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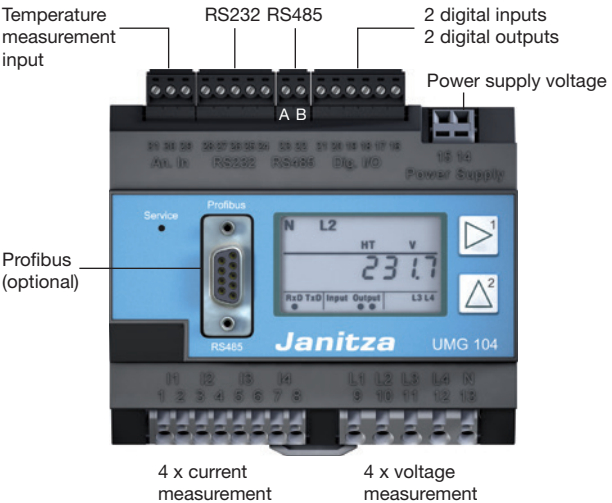
Power Analyser

UMG 104

Operating manual and
technical data



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Technical specifications

General information

Net weight	: 350g
Device dimensions	: approx l=107.5 mm, b=90 mm, h=82 mm (according to DIN 43871:1992)
Housing flammability class	: UL94V-0
Installed position	: any
Fixing/mounting	: 35 mm top hat rail (according to IEC/EN 60999-1, DIN EN 50022)
Battery	: Type VARTA CR2032, 3 V, Li-Mn
Backlight lifetime (optional)	: 40000h (50% of initial brightness)

Ambient conditions during operation

The UMG104 is intended for weather-protected, stationary use. The UMG104 fulfils the use conditions according to DIN IEC 60721-3-3.

Operating temperature range	: -10°C. +55°C
Relative humidity	: 5 to 95 %, (at +25 °C) without condensation
Degree of pollution	: 2
Operating altitude	: 0 .. 2000 m above sea level
Installed position	: any
Ventilation	: Forced ventilation is not required.

Transport and storage

The following information applies to devices which are transported or stored in the original packaging.

Free fall	: 1m
Temperature	: -20°C to +70°C

Power supply voltage

The power supply voltage must be connected to the UMG104 via a UL listed fuse.

Line circuit breaker	: 6A, Typ C (approved to UL / IEC)
Cylindrical fuses	: 0.6A, tripping characteristics M (medium time lag)
Cylindrical fuses	: 0.75A, tripping characteristics F (fast acting)
Option 230V	
Nominal range	: 95V .. 240V (50/60 Hz) or DC 135V .. 340V
Operating range	: +-10% of nominal range
Installation overvoltage category	: 300V CATIII
Power consumption	: max 3.2W, max 9VA
Option 90V	
Nominal range	: 50V .. 110V (50/60 Hz) or DC 50V .. 155V
Operating range	: +-10% of nominal range
Installation overvoltage category	: 300V CATII
Power consumption	: max 3.2W, max 9VA
Option 24V	
Nominal range	: 20V .. 50V (50/60 Hz) or DC 20V .. 70V
Operating range	: +-10% of nominal range
Installation overvoltage category	: 300V CATII
Power consumption	: max 5W, max 8VA

Connectable conductors

Only one conductor may be connected per terminal connection!

Solid core, multi-core, flexible core	: 0.08 - 2,5 mm^2, AWG 28 - 12
Pin-end connector, wire end ferrules	: 1.5 mm^2, AWG 16

Protection class

Class II according to IEC 60536 (VDE 0106, Part 1), i.e. a PE terminal is not required!

Protection against ingress of solid foreign bodies and water	: IP20 according to EN 60529 September 2000, IEC 60529:1989

Inputs and outputs

2 digital inputs
- Pulse input (S0)
  - Maximum counting frequency : 20 Hz
- Switching input
  - Response time (Jasic program) : 200 ms
  - Input signal applied : 18V. 28 V DC (typically 4 mA)
  - Input signal not applied : 0 .. 5 V DC, current less than 0.5 mA

2 digital outputs, semi-conductor relay, 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 overranges : 20 ms
- Pulse output (operating pulses) : max 20 Hz

Cable length : up to 30 m unshielded
: greater than 30m shielded

Connectable conductors
- Solid core, multi-core, flexible core : 0.08 - 1.5 mm^2
- Pin-end connector, wire end ferrules : 1 mm^2, only one conductor may connected per terminal connection!

Temperature measurement input

Update time : approx 200 ms
Connectable sensors : PT100, PT1000, KTY83, KTY84
Total burden (sensor + cable) : max 4 kohm

Sensor type	Temperature range	Resistance range	Measurement uncertainty
KTY83	-55 ° .. +175 °C	500 ohm .. 2.6 kohm	± 1.5% rng
KTY84	-40 ° .. +300 °C	350 ohm .. 2.6 kohm	± 1.5% rng
PT100	-99 ° .. +500 °C	60 ohm .. 180 ohm	± 1.5% rng
PT1000	-99 ° .. +500 °C	600 ohm .. 1,8 kohm	± 1.5% rng

rng = measuring range

Cable length : up to 30 m unshielded
: greater than 30 m shielded

Connectable conductors
Solid core, multi-core, flexible core : 0.08 - 1.5 mm^2
Pin-end connector, wire end ferrules : 1 mm^2, only one conductor may be connected per terminal connection!

Interfaces

RS232	: 5 pin screw-type terminals.
Protocol	: Modbus RTU/slave
Transfer rate	9600 bps, 19.2 kbps, 38.4 kbps, 115.2 kbps
RS485	: 2 pin screw-type terminals.
Protocol, modbus RTU	: Modbus RTU/slave.
Transfer rate	: 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps, 921.6 kbps
RS485 (optional)	: Connector, SUB D 9 pin
Protocol, profibus (optional)	: Profibus DP/V0 according to EN 50170
Transfer rate	: 9.6 kbaud up to 12 Mbaud

Measurement uncertainty

The measurement uncertainty of the UMG104 applies to use of the following measuring ranges. The measured value must lie within the given limits. Outside these limits the measurement uncertainty is unspecified.

Measured value	Measurement uncertainties
Voltage	± 0.2% DIN EN 61557-12:2008
Current L	± 0.25% based on DIN EN 61557-12:2008
Current N	± 1% DIN EN 61557-12:2008
Power	± 0.4% DIN EN 61557-12:2008
Harmonic components U, I	Class 1 DIN EN 61000-4-7
Active energy	
Current transformer ../5A	Class 0.5S (DIN EN 62053-22:2003, IEC 62053:22:2003)
Current transformer ../1A	Class 1 (DIN EN 62053-21:2003, IEC 62053:21:2003)
Reactive energy	
Current transformer ../5A	Class 2 (DIN EN 62053-23:2003, IEC 62053:23:2003)
Current transformer ../1A	Class 2 (DIN EN 62053-23:2003, IEC 62053:23:2003)
Frequency	± 0.01Hz
Internal clock	±1 minute/month (18°C ... 28 °C)

The specifications apply under the following conditions:

- Annual recalibration,
- a warming up time of 10 minutes,
- an ambient temperature of 18 .. 28°C.

If the device is operated outside the range from 18 .. 28°C an additional measurement error equal to ±0.01% of the measured value must be taken into account per °C difference.

NOTE

Note on saving measured values and configuration data:
Since the following measured values are saved in a non-volatile memory every 5 minutes, the recording may **be interrupted for a** maximum of 5 minutes in case the operating voltage fails:

· Comparator timer
· S0 counter statuses
· Min. / Max. / mean values
(without the date and time)
· Energy values

Configuration data is saved immediately.
A detailed Modbus address and parameter list can be found at www.janitza.de

Measuring inputs

Voltage measurement

Three-phase 4-wire systems (L-N/L-L)	: max. 277 V/480 V
Three-phase 3-wire systems (L-L)	: max. 480 V
Resolution	: 0,01 V
Measurement range L-N	: 0[1] .. 600Vrms
Measurement range L-L	: 0[1] .. 1000Vrms
Crest-faktor	: 2 (referring to 480 Vrms)
Measurement category	: 300V CAT III
Specified impulse withstand voltage	: 4 kV
Impedance	: 4 MOhm/phase
Power input	: approx 0.1 VA
Scanning frequency	: 20 kHz/phase
Fundamental oscillation	: 45 Hz .. 65 Hz

[1]The UMG104 can only detect measurement values if a voltage L-N larger than 10Veff or a voltage L-L larger than 18Veff is applied to at least one voltage measurement input.

Connectable conductors (current measurement and voltage measurement)
Only one conductor may connected per terminal connection.

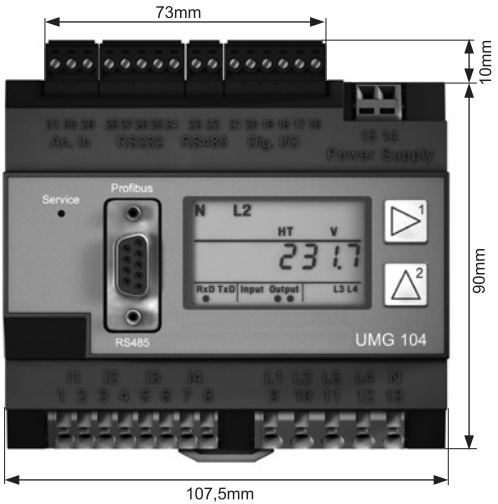
Solid core, multi-core, flexible core	: 0.08 - 4 mm2, AWG 28 - 12
Pin-end connector, wire end ferrules	: 2.5 mm2, AWG 14

Current measurement

Nominal current	: 5A
Rated current	: 6A
Resolution in the display	: 10mA
Measurement range	: 0.001 .. 8.5Arms
Crest-faktor	: 2 (referring to 6 Arms)
Measurement category	: 300 V CAT III
Specified impulse withstand voltage	: 4 kV
Power input	: approx 0.2 VA (Ri=5 mohm)
Overload for 1 sec	: 100 A (sinusoidal)
Scanning frequency	: 20 kHz

Dimensioned drawings

Front view



Side view