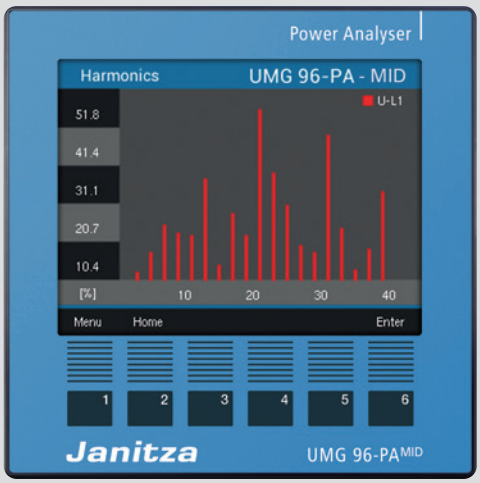


The device fronts may differ!

Power Analyser

UMG 96-PA^{MID}

UMG 96-PA^{MID+}

(Firmware 2.0 and higher / Hardware index 5)

Data sheet

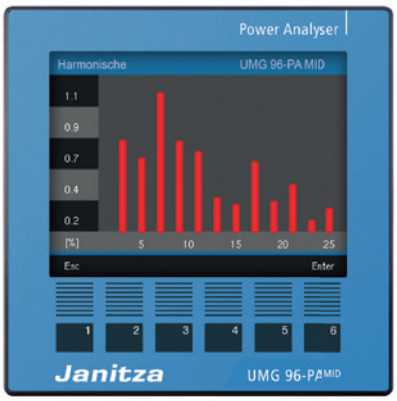
03/2020

Doc. no. 2.061.058.1b

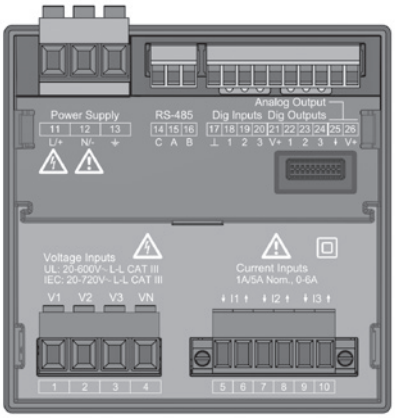
Janitza®

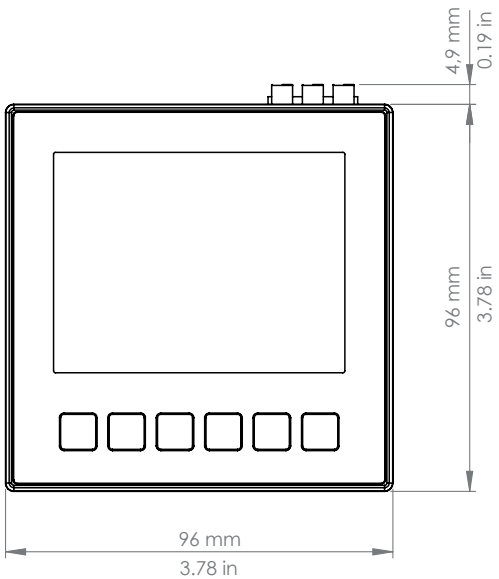
DEVICE VIEWS

Front view

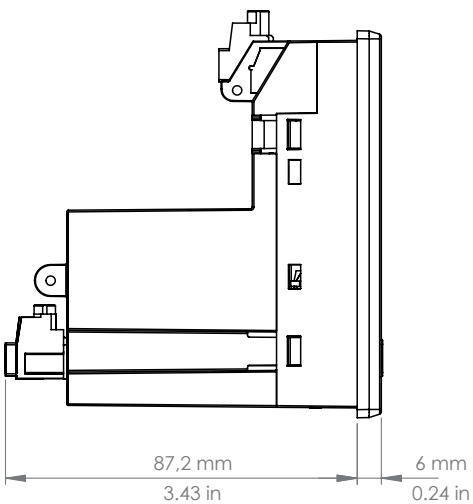


Rear view

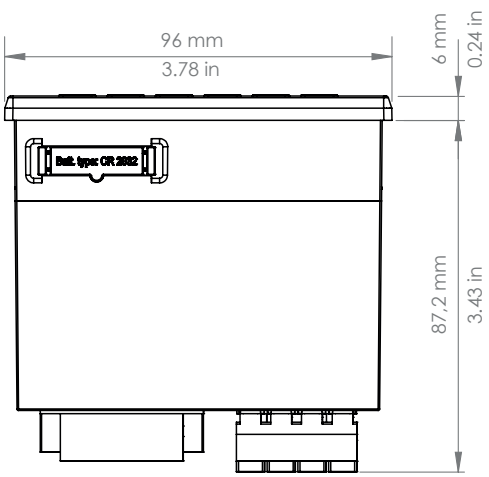




Side view



Bottom view



Cut-out size:
$92^{+0,8}$ mm x $92^{+0,8}$ mm
($3.62^{+0.03}$ x $3.62^{+0.03}$ in)

TECHNICAL DATA

General	
Net weight (with connectors attached)	Approx. 250 g (0.55 lb)
Packaged weight (incl. accessories)	Approx. 500 g (1.1 lb)
Battery	Lithium type CR2032, 3V (approved as per UL 1642)
Life cycle of the backlighting	40000 h (Backlighting diminishes over this time period to approx. 50%)
Impact resistance	IK07 acc. IEC 62262

Transport and storage The following details apply for devices that are transported and stored in the original packaging.	
Free fall	1 m (39.37 in)
Temperature	-25 °C (-13 °F) to +70 °C (158 °F)
Relative humidity (non-condensing)	0 to 90% RH

Environmental conditions for operation	
The device is suitable for weather-protected, non-mobile use. Protection class II as per IEC 60536 (VDE 0106, Part 1).	
Measurement temperature range	-10 °C (14 °F) .. +55 °C (131 °F)
Relative humidity (non-condensing)	0 to 75 % RH
Operating height	0 .. 2000 m (1.24 mi) over NN
Pollution degree	2
Installation position	Discretionary
Ventilation	External ventilation is not required.
Protection from foreign objects and water - Front - Rear - Front side with sealing	 IP40 according to EN60529 IP20 according to EN60529 IP54 according to EN60529
Electromagnetic ambient conditions	Class E2 (MID 2014/32/EU)
Mechanical ambient conditions	Class M1 (MID 2014/32/EU)

Supply voltage		
Nominal range		AC 90 V - 277 V (50/60 Hz) or DC 90 V - 250 V, 300 V CATIII
Power consumption		max. 4.5 VA / 2 W
Operating range	+-10% of nominal range	
Internal fuse, not interchangeable	Type T1A / 250 V DC / 277 V AC according to IEC 60127	
Recommended overcurrent protection device for the line protection (approval according to UL)		6 - 16 A (Char. B)

Recommendation for the maximum number of devices on one circuit breaker:
Circuit breaker B6A: 4 devices max. / circuit breaker B16A: 11 devices max.

Voltage measurement	
Three-phase 4 conductor systems with rated voltages	3 x 57,7/100 V ... 3 x 230/400 V [1]
Overvoltage category	600 V CAT III
Measurement voltage surge	6 kV
Fuse for the voltage measurement	1 - 10 A, Char. B (with IEC/UL approval)
Measuring range L-N	0[2] .. 600 V_{rms} (max. overvoltage 800 V_{rms})
Measuring range L-L	0[2] .. 1040 V_{rms} (max. overvoltage 1350 V_{rms})
Resolution	0.01 V
Crest factor	2,45 (related to the measurement range)
Impedance	3 MΩ/Phase
Power consumption	Approx. 0,1 VA
Sampling frequency	8.33 kHz
Frequency of the basic oscillation - resolution	45 Hz .. 65 Hz 0.01 Hz
Reference frequency	50 Hz
Fourier-Analyse	1.-40. harmonics

1) For a voltage measurement using a voltage transformer, the following applies to the UMG 96-PA-MID / MID+: Use calibrated / permissible voltage transformers for a MID-compliant measurement (secondary: 3 x 57.7 / 100 V - 3 x 230/400 V).
2) The device only determines the measured values if voltage L1-N is greater than 20 V_{eff} (4-conductor measurement) or voltage L1-L2 is greater than 34 V_{eff} (3-conductor measurement) on voltage measurement input V1

Current measurement	
Rated current	5 A
Metering range	0.002 .. 6 A $_{rms}$
Crest factor (based on the rated current)	2 (based on 6 A $_{rms}$)
Overvoltage category	300 V CAT II
Measurement voltage surge	2 kV
Power consumption	ca. 0.2 VA (Ri=5 mΩ)
Overload for 1 sec.	60 A (sinusförmig)
Resolution	0.1 mA (Display 0.01 A)
Sampling frequency	8.33 kHz
Fourier-analyse	1.-40. harmonics

Active Energy (MID)	
Accuracy class	B according to DIN EN 50470-1

Serial interface	
RS485 - Modbus RTU/Slave	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps

Digital outputs 3 digital outputs, semiconductor relays, not short-circuit proof.	
Switching voltage	Max. 33 V AC, 40 V DC
Switching current	Max. 50 mA_{eff} AC/DC
Response time	Approx. 200 ms
Pulse output	Max. 50 Hz (energy pulse)
Pulse value S0 (pulse constant)	10,000 pulses/kWh [1]

The „Active energy“ measured value (obtained/supplied) occupies digital output 1 (terminal 21/22)!

1) The pulse value S0 is automatically adjusted to the set voltage transformer ratio. The current pulse value S0 appears in the active energy measured value indication

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

Line length (digital inputs/outputs)	
Up to 30 m (32.81 yd)	Unshielded
Greater than 30 m (32.81 yd)	Shielded

Analog output	
External power supply	Max. 33 V
Current	0 .. 20 mA
Update time	1 s
Load	Max. 300 Ω
Resolution	10 Bit

Terminal connection capacity (supply voltage) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 4.0 mm², AWG 28-12
Cable end sleeve (not insulated)	0.2 - 2.5 mm², AWG 26-14
Cable end sleeve (insulated)	0.2 - 2.5 mm², AWG 26-14
Tightening torque	0.4 - 0.5 Nm (3.54 - 4.43 lbf in)
Stripping length	7 mm (0.2756 in)

Terminal connection capacity (voltage measurement) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 4.0 mm², AWG 28-12
Cable end sleeve (not insulated)	0.2 - 2.5 mm², AWG 26-14
Cable end sleeve (insulated)	0.2 - 2.5 mm², AWG 26-14
Tightening torque	0.4 - 0.5 Nm (3.54 - 4.43 lbf in)
Stripping length	7 mm (0.2756 in)

Anschlussvermögen der Klemmstellen (Strommessung) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 4 mm², AWG 28-12
Cable end sleeve (not insulated)	0.2 - 4 mm², AWG 26-12
Cable end sleeve (insulated)	0.2 - 2.5 mm², AWG 26-14
Tightening torque	0.4 - 0.5 Nm (3.54 - 4.43 lbf in)
Stripping length	7 mm (0.2756 in)

Terminal connection capacity (serial interface) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 28-16
Cable end sleeve (not insulated)	0.2 - 1.5 mm², AWG 26-16
Cable end sleeve (insulated)	0.2 - 1.5 mm², AWG 26-16
Tightening torque	0.2 - 0.25 Nm (1.77 - 2.21 lbf in)
Stripping length	7 mm (0.2756 in)

Anschlussvermögen der Klemmstellen (digitale Ein-/Ausgänge, analoger Ausgang) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 28-16
Cable end sleeve (not insulated)	0.2 - 1.5 mm², AWG 26-16
Cable end sleeve (insulated)	0.2 - 1.5 mm², AWG 26-16
Tightening torque	0.2 - 0.25 Nm (1.77 - 2.21 lbf in)
Stripping length	7 mm (0.2756 in)

FUNCTION PERFORMANCE CHARACTERISTICS

Function	Symbol	Precision class	Measurement range	Display range
Total active power	P	0.5[5] (IEC61557-12)	0 W .. 12.6 kW	0 W .. 999 GW *
Total reactive power	QA, Qv	1 (IEC61557-12)	0 var .. 16.6 kvar	0 var .. 999 Gvar *
Total apparent power	SA, Sv	0.5[5] (IEC61557-12)	0 VA .. 12.6 kVA	0 VA .. 999 GVA *
Total active energy	Ea	0.2[5] (IEC61557-12) 0.2S[5] (IEC62053-22)	0 Wh .. 999 GWh	0 Wh .. 999 GWh *
Total reactive energy	ErA, ErV	1 (IEC61557-12)	0 varh .. 999 Gvarh	0 varh .. 999 Gvarh *
Total apparent energy	EapA, EapV	0.5[5] (IEC61557-12)	0 VAh .. 999 GVAh	0 VAh .. 999 GVAh *
Frequency	f	0.05 (IEC61557-12)	45 Hz .. 65 Hz	45.00 Hz .. 65.00 Hz
Phase current	I	0.2 (IEC61557-12)	0 A_{rms} .. 7 A_{rms}	0 A .. 999 kA
Neutral conductor current, calculated	INc	1.0 (IEC61557-12)	0.03 A .. 25 A	0,03 A .. 999 kA
Voltage	U L-N	0.2 (IEC61557-12)	10 V_{rms} .. 600 V_{rms}	0 V .. 999 kV
Voltage	U L-L	0.2 (IEC61557-12)	18 V_{rms} .. 1040 V_{rms}	0 V .. 999 kV
Power factor	PFA, PFV	0.5 (IEC61557-12)	0.00 .. 1.00	0,00 .. 1,00
Short-term flicker, long-term flicker	Pst, Plt	-	-	-
Voltage dips (L-N)	Udip	-	-	-
Voltage swells (L-N)	Uswl	-	-	-
Transient overvoltages	Utr	-	-	-
Voltage interruptions	Uint	-	-	-
Voltage symmetry (L-N) [1]	Unba	-	-	-
Voltage symmetry (L-N) [2]	Unb	-	-	-
Voltage harmonics	Uh	Cl. 1 (IEC61000-4-7)	1. .. 40.	0 V .. 999 kV
Voltage THD [3]	THDu	1.0 (IEC61557-12)	0 % .. 999 %	0 % .. 999 %
Voltage THD [4]	THD-Ru	-	-	-
Current harmonics	Ih	Cl. 1 (IEC61000-4-7)	1. .. 40.	0 A .. 999 kA
Current THD [3]	THDi	1.0 (IEC61557-12)	0 % .. 999 %	0 % .. 999 %
Current THD [4]	THD-Ri	-	-	-
Network signal voltage	MSV	-	-	-

1) In relation to the amplitude.
2) In relation to the phase and amplitude.
3) In relation to the power frequency.
4) In relation to the effective value.
5) Accuracy class 0.2/0.2S with ../5A transformer. Accuracy class 0.5/0.5S with ../1A transformer.

* When the max. total energy value is reached, the display reverts back to 0 W.

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