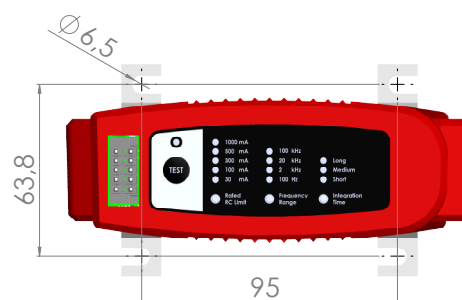
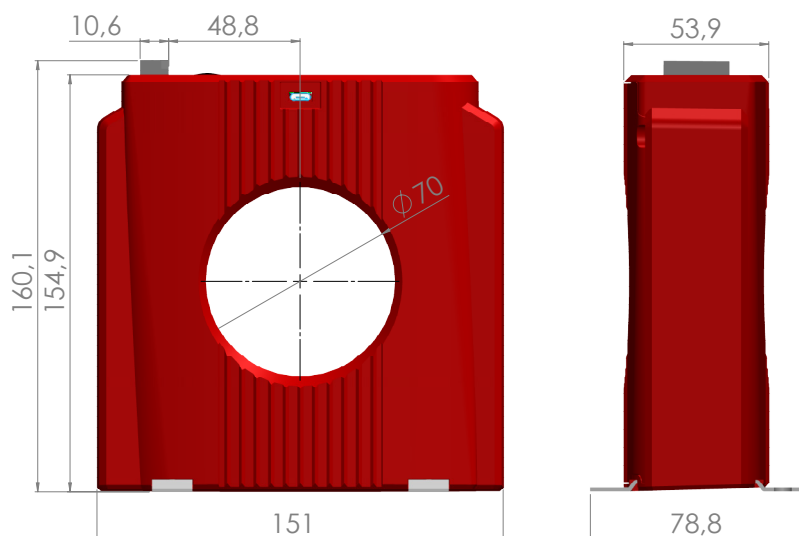
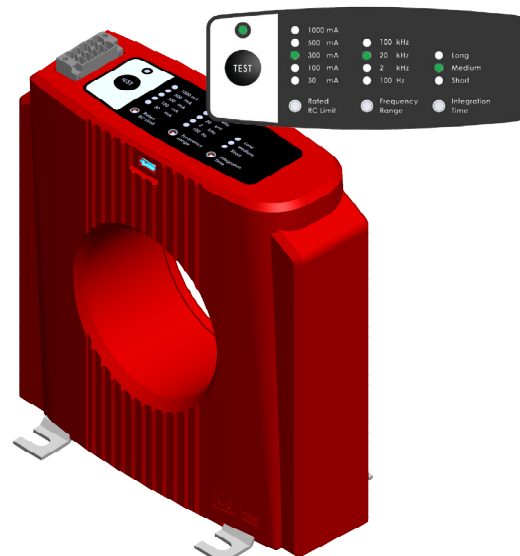


## RCM-CT-V2 Type B/B+ - Residual current monitor all-current sensitive (Type B/B+)

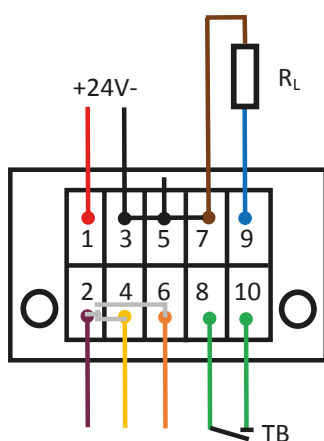
Download  
data sheet

The RCM-CT-V2 type B/B+ differential current monitor can measure DC and AC differential currents with frequencies of up to 100 kHz. The true RMS value (TRMS) is converted into a standard 4-20 mA DC signal, thus offering the user a wide range of connection options. As a rule, the RCM-CT-V2 type B/B+ is connected to a universal measuring device. Since the RCM-CT-V2 type B/B+ already complies with DIN 62020, the connected devices only have to be able to process the standard signal.

In addition to the 4-20 mA DC output, the device has a built-in relay that switches between 50 and 100 % of the rated differential current like conventional RCDs. These contacts can switch external audible or optical warning devices. However, it can also be used to disconnect the circuit breaker. The status of the relay output is indicated via the status LED. A 24 VDC supply voltage is provided for the power supply.



## Typical connection variant



- 1: 24 V DC
- 2: Common relay contact
- 3: 0V DC
- 4: Relay NC, @Alarm: closed
- 5: 0 V DC
- 6: Relay NO, @Alarm: open
- 7: 0 V DC
- 8: External test button, contact 1
- 9: Analogue 4 ... 20 mA output
- 10: External test button, contact 2

Image source: MBS AG

## Technical data

| Type                                                            | RCM-CT-V2 70 Type B/B+ |                                                                                                         |
|-----------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------|
| Item number                                                     | 03.38.2170             |                                                                                                         |
| Response differential current character                         |                        | Type B / B+                                                                                             |
| Rated voltage range of the monitored circuit                    | $U_n$                  | 0 ... 690 Vrms                                                                                          |
| Rated frequency of the monitored circuit                        | $f_n$                  | 50 / 60 Hz                                                                                              |
| Applicable rated frequency range of the monitored circuit       | $f_n$                  | 0 ... 400 Hz                                                                                            |
| Rated current                                                   | $I_n$                  | 100 A ( $I_{\Delta n}=30$ mA); 300 A ( $I_{\Delta n}=100$ ... 1000 mA)                                  |
| Max. overcurrent with regard to non-tripping                    | $I_{max}$              | 600 A ( $I_{\Delta n}=30$ mA); 1800 A ( $I_{\Delta n}=100$ ... 1000 mA)                                 |
| Thermal rated short-time differential current                   | $I_{\Delta th}$        | 200 A                                                                                                   |
| Thermal rated continuous differential current                   | $I_{\Delta cth}$       | 100 A                                                                                                   |
| Rated surge differential current                                | $I_{\Delta dyn}$       | 10 kA                                                                                                   |
| Rated insulation voltage                                        | $U_i$                  | 700 V                                                                                                   |
| Rated impulse withstand voltage                                 | $U_{imp}$              | 8 kV                                                                                                    |
| Overvoltage category                                            | OVC                    | IV                                                                                                      |
| Pollution level                                                 | PD                     | 3                                                                                                       |
| Current output 4 ... 20 mA                                      |                        |                                                                                                         |
| Current output 0 ... 0.4 Arms / 0 ... 2 Arms                    | $I_{out}$              | 4 ... 20 mA DC                                                                                          |
| Current output at 0 % $I_{\Delta n}$                            | 0 %                    | 4 ... 4.2 mA DC                                                                                         |
| Current output at 0.4 Arms / 2 Arms                             | 100 %                  | 19 ... 21 mA DC                                                                                         |
| Peak-to-peak noise                                              | pk-pk                  | $\leq 0.25$ %                                                                                           |
| Resolution                                                      | $Res_{out}$            | 0.01 mA                                                                                                 |
| Short-circuit current                                           | $I_{s,out}$            | < 25 mA DC, short-circuit proof                                                                         |
| Load resistance / load                                          | $R_{t,max}$            | $\leq 900 \Omega$                                                                                       |
| Typical load resistance                                         | $R_{type}$             | 250 $\Omega$                                                                                            |
| Voltage at the open terminals                                   | $U_{oc,out}$           | 24 V DC                                                                                                 |
| Response time 1x $I_{\Delta n}$ , step response 10 ... 90 %     | $t_{10 \dots 90 \%}$   | $\leq T_i$                                                                                              |
| Response time 1x $I_{\Delta n}$ , step response 0 ... 50 %      | $t_{0 \dots 50 \%}$    | $\leq T_i/2$                                                                                            |
| Response time 5x $I_{\Delta n}$ , step response 10 ... 90%      | $5 \times t_{10-90\%}$ | $\leq T_i/30$                                                                                           |
| Response time 5x $I_{\Delta n}$ , step response 0 ... 50%       | $5 \times t_{0-50\%}$  | $\leq T_i/50$                                                                                           |
| Differential current data                                       |                        |                                                                                                         |
| Rated differential current relay at 50/60 Hz - selectable       | $I_{\Delta n}$         | 30 mA - 100 mA - 300 mA - 500 mA - 1000 mA                                                              |
| Differential current frequency range - selectable               | $f_{\Delta n}$         | DC, 100 Hz, 2 kHz, 20 kHz, and 100 kHz                                                                  |
| Rated response differential current output at 50/60 Hz          | $I_{\Delta n}$         | 100 % $I_{\Delta n} + 0$ ... 20 %                                                                       |
| Rated non-response differential current relay at 50/60 Hz       | $I_{\Delta no}$        | 50 % $I_{\Delta n}$ 20 ... 0%                                                                           |
| Frequency dependence of the rated response differential current | $I_{\Delta n, freq}$   | 150 Hz: 2.4· $I_{\Delta n}$ ; ; 400 Hz: 6· $I_{\Delta n}$ ; 1000 Hz: 14· $I_{\Delta n}$ (or 2 Arms max) |

| Supply voltage                                |                                 |                                                                           |
|-----------------------------------------------|---------------------------------|---------------------------------------------------------------------------|
| Rated voltage                                 | $U_e$                           | 20.4 ... 26.4 V DC                                                        |
| Overvoltage category                          | $OVC_e$                         | III                                                                       |
| Rated impulse withstand voltage               | $U_{impe}$                      | 1.5 kV                                                                    |
| Rated insulation voltage                      | $U_{ie}$                        | 30 V                                                                      |
| Internal consumption                          | $P_e$                           | < 4 W                                                                     |
| Relay output                                  |                                 |                                                                           |
| Contact type                                  |                                 | 1 changeover contact (NC+NO)                                              |
| Rated voltage                                 | $U_r$                           | 30 V AC/DC                                                                |
| Rated current                                 | $I_r$                           | 1 A AC/DC                                                                 |
| Maximum response time $1 \times I_{\Delta n}$ | $t_r, 1 \times I_{\Delta n}$    | $\leq T_i$                                                                |
| Maximum response time $5 \times I_{\Delta n}$ | $t_r, 5 \times I_{\Delta n}$    | $\leq T_i/2$                                                              |
| Response threshold $I_{\Delta n}$             |                                 | 100 %; 0 ... 20 %                                                         |
| Locking function with reset (int/ext)         |                                 | Yes                                                                       |
| Shortest non-trigger time                     | $t_{nr}, 1 \times I_{\Delta n}$ | $\leq T_i/2$                                                              |
| Switching operations                          |                                 | > 20,000                                                                  |
| External test button and reset button         |                                 |                                                                           |
| Cable length for external test button         | $L_{lk}$                        | 0 ... 10 m                                                                |
| Short-circuit current                         | $I_{sc,lk}$                     | < 4 mA DC, short-circuit proof                                            |
| Voltage at the open terminals:                | $U_{oc,lk}$                     | 24 V DC                                                                   |
| Test current                                  | $I_{test}$                      | $I_{\Delta n}$ , max. $\pm 20$ %                                          |
| Environment / mechanical parameters           |                                 |                                                                           |
| Operating temperature range                   |                                 | -20 ... 55 °C                                                             |
| Storage temperature range                     |                                 | -40 ... 85 °C                                                             |
| Relative humidity                             |                                 | $\leq 80$ %; non-condensing                                               |
| Weight                                        |                                 | 0.750 kg                                                                  |
| Plug socket                                   |                                 | Phoenix Contact DFMC DFMC 1.5/ 5-ST-3.5-LR<br>— PN: 1790519 or compatible |
| Design specification                          |                                 | EN / IEC 62020-1:2020                                                     |