Power Analyser

UMG 96-PA^{MID}
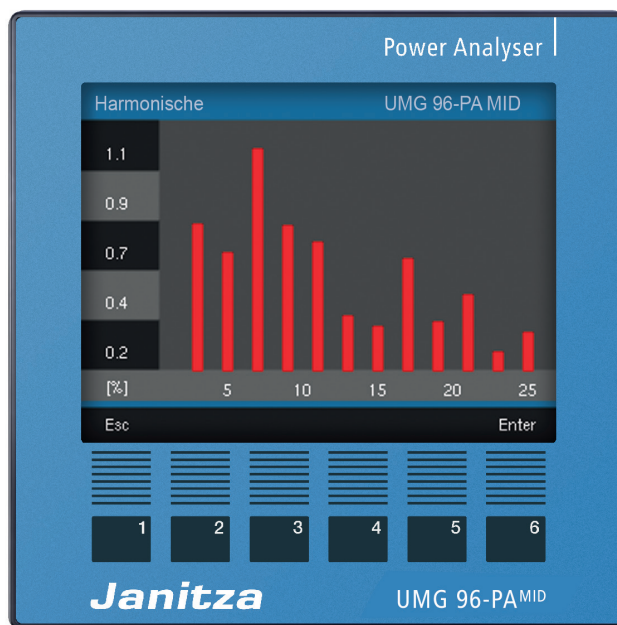
Data sheet

Janitza®

Technical Data

General information	
Net weight (with attached connectors)	Approx. 250 g
Packaging weight (including accessories)	Approx. 500 g
Battery	Type Lithium CR2032, 3 V (approval according to UL 1642)
Service life of the background lighting	40000 h (background lighting is reduced to approx. 50% for this period)

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

Ambient conditions during operation Use the device in a weather-protected, stationary application. Protection class II in accordance with IEC 60536 (VDE 0106, Part 1).	
Measurement temperature range	-10 °C .. +55 °C
Relative humidity (non-condensing)	0 to 75 % RH
Operating altitude	0 .. 2000 m over NN
Pollution degree	2
Installation position	discretionary
Ventilation	No external ventilation required.
Protection against foreign bodies and water - Front - Rear - Front side with sealing	IP40 according to EN60529 IP20 according to EN60529 IP54 according to EN60529 (required for the MID device!)
Electromagnetic ambient conditions	Class E2 (MID 2014/32/EU)
Mechanical ambient conditions	Class M1 (MID 2014/32/EU)

Supply voltage		
Option 230 V	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
Option 24 V	Nominal range	AC 24 V - 90 V (50/60Hz) or DC 24 V - 90 V, 150 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)	Option 230 V: 6 - 16 A (Char. B) Option 24 V: 1 - 6 A (Char. B)	

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

Voltage measurement	
Three-phase 4 conductor systems with rated volatges up to	230/400 V [1] (MID)
Single-phase 2 conductor systems with rated voltages up to	230 V
Overvoltage category	600 V CAT III
Measurement voltage surge	6 kV
Fuse for the voltage measurement	1 - 10 A (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

1) Voltage measurement without measuring transformers only possible up to 300 V.
2) The device only determines the measured values if voltage L1-N is greater than 20 Veff (4-conductor measurement) or voltage L1-L2 is greater than 34 Veff (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	Approx. 0.2 VA (Ri=5 mΩ)
Overload for 1 sec.	60 A (sinusoidal)
Resolution	0.1 mA (Display 0.01 A)
Sampling frequency	8.33 KHz

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 mAeff AC/DC
Response time	Approx. 200 ms
Pulse output	Max. 50Hz (energy pulse)
Pulse value S0 (pulse constant)	10,000 pulses/kWh [1]

UMG 96-PAMID: 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	Unshielded
Greater than 30 m	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	0.08 - 4.0 mm², AWG 28-12
Terminal pins, core end sheath	0.2 - 2.5 mm²
Tightening torque	0.4 - 0.5 Nm
Stripping length	7 mm

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

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

Terminal connection capacity (serial interface)	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 28-16
Terminal pins, core end sheath	0.2 - 1.5 mm²
Tightening torque	0.2 - 0.25 Nm
Stripping length	7 mm

Terminal connection capacity (digital inputs and outputs, analog output)	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 28-16
Terminal pins, core end sheath	0.2 - 1.5 mm²
Tightening torque	0.2 - 0.25 Nm
Stripping length	7 mm

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	0.5[5] (IEC61557-12) 0.5S[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] [6] (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	Kl. 1 (IEC61000-4-7)	1 .. 25 (odd)	0 V .. 999 kV
Voltage THD [3]	THDu	1.0 (IEC61557-12)	0 % .. 999 %	0 % .. 999 %
Voltage THD [4]	THD-Ru	-	-	-
Current harmonics	Ih	Kl. 1 (IEC61000-4-7)	1 .. 25 (odd)	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 0.5/0.5S with ../5A transformer.
   Accuracy class 1 with ../1A transformer.

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