Power Quality Analyser

UMG 604-PRO

Data sheet

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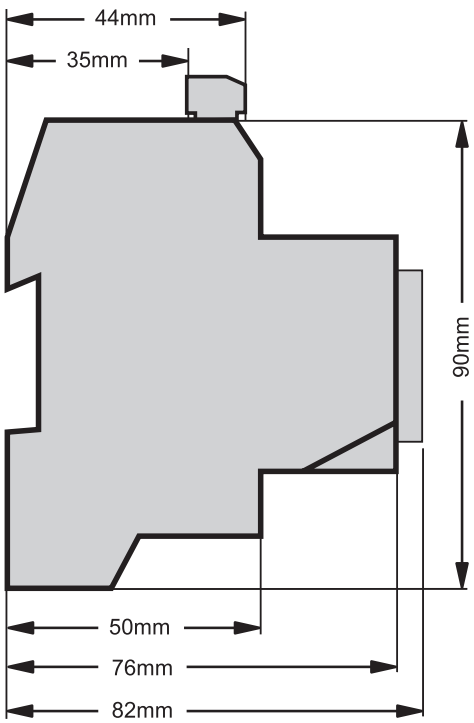
Janitza®

DEVICE VIEWS

Front view

Side view



All dimensions in mm

TECHNICAL DATA

General	
Net weight	350 g (0.771 lb)
Device dimensions	Approx. l=107.5 mm (4.23 in), w=90 mm (3.54 in), h=82 mm (3.23 in) (per DIN 43871:1992)
Housing flammability rating	UL 94V-0
Installation position	any
Fastening/assembly	35 mm DIN rail (per IEC/EN60999-1, DIN EN 50022)
Battery	Type Lithium CR2032, 3 V (approval i.a.w. UL 1642)
Service life of the backlight (optional)	40000 h (50% of the initial brightness)
Impact resistance	IK08 according to IEC 62262

Transport and storage The following information applies to devices which are transported or stored in the original packaging.	
Free fall	1 m (39.37 in)
Temperature	-20 °C (-4° F) to +70 °C (158° F)

Ambient conditions during operation	
The device is intended for weather-protected, stationary use. Protection class II in accordance with IEC 60536 (VDE 0106, part 1), i.e. a ground wire connection is not required! The device meets the operational conditions in accordance with DIN IEC 60721-3-3.	
Working temperature range	-10 °C (14° F) to +55 °C (131° F)
Relative humidity	5 to 95% RH (at 25°C / 77° F without condensation)
Operating altitude	0 to 2000 m (1.24 mi) above sea level
Pollution degree	2
Installation position	any
Ventilation	forced ventilation is not required.
Protection against ingress of solid foreign bodies and water	IP20 in accordance with EN60529 September 2014, IEC60529:2013

Supply voltage	
The supply voltage must be connected through a fuse to the device.	6A, char. B (approved to UL/IEC)
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 CATII
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 CATII
24V option: Nominal range Operating range Power consumption Overvoltage category	 20 V to 50 V (50/60Hz) / DC 20 V to 70 V +-10% of nominal range max. 5 W / 8 VA 150 V CATII

Terminal connection capacity (supply voltage) Conductors to be connected. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.08 - 2.5 mm², AWG 28 - 12
Cable end sleeve (not insulated)	0.20 - 1.5 mm², AWG 24 - 16
Cable end sleeve (insulated)	0.25 - 1.5 mm², AWG 24-16
Stripping length	5-6 mm (0.2 - 0.24 in)

Digital inputs	
Maximum counter frequency (Pulse input S0)	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 (32.81 yd) unshielded, from 30 m (32.81 yd) shielded

Digital outputs 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 (32.81 yd) unshielded, from 30 m (32.81 yd) shielded

Temperature measurement input 3-wire measurement	
Update time	Approx. 200 ms
Connectable sensors	PT100, PT1000, KTY83, KTY84
Total burden (sensor + cable)	max. 4 kOhm
Cable length	up to 30 m (32.81 yd) unshielded, from 30 m (32.81 yd) shielded

Sensor type	Temperature range	Resistor range	Measurement uncertainty
KTY83	-55 °C (-67 °F) to +175 °C (347 °F)	500 Ohm to 2.6 kOhm	± 1.5% rng[1)]
KTY84	-40 °C (-40 °F) to +300 °C (572 °F)	350 Ohm to 2.6 kOhm	± 1.5% rng[1)]
PT100	-99 °C (-146 °F) to +500 °C (932 °F)	60 Ohm to 180 Ohm	± 1.5% rng[1)]
PT1000	-99 °C (-146 °F) to +500 °C (932 °F)	600 Ohm to 1.8 kOhm	± 1.5% rng[1)]

[1)] rng = metering range

Terminal connection capacity: Digital inputs and outputs, temperature measurement input	
Single core, multi-core, fine-stranded	0.20 - 1.5 mm², AWG 24-16
Cable end sleeve (not insulated)	0.20 - 1.5 mm², AWG 24-16
Cable end sleeve (insulated)	0.20 - 1.0 mm², AWG 24-18
Tightening torque	0.20 - 0.25 Nm (1.77 - 2.21 lbf in)
Stripping length	7 mm (0.2756 in)

Voltage measurement	
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
Metering range L-N	0[1)] to 600 Vrms
Metering range L-L	0[1)] to 1000 Vrms
Crest factor	2 (related to 480 Vrms)
Overvoltage category	300 V CAT III
Measurement surge voltage	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	45 Hz to 65 Hz
- Resolution	0.001 Hz

[1)] The UMG device can only determine measured values if at least one voltage measurement input has an L-N voltage of greater than 10 Veff or an L-L voltage of greater than 18 Veff.

Terminal connection capacity (voltage measurement) Conductors to be connected. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.08 - 4.0 mm², AWG 28-12
Cable end sleeve (not insulated)	0.25 - 2.5 mm², AWG 24-14
Cable end sleeve (insulated)	0.25 - 2.5 mm², AWG 24-14
Stripping length	8-9 mm (0.31 - 0.35 in)

Current measurement	
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
Metering range	0.005 to 7 Amps
Crest factor	2 (related to 6 Amps)
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 rate	20 kHz

Measurement precision phase angle	0,15°

Terminal connection capacity (current measurement) Conductors to be connected. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.08 - 4.0 mm², AWG 28-12
Cable end sleeve (not insulated)	0.25 - 4.0 mm², AWG 28-14
Cable end sleeve (insulated)	0.25 - 2.5 mm², AWG 24-14
Stripping length	8-9 mm (0.31 - 0.35 in)

RS232 interface	
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

RS485 interface	
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

Terminal connection capacity (RS 232 / RS 485)	
Single core, multi-core, fine-stranded	0.20 - 1.5 mm^2, AWG 24-16
Cable end sleeve (not insulated)	0.20 - 1.5 mm^2, AWG 24-16
Cable end sleeve (insulated)	0.20 - 1.0 mm^2, AWG 24-18
Tightening torque	0.20 - 0.25 Nm (1.77 - 2.21 lbf in)
Stripping length	7 mm (0.2756 in)

Profibus interface (optional)	
Connection	SUB D 9-pin
Protocol	Profibus DP/V0 per EN 50170
Transmission rate	9.6 kBaud to 12 MBaud

Ethernet interface	
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

Measurement uncertainty Measurement uncertainty on the device applies when using the following metering ranges. The measured value must be within the specified limits. The measurement uncertainty is not specified outside of these limits.		
Measured value	**Measurement uncertainties**	
Voltage	± 0.2%	per DIN EN 61557-12:2008
Current L	± 0.25%	in accordance with DIN EN 61557-12:2008
Current N	± 1%	per DIN EN 61557-12:2008
Power	± 0.4%	per DIN EN 61557-12:2008
Harmonics U, I	Class 1, DIN EN 61000-4-7	
Active energy		
Current transformer ../5 A	Class 0.5S	(DIN EN62053-22:2003, IEC62053:22:2003)
Current transformer ../1 A	Class 1	(DIN EN62053-21:2003, IEC62053:21:2003)
Reactive energy		
Current transformer ../5 A	Class 2	(DIN EN62053-23:2003, IEC62053:23:2003)
Current transformer ../1 A	Class 2	(DIN EN62053-23:2003, IEC62053:23:2003)
Frequency	± 0.01 Hz	
Internal clock	±1 minute/month (18 °C (-64,4 °F) to 28 °C (158 °F)	

- Specification: information at the user manual
- annual re-calibration,
- a warm-up time of 10 minutes,

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