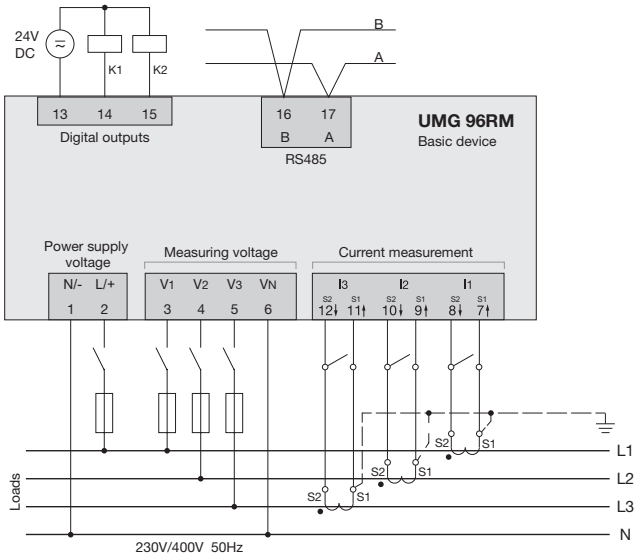
Typical connection



Connection variant UMG 96RM

The illustration shown here is an example.
Further connection diagrams are available on request or can be viewed on our homepage.

Device overview and technical data

	UMG 96RM	UMG 96RM-M	UMG 96RM-EL	UMG 96RM-CBM	UMG 96RM-P
Item number	**52.22.035**	**52.22.039**	**52.22.040**	**52.22.038**	**52.22.037**
Item number (ETL)*1	**52.22.031**	**-**	**-**	**52.22.032**	**52.22.034**
Interfaces	RS485	M-Bus	Ethernet	RS485, USB	RS485, Profibus, USB
Protocols					
Modbus RTU	•	-	-	•	•
Modbus TCP	-	-	•	-	-
Profibus DP V0	-	-	-	-	•
M-Bus	-	•	-	-	-
DHCP	-	-	•	-	-
ICMP (Ping)	-	-	•	-	-
Measured data recording					
Current measurement channel	3	3	3	4	4
Memory (Flash)	-	-	-	256 MB	256 MB
Battery	-	-	-	Type VARTA CR1/2AA, 3 V, Li-Mn	Type VARTA CR1/2AA, 3 V, Li-Mn
Clock	-	-	-	•	•
Digital inputs and outputs					
Digital inputs	-	-	-	4	4
Digital outputs (as switch or pulse output)	2	2	-	6	6
Mechanical properties					
Device dimensions in mm (H x W x D)*2	96 x 96 x approx. 48	96 x 96 x approx. 48	96 x 96 x approx. 48	96 x 96 x approx. 78	96 x 96 x approx. 78

Comment: For detailed technical information please refer to the operation manual and the Modbus address list.

• = included - = not included

*1 The Intertek-ETL sign is well respected and widely accepted in the USA and Canada. It serves as verification of compliance with the relevant standards, e.g. UL, CSA, NEC, NFPA, NSF, ANSI, NOM. Further information on ETL can be found at http://www.intertek.de/elektronik/etl-zeichen/. Source: www.intertek.de

*2 Accurate device dimensions can be found in the operation manual.

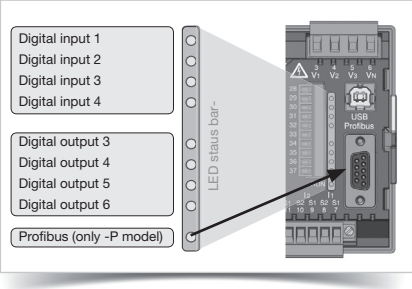


Fig.: LED status bar for the inputs and outputs
(UMG 96RM-CBM and UMG 96RM-P)

Fig.: Battery insertion on the rear
(UMG 96RM-CBM and UMG 96RM-P)

General	
Supply voltage AC *3	20 ... 250 V AC
Supply voltage DC *3	20 ... 300 V DC
Supply voltage AC (ETL variants)*4	95 ... 240 V AC
Supply voltage DC (ETL variants)*4	100 ... 300 V DC
Use in low and medium voltage networks	•
Accuracy voltage measurement	0.2 %
Accuracy current measurement	0.5 %
Accuracy active energy (kWh, .../5 A)	Class 0.5
Number of measurement points per period	426
Uninterrupted measurement	•
RMS - momentary value	
Current, voltage, frequency	•
Active, reactive and apparent power / total and per phase	•
Power factor / total and per phase	•
Energy measurement	
Active, reactive and apparent energy [L1,L2,L3, ∑ L1–L3]	•
Number of tariffs	14
Recording of the mean values	
Voltage, current / actual and maximum	•
Active, reactive and apparent power / actual and maximum	•
Frequency / actual and maximum	•
Demand calculation mode (bi-metallic function) / thermal	•
Other measurements	
Operating hours measurement	•
Power quality measurements	
Harmonics per order / current and voltage	1st – 40th
Distortion factor THD-U in %	•
Distortion factor THD-I in %	•
Rotary field indication	•
Current and voltage, positive, zero and negative sequence component	•
Rotary field indication	•
Measured data recording	
Average , minimum, maximum values	•
Alarm messages	•
Time stamp	•
Time basis average value	freely user-defined
RMS averaging, arithmetic	•
Displays and inputs / outputs	
LCD display (with backlighting), 2 buttons	•
Voltage inputs	L1, L2, L3 + N
Password protection	•
Software GridVis®-Basic*5	
Online and historic graphs	•
Databases (Janitza DB, Derby DB); MySQL, MS SQL with higher GridVis® versions)	•
Manual reports (energy, power quality)	•
Topology views	•
Manual read-out of the measuring devices	•
Graph sets	•
Programming / threshold values / alarm management	
Comparator (2 Groups with 3 comparators each)	•

Technical data	
Type of measurement	Constant true RMS Up to 40th harmonic
Nominal voltage, three-phase, 4-conductor (L-N, L-L)	277 / 480 V AC
Nominal voltage, three-phase, 3-conductor (L-L)	480 V AC
Measurement in quadrants	4
Networks	TN, TT, IT

Comment:
For detailed technical information please refer to the operation manual and the Modbus address list.

• = included - = not included

*3 Relates exclusively to item numbers 52.22.035, 52.22.037, 52.22.038, 52.22.039 and 52.22.040.
*4 Relates exclusively to ETL marked devices with item numbers 52.22.031, 52.22.032, 52.22.033 and 52.22.034.
*5 Optional additional functions with the packages GridVis®-Professional, GridVis®-Enterprise and GridVis®-Service.

Measured voltage input	
Overvoltage category	300 V CAT III
Measured range, voltage L-N, AC (without potential transformer)	10 ... 300 Vrms
Measured range, voltage L-L, AC (without potential transformer)	18 ... 520 Vrms
Resolution	0.01 V
Impedance	4 MOhm / phase
Frequency measuring range	45 ... 65 Hz
Power consumption	approx. 0.1 VA
Sampling frequency per channel (50 / 60 Hz)	21.33 / 25.6 kHz
Measured current input	
Rated current	5 A
Resolution	0.1 mA
Measurement range	0.001 ... 6 Amps
Overvoltage category	300 V CAT II
Measurement surge voltage	2 kV
Power consumption	approx. 0.2 VA (Ri = 5 MOhm)
Overload for 1 sec.	120 A (sinusoidal)
Sampling frequency per channel (50 / 60 Hz)	21.33 / 25.6 kHz
Digital inputs and outputs	
Digital inputs[*6]	
Maximum counting frequency	20 Hz
Input signal present	18 ... 28 V DC (typical 4 mA)
Input signal not present	0 ... 5 V DC, current < 0.5 mA
Digital outputs[*7]	
Switching voltage	max. 60 V DC, 33 V AC
Switching current	max. 50 mA Eff AC / DC
Response time	10 / 12 periods + 10 ms
Pulse output (energy pulse)	max. 50 Hz
Maximum cable length	up to 30 m unscreened, from 30 m screened
Mechanical properties	
Weight	approx. 0.3 kg
Protection class per EN 60529	Front: IP40; Back: IP20
Assembly per IEC EN 60999-1 / DIN EN 50022	Front panel installation
Cable cross section	
Supply voltage	0.2 to 2.5 mm²
Current measurement	0.2 to 2.5 mm²
Voltage measurement	0.08 to 4.0 mm²
Environmental conditions	
Temperature range	Operation: K55 (-25 ... +70 °C)
Relative humidity	Operation: 0 to 90 % RH
Operating height	0 ... 2000 m above sea level
Degree of pollution	2
Installation position	user-defined
Electromagnetic compatibility	
Electromagnetic compatibility of electrical equipment	Directive 2004/108/EC
Electrical equipment for use within certain voltage limits	Directive 2006/95/EC
Equipment safety	
Safety requirements for electrical equipment for measurement, regulation, control and laboratory use – Part 1: General requirements	IEC/EN 61010-1
Part 2-030: Particular requirements for testing and measuring circuits	IEC/EN 61010-2-030
Noise immunity	
Class A: Industrial environment	IEC/EN 61326-1
Electrostatic discharge	IEC/EN 61000-4-2
Voltage dips	IEC/EN 61000-4-11
Emissions	
Class B: Residential environment	IEC/EN 61326-1
Radio disturbanc voltage strength 30 – 1000 MHz	IEC/CISPR11/EN 55011
Radiated interference voltage 0.15 – 30 MHz	IEC/CISPR11/EN 55011
Safety	
Europe	CE labelling
USA and Canada	ETL variants available
Firmware	
Firmware update	Update via GridVis® software. Firmware download (free of charge) from the website: http://www.janitza.com/downloads

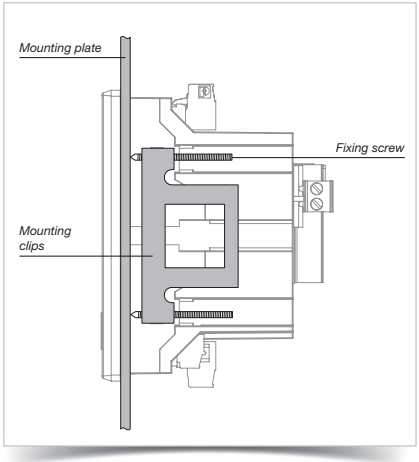


Fig.: The fastening into a switchboard is implemented via the side-mounted fastening clamps (UMG 96RM-P / UMG 96RM-CBM)

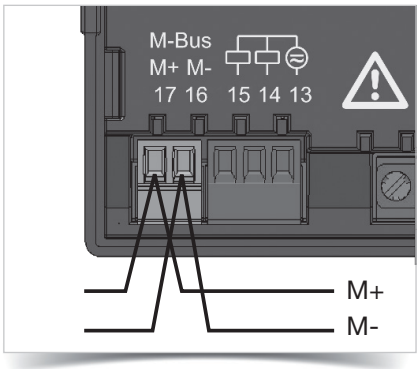


Fig.: M-Bus interface with 2-pole plug contact

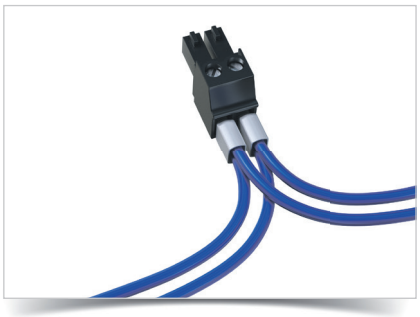


Fig.: 2-pole plug contact with cable connection (cable type: 2 x 0.75 mm²) via twin core end sheathes

Comment: For detailed technical information please refer to the operation manual and the Modbus address list

• = included - = not included

*6 The information relates exclusively to the measurement devices UMG 96RM-CBM and UMG 96RM-P.

*7 The information relates exclusively to the measurement devices UMG 96RM, UMG 96RM-M, UMG 96RM-CBM and UMG 96RM-P.96RM-P.