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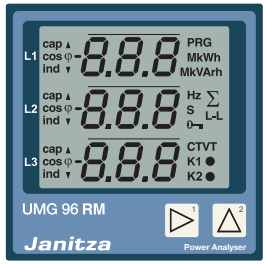
Deutsche Version: siehe Vorderseite

Power Analyser

UMG 96 RM-P
UMG 96 RM-CBM

Installation manual

- Installation
- Device settings



User manual:

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Janitza®

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General

Disclaimer
The observance of the information products for the devices is a prerequisite for safe operation and to achieve the stipulated performance characteristics and product characteristics. Janitza electronics GmbH accepts no liability for injuries to personnel, property damage or financial losses arising due to a failure to comply with the information products. Ensure that your information products are accessible and legible.

Further information can be found on our website www.janitza.com at Support > Downloads.

Copyright notice
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All rights reserved. Duplication, editing, distribution and any form of exploitation, also as excerpts, is prohibited.

Subject to technical amendments
- Make sure that your device agrees with the installation manual.
- Read and understand first product-related documents.
- Keep product supporting documentation throughout the life available and, where appropriate, to pass on to subsequent users.
- Please inform yourself about device revisions and the associated adjustments to the product-related documentation on www.janitza.com.

Disposal
Please observe national regulations!
If disposing of individual parts, please dispose of them in accordance with their nature and existing country-specific regulations, for example as:
- Electrical scrap
- Plastics
- Metals

Or, task a certified disposal business with the scrapping.

Relevant laws, applied standards and directives
The laws, standards and directives for the device applied by Janitza electronic GmbH can be found in the declaration of conformity on our website.

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Safety

Safety information
The installation manual does not represent a full listing of all necessary safety measures required for safe operation of the device.
Certain operating conditions may require further measures. The installation manual contains information that you must observe for your own personal safety and to avoid damage to property.

Symbols used:

⚡	This symbol is used as an addition to the safety instructions and warns of an electrical hazard.
⚠	This symbol is used as an addition to the safety instructions and warns of a potential hazard.
☞	This symbol with the word **NOTE!** describes: • Procedures that do not entail any danger of injury. • Important information, procedures or handling steps.

Safety instructions are highlighted with a warning triangle and shown as follows, depending on the degree of hazard:

DANGER!	Indicates an immediately threatening hazard that leads to serious or even fatal injuries.
WARNING!	Indicates a potentially hazardous situation that could lead to serious or even fatal injuries.
CAUTION!	Indicates a potentially hazardous situation that could lead to minor injuries or damage to property.

Measures for safety
When operating electrical devices certain parts of these devices inevitable carry dangerous voltages. This could result in serious bodily injury or damage to property if not handled properly:
- Before establishing electrical connections to the device, earth it at the ground wire connection if there is one.
- Hazardous voltages may arise in all circuit parts that are connected to the power supply.
- Even after disconnecting the supply voltage, there may still be hazardous voltages present in the device (capacitor storage).
- Do not operate equipment with current transformer circuits when open.
- Do not exceed the limit values stipulated in the user manual and on the rating plate - even during testing or commissioning.
- Observe the safety and warning information in the documents that belong to the devices!

Qualified personnel
In order to avoid injuries to personnel and property damage, only qualified personnel with electrical training are permitted to work on the devices with knowledge
- of the national regulations for accident prevention
- of safety standards
- of installation, commissioning and operation of the device.

Proper use
The device is
- intended for installation in switch cabinets and small installation distributors (please observe step 3 “Assembly”).
- not intended for installation in vehicles! The use of the device in mobile equipment is considered to be non-standard environmental conditions and is therefore only permitted after separate agreement.
- not intended for installation in environments with hazardous oils, acids, gases, vapours, dusts, radiation, etc.

The prerequisites of faultless, safe operation of this device are proper transport and proper storage, set-up, installation, operation and maintenance.

3 Brief description of device

The devices UMG 96 RM-P/-CBM are multifunctional network analysers, which:

- Measure and calculate electrical variables such as voltage, current, frequency, power, energy, harmonics (up to the 40th harmonic), etc. in building installations, on distribution units, circuit breakers and busbar trunking systems.
- Display and save measurement results and transmit them via interfaces.

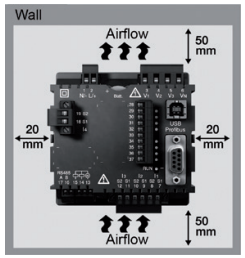
The UMG 96 RM-P and the UMG 96 RM-CBM:

- **have the same construction type.**
- **differ due to the additional Profibus interface of the UMG 96 RM-P.**

NOTE!
The device figures in this installation manual pertain to the UMG 96 RM-P.

Assembly

Install the device in the weatherproof front panel of switch cabinets.



Cut-out size for UMG 96 RM-P/-CBM:
$92^{+0.8}$ x $92^{+0.8}$ mm
Ensure!
Adequate ventilation

- The device is installed vertically!
- Observe clearance to adjacent components!

Fig. Mounting position, rear view

CAUTION! **Damage to property due to disregard of the installation instructions**

Disregard of the installation instructions can damage or destroy your device.
Ensure that you have enough air circulation in your installation environment and in the event of high environmental temperatures, provide cooling if necessary.

NOTE!
For further information on device functions, data and assembly, see the user manual.

4 Connecting the supply voltage

The supply voltage level for your device is specified on the rating plate.
After connecting the supply voltage, an indication appears on the display. If no indication appears, check whether the supply voltage is within the rated voltage range.

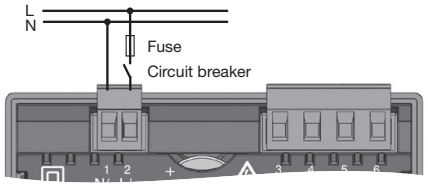


Fig. Connection of supply voltage.

WARNING! **Danger of injury due to electrical voltage!**

Serious bodily injury or death can result from:

- Contact with bare or stripped live wires.
- Device inputs that are dangerous to touch.

Render the system free of voltage before starting work! Check the system is free of electrical energy!

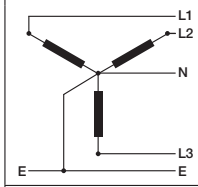
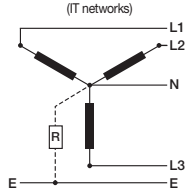
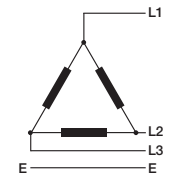
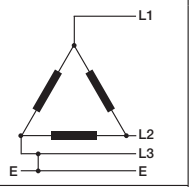
CAUTION! **Damage to property due to disregard of the connection conditions or impermissible overvoltage!**

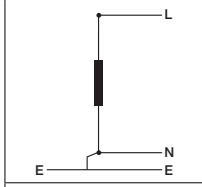
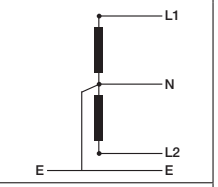
Your device can be damaged or destroyed by a failure to comply with the connection conditions or by exceeding the permissible voltage range.
Before connecting the device to the supply voltage, please check:

- **Voltage and frequency correspond to the details on the ratings plate! Limit values stipulated in the user manual have been complied with!**
- **In building installations, the supply voltage must be protected with a UL/IEC approved circuit breaker / a fuse!**
- **The isolation device**
  - **must be installed near the device and in a location that is easily accessible for the user.**
  - **must be labelled to identify the respective device.**
- **Do not tap the supply voltage from the voltage transformer.**
- **Provide a fuse for the neutral conductor if the neutral conductor terminal of the source is not grounded.**

5 Mains systems

Suitable network systems and maximum rated voltages (DIN EN 61010-1/A1):

Three-phase, four-conductor systems with earthed neutral conductor	Three-phase, four-conductor systems with non-earthed neutral conductor (IT networks)	Three-phase, three-conductor systems Non-earthed	Three-phase, three-conductor systems With earthed phase
			
U_{L-N} / U_{L-L} 277 VLN / 480 VLL	U_{L-N} / U_{L-L} 277 VLN / 480 VLL	U_{L-L} 480 VLL	U_{L-L} 240 VLL

Single-phase, two-conductor systems with earthed neutral conductor	Separated single-phase, three-conductor system with earthed neutral conductor
	
U_{L-N} 230 VLN	U_{L-N} / U_{L-L} 240 VLN / 480 VLL

The devices can be used in

- 2, 3 and 4 conductor networks (TN, TT and IT networks)
- in residential and industrial applications.

6 Voltage measurement

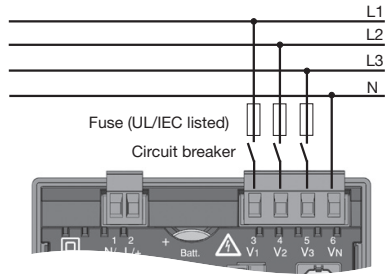
The devices UMG 96 RM-P/-CBM have 3 voltage measurement inputs and are suitable for a range of connection variants.

CAUTION! **Danger of injury or damage to the device**

Disregard of the connection conditions for the voltage measurement inputs can result in injuries or to the device being damaged.
For this reason, note that:

- **The voltage measurement inputs**
  - **are not connected to DC voltage.**
  - **are equipped with a suitable, labelled fuse and isolation device located in the vicinity (alternative: circuit breaker) located nearby.**
  - **are dangerous to touch.**
- **Voltages that exceed the allowed network rated voltages must be connected via a voltage transformer.**
- **Measured voltages and measured currents must derive from the same network!**

NOTE!
As an alternative to the fuse and circuit breaker, you can use a line safety switch.



Connection variant **3p 4w** *Voltage measurement* ***(Addr. 509 = 0, standard setting)***

The voltage measurement inputs are designed for measurements in low voltage networks, in which rated voltages of up to

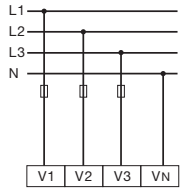
- 277 V phase to earth and 480 V phase to phase in the 4-conductor system or
- 480 V phase to phase in the 3-conductor system

occur.
The measurement and surge voltages meet overvoltage category 300 V CATIII.

NOTE!
If the metering range is exceeded, the measurement device display shows "*EEE*". For further information, see the user manual.

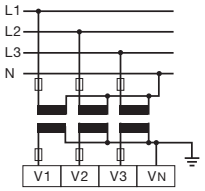
7 Connection variants for voltage measurement

3p 4w
(Addr. 509 = 0, standard setting)



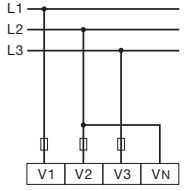
Measurement with 3 phase conductors and neutral conductor.

3p 4wu
(Addr. 509 = 1)



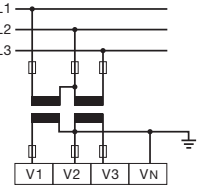
Measurement via voltage transformer with 3 phase conductors and a neutral conductor.

3p 4u
(Addr. 509 = 2)



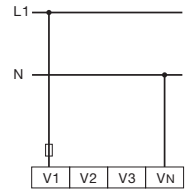
Measurement with 3 phase conductors and no neutral conductor. Measured values which require an N use a calculated N.

3p 2u
(Addr. 509 = 5)



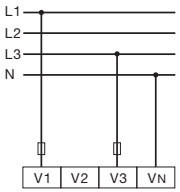
Measurement via voltage transformer with 3 phase conductors and no neutral conductor. Measured values which require an N use a calculated N.

1p 2w1
(Addr. 509 = 4)



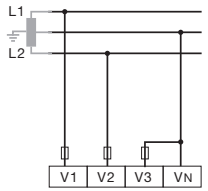
Measured values derived from voltage measurement inputs V2 and V3 are taken to be 0 and are not calculated.

2p 4w
(Addr. 509 = 3)



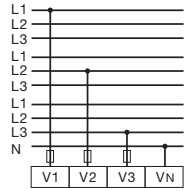
System with equal loading of the phases. The measured values of the voltage measurement input V2 are calculated.

1p 2w
(Addr. 509 = 6)



TN-C system with 1-phase, three-conductor connection. Measured values derived from voltage measurement input V3 are taken to be 0 and are not calculated.

3p 1w
(Addr. 509 = 7)



3 systems with equal loading of the phases. The measured values of the unconnected phases (L2/L3, L1/L3, L1/L2), of the respective systems are calculated.

8 Current measurement I1, I2, I3

The devices (UMG 96 RM-P/-CBM)

- are only approved for current measurements with a current transformer.
- are intended for the connection of current transformers with secondary currents of ../1 A and ../5 A.
- have the current transformer ratio set to 5/5 A as standard.

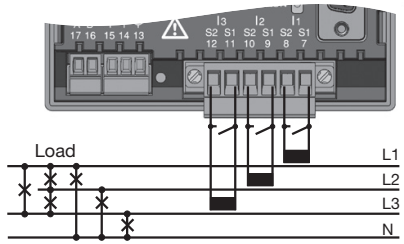
WARNING! **Danger of injury due to electrical voltage!**

Serious bodily injury or death can result from:

- Contact with bare or stripped live wires.
- Current measurement inputs on the device and on the current transformer that are dangerous to touch.

Render the system free of voltage before starting work! Check the system is free of electrical energy!
Earth your system! Use the earth connection points with earthing symbols for this!

Connection variant **3p 4w Current measurement** *(I1, I2, I3) via current transformer* ***(Addr. 510 = 0, standard setting).***



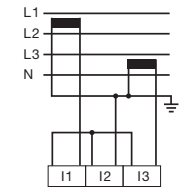
NOTE!
If the measurement range is exceeded, the measurement device display shows "*EEE*". Further information on this can be found in the user manual.

WARNING! **Risk of injury due to large currents and high electric voltages!**

Current transformers that are operated open in the secondary side (high voltage peaks) can cause severe bodily injuries or death.
Avoid operating current transformers when open, short circuit transformers that are unloaded!

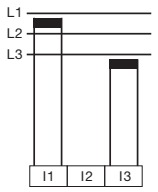
9 Connection variants for current measurement I1, I2, I3

3p 2i
(Addr. 510 = 1)



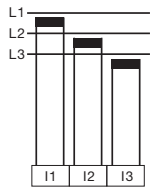
System with equal loading of the phases. The measured values for current measurement input I2 are calculated.

3p 2i0
(Addr. 510 = 2)



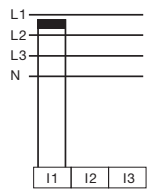
The measured values for the current measurement input I2 are calculated.

3p 3w3
(Addr. 510 = 3)



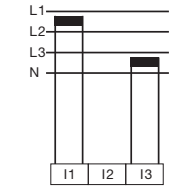
Measurement in the 3-phase network with unequal loading.

3p 3w
(Addr. 510 = 4)



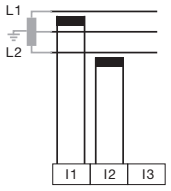
Measurement in the 3-phase network with equal loading. The measured values for current measurement inputs I2 and I3 are calculated.

2p 4w
(Addr. 510 = 5)



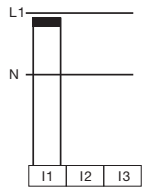
System with equal loading of the phases. The measured values for current measurement input I2 are calculated.

1p 2i
(Addr. 510 = 6)



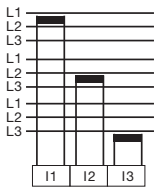
Measured values derived from current measurement input I3 are taken to be 0 and are not calculated.

1p 2w
(Addr. 510 = 7)



Measured values derived from current measurement inputs I2 and I3 are taken to be 0 and are not calculated.

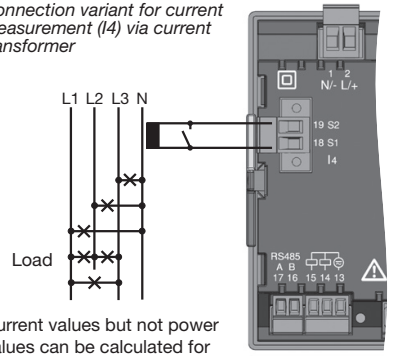
3p 1w
(Addr. 510 = 8)



3 systems with equal loading of the phases. The measured values of the unconnected phases (L2/L3, L1/L3, L1/L2), of the respective systems are calculated.

10 Current measurement I4

Connection variant for current measurement (I4) via current transformer



Current values but not power values can be calculated for current measurement input I4.

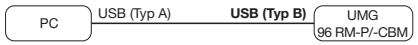
NOTE!
The measurement input I4 does not require address setting on the device.

NOTE!
Further information on current data and current transformer data can be found in the user manual.

11 Establish connection to PC

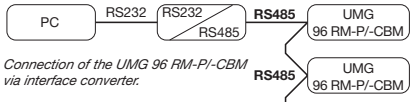
The 3 most common connections for communication between PC and device are described in the following:

1.



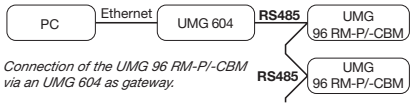
PC and UMG 96 RM-P/-CBM require a fixed IP address.

2.



Connection of the UMG 96 RM-P/-CBM via interface converter.

3.

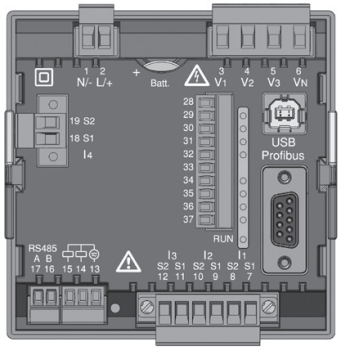


Connection of the UMG 96 RM-P/-CBM via an UMG 604 as gateway.

More details on device configuration and communication can be found from section 13.

NOTE "Profibus interface"!
Information for integrating your UMG 96 RM-P in your **Profibus network** can be found in the user manual.

*Fig. Rear side view of **UMG 96 RM-P***



Recommendation for the Ethernet connection:
Use at least a CAT5 cable!

CAUTION!
Property damage due to incorrect network settings
Incorrect network settings can cause faults in the IT network!
Find out the correct Ethernet network settings for your device from your network administrator.

NOTE!
Changes are only applied after exiting the programming mode.

NOTE!
- The following section contains an explanation of the most important programming menus **current transformer, voltage transformer** and **parameter list**.
- More detailed information on the operation, display and button functions for your device can be found in the user manual.

12 Controls and button functions

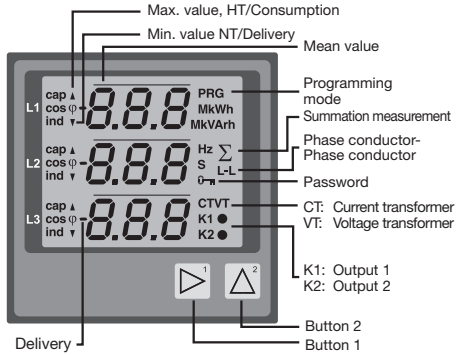
The device is operated with buttons 1 and 2, whereby the following distinctions are made:
- Short press (button 1 or 2):
  Next step (+1).
- Longer press (button 1 or 2):
  Previous step (-1).

The device differentiates between display and programming mode.

Display mode
- Buttons 1 and 2 can be used to scroll between the measured value indications.
- The measured value indication shows up to 3 measured values.
- A time for the automatic display change between the measured value indications can be configured in the GridVis® software.

Programming mode
- Hold buttons 1 and 2 depressed simultaneously for 1 second to change between **display mode** and **programming mode**. The text **PRG** appears in the display.
- Configure the necessary settings for the operation of the device in programming mode.

Fig. Display UMG 96 RM-P/ -CBM



- The programming mode can be protected with a user password.
- Button 2 switches between the programming menus:
  1. **Current transformer**
  2. **Voltage transformer**
  3. **Parameter list**

In order to switch from **programming mode** to **display mode**
- press buttons 1 and 2 simultaneously for 1 second.
- do not press any buttons for 60 seconds (automatic).

13 Programming current transformers

1. Switch to programming mode.
2. The symbols for the programming mode **PRG** and current transformer **CT** appear.
3. Press button 1 - the first digit of the input field for the primary current flashes.
4. Use button 2 to select the value of the 1st digit.
5. Use button 1 to change to the 2nd digit.
6. Use button 2 to select the value of the 2nd digit.
7. Use button 1 to change to the 3rd digit.
8. Use button 2 to select the value of the 3rd digit.
9. Confirm with button 1.
10. The complete number flashes.
11. Use button 2 to select the decimal place and thus the unit of the primary current.
12. Confirm with button 1.
13. The input range of the secondary current flashes.
14. Set the secondary current (value 1 A or 5 A) with button 2.
15. Confirm with button 1.
16. Exit programming mode by simultaneously pressing buttons 1 and 2 (1 sec.). Use button 2 to change to the input field for the voltage transformer.

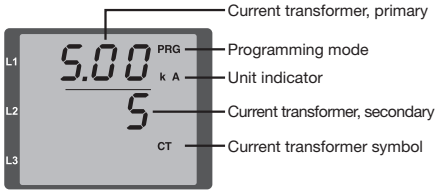


Fig. "Current transformer" input field

NOTE!
- Changes are only applied after exiting programming mode.
- For further information on current transformers and current transformer ratios, see the user manual.

14 Programming the voltage transformer

1. Switch to programming mode.
2. The symbols for programming mode **PRG**, and for the current transformer **CT** appear.
3. Use button 2 to change to programming mode for the voltage transformer.
4. The symbols for Programming mode **PRG**, and for the voltage transformer **VT** appear.
5. Press button 1 - the first digit of the input field for the primary voltage flashes.
6. Use button 2 to select the value of the 1st digit.
7. Use button 1 to change to the 2nd digit.
8. Use button 2 to select the value of the 2nd digit.
9. Use button 1 to change to the 3rd digit.
10. Use button 2 to select the value of the 3rd digit.
11. Confirm with button 1.
12. The complete number flashes.
13. Use button 2 to select the decimal place and thus the unit of the primary voltage.
14. Confirm with button 1.
15. The input range of the secondary voltage flashes.
16. Set the secondary voltage with button 2.
17. Confirm with button 1.
18. Exit programming mode by simultaneously pressing buttons 1 and 2 (1 sec.). Use button 2 to change to the programming mode for the parameter list.

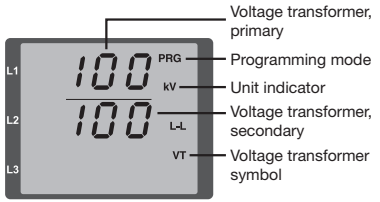


Fig. "Voltage transformer" input field

NOTE!
- Changes are only applied after exiting programming mode.
- For further information on voltage transformers and voltage transformer ratios, see the user manual.

15 Programming parameters

1. Switch to programming mode.
2. The symbols for programming mode **PRG**, and for the current transformer **CT** appear.
3. Press button 2 twice to change to the programming mode for the parameter list.
4. The input area of the parameter list appears.
5. Confirm with button 1 - the first digit of the parameter address flashes.

NOTE!
- A detailed parameter list with setting areas and pre-settings can be found in the user manual or the Modbus address list on our website.
- The parameter addresses of the device address (000) and the Baud rate (001) are explained in the following.

6. Use button 2 to select the value of the 1st digit.
7. Continue the process for the next digits of the parameter address and for the parameter settings.
8. Exit programming mode by simultaneously pressing button 1 and 2 (1 second). Use button 2 to change back to the input field for the current transformer.

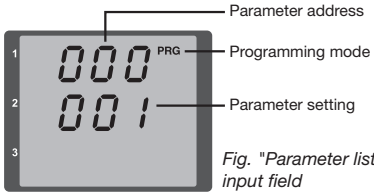


Fig. "Parameter list" input field

Set the device address (parameter address 000)
In a Master-Slave network via the RS485 interface it is possible to distinguish between a master device and other devices with the device address.
In the case of devices within this network, for the parameter address 000 please note
- you must assign different device addresses.
- the parameter setting of the parameter address 000 must lie within the range of 1 to 247 (0 and 248 to 255 are reserved).

Set the Baud rate (parameter address 001)
In a Master-Slave network via the RS485 interface, for each device:
- select a uniform Baud rate (parameter address 001) (for settings see the user manual).
- select the number of stop bits (parameter address 003) (0=1 Bit, 1=2 Bits).

Data bits (8) and parity (none) are preset.

16 Technical data

General information	
Net weight (with attached connectors)	approx. 358 g
Packaging weight (including accessories)	approx. 790 g
Battery	Lithium battery CR2032, 3 V (approval i.a.w. UL 1642)
Service life of background lighting	40000 h (after this period of time the background lighting efficiency will reduce by approx. 50%)

Transport and storage The following information applies to devices which are transported or stored in the original packaging.	
Free fall	1 m
Temperature	K55 (-25° C to +70° C)
Relative humidity	0 to 90% RH

Ambient coditions during operation	
The UMG 96RM is intended for weather-protected, stationary use. Protection class II i.a.w. IEC 60536 (VDE 0106, Part 1).	
Operating temperature range	K55 (-10° C .. +55° C)
Relative humidity	0 to 75% RH
Operating altitude	0 .. 2000 m above sea level
Degree of pollution	2
Mounting position	vertical
Ventilation	Forced ventilation is not required.
Protection against ingress of solid foreign bodies and water - Front side - Rear side - Front with seal	 IP40 i.a.w. EN60529 IP20 i.a.w. EN60529 IP54 i.a.w. EN60529

Supply voltage	
Nominal range	**Option 230 V**: AC 90 V - 277 V (50/60 Hz) or DC 90 V - 250 V, 300 V CATIII
	Option 24 V: AC 24 V - 90 V (50/60 Hz) or DC 24 V - 90 V, 150 V CATIII
Operating range	+-10% of the nominal range
UMG 96 RM-P Power consumption	**Option 230 V**: max. 7,5 VA / 4 W **Option 24 V**: max. 6,5 VA / 5 W
UMG 96 RM-CBM Power consumption	**Option 230 V**: max. 6 VA / 3 W **Option 24 V**: max. 5 VA / 3 W
Internal fuse, not replaceable	Type T1A / 250 VDC / 277 VAC according to IEC 60127
Recommended over-current protection device for the line protection	**Option 230 V**: 6-16 A **Option 24 V**: 1-6 A (Char. B) (IEC/UL approval)

Voltage measurement	
3-phase, 4-conductor systems with rated voltages up to	277 V/480 V (+-10%)
3-phase, 3-conductor systems, unearthed, with rated voltages up to	IT 480 V (+-10%)
Overvoltage category	300 V CAT III
Measurement voltage surge	4 kV
Protection of voltage measurement	1 - 10 A (With IEC / UL approval)
Measurement range L-N	0[1)] to 300 Vrms (max. overvoltage 520 Vrms)

Voltage measurement	
Measurement range L-L	0[1)] to 520 Vrms (max. overvoltage 900 Vrms)
Resolution	0.01 V
Crest factor	2.45 (related to the measurement range)
Impedance	4 MOhm / phase
Power consumption	approx. 0.1 VA
Sampling rate	21.33 kHz (50 Hz), 25.6 kHz (60 Hz) for each measurement channel
Frequency range of the fundamental oscillation - resolution	45 Hz to 65 Hz 0.01 Hz

1) ... The device determines measured values only if the Voltage measurement input V1 voltage L1-N greater than 20 Vrms (4-wire measurement) or a voltage L1-L2 of larger 34 Vrms (3-wire measurement) is applied.

Current measurement I1 - I4	
Rated current	5 A
Measurement range	0 to 6 Arms
Crest factor	1.98
Resolution	0.1 mA (display 0.01 A)
Overvoltage category	300 V CAT II
Measurement voltage surge	2 kV
Power consumption	approx. 0.2 VA (Ri = 5 mOhm)
Overload for 1 sec.	120 A (sinusoidal)
Sampling rate	21.33 kHz (50 Hz), 25.6 kHz (60 Hz) for each measurement channel

Digital outputs 6 digital outputs, semiconductor relays, not short-circuit proof.	
Switching voltage	max. 33 V AC, 60 V DC
Switching current	max. 50 mAeff AC/DC
Response time	10/12 periods + 10 ms *
Pulse output (energy pulse)	max. 50 Hz

* Response time e.g. at 50 Hz: 200 ms + 10 ms = 210 ms

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

Cable length (digital inputs and outputs)	
Up to 30 m	Unshielded
More than 30 m	Shielded

Serial interface	
RS485 - Modbus RTU/Slave	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps
Stripping length	7 mm
USB (receptacle)	USB 2.0, type B, max. transfer rate 921.6 kbps
Profibus (only UMG96RM-P) - Profibus DP/V0 - Receptacle	 - 9,6kbps to 12Mbps - D-sub, 9-pole

Terminal connection capacity (power supply voltage) Conductors to be connected. Only one conductor can be connected per terminal!	
Single core, multi-core, fine-stranded	0.2 - 2.5 mm², AWG 26-12
Terminal pins, core end sheath	0.2 - 2.5 mm²
Tightening torque	0.4 - 0.5 Nm
Stripping length	7 mm

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

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

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

Terminal connection capacity (RS485)	
Single core, multi-core, fine-stranded	0.2 - 1.5 mm², AWG 28-16
Terminal pins, core end sheath	0.2 - 1.5 mm²
Tightening torque	0.2 - 0.25 Nm
Stripping length	7 mm

NOTE!
Further technical data can be found in the user manual for the device.

17 Procedure in the event of faults

Possible fault	Cause	Remedy
No display	External fusing for the power supply voltage has tripped.	Replace fuse.
No current display	Measurement voltage is not connected.	Connect the measuring-circuit voltage.
	Measurement current is not connected.	Connect measuring-circuit current.
Current displayed is too large or too small.	Current measurement in the wrong phase.	Check connection and correct if necessary.
	Current transformer factor is incorrectly programmed.	Read out and program the current transformer transformation ratio at the current transformer.
	The current peak value at the measurement input was exceeded by harmonic components.	Install current transformer with a larger transformation ratio.
	The current at the measurement input fell short of.	Install current transformer with a suitable transformation ratio.
Voltage displayed is too large or too small.	Measurement in the wrong phase.	Check connection and correct if necessary.
	Voltage transformer incorrectly programmed.	Read out and program the voltage transformer transformation ratio at the voltage transformer.
Voltage displayed is too small.	Overrange.	Install voltage transformers.
	The peak voltage value at the measurement input has been exceeded by harmonic components.	**Caution!** Ensure the measurement inputs are not overloaded.
"EEE" in the display	See „error messages“ in the user manual.	
"EEE bAt" in the display	Battery capacity is too low	Replace battery (see "Replacing the battery" in the user manual).
Device still does not work despite the above measures.	Device defective.	Send the device to the manufacturer for inspection and testing along with an accurate fault description.

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