



Modular expandable energy analyzer

# UMG 800

**Data sheet**

**Janitza®**

Modular expandable energy analyzer  
UMG 800



**UMG 800**  
**Modular multifunctional meter for  
recording energy quantities**

Doc. no.: 2.053.225.1.b

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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](http://www.janitza.com) for information on the current version.

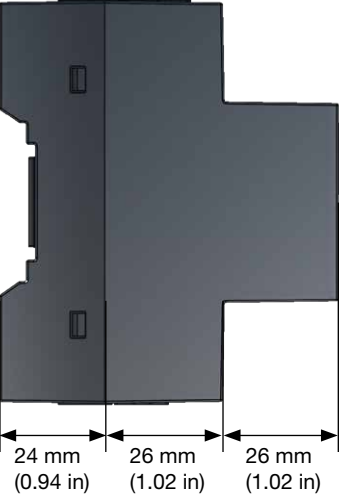
DEVICE VIEWS

- The figures serve as illustrations and are not true to scale.
- Please also note the dimensions of the terminals used during installation!
- Specifications in mm (in).

Front view



View from the left



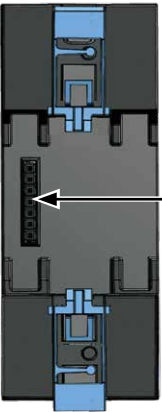
View from below



View from above

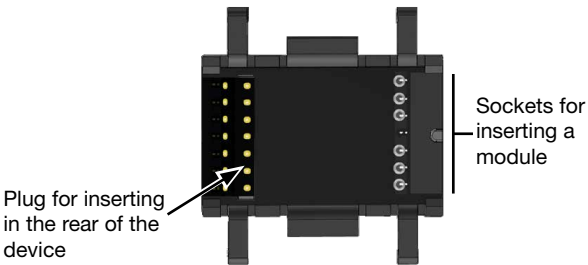


Rear view



Connector for the bus connector

Bus connector



TECHNICAL DATA

| General                                                                    |                                                                                                                               |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Net weight (with plug-in terminals)                                        | approx. 120 g (0.265 lb)                                                                                                      |
| Device dimensions                                                          | approx. B = 36 mm (1.42 in), H = 90 mm (3.54 in), D = 76 mm (2.99 in)                                                         |
| Width of the device in horizontal pitches                                  | 2 HP (1 HP = 18 mm)                                                                                                           |
| Battery                                                                    | Type Lithium CR1632, 3 V, not changeable (UL1642 approval)                                                                    |
| Integrated memory                                                          | 4 GB                                                                                                                          |
| Mounting orientation                                                       | As desired                                                                                                                    |
| Fastening/mounting - Suitable DIN rails - 35 mm (1.38 in)                  | <ul style="list-style-type: none"><li>· TS 35/7.5 according to EN 60715</li><li>· TS 35/10</li><li>· TS 35/15 x 1.5</li></ul> |
| Clock error - in the temperature range from 18 °C (64 °F) .. 28 °C (82 °F) | ± 5 ppm (corresponds to 3 min./year)                                                                                          |
| Impact resistance                                                          | IK07 according to IEC 62262                                                                                                   |

| Transport and storage                                                                            |                                            |
|--------------------------------------------------------------------------------------------------|--------------------------------------------|
| The following specifications apply for devices 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                                                                                | 5 to 95% at 25 °C (77 °F), no condensation |

| Environmental conditions during operation                                                                                                                                                                                                                                                                 |                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| The device: <ul style="list-style-type: none"><li>· Is for weather-protected and stationary use.</li><li>· Fulfills operating conditions according to DIN IEC 60721-3-3.</li><li>· Has protection class II according to IEC 60536 (VDE 0106, part 1), a ground wire connection is not required!</li></ul> |                                            |
| Rated temperature range                                                                                                                                                                                                                                                                                   | -10 °C (14 °F) to +55 °C (131 °F)          |
| Relative humidity                                                                                                                                                                                                                                                                                         | 5 to 95% at 25 °C (77 °F), no condensation |
| Operating elevation                                                                                                                                                                                                                                                                                       | 0 ... 2000 m (1.24 mi) above sea level     |
| Pollution degree                                                                                                                                                                                                                                                                                          | 2                                          |
| Ventilation                                                                                                                                                                                                                                                                                               | No forced ventilation required.            |
| Protection against foreign matter and water                                                                                                                                                                                                                                                               | IP20 according to EN60529                  |

| Supply voltage                                                |                                             |
|---------------------------------------------------------------|---------------------------------------------|
| Nominal range                                                 | DC: 24 V, PELV (grounded power supply unit) |
| Operating range                                               | +/-10% of nominal range                     |
| Power consumption                                             | 2.5 W                                       |
| Maximum power consumption with modules and external display   | 14 W                                        |
| Recommended overcurrent protective device for line protection | 2-6 A, (Char. B), IEC/UL approval           |

| Voltage measurement                                                  |                                                                                                                                                                                   |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Three-phase 4-conductor systems with rated voltages up to            | 277 V <sub>LN</sub> / 480 V <sub>LL</sub> (+/-10%) according to IEC<br>277 V <sub>LN</sub> / 480 V <sub>LL</sub> (+/-10%) according to UL                                         |
| 3-phase 3-conductor systems (grounded) with rated voltages up to     | 480 V <sub>L-L</sub> (+/-10%) according to IEC<br>480 V <sub>L-L</sub> (+/-10%) according to UL                                                                                   |
| 3-phase 3-conductor systems (non-grounded) with rated voltages up to | 480 V <sub>L-L</sub> (+/-10%) according to IEC<br>480 V <sub>L-L</sub> (+/-10%) according to UL                                                                                   |
| Overvoltage category                                                 | 300 V CAT III according to IEC<br>300 V CAT III according to UL                                                                                                                   |
| Rated surge voltage                                                  | 4 kV                                                                                                                                                                              |
| Protection of the voltage measurement                                | 1 - 10 A tripping characteristic B<br>(with IEC/UL approval)                                                                                                                      |
| Measuring range L-N                                                  | 0 .. 300 V <sub>rms</sub> (max. overvoltage 520 V <sub>rms</sub> )<br>The device only measures if a voltage L-N greater than 20 V <sub>rms</sub> is applied to L1.                |
| Measuring range L-L                                                  | 0 .. 520 V <sub>rms</sub> (max. overvoltage 900 V <sub>rms</sub> )<br>The device only measures if a voltage L-N of greater than 34 V <sub>rms</sub> is applied to L1-L2 or L1-L3. |
| Measuring range N-PE                                                 | 0 .. 300 V <sub>rms</sub>                                                                                                                                                         |
| Resolution                                                           | 0.01 V                                                                                                                                                                            |
| Crest factor                                                         | 2 (referred to measuring range)                                                                                                                                                   |
| Impedance                                                            | 3 MΩ/phase                                                                                                                                                                        |
| Power consumption                                                    | approx. 0.1 VA                                                                                                                                                                    |
| Sampling frequency                                                   | 51.2 kHz                                                                                                                                                                          |
| Frequency of fundamental oscillation<br>- Resolution                 | 40 Hz .. 70 Hz<br>0.01 Hz                                                                                                                                                         |
| Harmonics                                                            | 1 .. 63.                                                                                                                                                                          |

Periphery

| RS485 interface                   |                                                         |
|-----------------------------------|---------------------------------------------------------|
| 3-wire connection with A, B, GND. |                                                         |
| Protocol                          | Modbus RTU/Server (ehemals Slave)<br>Modbus RTU/Gateway |
| Transmission rate                 | 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps   |
| Termination                       | DIP switches (S1)                                       |

| Ethernet interfaces |                                                                           |
|---------------------|---------------------------------------------------------------------------|
| Connection          | 2 x RJ45                                                                  |
| Function            | Modbus Gateway, Embedded Webserver (HTTP)                                 |
| Protocols           | TCP/IP, DHCP-Client (BootP), Modbus/TCP (Port 502), ICMP (Ping), NTP, FTP |

| USB interface |                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection    | USB 2.0, Type A                                                                                                                                               |
| Function      | Connection for <ul style="list-style-type: none"><li>external Display.</li><li>USB memory stick (FAT32 formatted) with commissioning configuration.</li></ul> |

| Connection capacity of the terminals - Supply voltage                  |                                   |
|------------------------------------------------------------------------|-----------------------------------|
| Connectible conductors: Only connect one conductor per terminal point! |                                   |
| Single core, multi-core, fine-stranded                                 | 0.2 - 4 mm², AWG 28-12            |
| Wire ferrules (insulated/non-insulated)                                | 0.2 - 2.5 mm², AWG 26-14          |
| Tightening torque                                                      | 0.4 - 0.5 Nm (3.54 - 4.43 lbf in) |
| Strip length                                                           | 7 mm (0.2756 in)                  |

| Connection capacity of the terminals - Voltage measurement             |                          |
|------------------------------------------------------------------------|--------------------------|
| Connectible conductors: Only connect one conductor per terminal point! |                          |
| Single core                                                            | 0.5 - 1.5 mm², AWG 21-16 |
| Fine-stranded                                                          | 0.5 - 2.5 mm², AWG 21-14 |
| Wire ferrules (insulated/non-insulated)                                | 0.5 - 2.5 mm², AWG 21-14 |
| Strip length                                                           | 10 mm (0.3937 in)        |

| Connection capacity of the terminals - RS485 |                                    |
|----------------------------------------------|------------------------------------|
| Single core, multi-core, fine-stranded       | 0.2 - 1.5 mm², AWG 28-16           |
| Wire ferrules (insulated/non-insulated)      | 0.2 - 1.5 mm², AWG 28-16           |
| Tightening torque                            | 0.2 - 0.25 Nm (1.77 - 2.21 lbf in) |
| Strip length                                 | 7 mm (0.2756 in)                   |

| Potential isolation and electrical safety of the interfaces                                                                                                                                                                                                                                                                                                                                      |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| The interfaces (RS485, Ethernet und USB) have: <ul style="list-style-type: none"><li>· a double insulation to the voltage measurement inputs.</li><li>· a functional insulation against each other, to the supply voltage, to the measuring inputs.</li></ul> The interfaces of the connected devices require double or reinforced insulation against mains voltages (according to IEC 61010-1). |  |

| Function           | Symbol           | Accuracy class       | Measurement range          |
|--------------------|------------------|----------------------|----------------------------|
| Frequency          | f                | 0.05 (IEC61557-12)   | 40 .. 70 Hz                |
| Voltage            | U <sub>L-N</sub> | 0.2 (IEC61557-12)    | 20 .. 300 V <sub>eff</sub> |
| Voltage            | U <sub>L-L</sub> | 0.2 (IEC61557-12)    | 34 .. 520 V <sub>eff</sub> |
| Voltage harmonics  | U <sub>h</sub>   | K1. 1 (IEC61000-4-7) | 1 .. 63.                   |
| THD of the voltage | THD <sub>u</sub> | 1.0 (IEC61557-12)    | 0 .. 999%                  |

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](http://www.janitza.com)!

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