

UMG 103-CBM

Universal measurement device for DIN rails

Harmonics



Modbus interface



GridVis®
Analysis software



Measurement accuracy 0.5



Communication

- Protocols: Modbus RTU / Slave

Interface

- RS485

Accuracy of measurement

- Energy: Class 0.5S (... / 5 A)
- Current: 0.5 %
- Voltage: 0.2 %

Power quality

- Harmonics up to 40th order, odd harmonics
- Distortion factor THD-U
- Distortion factor THD-I

Memory

- 4 MB

Networks

- TN, TT networks

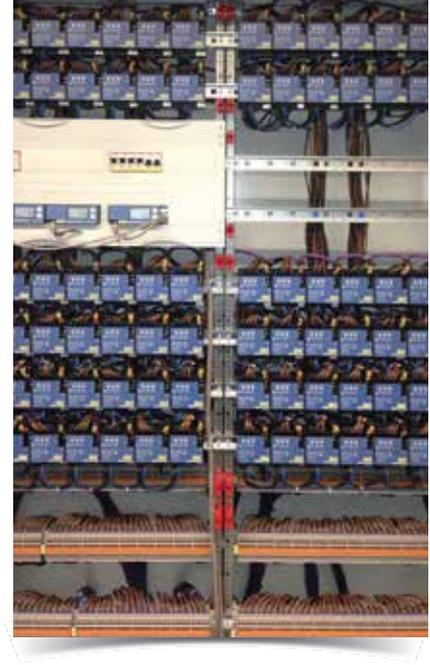
Network visualisation software

- Free GridVis®-Basic

Areas of application



- Measurement and checking of electrical characteristics and energy consumption in energy distribution systems
- Cost centre management
- Threshold value monitoring, measured value transducer for building management systems or PLC
- Monitoring of harmonics



Main features



Power quality

- Harmonics analysis up to 40th harmonic, odd harmonics
- Distortion factor THD-U / THD-I
- Minimum and maximum values
- Measurement of positive, negative and zero sequence component

Features

- 3 Voltage measurement inputs (300 V CAT III)
- 3 Current measurement inputs
- Continuous sampling of voltage and current measurement inputs
- Measurement of the reactive distortion power
- Sampling frequency 5.4 kHz
- Transfer of the measured values via a serial interface
- Supply voltage via measurement voltage L1-N, L2-N and L3-N

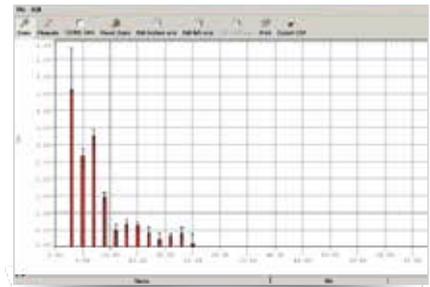


Fig.: GridVis® – Harmonics analysis (FFT)

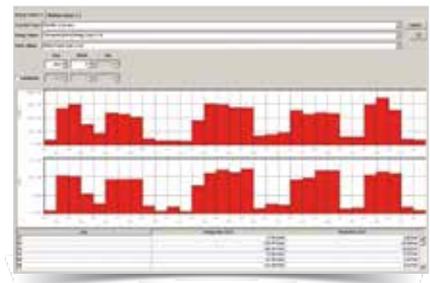
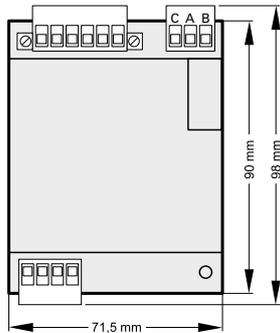


Fig.: GridVis® – Device dashboard with energy analysis

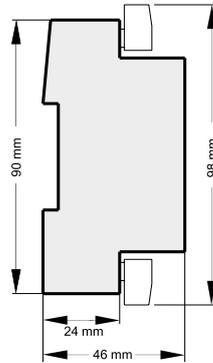


Dimension diagrams

All dimensions in mm



Front view



Side view

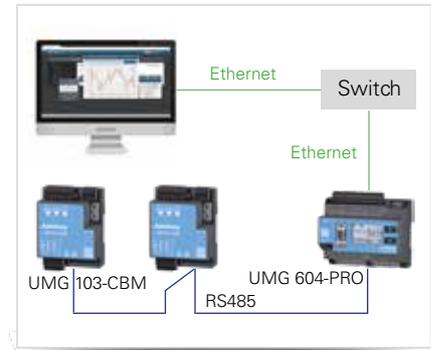


Fig.: Connection of multiple UMG 103-CBM's to a PC via a UMG 604-PRO (with Ethernet option)



Typical connection

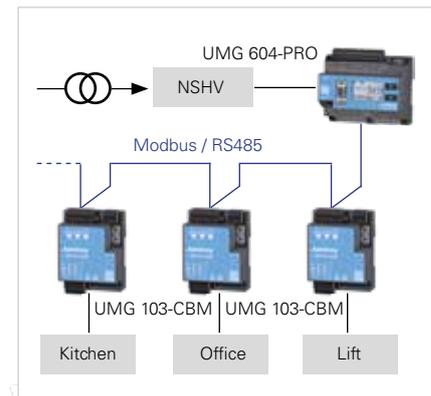
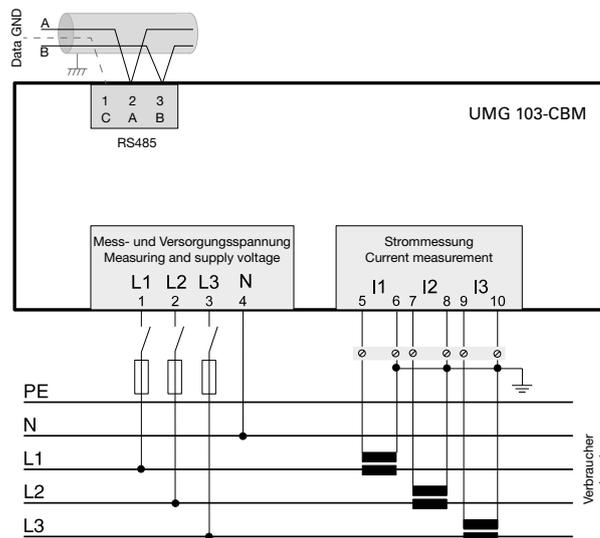


Fig.: Topology example UMG 604-PRO (Master) – UMG 103-CBM (Slave)

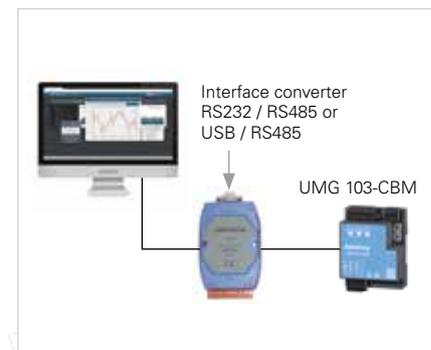


Fig.: Connection of a UMG 103-CBM to a PC via an interface converter



Device overview and technical data

UMG 103-CBM	
Item number	52.28.001
General	
Net weight (with attached connectors)	approx. 200 g
Device dimensions	H = 98 mm, W = 71.5 mm, D = 46 mm
Ambient conditions during operation	
The device <ul style="list-style-type: none"> • should be used in a stationary and in a weatherproof location. • meets the operating conditions according to DIN IEC 60721-3-3 • has protection class II according to IEC 60536 (VDE 0106, part 1) and does not require a ground wire connection. 	
Working temperature range	K55 (-10°C to +55°C)
Relative humidity	5 to 95% (at +25° C) without condensation
Operating altitude	0 to 2000 m above sea level
Pollution degree	2
Housing flammability rating	UL94V-0
Installation position	any
Ventilation	No forced ventilation required.
Fastening/assembly	DIN rail 35 mm as per IEC/EN60999-1, DIN EN50022
Impact stress	2 Joule, IK07 as per IEC/EN61010-1:2010
Protection against ingress of solid foreign bodies and water	IP20 in accordance with EN60529, September 2000, IEC60529:1989
Measurement data recording	
Recording period	Up to 144 days
Memory (Flash)	4 MB, (1024 sectors. each 4kB)
Data record storage (all profiles activated)	approx. 16000 data records
Battery (soldered in) , typical life expectancy	BR 1632, 3V, 8 - 10 years
Transport and storage	
The following information applies to devices which are transported or stored in the original packaging.	
Free fall	1 m
Temperature	K55 (-20° C to +70° C)
Relative humidity	0 to 90% RH
Supply voltage	
The device derives the supply voltage from the measured voltage!	
Supply from single phase	115 - 277 V (±10%), 50/60 Hz
Supply from three phases	80 - 277 V (±10%), 50/60 Hz
Power consumption	max. 1.5 VA

Voltage measurement	
3-phase 4-conductor systems with rated voltages (L-N/L-L)	Max. 277 V/480 V
Networks	Measurement in TT and TN networks
Measurement voltage surge	4 kV
Protection of voltage measurement	1 - 10 A trigger characteristic B, (with IEC-/UL approval)
Overvoltage category	300 V CAT III
Resolution	0.01 V
Crest factor	2 (based on 240 V _{rms})
Sampling rate	5.4 kHz
Frequency of the fundamental oscillation resolution	45 Hz to 65 Hz 0.001 Hz
Fourier analysis	1.-25. harmonics (all odd)

Current measurement	
Rated current	5 A
Rated current	6 A
Crest factor	2 (based on 6 A _{rms})
Resolution	0.1 mA
Metering range	0.005 to 6 A _{rms}
Overvoltage category	300 V CAT II
Measurement voltage surge	2 kV
Power consumption	approx. 0.2 VA (Ri=5 mΩ)
Overload for 1 sec.	60 A (sinusoidal)
Sampling rate	5.4 kHz / phase

Terminal connection capacity	
Connectable conductors. Connect only one conductor per terminal!	
Single core, multi-core, fine-stranded	0.08 - 2.5 mm ² , AWG 28 - 12
Tightening torque	max. 0.5 Nm
Stripping length	min. 8 mm

RS485 interface	
Protocol, Modbus RTU	Modbus RTU/slave
Transmission rate	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps, automatic detection

Firmware	
Firmware update	Update via GridVis® software. Firmware download (free of charge) from the website: http://www.janitza.com

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

