1) is transmitted to the meter, the meter saves its present meter reading nvoRegValWhTot together with time and date from nviTimeSet. nvoRegValWhFr displays the frozen meter reading with date and time.

4.3.3 Energy Meter for Active and Reactive Energy



These meters cannot be reset. They have the following meanings:

	nvoRegValWhTot	nvoRegValWhSec	nvoRegValVarhTot
U1280	Active energy	Active energy	Reactive energy
U1380 Q0	Active energy	Active energy	Reactive energy
U1380 Q1	Primary active energy	Secondary active energy, calibrated at P1	Primary reactive energy
U1380 Q9	Primary active energy, calibrated at P1	Secondary active energy	Primary reactive energy

The network variable nvoEnergyFlowHrs indicates the number of operating hours. Operating hours are only counted when start-up current has been exceeded. Only full hours are saved to memory.

Manufacturer-Specific Configuration Types (UCPTs)

UCPTvoltSendDelta	SNVT_volt_f
UCPTfreqSendDelta	SNVT_freq_hz
UCPTConnType	conn_type
UCPTptVoltagePrim	SNVT_volt_f
UCPTptVoltageSec	SNVT_volt_f
UCPTctCurrentPrimary	SNVT_amp_f
UCPTctCurrentSec	SNVT_amp_f
UCPTenergyAccumMode	acc_mode
UCPTenergySendDelta	SNVT_elec_whr_f
UCPTpulseRate	SNVT_count_f
UCPTpwrSendDelta	SNVT_power_f
UCPTpwrFactSendDelta	SNVT_pwr_fact_f

typedef enum conn_type_t{

CT_NUL	= ÷1	—
CT_2WIRE_TRANSFORMER	= 20	U1381
CT_2WIRE_DIRECT	= 21	U1281
CT_3WIRE_TRANSFORMER	= 30	U1387
CT_3WIRE_DIRECT	= 31	—
CT_4WIRE_TRANSFORMER	= 40	U1389
CT_4WIRE_DIRECT	= 41	U1289

}conn_type;

typedef enum acc_mode_t{

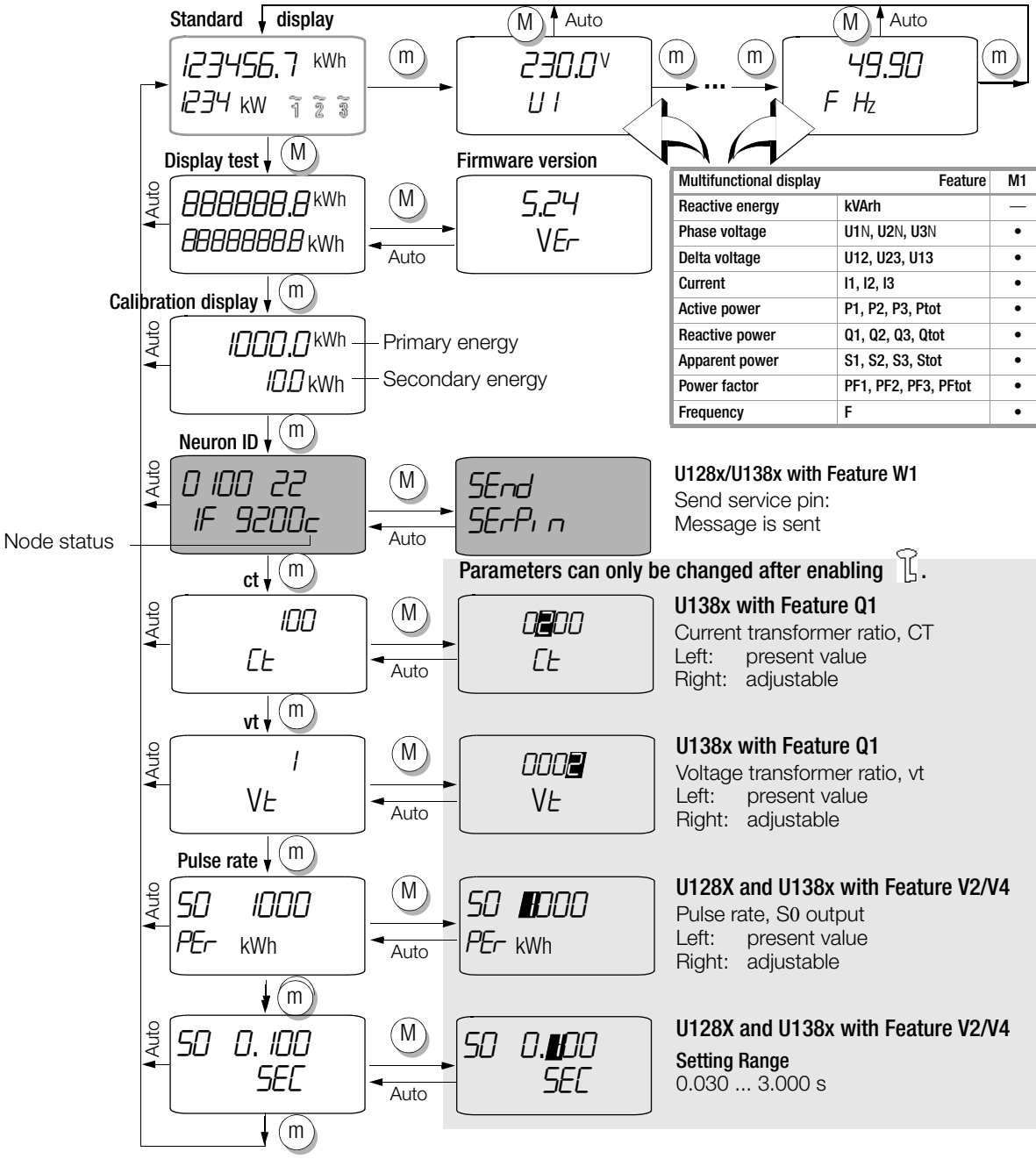
ACC_NUL	= ÷1	
ACC_BIDIR_SIGNED	= 0	Difference between energy import and energy export
ACC_BIDIR_ABS	= 1	Energy import and energy export
ACC_UNIDIR_IN	= 2	Energy import only: U1281...U1389
ACC_UNIDIR_OUT	= 3	Energy export only

}acc_mode;

4.4 Control and Display Functions

The neuron ID appears in an additional menu entry. The service pin message is transmitted by pressing and holding the key.

Overview of Parameter Setting (excerpt from operating instructions 3-349-275-15 or 3-349-618-15, expanded to include LON parameter setting)



Multifunctional display	Feature	M1	M2	M3
Reactive energy	kVArh	—	•	•
Phase voltage	U1N, U2N, U3N	•	—	•
Delta voltage	U12, U23, U13	•	—	•
Current	I1, I2, I3	•	—	•
Active power	P1, P2, P3, Ptot	•	—	•
Reactive power	Q1, Q2, Q3, Qtot	•	—	•
Apparent power	S1, S2, S3, Stot	•	—	•
Power factor	PF1, PF2, PF3, PFtot	•	—	•
Frequency	F	•	—	•

U128x/U138x with Feature W1
Send service pin:
Message is sent

Parameters can only be changed after enabling .

U138x with Feature Q1
Current transformer ratio, CT
Left: present value
Right: adjustable

U138x with Feature Q1
Voltage transformer ratio, vt
Left: present value
Right: adjustable

U128X and U138x with Feature V2/V4
Pulse rate, S0 output
Left: present value
Right: adjustable

U128X and U138x with Feature V2/V4
Setting Range
0.030 ... 3.000 s

Key

Auto	Automatic scrolling
ct	Transformation ratio, current
dt	**d**ate **t**ime
m	Press the menu key briefly
M	Press and hold the menu key
Q1	Feature: programmable transformation ratio
S0	Pulse rate SØ output
vt	Transformation ratio, voltage
V2/V4	Feature: programmable rate
W1	Feature: LON

Special LON parameter

Installing the Meter

The meter can be installed to a LON network by manually entering the neuron ID, or by triggering the service pin message.

LON Node Status (Node State) and „E Lon“ Message

The status of the LON node is indicated by means of a symbol to the right of the neuron ID. In the event of communication disturbances, E Lon is displayed on the auxiliary display of the standard display.

Symbol	Status	Error Message
c	LON chip is configured (**c**onfigured online)	No message during regular operation
		E Lon briefly (for 1 meas. cycle), e. g. in the event of a one-time disturbance or reset
n	LON chip has no application (**n**o application)	**E Lon** alternating with power display
u	LON chip is not configured (**u**nconfigured online)	**E Lon** alternating with power display
o	LON-Chip is offline (**o**ffline)	**E Lon** alternating with power display

Bus Symbol

The BUS symbol appears when the LON node in the meter transmits a data packet. The more data packets are transmitted, the longer the symbol is displayed.

Wink Command for Identifying the LON Node

When a wink command is received, the neuron ID is displayed briefly.

4.5 S0 Pulse Rate

cpPulseRate = 1...10 000 corresponds to 1...10 000/kWh with reference to secondary energy.

Features V1 and V3: Fixed Pulse Rate

Type	CTxVT	S0 Pulses	cpPulseRate (permanently set)
U1280	—	1000 / kWh	1000
U1380 Q0	1	1000 / kWh	1000
U1380 Q1	All values (transformer ratios are programmable)	1000 / kWh with reference to secondary energy	1000
U1380 Q9	1 ... 10 11 ... 100 101 ... 1000 1001 ... 10000 10001 ... 100000 100001 ... 1000000 (fixed transformation ratios)	1000 / kWh 100.0 / kWh 10.00 / kWh 1000 / MWh 100.0 / MWh 10.00 / MWh with reference to primary energy	1000 1000 1000 1000 1000 1000

Features V2 and V4: Adjustable Pulse Rate

Type	CTxVT	cpPulseRate (adjustable)	S0 Pulses
U1280	—	1 ... 1000	1 ... 1000 / kWh
U1380 Q0	1	1 ... 10 000	1 ... 10 000 / kWh
U1380 Q1	All values (transformer ratios are programmable)	1 ... 10 000	1 ... 10 000 / kWh with reference to secondary energy
U1380 Q9	1 ... 10 11 ... 100 101 ... 1000 1001 ... 10000 10001 ... 100000 100001 ... 1000000 (fixed transformation ratios)	1 ... 1000 1 ... 1000 1 ... 1000 1 ... 1000 1 ... 1000 1 ... 1000	1 ...1000 / kWh 0.1 ... 100.0 / kWh 0.01 ... 10.00 / kWh 1 ... 1000 / MWh 0.1 ... 100.0 / MWh 0.01 ... 10.00 / MWh with reference to primary energy

4.6 Error Messages

Message via LON interface	Cause / Remedy	Device Display
Node object Object Id: 0		
No error messages of its own. Transmits OR-gated error messages from all other objects.		
amMeter Object Id: 1		
over_range	A maximum current value has been exceeded.	E IHi1, E IHi 2, E IHi 3
electrical_fault	Negative power, or current transformer terminals are reversed. Check connection.	Phase symbol for the affected phase blinks.
unable_to_measure	Error in analog component. Send device to service center.	E AnALog
	Device is not calibrated. Send device to service center.	E CALib
powerMeter Object Id: 2		
No error messages		
voltMeter Object Id: 3		
over_range	A maximum voltage value has been exceeded.	E UHi1, E UHi 2, E UHi 3
under_range	Phase failure or, a minimum voltage value has been fallen short of. Check connection.	 Phase symbol for affected voltage disappears, e.g. phase 2
electrical_fault	Incorrect phase sequence. Check connection.	Phase symbols blink in following order: ~3 ~2 ~1
unable_to_measure	Synchronization to line-frequency is not possible.	E SYnc
energyMeter Object Id: 4		
Electrical fault	EEPROM for meter reading is defective, send device to service center.	E EnErgY

Report Mask for All Objects

Error Message	Node object	amMeter	powerMeter	voltMeter	energyMeter
Object_Id	0	1	2	3	4
invalid_id	0	0	0	0	0
invalid_request	0	0	0	0	0
disabled	0	0	0	0	0
out_of_limits	0	0	0	0	0
open_circuit	0	0	0	0	0
out_of_service	0	0	0	0	0
mechanical_fault	0	0	0	0	0
feedback_failure	0	0	0	0	0
over_range	1	1	0	1	0
under_range	1	0	0	1	0
electrical_fault	1	1	0	1	1
unable_to_measure	1	1	0	1	0
comm_failure	0	0	0	0	0
fail_self_test	0	0	0	0	0
self_test_in_progress	0	0	0	0	0
locked_out	0	0	0	0	0
manual_control	0	0	0	0	0
in_alarm	0	0	0	0	0
in_override	0	0	0	0	0
report_mask	1	1	1	1	1

4.7 Configuring the Meter with the LNS Plug-In and Displaying Current Measured Values

The meter can be fully configured via the LON interface. An LNS plug-in is available on the Internet to this end. In addition to LON-specific configuration, Ct, Vt and S0 pulse rate can also be adjusted.

The plug-in provides a monitor function as well. All important measured values from the 3-phase system can be displayed as an overview with this function.

What is an LNS plug-in?

LNS stands for **L**ONWORKS **N**etwork **S**ervices, and is the network operating system for LONWORKS. An LNS plug-in makes use of the functions provided by this operating system, and thus represents an expansion, or an adaptation, of the functions provided by an LNS-based installation tool. The user is unable to see whether any given function is executed by the installation tool itself, or by a plug-in.

The LNS Plug-In: U1381PlugIn.exe

The plug-in requires an installation tool based on LNS 3.0, for example LonMaker from Echelon. It is subdivided into a device menu, a template line, six tab cards including monitor, NodeObject, amMeter, voltMeter, powerMeter and energyMeter, the log window and a status line.

The monitor tab card provides an overview of quantities within the 3-phase system. The rest of the tab cards are allocated to the meter's objects and are used to configure them.

4.7.1 Downloading, Unzipping, Installing, Registering and Starting the LNS-Plug

System Requirements

If the following system requirements are not fulfilled, you'll need to update your LonMaker version first:

Echelon LonMaker version:	3.13.10
LNS version:	3.08.05
NSS version:	3.08.5

Downloading the LNS Plug-In

The LNS plug-in is available as a zip file at the web address for meters U1281 through U1389, for example:
www.gossenmetrawatt.com/deutsch/produkte/u1281.htm

Unzipping the Archive and Installing the Plug-In Files

1. Unzip the archive into a newly created directory.
2. Read the included readme file (readme.txt). This file contains up-to-date installation instructions.
3. Copy the GM directory from Plug-Ins to LonWorks\Plug-Ins.
4. Copy the LcaDevCtrs.ocx file from Bin to LonWorks\bin.
5. Copy the GM directory from Types to LonWorks\types\User.
6. Copy the GM directory from Import to LonWorks\Import.

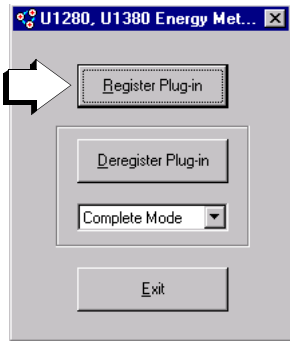
Registering and Starting the LNS-Plug-In

The following steps must be completed before the plug-in can be started:

1. Register the plug-in in the Windows registry.

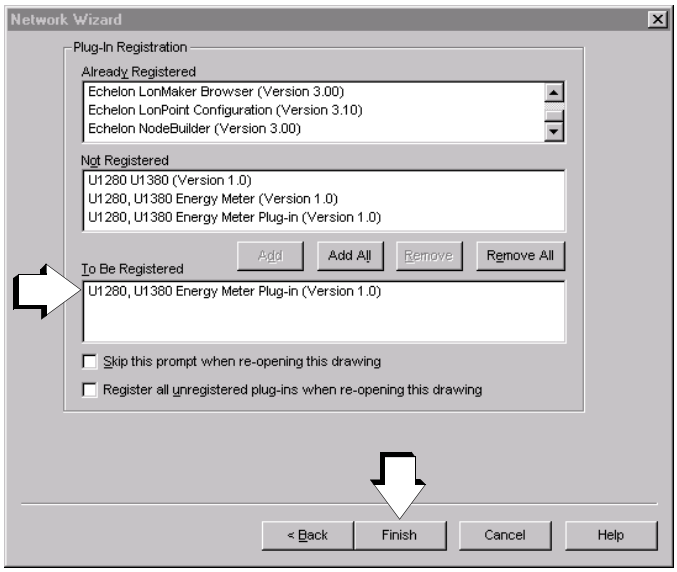
LonMaker may not be launched.

Start the U1381PlugIn.exe file in the Windows explorer for registration. Click the Register Plug-in button.



2. Register the plug-in in the installation tool (LonMaker in this case).

After starting LonMaker, the Plug-In Registration window appears. The plug-in to be registered should appear in the To Be Registered window. Select Finish, in order to register the plug-in.



Alternatively, registration can be executed using the Plug-In Registration tab card after clicking Network Properties in the LonMaker menu. Select the plug-in to be registered in the Not Registered window, and click the Add button. The plug-in then appears on the To Be Registered window. Click the OK button.

3. Start the plug-in.

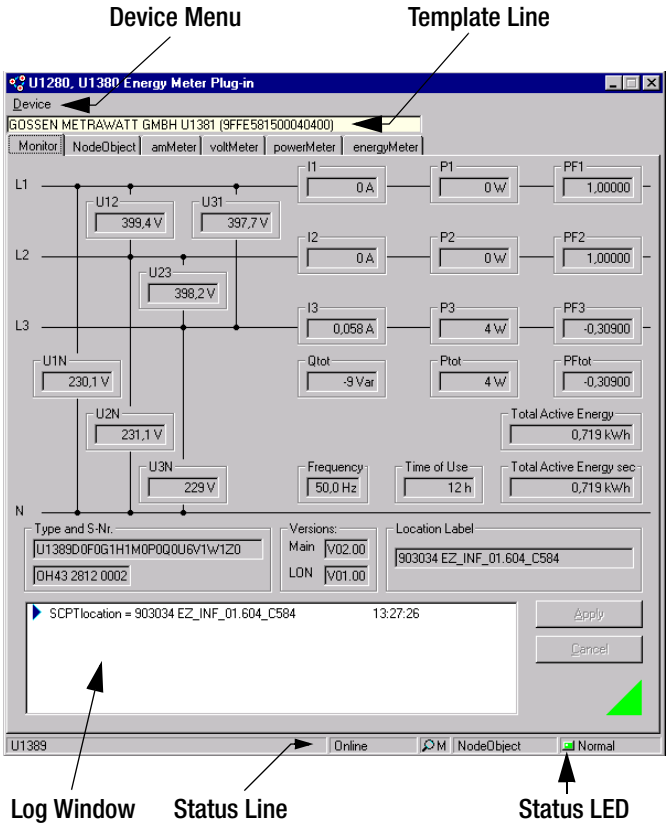
For LonMaker, click the device to be configured to this end, press the right mouse key and select Configure. The plug-in is started and the Monitor tab card appears.

4.7.2 Descriptions of Tab Cards for the LNS Plug-In

Tab Card with Measurement Data Overview – Monitor

In addition to quantities in the 3-phase system, the Monitor tab card also include meter type and features, manufacturing serial number, software version and the Location Label assigned by the user.

Primary values for voltage, current, power and energy are displayed for transformer meters, and the secondary value is displayed for active energy as well (Total Active Energy sec).



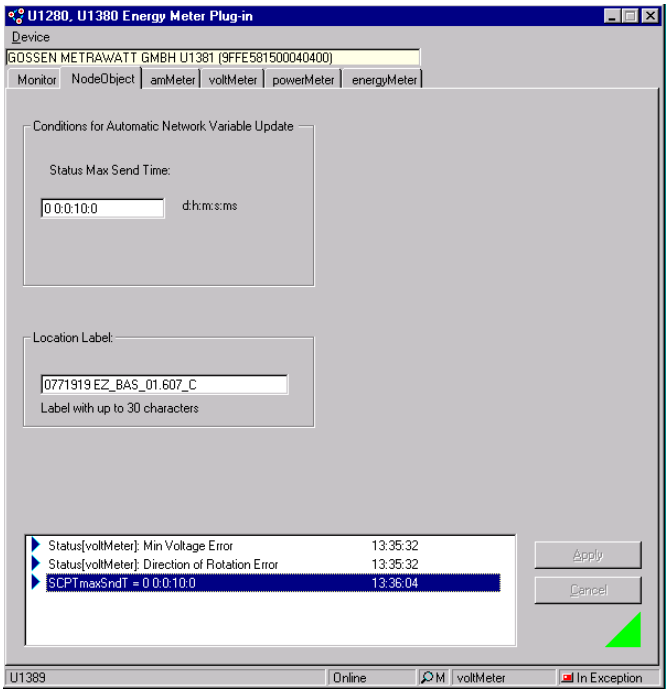
The log window can be cleared or saved to memory with the help of the **Device** menu, and the monitor function can be activated and deactivated.

The **Template** line displays the meter's manufacturer, designation and program ID.

Errors and parameter changes appear in the **Log** window along with a time stamp, and can be saved to a data file.

The **Status** line displays the device names assigned by the user, the node status, monitoring, the selected object and the corresponding status LED.
A magnifying glass appears if monitoring has been activated. One of the meter's objects can be selected by clicking the object field, and the field to the right indicates the respective status.
A green LED indicates that everything is OK, and a red LED indicates an object error.
NodeObject indicates OR gating for all error messages.

The Node Tab Card – NodeObject



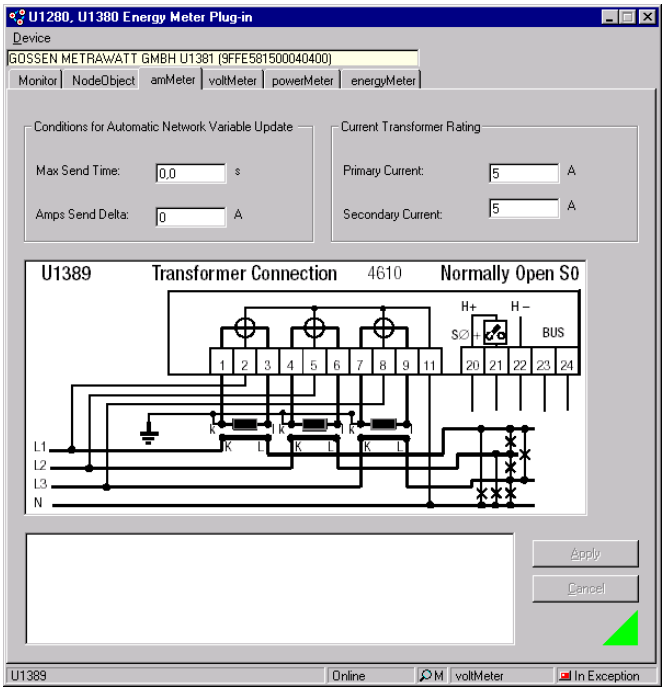
Conditions for Automatic Network Variable Update

The time interval for automatic transmission of node status, Status Max Send Time, can be selected here.

Location Label

A Location Label with up to 30 characters can be assigned to each meter. Labels can include, for example, meter number and installation location.

Current Measurement Tab Card – amMeter



Left-Hand Column
Conditions for Automatic Network Variable Update

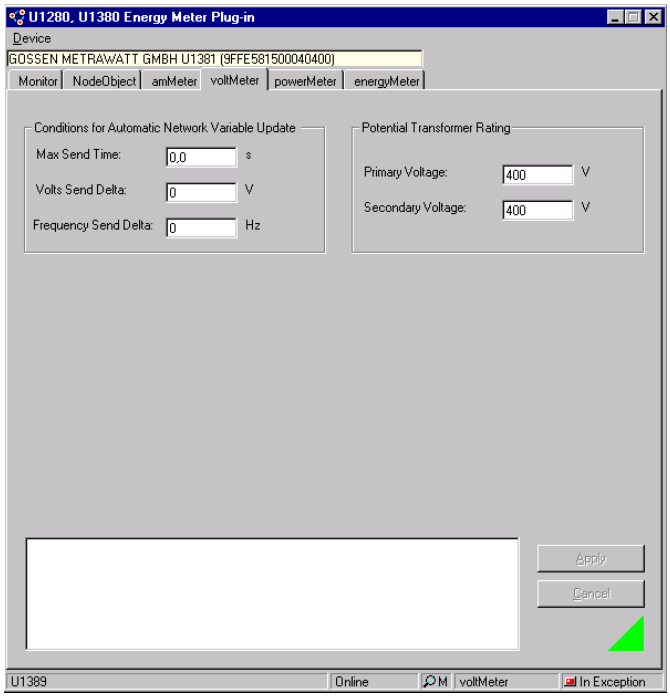
Conditions for automatic transmission of network variables are selected here. A new value is not transmitted until deviation in comparison with the last value is greater than or equal to differential current: Amps Send Delta.

If a value does not change, or if it does not exceed the specified Amps Send Delta threshold, it is transmitted after the Max Send Time interval has elapsed.

Right-Hand Column
Current Transformer Rating

In the case of transformer meters, current transformer data must be entered here. The wiring diagram is displayed for the user's information.

Voltage Measurement Tab Card – voltMeter



Left-Hand Column
Conditions for Automatic Network Variable Update

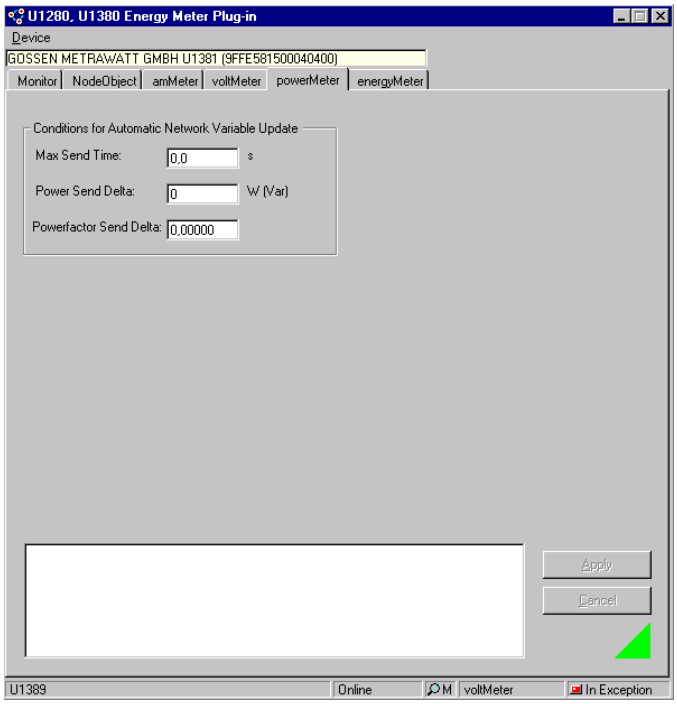
Conditions for automatic transmission of network variables are selected here. A new value is not transmitted until deviation in comparison with the last value is greater than or equal to differential voltage: Volts Send Delta, or differential frequency: Frequency Send Delta .

If a value does not change, or if it does not exceed the specified Volts Send Delta or Frequency Send Delta threshold, it is transmitted after the Max Send Time interval has elapsed.

Right-Hand Column
Potential Transformer Rating

In the case of transformer meters, voltage transformer data must be entered here.

Power Measurement Tab Card – powerMeter

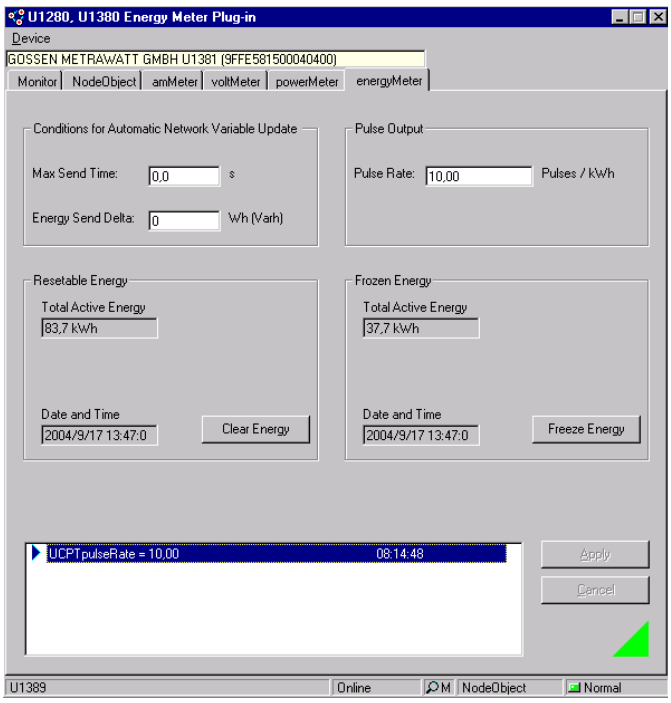


Conditions for Automatic Network Variable Update

Conditions for automatic transmission of network variables are selected here. A new value is not transmitted until deviation in comparison with the last value is greater than or equal to differential power: Power Send Delta, or differential power factor: Powerfactor Send Delta.

If a value does not change, or if it does not exceed the specified threshold, it is transmitted after the Max Send Time interval has elapsed.

Energy Measurement Tab – energyMeter



Left-Hand Column

Conditions for Automatic Network Variable Update

Conditions for automatic transmission of network variables are selected here. A new value is not transmitted until deviation in comparison with the last value is greater than or equal to differential energy: Energy Send Delta.

If a value does not change, or if it does not exceed the specified Energy Send Delta threshold, it is transmitted each time the Max Send Time interval has elapsed.

Resetting Energy Values – Resetable Energy

The meter can be reset to zero by clicking the Clear Energy button. Date and Time are simultaneously transmitted from the PC to the meter.

Right-Hand Column

Pulse Output

The pulse rate can be selected here for meters with adjustable pulse rate.

Saved Energy Values – Frozen Energy

The Total Active Energy meter reading is saved to memory along with Date and Time from the PC by clicking the Freeze Energy button.

5 Product Support

If required please contact:

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e-mail: support@gossenmetrawatt.com

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