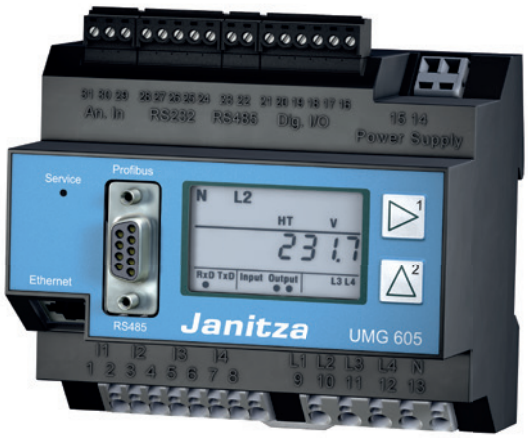
Harmonics

Flicker

Email



Alarm management

Reporting

Memory 128 MByte

EN 50160 / ISO 50001
Made in Germany

UMG 605 – Power quality analysers for DIN rails

Communication
- Profibus (DP / V0)
- Modbus (RTU, UDP, TCP, Gateway)
- TCP/IP
- BACnet (optional)
- HTTP (configurable homepage)
- FTP (file transfer)
- TFTP
- NTP (time synchronisation)
- SMTP (email function)
- DHCP
- SNMP

Interfaces
- Ethernet
- RS232
- RS485 (Modbus)
- RS485 (DSUB9) for Profibus

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

Peak demand management (optional)
- Up to 64 switch-off stages

Power quality
- Harmonics up to the 63rd harmonic, direct / indirect
- Flicker measurement
- Short-term interruptions (> 20 ms)
- Transient recorder (> 50 µs)
- Starting currents
- Unbalance
- Half wave RMS recordings (up to 4.5 min.)

Networks
- IT, TN, TT networks
- 3 and 4-phase networks
- Up to 4 single-phase networks

Measured data memory
- 128 MByte Flash

Programming language
- Jasic®

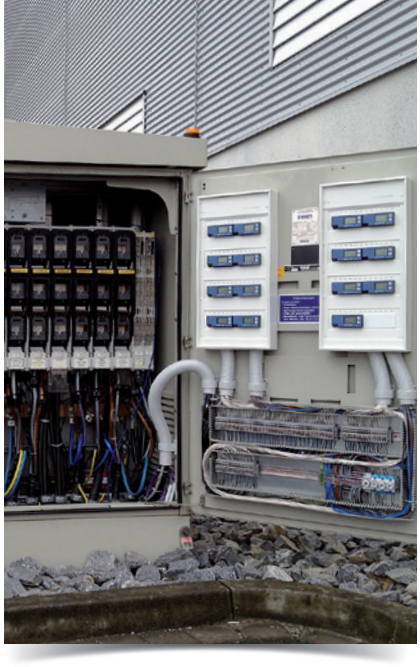
2 digital inputs
- Pulse input
- Logic input
- State monitoring
- HT / LT switching
- Emax resetting

2 digital outputs
- Pulse output kWh / kvarh
- Switch output
- Threshold value output
- Emax output
- Logic output*

*(expandable via external I/O modules)

Temperature measurement
- PT100, PT1000, KTY83, KTY84

Network visualisation software
- GridVis®-Basic (in the scope of supply)



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 µs)
- Recording of short-term interruptions (> 20 ms)
- Monitoring start-up processes
- Recorder for limit value events

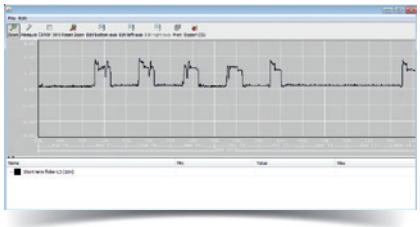


Fig.: GridVis®– Flicker Monitoring

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

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

Fig.: Automatic reporting

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

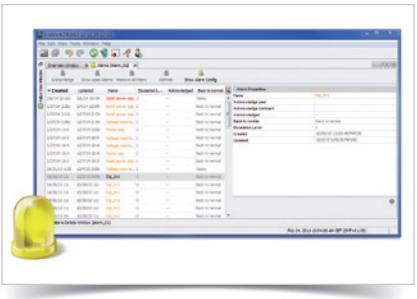


Fig.: Alarm management, alarm list (logbook)

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

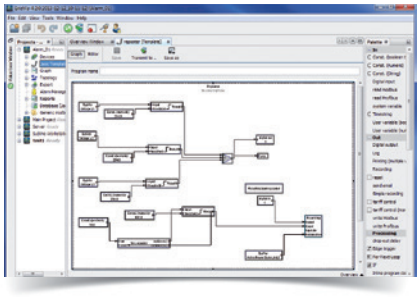


Fig.: Graphical programming

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

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

Large measurement data memory

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

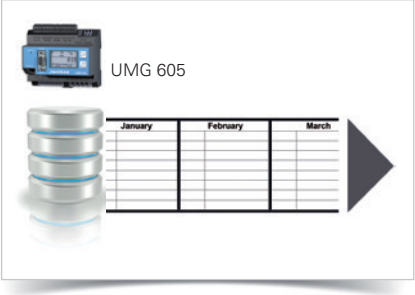


Fig.: Large measurement data memory

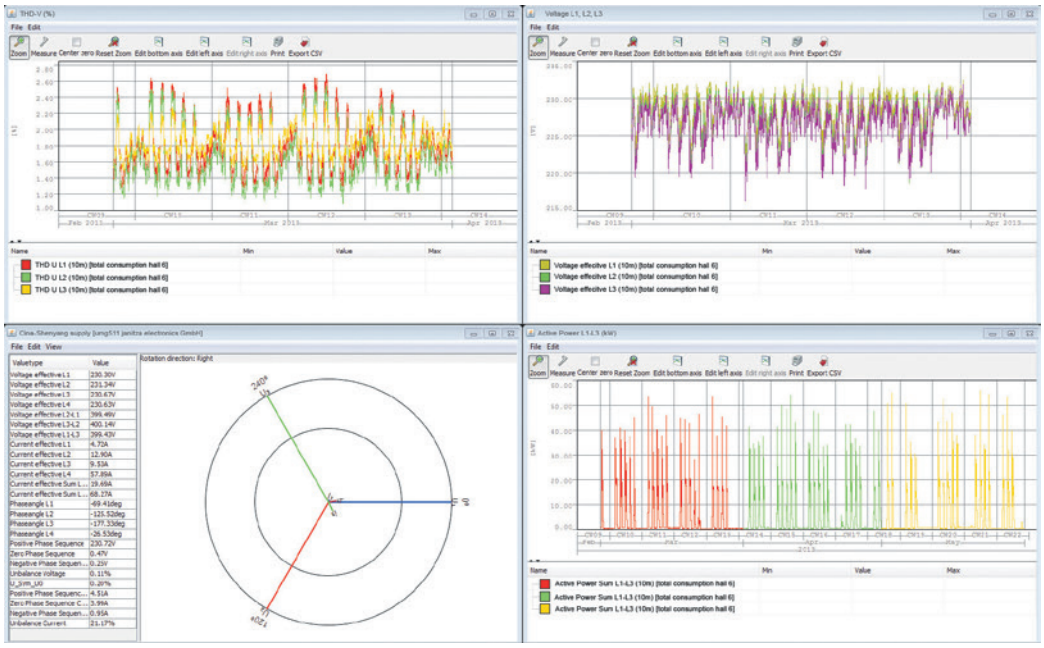
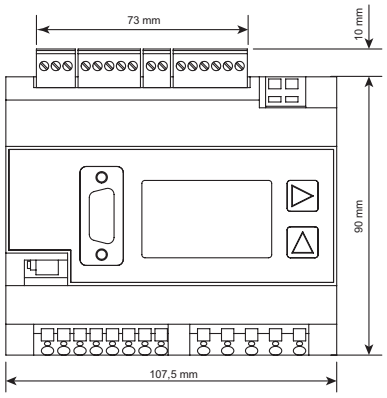


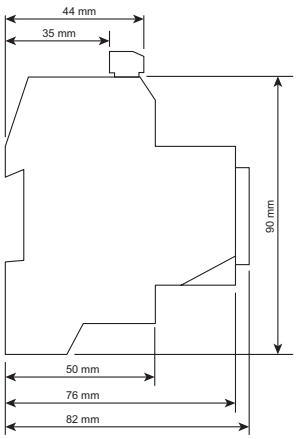
Fig.: GridVis® Graphset with THD-U, voltage, phasor diagram and load profile (kW)

Dimension diagrams

All dimensions in mm

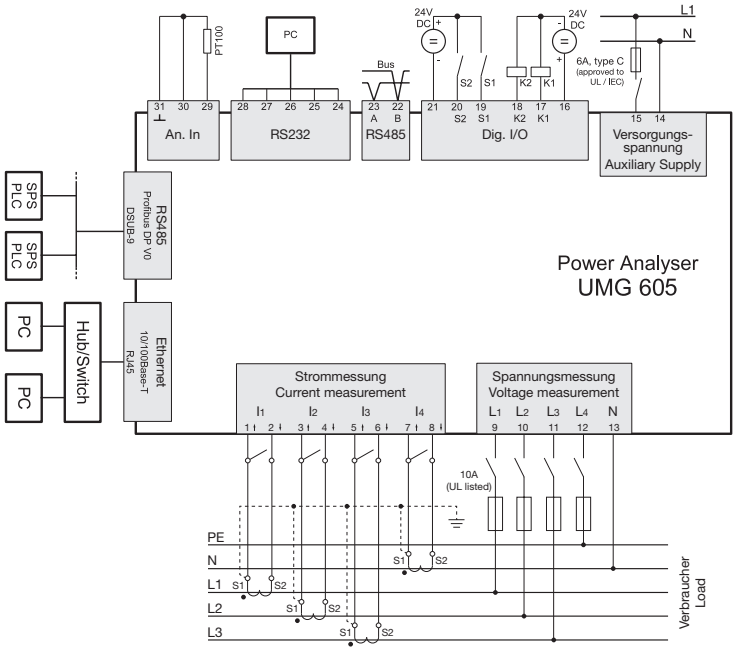


Front view



Side view

Typical connection



Device overview and technical data

	UMG 605		
Item number	**52.16.027**	**52.16.028**	**52.16.029**
Item number (UL)	**52.16.227**	-	-
Supply voltage AC	95 ... 240 V AC	50 ... 110 V AC	20 ... 55 V AC
Supply voltage DC	135 ... 340 V DC	50 ... 155 V DC	20 ... 77 V DC
Device options			
Emax function	**52.16.084**	**52.16.084**	**52.16.084**
BACnet communication	**52.16.083**	**52.16.083**	**52.16.083**

General	
Use in low and medium voltage networks	•
Accuracy voltage measurement	0.2 %
Accuracy current measurement	0.2 %
Accuracy active energy (kWh, .../5 A)	Class 0.5S
Number of measurement points per period	400
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, L4, ∑ L1–L3, ∑ L1–L4]	•
Number of tariffs	8
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	•
Clock	•
Weekly timer	Jasic®
Power quality measurements	
Harmonics per order / current and voltage	1st – 63rd
Harmonics per order / active and reactive power	1st – 63rd
Interharmonics - current / voltage	•
Distortion factor THD-U in %	•
Distortion factor THD-I in %	•
Voltage unbalance	•
Current and voltage, positive, zero and negative sequence component	•
Flicker: Short-term, long-term, present	•
Transients	50 µs
Error / event recorder function	•
Short-term interruptions	> 20 ms
Oscillogram function (waveform U and I)	•
Under and overvoltage recording	•
Measured data recording	
Memory (Flash)	128 MB
Average, minimum, maximum values	•
Measured data channels	8
Alarm messages	•
Time stamp	•
Time basis average value	freely user-defined
RMS averaging, arithmetic	•

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

• = included - = not included

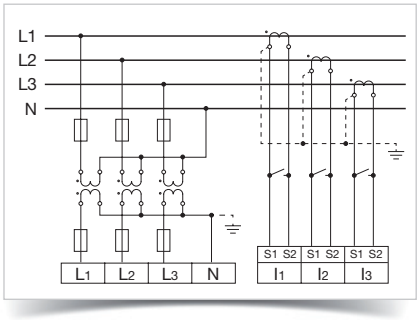


Fig.: Measurement via 3 voltage transformers in a three-phase 4-wire network with asymmetric loading

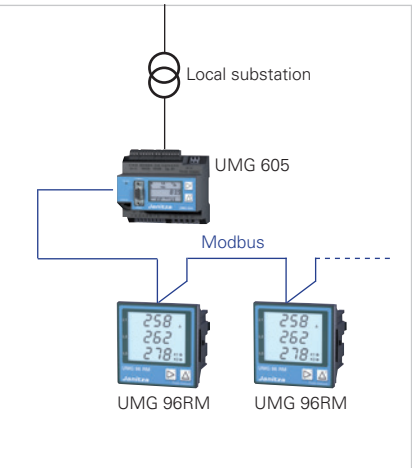


Fig.: Example of a master - slave combination

Displays and inputs / outputs	
LCD display	•
Digital inputs	2
Digital outputs (as switch or pulse output)	2
Thermistor input (PT100, PT1000, KTY83, KTY84)	•
Voltage and current inputs	each 4
Password protection	•
Peak load management (optionally 64 channels)	•
Communication	
Interfaces	
RS485: 9.6 – 921.6 kbps (Screw-type terminal)	•
RS232: 9.6 – 115.2 kbps (Screw-type terminal)	•
Profibus DP: Up to 12 Mbps (DSUB-9 connector)	•
Ethernet 10/100 Base-TX (RJ-45 socket)	•
Protocols	
Modbus RTU, Modbus TCP, Modbus RTU over Ethernet	•
Modbus Gateway for Master-Slave configuration	•
Profibus DP V0	•
HTTP (homepage configurable)	•
SMTP (email)	•
NTP (time synchronisation)	•
TFTP	•
FTP (File-Transfer)	•
SNMP	•
DHCP	•
TCP/IP	•
• BACnet (optional)	•
ICMP (Ping)	•
Software GridVis®-Basic*1	
Online and historic graphs	•
Databases (Janitza DB, Derby DB); MySQL, MS SQL with higher GridVis® versions)	•
Manual reports (energy, power quality)	•
Graphical programming	•
Topology views	•
Manual read-out of the measuring devices	•
Graph sets	•
Programming / threshold values / alarm management	
Application programs freely programmable	7
Graphical programming	•
Programming via source code Jasic®	•

Technical data	
Type of measurement	Constant true RMS up to the 63rd 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
Measurement in single-phase/multi-phase networks	1 ph, 2 ph, 3 ph, 4 ph and up to 4 times 1 ph
Measured voltage input	
Overvoltage category	300 V CAT III
Measured range, voltage L-N, AC (without potential transformer)	10 ... 600 Vrms
Measured range, voltage L-L, AC (without potential transformer)	18 ... 1000 Vrms
Resolution	0.01 V
Impedance	4 MOhm / phase
Frequency measuring range	15 ... 440 Hz
Power consumption	approx. 0.1 VA
Sampling frequency	20 kHz / phase
Transients	> 50 µs

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

• = included - = not included

*1 Optional additional functions with the packages GridVis®-Professional, GridVis®-Enterprise and GridVis®-Service.

Measured current input	
Rated current	1 / 5 A
Resolution	1 mA
Measurement range	0.001 ... 8.5 Arms
Overvoltage category	300 V CAT III
Measurement surge voltage	4 kV
Power consumption	approx. 0.2 VA (Ri = 5 MOhm)
Overload for 1 sec.	100 A (sinusoidal)
Sampling frequency	20 kHz
Digital inputs and outputs	
Number of digital inputs	2
Maximum counting frequency	20 Hz
Reaction time (Jasic® program)	200 ms
Input signal present	18 ... 28 V DC (typical 4 mA)
Input signal not present	0 ... 5 V DC, current < 0.5 mA
Number of digital outputs	2
Switching voltage	max. 60 V DC, 30 V AC
Switching current	max. 50 mA Eff AC / DC
Reaction time (Jasic® program)	200 ms
Output of voltage dips	20 ms
Pulse output (energy pulse)	max. 20 Hz
Maximum cable length	up to 30 m unscreened, from 30 m screened
Mechanical properties	
Weight	350 g
Device dimensions in mm (H x W x D)	90 x 107.5 x approx. 82
Battery	Type Lithium CR2032, 3 V
Protection class per EN 60529	IP20
Assembly per IEC EN 60999-1 / DIN EN 50022	35 mm DIN mounting rails
Connecting phase (U / I), Single core, multi-core, fine-stranded Terminal pins, core end sheath	 0.08 to 2.5 mm² 1.5 mm²
Environmental conditions	
Temperature range	Operation: K55 (-10 ... +55 °C)
Relative humidity	Operation: 5 to 95 % (at 25 °C)
Operating height	0 ... 2,000 m above sea level
Degree of pollution	2
Installation position	user-defined
Electromagnetic compatibility	
Electromagnetic compatibility of electrical equipment	Directive 2004/108/EC
Electrical appliances for application within particular 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	
Industrial environment	IEC/EN 61326-1
Electrostatic discharge	IEC/EN 61000-4-2
Voltage dips	IEC/EN 61000-4-11
Emissions	
Class A: Industrial environment	IEC/EN 61326-1
RFI Field Strength 30 – 1,000 MHz	IEC/CISPR11/EN 55011
Radiated interference voltage 0.15 – 30 MHz	IEC/CISPR11/EN 55011
Safety	
Europe	CE labelling
USA and Canada	UL variants available
Firmware	
Firmware update	Update via GridVis® software. Firmware download (free of charge) from the website: http://www.janitza.com/downloads/

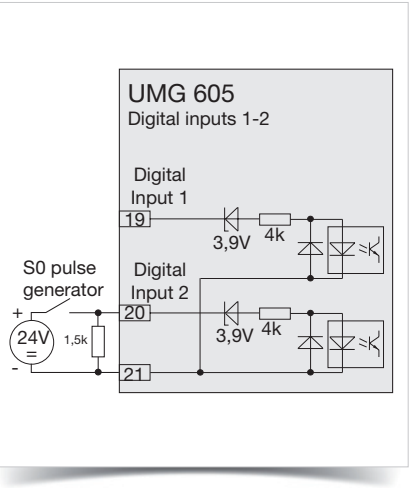


Fig.: Example for the connection of an S0 pulse transducer to digital input 2

Comment:
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• = included - = not included

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Version 01/2015 • Subject to technical alterations.

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