

Modular energy measurement device – UMG 801



ALL-IN-ONE
ENERGY MONITORING
SOLUTION

UPTIME DATA – SECURE COMMUNICATION

A key success factor for modern companies is transparency across all data levels. Data from all company divisions must be acquired and consolidated in order to optimize planning for production processes, establish safety measures to protect systems and machines, and save costs, for example. This objective entails a number of challenges, because different standards, interfaces and communication options must be coordinated with each other. Networking areas that were previously examined separately, from the machine level to ERP systems and building management systems, is very complex. OPC UA is a data transmission standardization that simplifies this consolidation.

The Janitza UMG 801 energy measurement device offers various communication interfaces and protocols (e.g. OPC UA) for standardized and manufacturer-independent data transmission to higher-level systems, eliminating the need for costly integration.

The modularly expandable UMG 801 is ideally suited for complete coverage of an energy management system (according to ISO 50001). You gain transparency about energy consumption and energy costs at all measurement levels. In addition, critical deviations in power quality as well as residual currents (RCM), which load or even put systems at risk, can be detected.

Future-proof investment: the measuring points can be subsequently extended to 92 measurement channels thanks to modular, easily integrated current measuring modules.



ALL-IN-ONE POWER MONITORING SOLUTION

ALL IN ONE DEVICE

- The base unit has:
 - 8 current measurement channels with 1/5 A inputs
 - 4 Multifunction channels, optionally configurable as RCM, temperature measurement channels or additional current measurement channels
- Extensive measurement data memory with 4 GB for storage of measurement data
- Two groups with four digital IOs each (tariff changeover and pulse input, logic states)
- Analog output (DC 0/4-20 mA)

HIGH-PRECISION MEASUREMENT

- High sampling frequency (51.2 kHz voltage)
- 1024 Samples for the voltage measurement
- High measuring accuracy on all channels (V: 0.2% / A: 0.2% / kWh: class 0.2)
- Maximum safety: 1000 V CAT III
- Extensive power quality parameters
 - Voltage up to 127th harmonic and interharmonics
 - THD-U and THD-I
 - Unbalance
 - etc.

VISUALIZING, DOCUMENTING AND ANALYZING

- Comprehensive options for visualizing, analyzing and documenting energy measurement data (GridVis® software)
- Integrated automatic report generation (GridVis® software)
- Integrated color graphic display for visualization and intuitive configuration on site

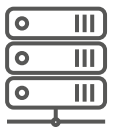
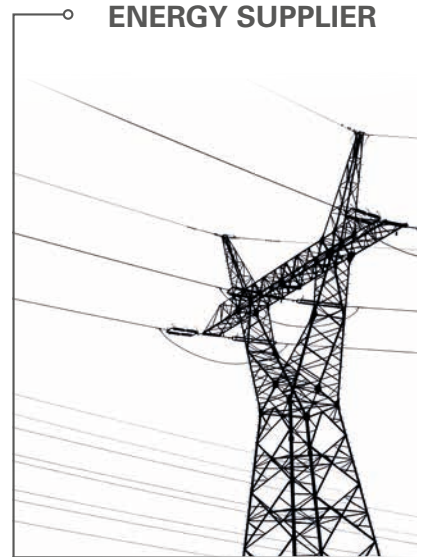
MANAGING AND USING DATA

- Various interfaces for simultaneous use
 - 2 Ethernet interfaces
 - RS485 interface for data readout and can be used as gateway
- Comprehensive protocols and services (OPC UA and Modbus)

PROFIT FROM OPC UA

- Easy integration of measurement data from the base unit and measurement modules into higher-level systems (e.g. building management systems, SCADA systems)
- Cyber security: Integrated security mechanisms to protect against unauthorized access and misuse
- Configuration of the entire measuring system via OPC UA
- Future-proof software architecture as the OPC UA standard evolves with new applications

FLEXIBLE INTEGRATION



DATABASE



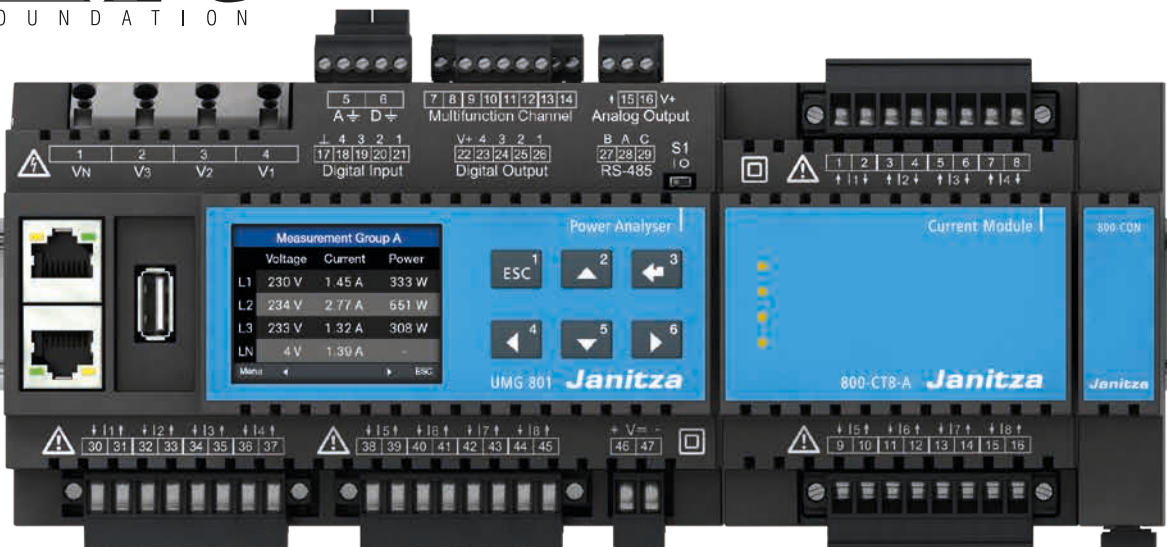
PLC



ERP



GLT



MODULAR DESIGN

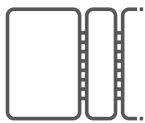
COMPACT AND EFFICIENT MEASURING POINT EXTENSION

The UMG 801 can be extended with modules to 92 current measurement channels. In addition, the 800-CT8-A module offers eight current measurement channels in a compact design for space optimization in the control cabinet. Up to 10 current measurement modules can be integrated via click system, without external cabling between the basic device and the current measurement modules. The modules can be conveniently integrated, while saving time and money. An integrated bus system connects the basic device to the current measurement modules and ensures a smooth power supply and data transmission. In addition, remote measuring points can be connected with the 800-CON

transfer modules. This allows you to bridge distances of up to 100 m using cabling.

Advantages of the modular measuring point extension

- Space-saving, compact system
- The measuring modules do not require an additional power supply
- Shorter assembly time due to simple click system
- Reduced error sources thanks to Plug & Play solution
- Minimum costs per additional current measurement channel
- No additional voltage measurement necessary



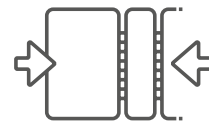
MODULAR

92

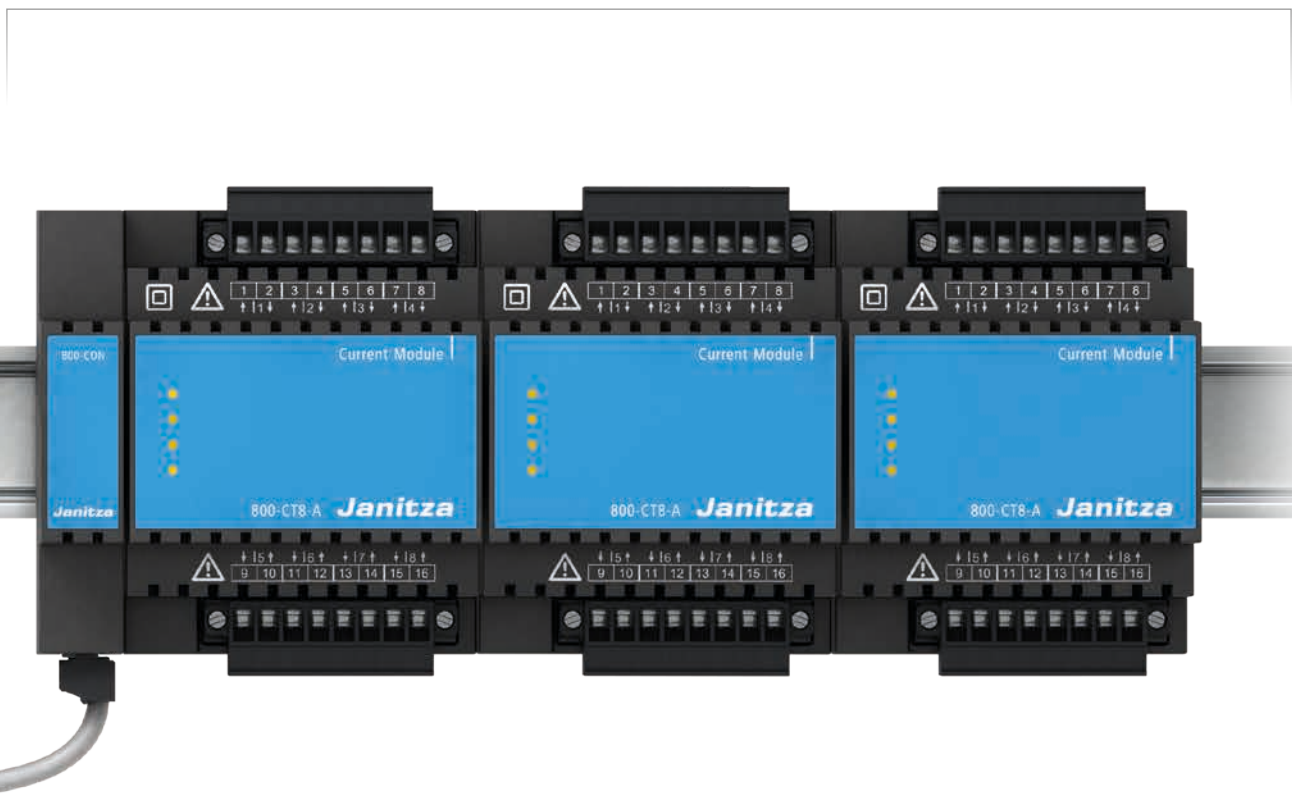
CURRENT MEASUREMENT CHANNELS



CONNECTIVITY



COMPACT



AT A GLANCE

FUTURE-PROOF INVESTMENT

- Modular extension of the measuring points by measuring modules
- Open and future-proof communication through various interfaces and OPC UA Server
- IPv4 and IPv6 Ethernet IP addresses

FLEXIBLE USE

- Multifunction channels are available and offer flexible options depending on the application required: RCM, temperature or current measurement

MINIMUM INTEGRATION COSTS

- Easy integration into a higher-level system through open communication architecture via OPC UA standard (e.g. GLT, SCADA and ERP applications)
- Versatile interfaces that can be used simultaneously
- Gateway functionality for integrating additional devices e.g. Janitza UMGs from downstream measurement levels

MAXIMUM DATA SECURITY

- Secure communication through OPC UA security structures

HIGH STORAGE CAPACITY

- Data storage (redundancy) provided by the basic device's onboard memory

UMG 801: 145 mm x 90 mm x 76 mm³



COST REDUCTION

- Easy system expansion due to flexible scaling to 92 current measurement channels
- Measurement distance can be bridged up to 100 m
- Low costs per additional measurement channel due to simple modular extension
- Costs savings through shortened assembly times

COMPACT SOLUTION

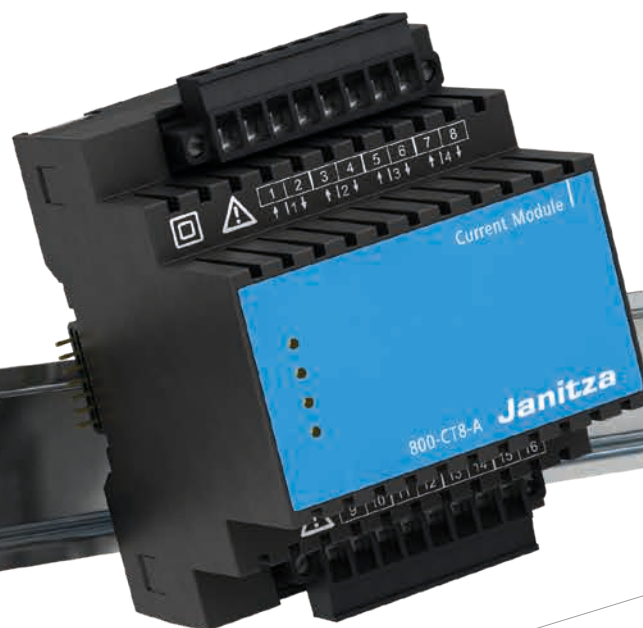
- Space optimization through compact design, even with measurement point extension

EASY EXTENSION

- The plug & play concept is easy to connect and avoids errors

VISUALIZATION AND DOCUMENTATION

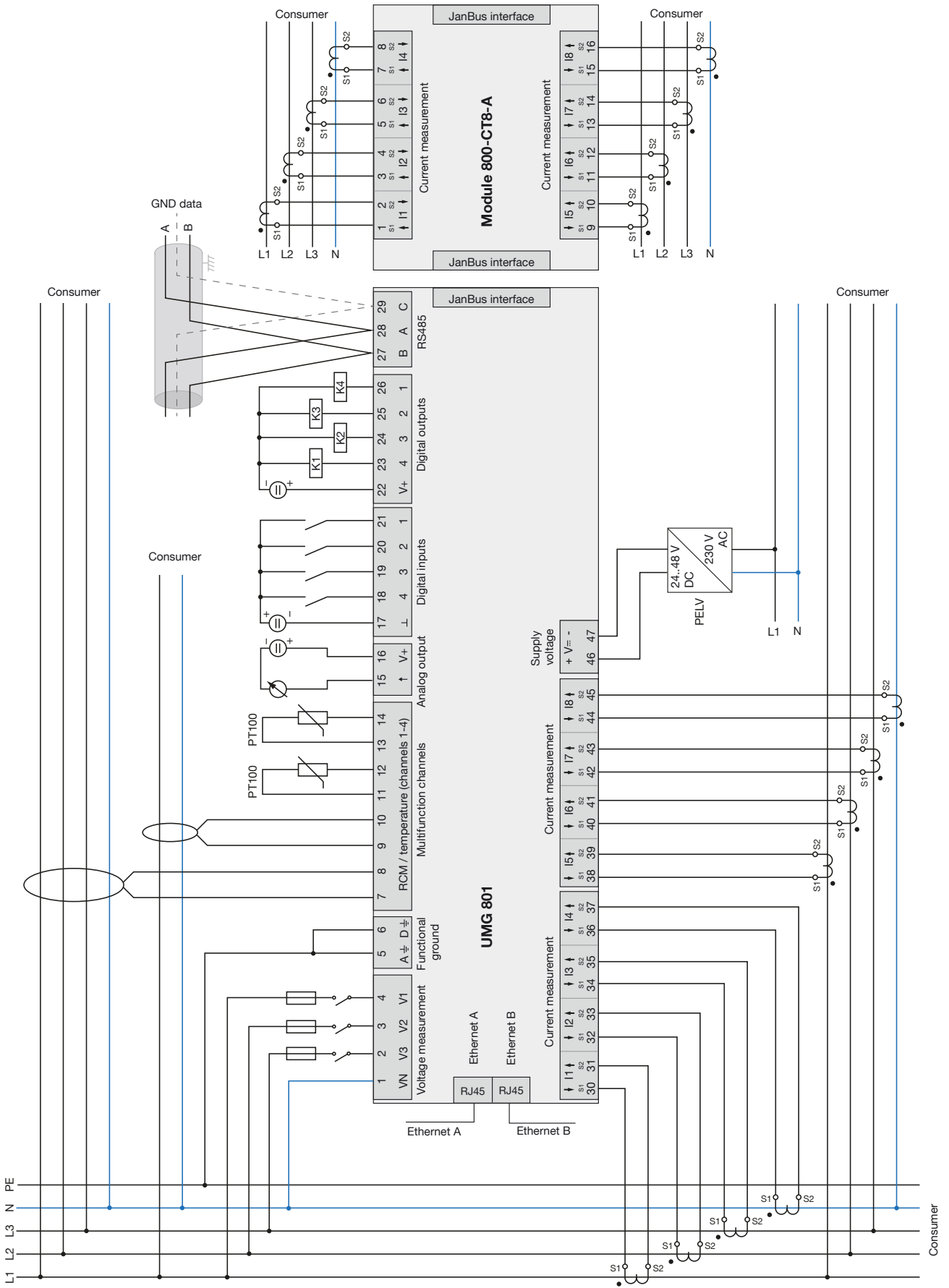
- The GridVis® Basic software provides comprehensive options for data preparation, visualization and documentation



Module 800-CT8-A: 73 mm x 90 mm x 76 mm*

* Dimensions: Width x height x depth

Wiring diagram



Technical data



UMG 801*

Item no. 52.31.001

Supply voltages

Use in three-phase 4-conductor systems with grounded neutral conductor up to a maximum of	417/720 V AC
Use in three-phase 3-conductor systems ungrounded up to a maximum of	690 V AC
Supply voltage	external 24 V – 48 V DC

Measurement

Overvoltage category (voltage/current)	300 V CAT II / 1000 V CAT III
Quadrants	4
Sampling frequency 50/60 Hz	Voltage 51.2 kHz, Current 25.6 kHz
Uninterrupted measurement	•
Effective value from periods (50/60 Hz)	10/12
Residual current inputs	4
Harmonics V / A	1-127/1-63
Distortion factor THD-U / THD-I in %	•
Unbalance	•
Accuracy V; A	0.2%; 0.2%
Active energy class	0.2S (.../5 A)
Digital inputs	4
Digital / pulse output	4
Analog output	1
Current measurement channels	8
Thermistor input	4 ^{*1}
Memory min. / max. values	•
Memory size	4 GB
Clock	•
Software for energy management and network analysis	•

Properties

Net weight (with attached connectors)	Approx. 420 g
Device dimensions (H x W x D)	90 x 145 x 76
Protection class per EN 60529	IP20
Temperature range, operation	K55 (-10 ... +55° C)

Interfaces

RS485	•
USB	•
Ethernet	2

Protocols

Modbus RTU	• ^{*3}
Modbus gateway	•
Modbus TCP/IP	•
OPC UA	•

For detailed technical information, please refer to the operation manual at www.janitza.com

- = Not included

• = Included

Module 800-CT8-A

Item no. 52.31.201

Supply voltages

Use in three-phase 4-conductor systems with grounded neutral conductor up to a maximum of	-
Use in three-phase 3-conductor systems ungrounded up to a maximum of	-
Supply voltage	-

Measurement

Overvoltage category (voltage/current)	300 V CAT II
Quadrants	4
Sampling frequency 50/60 Hz	8.33 kHz
Uninterrupted measurement	•
Effective value from periods (50/60 Hz)	10/12
Residual current inputs	-
Harmonics V / A	1, 3, 5..., 25
Distortion factor THD-U / THD-I in %	•
Unbalance	-
Accuracy A	0.5%
Active energy class	0.5S (.../5 A)
Digital inputs	-
Digital / pulse output	-
Analog output	-
Current measurement channels	8
Thermistor input	-
Memory min. / max. values	^{*2}
Memory size	-
Clock	^{*2}
Software for energy management and network analysis	•

Properties

Net weight (with attached connectors)	Approx. 210 g
Device dimensions (H x W x D)	90 x 73 x 76
Protection class per EN 60529	IP20
Temperature range, operation	K55 (-10 ... +55° C)

Interfaces

RS485	^{*2}
USB	-
Ethernet	^{*2}

Protocols

Modbus RTU	^{*2}
Modbus gateway	-
Modbus TCP/IP	^{*2}
OPC UA	^{*2}

* Separate power supply required

^{*1} Combined function: optional analog / temperature / residual current input

^{*2} on the basic device

^{*3} for querying the slave devices



Module 800-CON (transfer module)

Item no. 52.31.210

Device dimensions (W x H x D)

18 x 90 x 76

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Sales partner

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The current version of the brochure is available at www.janitza.com