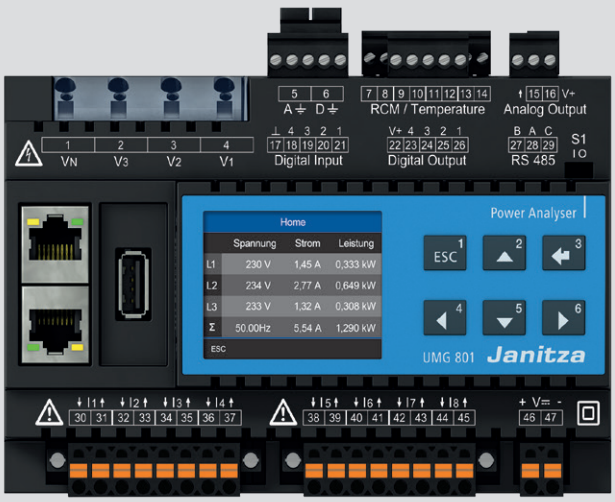


POWER ANALYSER

UMG 801

Data sheet

Doc. no. 2.053.012.1.i 09/2020

Janitza®

UMG 801

Multifunctional measurement device for recording energy measured values

Doc. no.: 2.053.012.1.i
Status: 09/2020
The German version is the original version of the documentation

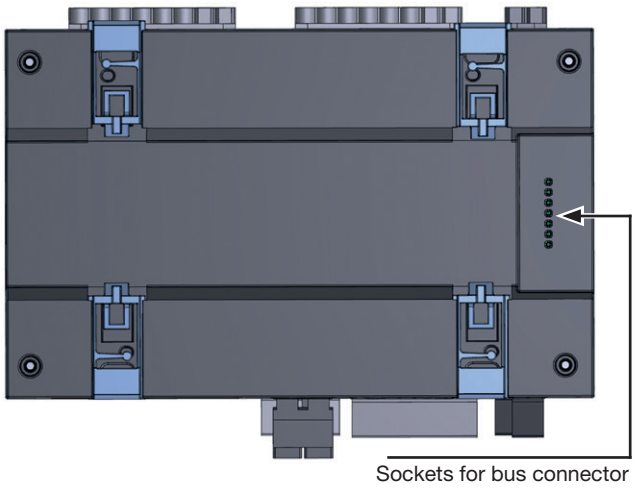
Subject to technical changes.

The content of our documentation has been compiled with the utmost care and is based on the latest information available to us. Nevertheless, we would like to point out that the updating of this document cannot always be performed simultaneously with the further technical development of our products. Information and specifications can be changed at any time.
Please consult www.janitza.com for information on the current version.

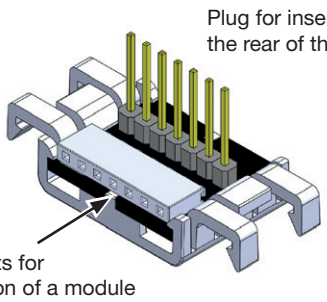
DEVICE VIEWS

· The figures serve as illustrations and are not true to scale.
· Specifications in mm (in).

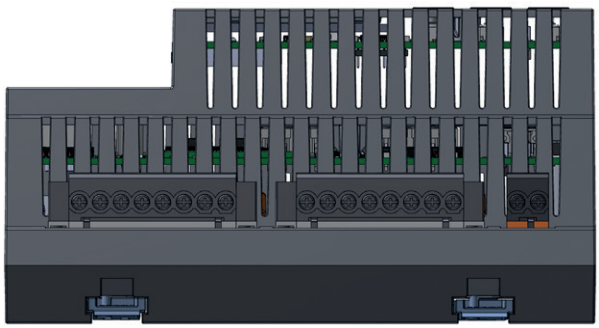
Rear view



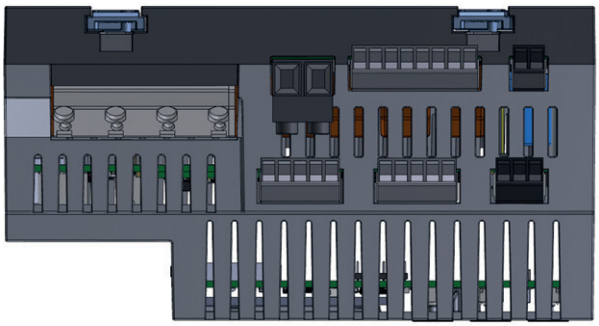
Bus connector



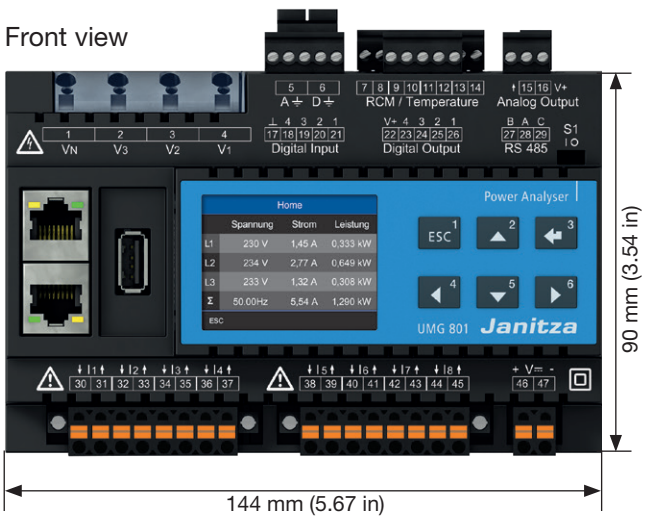
View from below



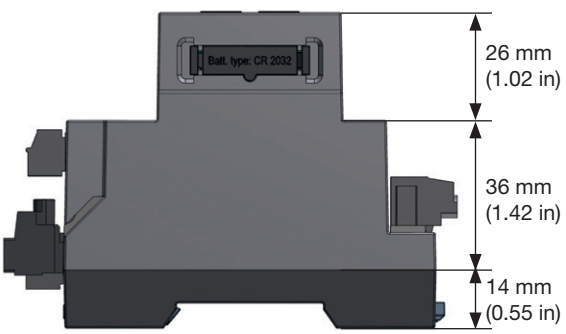
View from above



Front view



View from the left



TECHNICAL DATA

General information	
Net weight	420 g (0.926 lb)
Device dimensions	approx. w = 144 mm (5.67 in), h = 90 mm (3.54 in), d = 76 mm (2.99 in)
Battery	Type lithium CR2032, 3 V (UL1642 approval)
Integrated memory	4 GB
Service life of the backlight	40000 h (50% of the starting brightness)
Installation position	discretionary
Mounting/assembly - suitable DIN rails - 35 mm (1.38 in)	· TS 35/7.5 according to EN 60715 · TS 35/10 · TS 35/15 x 1.5
Impact resistance	IK07 according to IEC 62262

Transport and storage The following information applies to devices which are transported and stored in the original packaging.	
Free fall	1 m (39.37 in)
Temperature	-25 °C (-13 °F) up to +70 °C (158 °F)
Relative humidity (non-condensing)	0 to 95% RH

Ambient conditions during operation	
The device • must be used in a weather-protected, stationary application. • fulfills the operating conditions according to DIN IEC 60721-3-3. • possesses protection class II according to IEC 60536 (VDE 0106, Part 1), a ground wire connection is not required!	
Measurement temperature range	-10 °C (14 °F) .. +55 °C (131 °F)
Relative humidity	5 to 95% at 25 °C (77 °F) without condensation
Operating height/overvoltage category	2000 m (1.24 mi) above sea level Voltage measurement: 1000 V CATIII; 600 V CATIV Current measurement: 300 V CATII
	4000 m (2.49 mi) above sea level Voltage measurement: 600 V CATIII; Current measurement: 300 V CATII
Pollution degree	2
Ventilation	No external ventilation required.
Protection against foreign bodies and water	IP20 according to EN60529

Supply voltage	
Nominal range	DC: 24 V - 48 V, PELV
Operating range	+/-10% of the nominal range
Power consumption	max. 4 W
Maximum power consumption with 10 modules	12 W (UMG 801 with 4 W plus 10 modules with 0.8 W each)
Recommended overcurrent protection device for the line protection	2-6 A (char. B)

Voltage measurement	
Three-phase 4-conductor systems with rated voltages up to	480 VLN / 830 VLL (+/-10%) acc. IEC 347 VLN / 600 VLL (+/-10%) acc. UL
Three-phase 3-conductor systems (grounded) with rated voltages up to	830 VL-L (+/-10%) acc. IEC 600 VL-L (+/-10%) acc. UL
Three-phase 3-conductor systems (ungrounded) with rated voltages up to	690 VL-L (+/-10%) acc. IEC 600 VL-L (+/-10%) acc. UL
Overvoltage category	· 1000 V CAT III acc. IEC · 600 V CAT III acc. UL
Rated surge voltage	8 kV
Fuse for the voltage measurement	1 - 10 A tripping characteristic B (with IEC/UL approval)
Metering range L-N	0[1)] .. 720 V_{rms} (max. overvoltage 1000 V_{rms})
Metering range L-L	0[1)] .. 1000 V_{rms} (max. overvoltage 1000 V_{rms})
Metering range N-PE	up to 100 V
Resolution	16 bit
Crest factor	1.6 (based on the metering range 600 V L-N)
Impedance	4 MΩ/phase
Power consumption	Approx. 0.1 VA
Sampling frequency	51.2 kHz
Frequency of the basic oscillation - resolution	40 Hz .. 70 Hz 0.01 Hz
Harmonics	1 .. 127.

1) ... The device only measures if a voltage L-N of >10 V_{rms} or a voltage L-L of >18 V_{rms} is present on at least one voltage measurement input.

Current measurement ../5 A	
Rated current	5 A
Channels	8 · 2 systems (L1, L2, L3, N) · Individual channels
Metering range	0.005 .. 6 A_{rms}
Crest factor (based on the rated current)	1.98
Overload for 1 sec.	120 A (sinusoidal)
Resolution	0.1 mA (color graphic display 0.01A)
Overvoltage category	300 V CATII
Rated surge voltage	2,5 kV
Power consumption	approx. 0.2 VA (R_i = 5 mΩ)
Sampling frequency	25.6 kHz
Harmonics	1 .. 63.

The device optionally has 4 multifunction channels for use as
· residual current measurement inputs and/or temperature measurement inputs (mixed),
· additional system inputs (L1, L2, L3, N)

Residual current monitoring (RCM)	
Rated current	30 mA_{rms}
Metering range	0 .. 40 mA_{rms}
Response current	50 µA
Resolution	1 µA (color graphic display 0.01 A)
Crest factor	1.414 (based on 40 mA)
Load	4 Ω
Overload for 20 ms	50 A
Overload for 1 s	5 A
Permanent overload	1 A
Standard	IEC/TR 60755 (2008-01), type A + type B and B+

Temperature measurement	
Update time	1 s
Total burden (sensor and lead)	max. 4 kΩ
Lead	<= 30 m (32.81 yd.) unshielded > 30 m (32.81 yd.) shielded
Suitable sensor types	KTY83, KTY84, PT100, PT1000

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

Digital outputs 4 digital outputs, semiconductor relays, not short-circuit proof.	
Switching voltage	max. 60 V DC
Switching current	max. 50 mA_{rms} DC
Response time	Approx. 500 ms
Pulse output (energy pulse)	Max. 20 Hz

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

Analog output 1 channel	
External power supply	max. 33 V DC
Current	0/4...20 mA DC
Update time	0.2 s
Load	Max. 300 Ω
Resolution	10 Bit

RS485 interface 3-wire connection with A, B, GND	
Protocol	Modbus RTU/slave Modbus RTU/gateway
Transmission rate	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps
Termination	DIP switch

Ethernet interfaces	
Connection	2 x RJ45
Function	Modbus gateway
Protocols, services and time synchronization	OPC UA, DHCP, Modbus/TCP, NTP

Terminal connection capacity (supply voltage) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 2.5 mm^2, AWG 26-12
Cable end sleeve (not insulated) - recommended stripping length	0.2 - 2.5 mm^2, AWG 26-12 10 mm (0.3937 in)
Cable end sleeve (insulated) - recommended stripping length	0.2 - 2.5 mm^2, AWG 26-12 13 mm (0.5118 in)
Cable end sleeve Length of the contact sleeve	10 mm (0.3937 in)

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 mm^2, AWG 26-12
Cable end sleeve (not insulated) - recommended stripping length	0.2 - 2.5 mm^2, AWG 26-12 10 mm (0.3937 in)
Cable end sleeve (insulated) - recommended stripping length	0.2 - 2.5 mm^2, AWG 26-12 13 mm (0.5118 in)
Tightening torque screw flange	0.2 Nm (1.77 lbf in)
Cable end sleeve Length of the contact sleeve	10 mm (0.3937 in)

Terminal connection capacity (voltage measurement) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.08 - 4 mm², AWG 28-12
Cable end sleeve (insulated/not insulated)	0.25 - 2.5 mm², AWG 24-14
Stripping length	8-9 mm (0.3150 - 0.3543 in)

Terminal connection capacity (A/D functional ground) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 4 mm², AWG 24-12
Cable end sleeve (not insulated)	0.2 - 4 mm², AWG 24-12
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 - multifunction channels (RCM, temp.) Connectable conductors. Only one conductor can be connected per terminal.	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 24-16
Cable end sleeve (not insulated)	0.2 - 1.5 mm², AWG 26-16
Cable end sleeve (insulated)	0.2 - 1 mm², AWG 26-18
Tightening torque	0.2 - 0.25 Nm (1.77 - 2.21 lbf in)
Stripping length	7 mm (0.2756 in)

Terminal connection capacity (digital inputs/outputs, analog output)	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 24-16
Cable end sleeve (not insulated)	0.2 - 1.5 mm², AWG 26-16
Cable end sleeve (insulated)	0.2 - 1 mm², AWG 26-18
Tightening torque	0.2 - 0.25 Nm (1.77 - 2.21 lbf in)
Stripping length	7 mm (0.2756 in)

Terminal connection capacity (RS485)	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 24-16
Cable end sleeve (not insulated)	0.2 - 1.5 mm², AWG 26-16
Cable end sleeve (insulated)	0.2 - 1 mm², AWG 26-18
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	Accuracy class	Metering range	Display range
Frequency	f	0.05 (IEC61557-12)	40 .. 70 Hz	40.00 .. 70.00 Hz
Voltage	U_{L-N}	0.2 (IEC61557-12)	10 .. 720 V_{rms}	0 .. 999 kV
Voltage	U_{L-L}	0.2 (IEC61557-12)	18 .. 1000 V_{rms}	0 .. 999 kV
Voltage harmonics	Uh	Cl. 1 (IEC61000-4-7)	1 .. 127	0 .. 999 kV
THD of the voltage	THDu	1.0 (IEC61557-12)	0 .. 999 %	0 .. 999 %

Function	Symbol	Accuracy class - 5 A rated current	Metering range	Display range
Total active power	P	0.2 (IEC61557-12)	0 .. 12.6 kW	0 .. 999 GW
Total reactive power	QA, Qv	1 (IEC61557-12)	0 .. 16.6 kvar	0 .. 999 Gvar
Total apparent power	SA, Sv	0.5 (IEC61557-12)	0 .. 12.6 kVA	0 .. 999 GVA
Total active energy	Ea	0.2 (IEC61557-12) 0.2S (IEC62053-22)	0 .. 999 GWh	0 .. 999 GWh
Total reactive energy	ErA, ErV	1 (IEC61557-12)	0 .. 999 Gvarh	0 .. 999 Gvarh
Total apparent energy	EapA, EapV	0.5 (IEC61557-12)	0 .. 999 GVAh	0 .. 999 GVAh
Phase current	I	0.2 (IEC61557-12)	0.005 .. 6 A_{rms}	0 .. 999 kA
Calculated neutral conductor current	INc	1.0 (IEC61557-12)	0.03 .. 25 A	0.03 .. 999 kA
Power factor	PFA, PFV	0.5 (IEC61557-12)	0.00 .. 1.00	0.00 .. 1.00
Current harmonics	Ih	Cl. 1 (IEC61000-4-7)	1 .. 63	0 .. 999 kA
THD of the current	THDi	1.0 (IEC61557-12)	0 .. 999 %	0 .. 999 %

Function	Symbol	Accuracy class - 1 A rated current	Metering range	Display range
Total active power	P	0.5 (IEC61557-12)	0 .. 12.6 kW	0 .. 999 GW
Total reactive power	QA, Qv	1 (IEC61557-12)	0 .. 16.6 kvar	0 .. 999 Gvar
Total apparent power	SA, Sv	0.5 (IEC61557-12)	0 .. 12.6 kVA	0 .. 999 GVA
Total active energy	Ea	0.5 (IEC61557-12) 0.5S (IEC62053-22)	0 .. 999 GWh	0 .. 999 GWh
Total reactive energy	ErA, ErV	1 (IEC61557-12)	0 .. 999 Gvarh	0 .. 999 Gvarh
Total apparent energy	EapA, EapV	0.5 (IEC61557-12)	0 .. 999 GVAh	0 .. 999 GVAh
Phase current	I	0.5 (IEC61557-12)	0.005 .. 6 A_{rms}	0 .. 999 kA
Calculated neutral conductor current	INc	1.0 (IEC61557-12)	0.03 .. 25 A	0.03 .. 999 kA
Power factor	PFA, PFV	1 (IEC61557-12)	0.00 .. 1.00	0.00 .. 1.00
Current harmonics	Ih	Cl. 1 (IEC61000-4-7)	1 .. 63	0 .. 999 kA
THD of the current	THDi	1.0 (IEC61557-12)	0 .. 999 %	0 .. 999 %

INFORMATION

Detailed information on the device functions and data can be found in the usage information, which is enclosed with the device or is available as a download at www.janitza.com!

Janitza electronics GmbH
Vor dem Polstück 6
35633 Lahnau, Germany
Support tel. +49 6441 9642-22
E-mail: info@janitza.com
www.janitza.com

Janitza®