

Energy Meters

U1187 / U1189

3-349-136-21
2/9.01





Safety Precautions

- Check mains voltage before placing your meter into operation, see serial plate.
- Make certain that connection cables are not damaged, and that they are free of voltage during hook-up of the meter.
- If it may be assumed that the instrument can no longer be operated safely, it must be removed from service (disconnect input voltage!). Safe operation can no longer be relied upon if the meter displays visible damage.

Placing the meter back into operation is only permitted after the error has been detected, the meter has been repaired and subsequent testing of calibration and dielectric strength has been carried out at our plant or at an authorized service center.

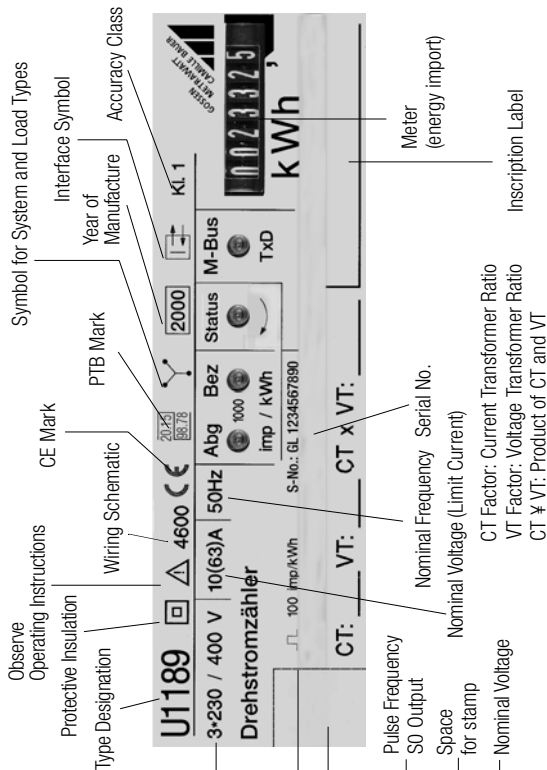
- When the cover is opened voltage conducting parts may be exposed.

If balancing, maintenance or repair of a live, open instrument is required, this may only be carried out by trained personnel who are familiar with the dangers involved.

Capacitors within the meter may still be charged, even after it has been disconnected from all voltage sources.

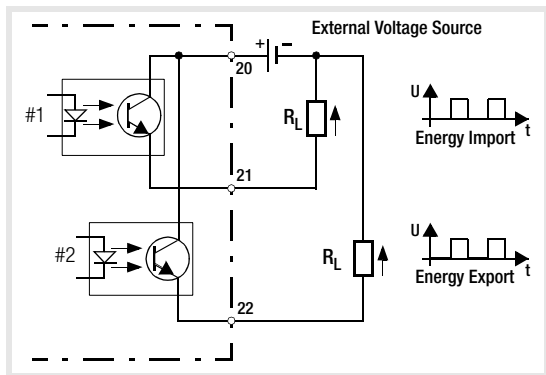
- Insulation must be high-voltage tested with the values indicated under technical data after the meter has been repaired or serviced, and after the cover has been closed.

1 Key to Serial Plate Entries



3 Pulse Output

Electrical Values	
Pulse Duration Interpulse Period	100 ms + 50% > 50 ms
U_{ext}	max. 40 V
Switching Current	max. 27 mA



4 LED

The **Status LED** lights up briefly each time the meter is activated. The LED blinks at approx. 1 Hz to indicate incorrect phase sequencing (4-wire three-phase current only), and lights up or “flickers periodically” to indicate phase failure (3- or 4-wire).

The **Bez LED** blinks to indicate energy import.

The **Abg LED** blinks to indicate energy export.

The **M-Bus LED** is illuminated during data transmission.

5 M-Bus

5.1 M-Bus Interface, M-Bus Protocol

Applicable Standard	EN 61434-3
Transmission Speed	300, 2400, 9600 bits/s
Addressing	Primary and secondary addressing with wildcard
Supporting Functions	REQ_UD2, SND_UD
Data Structure	Variable structure, low byte first (ID 72h) Length = 83 bytes <ol style="list-style-type: none">1. Current point in time2. Next cut-off date3. Current energy import4. Current power import5. Last cut-off date6. Energy import, cut-off date7. Current energy export8. Current energy export9. Energy export, cut-off date10. Company-specific addendum
Parameters	
Configuring Protocol	Identification number, primary address, date/time, cut-off day date and time, baud rate and a function for freezing meter readings can be configured with SND_DU via the M-Bus.
Physical Characteristic	Closed-circuit current max. 1.5 mA / 1 standard load

5.2 Cut-Off Day and Clock Function

The internal real-time clock is used for the cut-off day function at the energy meter. Time can be set via the M-Bus in the following format: DD.MM.YY hh:mm. When this function is triggered, the meter saves current import and export energy data to the corresponding cut-off day registers, and current values for date and time are stored as the cut-off day. The date for the next cut-off day is increased by one year. All values are stored to permanent memory.

5.3 Freezing the Meter Readings

The cut-off day function can also be triggered with a data telegram via the M-Bus. As is also the case with the cut-off day functions, current meter readings are saved to the cut-off day registers.

6 Technical Data

Measuring Ranges

Voltages	
See serial plate (order details)	
Allowable Deviation	+ 15% / - 20%

Currents	
Direct Reading I_B	10 A
Starting Current	Class 2: 0.5 % I_B Class 1: 0.4 % I_B
Direct Reading I_{max}	63 A
Current Measuring Transducer I_B	5 A or 1 A
Starting Current	Class 2: 0.3 % I_B Class 1: 0.2 % I_B
Current Meas. Transducer I_{max}	6 A or 2 A

Frequency Range	
Nominal Frequency	50 Hz
Maximum Frequency	45 Hz ... 55 Hz

Accuracy Class	
Standard	1 or 2 per IEC 61036, depending upon order details

Overload Capacity

All Meters	unlimited 1.15 U_r and I_{max}
Direct Connection	5 times 3 s U_r and 100 A (interval: 5 min)
Direct Connection	1 times 1 s U_r and 250 A
Connection via CT	0.5 s 20 x I_{max}

Internal Losses

Voltage Circuit	
Three and Four-Wire Meters	< 3 VA per phase

Current Circuit	
at I_{\max}	< 1 VA
at $I_B = 1 \text{ A}$	< 0.05 VA
at $I_B = 5 \text{ A}$	< 0.5 VA
at $I_B = 10 \text{ A}$	< 0.02 VA

Electrical Safety

Protection Class	II
Overvoltage Category	III IEC 61 036
Allowable Contamination Level	2

Electromagnetic Compatibility

Electromagnetic Compatibility per IEC 61 036	
Surge Voltage	6 kV, 1.2 / 50 ms 10+ / 10- surges (IEC 255-4)
Burst	2 kV (EN 61 000-4-4)
Electromagnetic Fields	10 V/m (EN 61 000-4-3)
Electrostatic Discharge	8 kV (EN 61000-4-2)
Interference Emission	EN 55022

Ambient Conditions

Nominal Operating Temperature	-10 ... +45 °C
Max. Operating Temperature	-20 ... +55 °C
Storage Temperature	-25 ... +70 °C
Relative Humidity	< 75%, annual average

Mechanical Design

Housing	
Material	LEXAN polycarbonate per UL94 class V0
Dimensions	height ≤ 90 mm overall depth ≤ 75 mm width 125.5 ^{+0,5} mm
Weight	< 0.5 kg
Mounting	top-hat rail per DIN EN 50 022 or wall mount
Protection	IP 51

7 Mounting the Terminal Cover

If the terminal cover is open, it can be easily removed or installed. The terminal cover must be swung out 90° from its closed position. The side panels can then be lifted, one after the other, with the guide slots over the fixed axle studs.

8 Inscription Label

The CT and VT factors, as well as their product types, can be entered onto the inscription label beneath the serial plate (see serial plate key on page 3). To this end, the inscription label can be withdrawn from the corresponding slot, provided the terminal cover is open.

9 Sealing

9.1 Housing Seal

The housing seal is attached to the back panel of the housing. Two drill holes are provided for this purpose, which are located above the hole pattern.

Repairs within the housing may only be undertaken by GOSSEN-METRAWATT service or authorized service centers.

9.2 Terminal Cover Seal

The terminal cover seal is attached at the left or the right hand side of the terminal cover.

10 Repair and Replacement Parts Service DKD Calibration Lab and Rental Instrument Service

If required please contact:

GOSSEN-METRAWATT GMBH
Service-Center
Thomas-Mann-Str. 20
90471 Nuremberg, Germany
Phone +49 911 86 02 - 410 / 256
Fax +49 911 86 02 - 2 53
e-mail fr1.info@gmc-instruments.com

This address is only valid in Germany.
Please contact our representatives or subsidiaries for
service in other countries.

11 Product Support

If required please contact:

GOSSEN-METRAWATT GMBH
Product Support Hotline
Phone +49 911 86 02 - 112
Fax +49 911 86 02 - 709

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