**1.1** **Janitza electronics**

**Company profile Janitza electronics GmbH**

**Everything for your energy and power quality monitoring from a single source!**

Your safe, sustainable and efficient use of electrical energy is our top priority.

That is why we supply you worldwide with our energy measurement technology, class A power quality analyzers, GridVis system software, energy data management systems, digital built-in measuring devices, reactive power controllers, harmonic filters and compensation systems.

Our customers welcome our complete system solution for modern energy data management (e.g. ISO 50001) and power quality solutions. Thanks to the scalability of our products and solutions, you can also introduce our energy data management systems in stages.

We support you from the development of a solution through to commissioning. We also help you with maintenance and support - and train your employees to handle the energy systems safely.

In Lahnau in central Hessen, between Wetzlar and Giessen, we develop and manufacture products that are always a little ahead of their time. For more than half a century.

Founded in 1961, Eugen Janitza GmbH gave birth to an independent subsidiary in 1986: Janitza electronics GmbH, with Markus Janitza as Managing Director. Just two years later, Janitza presented the world's first electronic reactive power controller with harmonic limit values and automatic tap disconnection.

We introduce new technologies and combine existing applications to create convincing, intelligent products. This has earned us worldwide recognition. From class A power quality analyzers with EN 50160 verification to complete energy data management systems: We set and continue to set standards for an entire industry.

We will be happy to provide you with further information via our website or by contacting us personally.

[**www.janitza.de**](http://www.janitza.de/)

**Explanation of the tender documents**

The best possible integration of our tender documents with as little manual post-processing on your part as possible is of particular concern to us.

Due to the lack of superordinate guidelines or standards applicable to manufacturers of tendering software for GAEB data exchange, we unfortunately cannot rule out the possibility of reworking tender documents.

Our tender documents are created in the current GAEB XML format with a column width of 14 cm.

We therefore recommend a column width of 14 cm for optimum presentation in your service specifications.

We will be happy to answer your questions on the subject and take up your suggestions for optimization.

Thank you for your understanding!

**Disclaimer tender documents**

We are happy to provide you with tender texts for the Janitza product range below.

Our tender documents are standardized and validated before publication.

Please refer to the technical documentation of the products in the download area of our website at [www.janitza.de/betriebsanleitungen](http://www.unbenannt.htm/) for the technical data of the tender documents.

We look forward to hearing from you if, contrary to expectations, you discover an error in the tender documents.

In the event of errors or changes, the documents will be revised as quickly as possible.

The tender texts provided represent individual components of potential system solutions. Combining them into a system solution requires appropriate specialist knowledge and/or specialist advice from the manufacturer or its partners.

As a product manufacturer, we have the utmost confidence in the expertise of our customers, but we cannot rule out planning errors due to incorrect combinations. We ask for your understanding that liability for self-created combinations of individual tender texts provided is excluded for the reasons stated above. In addition, the following disclaimer is issued:

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The terms of use of Janitza electronics GmbH products apply.

**International tender texts**

Tender texts for use outside Germany can be found on our homepage under "Downloads" -> "Tender texts".

In addition to the texts on Ausschreiben.de for the German market, we currently also offer texts for the Austrian market as well as tender texts in English.

If you require assistance with a system-related tender, please contact your regional Janitza sales contact person.

Further information can be found under "Planner assignment".

**Planner work**

Are you a specialist planner or an engineering office and need help with planning?

The provision of and assistance with your project planning is a special priority for us!

We will be happy to answer any questions you may have about the content and technical details of the tender documents.

You can find your regional initial contact for project work and advice from our sales department at:

[Contact Sales](https://www.janitza.de/ansprechpartner-vertrieb.html) Germany

**1.1.1** **Energy meters without UL approval (B series)**

**1.1.1.1** **Single-phase energy meter MID 65A direct measurement S0**

Approval: MID / IEC

Connection: 65A / direct measurement

Dimensions in mm (HxWxD): 97x35x65

Weight (g): 140

Subunits: 2

Power dissipation voltage circuits: 1.0VA/0.4W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Working temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 1x 220 to 240V -20-+15%

Current range (A): 0.025 to 65

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 1-phase

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: none

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B21 311-10J

Item no. 1401353

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| **Item no:** | 1401353 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.2** **Single-phase energy meter MID 65A direct measurement S0 + Modbus**

Approval: MID / IEC

Connection: 65A / direct measurement

Dimensions in mm (HxWxD): 97x35x65

Weight (g): 150

Subunits: 2

Power dissipation voltage circuits: 1.0VA/0.4W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Working temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 1x 220 to 240V -20-+15%

Current range (A): 0.025 to 65

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 1-phase

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: RS485 (ModbusRTU)

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B21 312-10J

Item no. 1401354

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| **Item no:** | 1401354 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.3** **Single-phase energy meter MID 65A direct measurement S0 + MBUS**

Approval: MID / IEC

Connection: 65A / direct measurement

Dimensions in mm (HxWxD): 97x35x65

Weight (g): 150

Subunits: 2

Power dissipation voltage circuits: 1.0VA/0.4W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Operating temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 1x 220 to 240V -20-+15%

Current range (A): 0.025 to 65

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 1-phase

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: MBUS

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B21 313-10J

Item no. 1401355

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| **Item no:** | 1401355 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.4** **Three-phase energy meter MID 65A direct measurement S0**

Approval: MID / IEC

Connection: 65A direct measurement

Dimensions in mm (HxWxD): 97x70x65

Weight (g): 330

Subunits: 4

Power dissipation voltage circuits: 1.6VA/0.7W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Working temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 220-240V -20-+15%

Current range (A): 0.025 to 65

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 3-phase (3/4 conductor)

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: none

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B23 311-10J

Item no. 1401356

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| **Item no:** | 1401356 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.5** **Three-phase energy meter MID 65A direct measurement S0 + MODBUS**

Approval: MID / IEC

Connection: 65A direct measurement

Dimensions in mm (HxWxD): 97x70x65

Weight (g): 340

Subunits: 4

Power dissipation voltage circuits: 1.6VA/0.7W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Working temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 220-240V -20-+15%

Current range (A): 0.025 to 65

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 3-phase (3/4 conductor)

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: RS485 (ModbusRTU)

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B23 312-10J

Item no. 1401357

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| **Item no:** | 1401357 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.6** **Three-phase energy meter MID 65A direct measurement S0 + MBUS**

Approval: MID / IEC

Connection: 65A direct measurement

Dimensions in mm (HxWxD): 97x70x65

Weight (g): 350

Subunits: 4

Power dissipation voltage circuits: 1.6VA/0.7W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Operating temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 220-240V -20-+15%

Current range (A): 0.025 to 65

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 3-phase (3/4 conductor)

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: MBUS

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B23 313-10J

Item no. 1401358

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| **Item no:** | 1401356 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.7** **Three-phase energy meter MID 1A/5A current transformer S0**

Approval: MID / IEC

Connection: 1/A or 5/A current transformer adjustable

Configurable current ratio (CT): 9999/1-6

Dimensions in mm (HxWxD): 97x70x65

Weight (g): 270

Subunits: 4

Power dissipation voltage circuits: 1.6VA/0.7W total

Power loss circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Working temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 220-240V -20-+15%

Current range (A): 0.02 to 6

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 3-phase (3/4 conductor)

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: none

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B24 311-10J

Item no. 1401359

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| **Item no:** | 1401359 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.8** **Three-phase energy meter MID 1A/5A current transformer S0 + MODBUS**

Approval: MID / IEC

Connection: 1/A or 5/A current transformer adjustable

Configurable current ratio (CT): 9999/1-6

Dimensions in mm (HxWxD): 97x70x65

Weight (g): 270

Subunits: 4

Power dissipation voltage circuits: 1.6VA/0.7W total

Power loss circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Operating temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 220-240V -20-+15%

Current range (A): 0.02 to 6

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 3-phase (3/4 conductor)

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: RS485 (ModbusRTU)

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B24 312-10J

Item no. 1401360

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| **Item no:** | 1401360 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.1.9** **Three-phase energy meter MID 1A/5A current transformer S0 + MBUS**

Approval: MID / IEC

Connection: 1/A or 5/A current transformer adjustable

Configurable current ratio (CT): 9999/1-6

Dimensions in mm (HxWxD): 97x70x65

Weight (g): 290

Subunits: 4

Power dissipation voltage circuits: 1.6VA/0.7W total

Power dissipation circuits: 0.007VA/0.007W per Ph.

Digital inputs for tariff switching

or for counting external pulses: 2

Digital outputs for active or

Reactive energy (S0) or alarm output: 1

Pulse frequency: 1-999999 imp/kWh

Pulse length: 10 - 990 ms

Operating temperature (°C): -40 to +70

Storage temperature (°C): -40 to +85

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 220-240V -20-+15%

Current range (A): 0.02 to 6

Frequency, fundamental (Hz): 50/60 -+5%

Measurement: 3-phase (3/4 conductor)

Measuring accuracy active energy: Class 1 (B)

Measuring accuracy reactive energy: Class 2

Tariffs: 2

Communication interface: MBUS

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC.

Make: Janitza electronics GmbH

Type: B24 313-10J

Item no. 1401361

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| **Item no:** | 1401361 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.2** **Energy meter with UL approval (EMD series)**

**1.1.2.1** **Single-phase energy meter MID UL 100 A direct measurement Modbus RTU**

Approval: MID / IEC / UL

Connection: 100 A / direct measurement

Dimensions in mm (HxWxD): 100x36x63

Weight (g): 185

Subunits: 2

Power loss circuits (W/VA): 2 / 10

Digital inputs for circuit breaker monitoring: 2

Working temperature (°C): -40 to +70

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 100-277

Current range (A): 0.5 to 100

Fundamental frequency (Hz): 50/60

Measurement: 1-phase

Measuring accuracy Active energy (class): 1 (B)

Measuring accuracy Reactive energy (class): 2

Communication interface: RS485 (ModbusRTU)

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC / UL.

Make: Janitza electronics GmbH

Type: EMD 485-P1

Item no. 1401501

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| **Item no:** | 1401501 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.2.2** **Three-phase energy meter MID UL 100A direct measurement Modbus RTU**

Approval: MID / IEC / UL

Connection: 100 A direct measurement

Dimensions in mm (HxWxD): 100x72x63

Weight (g): 325

Subunits: 4

Power loss circuits (W/VA): 2 /10

Digital inputs for disconnector monitoring: 2

Working temperature (°C): -40 to +70

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 25

Supply voltage: self-powered

Voltage range (V AC): 3x 100 - 480

Current range (A): 0.5 to 100

Basic frequency (Hz): 50 / 60

Measurement: 3-phase

Measuring accuracy Active energy (class): 1 (B)

Measurement accuracy Reactive energy (class): 2

Communication interface: RS485 (ModbusRTU)

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC/UL.

Make: Janitza electronics GmbH

Type: EMD 485-P3

Item no. 1401502

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| **Item no:** | 1401502 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.2.3** **Three-phase energy meter MID UL transformer measurement 1/5A Modbus RTU**

Approval: MID / IEC / UL

Connection: 1/A or 5/A current transformer adjustable

Dimensions in mm (HxWxD): 95x72x65

Weight (g): 250

Subunits: 4

Digital inputs for disconnector monitoring: 2

Working temperature (°C): -40 to +70

Protection class (front/terminals): IP51 / IP20

Max. conductor cross-section measurement (mm²): 2.5

Supply voltage (V): 100V - 277

Voltage range (V AC): 3x 100-480

Current range (A): 0.05 to 5(6)

Basic frequency (Hz): 50 / 60

Measurement: 3-phase

Measuring accuracy Active energy (class): 1 (B)

Measurement accuracy Reactive energy (class): 2

Communication interface: RS485 (ModbusRTU)

No resetting of the energy meter readings.

Meter is calibrated according to MID and approved according to IEC/UL.

Make: Janitza electronics GmbH

Type: EMD 485-CT3-A

Item no. 1401503

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| **Item no:** | 1401503 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.3** **UMG 103 CBM**

**1.1.3.1** **Universal measuring device UMG 103-CBM / 80-277V AC**

Dimensions: 71.5x98, installation depth: 60 mm, (4 HP) for 3 transformer inputs ../1/5A with continuous sampling of the voltage and current measurement inputs, including 4 MB memory, clock and buffering.

Measuring functions:

- Frequency of the fundamental frequency from 45Hz ... 65Hz

- Measuring intervals of 10/12 (50/60 Hz) periods (200 ms)

- Sampling at 5.4 kHz per channel and calculation of the following measured values:

- Voltage L-N

- Voltage L-L

- Measurement of the positive, negative and zero systems

- Frequency

- Rotary field

- Current L1 ... L3, current N calculated

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sum L1 ... L3 of the above power values

- Active energy (reference)

- Reactive work (inductive)

- Harmonics 1 ... 40. harmonics of current and voltage, unbalanced

- Distortion factor (THD in %) of current and voltage

Capture:

- Recording of minimum and maximum values

- 2 Virtual inputs and outputs via Modbus

- 2 comparator groups with 3 comparators (operator >=<)

Interfaces / protocols:

- RS485, protocol: Modbus RTU/Slave

Technical data:

- Overvoltage category: 300V CAT III

- Nominal voltage in 4-wire system: max. 277/480 VAC, +10%

- Frequency of the basic oscillation: 45 - 65Hz,

- Auxiliary voltage: L-N 80..277V AC;

- Power consumption: 4VA

- Current measurement: ../1A/5A

- Response current: 5mA

- Voltage: ± 0.2%

- Current: ± 0.5

- Power: ± 0.5%

- Active energy: Class 0.5S at ../5A

- Active energy: Class 1 at ../1A

- Reactive energy: Class 2 at ../1/5A

- Ambient temperature during operation: -10°..+55°C

- Relative humidity: 5 to 95%

- Protection class: IP20

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: UMG 103-CBM

Item no. 5228001

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| **Item no:** | 5228001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.4** **UMG 604E Pro / UL / Ethernet / 95-240V AC / 135-340V DC**

**1.1.4.1** **High-performance network analyzer**

suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs as well as pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms) such as limit value monitoring, weekly timer, etc.

Provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks.

Measurement of the positive, negative and zero sequence, unbalance voltage, total harmonic distortion (THD-I & THD-U) as well as single harmonics (even / odd) up to the 40th harmonic and K-factor.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >50 µs, acquisition of overvoltage and undervoltage for visualization as well as short-term interruptions with 20 ms acquisition cycle**,** half-wave rms value recorder for events & event display (overvoltage and undervoltage, overcurrent), 128 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5S - 1 / current: 0.25 / voltage: 0.2

Top-hat rail mounting, 107.5 x 90 x 82 (WxHxD), 6 HP wide, monochrome LCD display, 2 buttons, protection rating IP 20, protection class: II, net weight: 350 g, heat dissipation: max. 3.2 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 95 - 240 V AC, 135 - 340 V DC

Frequency range (AC): 45 - 65 Hz

Overvoltage category: 300V CAT II

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Modbus (RS232)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet gateway, FTP, TFTP, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 604E Pro

Item no.: 5216202

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| **Item no:** | 5216202 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.5** **UMG 604E Pro / Ethernet / 50-110V AC / 50-155V DC**

**1.1.5.1** **High-performance network analyzer**

suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks.

Measurement of the positive, negative and zero sequence, unbalance voltage, total harmonic distortion (THD-I & THD-U) as well as single harmonics (even / odd) up to the 40th harmonic and K-factor.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >50 µs, acquisition of overvoltage and undervoltage for visualization as well as short-term interruptions with 20 ms acquisition cycle, half-wave rms value recorder for events & event display (overvoltage and undervoltage, overcurrent), 128 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5S - 1 / current: 0.25 / voltage: 0.2

Top-hat rail mounting, 107.5 x 90 x 82 (WxHxD), 6 HP wide, monochrome LCD display, 2 buttons, degree of protection IP 20, protection class: II, net weight: 350 g, heat dissipation: max. 3.2 W.

Supply voltage:

Nominal range: 50 - 110 V AC, 50 - 155 V DC

Frequency range (AC): 45 - 65 Hz

Overvoltage category: 300V CAT II

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Modbus (RS232)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet gateway, FTP, TFTP, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 604E Pro

Item no.: 5216012

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| **Item no:** | 5216012 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.6** **UMG 604E Pro / UL / Ethernet / 20-50V AC / 20-70V DC**

**1.1.6.1** **High-performance network analyzer**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks.

Measurement of the positive, negative and zero sequence, unbalance voltage, total harmonic distortion (THD-I & THD-U) as well as single harmonics (even / odd) up to the 40th harmonic and K-factor.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >50 µs, acquisition of overvoltage and undervoltage for visualization as well as short-term interruptions with 20 ms acquisition cycle, half-wave rms value recorder for events & event display (overvoltage and undervoltage, overcurrent), 128 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5S - 1 / current: 0.25 / voltage: 0.2

Top-hat rail mounting, 107.5 x 90 x 82 (WxHxD), 6 HP wide, monochrome LCD display, 2 buttons, protection rating IP 20, protection class: II, net weight: 350 g, heat dissipation: max. 5 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 20 - 50 V AC, 20 - 70 V DC

Frequency range (AC): 45 - 65 Hz

Overvoltage category: 300V CAT II

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Modbus (RS232)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet gateway, FTP, TFTP, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 604E Pro

Item no.: 5216222

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| **Item no:** | 5216222 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.7** **UMG 605 Pro / UL / Ethernet + Profibus / 95-240V AC / 135-340V DC**

**1.1.7.1** **High-performance mains analyzer according to IEC 61000-4-30 Class A / S**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 15 - 440 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4 & EN 50160.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms) such as limit value monitoring, weekly timer, etc.

Legally compliant, certified measurement method & measurement accuracy in accordance with IEC 61000-4-30 Class A / S

Complete provision of measured values for the comparison of power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) in accordance with EN 50160.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011 class F3.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >50 µs, acquisition of overvoltage and undervoltage for visualization as well as short-term interruptions with 10 ms acquisition cycle, level acquisition of ripple control signals, half-wave RMS value recorder for events & event display (overvoltage and undervoltage, voltage interruption, overcurrent) in wave form. 128 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5S - 1 / current: 0.25 / voltage: 0.1

Top-hat rail mounting, 107.5 x 90 x 82 (WxHxD), 6 HP wide, monochrome LCD display, 2 buttons, protection rating IP 20, protection class: II, net weight: 350 g, heat dissipation: max. 3.2 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 95 V - 240 V AC, 135 V - 340 V DC

Frequency range (AC): 45 - 65 Hz

Overvoltage category: 300V CAT II

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9) Modbus (RS232)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 605 Pro

Item no.: 5216227

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| **Item no:** | 5216227 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.8** **UMG 605 Pro / Ethernet + Profibus / 50-110V AC / 50-155V DC**

**1.1.8.1** **High-performance mains analyzer according to IEC 61000-4-30 Class A / S**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 15 - 440 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4 & EN 50160.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms) such as limit value monitoring, weekly timer, etc.

Legally compliant, certified measurement method & measurement accuracy in accordance with IEC 61000-4-30 Class A / S

Complete provision of measured values for the comparison of power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) in accordance with EN 50160.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011 class F3.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >50 µs, acquisition of overvoltage and undervoltage for visualization as well as short-term interruptions with 10 ms acquisition cycle, level acquisition of ripple control signals, half-wave RMS value recorder for events & event display (overvoltage and undervoltage, voltage interruption, overcurrent) in wave form. 128 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5S - 1 / current: 0.25 / voltage: 0.1

Top-hat rail mounting, 107.5 x 90 x 82 (WxHxD), 6 HP wide, monochrome LCD display, 2 buttons, protection rating IP 20, protection class: II, net weight: 350 g, heat dissipation: max. 3.2 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 50 V - 110 V AC, 50 V - 155 V DC

Frequency range (AC): 45 - 65 Hz

Overvoltage category: 300V CAT II

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9) Modbus (RS232)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet Gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 605 Pro

Item no.: 5216028

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| **Item no:** | 5216028 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.9** **UMG 605 Pro / UL / Ethernet + Profibus / 20-55V AC / 20-77V DC**

**1.1.9.1** **High-performance mains analyzer according to IEC 61000-4-30 Class A / S**

suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 15 - 440 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4 & EN 50160.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Legally compliant, certified measurement method & measurement accuracy in accordance with IEC 61000-4-30 Class A / S

Complete provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) in accordance with EN 50160.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011 class F3.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >50 µs, acquisition of overvoltage and undervoltage for visualization as well as short-term interruptions with 10 ms acquisition cycle, level acquisition of ripple control signals, half-wave RMS value recorder for events & event display (overvoltage and undervoltage, voltage interruption, overcurrent) in wave form. 128 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5S - 1 / current: 0.25 / voltage: 0.1

Top-hat rail mounting, 107.5 x 90 x 82 (WxHxD), 6 HP wide, monochrome LCD display, 2 buttons, protection rating IP 20, protection class: II, net weight: 350 g, heat dissipation: max. 3.2 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 20 V - 50 V AC, 20 V - 70 V DC Frequency range (AC): 45 - 65 Hz

Overvoltage category: 150 V CATII

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9) Modbus (RS232)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet Gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 605 Pro

Item no.: 5216229

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| **Item no:** | 5216229 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.10** **UMG 96 RM series - 90-277V AC, 90-250V DC**

**1.1.10.1** **Universal measuring device UMG 96 RM / 90-277V AC / 90-250V DC**

Three-wire / four-wire universal measuring device UMG 96RM

for panel mounting, front dimensions: 96x96,

for 3 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies

from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L,

- Measurement of the positive, negative and zero sequence system

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cos phi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 2 digital outputs as signal or pulse outputs - 2 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D49mm

Interfaces:

RS485, protocol: Modbus RTU (9.6 - 115.2kbps)

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 90-277V/AC (50..60Hz); 90-250V/DC;

Overvoltage category supply: 300V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L3: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng, response current: 5mA

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting according to DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: UMG 96 RM

Item no. 5222061

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| **Item no:** | 5222061 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.10.2** **Universal measuring device UMG 96 RM-E / 90-277V AC / 90-250V DC**

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 7 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel-mounted devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs on the internal web server of the device. 5 comparator groups for logical evaluation (And / Or) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..60 min.)

Measurement of the positive, negative and zero sequence as well as rotating field direction. Total harmonic distortion (THD-I & THD-U), single harmonics (even / odd) for current & voltage up to the 40th harmonic.

Sampling rate of 20 kHz (50 Hz) with 400 measuring points per period (voltage measurement) and output of the measured values via the interfaces (cycle >=200 ms). Detection of overvoltage and undervoltage, 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5 / 0.5S & 1 (/5A & /1A converter) / current: 0.2 / voltage: 0.2

Front panel mounting device, 96 x 96 x 90 mm (WxHxD), monochrome 3-line LCD display (backlit), 2 buttons, protection class (front / rear) IP 40 / IP 20, protection class: II, net weight: 370 g, heat dissipation: max. 4 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement:

Number / type: 2x type A with dyn. limit value

Measuring range / resolution: 50 µA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485), Ethernet (RJ45)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP

Ethernet gateway, FTP, TFTP, BACnet IP (optional)

Digital outputs:

Quantity: 2x + 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Quantity: 2x optionally on I5/I6

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 96RM-E

Item no.: 5222062

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| **Item no:** | 5222062 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.10.3** **Universal measuring device UMG 96 RM-P / 90-277V AC / 90-250V DC**

Three-wire / four-wire universal measuring device UMG 96RM-P

for panel mounting Front dimensions: 96x96,

for 4 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks,

incl. battery, clock and memory 256 MB, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L

- Measurement of the positive, negative and zero sequence system

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 4 digital inputs as status or pulse input

- 6 digital outputs as signal or pulse outputs

- 6 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D78mm

Interfaces: RS485, protocol: Profibus

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 90-277V/AC (50..60Hz); 90-250V/DC

Overvoltage category supply: 300V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L4: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: UMG 96 RM-P

Item no. 5222064

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| **Item no:** | 5222064 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.10.4** **Universal measuring device UMG 96 RM-CBM / 90-277V AC / 90-250V DC**

Three-wire / four-wire universal measuring device UMG 96RM

for panel mounting Front dimensions: 96x96,

for 4 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks,

incl. battery, clock and memory 256 MB, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies

from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L,

- Measurement of the positive, negative and zero sequence system

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above-mentioned power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 2 digital outputs as signal or pulse outputs

- 6 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D78mm

Interfaces:

RS485, protocol: Modbus RTU (9.6 - 115.2kbps)

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 90-277V/AC (50..60Hz); 90-250V/DC

Overvoltage category supply: 300V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L4: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH,

Type: UMG 96 RM-CBM

Item no. 5222066

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| **Item no:** | 5222066 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.10.5** **Universal measuring device UMG 96 RM-M / 90-277V AC / 90-250V DC**

Three-wire / four-wire universal measuring device UMG 96RM-M

for panel mounting Front dimensions: 96x96,

for 3 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L,

- Measurement of the positive, negative and zero sequence

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 2 digital outputs as signal or pulse outputs

- 2 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D42mm

Interfaces:

Protocol: M-Bus

300, 600, 1200, 2400, 4800, 9600, 19200, 38400 baud

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 90-277V/AC (50..60Hz); 90-250V/DC

Overvoltage category supply: 300V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L3: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting according to DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Make: Janitza electronics GmbH

Type: UMG 96 RM-M

Item no. 5222069

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| **Item no:** | 5222069 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.10.6** **Universal measuring device UMG 96 RM-PN / 90-277V AC / 90-250V DC**

6-channel mains analyzer UMG 96RM-PN with Profinet certification for panel mounting Front dimensions: 96x96, for 4 current transformer inputs and residual current measurement (RCM) with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks, overvoltage category: L-N: 300V CAT III

Measuring functions:

- Automatic adaptation to mains frequencies

from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1..L3), voltage L-L, asymmetry, positive, negative and zero sequence

- Frequency (L1)

- Rotary field

- Current, L1..L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1..L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1..40 Harmonics of current and voltage (odd only)

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

- HTTP interface (homepage with REST interface)

Additional functions:

- 2 digital outputs

- 3 digital inputs/outputs configurable

- 2 analog inputs, optionally as

Temperature or residual current measurement input

- 2 comparator groups with 3 comparators each

(operator >=<)

- Monitoring the residual current transformer inputs

Dimensions: W96 x H96 x D49mm

Interfaces:

-2x RJ45 Ethernet (CC Type B / Switch Class C IRT)

-Ethernet protocols: Profinet 2.2, TCP/IP, ModBus TCP

-Profinet Profile: PROFIenergy V1.1, Entity Class 2

-RS485, protocol: Modbus RTU (9.6 - 115.2kbps)

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 90-277V/AC (45..65Hz); 90-250V/DC; mains frequency: 45 - 65 Hz, power consumption: max. 7 VA

Power inputs:

L1-L4: Rated current: ..1/5A, power consumption: 0.2VA

Measuring accuracy: current +-0.2%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5S at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Make: Janitza electronics GmbH

Type: UMG 96RM-PN

Item no. 5222090

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| **Item no:** | 5222090 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.11** **UMG 96 RM series - 24-90V AC & DC**

**1.1.11.1** **Universal measuring device UMG 96 RM / 24-90V AC / DC**

Three-wire / four-wire universal measuring device UMG 96RM

for panel mounting, front dimensions: 96x96,

for 3 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies

from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L

- Measurement of the positive, negative and zero sequence system

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 2 digital outputs as signal or pulse outputs - 2 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D49mm

Interfaces:

RS485, protocol: Modbus RTU (9.6 - 115.2kbps)

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 24-90 V / AC & DC (50..60Hz);

Overvoltage category supply: 150V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L3: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting according to DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: UMG 96 RM

Item no. 5222070

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| **Item no:** | 5222070 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.11.2** **Universal measuring device UMG 96 RM-E / 24-90V AC / DC**

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 7 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel-mounted devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs on the internal web server of the device. 5 comparator groups for logical evaluation (And / Or) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..60 min.)

Measurement of the positive, negative and zero sequence as well as rotating field direction. Total harmonic distortion (THD-I & THD-U), single harmonics (even / odd) for current & voltage up to the 40th harmonic.

Sampling rate of 20 kHz (50 Hz) with 400 measuring points per period (voltage measurement) and output of the measured values via the interfaces (cycle >=200 ms). Detection of overvoltage and undervoltage, 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5 / 0.5S & 1 (/5A & /1A converter) / current: 0.2 / voltage: 0.2

Front panel mounting device, 96 x 96 x 90 mm (WxHxD), monochrome 3-line LCD display (backlit), 2 buttons, protection class (front / rear) IP 40 / IP 20, protection class: II, net weight: 370 g, heat dissipation: max. 4 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 24-90V AC / DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement:

Number / type: 2x type A with dyn. limit value

Measuring range / resolution: 50 µA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485), Ethernet (RJ45)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP

Ethernet gateway, FTP, TFTP, BACnet IP (optional)

Digital outputs:

Quantity: 2x + 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Quantity: 2x optionally on I5/I6

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 96RM-E

Item no.: 52.22.063

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.11.3** **Universal measuring device UMG 96 RM-P / 24-90V AC / DC**

Three-wire / four-wire universal measuring device UMG 96RM-P

for panel mounting Front dimensions: 96x96,

for 4 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks,

incl. battery, clock and memory 256 MB, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L,

- Measurement of the positive, negative and zero sequence

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 4 digital inputs as status or pulse input

- 6 digital outputs as signal or pulse outputs

- 6 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D78mm

Interfaces: RS485, protocol: Profibus

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 24-90 V/AC & DC (50..60Hz)

Overvoltage category supply: 150V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L4: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Make: Janitza electronics GmbH

Type: UMG 96 RM-P

Item no. 5222065

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| **Item no:** | 5222065 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.11.4** **Universal measuring device UMG 96 RM-CBM / 24-90V AC / DC**

Three-wire / four-wire universal measuring device UMG 96RM

for panel mounting Front dimensions: 96x96,

for 4 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks,

incl. battery, clock and memory 256 MB, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies

from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L,

- Measurement of the positive, negative and zero sequence system

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 2 digital outputs as signal or pulse outputs

- 6 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D78mm

Interfaces:

RS485, protocol: Modbus RTU (9.6 - 115.2kbps)

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 24-90V / AC & DC (50..60Hz)

Overvoltage category supply: 150V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L4: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH,

Type: UMG 96 RM-CBM

Item no. 5222067

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| **Item no:** | 5222067 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.11.5** **Universal measuring device UMG 96 RM-M / 24-90V AC / DC**

Three-wire / four-wire universal measuring device UMG 96RM-M

for panel mounting Front dimensions: 96x96,

for 3 current transformer inputs with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks, UL certified.

Measuring functions:

- Automatic adaptation to mains frequencies from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1 .. L3), voltage L-L

- Measurement of the positive, negative and zero sequence system

- Frequency

- Rotary field

- Current, L1 ... L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1 ... L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1 .. 40 Harmonics of current and voltage

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

Additional functions:

- 2 digital outputs as signal or pulse outputs

- 2 comparator groups with 3 comparators each

(operator >=<)

Dimensions: W96 x H96 x D42mm

Interfaces:

Protocol: M-Bus

300, 600, 1200, 2400, 4800, 9600, 19200, 38400 baud

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 24-90 V / AC & DC (50..60Hz)

Overvoltage category supply: 150V CAT III

Mains frequency: 45 - 65 Hz, power consumption: 4 VA

Power inputs:

L1-L3: Rated current: ..1/5A, power consumption: 0.2VA, response current: 5mA

Measuring accuracy: current +-0.5%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5 at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting according to DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: UMG 96 RM-M

Item no. 5222073

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| **Item no:** | 5222073 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.11.6** **Universal measuring device UMG 96 RM-PN / 24-90V AC / DC**

6-channel mains analyzer UMG 96RM-PN with Profinet certification for panel mounting Front dimensions: 96x96, for 4 current transformer inputs and residual current measurement (RCM) with continuous sampling of the voltage and current measurement inputs

for measurement in IT and TN networks, overvoltage category: L-N: 300V CAT III

Measuring functions:

- Automatic adaptation to mains frequencies

from 45 Hz ... 65 Hz

- Measuring intervals of 10 (50 Hz) or 12 (60 Hz) periods (200 ms), sampling frequency: 21.33 (25.6) kHz

- Seamless scanning and calculation of the following measured values:

- Voltage L-N (L1..L3), voltage L-L, asymmetry, positive, negative and zero sequence

- Frequency (L1)

- Rotary field

- Current, L1..L3 and N (calculated from L1..L3)

- Power of the fundamental oscillation (active, reactive and apparent power, cosphi), distortion reactive power

- Sums L1..L3 of the above power values

- 7 Energy meter

for active energy (supply), active energy (delivery), active energy (without backstop),

Reactive energy (ind), reactive energy (kap) Reactive energy (without backstop), apparent energy

each for L1, L2, L3 and total.

- 8 Tariffs

- 1..40 Harmonics of current and voltage (odd only)

- Distortion factor (THD) of current and voltage

- Operating hours counter

The device is equipped with:

- Large LCD display (67mm x 57mm) with simultaneous display of 3 measured values and

Backlight

- Standard measured value displays

- Bimetal function for current and power measurement values

- Automatic or manual measured value switching with programmable changeover time 0 - 250 sec.

- HTTP interface (homepage with REST interface)

Additional functions:

- 2 digital outputs

- 3 digital inputs/outputs configurable

- 2 analog inputs, optionally as

Temperature or residual current measurement input

- 2 comparator groups with 3 comparators each

(operator >=<)

- Monitoring the residual current transformer inputs

Dimensions: W96 x H96 x D49mm

Interfaces:

-2x RJ45 Ethernet (CC Type B / Switch Class C IRT)

-Ethernet protocols: Profinet 2.2, TCP/IP, ModBus TCP

-Profinet Profile: PROFIenergy V1.1, Entity Class 2

-RS485, protocol: Modbus RTU (9.6 - 115.2kbps)

Measuring range: L-N 0 ... 300V AC, L-L 0 ... 520V AC

Supply voltage: 24-90 V / AC & DC (50..60Hz)

Mains frequency: 45 - 65 Hz, power consumption: max. 7 VA

Power inputs:

L1-L4: Rated current: ..1/5A, power consumption: 0.2VA

Measuring accuracy: current +-0.2%, and voltage: +-0.2% rdg +0.02%rng

Active energy: class 0.5S at 5A and class 1 at 1A, reactive energy: class 1 at 5A

Working temperature: -10° to +55°C

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting according to DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: UMG 96RM-PN

Item no. 5222091

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| **Item no:** | 5222091 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.12** **UMG 96 PA series - 90-277V AC, 90-250V DC**

**1.1.12.1** **Modular universal measuring device with graphic color display UMG 96 PA / 90-277V AC / 90-250V DC**

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

2 comparator groups for logical evaluation (And / Or, etc.) of 3 direct measured values each or resulting measured values with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.)

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 40th harmonic.

Sampling rate of 8.33 kHz (50 Hz) with 166 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

8 MB internal measurement data memory (flash) of which 4 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96-PA

Item no.: 5232001

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| **Item no:** | 5232001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.12.2** **MID-certified network analyzer with certified meter reading cycle**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

Measurement with commercially available voltage transformers (optional procurement) in the medium/high voltage without artificial star point.

For energy data logging, power quality measurement and MID-compliant and tamper-proof billing metering. Approved in accordance with EU Directive 2014 32 EU, part MI-003 incl. initial factory calibration, declaration of conformity & EC type examination certificate (module B + F).

Software separation in accordance with MID guidelines with the option of functional extensions through software updates.

Accuracy class B according to EN 50470-1.

For MID-compliant measurement, approved current transformers (optionally voltage transformers) must be used for billing.

Sealable terminal covers for tamper-proof wiring in accordance with MID directives.

2 comparator groups for logical evaluation (And / Or, etc.) of 3 direct measured values each or resulting measured values with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.)

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), Total Demand Disortion (TDD), single harmonics (odd) for current & voltage up to the 40th harmonic.

Sampling rate of 8.33 kHz (50 Hz) with 166 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Tamper-proof separate storage area for MID meter readings of energy values (15 min. values) for recording measured values over a period of 2 years. Certified meter reading procedure in accordance with PTB-A 50.7.

Display of purchased and delivered active energy measured values (15 min. interval) in kwh on the display for the entire period with display of the plausibility (status) of the relevant parameters in connection with time synchronization.

Time synchronization according to PTB-A 50.7 by means of connection to the PTB time server via NTP (additional Ethernet module required), time synchronization via Modbus RTU or use of a time pulse on the integrated digital input to ensure that the energy generated and consumed are synchronized every quarter of an hour.

Configuration change after initial commissioning of the current and voltage transformer ratios as well as the password and the recording of the changes with the corresponding meter reading in a logbook in accordance with MID guidelines.

Additional 4 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W.

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

1 phase + N (L-N / L-L) max.: 230 / 400 V (MID)

3 Ph. + N (L-N / L-L) max.: 289 / 500 V (MID)

3 Ph. without N/PE (L-L) max.: 500 V (MID)

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring modes: 1-phase measurement, 3-phase measurement optionally with N or Aron circuit

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Adjustable rated current ranges: 1A / 2A / 5A

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital output Active energy MID:

Quantity: 1x

Function type: Pulse output of active energy MID

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital outputs:

Quantity: 2x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96-PA MID+

Item no.: 5232004

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| **Item no:** | 5232004 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.12.3** **MID-certified network analyzer CH variant**

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, total active energy incl. consumption and output in 2 tariffs, continuous true RMS value measurement (True RMS).

Compliance with the national requirements for use according to METAS in Switzerland.

Measurement with commercially available voltage transformers (optional procurement) in the medium/high voltage without artificial star point.

For energy data logging, power quality measurement and MID-compliant and tamper-proof billing metering. Approved in accordance with EU Directive 2014 32 EU, part MI-003 incl. initial factory calibration, declaration of conformity & EC type examination certificate (module B + F).

Software separation in accordance with MID guidelines with the option of functional extensions through software updates.

Accuracy class B according to EN 50470-1.

For MID-compliant measurement, approved current transformers (optionally voltage transformers) must be used for billing.

Sealable terminal covers for tamper-proof wiring in accordance with MID directives.

2 comparator groups for logical evaluation (And / Or, etc.) of 3 direct measured values each or resulting measured values with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 40th harmonic.

Sampling rate of 8.33 kHz (50 Hz) with 166 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Tamper-proof separate storage area for MID meter readings of energy values (15 min. values) for recording measured values over a period of 2 years.

Display of purchased and delivered active energy measured values (15 min. interval) in kwh on the display for the entire period with display of the plausibility (status) of the relevant parameters in connection with time synchronization.

Time synchronization by means of a connection to the time server via NTP (additional Ethernet module required), time synchronization via Modbus RTU or use of a time pulse on the integrated digital input to ensure that the energy generated and consumed are synchronized every quarter of an hour.

Configuration change after initial commissioning of the current and voltage transformer ratios as well as the password and recording of the changes with the corresponding meter reading in a logbook in accordance with MID guidelines.

Additional 4 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W.

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

1 phase + N (L-N / L-L) max.: 230 / 400 V (MID)

3 Ph. + N (L-N / L-L) max.: 289 / 500 V (MID)

3 Ph. without N/PE (L-L) max.: 500 V (MID)

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring modes: 1-phase measurement, 3-phase measurement optionally with N or Aron circuit

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Adjustable rated current ranges: 1A / 2A / 5A

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital output Active energy MID:

Quantity: 1x

Function type: Pulse output of active energy MID

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital outputs:

Quantity: 2x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting, configuration and parameterization of the device (e.g. mains form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96-PA MID+ CH variant

Item no.: 5232005

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| **Item no:** | 5232005 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.13** **UMG 96-PA series - 24-90V AC, 24-90V DC**

**1.1.13.1** **Modular universal measuring device with graphic color display UMG 96 PA / 24-90V AC / DC**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

2 comparator groups for logical evaluation (And / Or, etc.) of 3 direct measured values each or resulting measured values with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.)

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 40th harmonic.

Sampling rate of 8.33 kHz (50 Hz) with 166 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

8 MB internal measurement data memory (flash) of which 4 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 24 - 90 V AC, 24 - 90 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 150V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600 V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720 V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96-PA

Item no.: 5232002

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| **Item no:** | 5232002 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.14** **UMG 96-PA extension modules**

**1.1.14.1** **RCM function module, temperature measurement, 4th current transformer, Ethernet**

to expand the main unit of the series with the following main functions:

Two additional analog inputs, e.g. for monitoring the residual current distribution from the total residual current between L1, L2, L3 and N and the residual current component in the supply line to the (central) earthing point.

Freely parameterizable absolute residual current limit values, relative residual current limit value with freely definable reference parameter (apparent power, active power, etc.) as well as permissible residual current depending on the power consumption or residual current limit values for different power ranges including the respective pre-warning values.

Option for visual or audible warning when the residual current limit values are reached and forwarding of the exceedance via the communication interface to e.g. a building management system for permanent residual current monitoring.

Fourth current transformer connection for checking the neutral conductor dimensioning in accordance with DIN VDE 0100-520 / IEC 364-5-5: 1993 of the resulting operating currents in the neutral conductor with asymmetrical, inductive or capacitive loads.

Modbus RTU to Modbus TCP - Gateway function for network connection to higher-level software systems of max. 31 DIN rail or front panel-mounted devices, energy meters or data loggers from the manufacturer's current product series.

Alternative option for integrating Modbus RTU-certified third-party products after a specific integration test via generic Modbus profiles.

Simultaneous supply of the communication interface and parallel operation of 4 Modbus TCP ports.

Residual current or analog inputs:

Quantity: 2

Rated current: 30 mArms

Response current: 50 uA

Resolution: 1 uA

Temperature measurement inputs:

Quantity: 1

Approved sensors: PT100, PT1000, KTY83, KTY84

Current input I4:

Quantity: 1

Rated current: 1 / 5 A

Overvoltage category: 300V CAT II

Power consumption: approx. 0.2VA (Ri= 5mOhm)

Sampling frequency: 8.33 kHz

Only approved and compatible for use with the main unit.

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, compatible residual current transformers, adaptation of the design to the practical application and the measured variables including their recording intervals, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Manufacturer: Janitza electronics GmbH

Type: Module 96-PA-RCM-EL

Item no.: 5232010

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| **Item no:** | 5232010 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.15** **UMG 96 PQ-L - 90-277V AC, 90-250V DC**

**1.1.15.1** **Modular network analyzer with graphical color display**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and presentation on the device display.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 65th harmonic.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (overvoltage & undervoltage, voltage interruption, overcurrent, residual current, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase

- Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L

Item no.: 5236001

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| **Item no:** | 5236001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.15.2** **Modular network analyzer class S with graphical color display**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and presentation on the device display.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30 (class S), rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even) & interharmonics for current & voltage up to the 65th harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011.

Complete provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 (Class S) in industrial supply networks and at the energy transfer point.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (over & under voltage, voltage interruption, rapid voltage change, overcurrent, residual current, over & under frequency, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase

- Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L Class S

Item no.: 5236021

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| **Item no:** | 5236001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.15.3** **Modular network analyzer 333mV with graphical color display**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

Current measurement using low-signal current transformer technology (low power) with 333 mV secondary voltage.

Detection of feed-through, cable conversion or Rogowski current transformers as well as integrated current transformers in NH fuse-switch disconnectors in low-power design.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and display on the device display.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 65th harmonic.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (overvoltage & undervoltage, voltage interruption, overcurrent, residual current, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.5S / current: 0.5 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 4x

Measuring range 333 mV: 0 to 400 mV rms

Measuring range 800 mV: 0 to 800 mV rms

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase

Configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L-LP

Item no.: 5236006 + 007

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| **Item no:** | 5236006 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.16** **UMG 96 PQ-L - 24-90V AC, 24-90V DC**

**1.1.16.1** **Modular network analyzer with graphical color display**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and display on the device display.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), Total Demand Disortion (TDD), single harmonics (odd) for current & voltage up to the 65th harmonic.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (overvoltage & undervoltage, voltage interruption, overcurrent, residual current, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 24 - 90 V AC, 24 - 90 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 150V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600 V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720 V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L

Item no.: 5236002

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| **Item no:** | 5232002 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.16.2** **Modular network analyzer class S with graphical color display**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and presentation on the device display.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30 (class S), rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even) & interharmonics for current & voltage up to the 65th harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011.

Complete provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 (Class S) in industrial supply networks and at the energy transfer point.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (over & undervoltage, voltage interruption, rapid voltage change, overcurrent, residual current, over & underfrequency, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 24 - 90 V AC, 24 - 90 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 150V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600 V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720 V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L Class S

Item no.: 5236022

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| **Item no:** | 5232002 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.16.3** **Modular network analyzer 333mV with graphical color display**

suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

Current measurement using low-signal current transformer technology (low power) with 333 mV secondary voltage.

Detection of feed-through, cable conversion or Rogowski current transformers as well as integrated current transformers in NH fuse-switch disconnectors in low-power design.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and display on the device display.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), Total Demand Disortion (TDD), single harmonics (odd) for current & voltage up to the 65th harmonic.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (overvoltage & undervoltage, voltage interruption, overcurrent, residual current, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.5S / current: 0.5 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 24 - 90 V AC, 24 - 90 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 150V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600 V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720 V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 4x

Measuring range 333 mV: 0 to 400 mV rms

Measuring range 800 mV: 0 to 800 mV rms

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L-LP

Item no.: 5236007

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| **Item no:** | 5236007 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.17** **UMG 96 PQ-L IT - 90-277V AC, 90-250V DC**

**1.1.17.1** **Modular network analyzer with graphical color display**

Suitable for measuring in all levels of TN, TT & IT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS value measurement (True RMS).

Suitable for measurement in IT networks up to 600V.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and presentation on the device display.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 65th harmonic.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (overvoltage & undervoltage, voltage interruption, overcurrent, residual current, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase

- Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L IT

Item no.: 5236005

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| **Item no:** | 5236005 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.17.2** **Modular network analyzer class S with graphical color display**

Suitable for measuring in all levels of TN, TT & IT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS measurement.

Suitable for measurement in IT networks up to 600V.

5 comparator groups for logical evaluation (And / Or, etc.) of 10 direct measured values or resulting measured values each with parameterizable lead time and switch-on time as limit value switches (limit value monitoring, etc.) with a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital drag indicator function (positive/negative) for active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) and display on the device display.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30 (class S), rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even) & interharmonics for current & voltage up to the 65th harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011.

Complete provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 (Class S) in industrial supply networks and at the energy transfer point.

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

Full-wave effective value recorder for events & event display (over & under voltage, voltage interruption, rapid voltage change, overcurrent, residual current, over & under frequency, frequency change, Modbus and digital input).

64 MB internal measurement data memory (flash) of which 48 MB freely configurable by the user, clock with buffering.

Can be expanded using plug-in function modules.

Maximum number of function modules per device: 1

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Front panel-mounted device, 96 x 96 x 86 mm (WxHxD), graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons, protection class (front / rear) IP 40 / IP 20 (optional seal to IP54), protection class: II, net weight: 250 g, heat loss: max. 2 W

UL 61010-1 certified

Supply voltage:

Nominal range: 90 - 277 V AC, 90 - 250V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 3x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU

Digital outputs:

Quantity: 3x optional

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 50 Hz

Digital inputs:

Quantity: 3x optional

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Analog outputs:

Quantity: 1x

Function type: Analog current output

Output current range: 0/4 - 20 mA

Resolution: 10 bit

Update interval: 1 second

External supply voltage: max. 33V

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase

- Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ-L IT Class S

Item no.: 5236025

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| **Item no:** | 5236005 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.18** **UMG 96 PQ-L extension modules**

**1.1.18.1** **RCM function module, temperature measurement, 4th current transformer, Ethernet**

to expand the main unit of the series with the following main functions:

Two additional analog inputs, e.g. for monitoring the residual current distribution from the total residual current between L1, L2, L3 and N and the residual current component in the supply line to the (central) earthing point.

Freely parameterizable absolute residual current limit values, relative residual current limit value with freely definable reference parameter (apparent power, active power, etc.) as well as permissible residual current depending on the power consumption or residual current limit values for different power ranges including the respective pre-warning values.

Option for visual or audible warning when the residual current limit values are reached and forwarding of the exceedance via the communication interface to e.g. a building management system for permanent residual current monitoring.

Fourth current transformer connection for checking the neutral conductor dimensioning in accordance with DIN VDE 0100-520 / IEC 364-5-5: 1993 of the resulting operating currents in the neutral conductor with unbalanced, inductive or capacitive loads.

Modbus RTU to Modbus TCP - Gateway function for network connection to higher-level software systems of max. 31 DIN rail or front panel-mounted devices, energy meters or data loggers from the manufacturer's current product series.

Alternative option for integrating Modbus RTU-certified third-party products after a specific integration test via generic Modbus profiles.

Simultaneous supply of the communication interface and parallel operation of 4 Modbus TCP ports.

Residual current or analog inputs:

Quantity: 2

Rated current: 30 mArms

Response current: 50 uA

Resolution: 1 uA

Temperature measurement inputs:

Quantity: 1

Approved sensors: PT100, PT1000, KTY83, KTY84

Current input I4:

Quantity: 1

Rated current: 1 / 5 A

Overvoltage category: 300V CAT II

Power consumption: approx. 0.2VA (Ri= 5mOhm)

Sampling frequency: 8.33 kHz

Exclusively approved and compatible for use with the manufacturer's main device.

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, compatible residual current transformers, adaptation of the design to the practical application and the measured variables including their recording intervals, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Manufacturer: Janitza electronics GmbH

Type: Module 96-PA-RCM-EL

Item no.: 5232010

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| **Item no:** | 5232010 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.19** **UMG 96 PQ-L software extensions**

**1.1.19.1** **UMG 96 PQ Class S Option**

for retroactively activating the Class S measurement functions of the manufacturer's modular network analyzers with graphical color displays.

Extension of the basic device firmware with the following parameters:

- Interharmonics

- Flicker

- Voltage unbalance

- Mains signal voltage

- Additional event trigger

- Measurement method according to class S IEC 61000-4-30

Installation via the free parameterization and evaluation software, stating the serial number of the manufacturer's device.

Manufacturer: Janitza electronics GmbH

Type: UMG 96 PQ Class S Option

Item no.: 5232020

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| **Item no:** | 5232020 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.20** **UMG 509 Pro / UL / 95-240V AC / 80-300V DC**

**1.1.20.1** **Multifunctional network analyzer**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 40 - 70 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel-mounted devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party devices after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interface and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks.

Measurement of the positive, negative and zero sequence, voltage unbalance and rotating field direction. Total harmonic distortion (THD-I & THD-U), single harmonics (even / odd) for current & voltage up to the 63rd harmonic and K-factor.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events 50 µs, acquisition of overvoltage, undervoltage and short-time interruptions with 20 ms acquisition cycle for visualization, full-wave RMS value recorder for events & event display (overvoltage, undervoltage and overcurrent) in wave form. 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.2S / current: 0.2 / voltage: 0.1

Front panel mounting device, 144 x 144 x 81 mm (WxHxD), color graphic display, 320 x 240 pixels, 6 buttons, 256 colors, protection class (front / rear) IP 40 / IP 20, protection class: I, net weight: 1080 g, heat dissipation: max. 7 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 95 - 240 V AC, 80 - 300 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: IEC: 417 / 720V, UL: 347 / 600 V

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 7 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Residual current measurement:

Number / type: 2x type A with dynamic limit value

Measuring range / resolution: 100 µA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet Gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 509 Pro

Item no.: 5226001

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| **Item no:** | 5226001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.21** **UMG 509 Pro / UL / 48-110V AC / 24-150V DC**

**1.1.21.1** **Multifunctional network analyzer**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 40 - 70 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs as well as pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Provision of measured values for comparing power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks.

Measurement of the positive, negative and zero sequence, voltage unbalance and rotating field direction. Total harmonic distortion (THD-I & THD-U), single harmonics (even / odd) for current & voltage up to the 63rd harmonic and K-factor.

Sampling rate of 20 kHz with 400 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events 50 µs, acquisition of overvoltage, undervoltage and short-time interruptions with 20 ms acquisition cycle for visualization, full-wave RMS value recorder for events & event display (overvoltage, undervoltage and overcurrent) in wave form. 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.2S / current: 0.2 / voltage: 0.1

Front panel mounting device, 144 x 144 x 81 mm (WxHxD), color graphic display, 320 x 240 pixels, 6 buttons, 256 colors, protection class (front / rear) IP 40 / IP 20, protection class: I, net weight: 1080 g, heat dissipation: max. 9 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 48 - 110 V AC, 24 - 150 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: IEC: 417 / 720V, UL: 347 / 600 V

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 7 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement:

Number / type: 2x type A with dynamic limit value

Measuring range / resolution: 100 µA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet Gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A.

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 509 Pro

Item no.: 5226003

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| **Item no:** | 5226003 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.22** **UMG 512 Pro / UL / 95-240V AC / 80-300V DC**

**1.1.22.1** **Class A power quality analyzer according to IEC 61000-4-30**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 15 - 440 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs and pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4 & EN 50160.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Legally compliant, certified measurement method & measurement accuracy in accordance with IEC 61000-4-30 Class A.

Complete provision of measured values for the comparison of power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) in accordance with EN 50160.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011 class F1.

Sampling rate of 25.6 kHz with 512 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >39 µs, over-, & Undervoltage for visualization as well as short-term interruptions with 10 ms acquisition cycle, level acquisition of ripple control signals, half-wave rms value recorder for events & event display (overvoltage, undervoltage, voltage interruption, rapid voltage change, overcurrent, overfrequency, underfrequency, frequency change) in waveform. 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.2S / current: 0.1 / voltage: 0.1

Front panel mounting device, 144 x 144 x 81 mm (WxHxD), color graphic display, 320 x 240 pixels, 6 buttons, 256 colors, protection class (front / rear) IP 40 / IP 20, protection class: I, net weight: 1080 g, heat dissipation: max. 7 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 95 - 240 V AC, 80 - 300 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: IEC: 417 / 720V, UL: 347 / 600 V

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 7 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Residual current measurement:

Number / type: 2x type A with dynamic limit value

Measuring range / resolution: 100 µA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet Gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 512 Pro

Item no.: 5217011

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| --- | --- |
| **Item no:** | 5217011 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.23** **UMG 512 Pro / UL / 48-110V AC / 24-150V DC**

**1.1.23.1** **Class A power quality analyzer according to IEC 61000-4-30**

suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 15 - 440 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, 4 tariffs, continuous true RMS measurement.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers & expansion modules per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Function extensions via installable APPs as well as pre-installed APPs with the following range of functions on the web server: Graphical display of online & historical measured values as well as comparison & interpretation of the recorded measured values with the power quality characteristics and their limit values in accordance with IEC 61000-2-4 & EN 50160.

Freely programmable logical & mathematical functions for evaluating the measurement data, the digital inputs and outputs & external ModBus variables via 7 graphical, exchangeable programs (cycle >= 200 ms), e.g. limit value monitoring, weekly timer, etc.

Legally compliant, certified measurement method & measurement accuracy in accordance with IEC 61000-4-30 Class A.

Complete provision of measured values for the comparison of power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) in accordance with EN 50160.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd harmonic, K-factor and flicker measurement according to DIN EN 61000-4-15:2011 class F1.

Sampling rate of 25.6 kHz with 512 measuring points per period & output of the measured values via the interfaces (cycle >=200 ms), acquisition of transient events >39 µs, acquisition of over-, & undervoltage for visualization as well as short interruptions with 10 ms acquisition cycle, level acquisition of ripple control signals, half-wave rms value recorder for events & event display (over- & undervoltage, voltage interruption, fast voltage change, overcurrent, over- & underfrequency, frequency change) in waveform. 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.2S / current: 0.1 / voltage: 0.1

Front panel mounting device, 144 x 144 x 81 mm (WxHxD), color graphic display, 320 x 240 pixels, 6 buttons, 256 colors, protection class (front / rear) IP 40 / IP 20, protection class: I, net weight: 1080 g, heat dissipation: max. 7 W, UL 61010-1 certified.

Supply voltage:

Nominal range: 48 - 110 V AC, 24 - 150 V DC

Frequency range (AC): 50 / 60 Hz

Overvoltage category: 300V CAT III

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: IEC: 417 / 720V, UL: 347 / 600 V

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 7 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement:

Number / type: 2x type A with dynamic limit value

Measuring range / resolution: 100 µA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485), Ethernet (RJ45), Profibus (DSUB-9)

Data logs:

Modbus RTU & TCP, TCP/IP, DHCP, HTTP, NTP, SMTP Ethernet Gateway, FTP, TFTP, Profibus DP/V0, BACnet IP (optional)

Digital outputs:

Number / type: 2x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 50 mA effective / 60 V DC / 20 Hz

Digital inputs:

Quantity: 2x

Function type: Digital or pulse input

Switching voltage level: 0 - 28V DC

Counting frequency: max. 20 Hz

Temperature measurement:

Number / type / total burden: 1x 3-wire measurement with 4 kOhm

Compatible sensors: PT100/1000, KTY83/84

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible current transformer set min. cl. 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, compatible residual current transformers, configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces), delivery, installation and connection.

Primary current at the measuring point: '.........' A

Device version with data communication protocol

BACnet / IP (Yes / No): '.........'

Manufacturer: Janitza electronics GmbH

Type: UMG 512 Pro

Item no.: 5217003

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| **Item no:** | 5217003 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.24** **Basic devices**

**1.1.24.1** **Modular energy analyzer without RCM & current measurement**

Alternative basic device without residual current measurement and without current measurement inputs of the modular system for DIN rail mounting (2 HP) suitable for measurement in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording voltage (per phase & total as well as the frequency on the basic device.

Additional system current measurement modules are required to record the phase currents.

In combination with compatible modules of the system, further parameters such as

Working and performance parameters, etc. recorded in separate memory values

become.

Sampling rate of 51.2 kHz with 1024 measuring points per period and output of the measured values via the interfaces (cycle >=200 ms).

Detection of transient events 19 µs, overvoltage and undervoltage for visualization and

Short-time interruptions with 10 ms acquisition cycle, half-wave rms value recorder with

Events & event display (over & under voltage, voltage interruption, over & under frequency, frequency change) in wave form. 4 GB internal measurement data memory (flash), clock with buffering.

Measurement of the positive, negative and zero systems and calculation of the resulting percentages.

Voltage unbalance according to IEC 61000-4-30, crest factor of voltage.

Total harmonic distortion (THD-U), individual harmonics (even / odd) & interharmonics

Voltage up to 63 harmonics and flicker measurement according to DIN EN 61000-4-15:2011.

32 comparison groups for logical evaluation (And / Or, etc.) from a maximum of 125 direct

measured values or resulting measured values with parameterized lead time and switch-on time as

Limit value monitoring with hysteresis for a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

o Voltage: 0.2

Supply voltage:

o Nominal range: 24 V DC (+/- 10%) PELV

Voltage measurement:

o Number of voltage measurement inputs: 3

o Measurement category: 300 V CAT III

o Measurement in 3-phase 4-conductor systems: up to 277 V L-N / 480 V L-L (+-10%) according to IEC

o Measurement in 3-phase 3-conductor systems earthed: up to 480 V L-L (+-10%) according to IEC

o Measurement in 3-phase 3-conductor systems unearthed: up to 480 V L-L (+-10%) according to IEC

o Measurement in 1-phase 2-wire systems up to 480 V (+-10%)

o Rated impulse voltage: 4 kV

o Impedance: 3 MOhm / phase

o Voltage sampling frequency: 51.2 kHz (1024 samples)

o Frequency of the fundamental oscillation: 40Hz to 70Hz

Interfaces / protocols:

o 01x RS485 for querying slave devices with Modbus RTU

o 02x Ethernet (RJ45) switch mode or two separate IP addresses, Modbus TCP, Modbus Gateway, OPC UA.

o Configuration modes: DHCP & static IP (IP V4), NTP (active & off mode)

Device dimensions (W x H x D): 36 x 90 x 76 (2 HP)

Protection class according to EN 60529: IP20

Operating temperature range: -10° C - +55° C (K55)

UL 61010-1 certified

Delivery included:

Mounting accessories, documentation, bus connector & end bracket, parameterization and evaluation software in basic version, adaptation of the design to the practical application as well as the measured variables including their recording intervals, configuration and parameterization of the device (e.g. network form, addressing of the communication interfaces).

Manufacturer: Janitza electronics GmbH

Type: UMG 800

Item no.: 5238001

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| **Item no:** | 5238001 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.24.2** **Modular mains analyzer with RCM & current measurement inputs**

Basic device of the modular system for DIN rail mounting (8 HP) suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total), power factor & cos phi, total active, apparent & reactive energy as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values, continuous true RMS measurement.

Up to 10 expansion modules (e.g. current measurement modules) can be connected to the system via the internal bus or the bus transfer modules. With a maximum bus length of 100 m, for example, up to 92 current measurement channels can be realized with one basic device.

Gapless 4-square measurement, distortion factor THD-U / THD-I in %, unbalance, memory for min. / max. values.

Sampling rate of 25.6 kHz / 51.2 kHz with 512 / 1024 measuring points (current / voltage) per period and output of the measured values via the interfaces (cycle >=200 ms).

Acquisition of transient events >39 / 19 µs (current / voltage), over- and undervoltage for visualization as well as short-term interruptions with 10 ms acquisition cycle, half-wave RMS value recorder for events and event display (over- and undervoltage, voltage interruption, rapid voltage change, overcurrent, over- and underfrequency, frequency change) in waveform of the current measurement inputs I1 to I8. 4 GB internal measurement data memory (flash), clock with buffering.

Measurement of the positive, negative and zero sequence and calculation of the resulting percentage voltage unbalance according to IEC 61000-4-30, rotating field direction and crest factor of voltage & current. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (even / odd) & interharmonics for current & voltage up to the 63rd or 127th harmonic as well as flicker measurement according to DIN EN 61000-4-15:2011.

Provision of measured values for the comparison of power quality characteristics and their limit values in accordance with IEC 61000-2-4 in industrial supply networks and at the power transfer point (PCC) in accordance with EN 50160. Output of transient & event recordings in PQ-Diff format.

Possibility of visual or acoustic warning via external wiring when the residual current limit values are reached and forwarding of the exceedance via the communication interface to e.g. a building management system for permanent residual current monitoring.

Fourth current transformer connection for checking the neutral conductor dimensioning in accordance with DIN VDE 0100-520 / IEC 364-5-5: 1993 of the resulting operating currents in the neutral conductor with unbalanced, inductive or capacitive loads.

32 comparator groups for logical evaluation (And / Or, etc.) from max. 125 direct measured values or resulting measured values with parameterizable lead and switch-on time as limit value monitoring with hysteresis for a cycle of >= 200 ms.

Freely definable naming of comparator parameters and comparator groups for transparent presentation and traceability.

Digital slave pointer function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.) for measuring group 1+2 of the main device.

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 DIN rail or front panel mounting devices as well as energy meters, data loggers per master device of the manufacturer's current product series. Ethernet gateway function and integration of Modbus RTU-certified third-party products after specific integration test via generic Modbus profiles.

Simultaneous supply of the communication interfaces and parallel operation of at least 4 Modbus TCP ports.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Effective value from periods (50/60 Hz): 10/12

Color graphic display, 320 x 240 pixels, 6 buttons, 256 colors, protection class (front / back) IP 20, protection class: I, net weight: 420 g, heat loss: max. 4 W.

Supply voltage:

Nominal range: 24 V DC (+/- 10%) PELV

Voltage measurement:

Number of voltage measurement inputs: 3

Measurement category: 1000 V CAT III

Measurement in 3-phase 4-conductor systems: up to 480 V L-N / 830 V L-L (+-10%) according to IEC

Measurement in 3-phase 3-conductor systems earthed: up to 380 V L-L (+-10%) according to IEC

Measurement in 3-phase 3-conductor systems unearthed: up to 690 V L-L (+-10%) according to IEC

Measurement in 1-phase 2-conductor systems up to 690 V (+-10%)

Rated impulse voltage: 8 kV

Impedance: 4 MOhm / phase

Voltage sampling frequency: 51.2 kHz (1024 samples)

Crest factor:1.6 (at 600V L-N)

Resolution: 16 bit

Frequency of the fundamental oscillation: 40Hz to 70Hz

Current measurement:

Current measurement inputs: 8x as 2 blocks of four

Measuring modes: 1-phase measurement, 3-phase measurement optionally with N or Aron circuit

Measurement category: 300V CAT II

Current measuring range: 5 mA to 6 A rms

Resolution: 0.1mA

Sampling frequency current: 25.6 kHz (512 samples)

Crest factor: 1.98

Rated impulse voltage: 2 kV

Power consumption: approx. 0.2 VA ( Ri = 5 mOhm )

Overload: 1s at 120A (sinusoidal)

Multifunctional inputs:

Number of multifunctional inputs: 04x

Modes: Differential current inputs or temperature inputs or 0/4 - 60 mA current measurement inputs

Residual current inputs:

Standard: IEC/TR 60755 (2008-01), type A, type B, type B+

Types: AC / DC / AC+DC with transformer monitoring

Measuring range: 100 µA to 60 mA rms

Response current: 100 µA

Resolution: 1 µA

Crest factor: 1.414 (based on 80mA)

Load: 4 Ohm

Overload: 20ms 50A; 1s 5A, continuous 1A

Temperature measurement:

Sensor types: KTY83, KTY84, PT100, PT1000

Update time: 1 s

Total burden (sensor and cable): max. 4 kOhm

Cable: <=30m unshielded; >30m shielded

Digital inputs:

Number of digital inputs: 04x

High input signal: 18 V to 28 V DC; typically 4 mA

Input signal low: 0 to 5 V DC; < 0.5 mA

Maximum counter frequency: 20 Hz

Digital outputs:

Number of digital outputs: 04x

Modes: Pulse output

Switching voltage: max. 60V DC

Switching current: max. 50 mAeff DC

Response time: approx. 500 ms

Frequency pulse output: max. 20 Hz

Analog outputs:

Number of analog outputs: 01x

Output type: 0-20 mA, 4-20 mA

Interfaces / protocols:

01x RS485 for querying slave devices with Modbus RTU

02x Ethernet (RJ45) switch mode or two separate IP addresses, Modbus TCP, Modbus Gateway, OPC UA.

Configuration modes: DHCP & static IP (IP V4), NTP (active & off mode)

Net weight: approx. 420 g

Device dimensions (W x H x D): 144 x 90 x 76 (8 HP)

Design: DIN rail installation device

Protection class according to EN 60529: IP20

Operating temperature range: -10° C - +55° C (K55)

Temperature range transport & storage: -25° C - +70° C

Relative humidity: 5 to 95% at 25 °C without condensation

UL 61010-1 certified

Operating altitude:

4000m above sea level Voltage measurement: 600V CAT3 / current measurement: 300V CAT2

2000m above sea level Voltage measurement: 1000V CAT3; 600V CAT4 / Current measurement: 300V CAT2

Delivery included:

Mounting accessories, documentation, bus connector & end bracket, parameterization and evaluation software in basic version, adaptation of the design to the practical application as well as the measured variables including their recording intervals, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², configuration and parameterization of the device (e.g. network form, transformer ratios, addressing of the communication interfaces).

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: UMG 801

Item no.: 5231003

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| **Item no:** | 5231003 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.25** **Extension modules**

**1.1.25.1** **Current measuring module up to 5A with 8 measuring inputs**

To expand a modular multi-channel energy meter to up to 92 current measurement channels or to connect remote system components etc., up to 10 expansion modules (e.g. current measurement modules) can be connected via the internal bus or the bus transfer modules with a maximum bus length of 100 m.

Distortion factor THD-I in %, single harmonic (odd) for current up to the 9th harmonic, gapless 4-quadrant measurement, continuous true RMS measurement. Memory for min / max values in the base unit. Sampling rate of 8.3 kHz with 166 measuring points per period. 4 LEDs to indicate the status of supply voltage, data transmission or module error.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.5S / current: 0.5

Effective value from periods (50/60 Hz): 10/12

Current measurement:

Current measurement inputs: 8x as 2 blocks of four

Measuring modes: 1-phase measurement, 3-phase measurement optionally with N or Aron circuit

Measurement category: 300V CAT II

Current measuring range: 5 mA to 6 A rms

Resolution: 0.1 mA (16 bit)

Sampling frequency current: 8.3 kHz (166 samples)

Crest factor: 2.0

Rated impulse voltage: 2 kV

Power consumption: approx. 0.2 VA ( Ri = 5 mOhm )

Overload: 1s at 120A (sinusoidal)

Device dimensions (W x H x D): 73 x 90 x 76 (4TE)

Design: DIN rail installation device

Net weight : approx. 210 g

Protection class according to EN 60529: IP20

Operating temperature range: -10° C to +55° C (K55)

Storage & transportation temperature: -25° C to +70° C (K55)

Relative humidity: 5 to 95% at 25 °C without condensation

Heat loss: max. 0.8 W (maximum power consumption)

Approved and compatible only in conjunction with the manufacturer's associated modular multi-channel energy meter.

Primary current at the measuring point: '.........' A.

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application including its recording intervals, compatible current transformer set min. class 0.5 all-phase, measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², configuration and parameterization of the device (e.g. mains form, transformer ratios).

Manufacturer: Janitza electronics GmbH

Type: Module 800-CT-8-A

Item no.: 5231230

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| **Item no:** | 5231230 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.25.2** **Current measuring module 333mV with 8 measuring inputs**

for expanding the modular multi-channel energy meter to up to 92 current measurement channels. Up to 10 expansion modules (e.g. current measurement modules) can be connected via the internal bus or the bus transfer modules with a maximum bus length of 100 m.

Measurement via low-power current transformers with a secondary voltage of 0 to 400 mV AC, for recording currents from low-power current transformers (fuse switch disconnectors, etc.)

Resulting reduction in cable cross-sections in system construction, elimination of the measuring transformer isolating terminal as well as cost and space savings.

Distortion factor THD-I in %, single harmonic (odd) for current up to the 15th harmonic, gapless 4-quadrant measurement, continuous true RMS measurement. Memory for min / max values in the base unit. Sampling rate of 6.8 kHz with 166 measuring points per period. 4 LEDs to indicate the status of supply voltage, data transmission or module error.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.5 / current: 0.2

Effective value from periods (50/60 Hz): 10/12

Current measurement:

Current measurement inputs: 8x as 2 blocks of four

Measuring modes: 1-phase measurement, 3-phase measurement optionally with N or Aron circuit

Measurement category: 300V CAT II

Nominal input signal of the module: 0 to 400 mV AC

Resolution: 0.1 mA (16 bit)

Sampling frequency current: 6.8 kHz

Crest factor: 1.8

Power consumption: approx. 0.2 VA (Ri = 5 mOhm)

Overload: 1s at 1 V

Device dimensions (W x H x D): 18 x 90 x 76 (1TE)

Design: DIN rail installation device

Net weight : approx. 73 g

Protection class according to EN 60529: IP20

Operating temperature range: -10° C to +55° C (K55)

Storage & transportation temperature: -25° C to +70° C (K55)

Relative humidity: 5 to 95% at 25 °C without condensation

Heat loss: max. 0.8 W (maximum power consumption)

Approved and compatible only in conjunction with the manufacturer's associated modular multi-channel energy meter.

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application including its recording intervals, compatible current transformer set min. class 0.5 all-phase, configuration and parameterization of the device (e.g. grid shape, transformer ratios).

Manufacturer: Janitza electronics GmbH

Type: Module 800-CT8-LP

Item no.: 5231234

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| **Item no:** | 5231234 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.25.3** **Digital input module with 14 inputs**

for expanding the modular multi-channel energy meter to up to 144 digital inputs, for example for recording the status of circuit breakers or external alarm messages. Up to 10 expansion modules (e.g. digital input modules) with a maximum bus length of 100 m can be connected via the internal bus or the bus transfer modules.

4 LEDs for displaying the status of the supply voltage, data transmission or module errors.

Digital inputs

Quantity: 14x

Function type: Digital input

High input signal: 18 V to 28 V DC; typically 4mA

Input signal low: 0 to 5 V DC; < 0.5 mA

Maximum counter frequency: 20 Hz

General

Device dimensions (W x H x D): 18 x 90 x 76 (1TE)

Design: DIN rail installation device

Net weight : approx. 73 g

Protection class according to EN 60529: IP20

Ambient conditions

Operating temperature range: -10° C to +55° C (K55)

Storage & transportation temperature: -25° C to +70° C (K55)

Relative humidity: 5 to 95% at 25 °C without condensation

Approved and compatible only in conjunction with the manufacturer's associated modular multi-channel energy meter.

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application including adaptation of the parameterization, configuration and parameterization of the module.

Manufacturer: Janitza electronics GmbH

Type: Module 800-DI14

Item no.: 5231214

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| **Item no:** | 5231214 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.26** **Bus transfer modules**

**1.1.26.1** **Multi-core bus transfer set for connecting decentralized expansion modules**

to the basic unit of the manufacturer's modular multi-channel energy meter.

Up to 10 extension modules (e.g. current measurement modules) can be connected via the bus transfer modules with a maximum bus length of 100 m.

Voltage transmission and data exchange between two bus transfer modules takes place via an 8-core, twisted-pair and shielded data cable (cable connection 1:1), for example of type Unitronic LiYcY (TP) 4x2x0.5 mm² or comparable. An external terminal point for the cable shield must also be provided. Connecting cables are not included in the scope of delivery.

Set consisting of:

02x Transfer module

01x Bus connector transfer right

01x Bus connector transfer left

02x End angle

02x Shield clamp

Device dimensions in mm (WxHxD) 18 x 90 x 76 (1TE)

Design: DIN rail installation device

Net weight (with plug-in terminals): approx. 55 g

Protection class: IP20

Operating temperature: -10° C to +55° C

Storage & transportation temperature: -25° C to +70° C (K55)

Relative humidity: 5 to 95% at 25 °C without condensation

Heat loss: max. 0.8 W (maximum power consumption)

Approved and compatible only in conjunction with the manufacturer's modular multi-channel energy meter.

Delivery included:

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, configuration and parameterization of the device.

Manufacturer: Janitza electronics GmbH

Type: Set Module 800-CON

Item no.: 5231210

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| **Item no:** | 5231210 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.26.2** **RJ45 bus interface module for connecting decentralized expansion modules**

for the basic unit of the manufacturer's modular multi-channel energy meter.

Up to 10 extension modules (e.g. current measurement modules) can be connected via the bus transfer modules with a maximum bus length of up to 100 m.

An additional RJ45 bus interface module is required for decentralized continuation of the system bus to connect additional expansion modules. In this application, the RJ45 bus transfer set is required twice.

Voltage transmission and data exchange between two bus transfer modules takes place via a

RJ45 cable connection (patch cable 1:1) of classifications CAT 5/5a/6/6a/7/7a.

Connection cables are not included in the scope of delivery.

Device dimensions in mm (WxHxD) 36 x 90 x 76 (2TE)

Type: DIN rail installation device

Net weight: approx. 62 g

Protection class: IP20

Operating temperature: -10° C to +55° C

Storage & transportation temperature: -25° C to +70° C (K55)

Relative humidity: 5 to 95% at 25 °C without condensation

Heat loss: max. 0.8 W (maximum power consumption)

Approved and compatible only in conjunction with the manufacturer's modular multi-channel energy meter.

Delivery included:

01x Transfer module

01x Bus connector transfer right

01x Bus connector transfer left

01x End angle

Mounting accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, configuration and parameterization of the device.

Manufacturer: Janitza electronics GmbH

Type: Set module 800-CON-RJ45

Item no.: 5231242

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| **Item no:** | 5231242 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.27** **Remote Display RD 96**

**1.1.27.1** **Remote display for modular multi-channel network analyzer**

for front panel installation to configure and display the parameters and measured values of the modular multi-channel network analyzer and its expansion modules as a complete mirror image of the device display in an enlarged view.

Full-graphic color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation via 6 operating buttons. Connection during operation (plug & play) of the basic device and protection against multiple operation by deactivating the device display of the basic device when an external display is connected.

Interfaces:

USB 2.0 type A: 01x

Type: Power supply & data transmission

Max. Length: 5 m passive

USB 2.0 type B: 01x

Type: Remote USB interface of the basic device

Supply voltage via USB: 5 V DC

Rated current: 200 mA

Operating range: +-5% of nominal range

Power consumption: 1 W

Dimensions in mm (W x H x D): 96 x 96 x 31

Weight in g: 140

Operating temperature range: -10 °C to +55 °C

Operating altitude: 0 - 2000 m (1.24 mi) above sea level

Protection class (front / rear): IP40 / IP 20 (EN60529)

Protection class: II

Delivery included:

Mounting accessories, documentation, USB 2.0 type A to type B plug 1.8 m, parameterization and evaluation software in basic version, adaptation of the design to the practical application, configuration and parameterization of the device.

Manufacturer: Janitza electronics GmbH

Type: RD 96

Item no.: 5231212

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| **Item no:** | 5231212 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.28** **Basic device**

**1.1.28.1** **Modular energy analyzer for DIN rail mounting**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, drawn reactive & apparent energy as well as drawn and delivered active energy (4-quadrant measurement) in separate memory values, continuous true RMS measurement.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents and adjustable period duration (1..30 min.) and display in the manufacturer's parameterization and evaluation software.

Can be extended by a maximum of one extension module of type "Module 806-EC1", "Module 806-EI1" and "Module 806-ED1", each of which can be plugged in on the right-hand side. A maximum of 3 extension modules of different module types can be connected to one basic device.

Measurement of unbalance voltage, total harmonic distortion (THD-I & THD-U) and single harmonics up to the 31st harmonic.

Sampling rate of 8 kHz with 160 measuring points per period & output of the measured values via the interfaces (cycle >=80 ms).

Accuracy classes:

Active energy: 0.5S / current: 0.2 / voltage: 0.2

Password protection of the user interface, automatic change of measured value displays and configuration of parameters directly on the device.

DIN rail mounting, 90 x 90 x 63.5 (WxHxD), 6 HP wide, monochrome LCD display with backlighting, 2 buttons, status LEDs to indicate the activity of the pulse input and the activity of the communication interface, cover plates for the screw terminals, protection class IP 20, protection class: II, net weight: 300 g, heat dissipation: max. 7 W, including 4 MB memory, clock with buffering, UL 61010-1 certified.

Supply voltage:

Nominal range: 100 - 300 V AC / DC (+/- 10%)

Frequency range (AC): 45 - 65 Hz

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement:

Quantity: 4x

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT III

Residual current measurement / Analog\_input:

Quantity / type: 1x type A with static limit value

Measuring range / resolution: 0.1 mA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU up to 115.2 kbps

Digital outputs:

Number / type: 1x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 10 mA effective DC / 35 V DC / 10 Hz

Pulse width: 80 ms

Response time: 500 ms

Temperature measurement:

Number / connection / load: 1 / two-wire connection / max. 0.35 kohm

Compatible sensors: PT100

Update time: 1s

Complete output of the measurement data via the Modbus RTU interface including documentation of the Modbus registers. Partial integration of the configuration and

Measurement data into the parameterization and evaluation software of the product manufacturer, price group: 1.

Delivery includes documentation.

Manufacturer: Janitza electronics GmbH

Type: UMG 806 (UL)

Item no.: 1402041

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| **Item no:** | 1402041 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.28.2** **Modular energy analyzer 333mV for DIN rail mounting**

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, drawn reactive & apparent energy as well as drawn and delivered active energy (4-quadrant measurement) in separate memory values, continuous true RMS measurement.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents and adjustable period duration (1..30 min.) and display in the manufacturer's parameterization and evaluation software.

Can be extended by a maximum of one extension module of type "Module 806-EC1", "Module 806-EI1" and "Module 806-ED1", each of which can be plugged in on the right-hand side. A maximum of 3 extension modules of different module types can be connected to one basic device.

Measurement of unbalance voltage, total harmonic distortion (THD-I & THD-U) and single harmonics up to the 31st harmonic.

Sampling rate of 8 kHz with 160 measuring points per period & output of the measured values via the interfaces (cycle >=80 ms).

Accuracy classes:

Active energy: 0.5S / current: 0.2 / voltage: 0.2

Password protection of the user interface, automatic change of measured value displays and configuration of parameters directly on the device.

DIN rail mounting, 90 x 90 x 63.5 (WxHxD), 6 HP wide, monochrome LCD display with backlighting, 2 buttons, status LEDs to indicate the activity of the pulse input and the activity of the communication interface, cover plates for the screw terminals, protection class IP 20, protection class: II, net weight: 300 g, heat dissipation: max. 7 W, including 4 MB memory, clock with buffering, UL 61010-1 certified.

Supply voltage:

Nominal range: 100 - 300 V AC / DC (+/- 10%)

Frequency range (AC): 45 - 65 Hz

Voltage measurement:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

3 Ph. without N/PE (L-L) max.: 480 V

Overvoltage category: 300V CAT III

Current measurement (../333mV):

Quantity: 4x

Measuring range / resolution: 0.3 mV to 400 mVrms / 3.33µV

Overvoltage category: 300V CAT III

Residual current measurement / Analog\_input:

Quantity / type: 1x type A with static limit value

Measuring range / resolution: 0.1 mA to 40 mA rms / 1 µA

Data interfaces:

Modbus (RS485)

Data logs:

Modbus RTU up to 115.2 kbps

Digital outputs:

Number / type: 1x optocoupler outputs

Function type: Pulse or limit value output

Supply: 24 V DC passive, galvanically isolated

Switching current / voltage / frequency: 10 mA effective DC / 35 V DC / 10 Hz

Pulse width: 80 ms

Response time: 500 ms

Temperature measurement:

Number / connection / load: 1 / two-wire connection / max. 0.35 kohm

Compatible sensors: PT100

Update time: 1s

Complete output of the measurement data via the Modbus RTU interface including documentation of the Modbus registers. Partial integration of the configuration and

Measurement data into the parameterization and evaluation software of the product manufacturer, price group: 1.

Delivery includes documentation.

Manufacturer: Janitza electronics GmbH

Type: UMG 806-LP (UL)

Item no.: 1402042

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| **Item no:** | 1402042 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.29** **Extension modules**

**1.1.29.1** **Communication extension module for modular energy analyzer**

for plugging into the basic device. Extension of the modular energy meter with an Ethernet interface for transmitting its own measurement data as well as alarm flags and other basic devices of the same type connected via RS485 to higher-level systems.

Power supply via the internal bus from the basic device, MAC IEEE certification, IEEE 802.3 standard and DHCP client or static IP address of type IP V4.

LED displays for signalling the module's operational readiness and active communication as well as reset button for restoring the module's factory settings, integrated web server for parameterizing the functions and visualizing the measured values. UL 61010-1 certified.

Interface: 1x RJ45 (10M)

Protocols: Modbus TCP, SNMP V2c

Dimensions in mm (W x H x D): 36 x 90 x 63.5

Weight in g: 80 g

Division units: 2 TE

Foreign body and water protection; IP 20

Protection class: II

Operating altitude: < 2500 m above sea level

Relative humidity: 5 to 95 % at 25 °C (77 °F), non-condensing

Rated temperature range: -40 °C to +70 °C

Insulation 1.5 kV AC

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Module 806-EC1 (UL)

Item no.: 1402051

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| **Item no:** | 1402051 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.29.2** **Analog input extension module for modular energy meter**

for plugging into the basic device. Extension of the modular energy meter with 4x analog inputs for recording external measured variables and 2x digital outputs for outputting evaluation results. Power supply via the internal bus from the basic device.

Analog inputs

Quantity: 4

Nominal range: 0 .. 24 mA

Accuracy: 0.5 %

Compatible with the manufacturer's 2-channel residual current monitoring and analysis device.

Separate & optionally adjustable operating modes of the digital outputs with the operating modes "Remote control" with adjustable pulse width (0 to 99.99s) at a resolution of 0.01s and the operating mode "Alarm control".

Operating mode "Alarm control" with the following modes:

Alarm control modes "Input-related alarms" via the digital inputs of the digital input extension module for integrating external signals or alarm control mode "Alarm element" for controlling the outputs depending on a subsequent measured variable with adjustable parameters "Alarm value", "Hysteresis value" and "Delay time" (0 to 9999 in each case) as upper and lower limit values:

Available measured variables as "alarm elements"

- Phase currents and voltages (individual and phase-phase) incl. N conductor

- Active, reactive and apparent power values, power factor, frequency

- Harmonic currents and voltages in total (THD-I and THD-U) in % (should be like this; TBD)

- Voltage and current asymmetry

- Average current value, average mains and phase voltage and any mains voltage

Dimensions in mm (W x H x D): 36 x 90 x 63.5

Weight in g: 91

Division units: 2 TE

Foreign body and water protection; IP 20

Protection class: II

Operating altitude: < 2500 m above sea level

Relative humidity: 5 to 95 % at 25 °C (77 °F), non-condensing

Rated temperature range: -40 °C to +70 °C

Price group: 1

Delivery includes documentation.

Manufacturer: Janitza electronics GmbH

Type: Module 806-EI1

Item no.: 1402020

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| **Item no:** | 1402020 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.29.3** **Digital input extension module for modular energy meter**

for plugging into the basic device. Extension of the modular energy meter with 4x digital inputs for recording and monitoring external alarm messages, switch positions or limit value transmitters as well as 2x digital outputs for outputting evaluation results. Power supply via the internal bus from the basic device.

Digital inputs

Quantity: 4

Input type: potential-free contact

Sampling interval: 30 ms

Insulation: 2 kV AC

Min. pulse width: 5 ms

Max. Frequency: 30 ms

Separate & optionally adjustable operating modes of the digital outputs with the operating modes "Remote control" with adjustable pulse width (0 to 99.99s) at a resolution of 0.01s and the operating mode "Alarm control".

Operating mode "Alarm control" with the following modes:

Alarm control modes "Input-related alarms" via the digital inputs of the digital input extension module for integrating external signals or alarm control mode "Alarm element" for controlling the outputs depending on a subsequent measured variable with adjustable parameters "Alarm value", "Hysteresis value" and "Delay time" (0 to 9999 in each case) as upper and lower limit values:

Available measured variables as "alarm elements"

- Phase currents and voltages (individual and phase-phase) incl. N conductor

- Active, reactive and apparent power values, power factor, frequency

- Harmonic currents and voltages in total (THD-I and THD-U) in % (should be like this; TBD)

- Voltage and current asymmetry

- Average current value, average mains and phase voltage and any mains voltage

Dimensions in mm (W x H x D): 36 x 90 x 63.5

Weight in g: 82

Division units: 2 TE

Foreign body and water protection; IP 20

Protection class: II

Operating altitude: < 2500 m above sea level

Relative humidity: 5 to 95 % at 25 °C (77 °F), non-condensing

Rated temperature range: -40 °C to +70 °C

Price group: 1

Delivery includes documentation.

Manufacturer: Janitza electronics GmbH

Type: Module 806-ED1

Item no.: 1402019

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| **Item no:** | 1402019 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.30** **UMG 20CM**

**1.1.30.1** **Operating and residual current meter with 20 channels & memory**

for top-hat rail mounting.

Supply voltage 90-264V AC (50/60Hz) / 120-350V DC

Dimensions:

90,105x72, (6 TE) for 20 current transformer inputs for CT6-20, SCT-20, CT20, 4 voltage inputs

with continuous scanning of the voltage and current measurement inputs

Operating data:

Rated voltage (insulation coordination in accordance with IEC 60664-1) AC 300 V, rated impulse voltage 4 kV, overvoltage category III, pollution degree 3,

Supply voltage, AC/DC 70..276 V 50/60 Hz

Self-consumption 3 Watt

Monitored system

Instrument transformer types / transformation ratio:

Operating current measuring transformer: Splitcore SCT20 3000/1, CT-6-20 700/1, CT20 700/1

Residual current instrument transformers: CT-6-20 700/1, CT20 700/1

Measuring channels / evaluation:

Number of measuring channels: 24 (4x voltage L1, L2, L3, N / 20x current transformers)

Measured value acquisition: parallel, true RMS measurement (True RMS),

Sampling rate: (all channels) 20 kHz

Cut-off frequency: (all channels) 3 kHz

Current measurement channel function: individually configurable per channel as operating current or residual current

Measurements: Voltages / operating currents / residual currents

Evaluation: voltage, current, active power, apparent power,

Reactive power, phase shift, active energy, MIN and MAX, cost centers

Number of harmonics: 63.OS odd

Data transfer measured values: in V, A, kW, kVA, kVar, cosf, kWh

Operating current evaluation range: 0..63 A

Differential current evaluation range: 0..1000 mA

Connection monitoring: Each input has a converter connection check

Parameterization:

Parameterizable values per channel: Warning and response thresholds / hysteresis range for response thresholds,

Delay times: Delay of the warning and response messages: (0 .. 10 s)

Reset delay of the response and warning messages: tvr (0 .. 10 s)

Displays and messages:

Displays: 27 LEDs, 3 states per LED

Messages: LED / digital outputs / RS485

Digital outputs (open collector):

Quantity: 2

External wiring: Relay / PLC inputs

Output current max. / output 350 mA

External voltage source: (auxiliary voltage) UC 24 V

Communication interface / protocol:

Interface / protocol: RS485 (A.B,GND) not electrically isolated /

Modbus-RTU (slave) Setting range from 9600 baud to 921600 baud

Ambient conditions:

Ambient temperature (during operation): according to EN 61557-8: 1997

-5 .. +55°C

Ambient temperature (during storage): according to EN 61557-8: 1997

-25 .. +70°C

Climate class according to IEC 7213K5, without condensation and icing

Delivery included:

Installation accessories, documentation, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible residual current transformer set, configuration and parameterization of the device, delivery, installation and connection.

Make: Janitza electronics GmbH

Type: UMG20CM

Item no. 1401625

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| **Item no:** | 1401625 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.31** **Module 20CM-CT6**

**1.1.31.1** **6-channel active operating and residual current monitoring module**

as a modular extension of the manufacturer's 20-channel operating and residual current monitoring device for recording operating and residual current parameters via permanently installed current transformers, e.g. in 6x 1-phase, 2x 3-phase circuits or 3x 2-phase current systems, etc. Maximum expansion per basic device by 16 modules with 6 channels each, resulting in up to 96 channels.

Monitoring of total residual currents (e.g. L1,L2,L3,N) or individual residual currents (e.g. PE) of residual current TYPE A according to EN 62020:1998+A1:2005, (VDE 0663):2005 with independent, channel-related 2-stage limit value parameterization (warning and limit value) with separately parameterizable response delay and reset hysteresis, display of the status of the limit value monitoring via 6 two-colour LEDs as well as output and display of associated diagnostic variables and the device status via 2 two-colour LEDs and via the interface.

Suitable for measuring TN & TT networks as well as in IT networks for recording and monitoring operating and residual currents, frequency, active, apparent & reactive power and active energy per channel as well as in up to 3 freely definable summing channels (active power & active energy) in the frequency range from 45 to 65 Hz, power factor & cos phi per channel, magnitude and phase angle of the fundamental oscillation current, 4-quadrant measurement, continuous true RMS value measurement, minimum and maximum value memory incl. separate time stamps for operating currents and active power parameters.

Analysis channel for targeted analysis of the selected channel of the single-harmonic (even/odd) harmonic current up to the 63rd harmonic and percentage output (THD-I), crest factor of the current and total demand distortion (TDD).

Step-by-step selection of the measuring interval (1 to 60 minutes), storage of the measured values (127 days with a 15-minute measuring interval) and forwarding of the data to an evaluation system via the main device connected via CAN bus

Top-hat rail mounting, 119 x 47 x 45 mm (WxHxD), 7 HP, protection rating: IP 20, protection class: III, net weight: 170 g, heat loss: max. 2 W

Measuring accuracy according to EN 61557-12:

Operating and residual current: 0.5% / active, reactive and apparent power: 2% / power factor: 1%

Supply voltage (via CAN bus):

Nominal range: 24 V DC (± 10 %, PELV)

Current measurement:

Design: permanently installed feed-through transformers

Quantity: 6x

Inner diameter per transducer core: 9.5 mm

Gear ratio 700:1

Operating current measuring range: 2 mA to 63 A (AC)

Measuring range residual current: 2 mA to 1 A (AC)

Operating current measurement resolution: 0.5 mA

Differential current measurement resolution: 35 mA

Current transformer rated voltage AC 250 V

Current transformer rated frequency 50 Hz

Cut-off frequency 3.3 kHz

Monitoring functions:

Response delay range: 0 to 650 s

Reset delay range: 0 to 650 s

Resolution of delay parameters: 10 ms

Communication interfaces:

Interfaces: 2x CAN / CAN 2.0

Version: 2 x 6-pin IDC connector

Protocol: CANopen

To feed the supply voltage into the CAN bus and the CAN bus termination, one LCAN-RS45 adapter and one active power supply (24V DC / 1A) are required for each bus line with a maximum of 16 devices. (separate procurement)

Delivery includes: mounting accessories, documentation, parameterization and evaluation software in basic version with database, manual report generation, visualization and graphical measurement data display.

Manufacturer: Janitza electronics GmbH

Type: Module 20CM-CT6

Item no.: 1401626

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| **Item no:** | 1401626 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.31.2** **CAN bus supply and termination module**

To feed the supply voltage into the CAN bus system and the CAN bus termination, one adapter and one active power supply (24V DC / 1A) are required for each bus line with a maximum of 16 participants.

Compatible and approved with the manufacturer's 6-channel active operating and residual current monitoring modules and the main device.

Communication interfaces:

Interfaces: 2x CAN / CAN 2.0

Version: 2 x 6-pin IDC connector

Protocol: CANopen

Rated voltage: 24 V DC

Rated current: 1 A

Protection class: IP20

Ambient temperature (operation): -20 to +50 °C

Storage temperature: -25 to +55 °C

Altitude: 0 to 2000 m

Device dimensions in mm (W x H x D): 18 x 45 x 32

Division units: 1 TE

Weight: 25 g

Mounting type: Top-hat rail profile

Delivery includes: mounting accessories, documentation, parameterization and evaluation software in basic version with database, manual report generation, visualization and graphical measurement data display.

Manufacturer: Janitza electronics GmbH

Type: LCAN-RS45

Item no.: 0802447

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| **Item no:** | 0802447 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.31.3** **Compact switched-mode power supply unit for DIN rail mounting**

Input voltage: 100-240 V AC; -15% / +10%

Input frequency: 50 - 60 Hz

Input current: 0.54 A / 0.3 A

Peak inrush current: 18 A / 35 A

Output voltage: 24-28 V DC

Factory setting at nominal load :. 24.5 V DC

Output current: 1.3 A at 24 V DC; 1.1 A at 28 V DC

Output power: 30 W

Output ripple: max. 50 mVpp

Power factor: 0.52 / 0.49

Buffer time: 31 ms / 141 ms

Efficiency: 88.5 % / 89.4 %

Power loss: 4.1 W / 3.7 W

Operating temperature range: -10°C to +70°C

Power reduction: +60°C to +70°C with 0.8W / °C each

Storage temperature range: -40°C - +85°C

Protection class: IP 20

Protection class: I

Dimensions (WxHxD): 22.5 x 75 x 91 mm

Division units: 2 TE

Weight: 140 g

Delivery includes: mounting accessories, documentation

Manufacturer: Janitza electronics GmbH

Type: ML 30

Item no.: 1605012

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| **Item no:** | 1605012 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.32** **RCM 202-AB**

**1.1.32.1** **2-channel residual current monitoring and analyzing device with memory**

for recording, evaluating and monitoring residual currents of types A, B and B+ in accordance with IEC 62020 in TN and TT systems (earthed AC systems) using conventional feed-through or retrofittable residual current transformers (type A, B etc.) by means of a patented measuring method.

Possibility of visual or acoustic warning via external wiring when the residual current limit values are reached and forwarding of the exceedance via the communication interface to e.g. a building management system for permanent residual current monitoring.

Current transformer connection monitoring (open-circuit or short-circuit monitoring per channel), detection of sinusoidal AC residual currents with frequencies up to 20 kHz (type B+), detection of pure DC currents, measured value and extreme value memory with time stamp, true RMS measurement.

The following analysis variables are output:

Individual limit values for type A, type B, type B+ freely parameterizable

Individual frequencies for 1-2000Hz

Spectrum display for 2-20kHz

Measured value display and operation via two-colour LED display (128 x 64 pixels), 3-button operation, self-test and test display, user guidance freely selectable in German, English and Spanish, integrated Modbus RTU termination (120 Ohm) via switch, password-protected parameterization, storage of 18,725 data records (ring memory) with date and time.

Device dimensions (W x H x D): 71 x 90 x 73 (4 HP)

Net weight: 170 g,

Type: DIN rail installation device

Protection class according to EN 60529: IP20

Protection class: III (3)

Heat loss: max. 8 W

Operating temperature range: -10° C - +55° C (K55)

Temperature range transport & storage: -25° C - +70° C

Operating altitude: 0 to 2000 m

Supply voltage: 85 to 305 V AC ( 50 / 60 Hz )

Rated current Ib: 4 kA

Rated impulse voltage: 4 kV

Number of residual current monitoring channels: 2

Measuring range AC / DC: 10m A to 20 A

Response / reset delay: 10 ms to 10s

Number of digital outputs: 2

Switching voltage: max. DC 60 V, AC 30 V

Maximum current: 350 mA

Number of analog outputs: 2

Type analog outputs: 4 to 20 mA

Supply voltage of the analog outputs: DC 12 to 24 V (external)

Required decoupling: Galvanic, when using both outputs

Interface:

Type: RS485 interface

Protocol: Modbus RTU

Baud rate: 9.6 to 115.2 kbaud

Connection to higher-level systems (BMS) using all compatible Modbus gateway devices from the manufacturer.

Delivery included:

Installation accessories, documentation, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible residual current transformers, configuration and parameterization of the device, delivery, installation and connection.

Manufacturer: Janitza electronics GmbH

Type: RCM 202-AB

Art. No.: 1401627

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| **Item no:** | 1401627 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.32.2** **Web server extension residual current analysis**

for installation as an extension to the existing web server of the compatible devices using the manufacturer's parameterization and evaluation software.

Detailed residual current analysis, limit value parameterization and management of up to 16 residual current monitoring channels via up to 8 2-channel residual current monitoring and analysis devices connected via Modbus RTU. (External procurement)

Graphic display of current residual current measured values and set limit value parameters of types A, B, B+, direct voltage (DC) with instantaneous values including limit value lines and min/max values of up to 16 residual current channels.

Frequency analysis up to 20 kHz per monitoring channel as a bar chart for displaying the individual frequencies, alarm indicators (individual alarm and group alarm), generation of an internal test current after activation of the "virtual test button" for checking the residual current channels and associated alarms, alarm indicators for individual and group alarms by means of traffic light display, resetting of alarms and min/max measured values.

Configuration of static limit values as well as power-dependent, dynamic limit values in combination with a power measurement of the manufacturer connected via Modbus RTU for each monitoring channel.

Connection configuration of the externally connected measuring devices (Modbus RTU addresses and assignment of system-related measuring point names for unique identification of the measuring points.

Activation of external alarm outputs of the manufacturer's 2-channel residual current monitoring and analysis devices connected via Modbus RTU (separate procurement).

Compatible with the manufacturer's devices with expandable web server, memory and Ethernet interface.

Delivery included:

Documentation, adaptation of the design to the practical application and the measured variables including their recording intervals, configuration and parameterization of the application, delivery and installation.

Manufacturer: Janitza electronics GmbH

Type: RCM analysis application

Item no.: 5100312

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| **Item no:** | 5100312 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.33** **RCM 201-Rogo**

**1.1.33.1** **Residual current monitoring device according to DIN EN 62020 with Rogowski coil**

for recording, evaluating and monitoring type A residual currents, standard-compliant in accordance with DIN EN 62020/VDE 0663/IEC 62020, as total residual current (L1, L2, L3, N) or PE residual current (ZEP or PE outgoing circuit).

Initial installation or retrofitting on busbars or single or multiple, also parallel, cable feeds with increased overall diameter without splitting up the installation.

Operation as Modbus RTU slave or operation in connection via analog outputs to universal measuring devices of the same make with residual current measuring input.

Not compatible with operating current and RCM measuring device with 20 channels and 2-channel residual current monitoring and analysis device.

Configuration of the measuring range via the programming switch or via the communication interface as well as display of the set measuring range and the active programming mode on the front of the device via colored status LEDs.

Separate digital output for diagnostics when the set measuring range is exceeded with a 10 s delay and visualization of the error by means of a coloured LED on the front of the device as well as a test button for testing the diagnostic output.

Configuration of the communication settings via the communication interface and output of the measured values and device settings.

Set consisting of external Rogowski coil and residual current monitoring device as signal converter.

Connection of a Rogowski coil via mini-Din connector with the following diameter of the closed coil:

120, 200, 290, 390, 580 mm

Length of the Rogowski coil connection cable: 3 m

Lock type: Bayonet, locking latching

Overload current (max. 1s): 100 kA

Coil protection class: IP67

Overvoltage category: CAT 3 1000Vrms, CAT 4 600Vrms

Residual current monitoring device (signal converter):

Supply voltage: 24 V DC (+-20 %)

Current consumption nominal operation: 0.1 A

Residual current detection Types: Type A

Measured value deviation: max. 2% depending on measuring range end value

Measuring ranges residual currents:

0.1 to 5 A AC

0.2 to 10A AC

0.5 to 25 A AC

2.5 to 125 A AC

Transformer ratios:

5A AC / 0.04 A = 125 / 1

10A AC / 0.04 A = 250 / 1

25A AC / 0.04 A = 625 / 1

125A AC / 0.04 A = 3125 / 1

Overload current (max. 1s): 100 kA

Analog outputs:

Number of analog outputs: 1

Output current: 0 - 40 mA

Digital outputs:

Digital output type: potential-free transistor output (NC/NO)

Switching current / voltage: 100 mA effective / 24 V DC

Number of digital limit value outputs: 1

Number of digital diagnostic outputs: 1

Interfaces:

Quantity: 1

Type: RS485

Protocols: Modbus RTU

Installation: DIN rail mounted appliance

Dimensions in mm (W x H x D): 22.5 x 100 x 110

Division units: 1 TE

Weight in g: 200

Delivery included:

Installation accessories, documentation, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible residual current transformer set, configuration and parameterization of the device, delivery, installation and connection.

Rogowski coil diameter (120, 200, 290, 390, 580

mm): '.........' mm

Make: Janitza electronics GmbH

Type: RCM 201-Rogo + Rogo coil

|  |  |  |  |  |  |
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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.34** **ProData 2**

**1.1.34.1** **ProData 2 data logger**

- Auxiliary voltage 20V - 250V AC (45..65Hz) or

20V - 300V DC

- 1 RS 485 interface (Modbus RTU, slave,

up to 115 kbps)

- 1 Ethernet interface (Modbus TCP, NTP)

- 15 digital / pulse inputs (24VDC)

- 3 digital outputs (24V/50mA), switchable via Modbus,

Weekly timer,

- 1 temperature measurement input (PT100/PT1000)3-wire

- 32 MB flash memory

- Clock and battery function

- 64 Weekly timers

- Limit value and temperature monitoring

- Tariff switching

- Modbus Ethernet gateway functionality

- Storage of minimum and maximum values

(with time stamp)

- Configurable recordings, via RS485 and

Ethernet readable

- Mounting on top-hat rail (35mm)

- Dimensions: 107.5 x 90 x 46 mm (6 HP)

- CE and UL compliant

Delivery included:

Installation accessories, documentation, adaptation of the design to the practical application and the measured variables including their recording intervals, compatible residual current transformer set, configuration and parameterization of the device, delivery, installation and connection.

Make: Janitza electronics GmbH

Type: ProData 2

Item no.: 5224011

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| **Item no:** | 5224011 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.35** **System descriptions & information texts**

**General description of the system**

Multimodal load management system with monitoring, function and system technology to automate, visualize and optimize the interaction of energy procurement, self-generation, e-mobility charging infrastructure, battery storage and energy consumption of companies, buildings, objects and systems.

The system continuously calculates the average value, instantaneous value, trend value and correction power within the power supply unit measuring period. If the device detects that the maximum power may be exceeded, it uses the set load data to check whether loads need to be switched off, taking this data into account. The aim of this method is to minimize the number of switching operations while still maintaining the specified setpoint.

By means of measurement, regulation, control and switching strategies with load group priorities to be defined, an optimized operating state is created and, depending on requirements, load peaks are reduced, self-consumption of self-produced energy is increased and charging capacities for electromobility are made more flexible, thus ensuring maximum effectiveness, efficiency, safety and cost-effectiveness of the energy supply. Load management systems are part of operational energy management (ISO-50001 or energy audits).

The system interacts with the various components and consumers via standardized interfaces or digital and analogue inputs/outputs and influences the consumption and charging behaviour through variable control and switching strategies.

Several control strategies or optimization targets can be pursued simultaneously, which are processed in parallel interlocking program blocks, for which different internal or external setpoint specifications apply, and for which the control behaviour can be individually influenced by parameters such as priorities, switching intervals, min/max values, etc.

Main functions of the system

Basic functions / main applications of the system:

* Flexible peak load optimization with predictive trend value calculation
* Comprehensive energy data management and energy monitoring
* Alarm functions

Optional modules for expansion:

* Dynamic charging point load management for electromobility
* Monitoring, control and self-consumption optimization of PV systems
* Optimized operation of battery storage systems

Consisting of:

* Load management controller
* Network visualization software

**General description of the hardware & options**

Depending on requirements, various controllers with different basic functions and different modular expansion options are available.

Load management controller variant "LITE"

Measure, monitor, optimize, control and visualize PV systems, e-charging infrastructure for electromobility and e-storage systems with up to 16 configurable controls and load groups. The trend value calculation to avoid peak loads ensures an optimized energy supply for medium-sized and larger buildings, businesses and properties.

Up to 8 external meters can be linked in the system via MBUS / Modbus-RTU / -TCP to read out the data

Load management controller

Measure, monitor, optimize, control and visualize PV systems, e-charging infrastructure for electromobility and battery storage with up to 128 configurable controllers and load groups. The trend value calculation to avoid peak loads ensures an optimized energy supply for medium-sized and larger buildings, businesses and properties.

Up to 20 external meters can be linked in the system via MBUS / Modbus-RTU / -TCP to read out the data.

Energy management controller

Measure, monitor, optimize and visualize PV systems, e-charging infrastructure for electromobility and battery storage systems. Acquisition of measurement data for communication to the load management controller.

Up to 40 external measuring points can be linked in the system via MBUS, Modbus-RTU / TCP to record the data.

**General description Software**

Parameterization and network visualization software Edition "Expert" in full version as expert software for parameterization and evaluation as a project-related license with the following system functions:

* Device configuration
* Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.
* Automation time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch
* Device monitoring Monitoring of software devices Communication
* Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting
* Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)
* and other functions.

**Functional description of peak load management**

to avoid peak loads through consumer control and load shifting in energy storage as well as in the integration of charging infrastructure for electromobility and the integration of PV energy.

* Predictive trend value calculation and regulation of consumers
* Support for atypical grid usage
* Prioritized load groups and regulations
* Integration of energy storage to avoid power peaks
* Communication and control of load groups

Optional software extension by 8 load groups each via DDC gateway to the building management system (KNX). To be used from the 9th load group.

**1.1.36** **System with max. 16 load groups**

**1.1.36.1** **Load management system with max. 16 load groups**

including load management controller, parameterization and network visualization software Edition "Expert" and upstream/downstream services for linking and networking electrical consumers by means of switching, control and regulation strategies integrating a wide range of process data.

Basic functions / main applications of the system:

* Flexible peak load optimization with predictive trend value calculation
* Comprehensive energy data management and energy monitoring
* Alarm functions

Optional modules for expansion:

* Dynamic charging point load management for electromobility
* Monitoring, control and self-consumption optimization of PV systems
* Optimized operation of battery storage systems

Features Hardware:

Switching the load groups on and off with priorities to be defined, 8 consumer outputs (24VDC) expandable to 16 individually parameterizable consumer groups via bus substations and recording of digital statuses, S0 pulse inputs and analogue measured values for integration into the load management system controls.

4 GB internal memory for long-term data storage and configuration backup in secure memory area readable via USB 2.0 interface, hardware clock with battery backup and automatic summer/winter switchover as well as automatic restart after power failure

EVU working and synchronous pulse with tariff switching, savings evaluation via I/Os, 8 tariffs (summer/winter HT/NT) and variable EVU measuring period duration (1-60 minutes).

Switchable parameter sets of the load groups for changing operating states,

2nd setpoint curve for controlling different load groups and emergency stop function for switching off all load groups.

Extended peak load function by linking parameterizable switching times of the load groups and free controls based on changed operating states.

Connection of kitchen appliances via consumer outputs, recording of status feedback via digital inputs.

Integrated eco-controller function for using the energy surplus for PV self-consumption, evaluation of consumers with pulse width modulation, connection of up to 8 grid feed-in meters via slave controller.

Modbus master function for connecting lower-level Modbus slave devices,

Master / slave function for networking several controllers in a system network.

Connection to external systems via Modbus-TCP, WatchDog system monitoring, transmission of switching commands to EIB/KNX systems and e-mail alarm transmission directly from the controller for system monitoring.

Technical data:

* Power supply: 100 - 240VAC / 50 - 60Hz 9 - 15VA
* Pluggable screw terminals (max. 2.5mm2)
* LCD graphic display, backlit (approx. 64 x 20mm)
* 9-button panel for operation on the controller
* 4 GB micro SD card for long-term data storage
* 8MB flash memory for system parameters
* Hardware clock with battery backup
* 12x digital inputs 24VDC, 8mA verz. 10mS (25Hz.)
* optional 8 of which can be used as outputs 24VDC/25mA
* Status LEDs for inputs / outputs
* 04x analog inputs optionally 0-10V (0(4) -20mA, Pt1000, Ni1000
* 01x RS-232 / 1x RS-485 (Modbus RTU) on screw terminals
* 01x USB 2.0 Mini-B
* 01x Ethernet TCP/IP 100BaseT (Modbus RTU v. TCP/IP) on RJ-45
* ABS plastic housing for DIN rail mounting (45 mm)
* WxHxD 210x100x72mm (12TE)
* CE-certified
* EMC-tested; for conformity see data sheet
* Protection class IP20
* Weight approx. 550 g
* Operating temperature 0 to +50°, no condensation
* Storage temperature -20 to +60° C

Software features:

Full version as expert software for parameterization and evaluation as a project-related license. Only excerpts of the software functions are described.

System functions:

* Device configuration
* Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.
* Automation time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch
* User administration User and rights assignment
* Active Directory API for Windows directory service
* Device monitoring Monitoring of software devices Communication
* Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting
* Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)
* Visualization applications:
* Live data monitoring
* Device overview with list search and filter function
* Dashboards & templates editor for creating visualizations
* Widget basic package (line, pie and bar charts, live values)
* Expert widgets (heatmap, key figures, Sankey, weather)
* Sankey diagram Volume flow diagram for live and historical values
* Create and evaluate key performance indicators (KPIs)

Reports & Documentation

* Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)
* Data import CSV
* Data import MSCONS
* Modbus third-party devices (TCP & RS485)
* OPC UA Client (integration of OPC UA Server for access to additional measurement and energy data, production data and economic figures)
* REST API interface for developers and application engineers to access live and historical values
* MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Make: Janitza electronics GmbH

Type: Procont®-LMC-LITE + software

Item no.: Item no.: 6000301 + 6000311 + 6000323 + 5100701

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| **Item no:** | 6000301 + 6000311 + 6000323 + 5100701 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.37** **System with max. 128 load groups**

**1.1.37.1** **Load management system with max. 128 load groups**

including load management controller, parameterization and network visualization software Edition "Expert" and upstream/downstream services for linking and networking electrical consumers by means of switching, control and regulation strategies integrating a wide range of process data.

Basic functions / main applications of the system:

* Flexible peak load optimization with predictive trend value calculation
* Comprehensive energy data management and energy monitoring
* Alarm functions

Optional modules for expansion:

* Dynamic charging point load management for electromobility
* Monitoring, control and self-consumption optimization of PV systems
* Optimized operation of battery storage systems

Features Hardware:

Switching the load groups on and off with priorities to be defined, 8 consumer outputs (24VDC) expandable to 128 individually parameterizable consumer groups via bus substations and recording of digital statuses, S0 pulse inputs and analogue measured values for integration into the load management system controls.

4 GB internal memory for long-term data storage and configuration backup in secure memory area readable via USB 2.0 interface, hardware clock with battery backup and automatic summer/winter switchover as well as automatic restart after power failure

EVU working and synchronous pulse with tariff switching, savings evaluation via I/Os, 8 tariffs (summer/winter HT/NT) and variable EVU measuring period duration (1-60 minutes).

Switchable parameter sets of the load groups for changing operating states,

2nd setpoint curve for controlling different load groups and emergency stop function for switching off all load groups.

Extended peak load function by linking parameterizable switching times of the load groups and free controls based on changed operating states.

Connection of kitchen appliances via consumer outputs, recording of status feedback via digital inputs.

Integrated eco-controller function for using the energy surplus for PV self-consumption, evaluation of consumers with pulse width modulation, connection of up to 8 grid feed-in meters via slave controller.

Modbus master function for connecting lower-level Modbus slave devices,

Master / slave function for networking several controllers in a system network.

Connection to external systems via Modbus-TCP, WatchDog system monitoring, transmission of switching commands to EIB/KNX systems and e-mail alarm transmission directly from the controller for system monitoring.

Technical data:

* Power supply: 100 - 240VAC / 50 - 60Hz 9 - 15VA
* Pluggable screw terminals (max. 2.5mm2)
* LCD graphic display, backlit (approx. 64 x 20mm)
* 9-button panel for operation on the controller
* 4 GB micro SD card for long-term data storage
* 8MB Flash memory for system parameters
* Hardware clock with battery backup
* 12x digital inputs 24VDC , 8mA verz. 10mS (25Hz.)
* optionally 8x of which can be used as outputs 24VDC/25mA
* Status LEDs for inputs / outputs
* 04x analog inputs optionally 0-10V (0(4) - 20mA, Pt1000, Ni1000
* 01x RS-232 / 1x RS-485 (Modbus RTU) on screw terminals
* 01x USB 2.0 Mini-B
* 01 x Ethernet TCP/IP 100BaseT (Modbus RTU v. TCP/IP) on RJ-45
* ABS plastic housing for DIN rail mounting (45 mm)
* WxHxD 210x100x72mm (12TE)
* CE-certified
* EMC-tested; for conformity see data sheet
* Protection class IP20
* Weight approx. 550 g
* Operating temperature 0 to +50°, no condensation
* Storage temperature -20 to +60° C

Software features:

Full version as expert software for parameterization and evaluation as a project-related license. Only excerpts of the software functions are described.

System functions:

* Device configuration
* Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.
* Automation time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch
* User administration User and rights assignment
* Active Directory API for Windows directory service
* Device monitoring Monitoring of software devices Communication
* Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting
* Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)

Visualization applications:

* Live data monitoring
* Device overview with list search and filter function
* Dashboards & templates editor for creating visualizations
* Widget basic package (line, pie and bar charts, live values)
* Expert widgets (heatmap, key figures, Sankey, weather)
* Sankey diagram Volume flow diagram for live and historical values
* Create and evaluate key performance indicators (KPIs)
* Reports & Documentation
* Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)
* Data import CSV
* Data import MSCONS
* Modbus third-party devices (TCP & RS485)
* OPC UA Client (integration of OPC UA Server for access to additional measurement and energy data, production data and economic figures)
* REST API interface for developers and application engineers to access live and historical values
* MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Make: Janitza electronics GmbH

Type: Procont®-LMC + software

Item no.: 6000300 + 6000355 + 6000323 + 5100701

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| **Item no:** | 6000300 + 6000355 + 6000323 + 5100701 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.38** **Hardware expansion of the systems**

**1.1.38.1** **Communication extension load management system**

including energy management controller to expand the connectivity of the load management system.

Basic functions / main applications of the system:

* Slave extension of the load management system
* Decentralized periphery for switching load groups
* Accepts up to 40 additional external meters via MBUS / Modbus-RTU / -TCP for reading out the data

Optional modules for expansion:

* Dynamic charging point load management for electromobility
* Monitoring, control and self-consumption optimization of PV systems
* Optimized operation of battery storage systems

Features Hardware:

8 consumer outputs (24VDC) Recording of digital statuses, S0 pulse inputs and analog measured values for integration into the load management controller.

4 GB internal memory for long-term data storage and configuration backup in secured memory area readable via USB 2.0 interface, hardware clock with battery backup and automatic summer/winter switchover as well as automatic restart after power failure

Integrated eco-controller function for using the energy surplus for PV self-consumption.

Modbus master function for connecting lower-level Modbus slave devices,

Slave function for networking with load management controller in the system network.

Connection to external systems via Modbus-TCP, WatchDog system monitoring.

Technical data:

* Power supply: 100 - 240VAC / 50 - 60Hz 9 - 15VA
* Pluggable screw terminals (max. 2.5mm2)
* LCD graphic display, backlit (approx. 64 x 20mm)
* 9-button panel for operation on the controller
* 4 GB micro SD card for long-term data storage
* 8MB flash memory for system parameters
* Hardware clock with battery backup
* 12x digital inputs 24VDC , 8mA verz. 10mS (25Hz.)
* optionally 8x of which can be used as outputs 24VDC/25mA
* Status LEDs for inputs / outputs
* 04x analog inputs optionally 0-10V (0(4) - 20mA, Pt1000, Ni1000
* 01x RS-232 / 1x RS-485 (Modbus RTU) on screw terminals
* 01x USB 2.0 Mini-B
* 01 x Ethernet TCP/IP 100BaseT (Modbus RTU v. TCP/IP) on RJ-45
* ABS plastic housing for DIN rail mounting (45 mm)
* WxHxD 210x100x72mm (12TE)
* CE-certified
* EMC-tested; for conformity see data sheet
* Protection class IP20
* Weight approx. 550 g
* Operating temperature 0 to +50°, no condensation
* Storage temperature -20 to +60° C

Make: Janitza electronics GmbH

Type: Procont®-EMC

Item no.: 6000302 + 6000312

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| **Item no:** | 6000302 + 6000312 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.38.2** **Digital input / output module for load management system**

including controller for expanding the inputs/outputs of the load management system.

Basic functions / main applications of the system:

* Expansion of the load management system
* Decentralized periphery for switching load groups

Features Hardware:

Modbus slave function for networking with load management controller in the system network via Ethernet.

Technical data:

* Power supply: 24VDC / 150mA / 4VA
* Pluggable screw terminals (max. 2.5mm2)
* LCD display, backlit
* 2-axis joystick for operation on the controller
* 8MB Flash memory for system parameters
* 4x digital inputs 24VDC 10mA verz. 10mS (25Hz.)
* 8x digital relay outputs 250VAC / 6A (not short-circuit proof)
* Status LEDs for inputs / outputs
* 8x manual/automatic dip switches
* 1x RS-485 (Modbus RTU) on screw terminals
* 1 x Ethernet TCP/IP 100BaseT (Modbus RTU v. TCP/IP) on RJ-45
* ABS plastic housing for DIN rail mounting (45mm)
* WxHxD 105x86x60mm (6TE)
* CE-certified
* EMC-tested; for conformity see data sheet
* Protection class IP20
* Weight approx. 300 g
* Operating temperature 0 to +40°, no condensation
* Storage temperature -20 to +60° C

Make: Janitza electronics GmbH

Type: Procont®-LMC-008-IO

Item no.: 6000303

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| **Item no:** | 6000303 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.39** **Optional firmware extensions E-Mobility**

**1.1.39.1** **Basic extension "Regulation for the charging infrastructure"**

Charging and load management for connection for data exchange and active control of charging stations via RS-485 Modbus-RTU or Modbus TCP/IP.

* Dynamic charging and load management at one or more measuring points
* Use of surplus electricity from PV system
* Connection of charging stations individually or using the master/slave principle
* Charging with the inclusion of flexible electricity tariffs
* Time-controlled loading with prioritization

This extension is a basic requirement for the "Connection per charging point" extension.

The "Connection per charging point" extension is required at least once for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-EMOB

Item no.: 6000305

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| **Item no:** | 6000305 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.39.2** **Extension "Connection per charging point"**

For connecting 1x charging point to the basic extension "Regulation for the charging infrastructure".

In the load management system for 16 load groups, a maximum of 16 charging points and in the system for 128 load groups a maximum of 32 charging points can be linked and dynamically controlled (0-100%).

This extension is required for each charging point. The basic extension "Control for the charging infrastructure" is required for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-MBTCP-LS-1

Item no.: 6000309

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| **Item no:** | 6000309 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.40** **Optional firmware extensions for photovoltaics**

**1.1.40.1** **Basic extension "Photovoltaic self-consumption optimization"**

Extension for connecting PV systems. Connection for data exchange and active control of inverters via Modbus TCP/IP. Connection of various inverter manufacturers possible. (Compatibility list available from the manufacturer)

Optimized use of self-generated electricity by the PV system, operation of charging stations depending on PV generation and charging the storage system with surplus electricity from the PV system, etc.

This extension is a basic requirement for the extensions from the "Photovoltaics" function area. The "Inverter connection" extension is required at least once for each system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-PSO

Item no.: 6000350

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**1.1.40.2** **Extension "Wechelrichter connection"**

A maximum of 8 inverters can be linked in the load management system for 16 load groups and a maximum of 20 inverters in the system for 128 load groups.

This extension is required for each inverter. The basic extension "Photovoltaic self-consumption optimization" is required for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-MBTCP-INV-1

Item no.: 6000308

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.40.3** **Extension "Feed-in management for inverters"**

Extension for integrating the PV system in order to comply with the necessary specifications of the grid operator with regard to active power limitation. Active power control of the entire PV system according to the grid operator's specifications (100% / 60% / 30% / 0%).

The basic extension "Photovoltaic self-consumption optimization" and the extension "Inverter connection" are required for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-INV-M

Item no.: 6000307

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| **Item no:** | 6000307 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.40.4** **Extension "Photovoltaic telecontrol connection"**

Extension for telecontrol connection for online data exchange between the grid operator/utility company and the load management system via IEC 60870-5-101 (Balanced) or IEC 60870-5-104 (Server).

The basic extension "Photovoltaic self-consumption optimization" and the extension "Inverter connection" are required for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-PV-REM

Item no.: 6000316

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| **Item no:** | 6000316 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.41** **Optional firmware extensions for battery storage**

**1.1.41.1** **Basic extension "Control for battery storage"**

for surplus-controlled charging and discharging as well as load shifting to ensure maximum charging power at high loads on the house connection as a firmware extension.

This extension is a basic requirement for the "Connection per charging point" extension.

The "Connection per charging point" extension is required at least once for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-ES

Item no.: 6000306

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| **Item no:** | 6000306 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.41.2** **Extension "Connection per battery storage system"**

For connecting 1x battery storage to the basic extension "Control for battery storage".

In the load management system for 16 load groups, a maximum of 16 battery storage systems and in the system for 128 load groups, a maximum of 32 battery storage systems can be linked and dynamically controlled (charging/discharging).

This extension is required for each battery storage system. The basic extension "Control for battery storage" is required for the system function.

Make: Janitza electronics GmbH

Type: Procont®-LEMC-MBTCP-ES-1

Item no.: 6000356

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| **Item no:** | 6000356 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.42** **Services**

**1.1.42.1** **Design & commissioning of load management system**

Conceptualization

* Clarification of all system-relevant data with the planner or operator
* Creation of a project schematic with representation of the integrated components, such as controllers, meters, consumers, etc.
* Determination of the controllers and accessories to be used
* Concept for ensuring system operation even if the load management system fails
* Textual overview of the required tasks.

Creation of specifications

* Detailed explanation of the required functions
* Description of the network topology
* Definition of all limit values and parameter settings.
* Definition of the visualization screen masks
* Definition of IP addresses and database settings
* Other interfaces and agreements

Programming / parameterization load management system

* Installing the network visualization software
* Programming/parameterization of the controllers
* Adaptations to existing PLC controls as required
* Setting up and licensing the network visualization software
* Reading all meters into the system
* Creation of the visualization interface
* Setting up the reporting system
* Setting up other required functions

Commissioning

* Commissioning of cross-device communication
* Parameterization of the measuring devices
* Necessary coordination with the manufacturers of the connected devices, such as inverters, battery storage systems, charging stations, etc.
* Parameterization of the connected devices, such as inverters, battery storage systems, charging stations, etc., as required.
* Commissioning and testing the overall function
* Documentation of commissioning & functional tests
* User training for operators
* Handover of the system to the operator

Documentation

* Creation of circuit diagrams using EPLAN
* If required: Adaptation of existing circuit diagrams using EPLAN
* Transfer of circuit diagrams in editable form
* Project-specific user manual
* Project-specific backup files of all system configurations

At the start of the project, a detailed coordination of the project scope with the client is necessary to adjust the scope of services.

The scope of services described above serves as an initial guide; additional expenses will be charged additionally.

Travel costs / overnight stays will be charged additionally at cost.

Make: Janitza electronics GmbH

Type: Service

Item no.: 9000010

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| **Item no:** | 9000010 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.42.2** **Maintenance & Service Load management**

* Support of the system on site or via remote access
* Analysis and adjustment of parameters after commissioning
* Regular analysis and adjustment of parameters

Travel costs / overnight stays will be charged additionally at cost.

The exact scope must be agreed.

Make: Janitza electronics GmbH

Type: Service

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.42.3** **Mileage allowance with travel time**

Travel costs for commissioning / services include one journey to and one departure from the place of performance of the services, incl. mileage allowance, working time for the technician's arrival and departure. The number of necessary arrivals and departures per project must be agreed individually when the services are commissioned.

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101115

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| **Item no:** | DL5101115 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.43** **Extended services**

**1.1.43.1** **Switch cabinet construction for load management system**

* Project-specific switch cabinet construction
* Assembly and installation of the control cabinets
* Extension or conversion of existing switch cabinets and sub-distributors
* Creating or extending cable routes
* Cable and line laying and connection
* Creation of circuit diagrams using EPLAN
* Transfer of circuit diagrams in editable form

The aforementioned services are only valid in combination with the manufacturer's load management systems.

The exact scope must be agreed.

Make: Janitza electronics GmbH

Type: Service

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.44** **Edition "Standard"**

**1.1.44.1** **Parameterization and network visualization software Edition "Standard 10"**

in Edition "Standard" with basic functions for parameterization and evaluation as a project-related license.

- 10 items (devices, users, data imports)

- incl. 12 months update period

- Unlimited telephone support

- Desktop & Service installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automation of time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Device monitoring Monitoring of software devices Communication

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 10

Item no.: 5100601

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| **Item no:** | 5100602 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.44.2** **Parameterization and network visualization software Edition "Standard 25"**

in Edition "Standard" with basic functions for parameterization and evaluation as a project-related license.

- 25 items (devices, users, data imports)

- incl. 12 months update period

- Unlimited telephone support

- Desktop & Service installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automation of time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Device monitoring Monitoring of software devices Communication

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 25

Item no.: 5100602

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| **Item no:** | 5100602 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.44.3** **Parameterization and network visualization software Edition "Standard 50"**

in Edition "Standard" with basic functions for parameterization and evaluation as a project-related license.

- 50 items (devices, users, data imports)

- incl. 12 months update period

- Unlimited telephone support

- Desktop & Service installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automated time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Device monitoring Monitoring of software devices Communication

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 50

Item no.: 5100603

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| **Item no:** | 5100603 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.44.4** **Parameterization and network visualization software Edition "Standard 100"**

in Edition "Standard" with basic functions for parameterization and evaluation as a project-related license.

- 100 items (devices, users, data imports)

- incl. 12 months update period

- Unlimited telephone support

- Desktop & Service installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automation of time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Device monitoring Monitoring of software devices Communication

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 100

Item no.: 5100604

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| **Item no:** | 5100604 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.45** **Edition "Expert"**

**1.1.45.1** **Parameterization and network visualization software Edition "Expert 10"**

in full version as expert software for parameterization and evaluation as a project-related license.

- 10 items (devices, users, data imports)

- Incl. 12 months update period

- Unlimited telephone support

- Desktop & Service Installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automation of time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Active Directory API for Windows directory service

- Device monitoring Monitoring of software devices Communication

- Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting

- Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

- Expert widgets (heatmap, key figures, Sankey, weather)

- Sankey diagram Volume flow diagram for live and historical values

- Create and evaluate key performance indicators (KPIs)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

- Modbus third-party devices (TCP & RS485)

- OPC UA Client (integration of OPC UA Server for access to further measurement and energy data, production data and economic figures)

- REST API interface for developers and application engineers to access live and historical values

- Data export Comtrade format for events and transients

- MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 10

Item no.: 5100701

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| **Item no:** | 5100701 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.45.2** **Parameterization and network visualization software Edition "Expert 25"**

in full version as expert software for parameterization and evaluation as a project-related license.

- 25 items (devices, users, data imports)

- Incl. 12 months update period

- Unlimited telephone support

- Desktop & Service Installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automation of time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Active Directory API for Windows directory service

- Device monitoring Monitoring of software devices Communication

- Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting

- Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

- Expert widgets (heatmap, key figures, Sankey, weather)

- Sankey diagram Volume flow diagram for live and historical values

- Create and evaluate key performance indicators (KPIs)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

- Modbus third-party devices (TCP & RS485)

- OPC UA Client (integration of OPC UA Server for access to further measurement and energy data, production data and economic figures)

- REST API interface for developers and application engineers to access live and historical values

- Data export Comtrade format for events and transients

- MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 25

Item no.: 5100702

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| **Item no:** | 5100702 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.45.3** **Parameterization and network visualization software Edition "Expert 50"**

in full version as expert software for parameterization and evaluation as a project-related license.

- 50 items (devices, users, data imports)

- Incl. 12 months update period

- Unlimited telephone support

- Desktop & Service Installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automation of time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Active Directory API for Windows directory service

- Device monitoring Monitoring of software devices Communication

- Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting

- Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

- Expert widgets (heatmap, key figures, Sankey, weather)

- Sankey diagram Volume flow diagram for live and historical values

- Create and evaluate key performance indicators (KPIs)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

- Modbus third-party devices (TCP & RS485)

- OPC UA Client (integration of OPC UA Server for access to further measurement and energy data, production data and economic figures)

- REST API interface for developers and application engineers to access live and historical values

- Data export Comtrade format for events and transients

- MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 50

Item no.: 5100703

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| **Item no:** | 5100703 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.45.4** **Parameterization and network visualization software Edition "Expert 100"**

in full version as expert software for parameterization and evaluation as a project-related license.

- 100 items (devices, users, data imports)

- Incl. 12 months update period

- Unlimited telephone support

- Desktop & Service Installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automated time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Active Directory API for Windows directory service

- Device monitoring Monitoring of software devices Communication

- Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting

- Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

- Expert widgets (heatmap, key figures, Sankey, weather)

- Sankey diagram Volume flow diagram for live and historical values

- Create and evaluate key performance indicators (KPIs)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

- Modbus third-party devices (TCP & RS485)

- OPC UA Client (integration of OPC UA Server for access to further measurement and energy data, production data and economic figures)

- REST API interface for developers and application engineers to access live and historical values

- Data export Comtrade format for events and transients

- MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 100

Item no.: 5100704

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| **Item no:** | 5100704 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.45.5** **Parameterization and network visualization software Edition "Expert 250"**

in full version as expert software for parameterization and evaluation as a project-related license.

- 250 items (devices, users, data imports)

- Incl. 12 months update period

- Unlimited telephone support

- Desktop & Service Installation (unlimited installation)

System functions:

- Device configuration

- Logic virtual device and cost centers

- Database management driver for MSSQL and MySQL, database actions: Create backup, summarize data, exchange measuring devices, and much more.

- Automated time synchronization, automated execution of data exports, database actions, measurement memory readout, e-mail dispatch

- User administration User and rights assignment

- Active Directory API for Windows directory service

- Device monitoring Monitoring of software devices Communication

- Alarm management Monitoring of energy consumption and measurement data, communication and much more, escalation level management, web and e-mail alerting

- Online recorder Recording of measurement data (e.g. for third-party devices and measuring devices without memory, OPC UA client)

Visualization applications:

- Device overview with list search and filter function

- Event Transients Browser Time course and evaluation of network events

- Dashboards & templates editor for creating visualizations

- Widget basic package (line, pie and bar charts, live values)

- Expert widgets (heatmap, key figures, Sankey, weather)

- Sankey diagram Volume flow diagram for live and historical values

- Create and evaluate key performance indicators (KPIs)

Reports & Documentation

- Basic data exports (commissioning, EN50160, voltage quality analysis, CSV export, energy report)

- RCM data exports (RCM Report)

- PQ data exports (high availability report, LET report, EN50160 annual evaluation)

- EnMS data exports (utilization report, energy bill)

Connectivity

- Data import CSV

- Data import MSCONS

- Modbus third-party devices (TCP & RS485)

- OPC UA Client (integration of OPC UA Server for access to further measurement and energy data, production data and economic figures)

- REST API interface for developers and application engineers to access live and historical values

- Data export Comtrade format for events and transients

- MSCONS data export for energy data

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 250

Item no.: 5100705

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| **Item no:** | 5100705 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.46** **Extensions of the "Items"**

**1.1.46.1** **Item extension 10 Edition "Standard"**

to extend an existing license of the "Standard" type by an additional 10 items. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope of the extension:

- 10 items (devices, users, data imports)

- Incl. 12 months update period

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard Extension Items 10

Item no.: 5100621

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.46.2** **Item extension 25 Edition "Standard"**

to extend an existing license of the "Standard" type by an additional 25 items. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope of the extension:

- 25 items (devices, users, data imports)

- Incl. 12 months update period

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard Extension Items 25

Item no.: 5100622

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| **Item no:** | 5100622 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.46.3** **Item extension 50 Edition "Standard"**

to extend an existing license of the "Standard" type by an additional 25 items. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope of the extension:

- 50 items (devices, users, data imports)

- Incl. 12 months update period

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard Extension Items 50

Item no.: 5100623

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| **Item no:** | 5100623 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.46.4** **Item extension 10 Edition "Expert"**

to extend an existing license of the "Expert" type by an additional 10 items. The upgrade period is offset against the existing license upgrade period and the total number of items and credited to the license.

Scope of the extension:

- 10 items (devices, users, data imports)

- Incl. 12 months update period

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert Extension Items 10

Item no.: 5100721

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| **Item no:** | 5100721 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.46.5** **Item extension 25 Edition "Expert"**

to extend an existing license of the "Expert" type by an additional 25 items. The prerequisite for activation is an existing basic package of the "Expert" edition; the update period is offset against the existing license update period and the total number of items and credited to the license.

Scope of the extension:

- 25 items (devices, users, data imports)

- Incl. 12 months update period

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert Extension Items 25

Item no.: 5100722

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.46.6** **Item extension 50 Edition "Expert"**

to extend an existing license of the "Expert" type by an additional 50 items. The prerequisite for activation is an existing basic package of the "Expert" edition; the update period is offset against the existing license update period and the total number of items and credited to the license.

Scope of the extension:

- 50 items (devices, users, data imports)

- Incl. 12 months update period

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert Extension Items 50

Item no.: 5100723

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.47** **Extensions Update period Edition "Standard" 1 year**

**1.1.47.1** **Extension Update period 1 year Edition "Standard 10"**

to extend the update period of an existing "Standard 10" license by 1 year. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 10 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 10 Update period 1 year

Item no.: 5100641

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| **Item no:** | 5100641 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.47.2** **Extension Update period 1 year Edition "Standard 25"**

to extend the update period of an existing "Standard 25" license by 1 year. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 25 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 25 Update period 1 year

Item no.: 5100642

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| **Item no:** | 5100642 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.47.3** **Extension Update period 1 year Edition "Standard 50"**

to extend the update period of an existing "Standard 50" license by 1 year. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 50 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 50 Update period 1 year

Item no.: 5100643

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| **Item no:** | 5100643 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.47.4** **Extension Update period 1 year Edition "Standard 100"**

to extend the update period of an existing "Standard 100" license by 1 year. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 100 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 100 Update period 1 year

Item no.: 5100644

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| **Item no:** | 5100644 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.47.5** **Extension Update period 1 year Edition "Standard 250"**

to extend the update period of an existing "Standard 250" license by 1 year. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 250 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 250 Update period 1 year

Item no.: 5100645

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| **Item no:** | 5100645 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.48** **Extensions Update period Edition "Standard" 3 years**

**1.1.48.1** **Extension Update period 3 years Edition "Standard 10"**

to extend the update period of an existing "Standard 10" license by 3 years. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 10 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 10 Update period 3 years

Item no.: 5100661

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| **Item no:** | 5100641 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.48.2** **Extension Update period 3 years Edition "Standard 25"**

to extend the update period of an existing "Standard 25" license by 3 years. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 25 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 25 Update period 3 years

Item no.: 5100662

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| --- | --- |
| **Item no:** | 5100642 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.48.3** **Extension Update period 3 years Edition "Standard 50"**

to extend the update period of an existing "Standard 50" license by 3 years. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 50 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 50 Update period 3 years

Item no.: 5100663

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.48.4** **Extension Update period 3 years Edition "Standard 100"**

to extend the update period of an existing "Standard 100" license by 3 years. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 100 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 100 Update period 3 years

Item no.: 5100664

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| **Item no:** | 5100664 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.48.5** **Extension Update period 3 years Edition "Standard 250"**

to extend the update period of an existing "Standard 250" license by 3 years. The prerequisite for activation is an existing basic package of the "Standard" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 250 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Standard 250 Update period 3 years

Item no.: 5100665

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| **Item no:** | 5100645 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.49** **Extensions Update period Edition "Expert" 1 year**

**1.1.49.1** **Extension Update period 1 year Edition "Expert 10"**

to extend the update period of an existing "Expert 10" license by 1 year. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 10 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 10 Update period 1 year

Item no.: 5100741

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| **Item no:** | 5100741 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.49.2** **Extension Update period 1 year Edition "Expert 25"**

to extend the update period of an existing "Expert 25" license by 1 year. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 25 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 25 Update period 1 year

Item no.: 5100742

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| --- | --- |
| **Item no:** | 5100741 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.49.3** **Extension Update period 1 year Edition "Expert 50"**

to extend the update period of an existing "Expert 50" license by 1 year. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 50 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 50 Update period 1 year

Item no.: 5100743

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| **Item no:** | 5100743 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.49.4** **Extension Update period 1 year Edition "Expert 100"**

to extend the update period of an existing "Expert 100" license by 1 year. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 100 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 100 Update period 1 year

Item no.: 5100744

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| **Item no:** | 5100744 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.49.5** **Extension Update period 1 year Edition "Expert 250"**

to extend the update period of an existing "Expert 250" license by 1 year. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 12 months update period for 250 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 250 Update period 1 year

Item no.: 5100745

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| **Item no:** | 5100745 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.50** **Extensions Update period Edition "Expert" 3 years**

**1.1.50.1** **Extension Update period 3 years Edition "Expert 10"**

to extend the update period of an existing "Expert 10" license by 3 years. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 10 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 10 Update period 3 years

Item no.: 5100761

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| **Item no:** | 5100761 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.50.2** **Extension update period 3 years Edition "Expert 25"**

to extend the update period of an existing "Expert 25" license by 3 years. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 25 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 25 Update period 3 years

Item no.: 5100762

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| **Item no:** | 5100762 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.50.3** **Extension Update period 3 years Edition "Expert 50"**

to extend the update period of an existing "Expert 50" license by 3 years. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 50 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 50 Update period 3 years

Item no.: 5100763

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| **Item no:** | 5100743 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.50.4** **Extension Update period 3 years Edition "Expert 100"**

to extend the update period of an existing "Expert 100" license by 3 years. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 100 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 100 Update period 3 years

Item no.: 5100764

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| **Item no:** | 5100764 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.50.5** **Extension update period 3 years Edition "Expert 250"**

to extend the update period of an existing "Expert 250" license by 1 year. The prerequisite for activation is an existing basic package of the "Expert" edition. The update period is offset against the existing license update period and the total number of items and credited to the license.

Scope extension:

- 36 months update period for 250 items

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Expert 250 Update period 3 years

Item no.: 5100765

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| **Item no:** | 5100745 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.51** **Upgrade Edition "Standard" -> "Expert**

**1.1.51.1** **Upgrade Edition "Standard 10" -> "Expert 10"**

to upgrade the "Standard 20" edition to an "Expert 20" edition. The prerequisite for activation is the corresponding number of items in the "Standard" edition. The upgrade period is credited to 12 months of all items for the "Expert" edition. The existing update period for the "Standard" edition will not be credited to the higher edition.

Scope of the extension:

- Upgrade from the "Standard 10" edition to the "Expert 10" edition

- 12-month update period for the resulting "Expert" edition

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Upgrade Standard 10 to Expert 10

Item no.: 5100681

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| **Item no:** | 5100681 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.51.2** **Upgrade Edition "Standard 25" -> "Expert 25"**

to upgrade the "Standard 25" edition to an "Expert 25" edition. The prerequisite for activation is the corresponding number of items in the "Standard" edition. The upgrade period is credited to 12 months of all items for the "Expert" edition. The existing update period for the "Standard" edition will not be credited to the higher edition.

Scope of the extension:

- Upgrade from the "Standard 25" edition to the "Expert 25" edition

- 12-month update period for the resulting "Expert 25" edition

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Upgrade Standard 25 to Expert 25

Item no.: 5100682

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| **Item no:** | 5100681 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.51.3** **Upgrade Edition "Standard 50" -> "Expert 50"**

to upgrade the "Standard 50" edition to an "Expert 50" edition. The prerequisite for activation is the corresponding number of items in the "Standard" edition. The upgrade period is credited to 12 months of all items for the "Expert" edition. The existing update period for the "Standard" edition will not be credited to the higher edition.

Scope of the extension:

- Upgrade from the "Standard 50" edition to the "Expert 50" edition

- 12-month update period for the resulting "Expert 50" edition

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Upgrade Standard 50 to Expert 50

Item no.: 5100683

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| **Item no:** | 5100683 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.51.4** **Upgrade Edition "Standard 100" -> "Expert 100"**

to upgrade the "Standard 100" edition to an "Expert 100" edition. The prerequisite for activation is the corresponding number of items in the "Standard" edition. The upgrade period is credited to 12 months of all items for the "Expert" edition. The existing update period for the "Standard" edition will not be credited to the higher edition.

Scope of the extension:

- Upgrade from the "Standard 100" edition to the "Expert 100" edition

- 12-month update period for the resulting "Expert 100" edition

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Upgrade Standard 100 to Expert 100

Item no.: 5100684

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| **Item no:** | 5100683 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.51.5** **Upgrade Edition "Standard 250" -> "Expert 250"**

to upgrade the "Standard 250" edition to an "Expert 250" edition. The prerequisite for activation is the corresponding number of items in the "Standard" edition. The upgrade period is credited to 12 months of all items for the "Expert" edition. The existing update period for the "Standard" edition will not be credited to the higher edition.

Scope of the extension:

- Upgrade from the "Standard 100" edition to the "Expert 250" edition

- 12-month update period for the resulting "Expert 250" edition

License keys can be activated and credited to a license via the manufacturer's online license server.

Manufacturer: Janitza electronics GmbH

Type: GridVis Upgrade Standard 250 to Expert 250

Item no.: 5100685

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| --- | --- |
| **Item no:** | 5100683 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.52** **Cloud-based energy monitoring software**

**1.1.52.1** **Cloud-based energy monitoring software incl. gateway & 12M usage period**

as a combination package consisting of hardware and project-related software license including 1 year of use for 10 items (devices, users, data imports) for evaluating energy consumption data via cloud software.

With the active software license, access to the manufacturer's cloud is activated for the defined usage period. Start of the license usage period after online activation of the software. Access via an internet-enabled browser regardless of time and location.

Connection of Modbus TCP-based media measuring points (electrical energy, gas, water, etc.) via the customer's network (LAN). Connection of pulse meters (S0) and Modbus RTU measuring points via existing Modbus TCP measuring devices as well as direct connection of Modbus RTU measuring points via the integrated RS485 interface on the gateway.

The 15-minute energy values of the measuring devices are transferred to the software at 10-minute intervals via the gateway included in the combination package. Up to 100 items can be configured per gateway. Several gateways can be used.

Including data storage of the consumption data of the integrated devices without customer acquisition, operating and maintenance costs for separate database systems.

Functional enhancements and updates are included at no extra cost during the period of use. Items can be extended and the period of use can be extended at a later date.

System functions:

- Editor for creating an individual structure for mapping the measuring points in the building or different locations

- Hierarchical meter assignment for mapping the energy flow

- Contract data management for conversion factors for balancing costs and energy-related CO2 emissions per measuring point

- Automated calculation of totals based on the structure created to summarize measuring points

- Storage and display of energy consumption for historical evaluation and determination of potential savings

- User management for the administration of access rights

- Language selection of the user interface: German, English

Visualization applications:

- Predefined dashboard with bar chart for recording consumption data

- Predefined analysis page with line diagram for detailed analysis

- Tabular overview of the integrated measuring devices for overview and connectivity monitoring

- Filtering of the displayed data through individual hierarchy levels for clear presentation

- Display and visualization of the energy purchased and supplied

Connectivity

- Automatic integration and display of devices connected to the gateway without manual parameterization

- Manual creation and input of measurement data from unconnected measuring points for the integration of existing measurements without converting the measuring point

Technical data Gateway:

Mounting type: DIN rail mounted device (4TE)

Dimensions in mm (WxHxD): 55 x 175 x 92.3

Supply voltage:24V DC (12..32V DC)

Current consumption: 1.3A DC

Max. Heat loss capacity: 32 W

incl. switched-mode power supply unit for top-hat rail mounting

Primary: 100 - 240 V 50/60 Hz

Secondary: 24-28 V DC (adjustable), 1.3 A

Dimensions in mm (W x H x D): 22.5 x 75 x 91

Weight: 140 g

Interfaces:

Network: 02x Ethernet RJ45 (10/100/ 1000 Mbit)

Protocols: IP V4, DHCP, HTTP, HTTPS, NTP, DNS

Serial: 01x RS 485

Protocol: ModBus RTU

Delivery included:

Documentation, switched-mode power supply unit for top-hat rail mounting

Manufacturer: Janitza electronics GmbH

Type: Cloud Connector M without & basic package 1 year (10 items) + power supply unit

Item no.: 5100460 + 1605012

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| **Item no:** | 5100460 + 1605012 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.52.2** **Cloud-based energy monitoring software incl. gateway & 48M usage period**

as a combination package consisting of hardware and project-related software license including 4 years of use for 10 items (devices, users, data imports) for evaluating energy consumption data via cloud software.

With the active software license, access to the manufacturer's cloud is activated for the defined usage period. Start of the license usage period after online activation of the software. Access via an internet-enabled browser regardless of time and location.

Connection of Modbus TCP-based media measuring points (electrical energy, gas, water, etc.) via the customer's network (LAN). Connection of pulse meters (S0) and Modbus RTU measuring points via existing Modbus TCP measuring devices as well as direct connection of Modbus RTU measuring points via the integrated RS485 interface on the gateway.

The 15-minute energy values of the measuring devices are transferred to the software at 10-minute intervals via the gateway included in the combination package. Up to 100 devices can be configured per gateway. Several gateways can be used.

Including data storage of the consumption data of the integrated devices without customer acquisition, operating and maintenance costs for separate database systems.

Functional enhancements and updates are included at no extra cost during the period of use. Items can be extended and the period of use can be extended at a later date.

System functions:

- Editor for creating an individual structure for mapping the measuring points in the building or different locations

- Hierarchical meter assignment for mapping the energy flow

- Contract data management for conversion factors for balancing costs and energy-related CO2 emissions per measuring point

- Automated calculation of totals based on the structure created to summarize measuring points

- Storage and display of energy consumption for historical evaluation and determination of potential savings

- User management for the administration of access rights

- Language selection of the user interface: German, English

Visualization applications:

- Predefined dashboard with bar chart for recording consumption data

- Predefined analysis page with line diagram for detailed analysis

- Tabular overview of the integrated measuring devices for overview and connectivity monitoring

- Filtering of the displayed data through individual hierarchy levels for clear presentation

- Display and visualization of the energy purchased and supplied

Connectivity

- Automatic integration and display of the devices connected to the gateway without manual parameterization

- Manual creation and input of measurement data from unconnected measuring points to integrate existing measurements without converting the measuring point

Technical data Gateway:

Mounting type: DIN rail mounted device (4TE)

Dimensions in mm (WxHxD): 55 x 175 x 92.3

Supply voltage:24V DC (12..32V DC)

Current consumption: 1.3A DC

Max. Heat loss capacity: 32 W

incl. switched-mode power supply unit for top-hat rail mounting

Primary: 100 - 240 V 50/60 Hz

Secondary: 24-28 V DC (adjustable), 1.3 A

Dimensions in mm (W x H x D): 22.5 x 75 x 91

Weight: 140 g

Interfaces:

Network: 02x Ethernet RJ45 (10/100/ 1000 Mbit)

Protocols: IP V4, DHCP, HTTP, HTTPS, NTP, DNS

Serial: 01x RS 485

Protocol: ModBus RTU

Delivery included:

Documentation, switched-mode power supply unit for top-hat rail mounting

Manufacturer: Janitza electronics GmbH

Type: Cloud Connector M & basic package 1 year (10 items) + extension of the period of use to 3 years + power supply unit

Item no.: 5100460 + 1605012 + 5100842

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| **Item no:** | 5100460 + 1605012 + 5100842 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.53** **BACnet IP activation code**

**1.1.53.1** **BACnet IP activation code**

for measuring device the measuring devices UMG 96 RM-E, UMG 604 (Pro), UMG 605 (Pro), UMG 508, UMG 509 (Pro), UMG 511, UMG 512 (Pro) for parallel online transmission of measurement data from the device and the connected slaves to the BACnet IP protocol.

No transmission of slave measurement data with the UMG 96 RM-E.

Incl. "Multitouch" app (Touch & BACnet), without service (installation), price group: 1 + 5

For subsequent activation, the serial number of the target device is required as part of the order.

Interface documentation (EDE list, etc.) available on request.

Manufacturer: Janitza electronics GmbH

Type: BACnet activation

Item no.: 5221081

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| **Item no:** | 5221081 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** 100,00 | € | **GP:** ........... | € |

**1.1.54** **EN 50160 Watchdog**

**1.1.54.1** **EN 50160 Watchdog**

Integrated "watchdog" function for continuous monitoring in accordance with EN 50160

For the devices: UMG 605 / UMG 512

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100264

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| **Item no:** | DL5100264 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.54.2** **EN 50160 Watchdog**

Integrated "watchdog" function for continuous monitoring in accordance with EN 50160

For the devices: UMG 605-PRO / UMG 512-PRO

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100305

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| **Item no:** | DL5100305 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.55** **FBM10PT1000**

**1.1.55.1** **FBM10PT1000**

Up to 10 additional temperature inputs can be realized via the RS485 interface by means of hardware expansion

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100211

|  |  |
| --- | --- |
| **Item no:** | DL5100211 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.56** **Humidity/temperature sensor JFTF-I\***

**1.1.56.1** **Humidity/temperature sensor JFTF-I**

Processing and recording of up to 8 humidity/temperature sensors possible

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL1506337

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.57** **GPS Sync**

**1.1.57.1** **GPS Sync**

Synchronization of the device time via a digital input. The GPS receiver, article no. 15.06.240, is required to use the APP

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100291

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| **Item no:** | DL5100291 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.58** **IEC61000-2-4 Watchdog\***

**1.1.58.1** **IEC61000-2-4 Watchdog**

Integrated "watchdog" function for continuous monitoring in accordance with IEC 61000-2-4

For UMG 605 / UMG 512 devices

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100265

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| **Item no:** | DL5100265 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.58.2** **IEC61000-2-4 Watchdog**

Integrated "watchdog" function for continuous monitoring in accordance with IEC 61000-2-4

For devices: UMG 605-PRO / UMG 512-PRO

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100306

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| **Item no:** | DL5100306 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.58.3** **IEC61000-2-4 Watchdog**

Integrated "watchdog" function for continuous monitoring in accordance with IEC 61000-2-4

For devices: UMG 604 / UMG 509

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100309

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| **Item no:** | DL5100309 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.58.4** **IEC61000-2-4 Watchdog**

Integrated "watchdog" function for continuous monitoring in accordance with IEC 61000-2-4

For devices: UMG 604-PRO / UMG 509-PRO

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100308

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| **Item no:** | DL5100308 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.59** **Mini EnMS**

**1.1.59.1** **Mini EnMS**

Display of current and historical measured values in figures and diagrams from a master device and max. 15 UMGs without memory on the device's own homepage

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100266

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| **Item no:** | DL5100266 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.60** **Multitouch**

**1.1.60.1** **Multitouch**

Readout of 30 measured values and max. 31 slave devices via RS485

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100207

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.61** **Push service**

**1.1.61.1** **Push service**

Sending data directly from the measuring device to a server without additional software with 10 slave devices

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100238

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| **Item no:** | DL5100238 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.61.2** **Push service**

Sending data directly from the measuring device to a server without additional software with 10 slave devices

For the Pro series devices

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100307

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| **Item no:** | DL5100307 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.62** **Push service + UMG 20CM\***

**1.1.62.1** **Push service + UMG 20CM**

Sending data directly from the measuring device to a server without additional software

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100285

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| **Item no:** | DL5100285 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.63** **SNMP**

**1.1.63.1** **SNMP**

Limit value monitoring with alarm function (SNMP trap) Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100310

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| **Item no:** | DL5100310 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.64** **Fault message**

**1.1.64.1** **Fault message**

Configurable Jasic® program for sending fault messages by e-mail

Price group: 1

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5100209

|  |  |
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| **Item no:** | DL5100209 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.65** **Multi Protocol Server**

**1.1.65.1** **Multi Protocol Server 1000**

for bidirectional exchange of various protocols from different systems. Installation on a server including drivers for the manufacturer's parameterization and network visualization software.

Compatible with the "Standard" and "Expert" editions as well as the "Service" and "Ultimate" editions of the manufacturer's parameterization and network visualization software.

The installation of the manufacturer's parameterization and network visualization software including background service is required for the connection.

Scope of services:

- 1000 data points

Interfaces and interface functions:

OPC

- OPC UA interface for OPC clients from third-party manufacturers, e.g. visualizations from third-party providers, etc.

- OPC DA interface for the integration of data points from third-party OPC servers, e.g. fire alarm systems, Cluster Explorer for simple import, central aggregation of data from various sub-servers in the Multi Protocol Server

BACnet

- BACnet / IP server interface for BACnet clients from third-party manufacturers, Assignment of various data points (e.g. KNX, Modbus, SNMP, Fidelio/Opera, VingCard, etc.) to BACnet objects, Supports COV subscription, Automatic or manual selection of object types, Configuration of read/write or read-only access possible.

- Use of the BACnet/IP protocol to integrate any BACnet/IP device.

- Other BACnet media (e.g. BACnet MS/TP devices) can be integrated via BACnet/IP routers.

- BACnet Explorer for the automatic detection of devices and objects without the functions required for external tools.

- Several BACnet priorities can be used simultaneously

- Supports confirmed/unconfirmed COV subscription, unsolicited COV notification and device query

- Supports BBMD & proprietary BACnet objects

SNMP V1, V2 and V3

- Query SNMP objects via their OIDs

- Writing SNMP objects

- Supports SNMP traps

- SNMP device monitoring

MQTT interface

- Communication with one or more MQTT brokers

- Support for TLS security

- Publish / subscribe to MQTT topics

Modbus

- Supports Modbus/TCP protocol for the integration of Modbus/TCP devices

- Supports Modbus/RTU via Modbus/TCP gateways or via IP-to-RS485 converter (native Modbus/RTU via TCP or UDP)

- Manufacturer-specific configuration possible

Further interfaces on request.

System requirements (minimum requirements):

- CPU: Intel or AMD - 1.8 GHz (multicore recommended)

- RAM: 8048 MB

- Hard disk: 32GB; 64 GB recommended

- Ethernet interface: 100 MBit/s

- Resolution: 1280 x 1024

Supported operating systems:

- Windows 7 - SP1 (32 bit ǀ 64 bit)

- Windows 8 (64 bit) ǀ Windows 8.1 (64 bit)

- Windows 10

- Windows Server 2008 R2 (32 bit ǀ 64 bit)

- Windows Server 2012 ǀ 2012 R2 (64 bit)

- Windows Server 2016 (64 bit)

Manufacturer: Janitza electronics GmbH

Type: Multi Protocol Server 1000

Item no.: 5100155

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| **Item no:** | 5100155 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.65.2** **Multi Protocol Server 2500**

for bidirectional exchange of various protocols from different systems. Installation on a server including drivers for the manufacturer's parameterization and network visualization software.

Compatible with the "Standard" and "Expert" editions as well as the "Service" and "Ultimate" editions of the manufacturer's parameterization and network visualization software.

The installation of the manufacturer's parameterization and network visualization software including background service is required for the connection.

Scope of services:

- 2500 data points

Interfaces and interface functions:

OPC

- OPC UA interface for OPC clients from third-party manufacturers, e.g. visualizations from third-party providers, etc.

- OPC DA interface for the integration of data points from third-party OPC servers, e.g. fire alarm systems, Cluster Explorer for simple import, central aggregation of data from various sub-servers in the Multi Protocol Server

BACnet

- BACnet / IP server interface for BACnet clients from third-party manufacturers, Assignment of various data points (e.g. KNX, Modbus, SNMP, Fidelio/Opera, VingCard, etc.) to BACnet objects, Supports COV subscription, Automatic or manual selection of object types, Configuration of read/write or read-only access possible.

- Use of the BACnet/IP protocol to integrate any BACnet/IP device.

- Other BACnet media (e.g. BACnet MS/TP devices) can be integrated via BACnet/IP routers.

- BACnet Explorer for the automatic detection of devices and objects without the functions required for external tools.

- Several BACnet priorities can be used simultaneously

- Supports confirmed/unconfirmed COV subscription, unsolicited COV notification and device query

- Supports BBMD & proprietary BACnet objects

SNMP V1, V2 and V3

- Query SNMP objects via their OIDs

- Writing SNMP objects

- Supports SNMP traps

- SNMP device monitoring

MQTT interface

- Communication with one or more MQTT brokers

- Support for TLS security

- Publish / subscribe to MQTT topics

Modbus

- Supports Modbus/TCP protocol for the integration of Modbus/TCP devices

- Supports Modbus/RTU via Modbus/TCP gateways or via IP-to-RS485 converter (native Modbus/RTU via TCP or UDP)

- Manufacturer-specific configuration possible

Further interfaces on request.

System requirements (minimum requirements):

- CPU: Intel or AMD - 1.8 GHz (multicore recommended)

- RAM: 8048 MB

- Hard disk: 32GB; 64 GB recommended

- Ethernet interface: 100 MBit/s

- Resolution: 1280 x 1024

Supported operating systems:

- Windows 7 - SP1 (32 bit ǀ 64 bit)

- Windows 8 (64 bit) ǀ Windows 8.1 (64 bit)

- Windows 10

- Windows Server 2008 R2 (32 bit ǀ 64 bit)

- Windows Server 2012 ǀ 2012 R2 (64 bit)

- Windows Server 2016 (64 bit)

Manufacturer: Janitza electronics GmbH

Type: Multi Protocol Server 1000

Item no.: 5100156

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| **Item no:** | 5100156 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.65.3** **Multi Protocol Server 5000**

for bidirectional exchange of various protocols from different systems. Installation on a server including drivers for the manufacturer's parameterization and network visualization software.

Compatible with the "Standard" and "Expert" editions as well as the "Service" and "Ultimate" editions of the manufacturer's parameterization and network visualization software.

The installation of the manufacturer's parameterization and network visualization software including background service is required for the connection.

Scope of services:

- 5000 data points

Interfaces and interface functions:

OPC

- OPC UA interface for OPC clients from third-party manufacturers, e.g. visualizations from third-party providers, etc.

- OPC DA interface for the integration of data points from third-party OPC servers, e.g. fire alarm systems, Cluster Explorer for simple import, central aggregation of data from various sub-servers in the Multi Protocol Server

BACnet

- BACnet / IP server interface for BACnet clients from third-party manufacturers, Assignment of various data points (e.g. KNX, Modbus, SNMP, Fidelio/Opera, VingCard, etc.) to BACnet objects, Supports COV subscription, Automatic or manual selection of object types, Configuration of read/write or read-only access possible.

- Use of the BACnet/IP protocol to integrate any BACnet/IP device.

- Other BACnet media (e.g. BACnet MS/TP devices) can be integrated via BACnet/IP routers.

- BACnet Explorer for the automatic detection of devices and objects without the functions required for external tools.

- Several BACnet priorities can be used simultaneously

- Supports confirmed/unconfirmed COV subscription, unsolicited COV notification and device query

- Supports BBMD & proprietary BACnet objects

SNMP V1, V2 and V3

- Query SNMP objects via their OIDs

- Writing SNMP objects

- Supports SNMP traps

- SNMP device monitoring

MQTT interface

- Communication with one or more MQTT brokers

- Support for TLS security

- Publish / subscribe to MQTT topics

Modbus

- Supports Modbus/TCP protocol for the integration of Modbus/TCP devices

- Supports Modbus/RTU via Modbus/TCP gateways or via IP-to-RS485 converter (native Modbus/RTU via TCP or UDP)

- Manufacturer-specific configuration possible

Further interfaces on request.

System requirements (minimum requirements):

- CPU: Intel or AMD - 1.8 GHz (multicore recommended)

- RAM: 8048 MB

- Hard disk: 32GB; 64 GB recommended

- Ethernet interface: 100 MBit/s

- Resolution: 1280 x 1024

Supported operating systems:

- Windows 7 - SP1 (32 bit ǀ 64 bit)

- Windows 8 (64 bit) ǀ Windows 8.1 (64 bit)

- Windows 10

- Windows Server 2008 R2 (32 bit ǀ 64 bit)

- Windows Server 2012 ǀ 2012 R2 (64 bit)

- Windows Server 2016 (64 bit)

Manufacturer: Janitza electronics GmbH

Type: Multi Protocol Server 1000

Item no.: 5100157

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| **Item no:** | 5100157 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.65.4** **Multi Protocol Server 10000**

for bidirectional exchange of various protocols from different systems. Installation on a server including drivers for the manufacturer's parameterization and network visualization software.

Compatible with the "Standard" and "Expert" editions as well as the "Service" and "Ultimate" editions of the manufacturer's parameterization and network visualization software.

The installation of the manufacturer's parameterization and network visualization software including background service is required for the connection.

Scope of services:

- 10000 data points

Interfaces and interface functions:

OPC

- OPC UA interface for OPC clients from third-party manufacturers, e.g. visualizations from third-party providers, etc.

- OPC DA interface for the integration of data points from third-party OPC servers, e.g. fire alarm systems, Cluster Explorer for simple import, central aggregation of data from various sub-servers in the Multi Protocol Server

BACnet

- BACnet / IP server interface for BACnet clients from third-party manufacturers, Assignment of various data points (e.g. KNX, Modbus, SNMP, Fidelio/Opera, VingCard, etc.) to BACnet objects, Supports COV subscription, Automatic or manual selection of object types, Configuration of read/write or read-only access possible.

- Use of the BACnet/IP protocol to integrate any BACnet/IP device.

- Other BACnet media (e.g. BACnet MS/TP devices) can be integrated via BACnet/IP routers.

- BACnet Explorer for the automatic detection of devices and objects without the functions required for external tools.

- Several BACnet priorities can be used simultaneously

- Supports confirmed/unconfirmed COV subscription, unsolicited COV notification and device query

- Supports BBMD & proprietary BACnet objects

SNMP V1, V2 and V3

- Query SNMP objects via their OIDs

- Writing SNMP objects

- Supports SNMP traps

- SNMP device monitoring

MQTT interface

- Communication with one or more MQTT brokers

- Support for TLS security

- Publish / subscribe to MQTT topics

Modbus

- Supports Modbus/TCP protocol for the integration of Modbus/TCP devices

- Supports Modbus/RTU via Modbus/TCP gateways or via IP-to-RS485 converter (native Modbus/RTU via TCP or UDP)

- Manufacturer-specific configuration possible

Further interfaces on request.

System requirements (minimum requirements):

- CPU: Intel or AMD - 1.8 GHz (multicore recommended)

- RAM: 8048 MB

- Hard disk: 32GB; 64 GB recommended

- Ethernet interface: 100 MBit/s

- Resolution: 1280 x 1024

Supported operating systems:

- Windows 7 - SP1 (32 bit ǀ 64 bit)

- Windows 8 (64 bit) ǀ Windows 8.1 (64 bit)

- Windows 10

- Windows Server 2008 R2 (32 bit ǀ 64 bit)

- Windows Server 2012 ǀ 2012 R2 (64 bit)

- Windows Server 2016 (64 bit)

Manufacturer: Janitza electronics GmbH

Type: Multi Protocol Server 1000

Item no.: 5100158

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| **Item no:** | 5100158 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.66** **without display**

**1.1.66.1** **Outlet box incl. multifunction measuring device without display**

for connecting electrical loads to a busbar trunking system as a ready-to-connect unit with integrated measurement technology and accessories tested in accordance with DIN EN 61439. Compact design with optimized and tested temperature behaviour. Freely selectable and changeable direction of the power outlet (top or bottom).

Compatible rail system: BD 2

Number of conductors: 5 (3x phases, N & PE conductor)

Max. Secondary load current: 125, 250, 400, 530 A (depending on variant)

Voltage measurement & supply voltage Internal:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

Overvoltage category: 300V CAT III

3-phase output fuse

125A: NH fuse holder

250, 400, 530A: NH switch-disconnector

Load factor current (24 / 2h): 0.6 / 1.0

Maximum connection cross-section in mm²

125 A: 50 mm²:

250 A: 240 mm²

400 A : 240 mm²

530 A : 240 mm²

Operating current measurement: 3x internal 5A current transformers (3 phases)

Accuracy class: Class 1

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

The multifunctional appliance is protected by a built-in motor protection switch in accordance with DIN EN IEC 60947-4-1.

Including multifunction measuring device with battery, clock, memory and interfaces.

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5 / 0.5S & 1 (/5A & /1A converter) / current: 0.2 / voltage: 0.2

Suitable for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 4 tariffs, continuous true RMS measurement.

Sampling rate of 5.4 kHz (50 Hz) per period (voltage measurement) and output of the measured values via the interfaces (cycle >=200 ms). Detection of overvoltage and undervoltage, 4 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering.

Measurement of the positive, negative and zero sequence as well as rotating field direction, single harmonics (even/odd) for current & voltage up to the 40th harmonic.

Serial interface

Type: RS 485 up to 115.2 kbps

Connection: 2x M12 (1x socket & 1x plug each), 4-pin, A-coded

Data protocols: Modbus RTU Slave

Relative humidity: 0 to 75 % RH

Operating altitude: 0 to 2000 m above sea level

Degree of soiling: 2

Housing material: Galvanized & painted sheet steel

Installation position: vertical or horizontal

Power loss: total 97 W

Ventilation: no forced ventilation required

Sizes in mm (W x H x D):

125 A : 530 x 305 x 105

250 A : 662 x 406 x 202

400 A : 862 x 406 x 202

530 A : 862 x 406 x 352

Mxx plug & socket and Mxx screw connection(s) must be procured separately.

Delivery included:

Documentation, 2x dummy covers for cable penetrations, parameterization and evaluation software in basic version with database, manual report generation, topology view for visualization and graphical measurement data display for download.

Price group: 3

Make: Janitza electronics GmbH

Type: AKM 103

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.67** **with 3-line display**

**1.1.67.1** **Outlet box incl. multifunction measuring device with 3-line display**

for connecting electrical loads to a busbar trunking system as a ready-to-connect unit with integrated measurement technology and accessories tested in accordance with DIN EN 61439. Compact design with optimized and tested temperature behaviour. Freely selectable and changeable direction of the power outlet (top or bottom).

Compatible rail system: BD 2

Number of conductors: 5 (3x phases, N & PE conductor)

Max. Secondary load current: 125, 250, 400, 530 A (depending on variant)

Voltage measurement & supply voltage Internal:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

Overvoltage category: 300V CAT III

3-phase output fuse

125A: NH fuse holder

250, 400, 530A: NH switch-disconnector

Load factor current (24 / 2h): 0.6 / 1.0

Maximum connection cross-section in mm²

125 A: 50 mm²:

250 A: 240 mm²

400 A : 240 mm²

530 A : 240 mm²

Operating current measurement: 4x internal 5A current transformers (3 phases + N)

Accuracy class: Class 1

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement: 1x type A with dyn. limit value

Measuring range / resolution: 50 µA to 40 mA RMS / 1 µA

Integrated temperature measurement: 1x PT100 on NH element

Ambient temperature range -10 °C to +55 °C

The multifunctional appliance is protected by a built-in motor protection switch in accordance with DIN EN IEC 60947-4-1.

Including multifunction measuring device with clock and buffering and interfaces accessible from the outside via viewing window.

Accuracy classes:

Active energy: 0.5S / current: 0.2 / voltage: 0.2

Suitable for measuring in all levels of TN & TT networks as well as in IT networks with voltage transformers for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, purchased reactive & apparent energy as well as purchased and delivered active energy (4-quadrant measurement) in separate memory values, continuous true RMS measurement.

Sampling rate of 8 kHz with 160 measuring points per period & output of the measured values via the interfaces (cycle >=80 ms).

Measurement of unbalance voltage, total harmonic distortion (THD-I & THD-U) and single harmonics up to the 31st harmonic.

Monochrome LCD display with backlighting, 2 buttons, status LED indicators to signal the module's readiness for operation and active communication, reset button to restore the module's factory settings, integrated web server for configuring the functions and visualizing the measured values.

Password protection of the user interface, automatic change of measured value displays and configuration of parameters directly on the device, transmission of measurement data and alarm flags to higher-level systems.

Ethernet interface with MAC IEEE certification, IEEE 802.3 standard and DHCP client or static IP address of type IP V4.

Interface: 1x RJ45 (10M)

Protocols: Modbus TCP, SNMP V2c

Connection from outside: Han PushPull RJ45

Relative humidity: 0 to 75 % RH

Operating altitude: 0 to 2000 m above sea level

Degree of soiling: 2

Housing material: Galvanized & painted sheet steel

Installation position: vertical or horizontal

Power loss: total 97 W

Ventilation: no forced ventilation required

Sizes in mm (W x H x D):

125 A : 530 x 305 x 105

250 A : 662 x 406 x 202

400 A : 862 x 406 x 202

530 A : 862 x 406 x 352

Mxx plug & socket and Mxx screw connection(s) must be procured separately.

Delivery included:

Documentation, 2x dummy covers for cable penetrations, parameterization and evaluation software in basic version with database, manual report generation, topology view for visualization and graphical measurement data display for download.

Price group: 3

Optionally available as a variant with:

- Extended residual current measurement for recording, evaluating and monitoring residual currents of types A, B and B+ in accordance with IEC 62020 in TN and TT systems (earthed AC systems) using conventional feed-through or retrofittable residual current transformers (type A, B etc.) by means of a patented measuring method.

Optional versions must be included in the initial purchase. Retrofitting is not possible.

Make: Janitza electronics GmbH

Type: AKM 806

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.67.2** **Outlet box incl. multifunction measuring device with 96 mm display**

for connecting electrical loads to a busbar trunking system as a ready-to-connect unit with integrated measurement technology and accessories tested in accordance with DIN EN 61439. Compact design with optimized and tested temperature behaviour. Freely selectable and changeable direction of the power outlet (top or bottom).

Compatible rail system: BD 2

Number of conductors: 5 (3x phases, N & PE conductor)

Max. Secondary load current: 125, 250, 400, 530 A (depending on variant)

Voltage measurement & supply voltage Internal:

3 Ph. + N (L-N / L-L) max.: 277 / 480 V

Overvoltage category: 300V CAT III

3-phase output fuse

125A: NH fuse holder

250, 400, 530A: NH switch-disconnector

Load factor current (24 / 2h): 0.6 / 1.0

Maximum connection cross-section in mm²

125 A: 50 mm²:

250 A: 240 mm²

400 A : 240 mm²

530 A : 240 mm²

Operating current measurement: 4x internal 5A current transformers (3 phases + N)

Accuracy class: Class 1

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement: 1x type A with dyn. limit value

Measuring range / resolution: 50 µA to 40 mA RMS / 1 µA

Integrated temperature measurement: 1x PT100 on NH element

Ambient temperature range -10 °C to +55 °C

The multifunctional appliance is protected by a built-in motor protection switch in accordance with DIN EN IEC 60947-4-1.

Including multifunction measuring device accessible from the outside for front panel installation (96x96mm) with battery, clock, memory and interfaces.

Window for operating the meter when the outlet box is closed (125 A version only).

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy: 0.5 / 0.5S & 1 (/5A & /1A converter) / current: 0.2 / voltage: 0.2

Suitable for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, power factor & cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 7 tariffs, continuous true RMS measurement.

Sampling rate of 20 kHz (50 Hz) with 400 measuring points per period (voltage measurement) and output of the measured values via the interfaces (cycle >=200 ms). Detection of overvoltage and undervoltage, 256 MB internal measurement data memory (flash) freely configurable by the user, clock with buffering. Monochrome 3-line LCD display (backlit) with 2 operating buttons.

Measurement of the positive, negative and zero sequence as well as rotating field direction. Total harmonic distortion (THD-I & THD-U), single harmonics (even / odd) for current & voltage up to the 40th harmonic.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..60 min.)

Modbus RTU & TCP - Master function for network connection to own or higher-level software systems of max. 31 outgoing boxes per master device of the manufacturer. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Ethernet interface

Type: RJ45

Data protocols: Modbus TCP, TCP/IP, DHCP, HTTP, NTP, SMTP

Ethernet gateway, FTP, TFTP, BACnet IP (optional)

Connection from outside: Han PushPull RJ45

Serial interface

Type: RS 485 up to 115.2 kbps

Connection: 2x M12 (1x socket & 1x plug each), 4-pin, A-coded

Data protocols: Modbus RTU Slave

Relative humidity: 0 to 75 % RH

Operating altitude: 0 to 2000 m above sea level

Degree of soiling: 2

Housing material: Galvanized & painted sheet steel

Installation position: vertical or horizontal

Power loss: total 97 W

Ventilation: no forced ventilation required

Sizes in mm (W x H x D):

125 A : 530 x 305 x 105

250 A : 662 x 406 x 202

400 A : 862 x 406 x 202

530 A : 862 x 406 x 352

Mxx plug & socket and Mxx screw connection(s) must be procured separately.

Delivery included:

Documentation, 2x dummy covers for cable penetrations, parameterization and evaluation software in basic version with database, manual report generation, topology view for visualization and graphical measurement data display for download.

Price group: 3

Optionally available as a variant with:

- Pulse input for recording, standardizing and buffering any process variables (compressed air, water, heat, etc.) including active supply via integrated 24V DC power supply unit (max. 1.3 A)

- Extended residual current measurement for recording, evaluating and monitoring residual currents of types A, B and B+ in accordance with IEC 62020 in TN and TT systems (earthed AC systems) using conventional feed-through or retrofittable residual current transformers (type A, B etc.) by means of a patented measuring method.

Optional versions must be included in the initial purchase. Retrofitting is not possible.

Make: Janitza electronics GmbH

Type: AKM 96RM-E

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.68** **with graphic display**

**1.1.68.1** **Outlet box incl. multifunction measuring device with 96 mm graphic display**

for connecting electrical loads to a busbar trunking system as a ready-to-connect unit with integrated measurement technology and accessories tested in accordance with DIN EN 61439. Compact design with optimized and tested temperature behaviour. Freely selectable and changeable direction of the power outlet (top or bottom).

Compatible rail system: BD 2

Number of conductors: 5 (3x phases, N & PE conductor)

Max. Secondary load current: 125, 250, 400, 530 A (depending on variant)

Voltage measurement & supply voltage Internal:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

3-phase output fuse

125A: NH fuse holder

250, 400, 530A: NH switch-disconnector

Load factor current (24 / 2h): 0.6 / 1.0

Maximum connection cross-section in mm²

125 A: 50 mm²:

250 A: 240 mm²

400 A : 240 mm²

530 A : 240 mm²

Operating current measurement: 4x internal 5A current transformers (3 phases + N) with accuracy class 1

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement: 2x type A

Measuring range / resolution: 50 µA to 30 mA RMS / 1 µA

Integrated temperature measurement: 1x PT100 on NH element

Ambient temperature range -10 °C to +55 °C

The multifunctional appliance is protected by a built-in motor protection switch in accordance with DIN EN IEC 60947-4-1.

Including multifunction measuring device accessible from the outside for front panel installation (96x96mm) with battery, clock, memory and interfaces.

Viewing window for operating the meter when the outlet box is closed (only for 125 A version).

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS value measurement (True RMS).

Sampling rate of 8.33 kHz (50 Hz) with 166 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

8 MB internal measurement data memory (flash) of which 4 MB freely configurable by the user, clock with buffering.

Graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons.

Measurement of the positive, negative and zero sequence as well as the rotating field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 40th harmonic.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.)

Modbus RTU to Modbus TCP - Gateway function for network connection to higher-level software systems of max. 31 DIN rail or front panel-mounted devices, energy meters or data loggers from the manufacturer's current product series. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Ethernet interface

Type: RJ45

Data protocols: Modbus TCP, TCP/IP, DHCP, NTP, SMTP

Ethernet gateway, FTP, TFTP,

Connection from outside: Han PushPull RJ45

Serial interface

Type: RS 485 up to 115.2 kbps

Connection: 2x M12 (1x socket & 1x plug each), 4-pin, A-coded

Data protocols: Modbus RTU Slave

Relative humidity: 0 to 75 % RH

Operating altitude: 0 to 2000 m above sea level

Degree of soiling: 2

Housing material: Galvanized & painted sheet steel

Installation position: vertical or horizontal

Power loss: total 97 W

Ventilation: no forced ventilation required

Sizes in mm (W x H x D):

125 A : 530 x 305 x 105

250 A : 662 x 406 x 202

400 A : 862 x 406 x 202

530 A : 862 x 406 x 352

Mxx plug & socket and Mxx screw connection(s) must be procured separately.

Delivery included:

Documentation, 2x dummy covers for cable penetrations, parameterization and evaluation software in basic version with database, manual report generation, topology view for visualization and graphical measurement data display for download.

Price group: 3

Optionally available as a variant with:

- Pulse input for recording, standardizing and buffering any process variables (compressed air, water, heat, etc.) including active supply via integrated 24V DC power supply unit (max. 1.3 A)

- Extended residual current measurement for recording, evaluating and monitoring residual currents of types A, B and B+ in accordance with IEC 62020 in TN and TT systems (earthed AC systems) using conventional feed-through or retrofittable residual current transformers (type A, B etc.) by means of a patented measuring method.

Optional versions must be included in the initial purchase. Retrofitting is not possible.

Make: Janitza electronics GmbH

Type: AKM 96 PA

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.68.2** **Outlet box incl. multifunction measuring device with 96mm graphic display & MID approval**

for connecting electrical loads to a busbar trunking system as a ready-to-connect unit with integrated measurement technology and accessories tested in accordance with DIN EN 61439. Compact design with optimized and tested temperature behaviour. Freely selectable and changeable direction of the power outlet (top or bottom).

Compatible rail system: BD 2

Number of conductors: 5 (3x phases, N & PE conductor)

Max. Secondary load current: 125, 250, 400, 530 A (depending on variant)

Voltage measurement & supply voltage Internal:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

3-phase output fuse

125A: NH fuse holder

250, 400, 530A: NH switch-disconnector

Load factor current (24 / 2h): 0.6 / 1.0

Maximum connection cross-section in mm²

125 A: 50 mm²:

250 A: 240 mm²

400 A : 240 mm²

530 A : 240 mm²

Operating current measurement: 4x calibrated current transformers internally to 5A (3 phases + N) with accuracy class 0.5

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement: 2x type A

Measuring range / resolution: 50 µA to 30 mA RMS / 1 µA

Integrated temperature measurement: 1x PT100 on NH element

Ambient temperature range -10 °C to +55 °C

The multifunctional appliance is protected by a built-in motor protection switch in accordance with DIN EN IEC 60947-4-1.

Including multifunction measuring device accessible from the outside for front panel installation (96x96mm) with battery, clock, memory and interfaces.

Viewing window for operating the meter when the outlet box is closed (only for 125 A version).

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

For energy data logging, power quality measurement and MID-compliant and tamper-proof billing metering. Approved according to EU directive 2014 32 EU, part MI-003 incl. initial factory calibration, declaration of conformity & EC type examination certificate (module B + F). Software separation in accordance with MID directives with the option of functional extensions through software updates. Accuracy class B according to EN 50470-1.

Tamper-proof separate storage area for MID meter readings of energy values (15 min. values) for recording measured values over a period of 2 years. Certified meter reading procedure in accordance with PTB-A 50.7.

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS value measurement (True RMS).

Sampling rate of 8.33 kHz (50 Hz) with 166 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms).

8 MB internal measurement data memory (flash) of which 4 MB freely configurable by the user, clock with buffering.

Graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons.

Measurement of the positive, negative and zero sequence as well as the rotating field direction. Total harmonic distortion (THD-I & THD-U), total demand distortion (TDD), single harmonics (odd) for current & voltage up to the 40th harmonic.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.)

Modbus RTU to Modbus TCP - Gateway function for network connection to higher-level software systems of max. 31 DIN rail or front panel-mounted devices, energy meters or data loggers from the manufacturer's current product series. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Ethernet interface

Type: RJ45

Data protocols: Modbus TCP, TCP/IP, DHCP, NTP, SMTP

Ethernet gateway, FTP, TFTP,

Connection from outside: Han PushPull RJ45

Serial interface

Type: RS 485 up to 115.2 kbps

Connection: 2x M12 (1x socket & 1x plug each), 4-pin, A-coded

Data protocols: Modbus RTU Slave

Relative humidity: 0 to 75 % RH

Operating altitude: 0 to 2000 m above sea level

Degree of soiling: 2

Housing material: Galvanized & painted sheet steel

Installation position: vertical or horizontal

Power loss: total 97 W

Ventilation: no forced ventilation required

Sizes in mm (W x H x D):

125 A : 530 x 305 x 105

250 A : 662 x 406 x 202

400 A : 862 x 406 x 202

530 A : 862 x 406 x 352

Mxx plug & socket and Mxx screw connection(s) must be procured separately.

Delivery included:

Documentation, 2x dummy covers for cable penetrations, parameterization and evaluation software in basic version with database, manual report generation, topology view for visualization and graphical measurement data display for download.

Price group: 3

Optionally available as a variant with:

- Pulse input for recording, standardizing and buffering any process variables (compressed air, water, heat, etc.) including active supply via integrated 24V DC power supply unit (max. 1.3 A)

- Extended residual current measurement for recording, evaluating and monitoring residual currents of types A, B and B+ in accordance with IEC 62020 in TN and TT systems (earthed AC systems) using conventional feed-through or retrofittable residual current transformers (type A, B etc.) by means of a patented measuring method.

Optional versions must be included in the initial purchase. Retrofitting is not possible.

Make: Janitza electronics GmbH

Type: AKM 96 PA MID +

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.68.3** **Outlet box incl. multifunction measuring device with 96mm graphic display & extended PQ functions**

for connecting electrical loads to a busbar trunking system as a ready-to-connect unit with integrated measurement technology and accessories tested in accordance with DIN EN 61439. Compact design with optimized and tested temperature behaviour. Freely selectable and changeable direction of the power outlet (top or bottom).

Compatible rail system: BD 2

Number of conductors: 5 (3x phases, N & PE conductor)

Max. Secondary load current: 125, 250, 400, 530 A (depending on variant)

Voltage measurement & supply voltage Internal:

3 Ph. + N (L-N / L-L) max.: 347 / 600V (UL)

3 Ph. + N (L-N / L-L) max.: 417 / 720V (IEC)

3 Ph. without N/PE (L-L) max.: 600 V

Overvoltage category: 600V CAT III

3-phase output fuse

125A: NH fuse holder

250, 400, 530A: NH switch-disconnector

Load factor current (24 / 2h): 0.6 / 1.0

Maximum connection cross-section in mm²

125 A: 50 mm²:

250 A: 240 mm²

400 A : 240 mm²

530 A : 240 mm²

Operating current measurement: 4x internal 5A current transformers (3 phases + N) with accuracy class 1

Measuring range / resolution: 5 mA to 6 A rms / 0.1 mA

Overvoltage category: 300V CAT II

Residual current measurement: 2x type A

Measuring range / resolution: 50 µA to 30 mA RMS / 1 µA

Integrated temperature measurement: 1x PT100 on NH element

Ambient temperature range -10 °C to +55 °C

The multifunctional appliance is protected by a built-in motor protection switch in accordance with DIN EN IEC 60947-4-1.

Including multifunction measuring device accessible from the outside for front panel installation (96x96mm) with battery, clock, memory and interfaces.

Viewing window for operating the meter when the outlet box is closed (only for 125 A version).

Accuracy classes according to IEC 61557-12 at 50/60 Hz:

Active energy class: 0.2S / current: 0.2 / voltage: 0.2

Suitable for measuring in all levels of TN & TT networks for recording current, voltage, frequency, active, apparent & reactive power (per phase & total) in the frequency range 45 - 65 Hz, cos phi, active, apparent & reactive energy total as well as consumption and output of active & reactive energy (4-quadrant measurement) in separate memory values as well as 2 tariffs, continuous true RMS value measurement (True RMS).

Sampling rate of 13.67 kHz (50 Hz) with 279 measuring points per period (voltage and current measurement) and output of the measured values via the interfaces (cycle >=200 ms). 64 MB internal measurement data memory (flash) of which 60 MB freely configurable by the user, clock with buffering.

Graphic LCD color display with 320 x 240 pixel resolution (backlit) and user-friendly menu navigation, 6 buttons.

Measurement of the positive, negative and zero sequence as well as the rotary field direction. Total harmonic distortion (THD-I & THD-U), Total Demand Disortion (TDD), single harmonics (odd) for current & voltage up to the 65th harmonic.

Digital drag indicator function (positive/negative) of active and apparent power as well as currents with external synchronization and freely adjustable period duration (1..166 min.)

Modbus RTU to Modbus TCP - Gateway function for network connection to higher-level software systems of max. 31 DIN rail or front panel-mounted devices, energy meters or data loggers from the manufacturer's current product series. Simultaneous supply of the communication interfaces and parallel operation of 4 Modbus TCP ports.

Ethernet interface

Type: RJ45

Data protocols: Modbus TCP, TCP/IP, DHCP, NTP, SMTP

Ethernet gateway, FTP, TFTP,

Connection from outside: Han PushPull RJ45

Serial interface

Type: RS 485 up to 115.2 kbps

Connection: 2x M12 (1x socket & 1x plug each), 4-pin, A-coded

Data protocols: Modbus RTU Slave

Relative humidity: 0 to 75 % RH

Operating altitude: 0 to 2000 m above sea level

Degree of soiling: 2

Housing material: Galvanized & painted sheet steel

Installation position: vertical or horizontal

Power loss: total 97 W

Ventilation: no forced ventilation required

Sizes in mm (W x H x D):

125 A : 530 x 305 x 105

250 A : 662 x 406 x 202

400 A : 862 x 406 x 202

530 A : 862 x 406 x 352

Mxx plug & socket and Mxx screw connection(s) must be procured separately.

Delivery included:

Documentation, 2x dummy covers for cable penetrations, parameterization and evaluation software in basic version with database, manual report generation, topology view for visualization and graphical measurement data display for download.

Price group: 3

Optionally available as a variant with:

- Pulse input for recording, standardizing and buffering any process variables (compressed air, water, heat, etc.) including active supply via integrated 24V DC power supply unit (max. 1.3 A)

- Extended residual current measurement for recording, evaluating and monitoring residual currents of types A, B and B+ in accordance with IEC 62020 in TN and TT systems (earthed AC systems) using conventional feed-through or retrofittable residual current transformers (type A, B etc.) by means of a patented measuring method.

Optional versions must be included in the initial purchase. Retrofitting is not possible.

Make: Janitza electronics GmbH

Type: AKM 96 PQ-L

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.69** **Compensation system services**

**1.1.69.1** **Network analysis for the design of compensation / filter solutions**

Grid analysis to assess the grid conditions for the subsequent design of compensation / filter solutions. With evaluation of the power quality according to applicable standards and the energy load profiles.

The measurement is carried out in the LV mains (230/400V 50Hz) in accordance with EN 61000-4-30 Class A.

Data is recorded and logged at selectable intervals of 5 sec - 15 min (average, max and min values) over a period of 7 days per measuring point:

- 10min. Voltages L-N, L-L in L1,L2,L3

- 10min. Current L1,L2,L3, N

- 10min. Active power L1,L2,L3, total

- 10min. Apparent power L1,L2,L3, total

- 10min. Reactive power L1,L2,L3, total

- 10min. Fundamental oscillation Reactive power L1,L2,L3, total

- 10min. Power factor PF L1,L2,L3, total

- 10min. Displacement factor Cos phi L1, L2, L3, sum

- 10min asymmetry

- 10sec. Frequency

- 15min. Active-apparent reactive energy, inductive reactive energy

- 10min. 1st to 50th harmonic / interharmonic voltage, L1,L2,L3, THD

- 10min. 1st to 50th harmonic / interharmonic current, L1,L2,L3, THD

- 10min short-term flicker / 2h long-term flicker

- Voltage and current events: >10 ms

- Transients: > 50µs with history (pre-/post-trigger)

The measurement must be carried out during representative operation of the system section in consultation with the specialist planner.

Preparation of a final report with transfer of the relevant data in individual report form (pdf) to the specialist planner, presentation of all measured variables required for the evaluation of the network in graphical form including comments and catalog of measures as well as specific technical solutions. Compensation / filter design must be possible on the basis of the network analysis.

It is assumed that a qualified electrician with appropriate specific knowledge of the system is present during the installation and dismantling of the measurement. (person responsible for the system/work).

Travel costs and overnight stays will be charged at cost. Price group 4.

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101129

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| **Item no:** | DL5101129 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.69.2** **PQ QuickCheck according to EN 61000-2-4 / EN 50160**

Analysis and evaluation of recorded power quality parameters in accordance with the EN 50160 and/or EN 61000-2-4 standards with recommendations for action (e.g. compensation, filter solution, etc.) in the event of limit value violations or critical parameters. The measurement data to be evaluated is read out by the customer into the GridVis® software and transferred to Janitza via data transfer.

Requirement: Installed measurement devices of type UMG 604-PRO, UMG 605-PRO, UMG 508, UMG 511, UMG 509-PRO, UMG 512-PRO. In each case with activated PQ recording and at least one consecutive calendar week's data. Alternatively, the measurement can be carried out using a measurement case on loan.

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: 5101024

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.70** **Choking factor 7%**

**1.1.70.1** **Choked reactive power compensation system with plug-in technology in floor-standing housing "Dynamic version" Switching operations in the ms range**

p=7%, fr=189Hz, suction effect, can be used at ripple control frequencies >228 Hz

X units Adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Wall housing.

Type: JF480/100/600ER-ES8206FK7Thy

Nominal power: /kvar divided into 7 stages with /kvar

in proportion

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 480 Volt, 50 Hz

Rated current: - A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 7 % of the capacitor reactance at mains frequency corresponding to 189 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6T (12T) (7T) microprocessor-controlled reactive power regulator for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of choking in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages if the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Electronic switches for switching the capacitor branches in the ms range

- Filter circuit chokes with linear inductance up to 1.36 times IN 100% ED

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W800x H2020x D600mm

External back-up fuse: 3x /A

Supply cable: NYY/ Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

Item no:

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.70.2** **Choked reactive power compensation system with plug-in technology in floor-standing housing**

p=7%, fr=189Hz, suction effect, can be used at ripple control frequencies >228 Hz

X units Adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Wall housing.

Type: JF480/100/600ER/ES8206FK7

Nominal power: /kvar divided into 7 stages with /kvar in the ratio

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 480 Volt, 50 Hz

Rated current:..A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 7 % of the capacitor reactance at mains frequency corresponding to 189 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6R (12R) microprocessor-controlled reactive power regulator (7) for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of throttling in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages if the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Capacitor contactors for switching the capacitor feeders

- Filter circuit chokes with linear inductance up to 1.36 times IN

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W800x H2020x D600mm

External back-up fuse: 3x A

Supply cable: NYY /Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.70.3** **Choked reactive power compensation system with plug-in technology in floor-standing housing as hybrid systems Dynamic/conventional stages freely selectable**

p=7%, fr=189Hz, suction effect, can be used at ripple control frequencies >228 Hz

X units Adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Wall housing.

Type: JF480/100/600ER/ES8206FK7Thy/KS

Nominal power: /kvar divided into 7 stages with /kvar in the ratio

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 480 Volt, 50 Hz

Rated current: /A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 7 % of the capacitor reactance at mains frequency corresponding to 189 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6T6R (7TR) microprocessor-controlled reactive power regulator for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of throttling in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages if the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Electronic switches/capacitor contactor for switching the capacitor feeders

- Filter circuit chokes with linear inductance up to 1.36 times IN 100% ED

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W800x H2020x D600mm

External back-up fuse: 3x A

Supply cable: NYY /Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.70.4** **Choked reactive power compensation system in small design for wall mounting**

p=7%, fr=189Hz, suction effect, can be used at ripple control frequencies >228 Hz

X units Adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Wall housing.

Type: JF480/10/100ER/KB6123FK7

Nominal power: /kvar divided into 7 stages with /kvar in a ratio of 1:1:2:3.

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 480 Volt, 50 Hz

Rated current:..A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 7 % of the capacitor reactance at mains frequency corresponding to 189 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6R (12R) microprocessor-controlled reactive power regulator (7) for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of choking in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages if the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Capacitor contactors for switching the capacitor feeders

-filter circuit chokes with linear inductance up to 1.36 times IN

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W600 x H1200 x D300mm

External back-up fuse: 3x /A

Supply cable: NYY / Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.71** **Choking factor 14%**

**1.1.71.1** **Choked reactive power compensation system in slide-in technology in floor-standing housing "Dynamic version" Switching operations in the ms range**

p=14%, fr=134Hz, low suction effect, can be used at ripple control frequencies >160Hz

X adjustable reactive power compensation system in plug-in technology with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Floor standing housing:

Type: JF525/100/600ER/ES8206FK14Thy

Nominal power: /kvar divided into 7 stages with /kvar stage power

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 525 Volt, 50 Hz

Rated current: /A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 14% of the capacitor reactance at mains frequency corresponding to 134 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6T6R (7TR) microprocessor-controlled reactive power regulator for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of throttling in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages when the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Electronic switches for switching the capacitor branches in the ms range

- Filter circuit chokes with linear inductance up to 1.36 times IN 100%ED

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W800x H20200x D600mm

External back-up fuse: 3x /A

Supply cable: NYY / Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.71.2** **Choked reactive power compensation system with plug-in technology in floor-standing housing**

p=14%, fr=134Hz, low suction effect, can be used at ripple control frequencies >160Hz

X units Adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Wall housing:

Type: JF525/100/600ER/ES8206FK14

Nominal power: /kvar divided into 7 stages with /kvar in the ratio

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 525 Volt, 50 Hz

Rated current: /A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 14% of the capacitor reactance at mains frequency corresponding to 134 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6R (12R) (7R) microprocessor-controlled reactive power regulator for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of throttling in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages if the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Capacitor contactors for switching the capacitor feeders

- Filter circuit chokes with linear inductance up to 1.36 times IN 100%ED

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W800x H20200x D600mm

External back-up fuse: 3x /A

Supply cable: NYY / Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.71.3** **Choked reactive power compensation system with slide-in technology in floor-standing housing Dynamic/conventional stages freely selectable**

p=14%, fr=134Hz, low suction effect, can be used at ripple control frequencies >160Hz

X adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Floor standing housing:

Type: JF525/100/600ER/ES8206FK14Thy/KS

Nominal power: /kvar divided into 7 stages with /kvar in the ratio

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 525 Volt, 50 Hz

Rated current: /A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 14% of the capacitor reactance at mains frequency corresponding to 134 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6T6R (7TR) microprocessor-controlled reactive power regulator for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of throttling in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages when the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Electronic switches/capacitor contactor for switching the capacitor feeders

- Filter circuit chokes with linear inductance up to 1.36 times IN 100%ED

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm², failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W800x H20200x D600mm

External back-up fuse: 3x /A

Supply cable: NYY / Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.71.4** **Choked power factor correction system in small design for wall mounting**

p=14%, fr=134Hz, low suction effect, can be used at ripple control frequencies >160 Hz

X adjustable reactive power compensation system in small design with choked capacitors for central compensation of reactive power in networks with converter load > 20 % of the total load, with suction effect. Design, testing and load capacity in accordance with VDE 0560, Part 41 and VDE 0660 Part 500 as well as IEC publications 439-1.

Wall housing:

Type: JF525/10/100ER/KB6123FK14

Nominal power: /kvar divided into 7 stages with /kvar in a ratio of 1:1:2:3.

Rated voltage: 400 Volt, 50 Hz

Auxiliary voltage: 230 Volt, 50 Hz

Capacitor voltage: 525 Volt, 50 Hz

Rated current: /A

Harmonic current: 150 Hz: 0.10 ICN, 250 Hz: 0.086 ICN, 350 Hz: 0.051 ICN

Choke reactance: 14 % of the capacitor reactance at mains frequency corresponding to 134 Hz

Protection class: IP 32

Paint finish: RAL 7035

Built into the front:

- 1 Prophi 6R (12R) microprocessor-controlled reactive power regulator (7) for connection to /1 and /5 A current transformers

with the following features:

- Digital display of U, I, f, Q, P, S, cos (phi), all odd harmonics from 1-19 (U, I)

- Display of the indirectly measured capacitor stage, switching cycles per capacitor stage

- Display of the total switch-on time per capacitor stage

- 6 (12) outputs, capacitor outputs individually freely programmable

- Setting the discharge time for all contactor stages

- Degree of throttling in % programmable for each stage from 0-20%

- Zero-voltage release within 20ms

- Alarm output programmable for: Undervoltage detection, overvoltage detection, undercompensation, current interruption, measuring current overrun, harmonic limit values, generator operation

- Switching off the capacitor stages if the harmonic limit values are exceeded

- Externally switchable target cos phi (only with Prophi 12R)

- Password protection

The power section consists of:

- NH fuses for short-circuit protection with NH inserts

- Continuous busbar system 630 A

- Terminal strip with control fuse terminals

- Capacitor contactors for switching the capacitor feeders

- Filter circuit chokes with linear inductance up to 1.36 times IN

- Power capacitor in dry technology with spring terminal for connection cross-section 6mm² failure protection devices, low-loss dielectric made of metallized polypropylene film and a PCB-free, flame-retardant mineral filler with adhesive stabilizer.

- Power loss: 0.2 Watt/kvar (at the capacitor winding)

- Total power loss: 6 Watt/kvar

- Discharging resistors for discharging the capacitors

- Ventilation: Thermostatically controlled filter fan(s)

Ambient temperature: -5° to +40°C in accordance with DIN VDE 0660 Part 500 Para. 6.1.1.1

Dimensions: W600x H1200x D300mm

External back-up fuse: 3x /A

Supply cable: NYY / Cu mm2

Manufacturer: Janitza electronics GmbH

Type: Compensation

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.72** **Basic training**

**1.1.72.1** **Basic training**

GridVis ® Basic training for beginners 2 days GridVis intensive training, in conjunction with measurement technology from Janitza including training documents including catering including certificate Overview of topics: Measuring devices & product overview, introduction to GridVis software, system structure, explanation of functions with practical examples: Configuring and using measuring devices correctly Introduction to system functions (e.g. user administration, time management, automation, etc.) Evaluating and analysing measurement and consumption data Creating and automatically sending reports Managing and correctly using alarms Graphical programming (Jasic), logic for measuring devices Importing and using data Creating virtual measuring points Creating your own visualization with dashboards and widgets Note: Please register for a training course. Training dates can be found on our website: <https://www.janitza.de/schulungstermine.html.> The number of participants is limited. We will confirm the date in writing.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101135

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| **Item no:** | DL5101135 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.73** **Expert training EnMS**

**1.1.73.1** **Expert training EnMS**

GridVis ® Expert Training Energy Management

1 day including training documents, catering and certificate. Overview of topics: Setting up energy management with Janitza products, creating key figures and quantity flow diagrams, applications of the ISO 50001 and ISO 50006 standards with the help of GridVis. Focal points: ISO 50001 and ISO 50006 KPI & Sankey functions Data import Weather adjustment GridVis web interface Dashboards & Sankey. Note: Please register for a training course. Training dates can be found on our website: <https://www.janitza.de/schulungstermine.html.> The number of participants is limited. An appointment confirmation will be sent in writing: Basic knowledge of GridVis

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101136

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| **Item no:** | DL5101136 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.74** **Expert training for major projects**

**1.1.74.1** **Expert training for major projects**

GridVis ® Expert Training Large Projects & Connectivity

1 day including training documents and hospitality including certificate. Overview of topics: Structure of a large project, project structure and database types explained simply, user administration and access rights, options for integrating external devices, GridVis and connectivity. Focal points: Database & multiple access User management Third-party devices GridVis Collector Alarm management REST interface Graphical programming Data export. Note: Please register for a training course. Training dates can be found on our website: <https://www.janitza.de/schulungstermine.html.> The number of participants is limited. An appointment confirmation will be sent in writing: Basic knowledge of GridVis

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101137

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| **Item no:** | DL5101137 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.75** **Expert training PQ & RCM**

**1.1.75.1** **Expert training PQ & RCM**

GridVis ® Expert Training Voltage Quality & RCM

1 day including training documents, catering and certificate. Overview of topics: Configuring and evaluating events and transients correctly, RCM simple and easy to understand, power quality and RCM reports, topic-related presentation by a guest speaker. Main topics: EN 50160 Power quality events & transients RCM high availability. Note: Please register for a training course. Training dates can be found on our website: <https://www.janitza.de/schulungstermine.html.> The number of participants is limited. A confirmation of the date will be sent in writing: Basic knowledge of GridVis

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101138

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| **Item no:** | DL5101138 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.76** **In-house training**

**1.1.76.1** **In-house training**

1 day presentation & practical examples. Workshops & training courses directly on site. Content and focus can be agreed in advance.

Maximum 8 participants.

Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101139

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.77** **Webinar trainings**

**1.1.77.1** **Webinar Training Essentials**

for max. 2 participants as an interactive workshop with live exercises via the freeware software GoToMeeting (no installation required).

Duration: 1 day / 3 hours

The content and focus can be individually agreed in advance.

Including a joint technical test to ensure audio quality and internet speed.

Includes training documents including personal practical examples & certificate of participation.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101140

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| **Item no:** | DL5101140 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.77.2** **Webinar Training Standard**

for max. 2 participants as an interactive workshop with live exercises via the freeware software GoToMeeting (no installation required).

Duration: 1 day / 7 hours

Webinar scope:

- Exchange of experience and customer requests

- Presentation of the parameterization and network visualization software and web interface

- Presentation of the devices Homepage

- Licensing of the software

- Integrate devices & device overview

- Device configuration & automatic readout

- Firmware update & configure virtual devices

- Online values, historical values, event browser

- Statistical analysis & graphs

- Manual data import & automatic CSV import

- Scheduling, automatic readout, forming tariffs

- Database management

- Reports and data exports in the areas of energy management and EEG, power quality (PQ), residual current monitoring (RCM)

- Web interface in practice

- Creating dashboards

- Presentation of the widgets / visualizations

- Create and use user directory

Including a joint technical test to ensure audio quality and internet speed.

Includes training documents including personal practical examples & certificate of participation.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Webinar Training Standard

Item no.: DL5101140

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| **Item no:** | DL5101140 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.77.3** **Webinar Training Expert**

for max. 2 participants as an interactive workshop with live exercises via the freeware software GoToMeeting (no installation required).

Duration: 2 days / 12 hours total

Main topics:

- Exchange of experience and customer requests

- Presentation of the parameterization and network visualization software and web interface

- Devices Homepage

- Licensing of the software

- Integrate devices & device overview

- Device configuration & automatic readout

- Firmware update & configure virtual devices

- Online values & historical values

- Event browser & statistical analysis

- Graphs & Online Recorder

- Integration of third-party devices & generic Modbus

- OPC UA Client

- Scheduling, automatic readout

- Create tariffs & database management

- Reports and data exports in the areas of energy management and EEG, power quality (PQ), residual current monitoring (RCM), MSCONS data export

- Web interface: System settings, manage projects & e-mail dispatch

- Configuring alarms, alarm history & various application examples (accessibility, residual current monitoring (RCM) &

Power quality (PQ))

- Manual data import, automatic CSV import

- Data import MSCONS

- Web interface in practice: creation of dashboards, presentation of widgets/visualizations, HTML integration

- Configurator for Sankey volume flow diagrams with examples

- Configurator for KPI with rating system ǀ with examples

- Jasic programming with examples

- Create and use user directory

- Create user

Including a joint technical test to ensure audio quality and internet speed.

Includes training documents including personal practical examples & certificate of participation.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Webinar Training Standard

Item no.: DL5101140

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.78** **IBN measuring device of type 1**

**1.1.78.1** **Programming the parameters of the measuring device**

Programming of the parameters of the measuring device by the manufacturer, integration into the GridVis software, for the UMG508, 509, 511, 512, 604, 605, 801, 806, RCM202-AB devices, commissioning of the system, instruction of the operating personnel, backup of the configuration data as a TxT file. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101094

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**1.1.79** **IBN measuring device of type 2**

**1.1.79.1** **Programming the parameters of the measuring device**

Programming of the parameters of the measuring device by the manufacturer, integration into the GridVis software, for the devices UMG103, 104, 96S, 96RM series, 96PA series, module 800-CT8-A, modules EC1, ED1, EI1 Commissioning of the system, instruction of the operating personnel, backup of the configuration data as a TxT file. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101095

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**1.1.80** **IBN measuring device of type 3**

**1.1.80.1** **Programming the parameters of the measuring device**

Programming of the UMG20CM parameters by the manufacturer, recording of the data on site, integration into the GridVis software, commissioning of the system, instruction of the operating personnel, saving of the configuration data as a TxT file. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101096

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**1.1.81** **IBN measuring device of type 4**

**1.1.81.1** **Programming the parameters of the measuring device**

Programming of the ProData 2 parameters by the manufacturer, integration into the GridVis software, commissioning of the system, instruction of the operating personnel, backup of the configuration data as a TxT file. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101097

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**1.1.82** **IBN measuring device of type 5**

**1.1.82.1** **Programming the parameters of the measuring device**

Programming of the energy meter parameters by the manufacturer, recording of the data on site, integration into the power quality and cost center recording software, commissioning of the system, instruction of the operating personnel, preparation of the final report, travel costs / overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101123

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.83** **IBN Generic Modbus counter**

**1.1.83.1** **Commissioning Generic Modbus meter**

Programming of the parameters of Modbus measuring devices according to the approved list of Janitza electronics GmbH, via generic Modbus, implementation in the system, instruction of the operating personnel, backup of the configuration data as a TxT file. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service

Item no.: DL5101102

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.84** **IBN pulse media counter**

**1.1.84.1** **Commissioning the pulse media meters**

Programming the parameters of the pulse media counters, setting the pulse values, implementation in the system, instruction of the operating personnel. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101103

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| **Item no:** | DL5101103 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.85** **IBN MBus Gateway Solvimus**

**1.1.85.1** **Commissioning the Mbus gateway**

Commissioning of the gateway by Janitza, recording of data on site, integration into the GridVis software, instruction of operating personnel, preparation of final report. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101104

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**1.1.86** **IBN MBus media counter**

**1.1.86.1** **Commissioning the Mbus media meter**

Programming the parameters of the M-Bus media meters for connection to the Solvimus MBus gateway, recording the data on site, setting the M-Bus parameters, implementing them in the system, instructing the operating personnel, preparing the final report. Travel costs / overnight stays will be charged additionally at cost. Note: An overnight stay is required for more than 25 media meters.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101105

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| **Item no:** | DL5101105 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.87** **IBN OPC BMS Server**

**1.1.87.1** **Installation/ Commissioning OPC BMS Server**

Installation/commissioning of OPC BMS server by Janitza. Commissioning of the system, instruction of the operating personnel, preparation of the final report, travel costs / overnight stays will be charged at cost.   
 Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101106

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| **Item no:** | DL5101106 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.88** **Programming compensation system**

**1.1.88.1** **Programming compensation system**

Programming of the system parameters of the compensation system by the manufacturer, recording of the data on site, commissioning, instruction of the operating personnel, preparation of the final report with transfer of the relevant data in hardware and software, such as bus, ring memory, measuring device, topology configuration and bus address list of the devices, to the specialist engineer, travel costs / overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101128

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| **Item no:** | DL5101128 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.89** **Comp. system design / network analysis**

**1.1.89.1** **Comp. system design / network analysis**

Grid analysis to assess the grid conditions for designing the compensation system with regard to voltage quality and energy load profiles. The measurement is carried out in the LV grid (230/400V 50Hz). Data is recorded and logged at selectable intervals of 5sec. - 15min. - 10min. Voltages L-N, L-L in L1,L2,L3 - 10min. Current L1,L2,L3, N - 10min. Active power L1,L2,L3, sum - 10min. Apparent power L1,L2,L3, total - 10min. Reactive power L1,L2,L3, total - 10min. Power factor L1,L2,L3, sum - 10sec. Frequency - 60min. Active-apparent reactive energy, inductive reactive energy Optional additional (according to EN50160) - 10min. 1st to 63rd harmonics voltage, L1,L2,L3, THD, - 10min. 1st to 63rd harmonics current, L1,L2,L3, THD - 10min short-term flicker / 2h long-term flicker - KU interruptions >10sec. /transients > 50µs both pretriggers over a period of 7 days per measuring point. The measurement must be carried out during representative operation of the system section in consultation with the specialist planner. Final report with transfer of the relevant data in hardware and software in graphical (pdf/bmp) and numerical (csv/xls) form to the specialist engineer. It is assumed that an electrotechnical specialist with appropriate specific knowledge of the system is present during the installation and dismantling of the measurement. Travel costs / overnight stays will be charged at cost. Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101129

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.90** **Programming UMG20CM channels**

**1.1.90.1** **Programming and parameterization UMG20CM channels**

Programming of channel parameters, recording of data on site, setting of pulse values, implementation in the system, instruction of operating personnel, preparation of final report, without arrival and departure.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101130

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| **Item no:** | DL5101130 |

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**1.1.91** **Changing the system parameters**

**1.1.91.1** **Changing the system parameters after commissioning**

Change of individual system parameters on site, per bus participant after commissioning by the service technician Within the first 12 months after initial commissioning, e.g. change of the recording configuration per device, change of nominal values per device, change of current transformer settings per device, adjustment of reports per device in the report, update of the firmware per device, software update if necessary Necessary hardware on loan if necessary incl. changes to the parameters via the option of VPN or remote access incl. access must be guaranteed and made available by the customer. Alternatively: access via TeamViewer. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101133

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| **Item no:** | DL5101133 |

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**1.1.92** **IBN JPC100**

**1.1.92.1** **Commissioning and parameterization JPC100**

Programming of the JPC100 parameters by the manufacturer - IP configuration - Configuration of the alarm system - E-mail configuration - Backup of the configuration data. Travel costs / overnight stays will be charged additionally at cost. Note: For the integration of devices, the articles "IBN measuring devices type 1 to type 5" must also be selected.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101151

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**1.1.93** **IBN AHF / SVG**

**1.1.93.1** **Commissioning and parameterization AHF/SVG**

Programming of the system parameters of the AHF / SVG by the manufacturer, recording of the data on site, commissioning, instruction of the operating personnel, preparation of the final report with transfer of the relevant data in hardware and software to the specialist engineer. Travel costs / overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101152

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| **Item no:** | DL5101152 |

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**1.1.94** **Installation of the software for up to 10 devices**

**1.1.94.1** **Installation & setup of the software for up to 10 measuring points**

Installation of the GridVis software (desktop and/or service) on a PC or server, including setup of the system by the manufacturer. Creation of a Janitza database or connection of an existing MySQL or MSSQL database, commissioning, instruction of the operating personnel, creation of a final report with transfer of the relevant data in hardware and software, topology configuration and GridVis device list to the person responsible for the system. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101090

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| **Item no:** | DL5101090 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.95** **Installing the software for more than 10 devices**

**1.1.95.1** **Installation & setup of the software for over 10 measuring points**

Installation of the GridVis software (desktop and/or service) on a PC or server, including setup of the system by the manufacturer. Creation of a Janitza database or connection of an existing MySQL or MSSQL database, commissioning, instruction of the operating personnel, creation of a final report with transfer of the relevant data in hardware and software, topology configuration and bus address list of the devices to the person responsible for the system Travel costs / overnight stays will be charged additionally according to expenditure.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101091

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| **Item no:** | DL5101091 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.96** **Installation & setup of the software on another system**

**1.1.96.1** **Installation & setup of the software on another system**

Installation of GridVis Desktop on an additional PC, including system setup by the manufacturer, instruction of operating personnel, preparation of final report. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101092

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| **Item no:** | DL5101092 |

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**1.1.97** **Create virtual device**

**1.1.97.1** **Creating virtual measuring points in the software**

Creation of virtual measuring points (devices) in GridVis with max. 10 input and output measured values Travel costs / overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101134

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.98** **Service VISU Type 1**

**1.1.98.1** **Creation of topologies, virtual measuring points or individual reports**

Creation of topology pages in GridVis, virtual measuring points (PUE + key figures), cost center/network quality reports (EN 50160/EN 61000-2-4) on customer request. Instruction of operating personnel, preparation of final report. A specification sheet must be provided by the customer. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101109

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| **Item no:** | DL5101109 |

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**1.1.99** **VISU type 2 service**

**1.1.99.1** **Creation of an overview page (dashboard)**

Creation of a DASHBOARD page in GridVis Standard / Expert with approx. 5 standard widgets, 5 measuring devices and 20 measured values. A specification sheet must be provided by the customer. Travel costs / overnight stays will be charged additionally according to expenditure.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101110

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| **Item no:** | DL5101110 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.100** **VISU type 3 service**

**1.1.100.1** **Creation of a template for overview pages (dashboards)**

Creation of a template page in GridVis Standard / Expert with approx. 5 standard widgets and 20 measured values. A specification sheet must be provided by the customer. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Item no.: DL5101111

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| **Item no:** | DL5101111 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.101** **VISU Type 4 service**

**1.1.101.1** **Creation of a DASBOARD overview page**

Creation of a DASBOARD overview page in GridVis Standard / Expert with links to up to 10 subpages. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101112

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| **Item no:** | DL5101112 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.102** **VISU Type 5 service**

**1.1.102.1** **Creation of a Sankey diagram or KPI widget**

Creation of a Sankey diagram or KPI widget with approx. 20 measured values. Creation of a specification sheet in coordination with the client. Travel costs / overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101113

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| **Item no:** | DL5101113 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.103** **VISU Type 6 service**

**1.1.103.1** **Creation of customized graphics for the DASHBOARD**

Creation of customized graphics for the DASHBOARD pages. A specification sheet must be provided by the customer.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101114

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| **Item no:** | DL5101114 |

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| **Quantity:** ........... | h | **Price:** ........... | € | **GP:** ........... | € |

**1.1.104** **Integration into the BMS Server**

**1.1.104.1** **Integration of a measuring device into the OPC BMS Server**

Integration of a measuring device into the OPC BMS server, recording of data on site, creation of approx. 5 measured values per measuring device, instruction of operating personnel, preparation of final report, travel costs / overnight stays will be charged additionally according to expenditure.   
 Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101107

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| **Item no:** | DL5101107 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.105** **Upgrade Software**

**1.1.105.1** **Software Upgrade GridVis**

Upgrade of the existing and installed GridVis-Essential / Standard software to Standard or Expert, including programming of the system by the manufacturer, commissioning, instruction of the operating personnel. Preparation of final report. Travel costs / overnight stays will be charged additionally at cost.   
 Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101108

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| **Item no:** | DL5101108 |

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**1.1.106** **Customization of the existing software**

**1.1.106.1** **Adaptation of the existing software**

Adaptation of the existing software to the new constellation of the system including software and device updates, integration of the new devices into the software, optional creation of an additional database connection, instruction of the operating personnel, creation of a final report, travel costs / overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101126

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| **Item no:** | DL5101126 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.107** **Setup package 1 for MS-SQL**

**1.1.107.1** **Setup package for MS-SQL**

Install hard disks, install operating system, RAID configuration (RAID 10), install updates, install MS-SQL Server\*, install GridVis®.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101018

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| **Item no:** | DL5101018 |

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**1.1.108** **Setup package 2 for MySQL**

**1.1.108.1** **Setup package for MySQL**

Install hard disks, install operating system, RAID configuration (RAID 10), install updates, install MS-SQL Server\*, install GridVis®.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101019

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| **Item no:** | DL5101019 |

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**1.1.109** **Setup package 3 for JanDB**

**1.1.109.1** **Setup package for JanDB**

Install hard disks, install operating system, RAID configuration (RAID 10), install updates, install MS-SQL Server\*, install GridVis®, set up RTP user

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101023

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| --- | --- |
| **Item no:** | DL5101023 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.110** **Commissioning / acceptance of the physical cabling**

**1.1.110.1** **Commissioning / acceptance of the physical cabling**

Commissioning/acceptance of the system's physical cabling by qualified specialist personnel. Checking the Modbus/Ethernet cabling with regard to cable type, polarity, shield earthing, termination, patching of the Ethernet connections, compliance with the physical topology, etc. Creation of communication and electrotechnical data lists in Excel format and handover to the person responsible for the system. Travel costs/overnight stays will be charged additionally at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101093

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| **Item no:** | DL5101093 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.111** **Testing the differential/PE current measurement**

**1.1.111.1** **Testing the differential/PE current measurement**

Testing of the differential/PE current measurement by qualified personnel. A live simulation (e.g. test transformer) must be used to check compliance with the set limit value and, if it is exceeded, the entire alarm/message loop of the Janitza system. This must be carried out for each individual monitored input/output. The results must be logged and handed over to the specialist engineer in hardware and software form (Excel) Minimum requirements for the log: Project name, distributor name, outgoing circuit designation, measuring device designation, company name, tester name, measured value, message chain function Stamped current level, type of test device, signature and date Price per diff/transformer Travel costs/overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101125

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| **Item no:** | DL5101125 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.112** **Project-related briefing**

**1.1.112.1** **Project-related briefing**

Project-related instruction in handling the software after commissioning, instruction in the functionality of the overall system. Operation of the software with setting options, evaluation displays, visualization, etc. Travel costs / overnight stays will be charged at cost.

Price group: 4

Manufacturer: Janitza electronics GmbH   
Type: Service   
Art.No.: DL5101127

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| **Item no:** | DL5101127 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.113** **TeamViewer session per hour**

**1.1.113.1** **TeamViewer session per hour**

TeamViewer session per hour

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101150

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| **Item no:** | DL5101150 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.114** **Mileage allowance type 1**

**1.1.114.1** **Mileage allowance with travel time**

Travel costs for commissioning / services include one journey to and one departure from the place of performance of the services, incl. mileage allowance, working time for the technician's arrival and departure. The number of necessary arrivals and departures per project must be agreed individually when the services are commissioned.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101115

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| **Item no:** | DL5101115 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | km | **Price:** ........... | € | **GP:** ........... | € |

**1.1.115** **Mileage allowance type 2**

**1.1.115.1** **Mileage allowance without travel time**

Mileage allowance without travel time

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101116

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| **Item no:** | DL5101116 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | km | **Price:** ........... | € | **GP:** ........... | € |

**1.1.116** **Travel time**

**1.1.116.1** **Travel time**

Hourly rate for travel time (e.g. travel time by car, flight time, etc.)

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101117

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| **Item no:** | DL5101117 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | h | **Price:** ........... | € | **GP:** ........... | € |

**1.1.117** **Flight costs / transfer costs**

**1.1.117.1** **Flight costs / transfer costs**

Flight costs / transfer costs to the place of assignment

The price is to be entered individually for each project

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101132

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| **Item no:** | DL5101132 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.118** **Overnight stay flat rate**

**1.1.118.1** **Accommodation flat rate**

Includes one overnight stay. Necessary from more than 8 hours (working time and / or travel time).

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101118

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| **Item no:** | DL5101118 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.119** **Travel time Hourly rate**

**1.1.119.1** **Travel time Hourly rate**

Travel costs incl. car allowance. Each hour of travel time is charged at € 131.

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101131

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| **Item no:** | DL5101131 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | h | **Price:** ........... | € | **GP:** ........... | € |

**1.1.120** **Calibration type 1**

**1.1.120.1** **Calibration**

Calibration UMG 104 / UMG 604-PRO / UMG 605-PRO / UMG 96RM / UMG 96-PA / UMG 508 /UMG 509-PRO /UMG 511 / UMG512-PRO - Visual inspection for external damage, opening the device and visual inspection for visible damage to the conductor tracks, checking the functions with an automatic test, firmware update, calibration, high-voltage test (safety check), delivery of a factory calibration protocol

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101143

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| **Item no:** | DL5101143 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.121** **Calibration type 2**

**1.1.121.1** **Calibration**

Calibration UMG 103-CBM / UMG 96L / UMG 96 / UMG 96-S2 Visual inspection for external damage. Open the device and visually check for visible damage to the conductor tracks. Check the functions with an automatic test. Firmware update. Calibration. High voltage test (safety check). Delivery of a factory calibration protocol

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101144

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| **Item no:** | DL5101144 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.122** **Calibration type 3**

**1.1.122.1** **Calibration**

Calibration MRG measuring case. Visual inspection for external damage. Open the device and visually check for visible damage to the conductor tracks. Checking the functions with an automatic test. Firmware update, calibration, high-voltage test (safety check), delivery of a factory calibration protocol

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101145

|  |  |
| --- | --- |
| **Item no:** | DL5101145 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.123** **Firmware update type 1**

**1.1.123.1** **Firmware update**

Firmware update UMG 104 / UMG 604-PRO / UMG 605-PRO / UMG 96RM / UMG 96-PA / UMG 508 / UMG 509-PRO /UMG 511 / UMG512-PRO. Visual inspection for external damage, opening the device and visual inspection for visible damage to the conductor tracks, checking the functions with an automatic test, firmware update, calibration, high-voltage test (safety check)

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101146

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| --- | --- |
| **Item no:** | DL5101146 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.124** **Firmware update type 2**

**1.1.124.1** **Firmware update**

Firmware update UMG 103-CBM / UMG 96L / UMG 96 / UMG 96-S2. Visual inspection for external damage. Opening the device and visual inspection for visible damage to the conductor tracks, checking the functions with an automatic test, firmware update, calibration, high-voltage test (safety check)

Price group: 4

Manufacturer: Janitza electronics GmbH

Type: Service

Item no.: DL5101147

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| **Item no:** | DL5101147 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125** **Bushing current transformer sets cl. 0.5**

**1.1.125.1** **Implementation - Current transformer set incl. N-measurement 60 - 150 A**

Bushing current transformer set (4 pcs.), > 32 A for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 30 mm

Measurement: 3x operating current + N current

Accuracy class: Class 0.5

Primary current: 60,75,100,150 A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: IPA 40.5

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.2** **Implementation - Current transformer set incl. N-measurement 200 - 600 A**

Bushing current transformer set (4 pcs.), > 32 A for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 28 mm

Measurement: 3x operating current + N current

Accuracy class: Class 0.5

Primary current: 200, 250, 300, 400, 500, 600A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 6A315.3

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.3** **Implementation - Current transformer set incl. N-measurement 800 - 1000 A**

Bushing current transformer set (4 pcs.), for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 33 mm

Measurement: 3x operating current + N current

Accuracy class: Class 0.5

Primary current: 800, 1000A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 7A412.3

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.4** **Implementation - Current transformer set incl. N-measurement 1250 A**

Bushing current transformer set (4 pcs.), for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 42 mm

Measurement: 3x operating current + N current

Accuracy class: Class 0.5

Primary current: 1250 A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 8A512.3 / 9A615.3

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.5** **Implementation - Current transformer set incl. N-measurement 1500 - 2500 A**

Bushing current transformer set (4 pcs.), for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 53 mm

Measurement: 3x operating current + N current

Accuracy class: Class 0.5

Primary current: 1500, 1600, 2000, 2500 A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 9A615.3

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| **Item no:** | 0901822 + 1507001 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.6** **Bushing - Current transformer set 60 - 150A**

Bushing current transformer set (3 pcs.), > 32 A for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 30 mm

Measurement: 3x operating current

Accuracy class: Class 0.5

Primary current: 60,75,100,150 A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: IPA 40.5

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.7** **Bushing - Current transformer set 200 - 600A**

Bushing current transformer set (3 pcs.), > 32 A for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 28 mm

Measurement: 3x operating current

Accuracy class: Class 0.5

Primary current: 200, 250, 300, 400, 500, 600A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 6A315.3

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.8** **Bushing - Current transformer set 800 - 1000A**

Bushing current transformer set (3 pcs.), for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 33 mm

Measurement: 3x operating current

Accuracy class: Class 0.5

Primary current: 800, 1000A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 7A412.3

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.9** **Implementation - Current transformer set 1250 A**

Bushing current transformer set (3 pcs.), for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 42 mm

Measurement: 3x operating current

Accuracy class: Class 0.5

Primary current: 1250 A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 8A512.3 / 9A615.3

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.125.10** **Bushing - Current transformer set 1500 - 2500A**

Bushing current transformer set (4 pcs.), for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 53 mm

Measurement: 3x operating current

Accuracy class: Class 0.5

Primary current: 1500, 1600, 2000, 2500 A

Secondary current: 5 A

Nominal frequency: 50 - 60 Hz

Insulation class: E

Ith: 60 x IN/1 s

Idyn: > 100 kA

Um: 0.72 kV

OS: < 50

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: 9A615.3

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| **Item no:** | 0901822 + 1507001 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.126** **Cable conversion current transformer sets KUW**

**1.1.126.1** **Cable conversion current transformers up to 18 mm / 60 - 250 A / cl. 1 - 3**

For retrofitting to cables. Cannot be used on bare conductors with break-proof PVC housing, for indoor use. The current transformers can be installed during operation, i.e. without switching off.

Max. Diameter round conductor: 18 mm

Primary current: 60,75,100,125,150,200,250 A

Secondary current: 1 A

Power: 0.2 VA

Accuracy class: 1 or 3 depending on the version.

Ambient temperature -5° - +40°C, rated frequency: 50-60Hz, insulation class A, Ith: 60xIN/sec., with secondary cable: 0.75qmm with 3 m cable length.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: KUW1/30 - XXX

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.126.2** **Cable conversion current transformers up to 18 mm / 100 - 250 A / cl. 0.5 - 1**

For retrofitting to cables. Cannot be used on bare conductors with break-proof PVC housing, for indoor use. The current transformers can be installed during operation, i.e. without switching off.

Max. Diameter round conductor: 18 mm

Primary current: 100, 125, 150, 200, 250 A

Secondary current: 1 A or 5 A depending on version

Power: 0.2 VA or 1 VA depending on version

Accuracy class: 0.5 or 1 depending on version.

Ambient temperature -5° - +40°C, rated frequency: 50-60Hz,

Insulation class A, Ith: 60xIN/sec., with secondary cable 0.75qmm with 0.5 or 3 m cable length depending on version.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: KUW1/40 - XXX

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.126.3** **Cable conversion current transformers up to 28 mm / 200 - 500 A / cl. 0.5 - 1**

For retrofitting to cables. Cannot be used on bare conductors with break-proof PVC housing, for indoor use. The current transformers can be installed during operation, i.e. without switching off.

Max. Diameter round conductor: 28 mm

Primary current: 200, 250, 300, 400, 500 A

Secondary current: 1 A or 5 A depending on version

Power: 0.2 VA or 1 VA depending on version

Accuracy class: 0.5 or 1 depending on version.

Ambient temperature -5° - +40°C, rated frequency: 50-60Hz,

Insulation class A, Ith: 60xIN/sec., with secondary cable 0.75qmm with 0.5 or 3 m cable length depending on version.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: KUW2/40 - XXX

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.126.4** **Cable conversion current transformers up to 42 mm / 250 - 1000 A / cl. 0.5 - 1**

For retrofitting to cables. Cannot be used on bare conductors with break-proof PVC housing, for indoor use. The current transformers can be installed during operation, i.e. without switching off.

Max. Diameter round conductor: 42 mm

Primary current: 250, 300, 400, 500, 600, 750, 800, 1000 A

Secondary current: 1 A or 5 A depending on version

Power: 0.5 VA

Accuracy class: 0.5 or 1 depending on version.

Ambient temperature -5° - +40°C, rated frequency: 50-60Hz,

Insulation class A, Ith: 60xIN/sec., with secondary cable 0.75qmm with 3 or 5 m cable length depending on version.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Make: Janitza electronics GmbH

Type: KUW4/60 - XXX

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.126.5** **Cable conversion current transformer up to 2x 42 mm / 250 - 1000 A / cl. 0.5 - 1**

For retrofitting to cables. Cannot be used on bare conductors with break-proof PVC housing, for indoor use. The current transformers can be installed during operation, i.e. without switching off.

Max. Diameter round conductor: 2x 42 mm (42 x 84 mm)

Primary current: 250, 300, 400, 500, 600, 750, 800, 1000 A

Secondary current: 1 A or 5 A depending on version

Power: 0.5 VA

Accuracy class: 0.5 or 1 depending on version.

Ambient temperature -5° - +40°C, rated frequency: 50-60Hz,

Insulation class A, Ith: 60xIN/sec., with secondary cable 0.75qmm with 3 or 5 m cable length depending on version.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........A'

Make: Janitza electronics GmbH

Type: KUW4.2/60 - XXX

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127** **Splittable current transformers KBU**

**1.1.127.1** **Splittable current transformer 55x85 mm / 250 / 5 A / cl. 1**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 125, H: 58, D: 158

Max. clear opening (mm): 55 x 85

Primary current (A): 250

Secondary current (A): 5

Accuracy class: 1

Power (VA): 1.5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 0.9

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 58 250 A

Item no.: 1502316

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| **Item no:** | 1502316 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.2** **Splittable current transformer 55x85 mm / 400 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 125, H: 58, D: 158

Max. clear opening (mm): 55 x 85

Primary current (A): 400

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 1

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 0.9

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 58 400 A

Item no.: 1502868

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| **Item no:** | 1502868 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.3** **Splittable current transformer 55x85 mm / 500 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 125, H: 58, D: 158

Max. clear opening (mm): 55 x 85

Primary current (A): 500

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 2.5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 0.9

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 58 500 A

Item no.: 1502819

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| **Item no:** | 1502819 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.4** **Splittable current transformer 55x85 mm / 600 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 125, H: 58, D: 158

Max. clear opening (mm): 55 x 85

Primary current (A): 600

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 2.5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 0.9

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 58 600 A

Item no.: 1502315

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| **Item no:** | 1502315 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.5** **Splittable current transformer 55x85 mm / 1000 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 125, H: 58, D: 158

Max. clear opening (mm): 55 x 85

Primary current (A): 1000

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 0.9

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 58 1000 A

Item no.: 1502320

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| **Item no:** | 1502320 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.6** **Splittable current transformer 85x125 mm / 600 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Core splittable at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 155, H: 58, D: 198

Max. clear opening (mm): 85 x 125

Primary current (A): 600

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 2.5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 1.3

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 812 600 A

Item no.: 1502869

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| **Item no:** | 1502869 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.7** **Splittable current transformer 85x125 mm / 800 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 155, H: 58, D: 198

Max. clear opening (mm): 85 x 125

Primary current (A): 800

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 2.5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 1.3

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 812 800 A

Item no.: 1502870

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| **Item no:** | 1502870 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.8** **Splittable current transformer 85x125 mm / 1000 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 155, H: 58, D: 198

Max. clear opening (mm): 85 x 125

Primary current (A): 1000

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 1.3

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 812 1000 A

Item no.: 1502871

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| **Item no:** | 1502871 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.127.9** **Splittable current transformer 85x125 mm / 1250 / 5 A / Kl. 0.5**

For retrofitting on both insulated and non-insulated primary conductors (cables / rails).

Splittable core at the push of a button, audible latching.

Made of unbreakable plastic housing, for indoor use. Can be fixed with numerous clamping screws.

Complies with DIN EN 61869, Part 1 + 2; IEC 61010-2; Low Voltage Directive 2014/35/EU.

Dimensions (mm): W: 155, H: 58, D: 198

Max. clear opening (mm): 85 x 125

Primary current (A): 1250

Secondary current (A): 5

Accuracy class: 0.5

Power (VA): 7.5

Rated frequency (Hz): 50

Insulation class: E

Ith: 60 x Ipr / 1s (max. 100 kA)

Working temperature (°C): -5 to +40

Weight (kg): 1.3

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.).

Make: Janitza electronics GmbH

Type: KBU 812 1250 A

Item no.: 1502328

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| **Item no:** | 1502328 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.128** **Compact current transformer CT27**

**1.1.128.1** **Compact current transformer CT27 - 35 / 1 A**

for operating current measurement. Mounting on top-hat rail or cable, can be bayed for use on a 3-phase disconnector with a phase spacing of 17.5 mm.

Max. Diameter round conductor: 7.5 mm

Primary current: 35 A

Secondary current: 1 A

Accuracy class: 1

Max. Power consumption at the terminal: 0.2 VA

Rated frequency: 50-60 Hz

Insulation class: E

Ambient temperature: max 55°C

Ith. Limit current: max. 60xIn / 1 sec.

Dimensions in mm: W: 27, H: 19, D: 51.4

Housing: Break-resistant plastic PA6.6 in accordance with IEC 61869-2.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, snap-on fastening for DIN rail mounting in accordance with EN-50022-35, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Make: Janitza electronics GmbH

Type: CT27-35

Item no.: 1503080

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| **Item no:** | 1503080 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.128.2** **Compact current transformer CT27 - 64 / 1 A**

for operating current measurement. Mounting on top-hat rail or cable, can be bayed for use on a 3-phase disconnector with a phase spacing of 17.5 mm.

Max. Diameter round conductor:: 7.5 mm

Primary current: 64 A

Secondary current: 1 A

Accuracy class: 1

Max. Power consumption at the terminal: 0.2 VA

Rated frequency: 50-60 Hz

Insulation class: E

Ambient temperature: max 55°C

Ith. Limit current: max. 60xIn / 1 sec.

Dimensions in mm: W: 27, H: 19, D: 51.4

Housing: Break-proof plastic PA6.6 in accordance with IEC 61869-2.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, snap-on fastening for DIN rail mounting in accordance with EN-50022-35, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT27-64

Item no.: 1503081

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| **Item no:** | 1503081 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.128.3** **Compact current transformer set 35 / 1 A**

for mounting on top-hat rail or cable, can be bayed for use on a 3-phase disconnector with a phase spacing of 17.5 mm, DIN top-hat rail mounting (35 mm) via rail clamp, made of break-proof plastic housing (PA6.6), in accordance with IEC 61869-2.

Max. Diameter round conductor: 7.5 mm

Measurement: 3x operating current

Primary current: 35 A

Secondary current: 1 A

Accuracy class: 1

Max. Power consumption at the terminal: 0.2 VA

Rated frequency: 50-60 Hz

Insulation class: E

Ambient temperature: max 55°C

Ith. Limit current: max. 60xIn / 1 sec.

Dimensions in mm: W: 27, H: 19, D: 51.4

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, snap-on fastening for DIN rail mounting in accordance with EN-50022-35, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT27-35

Item no.: 1503080 + 1507001

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| **Item no:** | 1503080 + 1507001 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.128.4** **Compact current transformer set 64 / 1 A**

for mounting on top-hat rail or cable, can be bayed for use on a 3-phase disconnector with a phase spacing of 17.5 mm, DIN top-hat rail mounting (35 mm) via rail clamp, made of break-proof plastic housing (PA6.6), in accordance with IEC 61869-2.

Max. Diameter round conductor: 7.5 mm

Measurement: 3x operating current

Primary current: 64 A

Secondary current: 1 A

Accuracy class: 1

Max. Power consumption at the terminal: 0.2 VA

Rated frequency: 50-60 Hz

Insulation class: E

Ambient temperature: max 55°C

Ith. Limit current: max. 60xIn / 1 sec.

Dimensions in mm: W: 27, H: 19, D: 51.4

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, snap-on fastening for DIN rail mounting in accordance with EN-50022-35, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT27-64

Item no.: 1503081 + 1507001

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| **Item no:** | 1503081 + 1507001 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.129** **Three-phase current transformer module ASRD 14**

**1.1.129.1** **Three-phase current transformer 50 / 5A**

for mounting on top-hat rail, in plastic housing.

Max. Diameter round conductor: 13 mm

Load capacity: 50A

Secondary: 5A

Accuracy class: 1

Power: 1 VA

Number of current transformer cores: 3

Dimensions in mm: W: 90, H: 105, D: 54 (6TE)

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: ASRD 14

Item no. 1503403

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| **Item no:** | 1503403 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.129.2** **Three-phase current transformer 75 / 5A**

for mounting on top-hat rail, in plastic housing.

Max. Diameter round conductor: 13 mm

Load capacity: 75A

Secondary: 5A

Accuracy class: 1

Power: 1.5 VA

Number of current transformer cores: 3

Dimensions in mm: W: 90, H: 105, D: 54 (6TE)

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: ASRD 14

Item no. 1503404

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| **Item no:** | 1503404 |

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| --- | --- | --- | --- | --- | --- |
| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.129.3** **Three-phase current transformer 100 / 5A**

for mounting on top-hat rail, in plastic housing.

Max. Diameter round conductor: 13 mm

Load capacity: 100 A

Secondary: 5 A

Accuracy class: 1

Power: 2.5 VA

Number of current transformer cores: 3

Dimensions in mm: W: 90, H: 105, D: 54 (6TE)

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: ASRD 14

Item no. 1503405

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| **Item no:** | 1503405 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.129.4** **Three-phase current transformer 125 / 5A**

for mounting on top-hat rail, in plastic housing.

Max. Diameter round conductor: 13 mm

Load capacity: 125A

Secondary: 5A

Accuracy class: 0.5

Power: 2.5 VA

Number of current transformer cores: 3

Dimensions in mm: W: 90, H: 105, D: 54 (6TE)

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: ASRD 14

Item no. 1503406

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| **Item no:** | 1503406 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.129.5** **Three-phase current transformer 150 / 5A**

for mounting on top-hat rail, in plastic housing.

Max. Diameter round conductor: 13 mm

Load capacity: 150A

Secondary: 5A

Accuracy class: 0.5

Power: 2.5 VA

Number of current transformer cores: 3

Dimensions in mm: W: 90, H: 105, D: 54 (6TE)

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: ASRD 14

Item no. 1503407

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| **Item no:** | 1503407 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.130** **Rogowski - Current transformer**

**1.1.130.1** **Rogowski coil set 70 mm with transducer 1 - 4000A / 1A**

for AC current measurement of busbars and

Power cables with uninterruptible closure, internal shielding, sealable and with device for fixing to the primary conductor using cable ties.

CE 2014/30/EU & 2014/35/EU and IEC 61010-1 certified and tested. UL 61010-1 Ed3 & UL 61010-2-032 certified.

Diameter of measuring loop (primary conductor): 70 mm

Diameter of the measuring line of the measuring loop: 6.1 mm

Length of the connecting cable to the transmitter: 3 m

Accuracy class 0.5 according to IEC 61869 with a

Accuracy of < 0.65 regardless of the position of the

primary conductor.

Frequency bandwidth coil under load: 50/60 Hz

Coil idle frequency: up to 700 kHz

Rated insulation voltage coil: 1 kV CAT III

Coil protection class: IP 67

Ambient temperature transmitter: -40 - +80°C

Coil weight: 192 g

Current measuring ranges (primary): 250A, 500A, 1000A, 2000A, 4000A adjustable on the measuring transducer and displayed by LED.

Current measuring range (secondary): 0 - 1 A at the output of the

Transducer for connection to the measuring device.

Auxiliary voltage: 24V DC / 1 A

Max. Current consumption: < 300 mA at 1 A

No-load current: < 80 mA

Power supply unit not included.

Number of alarm outputs: 1

Alarm output type: potential-free optocoupler 24V / 200mA

Transmitter dimensions in mm: W: 22.5 x H:100 x D:100

Protection class transmitter: IP30

Transmitter weight: approx. 0.2 kg

Ambient temperature transmitter: -20 - +85° C

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Delivery included:

1x Rogowski coil + 1x measuring transducer, measuring transducer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: Rogowski coil 70 mm + Rogotrans

Item no.: 1503609 + 1503613

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| **Item no:** | 1503609 + 1503613 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.130.2** **Rogowski coil set 175 mm with transducer 1 - 4000A / 1A**

for AC current measurement of busbars and

Power cables with uninterruptible closure, internal shielding, sealable and with device for fixing to the primary conductor using cable ties.

CE 2014/30/EU & 2014/35/EU and IEC 61010-1 certified and tested. UL 61010-1 Ed3 & UL 61010-2-032 certified.

Diameter of measuring loop (primary conductor): 70 mm

Diameter of the measuring line of the measuring loop: 6.1 mm

Length of the connecting cable to the transmitter: 3 m

Accuracy class 0.5 according to IEC 61869 with a

Accuracy of < 0.65 regardless of the position of the

primary conductor.

Frequency bandwidth coil under load: 50/60 Hz

Coil idle frequency: up to 700 kHz

Rated insulation voltage coil: 1 kV CAT III

Coil protection class: IP 67

Ambient temperature transmitter: -40 - +80°C

Coil weight: 206 g

Including compact microcontroller - measuring transducer for vertical use on DIN top-hat rail in plastic housing with alarm output and alarm visualization via LED.

Current measuring ranges (primary): 250A, 500A, 1000A, 2000A, 4000A adjustable on the measuring transducer and displayed by LED.

Current measuring range (secondary): 0 - 1 A at the output of the

Transducer for connection to the measuring device.

Auxiliary voltage: 24V DC / 1 A

Max. Current consumption: < 300 mA at 1 A

No-load current: < 80 mA

Power supply unit not included.

Number of alarm outputs: 1

Alarm output type: potential-free optocoupler 24V / 200mA

Transmitter dimensions in mm: W: 22.5 x H:100 x D:100

Protection class transmitter: IP30

Transmitter weight: approx. 0.2 kg

Ambient temperature transmitter: -20 - +85° C

Delivery included:

1x Rogowski coil + 1x measuring transducer, measuring transducer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: Rogowski coil 175 mm + Rogotrans

Item no.: 1503610 + 1503613

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| **Item no:** | 1503610 + 1503613 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.130.3** **Rogowski coil set 300 mm with transducer 1 - 4000A / 1A**

for AC current measurement of busbars and

Power cables with uninterruptible closure, internal shielding, sealable and with device for fixing to the primary conductor using cable ties.

CE 2014/30/EU & 2014/35/EU and IEC 61010-1 certified and tested. UL 61010-1 Ed3 & UL 61010-2-032 certified.

Diameter of measuring loop (primary conductor): 70 mm

Diameter of the measuring line of the measuring loop: 6.1 mm

Length of the connecting cable to the transmitter: 3 m

Accuracy class 0.5 according to IEC 61869 with a

Accuracy of < 0.65 regardless of the position of the

primary conductor.

Frequency bandwidth coil under load: 50/60 Hz

Coil idle frequency: up to 700 kHz

Rated insulation voltage coil: 1 kV CAT III

Coil protection class: IP 67

Ambient temperature transmitter: -40 - +80°C

Coil weight: 192 g

Including compact microcontroller measuring transducer for vertical use on DIN top-hat rail in plastic housing with alarm output and alarm visualization via LED.

Current measuring ranges (primary): 250A, 500A, 1000A, 2000A, 4000A adjustable on the measuring transducer and displayed by LED.

Current measuring range (secondary): 0 - 1 A at the output of the

Transducer for connection to the measuring device.

Auxiliary voltage: 24V DC / 1 A

Max. Current consumption: < 300 mA at 1 A

No-load current: < 80 mA

Power supply unit not included.

Number of alarm outputs: 1

Alarm output type: potential-free optocoupler 24V / 200mA

Transmitter dimensions in mm: W: 22.5 x H:100 x D:100

Protection class transmitter: IP30

Transmitter weight: approx. 0.2 kg

Ambient temperature transmitter: -20 - +85° C

Delivery included:

1x Rogowski coil + 1x measuring transducer, measuring transducer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (mechanical design, power & cable length, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: Rogowski coil 300 mm + Rogotrans

Item no.: 1503611 + 1503613

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| **Item no:** | 1503611 + 1503613 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.131** **Calibrated bushing current transformer sets class 0.5**

**1.1.131.1** **MID bushing current transformer set cl. 0.5 - 50A - 100A**

for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 23 mm

Primary: 50, 75,100A

Secondary: 5A

Class: 0.5

Measurement: 3x operating current

Rated frequency: 50-60Hz

Insulation class E

Ith: 60xIN/1s

Idyn: > 100kA

Um:0,72kV

OS < 50.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: EIPA30.5

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.131.2** **MID bushing current transformer set cl. 0.5, 150A - 600 A**

for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 28 mm

Primary: 150, 200, 250, 300, 400, 500, 600 A

Secondary: 5A

Class: 0.5

Measurement: 3x operating current

Rated frequency: 50-60Hz

Insulation class E

Ith: 60xIN/1s

Idyn: > 100kA

Um:0,72kV

OS < 50.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: E6A315.3

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.131.3** **MID bushing current transformer set cl. 0.5, 750A - 1000 A**

for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 28 mm

Primary: 750, 1000 A

Secondary: 5A

Class: 0.5

Measurement: 3x operating current

Rated frequency: 50-60Hz

Insulation class E

Ith: 60xIN/1s

Idyn: > 100kA

Um:0,72kV

OS < 50.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: E7A412.3

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.131.4** **MID bushing current transformer set cl. 0.5, 1500 A**

for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 53 mm

Primary: 1500 A

Secondary: 5 A

Class: 0.5

Measurement: 3x operating current

Rated frequency: 50-60Hz

Insulation class E

Ith: 60xIN/1s Idyn: > 100kA

Um:0,72kV

OS < 50.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: E9A615.3

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.131.5** **MID bushing current transformer set cl. 0.5, 2000 - 2500A**

for mounting on busbars or cables, made of shatterproof polycarbonate housing, flame-retardant to UL 94 VO, self-extinguishing, integrated terminal cover.

Max. Diameter round conductor: 85 mm

Primary: 2000, 2500 A

Secondary: 5 A

Class: 0.5

Measurement: 3x operating current

Rated frequency: 50-60Hz

Insulation class E

Ith: 60xIN/1s Idyn: > 100kA

Um:0,72kV

OS < 50.

Complies with DIN EN 61869-2 (VDE 0414-9-2:2013-07) and DIN 42600 Part 2.

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: E13A1030.3

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.132** **Calibrated bushing current transformer sets class 0.2S**

**1.1.132.1** **MID bushing current transformer set cl. 0.2 - 150A - 250A**

for mounting on busbars, cables or mounting plates made of shatterproof polycarbonate housing. A test report is available online for each current transformer.

Max. Diameter round conductor: 24.5 mm

Primary: 150, 200, 250 A

Secondary: 5 A

Class: 0.2S

Measurement: 3x operating current

Nominal frequency: 50 - 60 Hz

Insulation class: E

Thermal rated short-time current Ith: 60 x IN/1s

Continuous thermal current: 1.2 x IN

Rated impulse current Idyn: 2.5 x Ith, but at least 100 kA

Max. Voltage for operating equipment Um: 0.72 kV

Rated insulation level (test voltage): 3 kV / 1 min (according to IEC 61869-2)

Overcurrent limiting factor: FS5 at max. power or FS10 at min. power

Harmonic currents: up to the 50th harmonic

Temperature range: -25 to 55°C

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, snap-on fastening for DIN rail mounting, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: ERMXX-XXX

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.132.2** **MID bushing current transformer set cl. 0.2 - 300A - 1000A**

for mounting on busbars, cables or mounting plate made of shatterproof polycarbonate housing.

Max. Diameter round conductor: 30.5 mm

Primary: 300, 400, 500, 600, 750, 1000 A

Secondary: 5 A

Class: 0.2S

Measurement: 3x operating current

Nominal frequency: 50 - 60 Hz

Insulation class: E

Thermal rated short-time current Ith: 60 x IN/1s

Continuous thermal current: 1.2 x IN

Rated impulse current Idyn: 2.5 x Ith, but at least 100 kA

Max. Voltage for operating equipment Um: 0.72 kV

Rated insulation level (test voltage): 3 kV / 1 min (according to IEC 61869-2)

Overcurrent limiting factor: FS5 at max. power or FS10 at min. power

Harmonic currents: up to the 50th harmonic

Temperature range: -25 to 55°C

Approved and compatible for the manufacturer's MID-certified device series with current measurement inputs with a detection range of 0 to 5 A

Delivery included:

Measuring transformer disconnect terminals with screw connection 0.2 - 10 mm², bridges and DIN rail clamp for DIN rail mounting in accordance with DIN VDE 0100 - 557.5.3.1, adaptation of the design to the practical application (primary & secondary current, mechanical design, power & cable length, etc.), declaration of conformity and list of faults, snap-on fastening for DIN rail mounting, delivery, installation and connection to the measuring device.

Primary current at the measuring point: '.........' A.

Manufacturer: Janitza electronics GmbH

Type: ERMXX-XXX

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.133** **Accessories for 1/5A current transformers**

**1.1.133.1** **Current transformer terminal strip**

for short-circuiting current transformers and control measurement of energy measuring devices.

Mounting on DIN rail, fully equipped for 4-wire connection.

Approved and compatible for the manufacturer's device series with current measurement inputs with a detection range of 0 to 5 A.

Rated current: 30 A

Rated voltage: 500 V

Rated impulse voltage: 6 kV

Conductor type: solid or fine-stranded

Connection cross-section:0.5 to 6 mm²

Dimensions (WxHxD): 86x108x65 mm

Weight: 0.30 kg

Scope of delivery included:

Cross-disconnect terminal with measuring and testing device, insulated bridges for earthing and short-circuiting

Make: Janitza electronics GmbH

Type: Current transformer terminal strip

Item no.: 1507001

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| **Item no:** | 1507001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.134** **Low-power feed-through current transformer**

**1.1.134.1** **Low power plug-on current transformer 9.0mm 50A**

Plug-on current transformer for operating energy measuring devices for recording currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-009-500-50

Item no.: 1503344

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| **Item no:** | 1503344 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.134.2** **Low power plug-on current transformer 12.3mm 100A**

Plug-on current transformer for operating energy measuring devices for recording currents on insulated cables in accordance with the inside diameter. Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-012-500-100

Item no.: 1503345

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| **Item no:** | 1503345 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.134.3** **Low power plug-on current transformer 19.3mm 250A**

Plug-on current transformer for operating energy measuring devices for recording currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-019-500-250

Item no.: 1503346

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| **Item no:** | 1503346 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135** **Low-power cable conversion current transformer**

**1.1.135.1** **Low power cable conversion current transformer 6.1mm 20A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-006-500-20

Item no.: 1503334

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| **Item no:** | 1503334 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.2** **Low power cable conversion current transformer 9.5mm 50A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type:CT-SC-010-500-50

Item no.: 1503335

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| **Item no:** | 1503335 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.3** **Low power cable conversion current transformer 9.5mm 75A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-010-500-75

Item no.: 1503336

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| **Item no:** | 1503336 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.4** **Low power cable conversion current transformer 12.0mm 75A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-012-500-75

Item no.: 1503337

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| **Item no:** | 1503337 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.5** **Low power cable conversion current transformer 16.0mm 100A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-016-500-100

Item no.: 1503338

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| **Item no:** | 1503338 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.6** **Low power cable conversion current transformer 23.3mm 100A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-024-500-100

Item no.: 1503339

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| **Item no:** | 1503339 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.7** **Low power cable conversion current transformer 23.3mm 200A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-024-500-200

Item no.: 1503340

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| **Item no:** | 1503340 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.8** **Low power cable conversion current transformer 23.3mm 250A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-024-500-250

Item no.: 1503341

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| **Item no:** | 1503341 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.9** **Low power cable conversion current transformer 35.3mm 400A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-036-500-400

Item no.: 1503342

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| **Item no:** | 1503342 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.135.10** **Low power cable conversion current transformer 35.3mm 600A**

Splittable cable conversion current transformer for retrofitting to operate energy measuring devices for measuring currents on insulated cables according to the inside diameter.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection cable: 5 m

Make: Janitza electronics GmbH

Type: CT-SC-036-500-600

Item no.: 1503343

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| **Item no:** | 1503343 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.136** **Low-power conversion current transformer**

**1.1.136.1** **Low power current transformer 21x51mm 600A**

Splittable current transformer for retrofitting to operate energy measuring devices for measuring currents on conductors.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection terminals: M4 screw connection

Make: Janitza electronics GmbH

Type: CT-BSC-021-000-600

Item no.: 1503347

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| **Item no:** | 1503347 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.136.2** **Low power current transformer 50x90mm 1200A**

Splittable current transformer for retrofitting to operate energy measuring devices for measuring currents on conductors.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection terminals: M4 screw connection

Make: Janitza electronics GmbH

Type: CT-BSC-050-000-1200

Item no.: 1503348

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| **Item no:** | 1503348 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.136.3** **Low power current transformer 80x120mm 2500A**

Splittable current transformer for retrofitting to operate energy measuring devices for measuring currents on conductors.

Approved and compatible for the manufacturer's device series with low-power current measurement inputs up to 333 mV.

Technical data:

* Accuracy class: 0.5
* Frequency range: 50-60 Hz
* Connection terminals: M4 screw connection

Make: Janitza electronics GmbH

Type: CT-BSC-080-000-2500

Item no.: 1503349

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| **Item no:** | 1503349 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.137** **Low-power Rogowski current transformer**

**1.1.137.1** **Low Power Rogowski coil 120 mm splittable**

for detecting currents on insulated cables and uninsulated busbars according to the inside diameter. Retrofitting possible due to split design.

Approved and compatible for the manufacturer's device type with low-power current measurement inputs up to 800 mV.

Operation without external power supply possible. (Passive Rogowski coil).

Inner diameter: 120 mm

Transformer ratio: 8000 A / 800 mV

Position error: +/- 1 %

Output voltage: 333 mV

Frequency range: 40 Hz to 20 kHz

Rated insulation voltage: 1 kV CAT III

Closure type: Bayonet closure

Operating temperature: -30 to +80 °C

Protection class: IP 67

Connection cable: 3 m

Weight: 170 g

UL component labeling

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design & cable length, etc.).

Make: Janitza electronics GmbH

Type: MFC150 120

Item no.: 1503635

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| **Item no:** | 1503635 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.137.2** **Low Power Rogowski coil 200 mm splittable**

for detecting currents on insulated cables and uninsulated busbars according to the inside diameter. Retrofitting possible due to split design.

Approved and compatible for the manufacturer's device type with low-power current measurement inputs up to 800 mV.

Operation without external power supply possible. (Passive Rogowski coil).

Inner diameter: 200 mm

Transformer ratio: 8000 A / 800 mV

Position error: +/- 1 %

Output voltage: 333 mV

Frequency range: 40 Hz to 20 kHz

Rated insulation voltage: 1 kV CAT III

Closure type: Bayonet closure

Operating temperature: -30 to +80 °C

Protection class: IP 67

Connection cable: 3 m

Weight: 195 g

UL component labeling

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design & cable length, etc.).

Make: Janitza electronics GmbH

Type: MFC150 200

Item no.: 1503636

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| **Item no:** | 1503636 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.137.3** **Low Power Rogowski coil 290 mm splittable**

for detecting currents on insulated cables and uninsulated busbars according to the inside diameter. Retrofitting possible due to split design.

Approved and compatible for the manufacturer's device type with low-power current measurement inputs up to 800 mV.

Operation without external power supply possible. (Passive Rogowski coil).

Inner diameter: 290 mm

Transformer ratio: 8000 A / 800 mV

Position error: +/- 1 %

Output voltage: 333 mV

Frequency range: 40 Hz to 20 kHz

Rated insulation voltage: 1 kV CAT III

Closure type: Bayonet lock

Operating temperature: -30 to +80 °C

Protection class: IP 67

Connection cable: 3 m

Weight: 235 g

UL component labeling

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design & cable length, etc.).

Make: Janitza electronics GmbH

Type: MFC150 290

Item no.: 1503637

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| **Item no:** | 1503637 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.137.4** **Low Power Rogowski coil 390 mm splittable**

for detecting currents on insulated cables and uninsulated busbars according to the inside diameter. Retrofitting possible due to split design.

Approved and compatible for the manufacturer's device type with low-power current measurement inputs up to 800 mV.

Operation without external power supply possible. (Passive Rogowski coil).

Inner diameter: 390 mm

Transformer ratio: 8000 A / 800 mV

Position error: +/- 1 %

Output voltage: 333 mV

Frequency range: 40 Hz to 20 kHz

Rated insulation voltage: 1 kV CAT III

Closure type: Bayonet closure

Operating temperature: -30 to +80 °C

Protection class: IP 67

Connection cable: 3 m

Weight: 255 g

UL component labeling

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design & cable length, etc.).

Make: Janitza electronics GmbH

Type: MFC150 390

Item no.: 1503638

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| **Item no:** | 1503638 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.137.5** **Low Power Rogowski coil 580 mm splittable**

for detecting currents on insulated cables and uninsulated busbars according to the inside diameter. Retrofitting possible due to split design.

Approved and compatible for the manufacturer's device type with low-power current measurement inputs up to 800 mV.

Operation without external power supply possible. (Passive Rogowski coil).

Inner diameter: 580 mm

Transformer ratio: 8000 A / 800 mV

Position error: +/- 1 %

Output voltage: 333 mV

Frequency range: 40 Hz to 20 kHz

Rated insulation voltage: 1 kV CAT III

Closure type: Bayonet closure

Operating temperature: -30 to +80 °C

Protection class: IP 67

Connection cable: 3 m

Weight: 325 g

UL component labeling

Delivery included:

Matching the design to the practical application (primary & secondary current, mechanical design & cable length, etc.).

Make: Janitza electronics GmbH

Type: MFC150 590

Item no.: 1503639

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| **Item no:** | 1503639 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.138** **CT-AC RCM xxN plug-on residual current transformer**

**1.1.138.1** **Plug-on residual current transformer 35 mm**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits.

Max. Diameter round conductor: 35 mm

Evaluation: Residual current type A

Gear ratio: 700/1

Max. primary residual current: 21 A

Insulation voltage: 0.72 kV

Frequency: 3 kHz

Operating temperature: -10 to +55 °C

Test voltage: 3 kV RMS 50 Hz / 1 min.

Weight: 0.25 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC RCM 35N

Item no.: 1503458

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| **Item no:** | 1503458 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.138.2** **Plug-on residual current transformer 80 mm**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits.

Max. Diameter round conductor: 80 mm

Evaluation: Residual current type A

Gear ratio: 700/1

Max. primary residual current: 21 A

Insulation voltage: 0.72 kV

Frequency: 3 kHz

Operating temperature: -10 to +55 °C

Test voltage: 3 kV RMS 50 Hz / 1 min.

Weight: 0.25 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC RCM 80N

Item no.: 1503459

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| **Item no:** | 1503459 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.138.3** **Plug-on residual current transformer 110 mm**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits.

Max. Diameter round conductor: 110 mm

Evaluation: Residual current type A

Gear ratio: 700/1

Max. primary residual current: 21 A

Insulation voltage: 0.72 kV

Frequency: 3 kHz

Operating temperature: -10 to +55 °C

Test voltage: 3 kV RMS 50 Hz / 1 min.

Weight: 0.25 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC RCM 110N

Item no.: 1503463

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| **Item no:** | 1503463 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.138.4** **Plug-on residual current transformer 140 mm**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits.

Max. Diameter round conductor: 140 mm

Evaluation: Residual current type A

Gear ratio: 700/1

Max. primary residual current: 21 A

Insulation voltage: 0.72 kV

Frequency: 3 kHz

Operating temperature: -10 to +55 °C

Test voltage: 3 kV RMS 50 Hz / 1 min.

Weight: 0.25 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC RCM 140N

Item no.: 1503460

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| **Item no:** | 1503460 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.138.5** **Plug-on residual current transformer 210 mm**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits.

Max. Diameter round conductor: 210 mm

Evaluation: Residual current type A

Gear ratio: 700/1

Max. primary residual current: 21 A

Insulation voltage: 0.72 kV

Frequency: 3 kHz

Operating temperature: -10 to +55 °C

Test voltage: 3 kV RMS 50 Hz / 1 min.

Weight: 0.25 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC RCM 210N

Item no.: 1503464

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| **Item no:** | 1503464 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.139** **Residual current transformer CT-AC/DC type B+ xxRCM**

**1.1.139.1** **Residual current transformer CT-AC/DC type B+ 35 mm**

for monitoring outgoing circuits to loads for AC/DC sensitive residual currents of residual current type B+.

Possibility of reducing the DGUV V3 test intervals by replacing insulation measurements in fixed electrical installations.

Realization of fire and system protection

through decentralized and direct shutdown of system components and pre-alarm in the event of a fault.

Max. Diameter round conductor: 35 mm

Evaluation: Residual current type A, type B, type B+

Max. primary residual current: 0.3 A

Self-consumption: max. 1.5 W

Output signal: 4 - 20 mA

Supply voltage: 24V DC / 1A

Power supply unit not included.

Dimensions of plastic housing:

106 (W) x113(H) x104 (D) mm

Approved and compatible for the 96x96mm device with Ethernet interface, memory and residual current monitoring functions of the manufacturer.

Delivery included:

Matching the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC/DC Type B+ 35 RCM

Item no.: 1503469

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| **Item no:** | 1503469 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.139.2** **Residual current transformer CT-AC/DC type B+ 70 mm**

for monitoring outgoing circuits to loads for AC/DC sensitive residual currents of residual current type B+.

Possibility of reducing the DGUV V3 test intervals by replacing insulation measurements in fixed electrical installations.

Realization of fire and system protection

through decentralized and direct shutdown of system components and pre-alarm in the event of a fault.

Max. Diameter round conductor: 70 mm

Evaluation: residual current type A, type B, type B+

Max. primary residual current: 0.3 A

Self-consumption: max. 1.5 W

Output signal: 4 - 20 mA

Supply voltage: 24V DC / 1A

Power supply unit not included.

Dimensions of plastic housing:

106 (W) x113(H) x104 (D) mm

Approved and compatible for the 96x96mm device with Ethernet interface, memory and residual current monitoring functions of the manufacturer.

Delivery included:

Matching the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC/DC Type B+ 70 RCM

Item no.: 1503468

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| **Item no:** | 1503468 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.139.3** **1-phase switching power supply for residual current transformer type B+**

in the installation housing for supplying the manufacturer's type B+ residual current transformers.

Primary voltage: 115 - 230 V AC

Nominal frequency: 50 / 60 Hz

Secondary voltage: 24V DC

Secondary current 1 A

Approved and compatible with residual current transformers requiring an active supply voltage from the manufacturer.

Delivery included:

Matching the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: Power supply B+ converter

Item no.: 1605002

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| **Item no:** | 1605002 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.140** **Compact residual current transformer DACT**

**1.1.140.1** **Compact residual current transformer for outgoing circuit measurement**

for monitoring outgoing circuits for residual currents

Max. Diameter round conductor: 20 mm

Residual current type: A

Measuring range: 0.02 to 20 A

Transmission ratio: 600 / 1

Operating frequency range: 30 Hz to 3 kHz

Accuracy class: 1

Max. Differential current primary (I delta N): 10A

Max. Differential current secondary: 0.0167 A

Rated load: 180 Ù / 50.2 mW

Working temperature range: -10°C to +70° C

Storage temperature range: -25°C to +70° C

Rated voltage: 800 V

Rated impulse voltage: 8 kV

Degree of soiling: III

Protection class housing: IP 40

Protection class terminals: IP 20

Connection: 4-pole spring-loaded terminal with integrated overvoltage protection.

Dimensions (WxHxD): 82 x 63 x 30 mm

Weight: 0.15 kg

Standard-compliant according to: IEC 60664-1 / IEC 60664-3.

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), snap-on mounting for DIN rail mounting, delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: DACT 20

Item no.: 1503201

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| **Item no:** | 1503201 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.141** **Splittable residual current transformer KBU xxxD**

**1.1.141.1** **Splittable residual current transformer KBU 23D**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits when retrofitted to cables or busbars.

Max. Primary conductor dimensions: 20 x 30mm

Evaluation: Residual current type A

Max. Primary differential current: 18 A

Transmission ratio: 600 / 1A

Nominal ratio Ipn / Isn (Ku): 1A / 1.67mA

Accuracy class: 0.5

Power: 0.05VA

Operating frequency: 30 -1000 Hz

Max. Voltage for electrical equipment Um = <0.72 kV

Insulation test voltage: 3 kV rms; 50 Hz; 1 min.

Insulation class: E

Dimensions (horizontal): W: 93, H: 58, D: 106mm

Ambient temperature -5° - +45°C

Weight: 0.7 kg

Housing: unbreakable plastic housing

Housing color: RAL 7035 (grey)

Protection class: Indoor use.

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: KBU 23D

Item no.: 1503400

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| **Item no:** | 1503400 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.141.2** **Splittable residual current transformer KBU 58D**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits when retrofitted to cables or busbars.

Max. Primary conductor dimensions: 20 x 30mm

Evaluation: Residual current type A

Max. Primary differential current: 18 A

Transmission ratio: 600 / 1A

Nominal ratio Ipn / Isn (Ku): 1A / 1.67mA

Accuracy class: 0.5

Power: 0.05VA

Operating frequency: 30 -1000 Hz

Max. Voltage for electrical equipment Um = <0.72 kV

Insulation test voltage: 3 kV rms; 50 Hz; 1 min.

Insulation class: E

Housing: unbreakable plastic housing

Housing color: RAL 7035 (grey)

Protection class: Indoor use.

Primary conductor bushing dimensions: 55 x 85 mm

Dimensions (horizontal): W: 125, H: 58, D: 158 mm

Ambient temperature -5° - +45°C

Weight: 1.1 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Matching the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: KBU 58D

Item no.: 1503401

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| **Item no:** | 1503401 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.141.3** **Splittable residual current transformer KBU 812D**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits when retrofitted to cables or busbars.

Max. Primary conductor dimensions: 85 x 125 mm

Evaluation: Residual current type A

Max. Primary differential current: 18 A

Transmission ratio: 600 / 1A

Nominal ratio Ipn / Isn (Ku): 1A / 1.67mA

Accuracy class: 0.5

Power: 0.05VA

Operating frequency: 30 -1000 Hz

Max. Voltage for electrical equipment Um = <0.72 kV

Insulation test voltage: 3 kV rms; 50 Hz; 1 min.

Insulation class: E

Dimensions (horizontal): W: 155, H: 58, D: 198 mm

Ambient temperature -5° - +45°C

Weight: 1.5 kg

Housing: unbreakable plastic housing

Housing color: RAL 7035 (grey)

Protection class: Indoor use.

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Matching the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: KBU 812D

Item no.: 1503402

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| **Item no:** | 1503402 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.142** **Splittable residual current transformer CT-AC RCM AxxxD**

**1.1.142.1** **Splittable residual current transformer CT-AC RCM A110N**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits when retrofitted to cables or busbars.

Max. Diameter round conductor: 110 mm

Evaluation: Residual current type A

Max. Primary differential current: 21 A

Transmission ratio: 700 / 1A

Nominal ratio Ipn / Isn (Ku): 1A / 1.42mA

Accuracy class: 1

Operating frequency: 3000 Hz

Insulation voltage = 0.72 kV

Insulation test voltage: 3 kV RMS 50Hz / 1min.

Dimensions (horizontal): W: 235, H: 30, D: 219 mm

Ambient temperature: -10° - +55°C

Weight: 2.35 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Matching the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC-RCM A110N

Item no. 1503462

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| **Item no:** | 1503462 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.142.2** **Splittable residual current transformer CT-AC RCM A150N**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits when retrofitted to cables or busbars.

Max. Diameter round conductor: 150 mm

Evaluation: Residual current type A

Max. Primary differential current: 21 A

Transmission ratio: 700 / 1A

Nominal ratio Ipn / Isn (Ku): 1A / 1.42mA

Accuracy class: 1

Operating frequency: 3000 Hz

Insulation voltage = 0.72 kV

Insulation test voltage: 3 kV RMS 50Hz / 1min.

Dimensions (horizontal): W: 275, H: 79, D: 259 mm

Ambient temperature: -10° - +55°C

Weight: 2.5 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC-RCM A150N

Item no. 1503465

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| **Item no:** | 1503465 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.142.3** **Splittable residual current transformer CT-AC RCM A310N**

for monitoring the outgoing circuit to the central earthing point, as a summation residual current transformer or for detecting residual currents in outgoing circuits when retrofitted to cables or busbars.

Max. Diameter round conductor: 310 mm

Evaluation: Residual current type A

Max. Primary differential current: 21 A

Transmission ratio: 700 / 1A

Nominal ratio Ipn / Isn (Ku): 1A / 1.42mA

Accuracy class: 1

Operating frequency: 3000 Hz

Insulation voltage = 0.72 kV

Insulation test voltage: 3 kV RMS 50Hz / 1min.

Dimensions (horizontal): W: 400, H: 79, D: 416 mm

Ambient temperature: -10° - +55°C

Weight: 3.8 kg

Approved and compatible for the manufacturer's device series with residual current monitoring functions.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-AC-RCM A310N

Item no. 1503461

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| **Item no:** | 1503461 |

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| **Quantity:** ........... | Where | **Price:** ........... | € | **GP:** ........... | € |

**1.1.143** **UMG 20 CM operating current transformer**

**1.1.143.1** **Splittable operating current transformer 63A for multi-channel network analyzer**

For retrofitting to cables / lines for operating current measurement.

Maximum operating current: 63 A

Phase spacing: 17.5 mm

Transmission ratio: 3000 / 1

Measurement accuracy class:1

Continuous thermal current: 100 %

Insulation resistance: 100 MOhm

Rated frequency: 50 / 60 Hz

Max. Frequency: 20 - 1000 Hz

Core cross-section of secondary cable: 0.75 mm²

Installation location: Indoor use

Conductor type: Insulated conductor

Ambient temperature: -10 to +55 °C

Protection class: IP20

Dimensions (HxWxD): approx. 41.4 x 32 x 32.3

Weight: 0.04 kg

Approved and compatible for operating and residual current monitoring device with 20 channels & memory of the manufacturer.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: SC-CT-20

Item no.: 1503092

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.143.2** **Splittable operating current transformer 100A for multi-channel network analyzer**

For retrofitting to cables / lines for operating current measurement.

Maximum operating current: 100 A

Max. Diameter round conductor: 16 mm

Transmission ratio: 3000 / 1

Measurement accuracy class:1

Installation location: Indoor use

Conductor type: Insulated conductor

Ambient temperature: -10 to +50 °C

Dimensions (HxWxD): approx. 55 x 29.5 x 31

Weight: 0.075 kg

Approved and compatible for operating and residual current monitoring device with 20 channels & memory of the manufacturer.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), load & pre-convected connection cable 1.5 m, delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: SC-CT-20-100

Item no.: 1503093

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.143.3** **Splittable operating current transformer 200A for multi-channel network analyzer**

For retrofitting to cables / lines for operating current measurement.

Maximum operating current: 200 A

Max. Diameter round conductor: 24 mm

Transmission ratio: 3000 / 1

Measurement accuracy class:1

Installation location: Indoor use

Conductor type: Insulated conductor

Ambient temperature: -10 to +50 °C

Dimensions (HxWxD): approx. 74.5 x 45 x 34

Weight: 0.2 kg

Approved and compatible for operating and residual current monitoring device with 20 channels & memory of the manufacturer.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), load & pre-convected connection cable 1.5 m, delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: SC-CT-20-200

Item no.: 1503094

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.144** **Splittable residual current transformer SC-CT-21**

**1.1.144.1** **Splittable 1-phase compact residual current transformer**

For retrofitting to cables / lines for operating current measurement.

Max. Diameter round conductor: 8 mm

Detection: residual currents type A

Gear ratio: 700 / 1

Residual current type: A according to IEC 60755

Residual current measuring range: 10 - 1000 mA

Accuracy class: 1

Protection class: IP 20

Dimensions: W:35 mm / H:35 mm / D:16 mm

Weight: 0.05 kg

Certification: UL, EN 61010-1

Approved and compatible for operating and residual current monitoring device with 20 channels & memory of the manufacturer.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), load & pre-convected connection cable 1.5 m, delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: SC-CT-21

Item no.: 1503084

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| **Item no:** | 1503084 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.145** **CT-6-20 operating or differential current transformer strip**

**1.1.145.1** **6-fold DIN-rail current transformer strip for operating or residual current measurement**

Operating current or residual current measurements for 6x 1-phase or 2x 3-phase circuits in combination with a multi-channel network analyzer.

Max. Diameter round conductor: 11 mm

6-fold DIN-rail current transformer strip for use as residual current measurement or operating current measurement. The individual current transformer cores are positioned on the strip. The current transformer strip can be mounted on a standard top-hat rail.

Number of measuring channels: 6 (integrated measuring transformer)

Measured value acquisition: parallel, true RMS measurement (True RMS).

Evaluation: Differential or operating currents (freely configurable)

Gear ratio: 700 / 1

Operating current measuring range: 0 - 63 A with load

Residual current type: A according to IEC 60755

Residual current measuring range: 10 to 1000 mA

Accuracy class: 1

Protection class: E

Protection class: IP 20

Dimensions: W:174 mm / H:45 mm / D:56 mm

Weight: 0.30 kg

Approved and compatible for operating and residual current monitoring device with 20 channels & memory of the manufacturer.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), load & pre-convected connection cable 1.5 m, delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-6-20

Item no.: 1401630

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| **Item no:** | 1401630 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.146** **CT20 compact bushing-type residual current transformer**

**1.1.146.1** **1-phase compact bushing-type residual current transformer**

for monitoring outgoing circuits to loads for residual currents type A on 3-phase disconnectors with phase spacing of 17.5 mm.

Max. Diameter round conductor: 7.5 mm

Evaluation: Operating or residual currents type A

Gear ratio: 700 / 1

Operating current measuring range: 0 to 63 A with load

Residual current type: A according to IEC 60755

Residual current measuring range: 10 to 1000 mA

Accuracy class: 1

Protection class: E

Protection class: IP 20

Dimensions: W:27 mm / H:46 mm / D:23 mm

Weight: 0.05 kg

Approved and compatible for operating and residual current monitoring device with 20 channels & memory of the manufacturer.

Delivery included:

Adaptation of the design to the practical application (max. residual current, residual current type, mechanical design, etc.), load & pre-convected connection cable 1.5 m, delivery, installation and connection to the measuring device.

Manufacturer: Janitza electronics GmbH

Type: CT-20

Item no.: 1503082

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| **Item no:** | 1503082 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.147** **Voltage taps**

**1.1.147.1** **Voltage tap with 6.3 A fuse**

for tapping the measuring voltage of the multifunction measuring devices via terminals on live rails. incl. built-in fuse protection.

Color: black

Back-up fuse (A): 6.3

Cross-section of connection measuring cable (mm²): 1.5 - 4

Weight (kg): 0.2

Dimensions (mm): 71 x 78

Max. Operating voltage: 690 V

Test voltage / pulse: 3 kV / 50 Hz 6 kV

Short-circuit resistance 70 kA at 400 V / 50 Hz

Nominal operating current In: max. 10 A

Insulation class: E (max. 120°)

Fuse type: 5 x 25 mm (with detector), 10 A SIBA DIN 41576-2

Ambient temperature: -5 to +40 °C

Primary lock inside: hexagon head screw M8

Hexagon socket: Number 6

Max. Rail thickness: 4 - 15 mm

Housing: Polyamide (PA6.6)

Terminal material: Nickel-plated brass

Delivery included:

Installation accessories, documentation, delivery, installation and connection.

Manufacturer: Janitza electronics

Type: ZK 4 S

Item no.: 1011525

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| **Item no:** | 1011525 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.147.2** **Voltage tap without fuse protection.**

for tapping the measuring voltage of the multifunction measuring devices via terminals on live rails without fuse protection.

Color: blue

Cross-section of connection measuring cable (mm²): 0 - 16

Weight (kg): 0.1

Dimensions (mm): 58.2 x 76

Max. Operating voltage: 690 V

Test voltage / pulse: 3 kV / 50 Hz 6 kV

Short-circuit resistance 70 kA at 400 V / 50 Hz

Nominal operating current In: max. 10 A

Insulation class: E (max. 120°)

Fuse type: 5 x 25 mm (with detector), 10 A SIBA DIN 41576-2

Ambient temperature: -5 to +40 °C

Primary lock inside: hexagon head screw M8

Hexagon socket: Number 6

Max. Rail thickness: 4 - 15 mm

Housing: Polyamide (PA6.6)

Terminal material: Nickel-plated brass

Delivery included:

Installation accessories, documentation, delivery, installation and connection.

Manufacturer: Janitza electronics

Type: ZK 4 B

Item no.: 1011526

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| **Item no:** | 1011525 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.147.3** **Insulated tool for fixing voltage taps ZK4S/B**

for mounting the ZK4S / B voltage taps under voltage up to 1,000 V. Complies with EN / IEC 60900.

Weight: 0.9 kg

Delivery included:

Installation accessories, documentation, delivery, installation and connection.

Manufacturer: Janitza electronics

Type: ZK4R

Item no.: 1011528

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| **Item no:** | 1011528 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.147.4** **M6 voltage tap with fuse for busbars**

For measuring voltage tapping on busbars with existing M6 holes. For indoor use, standard-compliant in accordance with IEC 60947-7-3.

Operating temperature: -10 to +55 °C

Relative humidity: 5 - 85 % (no condensation)

Protection class: IP20 (basic insulation)

Maximum voltage: 400 V AC

Test voltage: 3 kV / 50 Hz

Surge voltage: 6 kV 1.2 / 50 µs

Maximum operating current: 2 A

Voltage drop: < 500 mV AC

Fuse: 2 A, 450 V

Fuse tripping characteristic:F

Fuse dimensions: 5 x 25 mm

Fuse type: ceramic

Max. Short-circuit current: 70 kA

Max. Torque: 2.0 Nm

Color: black

Primary connection (mm): 6

Cross-section of connection measuring cable (mm²): 1.5 - 4

Dimensions (mm): 18.8 x 13.5

Weight (kg): 0.03

Delivery included:

Installation accessories, documentation, delivery, installation and connection.

Manufacturer: Janitza electronics

Type: ZK4 M6

Item no.: 1011534

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| **Item no:** | 1011534 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.147.5** **M8 voltage tap with fuse for busbars**

For measuring voltage tapping on busbars with existing M8 holes. For indoor use, standard-compliant in accordance with IEC 60947-7-3.

Operating temperature: -10 to +55 °C

Relative humidity: 5 - 85 % (no condensation)

Protection class: IP20 (basic insulation)

Maximum voltage: 400 V AC

Test voltage: 3 kV / 50 Hz

Surge voltage: 6 kV 1.2 / 50 µs

Maximum operating current: 2 A

Voltage drop: < 500 mV AC

Fuse: 2 A, 450 V

Fuse tripping characteristic:F

Fuse dimensions: 5 x 25 mm

Fuse type: ceramic

Max. Short-circuit current: 70 kA

Max. Torque: 2.0 Nm

Color: black

Primary connection (mm): 8

Cross-section of connection measuring cable (mm²): 1.5 - 4

Dimensions (mm): 23.2 x 17

Weight (kg): 0.03

Delivery included:

Installation accessories, documentation, delivery, installation and connection.

Manufacturer: Janitza electronics

Type: ZK4 M8

Item no.: 1011535

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| **Item no:** | 1011535 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.148** **Short-time capacitor UPS**

**1.1.148.1** **DC UPS system with ultracapacitors 24 V DC - 3A**

The DC UPS has a power supply unit inside the housing for the 24 V DC supply and ultracapacitors as energy storage. In normal operation, the capacitors are charged by an internal charger, which is supplied by the internal AC/DC power supply unit. If the AC supply is interrupted, the energy of the ultracapacitors is released in a regulated manner (24 V DC ±2%).

The load is supplied by the buffer module until the ultracapacitors are discharged. The buffer time depends on the state of charge of the capacitors and the discharge current.

- Maintenance-free thanks to long-life ultracapacitors

- Low wiring effort thanks to the integration of power supply unit and energy storage unit

- Microcontroller-supported charging and discharging of ultracapacitors

- Operating and charging status monitoring via potential-free contacts and LEDs

- Wide temperature range -40 °C to 60 °C

Stored energy: 1500 Ws

Nominal input voltage: 15 to 230 V AC (± 15%)

Min. nominal input voltage for charging operation: 97.8 to 264.5 V AC

Max. Nominal input current: 0.84 A at 115 V AC 0.42 A at 230 V AC

Output voltage in buffer mode: 23.5 V DC ±2 %

Max. Rated output current: 2 A DC (with rated capacity)

Current limitation: 05 to 1.5 x INenn

Energy content: 1 kJ or 1000Ws

Max power loss 'worst-case: 12 W

Efficiency: >88% @ (Ue=230 V AC; Ua=24.3 V DC; Ia=INenn)

Internal device protection (internal): 2 A (T)

Fuse DC output circuit (external): 15 A (T)

Protection class: IP20 and EN 60529

Operating temperature: -20°C to 60 °C

Rel. humidity: 95% non-condensing

Max. Installation altitude: (without power reduction) 1000 m above sea level

Dimensions (HxWxD): 152.5 x 72 x 130 in mm

Weight: 0.9 kg

Manufacturer: Janitza electronics GmbH

Type: Power2Store

Item no.: 1506405

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.149** **Mechanical accessories**

**1.1.149.1** **Adapter for top hat rail mounting for 96x96mm devices**

for placing universal measuring devices (UMG) with interfaces and resulting deep design.

Dimensions in mm (W x H x D): 85 x 113 x 90

Compatible with the following universal measuring devices (UMG) from the manufacturer:

UMG 96RM-E / UMG 96RM-CBM /

UMG 96RM-P / UMG 96RM-PN / UMG 96-PA

Manufacturer: Janitza electronics

Type: AH96P

Item no. 5222667

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.149.2** **Blind cover 96x96mm**

for closing a cut-out of max. 96 x 96 mm in accordance with DIN 43700 incl. clamping spring fastening.

External dimensions: W: 96 H: 96, D: 8mm (surface-mounted)

Material: black plastic

Manufacturer: Janitza electronics GmbH

Type: BA96

Item no.: 2912001

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| **Item no:** | 2912001 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.149.3** **Blind cover 144x144mm**

for closing a cut-out with max. 144 x 144 mm in accordance with DIN 43700, with spring clip fastening.

External dimensions: W: 144 H: 144, D: 8mm (surface-mounted)

Material: black plastic

Manufacturer: Janitza electronics GmbH

Type: BA144

Item no.: 2912002

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| **Item no:** | 2912002 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.149.4** **Adapter plate 144x144mm to 96x96mm**

to reduce an existing cut-out from 144x144 mm to 96x96 mm.

RAL 7032 or RAL 7035

Material: Powder-coated sheet steel

Manufacturer: Janitza electronics GmbH

Type: AB144/1 or AB144/2

Item no.: 2912912 or 2912913

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| **Item no:** | 2912912 or 2912913 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.149.5** **Spacer for reducing the installation depth**

by 8.4 mm compatible with the manufacturer's 96 PA & PQ series devices. Suitable for a sheet thickness of up to 6 mm.

External dimensions: 108 x 108 x 8.6 mm (WxHxD)

Manufacturer: Janitza electronics GmbH

Type: GEH96

Item no.: 2901127

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| **Item no:** | 2901127 |

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.150** **Gateways**

**1.1.150.1** **M-Bus to Modbus TCP gateway**

as a communication interface for the integration of

of consumption meters into the manufacturer's parameterization and evaluation software.

Including driver for connecting

up to 80 standard loads and the connection at control level in accordance with IEC6115.

M-Bus interface in accordance with EN 13757-2 with

galvanic isolation between M-Bus and RJ45 interface.

MBus baud rates: 300, 2400 or 9600 bps

Supply voltage: 24 V DC ± 5%, <300 mA

Ethernet transmission rate: 100 MBit

Ethernet connection: RJ45 socket, shielded

IP address and port freely configurable

Dimensions (WxHxD): 35 x 89 x 58

Division units: 2 TE

Mounting type: DIN rail 35mm

Commissioning by the manufacturer is recommended.

The expert version of the manufacturer's parameterization and evaluation software is required to operate the gateway.

Manufacturer: Janitza electronics GmbH

Type: MG 80

Item no.: 1506108

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |

**1.1.151** **JPC 100 Web**

**1.1.151.1** **10" colour touch panel for visualization & configuration**

of up to 3 master devices with 10 subordinate slave measurements each or a maximum of 33 directly connected slave measuring devices via RS485 (Modbus RTU).

Display of all measured current and energy values, display and storage of the last minimum and maximum values, topology view of the connected devices, visualization of the main and secondary measurement.

User administration with password-protected display, option to create a hierarchical user structure and assignment of rights via the interface.

Integrated alarm management with acknowledgement function for pending alarms, storage of historical alarms and e-mail notification.

Dynamic topology configuration of up to 33 devices, group transmission of configurations to multiple devices, plug & play configuration via USB for

Import and export of device configurations, labeling of the individual measuring channels,

Limit values can be set per channel, and much more.

Display of the device homepages of the master devices, export of measurement data via USB and remote access via Teamviewer or microbrowser.

Factory pre-installed system with web browser and retrofittable Android applications (APPs).

Design: Switch panel mounting

Mounting: The system is suitable for panel mounting. With optional accessories, the system is suitable for mounting on support arm systems (VESA standard 75/75)

Display: 10" LED TFT, capacitive multi-touch

Front: Real glass

Resolution: 1024 x 600

Brightness: 450 cd/m²

Hardware:

CPU type: Embedded CPU Board XI

CPU: Rockchip RK3288 Quad-Core CPU 1.6 GHz

RAM: 2GB DDR3 SDRAM

HDD: 8GB eMMC storage

Software:

Operating system: Embedded OS Android 6 (Marshmallow)

Pre-installed software: Manufacturer's user interface, Teamviewer host, HTML5 web browser (Micobrowser)

Interfaces:

01x RS485 with Modbus RTU

01x Ethernet (RJ45) 10/100 Mbit

01x USB type A 2.0

01x Micro-USB

Supply voltage: 24V DC

Connection: screw terminals, 2-pole

Power consumption at full load: 13 W at 24 DC

Operating current: 1A

Power supply unit not included in the scope of delivery

Dimensions (WXHXT) = 282 x 184 x 35 mm

Weight: approx. 0.9 kg

Protection class front: IP 53

Protection class rear & connections: IP 20

Operating temperature: 0°C to 35°C

Bearing temperature: 0°C to 70°C

Relative humidity: 10-90%, non-condensing

Ventilation: Fanless

EC conformity according to EMC Directive2014/30/EU

RoHS compliant in accordance with Directive 2011/65/EU

Delivery included:

Installation accessories, documentation, parameterization and evaluation software in basic version, adaptation of the design to the practical application, configuration and parameterization of the device, delivery, installation and connection.

Manufacturer: Janitza electronics GmbH

Type: JPC 100-Web

Item no.: 1506358

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| **Quantity:** ........... | pcs | **Price:** ........... | € | **GP:** ........... | € |