

# Electronic timers CT-range Measuring and monitoring relays CM-range





**M**asuring, monitoring and controlling: Today's processing and automation applications mean that these tasks become more and more important. ABB as a global player in energy and automation technology takes the resulting requests very seriously. Thus, we have now included the ENTRELEC-SCHIELE low voltage products in our program: Industrial electronics of the highest standards, perfectly blending with our company philosophy to offer a systematic and great product variety.

# Our superior product range for your safe future



## Variety through synergy

Complex tasks require reliable solutions. We will now stress this well-known fact even more, throughout all our world-wide fields of activity. By integrating ENTRELEC-SCHIELE products, we concentrate and maximize our competence. Especially regarding industrial electronics, our competitiveness will be further improved to your advance. So, we can offer you even more variety and more tailor-made solutions of the highest quality level. Select from our wide product range of control equipment, energy distribution, light management systems, and our installation and safety systems for buildings and structures. The application ranges include chemistry, petro-chemistry, pharmacy and food industry as well as pulp and paper, mining, transport, traffic, mechanical engineering, and building installations. In each and every case, you can profit from our individually designed solutions and our comprehensive know-how in all these various areas. Ideal synergy effects for your success.

## Partnership of technology

ENTRELEC-SCHIELE has acquired an outstanding reputation as a specialist in time controlling, measuring and monitoring technology. ENTRELEC-SCHIELE relays offer an optimum of reliability, practical value and user friendliness, plus a very attractive cost effectiveness. All these characteristics make them the best possible complement to ABB's world-wide product and service program. Thus, bringing together these two companies and product ranges will result in the optimal solution for our customers. You will receive even better-than-before services, on a wider-than-before basis. Two experienced partners forming a strategic team mean even more resources for conception, realization and service. And this means that all signals say future and progress.

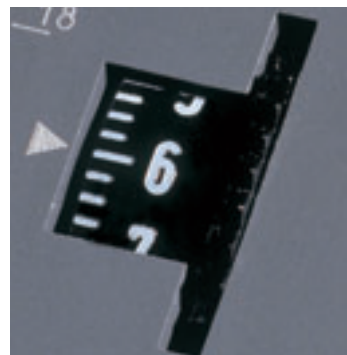
## Safety through strength

Our philosophy says: Safety through trouble-free operation, even under the hardest ambient conditions. In every case where optimally designed low voltage components are requested, we are your powerful team. We are particularly specialized in the realization of complex and universally usable systems. We have a well-founded experience in standard as well as in individual solutions. Also take advantage of our companies' global logistic. We have more than 100 sales offices world-wide, meaning that our products are available for you everywhere and at any time. You can count on this reliable organization – no matter how big your project is. We support your competitiveness – consequently and with success.

## Timers, measuring and monitoring relays from ABB



**T**he 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 timer 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.





**Display of operational states**

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



**Combination screws**

To actuate the connecting combination screws, only one tool is needed.



**Double-chamber cage connecting terminals**

Double-chamber cage connecting terminals provide connection of up to two wires to 2 x 2.5 mm<sup>2</sup>, 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.



**Integrated markers**

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



**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**

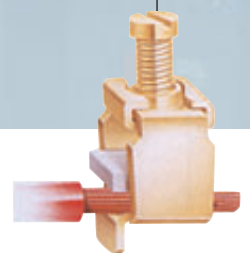
The 'real distance' is hidden. Our products' air and creepage distances, exceed international standards, and substantially increase the safety of these products.



## Electronic timers CT-E-range and CT-S-range



**F**or many years, ABB's CT-range of electronic timers has been used in applications world-wide and has proven its excellent functionality in daily use, even under harshest environmental conditions. Two ranges of electronic timers provide timing functions for all applications. The CT-S-range is suitable for universal use. The CT-E-range offers an excellent price/performance ratio and is suitable for serial applications.



### Characteristics of CT-E-range

- 12 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 – 1 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.
- In compliance with international standards and approvals



**Time range pre-selection**

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

**Characteristics of CT-S-range**

- 3 multifunction and 21 multi-range timers
- Continuous supply voltage range (24...240 V AC/DC) or multisupply voltage ranges (12...40 V AC / 12...60 V 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
- In compliance with international standards and approvals

**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.

**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.



# 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 connection	Supply voltage	Order code CT-S-range		
CT-MFS	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 cont.)		2 SPDT*	•	•	•	•	•	24...240 V AC/DC	1SVR 430 010 R 0200		
CT-MBS					•	•	•	•	•	12...40 V AC, 12...60 V DC	1SVR 430 010 R 1200		
				1 SPDT	•	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 012 R 0200
												380...440 V AC	1SVR 430 011 R 2200
				1 SPDT	•	•	•	•	•	•	•	12...40 V AC, 12...60 V DC	1SVR 430 010 R 1100
												24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 013 R 0100
	2 SPDT	•	•	•	•	•	•	•	380...440 V AC	1SVR 430 011 R 2100			
									12...40 V AC, 12...60 V DC	1SVR 430 100 R 1100			
CT-ERS	☒	on-delay		1 SPDT	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 102 R 0100		
					•	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 101 R 2100
	2 SPDT	•	•	•	•	•	•	•	12...40 V AC, 12...60 V DC	1SVR 430 100 R 1200			
									24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 103 R 0200			
	380...440 V AC	•	•	•	•	•	•	•	380...440 V AC	1SVR 430 101 R 2200			
									24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 113 R 0100			
CT-AHS	■	off-delay w. aux. voltage		1 SPDT	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 113 R 0100		
CT-APS <sup>1)</sup>				2 SPDT*	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 113 R 0200	
				2 SPDT	•	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 183 R 0300
CT-ARS	☒	off-delay		1 SPDT	•	•	•	•	•	24...240 V AC/DC	1SVR 430 120 R 0100		
				2 SPDT	•	•	•	•	•	•	•	24...240 V AC/DC	1SVR 430 120 R 0300
CT-EAS	☒ ■	off- and on-delay		1 SPDT	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 173 R 0100		
CT-EVS <sup>2)</sup>				2 SPDT*	•	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 173 R 0200
	1 SPDT	•	•	•	•	•	•	•	•	24 V AC/DC / 110...240 V AC	1SVR 430 193 R 0100		
										24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 132 R 0100		
CT-VWS	1 □ ☒	impulse-on		1 SPDT	•	•	•	•	•	24 V AC/DC / 110...240 V AC	1SVR 430 132 R 0100		
	2 SPDT*	•	•	•	•	•	•	•	•	24 V AC/DC / 110...240 V AC	1SVR 430 132 R 0100		
										24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 133 R 0200		
CT-AWS	1 □ ■	impulse-off		1 SPDT	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 143 R 0100		
	2 SPDT	•	•	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 143 R 0200		
										24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 143 R 0200		
CT-EBS	□ ■	flasher		1 SPDT	•	•	•	•	•	24 V AC/DC / 110...240 V AC	1SVR 430 152 R 0100		
	2 SPDT*	•	•	•	•	•	•	•	•	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 153 R 0200		
										24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 163 R 0100		
CT-TGS	□ ☒	pulse interval		1 SPDT	•	•	•	•	• <sup>4)</sup>	24 V, 42...48 V AC/DC / 110...240 V AC	1SVR 430 163 R 0100		
CT-PGS <sup>3)</sup>	□ ■	interval			•	•	•	•	•	• <sup>4)</sup>	24 V, 42...48 V AC/DC, 110...240 V AC	1SVR 430 253 R 0100	
CT-YDAV	△ ☒	star-delta	on-delayed	2 SPDT	•	•	•	•	•	24 V, 42...48 V AC/DC / 110...240 V AC	1SVR 430 203 R 0200		
	△ 1 □	impulse		2 SPDT	•	•	•	•	•	380...440 V AC	1SVR 430 201 R 2300		
CT-YDEW					•	•	•	•	•	•	•	•	24 V, 42...48 V AC/DC / 110...240 V AC

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

\* second SPDT can be used as instantaneous contact (via front-face selection switch)

### Accessories:

Sealable cover in 22.5 mm width: 1SVR 430 005 R 0100

Product	Diameter	Resistance	Order code
Remote potentiometer	30.5 mm	50 kΩ	1SVR 700 800 R1000
Remote potentiometer	22.5 mm	50 kΩ	1SVR 701 800 R1000
Remote potentiometer	10.5 mm	50 kΩ	1SVR 214 017 R0900





# CT-E-range

Type	Symbol	Function	Timing diagram	Output contacts	Control contacts, timing start	Supply voltage	Order code CT-E-range
CT-MFE		Multifunction timer <sup>1)</sup>		1 SPDT	•	24...240 V AC/DC	1SVR 550 029 R 8100
CT-ERE		on-delay		1 SPDT	•	24 V AC/DC u. 220...240 V AC	1SVR 550 107 R 1100
					•	110...130 V AC	1SVR 550 107 R 4100
					•	110...130 V AC	1SVR 550 107 R 2100
CT-AHE		off-delay w. aux. voltage		1 SPDT	•	24 V AC/DC	1SVR 550 107 R 5100
					•	110...130 V AC	1SVR 550 100 R 1100
					•	220...2400 V AC	1SVR 550 100 R 4100
CT-ARE		off-delay		1 SPDT	•	24 V AC/DC u. 220...240 V AC	1SVR 550 100 R 2100
					•	110...130 V AC	1SVR 550 100 R 5100
					•	110...130 V AC	1SVR 550 100 R 1100
CT-VWE		impulse-on		1 SPDT	•	24 V AC/DC	1SVR 550 118 R 1100
					•	110...130 V AC	1SVR 550 118 R 4100
					•	220...2400 V AC	1SVR 550 118 R 2100
CT-AWE		impulse-off		1 SPDT	•	24 V AC/DC u. 220...240 V AC	1SVR 550 110 R 1100
					•	110...130 V AC	1SVR 550 110 R 4100
					•	220...2400 V AC	1SVR 550 110 R 2100
CT-EBE		flasher		1 SPDT	•	24 V AC/DC	1SVR 550 111 R 1100
					•	110...130 V AC	1SVR 550 111 R 4100
					•	220...2400 V AC	1SVR 550 111 R 2100
CT-YDE		star-delta	on delayed	1 SPDT	•	24 V AC/DC u. 220...240 V AC	1SVR 550 127 R 1100
					•	110...130 V AC	1SVR 550 127 R 4100
					•	110...130 V AC	1SVR 550 127 R 2100
CT-SDE		pulse shaper	impulse	1 SPDT	•	24 V AC/DC u. 220...240 V AC	1SVR 550 137 R 1100
					•	110...130 V AC	1SVR 550 137 R 4100
					•	110...130 V AC	1SVR 550 137 R 2100

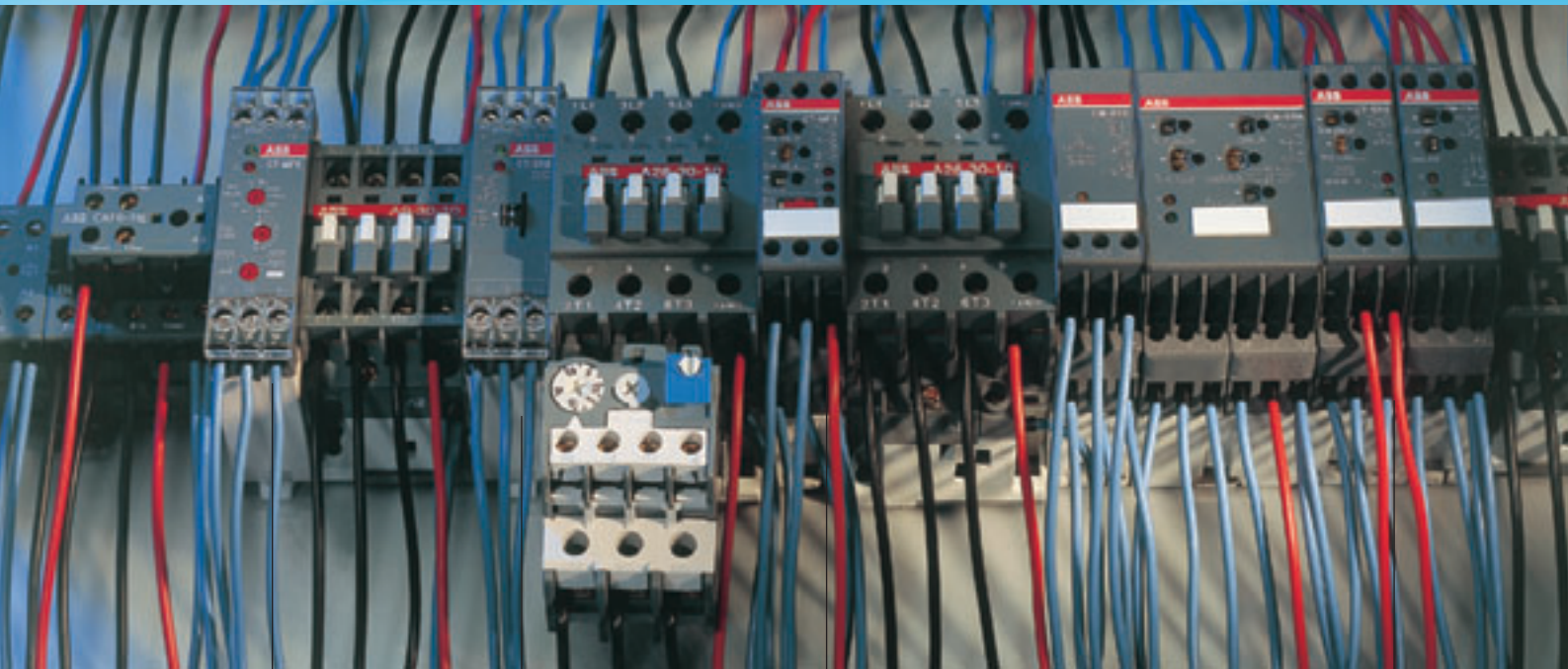
<sup>1)</sup>Functions: on-delay, off-delay, impulse-on, flasher starting with ON or OFF, pulse shaper



## CT-E-range, solid stage 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-E-range
CT-MKE		Multifunction timer		thyristor 240 V/0.8 A	•				24...240 V AC/DC	1SVR 550 019 R 0000
CT-EKE		on-delay		thyristor 240 V/0.8 A	•	•			24...240 V AC/DC	1SVR 550 509 R 1000 1SVR 550 509 R 4000 1SVR 550 509 R 2000
CT-AKE		off-delay		thyristor 240 V/0.8 A	•	•	•		24...240 V AC/DC	1SVR 550 519 R 1000 1SVR 550 519 R 4000 1SVR 550 519 R 2000





### Multifunction timer CT-MFE

- Continuous supply voltage range from 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...230 V AC supply voltage
- 1 time range
- Delay on operate function
- 1 output relay (SPDT, 250 V / 4 A)
- 2 LEDs for display of operational status
- Screw connection

### Multifunction timer CT-MFS

- Continuous supply voltage range 24...240 V AC/DC
- 10 time ranges 0.05 s...300 h
- 8 time functions
- 2 output relays (SPDT, 250 V / 4 A) (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 110...240 V AC supply voltage
- 10 time ranges 0.05 s...300 h, 0,05 s ... 300 h
- Delay on operate function
- 1 output relays (SPDT, 250 V / 4 A)
- 2 LEDs for display of operational status

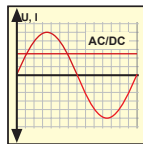




# Measuring and monitoring relays CM-range

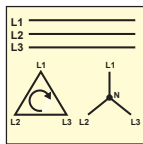
## Single-phase current and voltage monitoring

CM-SRS and CM-SRN, current monitoring relays for AC and DC currents. CM-ESS, CM-ESN, and CM-EFN, for voltage monitoring.



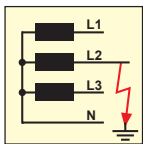
## Three-phase monitoring

Phase, phase sequence, and phase unbalance monitoring with CM-PBE, CM-PVE, CM-PFE, CM-PFS, CM-PFN, CM-PVN, CM-ASS, CM-ASN, and CM-MPS.



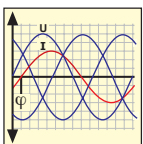
## Earth-leakage monitoring

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



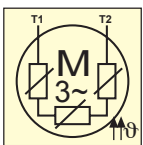
## Motor load monitoring

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



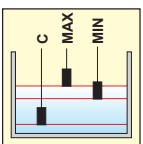
## Thermistor motor protection

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



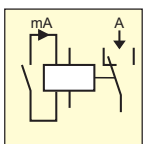
## Liquid level monitoring

CM-ENE MIN, CM-ENE MAX, CM-ENS, CM-ENS UP/DOWN, CM-ENN, and CM-ENN UP/DOWN for the control of liquid levels and ratios of mixtures.



## Contact protection

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.



## Economy, CM-E-range

- 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
- In compliance with international standards and approvals



**Universal,  
CM-S-range**

- 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)
- In compliance with international standards and approvals

**Multifunctional,  
CM-N-range**

- Compact, only 45 mm wide
- Output contacts, 2 SPDT contacts (400 V / 5 A)
- Multi- (24...240 V AC/DC) or single supply voltage ranges
- Setting and operation via front-face operating elements
- Setting of threshold values and switching hysteresis via absolute scales
- Settable delay times
- Integrated and snap-fitted front-face marker
- Sealable transparent covers (accessories)
- In compliance with international standards and approvals

**T**he CM-range offers the most efficient and widest range of measuring and monitoring relays. The product family includes CM-E-, CM-S-, and CM-N-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	CM-SRN				CM-ESS		
Function	AC/DC current monitoring							
Measuring ranges AC/DC	3...30 mA	3...30 mA		0.3...1.5 A		50...500 mV	1...10 V	
	10...100 mA	10...100 mA		1...5 A		0.3...3 V	5...50 V	
	0.1...1 A	0.1...1 A		3...15 A		0.5...5 V	10...100 V	
Output contacts	Principle of operation			2 SPDT			Output relay energizes via	
	Number / Types			1 SPDT			1 SPDT	
	Time delay			-			-	
Width	22.5 mm		45 mm				22.5 mm	
Supply voltages and order code	24 V AC	1SVR 430 841 R 9100					1SVR 430 831 R 9000	1SVR 430 831 R 9100
	110...130 V AC	1SVR 430 841 R 0100	1SVR 450 110 R 0000	1SVR 450 120 R 0000	1SVR 450 110 R 0100	1SVR 450 120 R 0100	1SVR 430 831 R 0000	1SVR 430 831 R 0100
	220...240 V AC	1SVR 430 841 R 1100	1SVR 450 111 R 0000	1SVR 450 121 R 0000	1SVR 450 111 R 0100	1SVR 450 121 R 0100	1SVR 430 831 R 1000	1SVR 430 831 R 1100
	24...240 V AC/DC <sup>1)</sup>		1SVR 450 115 R 0000	1SVR 450 125 R 0000	1SVR 450 115 R 0100	1SVR 450 125 R 0100		
	80...120 V AC							
	220...300 V AC							

<sup>1)</sup> The products can monitor current/voltage exceeding (OC, OV) or falling below (UC, UV) the set threshold value

<sup>2)</sup> Relay de-energizes when the monitored value exceeds or falls below the set threshold value (fixed switching hysteresis 5 %)



## Three-phase monitoring

Type	CM-PBE	CM-PVE	CM-PFE	CM-PFS	CM-PFN <sup>1)</sup>	CM-PVN
Monitors	Phase failure	•	•	•	•	•
	Phase sequence					
	Undervoltage		•			• fixed
	Overvoltage		•			• fixed
	Phase unbalance					
Output contacts	Principle of operation					
	1 NO		1 NO		closed-circuit principle	
	1 NO		1 SPDT		2 SPDT	
	Time delay		500 ms fixed		0.1...10 s adjustable	
Width	22.5 mm		45 mm			
Monitoring voltage	220...240V 50 Hz	powered by the measuring circuit	1SVR 550 881 R 9400	1SVR 550 870 R 9400		
	220...240V 60 Hz					
	380...415V 50 Hz					
	380...415V 60 Hz					
	160...300V 50/60 Hz					
	300...500V 50/60 Hz					
	380...440V 50/60 Hz		1SVR 550 882 R 9500	1SVR 550 871 R 9500		
	208...440V 50/60 Hz				1SVR 550 824 R 9100	
	200...500V 50/60 Hz					1SVR 430 824 R 9300
	220...240V 50 Hz					
	380...415V 50 Hz	110...130V 50/60 Hz				
		220...240V 50/60 Hz				1SVR 450 310 R 0500
	480...500V 50 Hz	380...415V 50/60 Hz				1SVR 450 311 R 0500
		110...130V 50/60 Hz				1SVR 450 312 R 0500
	600V 60 Hz	220...240V 50/60 Hz				
	Umin: 160...220V	380...415V 50/60 Hz				
	Umax: 220...300V	600V 50/60 Hz				
	50/60 Hz	90...145V 50/60 Hz				1SVR 450 300 R 1200
	Umin: 300...380V	160...300V 50/60 Hz				1SVR 450 301 R 1200
		300...500V 50/60 Hz				
Umax: 420...500V	90...145V 50/60 Hz				1SVR 450 300 R 1500	
50/60 Hz	160...300V 50/60 Hz				1SVR 450 301 R 1500	
Umin: 350...430V	300...500V 50/60 Hz				1SVR 450 302 R 1500	
	90...145V 50/60 Hz				1SVR 450 300 R 1700	
Umax: 500...580V	160...300V 50/60 Hz					
50/60 Hz	300...500V 50/60 Hz				1SVR 450 302 R 1700	

<sup>1)</sup> Further measuring ranges 50/60 Hz, see 'main'-catalog



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-ESN						CM-EFN	
voltage monitoring AC/DC						supply mains monitoring, single-phase 50/60 Hz	
/.../	50...500 mV	1...10 V		/.../	U <sub>min</sub> :80...120 V	U <sub>min</sub> :80...120 V	
30...300 V	0.3...3 V	5...50 V		30...300 V	U <sub>max</sub> :120...160 V	U <sub>max</sub> :220...300 V	
50...500 V	0.5...5 V	10...100 V		50...500 V			
When the set threshold value is exceeded (open-circuit principle), switching hysteresis adjustable from 5...30 %						closed-circuit principle <sup>9)</sup>	
2 SPDT						2 SPDT	
-	0.05...30 s	-	0.05...30 s	-	0.1...10 s AV or RV		
45 mm							
1SVR 430 831 R 9200							
1SVR 430 831 R 0200	1SVR 450 210 R 0000	1SVR 450 220 R 0000	1SVR 450 210 R 0100	1SVR 450 220 R 0100	1SVR 450 210 R 0200	1SVR 450 220 R 0200	
1SVR 430 831 R 1200	1SVR 450 211 R 0000	1SVR 450 221 R 0000	1SVR 450 211 R 0100	1SVR 450 221 R 0100	1SVR 450 211 R 0200	1SVR 450 221 R 0200	
	1SVR 450 215 R 0000	1SVR 450 225 R 0000	1SVR 450 215 R 0100	1SVR 450 225 R 0100	1SVR 450 215 R 0200	1SVR 450 225 R 0200	
							1SVR 450 200 R 1100
							1SVR 450 201 R 1200



Contact protection / Sensor evaluation

CM-ASS	CM-ASN <sup>1)</sup>	CM-MPS
•	•	•
•	•	•
		• adjustable
		• adjustable
• adjustable (5...15%)	• adjustable (5...15%)	• adjustable (2...15%)
1 SPDT	2 SPDT	2 SPDT
500 ms fixed	0.1...10 s adjustable	0.1...10 s adjustable
22.5 mm	45 mm	22.5 mm
1SVR 430 864 R 1100		
1SVR 430 865 R 1100		
1SVR 430 864 R 3100		
1SVR 430 865 R 3100		
		please contact us
		please contact us

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 No-load voltage/supply voltage	max. 0.5 A 24 V DC
Output contacts	Principle of operation	open-circuit principle <sup>1)</sup>
	Number / Typ	2 We
	Time delay	-
Width	45 mm	22.5 mm
Supply voltages and order code	24 V AC 110...130 V AC 220...240 V AC 380...415 V AC	1SVR 450 099 R 0000 1SVR 450 089 R 0000 1SVR 450 090 R 0000 1SVR 450 081 R 0000 1SVR 450 091 R 0000 1SVR 450 082 R 0000 1SVR 450 080 R 0000 1SVR 450 081 R 0000 1SVR 450 082 R 0000
		1SVR 430 500 R 2300

<sup>1)</sup> Output relay energizes at an incoming control signal

1SVR 450 320 R 0200
1SVR 450 321 R 0200
1SVR 450 322 R 0200
1SVR 450 320 R 0500
1SVR 450 321 R 0500
1SVR 450 322 R 0500
1SVR 450 320 R 0700
1SVR 450 321 R 0700
1SVR 450 322 R 0700
1SVR 450 426 R 0800



Motor load monitoring

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

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

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 <sup>1)</sup>
Output relay	Principle of operation	energized until the liquid has dropped below the minimum 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 <sup>1)</sup>
	Time delay	without 22.5 mm		without 22.5 mm		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 R 9500	1SVR 550 855 R 9400	1SVR 430 851 R 9100	1SVR 430 851 R 9200	1SVR 450 059 R 0000	1SVR 450 059 R 0100
	110...130 V 50/60 Hz	1SVR 550 850 R 9500	1SVR 550 850 R 9400	1SVR 430 851 R 0100	1SVR 430 851 R 0200	1SVR 450 050 R 0000	1SVR 450 050 R 0100
	220...240 V 50/60 Hz	1SVR 550 851 R 9500	1SVR 550 851 R 9400	1SVR 430 851 R 1100	1SVR 430 851 R 1200	1SVR 450 051 R 0000	1SVR 450 051 R 0100
	380...415 V 50/60 Hz				1SVR 430 851 R 2100	1SVR 450 052 R 0000	1SVR 450 052 R 0100
	24...240 V AC/DC					1SVR 450 055 R 0000	

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



### 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
	Adjustable threshold values	1...11 KΩ; 10...110 KΩ	10...110 KΩ
Output relay	Principle of operation	open-circuit principle	open-circuit principle or closed circuit principle selectable
	Number / Type	1 SPDT	1 SPDT
Width		45 mm	
Supply voltage and order code	24... 240 V AC/DC	1SVR 450 075 R 0000	1SVR 450 065 R 0000
	110...130 V AC, 220...240 V AC	1SVR 450 071 R 0000	

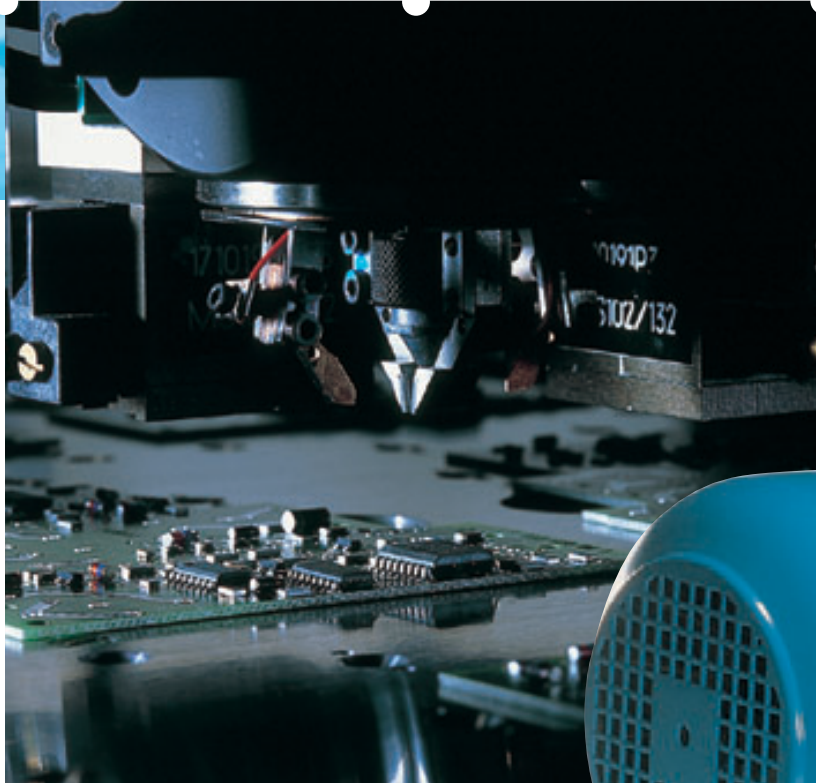


### Thermistor motor protection

Type		CM-MSE	CM-MSS	CM-MSS	CM-MSS	CM-MSS	CM-MSS
Function							
Measuring range	Number of sensor circuits	1	1	1	1	1	2
	Wire break monitoring	●	●	●	●	●	●
	Short-circuit detection	-	-	-	● <sup>1)</sup>	●	●
	Non-volatile fault storage	-	-	-	-	● <sup>2)</sup>	● <sup>2)</sup>
Operation / Reset	Auto reset	●	●	●	●	● <sup>2)</sup>	● <sup>2)</sup>
	Manual Reset	-	-	●	●	●	●
	Remote reset	-	-	●	●	●	●
	Test button	-	-	-	●	●	●
Output contacts	Principle of operation	closed-circuit principle <sup>3)</sup>					
	Number / Type	1 N/O	1 SPDT	2 SPDT	2 SPDT	1 N/O + 1 N/C	one SPDT contact per sensor circuit
Width		22,5 mm					
Supply voltages and order code	24 AC V	1SVR 550 805 R 9300		1SVR 430 811 R 9300			
	24 V AC/DC		1SVR 430 800 R 9100	1SVR 430 810 R 9300	1SVR 430 710 R 9300		
	110...130 V AC	1SVR 550 800 R 9300		1SVR 430 811 R 0300	1SVR 430 711 R 0300		
	220...240 V AC	1SVR 550 801 R 9300	1SVR 430 801 R 1100	1SVR 430 811 R 1300	1SVR 430 711 R 1300		
	380...415 V AC				1SVR 430 711 R 2300		
24...240 V AC/DC					1SVR 430 720 R 0400	1SVR 430 710 R 0200	

<sup>1)</sup> Configurable via terminals <sup>2)</sup> Auto reset configurable by a permanent link (jumper) by connecting terminals S1-T2 <sup>3)</sup> Relay de-energizes when the motor heats up excessively

## 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

### 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.

CM-MSS	CM-MSN
3	6
●	●
●	●
● <sup>2)</sup>	● <sup>2)</sup>
● <sup>2)</sup>	● <sup>2)</sup>
●	●
●	●
●	●
1 N/O + 1 N/C total evaluation	1 N/O + 1 N/C total evaluation
	45 mm
1SVR 430 720 R 0500	1SVR 450 025 R 0100





---

**ABB STOTZ-KONTAKT GmbH**

Postfach 10 16 80, 69006 Heidelberg / Germany  
Eppelheimer Straße 82, 69123 Heidelberg / Germany

Phone: +49 (0) 6221 / 701 - 621

Fax: +49 (0) 6221 / 701 - 240

[www.abb.de/stotz-kontakt](http://www.abb.de/stotz-kontakt)

**ENTRELEC-SCHIELE Industrierwerke GmbH & Co. KG**

Member of ABB Group  
Hauptstraße 12 - 16, 78132 Hornberg / Germany

Phone: +49 (0) 7833 / 78 - 0

Fax: +49 (0) 7833 / 78 - 366