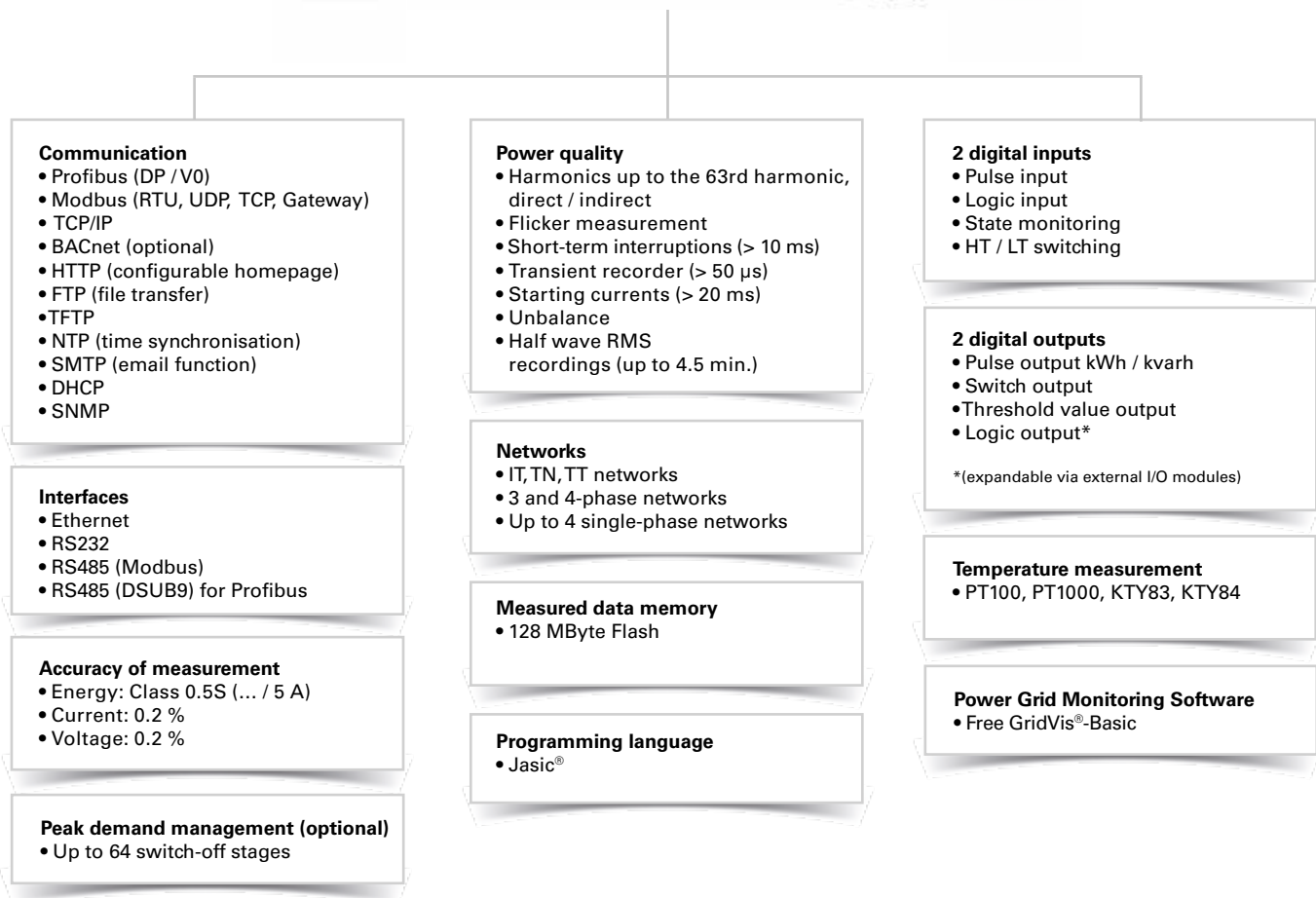


# UMG 605-PRO

## Power quality analyzer



## Areas of application



- Power quality monitoring
- Ethernet gateway for subordinate measurement points
- Analysis of electrical disturbances in the event of network problems
- Report generator for various power quality standards
- Control tasks e.g. depending on measured value or limit values being reached
- Measured value transducer for building management systems or PLC



## Main features



### Power quality

- Continuous power quality monitoring (e.g. EN 50160)
- Harmonics analysis up to the 63rd harmonic, even and odd
- Interharmonics
- Distortion factor THD-U / THD-I
- Measurement of positive, negative and zero sequence component
- Flicker measurement in accordance with DIN EN 61000-4-15
- Logging and storage of transients ( $> 50 \mu\text{s}$ )
- Recording of short-term interruptions ( $> 10 \text{ ms}$ )
- Monitoring start-up processes
- Recorder for limit value events

### Power

- 4 voltage and 4 current measurement inputs
- Logging and digitalisation of effective values (true RMS) of currents and voltages (15 – 440 Hz)
- Continuous sampling of the voltage and current measurement inputs at 20 kHz
- Recording of over 2,000 measured values per measurement cycle (200 ms)
- Stipulation of nominal current possible for measuring current events
- Fourth current measurement input is suitable for measuring the current in the neutral or PE conductor or for measuring any potential difference between N and PE.
- Large measured data memory (memory range = 5 000 000 measured values)
- Simple remote polling of measured data via the device's own homepage
- All interfaces can be used simultaneously
- Up to 4 ports can be accessed simultaneously

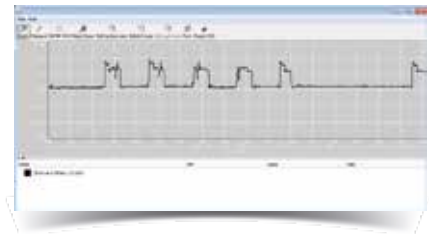


Fig.: GridVis®- Flicker Monitoring



Fig.: Alarm management, alarm list (logbook)

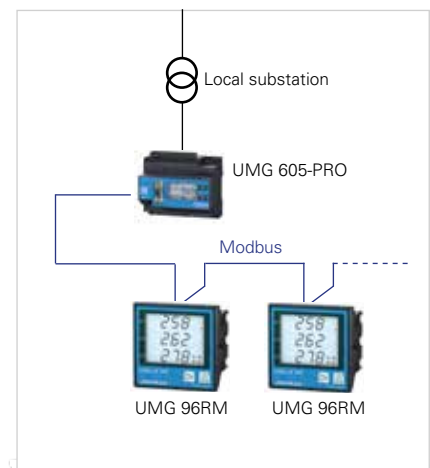


Fig.: Example of a master - slave combination



### Impressive reporting with GridVis®

- Automatic generation and sending of power quality reports
- Power quality reports per EN 50160, EN 61000-2-4, IEEE519
- Illustration of the ITI-(CBEMA) curve
- Freely definable time planning for the generation of reports



### Modern communications architecture via Ethernet

- Rapid, cost-optimised and reliable communication through integration into an existing Ethernet architecture
- Integration in PLC systems and building management systems
- High flexibility due to the use of open standards
- Simultaneous polling of interfaces possible



### Ethernet-Modbus gateway

- Simple integration of Modbus-RTU devices into an Ethernet architecture through the Modbus gateway function
- Integration of devices with identical file formats and matching function codes possible via Modbus RTU interface



### Powerful alarm management

- Can be programmed via the graphic programming or Jasic® source code
- All measured values can be used
- Can be arbitrarily, mathematically processed
- Individual forwarding via email sending, switching of digital outputs, writing to Modbus addresses etc.
- Watchdog APP
- Further alarm management functions via GridVis®-Service alarm management



Fig.: Automatic reporting

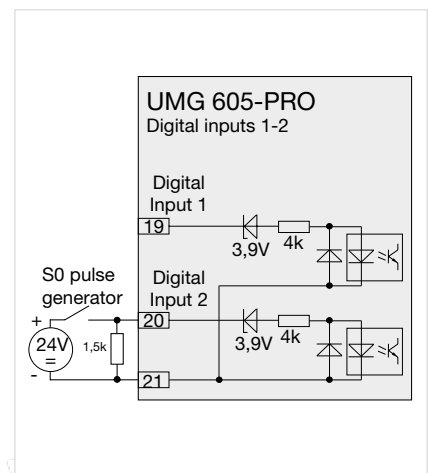


Fig.: Example for the connection of an S0 pulse transducer to digital input 2

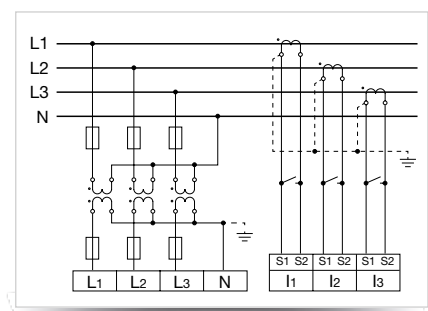


Fig.: Measurement via 3 voltage transformers in a three-phase 4-wire network with asymmetric loading



**High-speed Modbus**

- Fast and reliable data exchange via RS485 interface
- Speed up to 921.6 kB/s



**Graphical programming**

- Comprehensive programming options on the device, 7 programs simultaneously (PLC functionality)
- Jasic® source code programming
- Functional expansions far beyond pure measurement
- Complete APPs from the Janitza library



**Convenient home page and email functions**

- Information can be received conveniently by email and via the device homepage
- Access to powerful device homepage via web browser
- Online data, historical data, graphs, events and much more, is available direct from the homepage



**Large measurement data memory**

- 128 MByte
- 5,000,000 saved values
- Recording range up to 2 years
- Recording freely configurable by the user

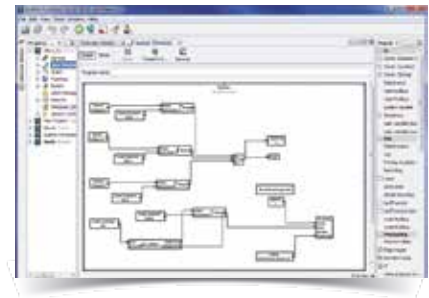


Fig.: Graphical programming



Fig.: Illustration of the online data via the device's own homepage



Fig.: Large measurement data memory

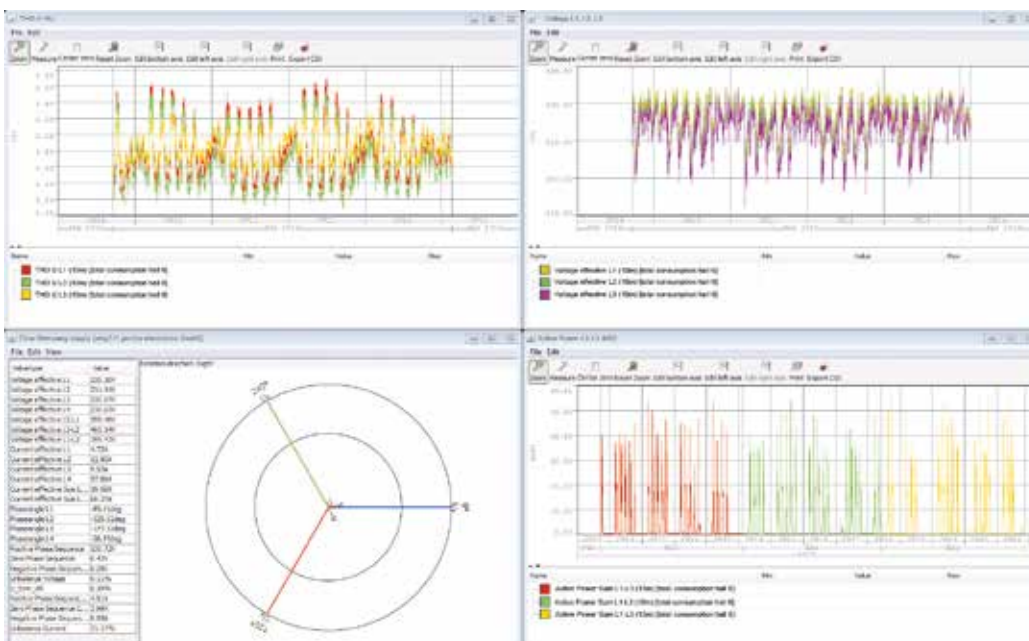
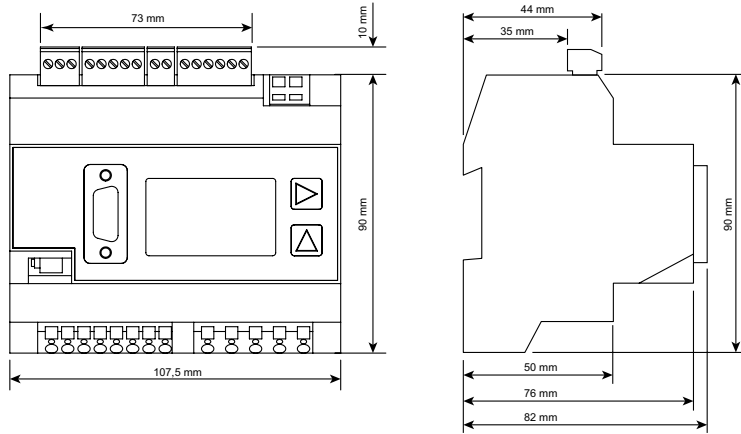


Fig.: GridVis® graphset with THD-U, voltage, phasor diagram and load profile (kW)



## Dimension diagrams

All dimensions in mm

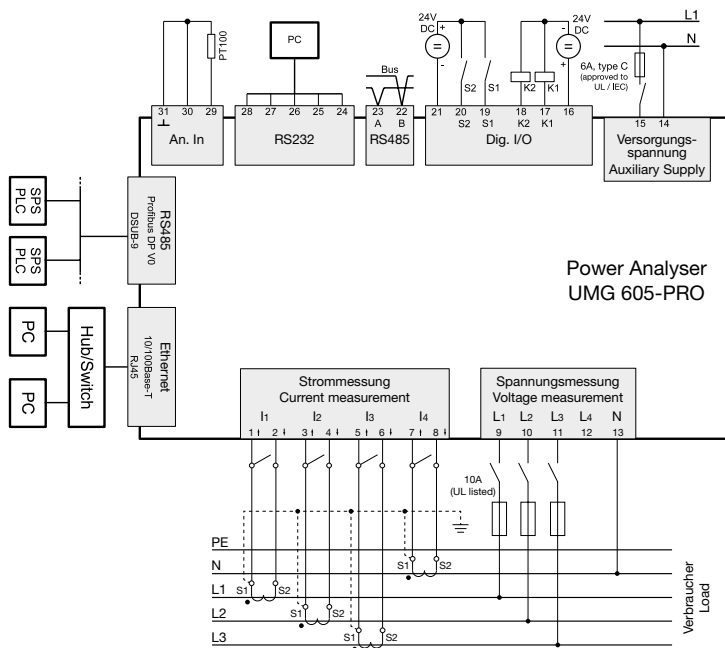


Front view

Side view



## Typical connection





## Device overview and technical data

	UMG 605-PRO		
Item number	52.16.028		
Item number (UL)	52.16.227	-	52.16.229
AC supply voltage	95 to 240 V AC	50 to 110 V AC	20 to 50 V AC
Supply voltage DC	135 to 340 V DC	50 to 155 V DC	20 to 70 V DC
<b>Device options</b>			
BACnet communication	<b>52.16.083</b>	<b>52.16.083</b>	<b>52.16.083</b>

General	
Net weight	350 g (0.77 lb)
Device dimensions (W x H x D)	approx. 90 x 82 x 107.5 mm (3.54 x 3.23 x 4.23 in) (per DIN 43871:1992)
Housing flammability rating	UL 94V-0
Installation position	any
Fastening/assembly	35 mm DIN rail (as per IEC/EN60999-1, DIN EN 50022)
Battery	Type Lithium CR2032, 3 V

Environmental conditions	
The device is intended for weatherproof, fixed installation and meets the operational conditions in accordance with DIN IEC 60721-3-3.	
Working temperature range	-10 °C to +55 °C (14 °F ..to 131 °F)
Relative humidity	5 to 95%, (at +25 °C/77 °F) without condensation
Pollution degree	2
Operating altitude	0 to 2000 m above sea level
Installation position	any
Ventilation	forced ventilation is not required.

Transport and storage	
The following information applies to equipment transported in its original packaging or	
Free fall	1 m
Temperature	-20 °C to +70 °C (-4 °F to 158 °F)

Supply voltage	
The supply voltage must be connected through a UL/IEC approved fuse (6A Char. B) to the	
230 V option: • Nominal range • Operating range • Power consumption • Overvoltage category	95 V to 240 V (50/60 Hz) / DC 135 V to 340 V ±10% of nominal range max. 3.2 W / 9 VA 300 V CAT II
90 V option (without UL approval): • Nominal range • Operating range • Power consumption • Overvoltage category	50 V to 110 V (50/60 Hz) / DC 50 V to 155 V ±10% of nominal range max. 3.2 W / 9 VA 300 V CAT II
24V option: • Nominal range • Operating range • Power consumption • Overvoltage category	20 V to 50 V (50/60 Hz) / DC 20 V to 70 V ±10% of nominal range max. 5 W / 8 VA 150 V CAT II

Terminal connection capacity (supply voltage)	
Connectable conductors. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.08 - 2.5 mm <sup>2</sup> , AWG 28 - 12
Terminal pins, core end sheath	1.5 mm <sup>2</sup> , AWG 16

<b>Protection class</b>	
Protection class II in accordance with IEC 60536 (VDE 0106, part 1), i.e. a ground wire connection is not required!	
Protection against ingress of solid foreign bodies and water	IP20 in accordance with EN60529 September 2014, IEC60529:2013

<b>Digital inputs</b>	
(Pulse input S0)	
Maximum counter frequency	20 Hz
Switching input	
Input signal present	18 V to 28 V DC (typical 4 mA)
Input signal not present	0 to 5 V DC, current less than 0.5 mA
Response time (Jasic program)	200 ms
Cable length	up to 30 m unshielded, from 30 m shielded

<b>Digital outputs</b>	
2 digital outputs; semiconductor relays, not short-circuit proof	
Switching voltage	max. 60 V DC, 30 V AC
Switching current	max. 50 mAeff AC/DC
Response time (Jasic program)	200 ms
Output of voltage dips	20 ms
Output of voltage exceedance events	20 ms
Switching frequency	max. 20 Hz
Cable length	up to 30 m unshielded; from 30 m shielded

<b>Connectable conductors</b>	
Single core, multi-core, fine-stranded	0.08 - 1.5 mm <sup>2</sup>
Terminal pins, core end sheath	1 mm <sup>2</sup> . Only one conductor must be connected per terminal!

<b>Temperature measurement input</b>	
Update time	Approx. 200 ms
Connectable sensors	PT100, PT1000, KTY83, KTY84
Total burden (sensor + cable)	max. 4 kOhm
Cable length	up to 30 m unshielded, from 30 m shielded

Sensor type	Temperature range	Resistor range	Measurement uncertainty
KTY83	-55 °C to +175 °C (-67 °F ..to 347 °F)	500 Ohm to 2.6 kOhm	± 1.5% rng <sup>1)</sup>
KTY84	-40 °C to +300 °C (-40 °F ..to 572 °F)	350 Ohm to 2.6 kOhm	± 1.5% rng <sup>1)</sup>
PT100	-99 °C to +500 °C (-146.2 °F ..to 932 °F)	60 Ohm to 180 Ohm	± 1.5% rng <sup>1)</sup>
PT1000	-99 °C to +500 °C (-146.2 °F ..to 932 °F)	600 Ohm to 1.8 kOhm	± 1.5% rng <sup>1)</sup>

<sup>1)</sup> rng = metering range

<b>Connectable conductors</b>	
Single core, multi-core, fine-stranded	0.08 - 1.5mm <sup>2</sup>
Terminal pins, core end sheath	1 mm <sup>2</sup> Only one conductor must be connected per terminal!

<b>RS232 interface</b>	
Connection	5-pin screw-type terminals
Protocol	Modbus RTU/slave
Transmission rate	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps

<b>RS485 interface</b>	
Connection	2-pin screw-type terminals
Protocol	Modbus RTU/slave, Modbus RTU/master
Transmission rate	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps, 921.6 kbps

<b>Profibus interface</b>	
Connection	SUB D 9-pole
Protocol	Profibus DP/V0 per EN 50170
Transmission rate	9.6 kBaud to 12 MBaud

<b>Ethernet interface</b>	
Connection	RJ45
Function	Modbus gateway, embedded web server (HTTP)
Protocols	TCP/IP, EMAIL (SMTP), DHCP client (BootP), Modbus/TCP(port 502), ICMP (ping), NTP,TFTP, Modbus RTU over Ethernet (port 8000), FTP SNMP.

<b>Voltage measurement inputs</b>	
Three-phase 4-conductor systems (L-N/L-L)	max. 277 V / 480 V
Three-phase 3-conductor systems (L-L)	max. 480 V
Resolution	0.01 V
Crest factor	2 (related to 480 V <sub>rms</sub> )
Overvoltage category	300 V CAT III
Measurement voltage surge	4 kV
Protection of voltage measurement	1 - 10 A
Impedance	4 MOhm / phase
Power consumption	approx. 0.1 VA
Sampling rate	20 kHz / phase
Transients	> 50 µs
Frequency of the fundamental oscillation	15 Hz to 440 Hz
- Resolution	0.001 Hz

<b>Current measurement inputs</b>	
Rated current	5 A
Rated current	6 A
Protection when measuring directly (without a current transformer)	6 A, char. B (approved i.a.w. UL/IEC)
Resolution on the display	10 mA
Crest factor	2 (related to 6 A <sub>rms</sub> )
Overvoltage category	300 V CAT III
Measurement voltage surge	4 kV
Power consumption	approx. 0.2 VA (Ri = 5 MOhm)
Overload for 1 sec.	100 A (sinusoidal)
Sampling rate	20 kHz

Phase angle accuracy of measurement	0.15 °
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<b>Terminal connection capacity (current measurement and voltage measurement)</b>	
Connectable conductors. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.08 - 4 mm <sup>2</sup> , AWG 28 - 12
Terminal pins, core end sheath	2.5 mm <sup>2</sup> , AWG 14

<b>Firmware</b>	
Firmware update	Update via GridVis® Power Grid Monitoring Software. Firmware download (free of charge) from the website: <a href="http://www.janitza.com">www.janitza.com</a>

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