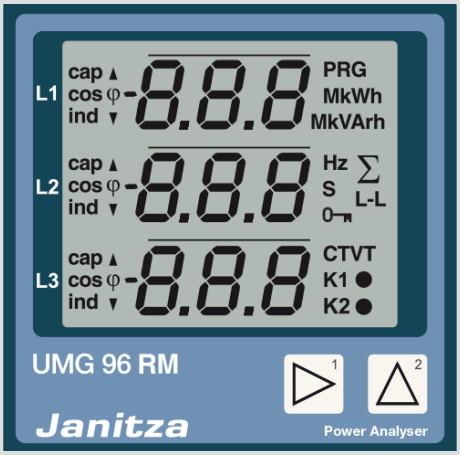
Smart Energy & Power Quality Solutions



Power Analyser

UMG 96RM-PN

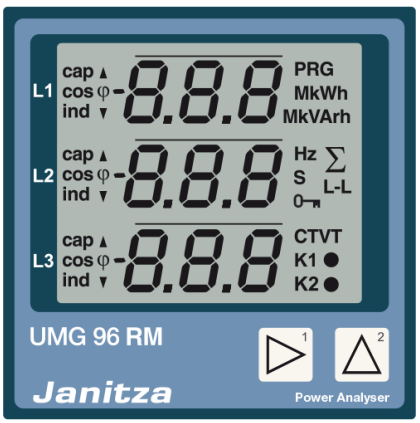
Data sheet

Dok.-Nr. 2.040.182.1.b 02/2023

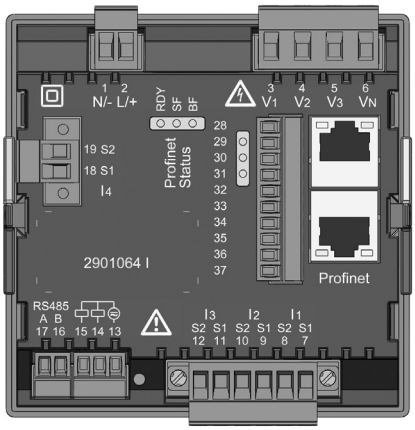
Janitza®

DEVICE VIEWS

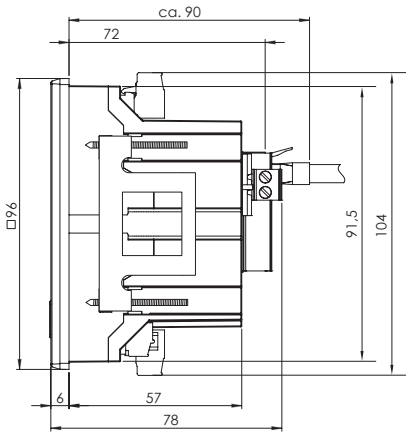
Front view



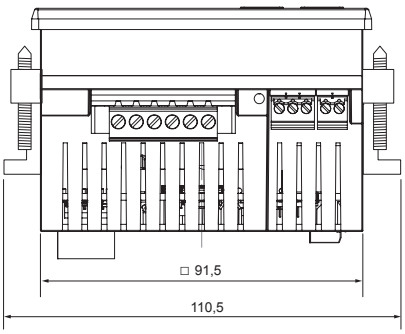
Rear view



Side view



Bottom view



Cut-out size: $92^{+0,8}$ mm x $92^{+0,8}$ mm.

All dimensions in mm

TECHNICAL DATA

General	
Net weight (with attached connectors)	Approx. 380g
Package weight (incl. accessories)	Approx. 780g
Service life of backlight	40,000 hrs (backlighting is reduced by around 50% over this period)

Transport and storage The following information applies to devices which are transported or stored in the original packaging.	
Free fall	1m
Temperature	K55 (-25°C to +70°C)
Relative humidity	0 to 90% RH

Ambient conditions during operation	
The UMG 96RM is intended for weather-protected, stationary use. Protection class II in acc. with IEC 60536 (VDE 0106, Part 1).	
Rated temperature range	K55 (-10°C to +55°C)
Relative humidity	0 to 75% RH
Operating altitude	0 to 2000m above sea level
Pollution degree	2
Mounting position	Upright
Ventilation	Forced ventilation is not required.
Protection against ingress of solid foreign bodies and water - Front - Rear - Front with seal	 IP40 in acc. with EN60529 IP20 in acc. with EN60529 IP54 in acc. with EN60529

Power supply voltage		
Option 230V	Nominal range	90V - 277V (50/60Hz) or DC 90V - 250V; 300V CATIII
	Power consumption	max. 8.5VA / 5W
Option 24V	Nominal range	24V - 90V AC / DC; 150V CATIII
	Power consumption	max. 7VA / 5W
Operating range	+-10% of nominal range	
Internal fuse, not replaceable	Typ T1A / 250V/277V according IEC 60127	
Recommended overcurrent protection device for line protection (certified under UL)		Option 230V: 6 - 16A Option 24V: 1 - 6A (Char. B)

Recommendation for a maximum number of devices on a circuit breaker:
Option 230V : Circuit breaker B6A: max. 4 devices / Circuit breaker B16A: max. 11 devices
Option 24V : Circuit breaker B6A: max. 3 devices / Circuit breaker B16A: max. 9 devices

Voltage measurement	
Three-phase 4-conductor systems with rated voltages up to	277V/480V (+-10%)
Three-phase 3-conductor systems, unearthed, with rated voltages up to	IT 480V (+-10%)
Overvoltage category	300V CAT III
Measurement surge voltage	4kV
Measurement range L-N	0[1)] to 300Vrms (max. overvoltage 520Vrms)
Measurement range L-L	0[1)] to 520Vrms (max. overvoltage 900Vrms)
Resolution	0.01V
Crest factor	2.45 (related to the measurement range)
Impedance	3MΩ/phase
Power consumption	approx. 0.1VA
Sampling rate	21.33 kHz (50Hz), 25.6 kHz (60Hz) for each measurement channel
Frequency range of the fundamental oscillation - Resolution	45Hz to 65Hz 0.01Hz

[1)] The UMG 96RM-PN can only detect measurements when a voltage L1-N greater than 20V eff (4-wire measure ment) at voltage input V1 or a voltage L1-L2 greater than 34V eff (3-wire measurement) is applied.

Current measurement I1 - I4	
Rated current	5A
Measurement range	0 to 6Arms
Crest factor	1,98
Resolution	0.1mA (display 0.01A)
Overvoltage category	300V CAT II
Measurement surge voltage	2kV
Power consumption	Approx. 0.2 VA (Ri=5mΩ)
Overload for 1 sec.	120A (sinusoidal)
Sampling rate	21.33 kHz (50Hz), 25.6 kHz (60Hz) for each measurement channel

Residual current monitoring I5 / I6	
Rated current	30mArms
Measurement range	0 .. 40mArms
Triggering current	50µA
Resolution	1µA
Crest factor	1.414 (related to 40mA)
Burden	4 Ohm
Overload for 1 sec.	5A
Sustained overload	1A
Overload for 20 ms	50A
Residual current monitoring	i.a.w. IEC/TR 60755 (2008-01), type A

Thermistor input 2 optional inputs	
Update time	1 second
Connectable sensors	PT100, PT1000, KTY83, KTY84
Total burden (sensor + cable)	Max. 4 kOhm

Sensor type	**Temperature range**	**Resistor range**	**Measurement uncertainty**
KTY83	-55°C to +175°C	500Ohm to 2.6kOhm	± 1.5% rng
KTY84	-40°C to +300°C	350Ohm to 2.6kOhm	± 1.5% rng
PT100	-99°C to +500°C	60Ohm to 180Ohm	± 1.5% rng
PT1000	-99°C to +500°C	600Ohm to 1.8kOhm	± 1.5% rng

Serial interface	
RS485 to Modbus RTU/Slave	9.6kbps, 19.2kbps, 38.4kbps, 57.6 kbps, 115.2kbps
Stripping length	7mm

Ethernet / ProfiNet interface	
Connection	RJ45
Functions	Embedded webserver (HTTP)
Protocols	TCP/IP, Modbus/TCP (Port 502),ICMP (Ping), Modbus RTU over Ethernet (Port 8000), FTP ProfiNet (SNMP, DCP, MRP, LLDP, DCOM, RPC ...)
Conformance Class (CC)	B — Switch class C (IRT)
ProfiNet version	2.2
ProfiNet profiles	PROFIenergy V1.1, Entity Class 2

Digital outputs 2 and 3 optional additional digital outputs, semiconductor relay, not short-circuit proof	
Switching voltage	Max. 33V AC, 60V DC
Switching current	max. 50mAeff AC/DC
Response time	10/12 periods + 10ms *
Pulse output (energy pulses)	Max. 50Hz

* Response time, e.g. at 50 Hz: 200ms + 10ms = 210 ms

Digital inputs 3 optional additional digital outputs, semiconductor relay, not short-circuit proof	
Maximum counter frequency	20Hz
Input signal present	18V to 28V DC (typical 4mA)
Input signal not present	0 to 5V DC, current less than 0.5mA

Terminal connection capacity (supply voltage) Connectable conductors. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.2 - 2.5mm^2, AWG 26 - 12
Terminal pins, core end sheath	0.2 - 2.5mm^2
Tightening torque	0.4 - 0.5Nm
Stripping length	7mm

Terminal connection capacity (voltage and current measurement) Connectable conductors. Only one conductor can be connected per terminal!		
	Current	**Voltage**
Single core, multi-core, fine-stranded	0.2 - 2.5mm², AWG 26-12	0.08 - 4.0mm², AWG 28-12
Terminal pins, core end sheath	0.2 - 2.5mm²	0.2 - 2.5mm²
Tightening torque	0.4 - 0.5Nm	0.4 - 0.5Nm
Stripping length	7mm	7mm

Terminal connection capacity (residual current and temperature measurement inputs and digital inputs/outputs)	
Rigid/flexible	0.14 - 1.5mm², AWG 28-16
Flexible with core end sheath without plastic sleeve	0.20 - 1.5mm²
Flexible with core end sheath with plastic sleeve	0.20 - 1.5mm²
Tightening torque	0.20 - 0.25Nm
Stripping length	7mm

Cable length (digital inputs / outputs, temperature measurement input)	
Up to 30m	Not screened
Longer than 30m	Screened

Terminal connection capacity (serial interface)	
Single core, multi-core, fine-stranded	0.20 - 1.5mm²
Terminal pins, core end sheath	0.20 - 1.5mm²
Tightening torque	0.20 - 0.25Nm
Stripping length	7mm

FUNCTION PERFORMANCE CHARACTERISTICS

Function	Symbol	Precision class	Measurement range	Display range
Total effective power	P	0.5[5] (IEC61557-12)	0 to 5.4 kW	0 W to 999 GW *
Total reactive power	QA, Qv	1 (IEC61557-12)	0 to 5.4 kvar	0 varh to 999 Gvar *
Total apparent power	SA, Sv	0.5[5] (IEC61557-12)	0 to 5.4 kVA	0 VA to 999 GVA *
Total effective energy	Ea	0.5[5] (IEC61557-12) 0,5S[5] (IEC62053-22)	0 to 5.4 kWh	0 Wh to 999 GWh *
Total reactive energy	ErA, ErV	1 (IEC61557-12)	0 to 5.4 kvarh	0 varh to 999 Gvarh *
Total apparent energy	EapA, EapV	0.5[5] (IEC61557-12)	0 to 5.4 kVAh	0 VAh to 999 GVAh *
Frequency	f	0.05 (IEC61557-12)	45 to 65 Hz	45.00 Hz to 65.00 Hz
Phase current I1 - I3	I	0.2 (IEC61557-12)	0 to 6 Arms	0 A to 999 kA
Measured neutral conductor current I4	IN	1 (IEC61557-12)	0 to 6 Arms	0 A to 999 kA
Residual currents I5, I6	IDiff	1 (IEC61557-12)	0 to 40 mArms	0 A to 999 kA
Computed neutral conductor current	INc	1.0 (IEC61557-12)	0.03 to 25 A	0.03 A to 999 kA
Voltage	U L-N	0.2 (IEC61557-12)	10 to 300 Vrms	0 V to 999 kV
Voltage	U L-L	0.2 (IEC61557-12)	18 to 520 Vrms	0 V to 999 kV
Power factor	PFA, PFV	0.5 (IEC61557-12)	0.00 to 1.00	0.00 to 1.00
Short-term flicker, long-term flicker	Pst, Plt	-	-	-
Voltage dips (L-N)	Udip	-	-	-
Voltage rises (L-N)	Uswl	-	-	-
Transient overvoltages	Utr	-	-	-
Voltage interruptions	Uint	-	-	-
Voltage unbalance (L-N) [1]	Unba	-	-	-
Voltage unbalance (L-N) [2]	Unb	-	-	-
Voltage harmonics	Uh	Cl. 1 (IEC61000-4-7)	Up to 2.5 kHz	0 V to 999 kV
THD of the voltage [3]	THDu	1.0 (IEC61557-12)	Up to 2.5 kHz	0% to 999%
THD of the voltage [4]	THD-Ru	-	-	-
Current harmonics	Ih	Cl. 1 (IEC61000-4-7)	Up to 2.5 kHz	0 A to 999 kA
THD of the current [3]	THDi	1.0 (IEC61557-12)	Up to 2.5 kHz	0% to 999%
THD of the current [4]	THD-Ri	-	-	-
Mains signal voltage	MSV	-	-	-

[1] Referred to amplitude.
[2] Referred to phase and amplitude.
[3] Referred to mains frequency.
[4] Referred to root mean square value.
[5] Accuracy class 0.5/ 0.5S with ../5 A transformer.
Accuracy class 1 with ../1 A transformer.

* The display returns to 0 W when the maximum total energy values are reached.

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