

Electronic timers CT range

Measuring and monitoring relays CM range

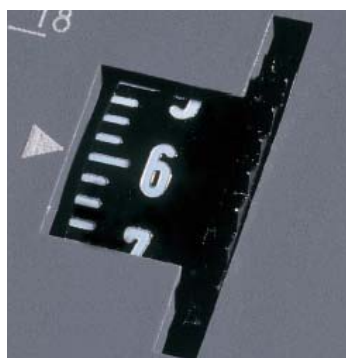


2CDC 255 006 F0005

Timers, measuring and monitoring relays from ABB



The CT range multifunction and single-function timers and CM range measuring and monitoring relays from ABB offer many advantages to the user. Their front-face and easily understandable setting and operating elements and clearly marked connecting terminals, allow easy connection, simple wiring, and setup. The products are compact in design, saving space and reducing costs.



Direct reading scales

Direct reading scales allow direct setting of the delay time on the time relay and the threshold values on the measuring and monitoring relays, while both timers and monitoring relays provide maximum operating convenience.



Time range pre-selection and fine adjustment

Multicolor scales allow the direct designation of the time or measuring range, preselected to the absolute scale of the setting potentiometer.

CT-S range



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Display of operational states

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



1SVC 110 000 F0511

Combination screws

Easy actuation of the connecting combination screws, with pozidrive, pan- or cross-head screwdriver.



1SVC 110 000 F0506

Double-chamber cage connecting terminals

Double-chamber cage connecting terminals provide connection of up to two wires to 2 x 2.5 mm², solid or stranded, with or without wire end ferrules. Potential distribution does not require additional terminations, thus saving time and money. Wiring is considerably simplified through integrated cable guides.



2CDC 253 010 F0003



1SVC 110 000 F0499

Integrated markers

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



2CDC 253 009 F0005

Sealable transparent covers

The products can be protected against unauthorized change of time and/or threshold values. The sealable transparent covers, 22.5 and 45 mm wide, can be used for CT range electronic timers and CM range measuring and monitoring relays (available as an accessory).

Safety

The "real distance" is hidden. Our products' air and creepage distances exceed international standards, and substantially increase the safety of these products.



2CDC 253 011 F0003

Electronic timers CT-E range and CT-S range



For many years, ABB's CT range of electronic timers has been used in applications worldwide and has proven its excellent functionality in daily use, even under harshest environmental conditions. Three ranges of electronic timers provide timing functions for all applications. The CT-S range is suitable for universal use, while the CT-D timers comprise the most modern range of our program, with five single-function as well as a multifunction device with 7 timing functions. For serial applications, the CT-E range offers an excellent price/performance ratio. Make use of ABB's excellent competence in industry electronics.



Approvals:



¹⁾ depending on device
²⁾ pending

Marks:



Characteristics of CT-D range

- Width 17,5 mm
- 1 multifunction and 5 single-function timers
- Multisupply voltage range A1-A2, 24 - 240 V AC / 24 - 48 V DC
- 1 SPDT contact (250 V / 6 A)
- 7 time ranges 0.05 s - 100 h
- Parallel load to the control contact possible

CT-S range



Time range pre-selection

CT-S range timers offer 10 different delay time ranges from 0.05 s - 300 h



Direct reading scales

Direct reading scales allow direct setting of the delay time without any additional calculation, thus providing maximum operating convenience and an exact setting of time values.

Connection of remote potentiometers

An external potentiometer can be connected to make fine adjustments to the time ranges. The internal potentiometer switches off automatically when an external one is connected.

Characteristics of CT-E range

- Width 22,5 mm
- 11 single-function timers and 2 multifunction timers (24 - 240 V AC/DC)
- Single or double supply voltage ranges
24 V AC/DC, 110 - 130 V AC, 220 - 240 V AC
- Output contacts - SPDT contact (250 V / 4 A) or solid state for high switching frequencies (thyristor 0.8 A)
- Time ranges 0,1 - 10 s, 0,3 - 30 s, 3 - 300 s, 0,3 - 30 min.

Characteristics of CT-S range

- Width 22,5 mm
- 4 multifunction and 22 multi range timers
- Continuous supply voltage range (24 - 240 V AC/DC) or multisupply voltage ranges (12 - 40 V AC, 12 - 60 V AC/DC, 24 V, 42 - 48 V AC/DC, 110 - 240 V AC, 380 - 440 V AC)
- 1 or 2 SPDT contacts (250 V / 4 A)
- 2nd SPDT contact can be set as instantaneous contact (front-face selection switch)
- Timing function is initiated via external, voltage free control contacts or via supply voltage
- Remote potentiometer connection possibility
- Time stop function is possible via external control contact

Selection guides and order references for electronic timers



CT-S range

Type	Symbol	Function	Timing diagram	Output contacts	0.05 s-300 h	0.05 s-10 min	Control contacts, timing start	Control contacts, timing stop	Remote potentiometer contact	Supply voltage	Order code
CT-MFS				2 SPDT*	✓	✓	✓	✓		24 - 240 V AC/DC	1SVR 430 010 R0200
CT-MBS	Multifunction timer	ON-delay, OFF-delay, impulse-ON, impulse-OFF, flasher starting with ON or starting with OFF, star delta, (CT-MFS and CT-MBS, 2 SPDT contacts)		2 SPDT*	✓	✓	✓	✓		12 - 40 V AC, 12 - 60 V DC	1SVR 430 010 R1200
										24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 012 R0200
										380 - 440 V AC	1SVR 430 011 R2200
				1 SPDT	✓	✓	✓	✓		12 - 40 V AC, 12 - 60 V DC	1SVR 430 010 R1100
CT-MVS ¹⁾		with voltage-fed control contact		2 SPDT*	✓	✓				24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 011 R2100
										380 - 440 V AC	1SVR 430 011 R2100
										24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 013 R0100
										380 - 440 V AC	1SVR 430 011 R2100
CT-ERS		ON-delay		1 SPDT	✓					12 - 40 V AC, 12 - 60 V DC	1SVR 430 100 R1100
					✓					24 V, 110 - 240 V AC	1SVR 430 102 R0100
						✓	✓	✓		380 - 440 V AC	1SVR 430 101 R2100
				2 SPDT	✓			✓		24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 103 R0100
CT-AHS		OFF-delay		1 SPDT	✓		✓	✓		12 - 40 V AC, 12 - 60 V DC	1SVR 430 100 R1200
				2 SPDT*	✓					24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 103 R0200
				2 SPDT	✓					380 - 440 V AC	1SVR 430 101 R2200
										24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 103 R0200
CT-ARS				1 SPDT		✓				24 - 240 V AC/DC	1SVR 430 120 R0100
CT-VBS ⁵⁾				2 SPDT		✓		✓		24 - 240 V AC/DC	1SVR 430 120 R0300
CT-EAS		OFF- and ON-delay		1 SPDT	✓		✓	✓		100 - 127 V DC	1SVR 430 261 R6000
CT-EVS ²⁾										200 - 240 V DC	1SVR 430 261 R5000
CT-VWS		impulse-ON		1 SPDT	✓					24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 173 R0100
CT-AWS		impulse-OFF		2 SPDT*	✓			✓		24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 173 R0200
CT-EBS		flasher		1 SPDT	✓					24 V AC/DC / 110 - 240 V AC	1SVR 430 132 R0100
CT-TGS		pulse		2 SPDT*	✓					24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 133 R0200
CT-PGS ³⁾				1 SPDT	✓		✓	✓	✓ ⁴⁾	24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 143 R0100
CT-YDAV		star-delta switching	ON-delay	2 SPDT	✓					24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 143 R0200
CT-YDEW		impulse			✓					24 V, 42 - 48 V AC/DC, 110 - 240 V AC	1SVR 430 201 R2300
					✓					380 - 440 V AC	1SVR 430 201 R2300
					✓					24 V, 42 - 48 V AC/DC / 110 - 240 V AC	1SVR 430 213 R0200

¹⁾ With voltage-fed control input ²⁾ on-delay operate and off-delay release can be set separately ³⁾ single pulse generator ⁴⁾ connection possibility of two remote potentiometers (one per timing circuit)

* second SPDT can be used as instantaneous contact (via front-face selection switch) ⁵⁾ für DC contactors without auxiliary voltage supply

Accessories:

Sealable cover in 22,5 mm width: 1SVR 430 005 R 0100

Product	Diameter	Protection	Resistance	Order code
Remote potentiometer	30,5 mm	IP65	50 k Ω	1SVR 700 800 R1000
Remote potentiometer	22,5 mm	IP65	50 k Ω	1SVR 701 800 R1000
Remote potentiometer	10,5 mm	IP65	50 k Ω	1SVR 214 017 R0900



CT-E range

Type	Symbol	Function	Timing diagram	Output contacts	0.05 s-100 h	0.05-1 s	0.1-10 s	0.3-30 s	3-300 s	0.3-30 min	Control contacts, timing start	Supply voltage	Order code
CT-MFE		Multifunction timer ¹⁾		1 SPDT	✓					✓		24 - 240 V AC/DC	1SVR 550 029 R8100
CT-ERE		ON-delay		1 SPDT		✓						24 V AC/DC, 220 - 240 V AC	1SVR 550 107 R1100
							✓						1SVR 550 107 R4100
								✓					1SVR 550 107 R2100
CT-AHE		OFF-delay		1 SPDT		✓						110 - 130 V AC	1SVR 550 107 R5100
							✓						1SVR 550 100 R1100
								✓					1SVR 550 100 R4100
CT-ARE		impulse-ON		1 SPDT		✓						24 V AC/DC	1SVR 550 100 R2100
								✓					1SVR 550 100 R5100
									✓				1SVR 550 118 R1100
CT-AWE		impulse-OFF		1 SPDT		✓						24 V AC/DC	1SVR 550 118 R4100
							✓						1SVR 550 118 R2100
								✓					1SVR 550 110 R1100
CT-EBE		flasher		1 SPDT		✓						110 - 130 V AC	1SVR 550 110 R4100
								✓					1SVR 550 110 R2100
									✓				1SVR 550 111 R1100
CT-YDE		star-delta switching		1 SPDT		✓						220 - 240 V AC	1SVR 550 111 R4100
								✓					1SVR 550 111 R2100
									✓				1SVR 550 127 R1100
CT-SDE		pulse shaper		1 SPDT		✓						24 V AC/DC, 220 - 240 V AC	1SVR 550 127 R4100
								✓					1SVR 550 120 R1100
									✓				1SVR 550 120 R4100
CT-SDE		pulse shaper		1 SPDT		✓						110 - 130 V AC	1SVR 550 137 R1100
								✓					1SVR 550 137 R4100
									✓				1SVR 550 137 R2100
CT-SDE		pulse shaper		1 SPDT		✓						110 - 130 V AC	1SVR 550 130 R1100
								✓					1SVR 550 130 R4100
									✓				1SVR 550 130 R2100
CT-SDE		pulse shaper		1 SPDT		✓						24 V AC/DC	1SVR 550 148 R1100
								✓					1SVR 550 148 R4100
									✓				1SVR 550 148 R2100
CT-SDE		pulse shaper		1 SPDT		✓						110 - 130 V AC	1SVR 550 140 R1100
								✓					1SVR 550 140 R4100
									✓				1SVR 550 140 R2100
CT-SDE		pulse shaper		1 SPDT		✓						220 - 240 V AC	1SVR 550 141 R1100
								✓					1SVR 550 141 R4100
									✓				1SVR 550 141 R2100
CT-SDE		pulse shaper		1 SPDT		✓						24 V AC/DC	1SVR 550 158 R3100
								✓					1SVR 550 150 R3100
									✓				1SVR 550 151 R3100
CT-SDE		pulse shaper		1 SPDT		✓						24 V AC/DC, 220 - 240 V AC	1SVR 550 167 R1100
								✓					1SVR 550 160 R1100
									✓				1SVR 550 160 R1100
CT-SDE		pulse shaper		1 SPDT		✓						110 - 130 V AC	1SVR 550 207 R1100
								✓					1SVR 550 207 R4100
									✓				1SVR 550 207 R2100
CT-SDE		pulse shaper		1 SPDT		✓						110 - 130 V AC	1SVR 550 200 R1100
								✓					1SVR 550 200 R4100
									✓				1SVR 550 200 R2100
CT-SDE		pulse shaper		1 SPDT		✓						24 V AC/DC and 220 - 240 V AC	1SVR 550 217 R4100
								✓					1SVR 550 210 R4100
									✓				1SVR 550 212 R4100

¹⁾ Functions: ON-delay, OFF-delay, impulse-ON, flasher starting with ON or OFF, pulse shaper



CT-E range, solid state output

Type	Symbol	Function	Timing diagram	Output contacts	0,1-10 s	0,3-30 s	3-300 s	Control contacts, timing start	Supply voltage	Order code
CT-MKE ¹⁾		Multifunction timer		thyristor 240 V/0,8 A	✓		✓		24 - 240 V AC/DC	1SVR 550 019 R0000
CT-EKE		ON-delay		thyristor 240 V/0,8 A	✓	✓			24 - 240 V AC/DC	1SVR 550 509 R1000 1SVR 550 509 R4000 1SVR 550 509 R2000
CT-AKE		OFF-delay		thyristor 240 V/0,8 A	✓	✓	✓		24 - 240 V AC/DC	1SVR 550 519 R1000 1SVR 550 519 R4000 1SVR 550 519 R2000

¹⁾ contactless, function and time range selection via external bridges

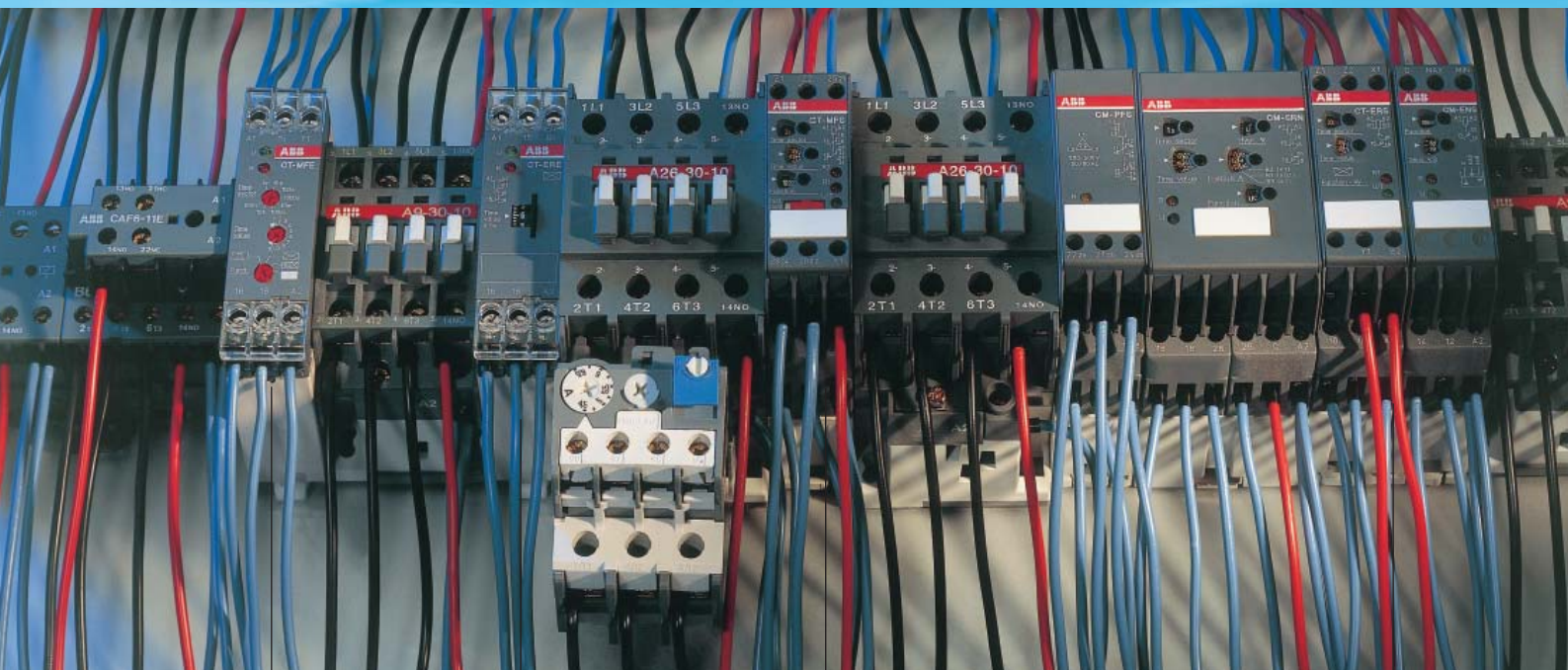


CT-D range, modular

Type	Symbol	Function	Time diagram	Output contacts	7 time ranges (0,05 s - 100 h)	Supply voltage	Control contacts, timing start	Order code
CT-MFD		Multifunction timer ¹⁾		1 SPDT	15 ✓	24 - 240 V AC, 24 - 48 V DC	✓	1SVR 500 020 R0000
CT-ERD		ON-delay		1 SPDT	✓	24 - 240 V AC, 24 - 48 V DC		1SVR 500 100 R0000
CT-AHD		OFF-delay		1 SPDT	✓	24 - 240 V AC, 24 - 48 V DC	✓	1SVR 500 110 R0000
CT-VWD		impulse-ON		1 SPDT	✓	24 - 240 V AC, 24 - 48 V DC		1SVR 500 130 R0000
CT-EBD		flasher starting with ON		1 SPDT	✓	24 - 240 V AC, 24 - 48 V DC		1SVR 500 150 R0000
CT-TGD		pulse generator ²⁾		1 SPDT	2 x	24 - 240 V AC, 24 - 48 V DC		1SVR 500 160 R0000

¹⁾ Functions: ON-delay, OFF-delay with auxiliary voltage, impulse-ON, pulse former with auxiliary voltage, impulse-OFF with auxiliary voltage, flasher starting with ON, flasher starting with OFF

²⁾ ON- and OFF-time adjustable independently from each other



Multifunction timer CT-MFE

- Continuous supply voltage range 24 - 240 V AC/DC
- 8 time ranges 0,05 s - 100 h
- 6 timing functions
- 1 output relay (SPDT 250 V / 4 A)
- 2 LEDs for display of operational status

ON-delay timer CT-ERE

- 24 V AC/DC and 220 - 240 V AC or 110 - 130 V AC supply
- 1 time range
- Delay on operate function
- 1 output relay (SPDT 250 V / 4 A)
- 2 LEDs for display of operational status

Multifunction timer CT-MFS

- Continuous supply voltage range 24 - 240 V AC/DC
- 10 time ranges
- 8 time functions
- 2 output relays (250 V / 4 A)
- 2 SPDT contacts with selectable instantaneous function
- 3 LEDs for display of operational status

ON-delay timer CT-ERS

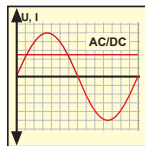
- 24 V AC/DC, 42 - 48 V AC/DC and 220 - 240 V AC/DC
- 10 time ranges
- 0,05 s - 300 h
- Delay on operate function
- 1 output relay (SPDT 250 V / 4 A)
- 2 LEDs for display of operational status



Measuring and monitoring relays CM range

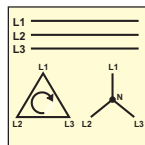
Single-phase current and voltage monitoring

Single-phase current monitoring with CM-SRS and with window monitor CM-SFS. Monitoring of AC/DC voltages with CM-ESS and window monitor CM-EFS.



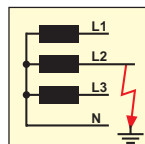
Three-phase monitoring

Phase, phase sequence, and phase unbalance monitoring with CM-PBE, CM-PVE, CM-PFE, CM-PFS, CM-PSS, CM-PVS, CM-PAS, CM-MPS.



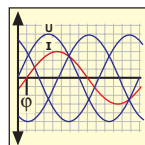
Earth-leakage monitoring

CM-IWN-AC for electrically isolated AC-mains, and CM-IWN-DC for electrically isolated DC-mains.



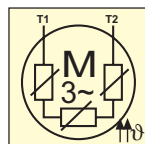
Motor load monitoring

CM-LWN monitors load states of single- and three-phase asynchronous motors.



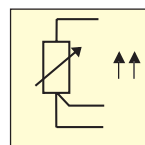
Thermistor motor protection

CM-MSE, CM-MSS and CM-MSN protect motors with integrated PTC resistor sensors from overheating.



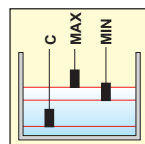
Temperature monitoring

Temperature monitoring and control in processes and on machines with PT100, PT1000, KTY83/54 or NTC sensors C510, C511, C512, C513.



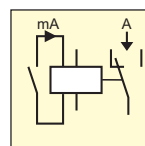
Liquid level monitoring

Control of liquid levels and ratios of mixtures with CM-ENE, CM-ENS, CM-ENN.



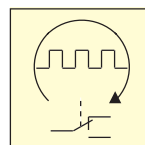
Contact protection / Sensor evaluation

The CM-KRN protects sensitive control contacts from excessive loads and can store switch positions. The CM-SIS supplies and evaluates NPN and PNP sensors.

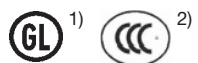


Cycle monitor

Cycle monitor with watchdog function CM-WDS.



Approvals:



¹⁾ depending on device
²⁾ pending

Marks:



CM-E range:

The economy devices

- Compact, only 22,5 mm wide
- Output contacts: 1 SPDT contact or 1 N/O contact (250 V / 4 A)
- Single supply voltage range
- One control function
- Cost-efficient solution for serial applications
- Preset monitoring ranges



2CDC 255 008 F0005

CM-S range: The universal devices

- Compact, only 22,5 mm wide
- Output contacts, 1 or 2 SPDT contacts (250 V / 4 A)
- Single supply voltage range
- Setting and operation via front-face operating elements
- Setting of threshold values and switching hysteresis via absolute scales
- Integrated and snap-fitted front-face marker
- Sealable transparent covers (accessories)

CM-S range: The multifunction devices

- Additional features of the multifunction CM-S devices:
- Multisupply voltage range; or feeding from the measuring circuit
- Adjustable time delay
- Memory function

The CM range offers the most efficient and widest range of measuring and monitoring relays. The product family includes the CM-E and CM-S range units and is suitable for universal use in all measuring and monitoring applications. For many years our customers world-wide have benefited from the CM series' reliability in their machines and installations. For trouble-free operation, the CM family of measuring and monitoring relays are ideal for current and voltage measurement, three-phase monitoring, earth-leakage monitoring, motor load monitoring, thermistor motor protection, liquid level monitoring, and protection of sensitive contacts.

Selection guides and order references for measuring and monitoring



Current and voltage monitoring, single-phase

Type	CM-SRS.11	CM-SRS.12	CM-SRS.21	CM-SRS.22	CM-SRS.M1	CM-SRS.M2
Function	AC/DC current monitoring					
Principle of measurement	integration			RMS		
Measuring ranges AC/DC	3 - 30 mA 10 - 100 mA 0,1 - 1 A	0,3 - 1,5 A 1 - 5 A 3 - 15 A ¹⁾	3 - 30 mA 10 - 100 mA 0,1 - 1 A	0,3 - 1,5 A 1 - 5 A 3 - 15 A ¹⁾	3 - 30 mA 10 - 100 mA 0,1 - 1 A	3 - 30 mA 10 - 100 mA 0,1 - 1 A
Functions	Threshold value	one threshold value adjustable via direct reading scales within measuring range				
	Hysteresis	adjustable, 3 - 30 % of threshold value				
	Over- / undervoltage monitoring	selectable, over- or undervoltage monitoring				
	Time delay T _v	none				adjustable 0; 0,1 - 3 s
	Time function T _v	none			ON-delay	
	Start-up delay T _s		none			
	Memory function		none			
Output contacts	Number / Type	1 SPDT		2 SPDT		
	Principle of operation	open-circuit principle				
Width						
Supply voltages and order code	110 - 130 V AC	1SVR 430 841 R0200	1SVR 430 841 R0300	1SVR 430 841 R0400	1SVR 430 841 R0500	-
	220 - 240 V AC	1SVR 430 841 R1200	1SVR 430 841 R1300	1SVR 430 841 R1400	1SVR 430 841 R1500	-
	24 - 240 V AC/DC	1SVR 430 840 R0200	1SVR 430 840 R0300	1SVR 430 840 R0400	1SVR 430 840 R0500	1SVR 430 840 R0600

¹⁾ with measuring currents > 10 A a spacing of 10 mm is necessary



Three-phase monitoring

Type	CM-PBE	CM-PVE	CM-PFE	CM-PFS	CM-PSS	CM-PVS
Monitors	Phase loss	✓	✓	✓	✓	✓
	Phase sequence		✓	✓	✓	✓
	Undervoltage	✓ fixed			✓ fixed	✓ adjustable
	Overvoltage	✓ fixed			✓ fixed	✓ adjustable
	Asymmetry					
Output contacts	Principle of operation	closed current				
	Number	1 N/O	1 N/O	1 N/O	2 SPDT	2 SPDT
	Time delay	500 ms fixed			2 SPDT	0,1-10 s
Width					22,5 mm	
Monitoring voltage	90-170 V 50/60 Hz	powered by the measuring circuit	Supply voltage	Order code		
	160-300 V 50/60 Hz					1SVR 430 794 R1300
	180-280 V 50/60 Hz					
	185-265 V 50/60 Hz				1SVR 550 870 R 9400 ¹⁾	
	200-500 V 50/60 Hz					
	208-440 V 50/60 Hz				1SVR 550 824 R9100	
	220-240 V 50/60 Hz				1SVR 550 881 R 9400 ¹⁾	
	300-500 V 50/60 Hz					1SVR 430 794 R3300
	320-460 V 50/60 Hz				1SVR 550 871 R 9500	
	380 V 50/60Hz					1SVR 430 784 R2300
	380-415 V 50/60 Hz					
	380-440 V 50/60 Hz				1SVR 550 882 R 9500	
	400 V 50/60Hz					1SVR 430 784 R3300

¹⁾ With neutral conductor monitoring. Measuring and selection of the threshold values between phase and neutral conductor. Phase loss and phase sequence errors are indicated without delay.

relays

Accessories for all measuring and monitoring relays: sealable transparent covers, 22,5 mm: 1SVR 430 005 R 0100, 45 mm: 1SVR 440 005 R 0100

CM-SRS.M2	CM-SFS.21	CM-SFS.22	CM-ESS.1	CM-ESS.2	CM-ESS.M	CM-EFS
			AC/DC voltage monitoring			
			integration	RMS		
0,3 - 1,5 A 1 - 5 A 3 - 15 A ¹⁾	3 - 30 mA 10 - 100 mA 0,1 - 1 A	0,3 - 1,5 A 1 - 5 A 3 - 15 A ¹⁾	3 - 30 V, 6 - 60 V, 30 - 300 V, 60 - 600 V AC/DC, selection via rotary switch			
	two threshold values I _{min} and I _{max}		one threshold value adjustable via direct reading scales within measuring range			two threshold values U _{min} and U _{max}
	fixed, 5 % of threshold value		adjustable, 3 - 30 % of threshold value			fixed, 5 % of threshold value
	window monitoring I _{min} and I _{max}		configurable, over- or undervoltage monitoring			window monitoring U _{min} and U _{max}
0 s			none	adjustable 0, 0,1-30 s		
	ON- or OFF-delay selectable		none	ON-delay	ON- or OFF-delay selectable	
adjustable 0; 0,1 - 30 s			none			
configurable, reset function via supply voltage			none		configurable, reset function via supply voltage	
	2 SPDT or 2 × 1 SPDT (1 SPDT each for I _{min} and I _{max})		1 SPDT	2 SPDT	2 SPDT or 2 × 1 SPDT (1 SPDT each for U _{min} and U _{max})	
open- or closed-circuit, selectable			open.circuit principle		open- or closed-circuit, selectable	
22,5 mm						
-	-	-	1SVR 430 831 R0300	1SVR 430 831 R0400	-	-
-	-	-	1SVR 430 831 R1300	1SVR 430 831 R1400	-	-
1SVR 430 840 R0700	1SVR 430 760 R0400	1SVR 430 760 R0500	1SVR 430 830 R0300	1SVR 430 830 R0400	1SVR 430 830 R0500	1SVR 430 750 R0400



Contact protection / Sensor evaluation

CM-PAS	CM-MPS
✓	✓
✓	✓ adjustable
	✓ adjustable
✓ adjustable (2–15%)	✓ adjustable (2–15%)
2 SPDT	2 SPDT
adjustable	
	1SVR 430 885 R1300 ¹⁾
1SVR 430 774 R1300	1SVR 430 884 R1300
	1SVR 430 885 R3300 ¹⁾
1SVR 430 774 R 3300	1SVR 430 884 R3300

Type	CM-KRN		CM-SIS
Function	Protect and deburden sensitive control contacts store the switching states		Supply and evaluate up to 2 NPN or PNP sensors (2- and 3-wire)
Measuring range	Current	≤ 3 mA	max. 0,5 A
	No-load voltage/supply voltage	≤ 10 V DC	24 V DC
Output contacts	Principle of operation	open-circuit principle ¹⁾	
	Number / Type	2 SPDT	2 SPDT, one each per sensor input circuit
	Time delay	-	0,05–30 s
Width	45 mm		22,5 mm
Supply voltages and order codes	24 V AC	1SVR 450 099 R0000	1SVR 450 089 R0000
	110–130 V AC	1SVR 450 090 R0000	1SVR 450 080 R0000
	220–240 V AC	1SVR 450 091 R0000	1SVR 450 081 R0000
	380–415 V AC	1SVR 450 092 R0000	1SVR 450 082 R0000
	110 - 240 V AC, 105 - 260 V DC		1SVR 430 500 R2300

¹⁾ Output relay energizes at an incoming control signal

Selection guides and order references for measuring and monitoring



Temperature monitors

Type		C510					
Sensor type		PT100					
Number of sensors		1					
Measuring range	Temperatur monitoring	- 50 to +50°C		0 to +100°C		0 to +200°C	
	Monitoring of	exceeding	falling below	exceeding	falling below	exceeding	falling below
Threshold values	adjustable	1					
Hysteresis	adjustable	adjustable 2 to 20% of threshold value					
	memory	none					
Output contacts	Function	closed-circuit					
	Number/Type	1N/O + 1N/C					
	Time delay	none					
Width		22,5 mm					
Supply voltage and order code	24 V AC/DC	1SAR 700 001 R0005	1SAR 700 004 R0005	1SAR 700 002 R0005	1SAR 700 005 R0005	1SAR 700 003 R0005	1SAR 700 006 R0005
	110/230 V AC	1SAR 700 001 R0006	1SAR 700 004 R0006	1SAR 700 002 R0006	1SAR 700 005 R0006	1SAR 700 003 R0006	1SAR 700 006 R0006
	24 - 240 V AC/DC						



Motor load monitoring

Type	CM-LWN		
Function	monitors load states of motors via phase angle		
Measuring range	Current	0,5 - 5 A	2 - 20 A
	Voltage (single- or three-phase)	110 - 500 V 50/60Hz	
	Suppression time for starting-up	0,3 - 30 s	
Output contacts	Principle of function	closed-circuit principle ¹⁾	
	Number / Type	2 SDPT, one each for cosφ min. and cosφ max.	
	Time delay	0,2-2 s	
Supply voltages and order code	Width	45 mm	
	24 - 240 V AC/DC	1SVR 450 335 R 0000	1SVR 450 335 R 0100
	110 - 130 V AC	1SVR 450 330 R 0000	1SVR 450 330 R 0100
	220 - 240 V AC	1SVR 450 331 R 0000	1SVR 450 331 R 0100
	380 - 440 V AC	1SVR 450 332 R 0000	1SVR 450 332 R 0100
	480 - 500 V AC	1SVR 450 334 R 0000	1SVR 450 334 R 0100

¹⁾ The output relay de-energizes when the measuring value exceeds (cosφ max.) or passes below (cosφ min.) the set threshold values



Type		
Function		
Measuring range	Number of sensor circuits	
	Wire break monitoring	
	Short-circuit detection	
Operation / Reset	Non-volatile fault storage	
	Auto reset	
	Manual Reset	
	Remote Reset	
Output contacts	Test button	
	Principle of operation	
Width	Number / Type	
	24 V AC	
	24 V AC/DC ¹⁾	
	110 - 130 V AC	
	220 - 240 V AC	
Supply voltages and order codes	380 - 440 V AC	
	24 - 240 V AC/DC	

relays

Accessories for all measuring and monitoring relays: sealable transparent covers, 22.5 mm: 1SVR 430 005 R 0100, 45 mm: 1SVR 440 005 R 0100

C511						C512	C513
PT100						PT100/1000, KTY 83/84, NTC	
1						1	1 - 3
- 50 to +50°C		0 to +100°C		0 to +200°C		- 50 bis +500°C	
exceeding	falling below	exceeding	falling below	exceeding	falling below	exceeding/falling below/window monitoring	
2						2	
adjustable 2 to 20% of threshold value, effective on 1 threshold value						adjustable, effective on 2 threshold values	
none						via external bridge	
open-/closed circuit, adjustable						open-/closed circuit, adjustable	
1N/O + 1SPDT						1N/O + 1 N/O + 1SPDT	
none						adjustable	
22,5 mm						45 mm	
1SAR 700 011 R0005	1SAR 700 014 R0005	1SAR 700 012 R0005	1SAR 700 015 R0005	1SAR 700 013 R0005	1SAR 700 016 R0005	1SAR 700 100 R0005	
1SAR 700 011 R0010	1SAR 700 014 R0010	1SAR 700 012 R0010	1SAR 700 015 R0010	1SAR 700 013 R0010	1SAR 700 016 R0010	1SAR 700 100 R0010	1SAR 700 110 R0010

Thermistor motor protection

CM-MSE	CM-MSS (1)	CM-MSS (2)	CM-MSS (3)	CM-MSS (4)	CM-MSS (5)	CM-MSS (6)	CM-MSS (7)	CM-MSN
1	1	1	1	1	1	2	3	6
✓	✓	✓	✓	✓	✓	✓	✓	✓
-	-	-	✓ ¹⁾	✓	✓	✓	✓	✓
-	-	-	-	✓ ²⁾	✓ ²⁾	-	✓ ²⁾	✓ ²⁾
✓	✓	✓	✓	✓ ²⁾	✓ ²⁾	✓ ²⁾	✓ ²⁾	✓ ²⁾
-	-	✓	✓	✓	✓	✓	✓	✓
-	-	✓	✓	✓	✓	✓	✓	✓
-	-	-	✓	✓	✓	✓	✓	✓
closed-circuit principle ³⁾								
1 N/O	1 SPDT	2 SPDT	2 SPDT	1 N/O + 1 N/C	2 SPDT	1 SPDT contact per sensor circuit	1 N/O + 1 N/C total evaluation	1 N/O + 1 N/C total evaluation
22,5 mm								45 mm
1SVR 550 805 R9300		1SVR 430 811 R9300						
	1SVR 430 800 R9100	1SVR 430 810 R9300	1SVR 430 710 R9300					
1SVR 550 800 R9300		1SVR 430 811 R0300	1SVR 430 711 R0300					
1SVR 550 801 R9300	1SVR 430 801 R1100	1SVR 430 811 R1300	1SVR 430 711 R1300					
			1SVR 430 711 R2300					
				1SVR 430 720 R0400	1SVR 430 720 R0300	1SVR 430 710 R0200	1SVR 430 720 R0500	1SVR 450 025 R0100

¹⁾ Configurable via terminals ²⁾ Auto reset configurable by a permanent link (jumper) by connecting terminals S1-T2 ³⁾ Relay de-energizes when the motor heats up excessively ⁴⁾ Without galvanic isolation

Accessories for all measuring and monitoring relays: sealable transparent covers, 22.5 mm: 1SVR 430 005 R 0100, 45 mm: 1SVR 440 005 R 0100



Liquid level monitoring

Type		CM-ENE MIN	CM-ENE MAX	CM-ENS	CM-ENS UP/DOWN	CM-ENN	CM-ENN UP/DOWN
Monitors	UP-filling		✓		✓		✓
	DOWN-emptying	✓		✓	✓	✓	✓
	Electrode inputs	2	2	3	3	3	5 ¹⁾
Output relay	Principle of operation	energized until the liquid has dropped below the min. level	energized until the liquid exceeds the maximum level	energizes when the liquid exceeds the max. level, de-energizes when liquid has dropped below the min. level	selectable	energizes when the liquid exceeds the max. level, de-energizes when liquid has dropped below the min. level	selectable
	Number / Type	1 N/O	1 N/O	1 SPDT	1 SPDT	2 SPDT	1 SPDT + 2 N/C ¹⁾
	Time delay	without		without		selectable 0,1–10 s	without
Width		22,5 mm		22,5 mm		45 mm	
Measuring range		0 - 100 kΩ		5 - 100 kΩ		250 Ω - 500 kΩ	5 - 100 kΩ
Supply voltages and order code	24 V 50/60 Hz	1SVR 550 855 R9500	1SVR 550 855 R9400	1SVR 430 851 R9100	1SVR 430 851 R9200	1SVR 450 059 R0000	1SVR 450 059 R0100
	110 - 130 V 50/60 Hz	1SVR 550 850 R9500	1SVR 550 850 R9400	1SVR 430 851 R0100	1SVR 430 851 R0200	1SVR 450 050 R0000	1SVR 450 050 R0100
	220 - 240 V 50/60 Hz	1SVR 550 851 R9500	1SVR 550 851 R9400	1SVR 430 851 R1100	1SVR 430 851 R1200	1SVR 450 051 R0000	1SVR 450 051 R0100
	380 - 415 V 50/60 Hz			1SVR 430 851 R2100		1SVR 450 052 R0000	1SVR 450 052 R0100
	24 - 240 V AC/DC					1SVR 450 055 R0000	
	220 - 240 V AC			1SVR 430 851 R1300 ²⁾			

¹⁾ The CM-ENN UP/DOWN provides 3 electrodes for liquid level control and 2 additional electrode inputs for upper and lower alarm



Cycle monitor

Type		CM-WDS
Function		Cycle monitor for monitoring function of programmable logic controllers or industrial PC
Output relay	Principle of operation Number / Type	closed-circuit principle 1 SPDT
Width		22,5 mm
Supply voltage and order code	24 V DC	1SVR 430 896 R0000



Earth-leakage monitoring

Type		CM-IWN-AC	CM-IWN-DC
Function		Monitor isolation resistance values of ungrounded supply voltage mains	
Monitoring/measuring ranges	Supply mains	1-or 3-phase AC mains	DC mains
	max. isolation voltage	415 V AC	300 V DC
	einstellbare Schaltwerte	1 - 11 kΩ; 10 - 110 kΩ	10 - 110 kΩ
Output relay	Principle of operation	open-circuit principle	open-circuit or closed-circuit principle selectable
	Number / Type	1 SPDT	1 SPDT
Width		45 mm	
Supply voltage	24 - 240 V AC/DC	1SVR 450 075 R0000	1SVR 450 065 R0000
and order code	110 - 130 V AC, 220 - 240 V DC	1SVR 450 071 R0000	

Measuring and monitoring relays - examples of use

Current monitoring

- Current consumption of motors
- Monitor lighting installations and heating circuits
- Overload of hoisting gear and means of transportation
- Monitor locking devices, driving onto terminal racks, and electromechanical brake gear

Voltage monitoring

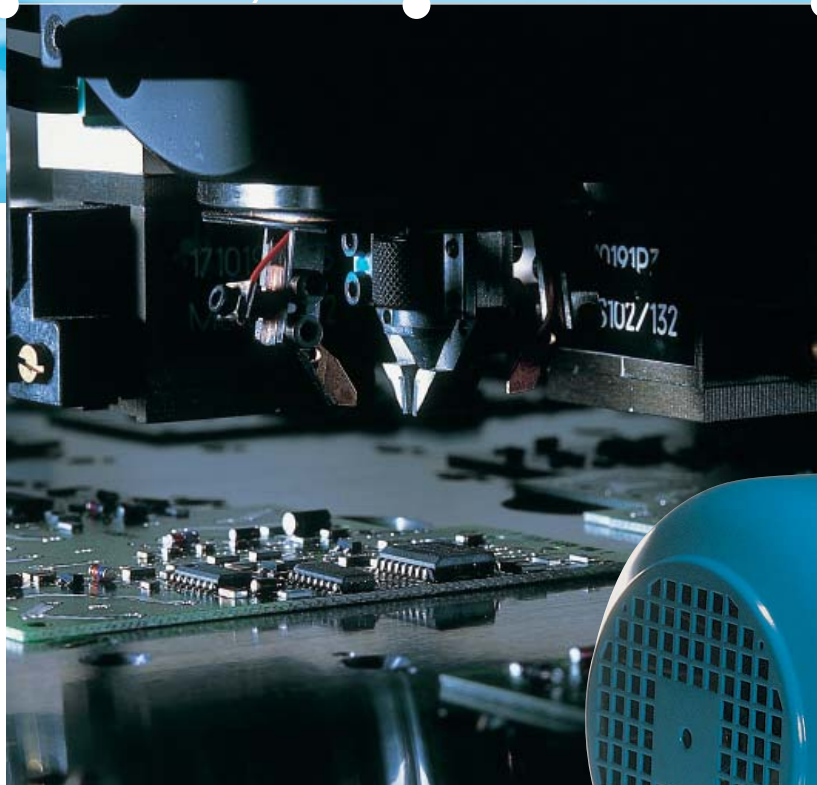
- Speed monitoring of DC-motors
- Monitor battery voltages and other supply mains
- Monitor upper and lower voltage threshold values

Three-phase voltage monitoring:

- Monitor mobile three-phase equipment
- Protect personnel and installations at phase-sequence reversal
- Monitor the supply of machines and installations
- Protect equipment against destruction in case of unstable supply mains
- Switch to emergency or auxiliary/compensating supply
- Protect motors from destruction at phase unbalance

Earth-leakage monitoring

- Monitor electrically isolated supply mains for isolation resistance values that are below the set value
- Detect initial faults
- Protect against earth leakages



Motor load monitoring

- Detect V-belt breakages
- Protect motors against overload
- Monitor filters against pollution
- Protect against dry running pumps
- Detect high pressure in conduit systems
- Monitor the status of sawing and cutting machines

Thermistor motor protection

- Protects motors against thermal stress, e.g. insufficient cooling, heavy starting conditions, undersized motors, and more

Temperature monitoring:

- Protection of motors and installations
- Monitoring of temperature / switching cabinets
- Freeze monitoring
- Monitoring of temperature limits for process variables, e.g. in the packaging industry or plating

- Controlling of installations and machines like heating, cooling or ventilation systems, solar collectors, heat pumps or hot water supplies
- Monitoring of servo motors with KTY sensors
- Monitoring of bearings and gear oil
- Monitoring of cooling liquids

Liquid level monitoring

- Protects pumps against dry running
- Protects against overflow
- Controls liquid levels
- Detects leakages
- Controls the ratios of mixtures

Contact protection / Sensor evaluation

- Store the switching states of bouncing contacts
- Increase switching information of sensitive contacts
- Supply and evaluate NPN or PNP sensors.

Cycle monitoring:

- Function monitoring of programmable logic controllers (PLC) and industry PC's (IPC)

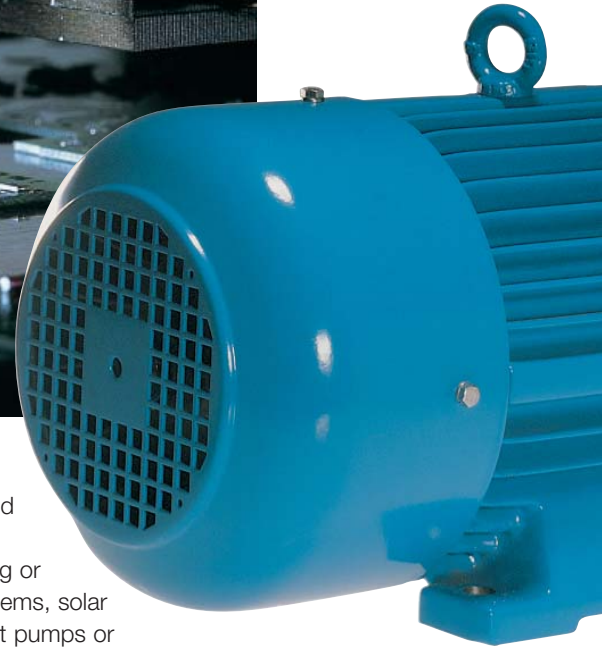




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