UMG 20CM and 20CM-CT6 module

MULTI-CHANNEL MEASURING SOLUTION

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

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#### 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
- THD-U / THD-I in %
- Overcurrent and underrcurrent 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

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**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
UMG 20CM and 20CM-CT6 module

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

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

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

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

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

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

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

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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
**20CM-CT6 MODULE**

**Item no. 14.01.626**

### General
- **Supply voltage** (via CAN bus): DC 24 V (± 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
- **Response operating current**: AC 2 mA ... 63 A
- **Response residual current**: AC 2 mA ... 1 A
- **Resolution**:
  - 2 mA ... 1 A: 0.5 mA
  - 1 A ... 63 A: 36 mA
- **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
- **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

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

The following is included in the scope of delivery of module 20CM-CT6:
1 connection cable (ribbon cable 20cm with 2 IDC-connectors)
1x with 3 IDC-connectors)

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