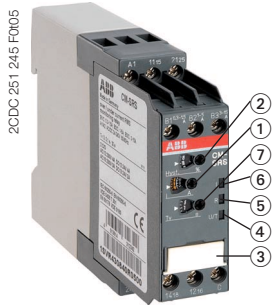


Measuring and monitoring relays CM-SRS.2

Current monitoring relays, single-phase AC/DC

Data sheet



CM-SRS.2

- ① Threshold value adjustment (MIN = Default)
- ② Hysteresis adjustment (MIN = Default)
- ③ DIP switches (see DIP switch functions)
- ④ U/T: green LED - control supply voltage, timing
- ⑤ R: yellow LED - relay status
- ⑥ I: red LED - over- / undercurrent
- ⑦ Adjustment of the tripping delay T_V (MIN = Default)

Characteristics

- Monitoring of DC and AC currents:
 - CM-SRS.21:** 3 mA - 1 A
 - CM-SRS.22:** 0.3-15 A
- RMS measuring principle
- One device includes 3 measuring ranges
- Over- or undercurrent monitoring configurable
- Hysteresis adjustable from 3-30 %
- Tripping delay T_V adjustable 0; 0.1-30 s
- 3 supply voltage versions
- 2 c/o contacts
- 22.5 mm width
- 3 LEDs for status indication

Approvals

- UL 508, CAN/CSA C22.2 No. 14
- GL (pending)
- GOST
- CB Scheme
- CCC
- RMRS

Marks

- CE
- C-Tick

Ordering data

Type	Control supply voltage	Order code
Measuring ranges: 3-30 mA; 10-100 mA; 0.1-1 A		
CM-SRS.21	24-240 V AC/DC	1SVR 430 840 R0400
	110-130 V AC	1SVR 430 841 R0400
	220-240 V AC	1SVR 430 841 R1400
Measuring ranges: 0.3-1.5 A; 1-5 A; 3-15 A		
CM-SRS.22	24-240 V AC/DC	1SVR 430 840 R0500
	110-130 V AC	1SVR 430 841 R0500
	220-240 V AC	1SVR 430 841 R1500

Order data (Accessories)



Type	Description	Order code
ADP.01	Adapter for screw mounting	1SVR 430 029 R0100
MAR.01	Marker label	1SVR 366 017 R0100
COV.01	Sealable transparent cover	1SVR 430 005 R0100

Measuring and monitoring relays CM-SRS.2

Current monitoring relays, single-phase AC/DC



Data sheet

Application

Depending on the configuration, the current monitoring relays **CM-SRS.2** can be used for over- or undercurrent monitoring  in single-phase AC and/or DC systems. The devices work according to the open-circuit principle.

Operating mode


The **CM-SRS.2** has 2 c/o contacts. There are 2 versions available, CM-SRS.21 with 3 measuring ranges: 3-30 mA, 10-100 mA, 0,1-1 A and CM-SRS.22 with ranges: 0.3-1.5 A, 1-5 A, 3-15 A. The measuring range is selected by connecting the monitored wire to the corresponding terminal **B1/B2/B3-C**.

The unit is adjusted with potentiometers and switches on the top of the unit. The selection of over- or undercurrent monitoring  is made with a DIP switch. A potentiometer, with direct reading scale, allows the adjustment of the threshold value I. There are also adjustments for the hysteresis % and the tripping delay T_V . The hysteresis % is adjustable within a range of 3 to 30 % of the threshold value, and the tripping delay T_V over a range of instantaneous to a 30 s delay.

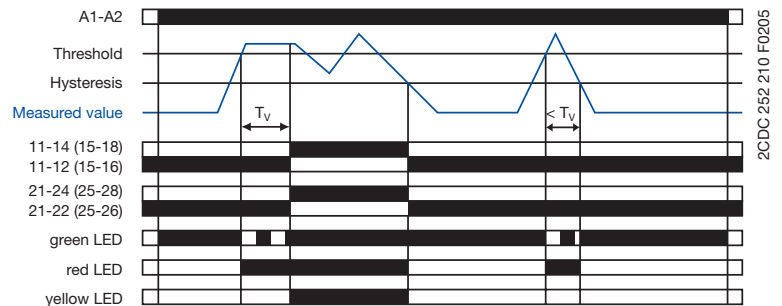
Function diagrams

Overcurrent monitoring

The current to be monitored (measured value) is applied to terminals **B1/B2/B3-C**. The supply voltage applied to terminals A1-A2 is displayed by the glowing green LED.



If the measured value exceeds the adjusted threshold value, the tripping delay T_V starts and the red LED (overcurrent) glows. Timing of T_V is displayed by the flashing  green LED. When T_V is complete and the measured value still exceeds the threshold value minus the adjusted hysteresis, the output relays energize and the yellow LED (relay energized) glows.

If the measured value decreases below the threshold value minus the adjusted hysteresis, the output relays de-energize and the red and yellow LEDs turn off.

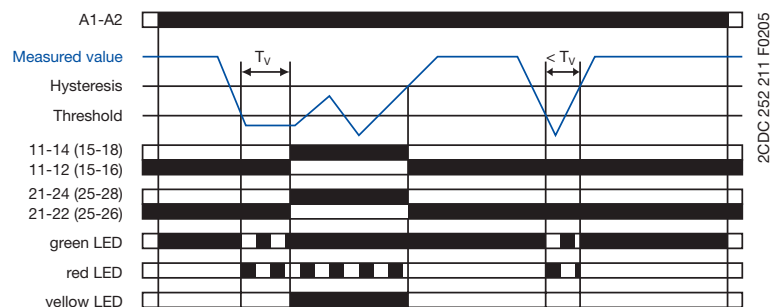


Undercurrent monitoring

The current to be monitored (measured value) is applied to terminals **B1/B2/B3-C**. The supply voltage applied to terminals A1-A2 is displayed by the glowing green LED.

If the measured value decreases below the adjusted threshold value, the tripping delay T_V starts and the red LED (undercurrent) flashes . Timing of T_V is displayed by the flashing  green LED. When T_V is complete and the measured value is still below the threshold value plus the adjusted hysteresis, the output relays energize and the yellow LED (relay energized) glows.

If the measured value exceeds the threshold value plus the adjusted hysteresis, the output relays de-energize and the red and yellow LEDs turn off.

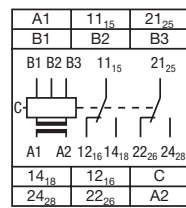


Measuring and monitoring relays CM-SRS.2

Current monitoring relays, single-phase AC/DC

Data sheet

Connection diagram

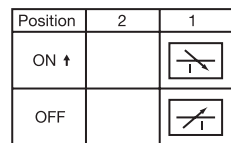


2CDC 252 205 F0005

- A1-A2 Control supply voltage
- B1-C Measuring range 1: CM-SRS.21: 3-30 mA
CM-SRS.22: 0.3-1.5 A
- B2-C Measuring range 2: CM-SRS.21 10-100 mA
CM-SRS.22: 1-5 A
- B3-C Measuring range 3: CM-SRS.21: 0.1-1 A
CM-SRS.22: 3-15 A

11₁₅-12₁₆/14₁₈ Output contacts - open-circuit principle
21₂₅-22₂₆/24₂₈

DIP switch functions



2CDC 252 272 F0005






- 1 ON Undercurrent monitoring
- OFF Overcurrent monitoring
- OFF = Default

Measuring and monitoring relays CM-SRS.2

Current monitoring relays, single-phase AC/DC

Data sheet

Technical data

Type		CM-SRS.2					
Input circuit - Supply circuit		A1-A2					
Rated control supply voltage U_s		110-130 V AC					
		220-240 V AC					
		24-240 V AC/DC					
Rated control supply voltage tolerance		-15...+10 %					
Rated frequency	AC versions	50/60 Hz					
	AC/DC versions	50/60 Hz or DC					
Current / power consumption		24 V DC	115 V AC	230 V AC			
	110-130 V AC	-	24 mA / 2.6 VA	-			
	220-240 V AC	-	-	12 mA / 2.6 VA			
	24-240 V AC/DC	30 mA / 0.75 W	17 mA / 1.9 VA	11 mA / 2.6 VA			
On-period		100 %					
Power failure buffering		20 ms					
Transient overvoltage protection		Varistors					
Input circuit - Measuring circuit		B1/B2/B3-C					
Monitoring function		over- or undercurrent monitoring configurable					
Measuring method		RMS measuring principle					
Measuring inputs	Terminal connection	CM-SRS.21			CM-SRS.22		
	Measuring range	B1-C	B2-C	B3-C	B1-C	B2-C B3-C	
	Input resistance	3-30 mA	10-100 mA	0.1-1 A	0.3-1.5 A	1-5 A 3-15 A ²⁾	
	Pulse overload capacity $t < 1$ s		3.3 Ω	1 Ω	0.1 Ω	0.05 Ω	0.01 Ω 0.0025 Ω
			500 mA	1 A	10 A	15 A	50 A 100 A
	Continuous capacity		50 mA	150 mA	1.5 A	2 A	7 A 17 A
Threshold value		adjustable within the indicated measuring range					
Tolerance of the adjusted threshold value		10 % of the range end value					
Hysteresis related to the threshold value		3-30 % adjustable					
Maximum voltage within measuring circuit		factor 1.5 of full scale					
Measuring signal frequency range		DC / 15 Hz - 2 kHz					
Rated measuring signal frequency range		DC / 50-60 Hz					
Maximum response time		AC: 80 ms, DC: 120 ms					
Measuring error within the control supply voltage tolerance		≤ 0.5 %					
Measuring error within the temperature range		≤ 0.06 % / $^{\circ}\text{C}$					
Timing circuit							
Start-up delay T_s		none					
Tripping delay T_v		0 or 0.1-30 s adjustable					
Repeat accuracy (constant parameters)		± 0.07 % of full scale					
Timing error within control supply voltage tolerance		≤ 0.5 %					
Timing error within temperature range		≤ 0.06 % / $^{\circ}\text{C}$					
Indication of operational states							
Control supply voltage	U/T: green LED	 : control supply voltage applied  : tripping delay T_v active					
Measured value	I: red LED	 : overcurrent  : undercurrent					
Relay status	R: yellow LED	 : relay energized					
Output circuits		11(15)-12(16)/14(18), 21(25)-22(26)/24(28)					
Kind of output		relays, 2 c/o contacts					
Operating principle ¹⁾		open-circuit principle					
Contact material		AgNi					
Rated voltage (VDE 0110, IEC 947-1)		250 V					
Minimum switching voltage / minimum switching current		24 V / 10 mA					
Maximum switching voltage / maximum switching current		250 V AC / 4 A AC					
Rated operational current (IEC 60947-5-1)	AC12 (resistive)	at 230 V		4 A			
	AC15 (inductive)	at 230 V		3 A			
	DC12 (resistive)	at 24 V		4 A			
	DC13 (inductive)	at 24 V		2 A			

Measuring and monitoring relays CM-SRS.2

Current monitoring relays, single-phase AC/DC

Data sheet

Type		CM-SRS.2
Mechanical lifetime		30x10 ⁶ switching cycles
Electrical lifetime (AC12, 230 V, 4 A)		0.1x10 ⁶ switching cycles
Short-circuit capacity / maximum fuse rating	n/c contact	10 A fast-acting
	n/o contact	10 A fast-acting
General data		
Dimensions (W x H x D)		22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 in)
Mounting		DIN rail (EN 50022)
Mounting position		any
Material of enclosure		PA 6
Degree of protection	enclosure / terminals	IP50 / IP20
Electrical connection		
Wire size	fine-strand with wire end ferrule	2x0.75 mm ² / 2x2.5 mm ² (2x18 AWG / 2x14 AWG)
	fine-strand without wire end ferrule	2x0.75 mm ² / 2x2.5 mm ² (2x18 AWG / 2x14 AWG)
	rigid	2x0.5 mm ² / 2x4 mm ² (2x20 AWG / 2x12 AWG)
Stripping length		8 mm (0.31 in)
Tightening torque		0.8 Nm
Environmental data		
Ambient temperature range	operation	-20...+60 °C
	storage	-40...+85 °C
Damp heat (IEC 60068-2-30)		55 °C, 6 cycles
Vibration (sinusoidal) (IEC/EN 60255-21-1)		Class 2
Shock (IEC/EN 60255-21-2)		Class 2
Isolation data		
Insulation voltage (VDE 0110, IEC 947-1, IEC/EN 60255-5)	supply circuit / measuring circuit	600 V
	supply circuit / output circuit	250 V
	measuring circuit / output circuit	600 V
	output circuit 1 / output circuit 2	250 V
Pollution degree (VDE 0110, IEC 664, IEC/EN 60255-5)		2
Overvoltage category (VDE 0110, IEC 664, IEC/EN 60255-5)		III
Test voltage between all isolated circuits (type test)	Rated insulation voltage 250 V	2.0 kV, 50 Hz
	Rated insulation voltage 600 V	2.5 kV, 50 Hz
Standards		
Product standard		IEC 255-6, EN 60255-6
Low Voltage Directive		2006/95/EC
EMC Directive		2004/108/EC
Electromagnetic compatibility		
Interference immunity	IEC/EN 61000-6-2	
	electrostatic discharge (ESD)	IEC/EN 61000-4-2 - Level 3
	electromagnetic field	IEC/EN 61000-4-3 - Level 3
	fast transients (Burst)	IEC/EN 61000-4-4 - Level 3
	powerful impulses (Surge)	IEC/EN 61000-4-9 - Level 3
	HF line emission	IEC/EN 61000-4-6 - Level 3
Interference emission	IEC/EN 61000-6-3	
	electromagnetic field	IEC/CISPR 22; EN 55022 - Class B
	HF line emission	IEC/CISPR 22; EN 55022 - Class B

1) Open-circuit principle: output relays energize if the measured value exceeds \geq / falls below \leq the adjusted threshold value

2) In case of measured currents > 10 A, lateral spacing has to be min. 10 mm

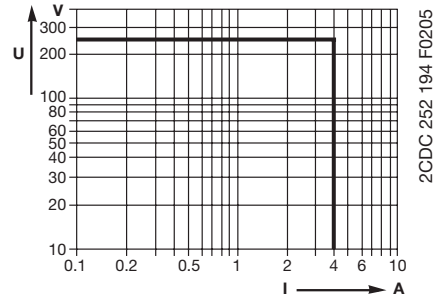
Measuring and monitoring relays CM-SRS.2

Current monitoring relays, single-phase AC/DC

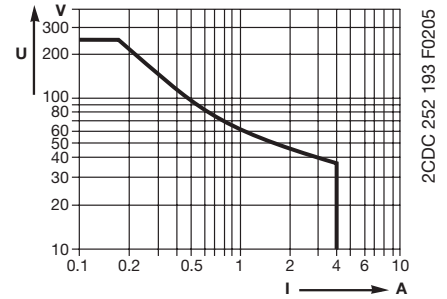
Data sheet

Technical diagrams

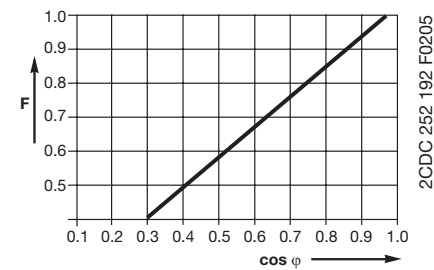
Load limit curves



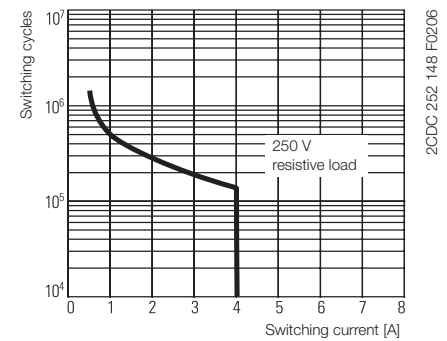
AC load (resistive)



DC load (resistive)

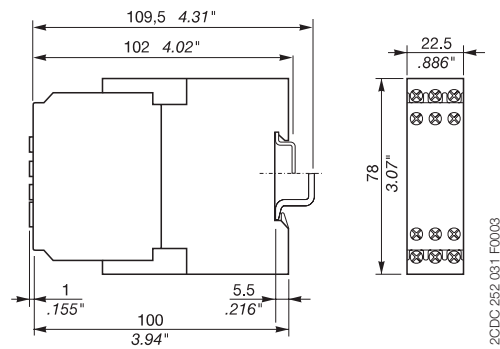


Derating factor F for inductive AC load

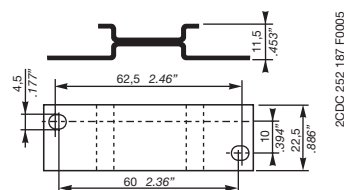


Contact lifetime

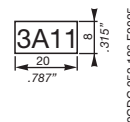
Dimensional drawing



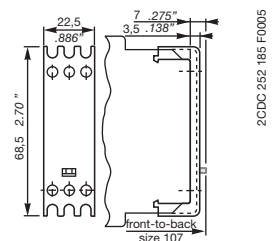
Dimensional drawings (Accessories)



ADP.01 - Adapter for screw mounting



MAR.01 - Marker label



COV.01 - Sealable transparent cover



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