

UMG 20CM and 20CM-CT6 module



MULTI-CHANNEL MEASURING SOLUTION

Up to 116 channels for operating and residual currents (RCM)

MEASURING DEVICE WITH 20 CURRENT MEASUREMENT CHANNELS

For downstream loads and circuits

The UMG 20CM measuring device is ideal for operating current acquisition or for measuring residual current. It is primarily used in applications with many circuits, such as sub-distributions of production systems in industrial settings or in data centers. Twenty current measurement channels (inputs) are available for connecting the current transformer (CT-20, CT-6-20, or SC-CT-20) for operating cur-

rent acquisition in a measurement range from 1 A to 600 A or for residual current detection in a range from 10 mA to 15 A. The device comes with an integrated RS485 communication interface (Modbus RTU protocol). The limit value monitoring and alarm message options will inform you immediately in the event of overloading or faults in your energy distribution system.

UMG 20CM at a glance

- Residual current monitoring and energy measurement in a single device
- 20 current measurement channels and three voltage measurement channels for continuously acquiring the operating currents or permanently monitoring the fault currents
- Modbus RTU directly on board for easy integration into your system
- Can be easily retrofitted with a wide range of different current transformers, tailored to the individual application conditions
- Notifications if nominal currents are exceeded, includes memory function for notification that limit values have been exceeded
- Can be extended to include a maximum of 96 channels with the 20CM-CT6 module



MODULAR EXTENSION FOR THE UMG 20CM MEASURING DEVICE

20CM-CT6 OPERATING AND RESIDUAL CURRENT MONITORING MODULE (RCM)



The 20CM-CT6 operating and residual current monitoring module (RCM) is intended for use in industrial settings, in data centers, and commercial buildings. It makes it possible to measure and calculate electrical variables, such as

operating and residual current, power, energy, and harmonics. Typical applications are found in building installations on distribution boards, circuit breakers, and busbar trunking systems.

20CM-CT6 module at a glance

- The 20CM-CT6 module serves as an extension of the UMG 20CM basic device
- A maximum of 16 modules with six channels each (a total of up to 96 channels) can be added
- The measured data from all of the modules is accessible via the UMG 20CM
- Internal communication and power supply via CAN bus interface
- Acquisition of measured values via integrated current transformers
- Memory for historical data
- RCM diagnostics variables on board
- Status of limit value monitoring displayed by six LEDs

UMG 20CM

Item no. 14.01.625

General

Accuracy of voltage, current measurement	1%
Accuracy of active energy measurement (kWh, .../5 A)	Class 1
Supply voltage	90–276 V AC/DC

Inputs and outputs

Number of digital outputs	2
---------------------------	---

RMS measurement – actual values, e.g.

Current, voltage, frequency	•
Active, reactive, and apparent power / per channel	•
Power factor	•

Energy measurement

Active energy (for each of the 20 channels, + seven aggregating channels)	•
---	---

Acquisition of mean values, e.g.

Current / actual and maximum	•
Active power / actual and maximum	•
Frequency / actual, minimum, and maximum	•

Measurement of Power Quality

Harmonics per order / current and voltage	1st–63rd
factor THD-U / THD-I in %	•
Overcurrent and undercurrent acquisition	•

Recording of measurement data

Memory	768 kB
Average, minimum, and maximum values	•

Interface/protocol

RS485/Modbus RTU	•
------------------	---

Measurement voltage input

Overvoltage category	300 V CAT III
Measurement range, voltage L-N, AC (no converter)	10 ... 300 Vrms
Measurement range, voltage L-L, AC (no converter)	18 ... 480 Vrms
Frequency measurement range	45 ... 65 Hz
Sampling rate per phase	20 kHz
Measurement in quadrants	4
Networks	TN, TT, IT

Measurement current input

Evaluation range of the operating current	0 ... 630 A
Evaluation range of the residual current	10 ... 1,000 mA
Resolution	1 mA

Residual current measurement

Residual current measurement for all 20 channels (optionally)	•
Transformer connection control	•

Mechanical properties

Net weight	270 g
Device dimensions in mm (H x W x D)	90 x 105 x approx. 73
Protection class per EN 60529	IP20
Assembly per IEC EN 60999-1/DIN EN 50022	35-mm DIN rail

Environmental conditions

Temperature range, operation	K55 (–10°C ...+55°C)
------------------------------	----------------------

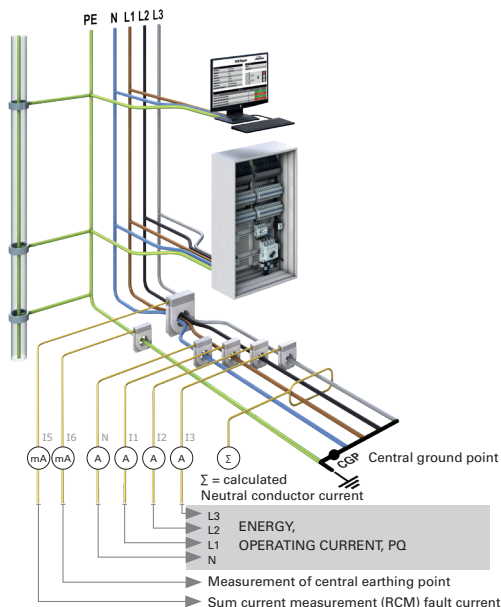
GridVis Basic software

	•
--	---

For detailed technical information, please see the operating manual and the modbus address list at www.janitza.com

• = included

RESIDUAL CURRENT MONITORING (RCM)



- Early warning in event of system faults
- Increased personal and fire safety, because of early detection of overloading inside N conductors and critical residual currents
- Reduced effort when testing insulation
- Prevents dangerous and costly system failures; availability of systems is increased
- Localization of particular faulty feeders; reduced effort during troubleshooting
- All changes to the system state after the point of commissioning can be detected thanks to parameterization of the system in the new condition and continuous monitoring
- Meets the safety criteria for "Residual current monitoring (RCM)" in data centers

AT A GLANCE

READY FOR THE FUTURE

- System can easily be extended thanks to scalable measurement system
- Up to 116 channels for monitoring residual current and measuring energy

COMPACT DESIGN

- Optimal use of space thanks to compact design in a system

REDUCED COSTS

- Reduced measurement channel costs due to integrated current transformer and prevention of errors in setup

FLEXIBILITY

- Channels can be optionally configured as residual current or operating current channels and extended as desired

LOW CONFIGURATION EFFORT

- Easy to use and low effort involved in configuration
- Plug & Play solution thanks to automatic detection of the connected 20CM-CT6 modules

VISUALIZATION AND DOCUMENTATION

- Visualization and documentation of all data in the system thanks to GridVis® network visualization software

LOW INSTALLATION EFFORT

- Reduced wiring effort thanks to CAN Bus plug connections that are easy to connect



For further information, please see: <https://www.janitza.com/umg-20cm.html>

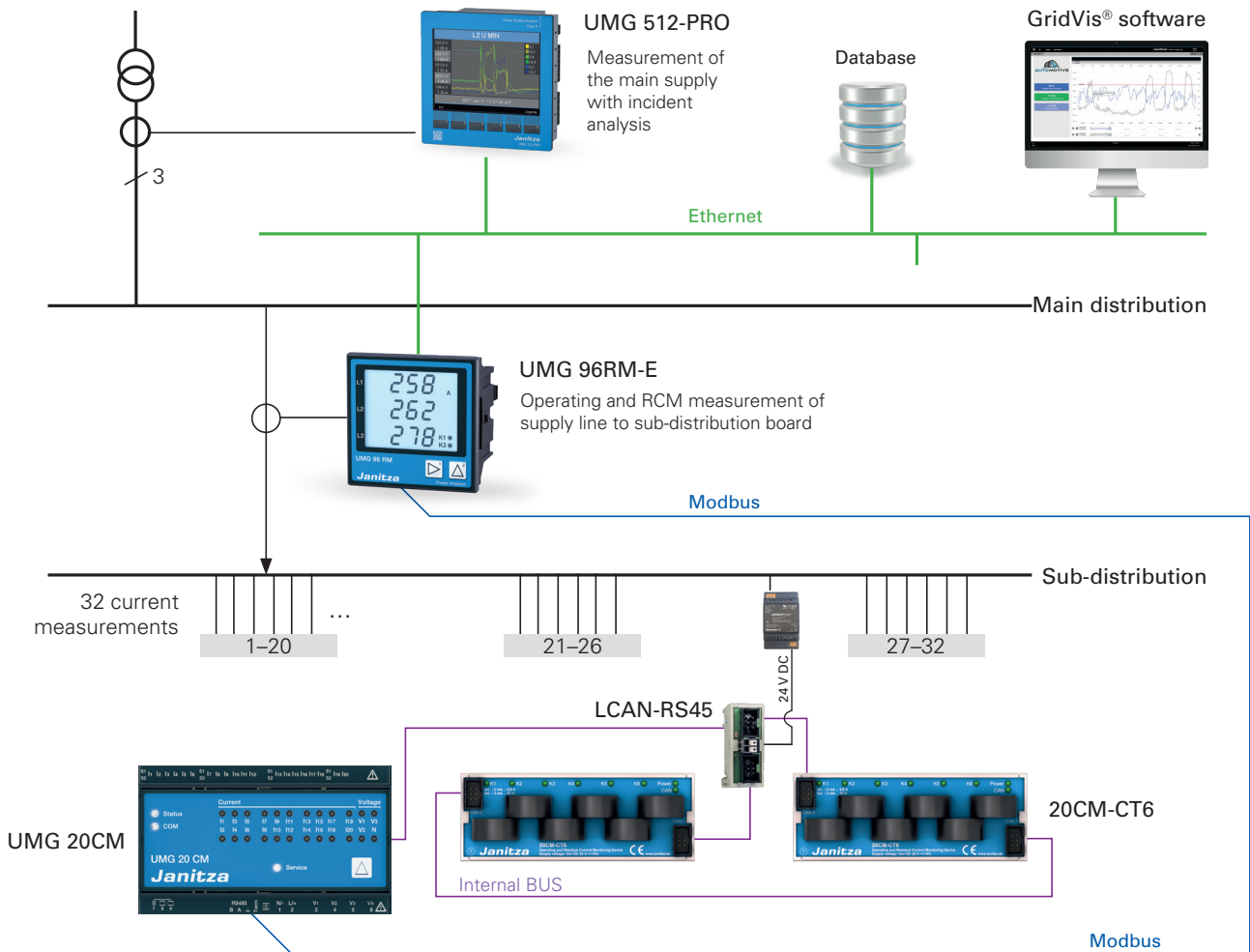


PERMANENT MONITORING OF OPERATING AND RESIDUAL CURRENT

The 20CM-CT6 module is an extension for the UMG 20CM operating and residual current measuring device. They work together to form a complete current and consumption monitoring system. This system can be supplemented with display units or devices for data coupling with external systems. The measuring system increases the system and

operational safety while also ensuring energy transparency all the way to the end consumer. Disturbances or the occurrence of a (typically gradual) increase in residual currents, for example, can be detected at an early point. The adequate information at the right time gives you the advantage and guarantees the safe operation of your system.

CASE STUDY: MEASUREMENT OF 32 SINGLE-PHASE CURRENT PATHS, E.G. SERVER RACKS OR OFFICES



Technical data for 20CM-CT6 module

20CM-CT6 MODULE

Item no. 14.01.626

General

Supply voltage U_s (via CAN bus)	DC 24 V ($\pm 10\%$, PELV)
Operating mode	Continuous operation
Power consumption (internal consumption)	2 W
Current measurement range	2 mA ... 63 A
Accuracy of measurement operating and residual current	0.5%
Harmonics	1 to 63

Measurement channels

Number of measurement channels	6
Transmission ratio	700:1
Current measurement transformers – rated voltage	AC 250 V
Current measurement transformers – rated frequency	50 Hz
Response operating current	AC 2 mA ... 63 A
Response residual current	AC 2 mA ... 1 A
Resolution	0.5 mA 35 mA
2 mA ... 1 A	
1 A ... 63 A	
Threshold frequency	3.3 kHz
Acquisition of measured values	parallel, True RMS
Frequency range	45 ... 65 Hz

Monitoring function

Response delay	0 ... 650 s
Reset delay	0 ... 650 s
Resolution of delay	10 s

Acquisition of mean values, e.g.:

Active, reactive, and apparent power	•
--------------------------------------	---

Displays

LEDs for displaying status of measurement channels	6 x bi-colored LED
LEDs for displaying the CAN and device status	2 x bi-colored LED

Electromagnetic compatibility (EMC)

per IEC/EN 61326-1

Communication interface

Interface	CAN / CAN 2.0
Protocol	CANopen

Environmental conditions

Ambient temperature (operation)	-10 ... +55°C
Storage temperature	-25 ... +70°C
Altitude	0 ... 2,000 m
Pollution degree	3

Mechanical properties

Installation position	vertical/horizontal
Installation	Top-hat rail per DIN EN 60715
Device dimensions in mm (W x H x D)	119 x 47 x 45
CAN bus connection type (CAN bus connector)	2 x 6-pin IDC plug
Connection cross-section (single core/fine stranded)	max. 9.3 mm (all cables and individual wires)
Protection class per DIN EN 60529	IP 20
Protection class	III
Flammability class	UL -V0
Weight	170 g

Accessories*1

LCAN-RS45 incl. 2 cables (each 2m ribbon cable, 1x with 2 IDC-connectors and 1x with 3 IDC-connectors)	Item no. 08.02.447
--	--------------------

The following is included in the scope of delivery of module 20CM-CT6:
1 connection cable (ribbon cable 20cm with 2 IDC-connectors)

For detailed technical information, please see the operating manual and the modbus address list at www.janitza.com

*1 Separate power supply with 24 V DC required

• = included

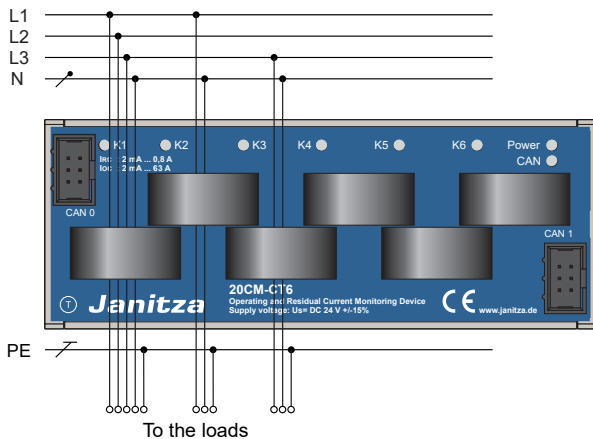


Fig.: Residual current measurement

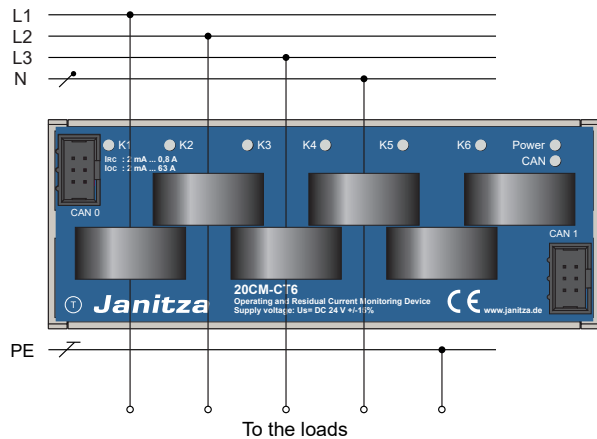


Fig.: Operating current measurement, e.g., 6 x 1-phase

Janitza electronics GmbH
Vor dem Polstück 6 | 35633 Lahnau
Germany

Phone: +49 6441 9642-0
Fax: +49 6441 9642-30
info@janitza.com | www.janitza.com

Sales partner

optec
energie ist messbar

Optec AG | Guyer-Zeller-Strasse 14 | CH-8620 Wetzikon ZH

Telefon: +41 44 933 07 70 | Telefax: +41 44 933 07 77
E-Mail: info@optec.ch | Internet: www.optec.ch

Item no.: 33.03.505 • Doc. no.: 2.500.154.2 • Version 11/2018 • Technical changes reserved.
The latest version of the brochure is available at www.janitza.com