

# Measuring and monitoring relays

## Benefits and advantages

### CM-N range: Multifunctional



- 45 mm wide housing
- Output contacts: 2 c/o (SPDT) contacts
- Continuous voltage range (24-240 V AC/DC) or single-supply
- Setting and operation via front-face operating controls
- Adjustment of threshold values and switching hysteresis via direct reading scale
- Adjustable time delays
- Integrated and snap-fitted front-face marker label
- Sealable transparent cover (accessory)

### CM-S range: Universal and multifunctional



- Only 22.5 mm wide housing
- Output contacts: 1 or 2 c/o (SPDT) contacts
- One supply voltage range or supplied by measuring circuit
- Setting and operation via front-face operating controls
- Adjustment of threshold values and switching hysteresis via direct reading scale
- Integrated and snap-fitted front-face marker
- Snap-on housing: The relays can be placed on a DIN rail tool-free - just snap it on or remove it tool-free
- Sealable transparent cover (accessory)

### CM-E range: Economy



- Only 22.5 mm wide housing
- Output contacts: 1 c/o contact or 1 n/o contact
- One supply voltage range
- One monitoring function
- Cost-efficient solution for OEM applications
- Preset monitoring ranges

## ABB's measuring and monitoring relays in a new housing

### Benefits at a glance

#### Easy Connect Technology

##### New options:

Additionally to the existing well established screw connections a new innovative connection technology can be offered: Easy Connect Technology with push-in terminals.

##### Tool-free wiring:

The push-in terminals can be wired with rigid or fine stranded wires with wire end ferrules totally tool-free. The connection direction is exactly the same as the screw version.

##### Higher utility class:

The Easy Connect Technology provides excellent vibration resistance with gas tight push-in terminals – the right solution for harsh environment.

#### Extended features

##### Flammability:

The plastic housing material used meets the requirements for the highest flammability class. (UL94 V-0 rated)

##### Look and feel:

The new housing fits perfectly with ABB's control products offer.

# Measuring and monitoring relays

## Benefits and advantages

### Higher utility class ①

The Easy Connect Technology provides excellent vibration resistance with gas tight push-in terminals – the right solution for harsh environment. Selected products of the electronic timers and measuring and monitoring relays comply to the latest rail standards NF F 16-101/102, EN 45545, EN 50155 and more standards which are relevant for railway applications. Find more information in the rail brochure 2CDC110084B0201.

### Safety ②

The “real distance” is hidden.

The clearance and the creepage distances of our products exceed international standards and substantially increase the safety of our products.

### Easy Connect Technology ③

Tool-free wiring and excellent vibration resistance. Push-in terminals provide connection of wires up to  $2 \times 0.5 - 1.5 \text{ mm}^2$  ( $2 \times 20 - 16 \text{ AWG}$ ), rigid or fine-strand with or without wire end ferrules. The extended type designators for products with push-in terminals are indicated by a **P** following the extended type designator e.g. CM-xxS.xx**P**.

### Double-chamber cage connection terminals ④

Double-chamber cage connection terminals provide connection of wires up to  $2 \times 0.5-2.5 \text{ mm}^2$  ( $2 \times 20-14 \text{ AWG}$ ) rigid or fine-strand, with or without wire end ferrules. Potential distribution does not require additional terminals. The extended type designators for products with double-chamber cage connection terminals are indicated by a **S** following the extended type designator e.g. CM-xxS.xx**S**.

### LED's for status indication ⑤

All actual operational states are displayed by front-face LEDs, thus simplifying commissioning and troubleshooting.

### Integrated marker label ⑥

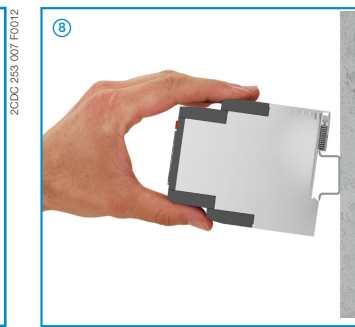
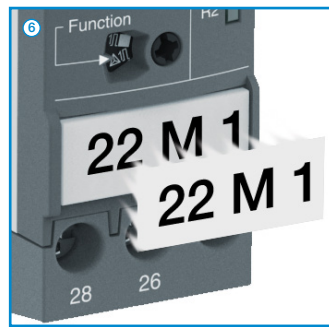
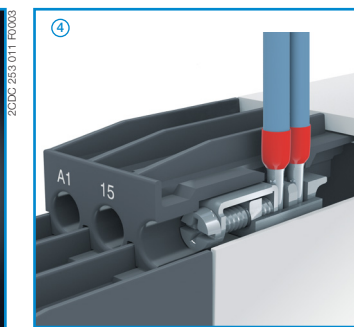
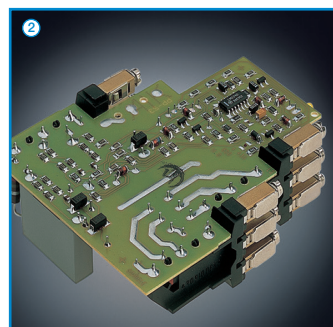
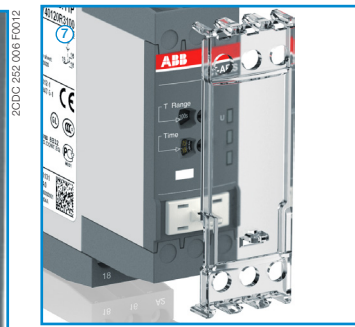
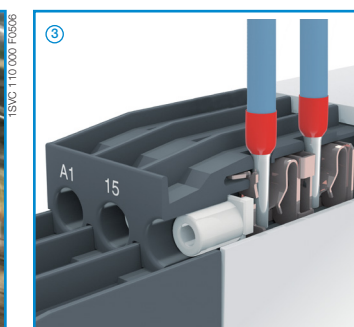
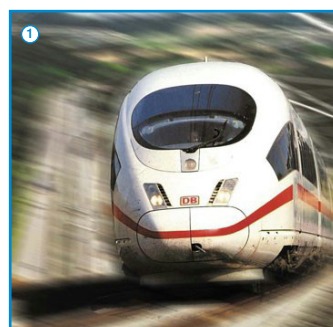
Integrated marker labels allow the product to be marked quickly and simply. No additional marker labels are required.

### Sealable transparent cover ⑦

Protection against unauthorized changes of time and threshold values. Available as an accessory.

### Snap-On housing ⑧

Tool-free DIN rail installation and deinstallation of the monitoring relay.

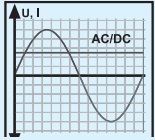


# Measuring and monitoring relays

## Assortment overview

2

### Single-phase current and voltage monitoring



#### Current monitoring

- Monitoring of motor current consumption
- Monitoring of lighting installations and heating circuits
- Monitoring of transportation equipment overload
- Monitoring of locking devices, electromechanical brake gear and locked rotors

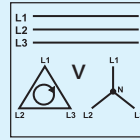
See “Ordering details - Current monitoring relays” on page 2/12.

#### Voltage monitoring

- Speed monitoring of DC motors
- Monitoring of battery voltages and other supply networks

See “Ordering details - Voltage monitoring relays” on page 2/14.

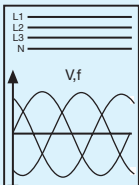
### Three-phase monitoring



- Voltage monitoring of mobile three-phase equipment
- Protection of personnel and installations against phase reversal
- Monitoring of the supply voltage of machines and installations
- Protection of equipment against damage caused by unstable supply voltage
- Switching to emergency or auxiliary supply
- Protection of motors against damage caused by unbalanced phase voltages and phase loss

See “Ordering details - Singlefunctional” on page 2/30 or “Ordering details - Multifunctional” on page 2/32.

### Grid feeding monitoring relays

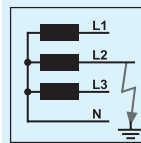


The CM-UFx range monitors all voltage and frequency parameters in a grid and ensures the safe feeding of decentral produced electrical energy into the grid.

- Monitoring of the voltage with up to 2 thresholds for over- and undervoltage
- Monitoring of the frequency with up to 2 thresholds for over- and underfrequency
- ROCOF (rate of change of frequency) and vector shift detection
- In compliance with several local standards

See „Ordering and selection“ on page 2/52.

### Insulation monitoring



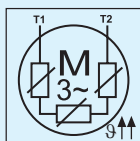
- Monitoring of electrically isolated supply mains for insulation resistance failure
- Detection of initial faults
- Protection against earth faults

See “Ordering details” on page 2/61.

# Measuring and monitoring relays

## Assortment overview

### Thermistor motor protection

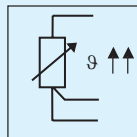


CM-MSE and CM-MSS provide full protection of motors with integrated PTC resistor sensors.

- Protection of motors against thermal overload, e. g. caused by insufficient cooling, heavy load starting conditions, undersized motors, etc.

See “Ordering details” on page 2/80.

### Temperature monitoring

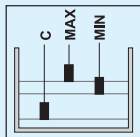


Acquisition, messaging and regulation of temperatures of solid, liquid and gaseous media in processes and machines

- Motor and system protection
- Control panel temperature monitoring
- Frost monitoring
- Temperature limits for process variables, e.g. in the packing or electroplating industry
- Control of systems and machines like heating, air-conditioning and ventilation systems, solar collectors, heat pumps or hot water supply systems
- Monitoring of servomotors with KTY sensors
- Bearing and gear oil monitoring
- Coolant monitoring

See “Ordering details” on page 2/93.

### Liquid level monitoring and control



- Protection of pumps against dry running
- Protection against container overflow
- Control of liquid levels
- Detection of leaks
- Control of mixing ratios

See “Ordering details” on page 2/104.