

CONTROL SECTION 8

# Electronic relays and controls

Timers, power supplies, relays,  
limit switches





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# Time relays

## CT-S range



CT-MVS.21P



CT-MBS.22P



CT-ERS.21P



CT-AHS.22P



CT-SDS.23P

**\* Order number and type**  
All devices are available either with push-in terminals (P-type) or double-chamber cage connection terminals (S-type).

**Selection table**

Type*	Order number*
CT-MVS.21●	1SVR7#0020R0200
CT-MVS.22●	1SVR7#0020R3300
CT-MVS.23●	1SVR7#0021R2300
CT-MVS.12●	1SVR7#0020R3100
CT-MXS.22●	1SVR7#0030R3300
CT-MFS.21●	1SVR7#0010R0200
CT-MBS.22●	1SVR7#0010R3200
CT-WBS.22●	1SVR7#0040R3300
CT-ERS.21●	1SVR7#0100R0300
CT-ERS.22●	1SVR7#0100R3300
CT-ERS.12●	1SVR7#0100R3100
CT-APS.21●	1SVR7#0180R0300
CT-APS.22●	1SVR7#0180R3300
CT-APS.12●	1SVR7#0180R3100
CT-AHS.22●	1SVR7#0110R3300
CT-ARS.11●	1SVR7#0120R3100
CT-ARS.21●	1SVR7#0120R3300
CT-SDS.22●	1SVR7#0210R3300
CT-SDS.23●	1SVR7#0211R2300

**Timing function**

Timing function	Icon	1SVR7#0020R0200	1SVR7#0020R3300	1SVR7#0021R2300	1SVR7#0020R3100	1SVR7#0030R3300	1SVR7#0010R0200	1SVR7#0010R3200	1SVR7#0040R3300	1SVR7#0100R0300	1SVR7#0100R3300	1SVR7#0100R3100	1SVR7#0180R0300	1SVR7#0180R3300	1SVR7#0180R3100	1SVR7#0110R3300	1SVR7#0120R3100	1SVR7#0120R3300	1SVR7#0210R3300	1SVR7#0211R2300
ON-delay	☒	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
ON-delay, accumulative	☒(+)	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
OFF-delay w. aux. voltage	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
OFF-delay w. aux. voltage, accumulative	■						■	■	■	■	■	■	■	■	■					
OFF-delay w/o aux. voltage	■															■	■			
ON- and OFF-delay, symmetrical	☒■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
ON- and OFF-delay, symmetrical, accumulative	☒■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
ON- and OFF-delay, asymmetrical	☒■					■														
ON/OFF function	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
Impulse-ON	1☒	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
Impulse-ON, accumulative	1☒						■	■	■	■	■	■	■	■	■					
Impulse-OFF w. aux. voltage	1■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
Impulse-OFF w. aux. voltage, accumulative	1■						■	■	■	■	■	■	■	■	■					
Impulse-ON and OFF	1☒■					■														
Fixed impulse with adjustable time delay	☒■															■				
Adjustable impulse with fixed time delay	☒■																			
Flasher starting with ON	■☒						■	■	■	■	■	■	■	■	■					
Flasher with reset, starting with ON	■☒						■	■	■	■	■	■	■	■	■					
Flasher starting with OFF	■						■	■	■	■	■	■	■	■	■					
Flasher with reset, starting with OFF	■						■	■	■	■	■	■	■	■	■					
Flasher starting with ON or OFF	■☒	■	■	■	■	■														
Pulse generator starting with ON or OFF	☒■					■														
Single pulse generator	☒■					■														
Pulse former	☒■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
Star-delta change-over	△																		■	■
Star-delta change-over with impulse	△☒	■	■	■	■	■	■	■	■	■	■	■	■	■	■					

**Features**

Features	1SVR7#0020R0200	1SVR7#0020R3300	1SVR7#0021R2300	1SVR7#0020R3100	1SVR7#0030R3300	1SVR7#0010R0200	1SVR7#0010R3200	1SVR7#0040R3300	1SVR7#0100R0300	1SVR7#0100R3300	1SVR7#0100R3100	1SVR7#0180R0300	1SVR7#0180R3300	1SVR7#0180R3100	1SVR7#0110R3300	1SVR7#0120R3100	1SVR7#0120R3300	1SVR7#0210R3300	1SVR7#0211R2300
Control input, voltage-related triggering	■	■	■	■	■							■	■	■					
Control input, volt-free triggering						2	1								■				
Remote potentiometer connection					2	■	■												
2nd c/o contact selectable as instantaneous contact						■	■												
Extended temperature range (-40...+60°C)						■			■			■							

(Table continued on next page)

Terminal	Type	Order number
Push-in	● = P	■ = 4
Screw	● = S	■ = 3

# Time relays

## CT-S range



CT-MVS.21P



CT-MBS.22P



CT-ERS.21P



CT-AHS.22P



CT-SDS.23P

### Selection table (continued)

Type*	Order number*																			
CT-MVS.21●	1SVR7#0020R0200																			
CT-MVS.22●	1SVR7#0020R3300																			
CT-MVS.23●	1SVR7#0021R2300																			
CT-MVS.12●	1SVR7#0020R3100																			
CT-MXS.22●	1SVR7#0030R3300																			
CT-MFS.21●	1SVR7#0010R0200																			
CT-MBS.22●	1SVR7#0010R3200																			
CT-WBS.22●	1SVR7#0040R3300																			
CT-ERS.21●	1SVR7#0100R0300																			
CT-ERS.22●	1SVR7#0100R3300																			
CT-ERS.12●	1SVR7#0100R3100																			
CT-APS.21●	1SVR7#0180R0300																			
CT-APS.22●	1SVR7#0180R3300																			
CT-APS.12●	1SVR7#0180R3100																			
CT-AHS.22●	1SVR7#0110R3300																			
CT-ARS.11●	1SVR7#0120R3100																			
CT-ARS.21●	1SVR7#0120R3300																			
CT-SDS.22●	1SVR7#0210R3300																			
CT-SDS.23●	1SVR7#0211R2300																			
<b>Time range</b>																				
0.05 s - 10 min																			■	■
0.05 s - 300 h	■	■	■	■	2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Supply voltage</b>																				
24-48 V DC		■		■	■		■	■		■	■		■	■	■				■	
24-240 V AC		■		■	■		■	■		■	■		■	■	■				■	
24-240 V AC/DC	■					■				■			■					■	■	
380-440 V AC			■																	■
<b>Output</b>																				
c/o contact		2	2	2	1	2	2	2	2	2	2	2	1	2	2	1	2	1	2	
n/o contact																			2	2

**\* Order number and type**

All devices are available either with push-in terminals (P-type) or double-chamber cage connection terminals (S-type).

Terminal	Type	Order number
Push-in	● = P	■ = 4
Screw	● = S	■ = 3

# Monitoring relays

## Single-phase current



CM-SRS.225



CM-SFS.22P

**Selection table**

Type	Order number
CM-SRS.11S	1SVR730840R0200
CM-SRS.11P	1SVR740840R0200
CM-SRS.11S	1SVR730841R0200
CM-SRS.11P	1SVR740841R0200
CM-SRS.11S	1SVR730841R1200
CM-SRS.11P	1SVR740841R1200
CM-SRS.12S	1SVR730840R0300
CM-SRS.12S	1SVR730841R0300
CM-SRS.12S	1SVR730841R1300
CM-SRS.21S	1SVR730840R0400
CM-SRS.21P	1SVR740840R0400
CM-SRS.21S	1SVR730841R0400
CM-SRS.21P	1SVR740841R0400
CM-SRS.21S	1SVR730841R1400
CM-SRS.21P	1SVR740841R1400
CM-SRS.22S	1SVR730840R0500
CM-SRS.22S	1SVR730841R0500
CM-SRS.22S	1SVR730841R1500
CM-SRS.M1S	1SVR730840R0600
CM-SRS.M1P	1SVR740840R0600
CM-SRS.M2S	1SVR730840R0700
CM-SFS.21S	1SVR730760R0400
CM-SFS.21P	1SVR740760R0400
CM-SFS.22S	1SVR730760R0500

**Rated control supply voltage U<sub>c</sub>**

24 - 240 V AC/DC	■	■					■			■	■					■			■	■	■	■	■	■	■	
110 - 130 V AC			■	■				■			■	■					■									
220 - 240 V AC					■	■			■							■	■									

**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							■	■	■							■	■	■			■				■

**Monitoring function**

Over- or undercurrent	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
Window current monitoring																							■	■	■
Latching																							sel	sel	sel
Open-circuit or closed-circuit principle																							sel	sel	sel

**Timing functions for tripping delay**

ON-delay, 0.1 - 30 s											adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
ON- or OFF-delay, 0.1 - 30 s																									sel

**Output**

c/o contact	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**Connection type**

Push-in terminals		■		■		■					■		■		■						■			■	
Double-chamber cage connection terminals	■		■		■		■	■	■	■	■		■		■		■	■	■	■	■		■	■	■

adj: adjustable  
sel: selectable

## Monitoring relays

### Single-phase voltage



CM-ESS.MP



CM-EFS.2

#### Selection table

Type	Order number	CM-ESS.1S	CM-ESS.1P	CM-ESS.1S	CM-ESS.1P	CM-ESS.1S	CM-ESS.1P	CM-ESS.2S	CM-ESS.2P	CM-ESS.2S	CM-ESS.2P	CM-ESS.2S	CM-ESS.2P	CM-ESS.MS	CM-ESS.MP	CM-EFS.2S	CM-EFS.2P
	1SVR730830R0300																
	1SVR740830R0300																
	1SVR730831R0300																
	1SVR740831R0300																
	1SVR730831R1300																
	1SVR740831R1300																
	1SVR730830R0400																
	1SVR740830R0400																
	1SVR730831R0400																
	1SVR740831R0400																
	1SVR730831R1400																
	1SVR740831R1400																
	1SVR730830R0500																
	1SVR740830R0500																
	1SVR730750R0400																
	1SVR740750R0400																
<b>Rated control supply voltage U<sub>c</sub></b>																	
24 - 240 V AC/DC		■	■						■	■					■	■	■
110 - 130 V AC				■	■					■	■						
220 - 240 V AC						■	■					■	■				
<b>Measuring ranges AC/DC</b>																	
3 - 30 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6 - 60 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30 - 300 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
60 - 600 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Monitoring function</b>																	
Over- or undervoltage		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Windows voltage monitoring																■	■
Latching															sel	sel	sel
Open-circuit or closed-circuit principle															sel	sel	sel
<b>Timing functions for tripping delay</b>																	
ON-delay, 0.1 - 30 s								adj	adj	adj	adj	adj	adj	adj	adj		
ON- or OFF-delay, 0.1 - 30 s																sel	sel
<b>Output</b>																	
c/o contact		1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
<b>Connection type</b>																	
Push-in terminals			■		■		■		■		■		■		■		■
Double-chamber cage connection terminals		■		■		■		■		■		■		■		■	

adj: adjustable  
sel: selectable





# Monitoring relays

Three-phase multi-functional



CM-MPS.23P



CM-MPN.52P

Selection table

Type	Order number	15VR730885R1300	15VR740885R1300	15VR730885R3300	15VR740885R3300	15VR730884R1300	15VR740884R1300	15VR730884R3300	15VR740884R3300	15VR730885R4300	15VR740885R4300	15VR730884R4300	15VR740884R4300	15VR750487R8300	15VR760487R8300	15VR750488R8300	15VR760488R8300	15VR750489R8300	15VR760489R8300
CM-MPS.11S	CM-MPS.11P	CM-MPS.21S	CM-MPS.21P	CM-MPS.31S	CM-MPS.31P	CM-MPS.41S	CM-MPS.41P	CM-MPS.23S	CM-MPS.23P	CM-MPS.43S	CM-MPS.43P	CM-MPN.52S	CM-MPN.52P	CM-MPN.62S	CM-MPN.62P	CM-MPN.72S	CM-MPN.72P	CM-MPN.72P	CM-MPN.72P
<b>Rated control supply voltage U<sub>c</sub></b>																			
<b>Phase to phase</b>																			
160-300 V AC					■	■													
300-500 V AC								■	■			■	■						
350-580 V AC														■	■				
450-720 V AC																■	■		
530-820 V AC																		■	■
<b>Phase to neutral</b>																			
90-170 V AC	■	■																	
180-280 V AC			■	■						■	■								
<b>Rated frequency</b>																			
50/60 Hz	■	■	■	■	■	■	■	■						■	■	■	■	■	■
50/60/400 Hz										■	■	■	■						
<b>Suitable for monitoring</b>																			
Mains with harmonic content										■	■	■	■						
Single-phase mains	■	■	■	■						■	■								
Three-phase mains	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Monitoring function</b>																			
Phase failure	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Phase sequence	sel	sel	sel	sel	sel	sel	sel	sel	sel	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Automatic phase sequence correction										adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Overvoltage	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Undervoltage	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Unbalance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Interrupted neutral monitoring <sup>1</sup>	■	■	■	■						■	■								
<b>Thresholds</b>																			
Adjustable (adj)	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
<b>Timing functions for tripping delay</b>																			
On- or OFF delay	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
<b>Connection type</b>																			
Push-in terminals		■		■		■		■		■		■		■		■		■	
Double-chamber cage connection terminals	■		■		■		■		■		■		■		■		■		■

<sup>1</sup> The relay detects by means of a phase unbalance the interruption of the neutral conductor. The external conductor voltage towards the neutral conductor is measured too.

adj: adjustable  
sel: selectable

## Monitoring relays

### Grid feeding



CM-UFD.M\*M

Selection table

Type	Order number					
CM-UFD.M22M	1SVR560731R3700					
CM-UFD.M31	1SVR560730R3401					
CM-UFD.M31M	1SVR560731R3701					
CM-UFD.M33	1SVR560730R3402					
CM-UFD.M33M	1SVR560731R3702					
CM-UFD.M34M	1SVR560731R3703					
<b>Rated control supply voltage U<sub>c</sub></b>						
24-240 V AC/DC		■	■	■	■	■
<b>Standard</b>						
CEI 0-21		■				
VDE AR-N 4105, VDE AR-N 4110			■	■		
ENA G98, G99					■	■
DRRG standard of DEWA						■
<b>Rated frequency</b>						
DC or 50 Hz		■	■	■		
DC or 50/60 Hz					■	■
<b>Modbus RTU</b>						
		■		■		■
<b>Suitable for monitoring</b>						
Single-phase mains		■	■	■	■	■
Three-phase mains		■	■	■	■	■
<b>Monitoring function</b>						
Over-/undervoltage		■	■	■	■	■
Over-/underfrequency		■	■	■	■	■
ROCOF (rate of change of frequency)		■	■	■	■	■
10 minutes average value		■	■	■	■	■
Vector shift			■	■	■	■
<b>Thresholds</b>						
		adj	adj	adj	adj	adj

## Monitoring relays

### Insulation



CM-IWS.1



CM-IWS.2



CM-IWN.1

Selection table

Type	Order number	CM-IWS.2S	CM-IWS.2P	CM-IWS.1S	CM-IWS.1P	CM-IWN.1S	CM-IWN.1P	CM-IWM.10	CM-IWM.11
	1SVR730670R0200								
	1SVR740670R0200								
	1SVR730660R0100								
	1SVR740660R0100								
	1SVR750660R0200								
	1SVR760660R0200								
	1SVR470670R1000								
	1SVR470670R1100								
<b>Rated control supply voltage U<sub>c</sub></b>									
24 - 240 V AC/DC		■	■	■	■	■	■		
24 V DC								■	■
<b>Measuring voltages</b>									
250 V AC (L-PE)				■	■				
400 V AC (L-PE)		■	■			■	■		
690 V AC (L-PE)						■ <sup>1</sup>	■ <sup>1</sup>	■ <sup>2</sup>	
1000 V AC (L-PE)									■ <sup>3</sup>
300 V DC (L-PE)				■	■				
600 V DC (L-PE)						■	■		
690 V DC (L-PE)								■ <sup>2</sup>	
1000 V DC (L-PE)						■ <sup>1</sup>	■ <sup>1</sup>		■ <sup>3</sup>
<b>Measuring range</b>									
1 - 100 kΩ		■	■	■	■	■	■		
2 - 200 kΩ						■	■		
2 - 250 kΩ								■	■
<b>System leakage capacitance, max.</b>									
10 μF		■	■	■	■				
20 μF						■	■		
1000 μF								■	
3000 μF									■
<b>Output</b>									
1 c/o		■	■	■	■				
1 x 2 c/o or 2 x 1 c/o						■	■		
2 c/o								■	■
<b>Operating principle</b>									
Open-circuit principle		■	■	■	■			■	■
Open- or closed-circuit principle adjustable						■	■		

<sup>1</sup> With coupling unit CM-IVN screw version CM-IVN.S: 1SVR750669R9400  
push-in version CM-IVN.P: 1SVR760669R9400

<sup>2</sup> Allowed voltage range of the supervised network: 0-760 V AC / 0-1000 V

<sup>3</sup> Allowed voltage range of the supervised network: 0-1100 V AC / 0-1500 V DC

(Table continued on next page)











## Monitoring relays

### Liquid level



CM-ENE MIN



CM-ENS.3x

#### Selection table

Type	Order code	CM-ENE MIN	CM-ENE MIN	CM-ENE MIN	CM-ENE MAX	CM-ENE MAX	CM-ENE MAX	CM-ENS.11S	CM-ENS.11P	CM-ENS.13S	CM-ENS.13P	CM-ENS.21S	CM-ENS.21P	CM-ENS.23S	CM-ENS.23P	CM-ENS.31S	CM-ENS.31P	
		1SVR 550 855 R9500	1SVR 550 850 R9500	1SVR 550 851 R9500	1SVR 550 855 R9400	1SVR 550 850 R9400	1SVR 550 851 R9400	1SVR 730 850 R0100	1SVR 740 850 R0100	1SVR 730 850 R2100	1SVR 740 850 R2100	1SVR 730 850 R0200	1SVR 740 850 R0200	1SVR 730 850 R2200	1SVR 740 850 R2200	1SVR 730 850 R0300	1SVR 740 850 R0300	
<b>Rated control supply voltage U<sub>c</sub></b>																		
24-240 V AC/DC								■	■			■	■			■	■	
24 V AC		■			■													
110-130 V AC			■			■				■	■			■	■			
220-240 V AC				■			■			■	■			■	■			
<b>Sensor circuit</b>																		
Number of electrodes (including ground reference)		2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	
<b>Response sensitivity range</b>																		
0-100 kOhm		■	■	■	■	■	■											
5-100 kOhm								adj	adj	adj	adj							
0.1-1000 kOhm												adj	adj	adj	adj	adj	adj	
<b>Monitoring function</b>																		
Dry running protection		■	■	■				■	■	■	■	■	■	■	■	■	■	
Overflow protection					■	■	■	■	■	■	■	■	■	■	■	■	■	
Liquid level control					■	■	■	■	■	■	■	■	■	■	■	■	■	
<b>Operating principle</b>																		
Open-circuit principle		■	■	■				■	■	■	■							
Closed-circuit principle					■	■	■											
Open- or closed-circuit principle												sel	sel	sel	sel	sel	sel	
<b>Adjustable ON-/OFF-delay</b>																		
0.1-10 s																■	■	
<b>Output contacts</b>																		
n/o		1	1	1	1	1	1											
c/o (SPDT)								1	1	1	1	1	1	1	1	2	2	
<b>Connection type</b>																		
Push-in terminals									■		■		■		■		■	
Double-chamber cage connection terminals								■		■		■		■		■		
Screw		■	■	■	■	■	■											

adj: adjustable

sel: selectable

## Monitoring relays

### Accessories



Bar electrode



Suspension electrode

#### Ordering details

##### Accessories

Description	For type	Width in mm	For devices	Type	Order code	Pkg qty	Weight (1 pc) g (oz)
Adapter for screw mounting	CM-S CM-S.S/P	22.5	–	ADP.01	1SVR430029R0100	1	18.4 (0.65)
	CM-N CM-N.S/P	45	–	ADP.02	1SVR440029R0100	1	36.7 (1.30)
	CM-S, CM-N CM-S.S/P CM-N.S/P	–	without DIP switches	MAR.01	1SVR366017R0100	10	0.19 (0.007)
Marker label	CM-S, CM-N	–	with DIP switches	MAR.02	1SVR430043R0000	10	0.13 (0.005)
	CM-S.S/P CM-N.S/P	–	with DIP switches	MAR.12	1SVR730006R0000	10	0.152 (0.335)
	CM-S CM-N	22.5 45	– –	COV.01 COV.02	1SVR430005R0100 1SVR440005R0100	1 1	5.2 (0.18) 7.7 (0.27)
Sealable transparent cover	CM-S.S/P CM-N.S/P	22.5 45	– –	COV.11 COV.12	1SVR730005R0100 1SVR750005R0100	1 1	4.0 (0.129) 7 (0.247)

##### Bar electrodes

Description	Material no.	Type	Order code	Weight (1 pc) kg (lb)
Compact support for 3 bar electrodes	–	CM-KH-3	1SVR450056R6000	0.06 (0.132)
Distance plate for 3 bar electrodes		CM-AH-3	1SVR450056R7000	0.06 (0.132)
Counter nut for 1" thread		CM-GM-1	1SVR450056R8000	0.06 (0.132)
Length: 300 mm	1.4301	CM-SE-300	1SVR450056R0000	0.08 (0.176)
Length: 600 mm	1.4301	CM-SE-600	1SVR450056R0100	0.08 (0.176)
Length: 1000 mm	1.4301	CM-SE-1000	1SVR450056R0200	0.08 (0.176)

##### Suspension electrodes

Description	Connection	Material no.	Type	Order code	Weight (1 pc) kg (lb)
CM-HE suspension electrode high-alloy steel, material no. 1.4104 (according to EN 10088-1)	Screw	1.4104	CM-HE	1SVR402902R0000	0.074 (0.163)
CM-HC suspension electrode high-alloy steel, material no. 1.4104 (according to EN 10088-1)	Crimp	1.4104	CM-HC	1SVR402902R1000	0.09 (0.198)
CM-HCT suspension electrode suitable for drink water high-alloy steel, material no. 1.4301 (according to EN 10088-1)	Crimp	1.4301	CM-HCT	1SVR402902R2000	0.09 (0.198)

## Monitoring relays

### Accessories



CM-CT

CM-CT  
with mounted accessoriesCM-CT-A  
mounted on DIN rail

#### Plug-in current transformers CM-CT

- Without primary conductor though with foot angle, insulating protective cap and bar fastening screws
- Primary / rated current from 50 A to 600 A
- Secondary current of 1 A or 5 A
- Class 1

#### Ordering details

Rated primary current	Secondary current	Burden class	Type	Order code	Weight (1 pc) g (oz)
50 A	1 A	1 VA / 1	CM-CT 50/1	1SVR450116R1000	0.31 (0.683)
75 A		1.5 VA / 1	CM-CT 75/1	1SVR450116R1100	0.31 (0.683)
100 A		2.5 VA / 1	CM-CT 100/1	1SVR450116R1200	0.276 (0.608)
150 A		2.5 VA / 1	CM-CT 150/1	1SVR450116R1300	0.32 (0.705)
200 A		2.5 VA / 1	CM-CT 200/1	1SVR450116R1400	0.222 (0.489)
300 A		5 VA / 1	CM-CT 300/1	1SVR450117R1100	0.29 (0.639)
400 A		5 VA / 1	CM-CT 400/1	1SVR450117R1200	0.27 (0.595)
500 A		5 VA / 1	CM-CT 500/1	1SVR450117R1300	0.29 (0.639)
600 A	5 A	5 VA / 1	CM-CT 600/1	1SVR450117R1400	0.24 (0.529)
50 A		1 VA / 1	CM-CT 50/5	1SVR450116R5000	0.3 (0.661)
75 A		1.5 VA / 1	CM-CT 75/5	1SVR450116R5100	0.31 (0.683)
100 A		2.5 VA / 1	CM-CT 100/5	1SVR450116R5200	0.31 (0.683)
150 A		2.5 VA / 1	CM-CT 150/5	1SVR450116R5300	0.28 (0.617)
200 A		5 VA / 1	CM-CT 200/5	1SVR450116R5400	0.29 (0.639)
300 A		5 VA / 1	CM-CT 300/5	1SVR450117R5100	0.252 (0.556)
400 A		5 VA / 1	CM-CT 400/5	1SVR450117R5200	0.26 (0.573)
500 A	5 VA / 1	CM-CT 500/5	1SVR450117R5300	0.208 (0.459)	
600 A	5 VA / 1	CM-CT 600/5	1SVR450117R5400	0.21 (0.463)	

#### Accessories

Description	Type	Order code	Weight (1 pc) g (oz)
Snap-on fastener for DIN rail mounting of CM-CT	CM-CT A	1SVR450118R1000	0.009 (0.02)

## Primary switch mode

Single-phase



CP-S.1

### Selection table

		Order number	1SVR320361R1000	1SVR320561R1000	1SVR320661R1000	1SVR320761R1000	1SVR320861R1000
			<b>CP-S.1</b>				
<b>Rated output current</b>	3 A		■				
	5 A			■			
	10 A				■		
	20 A					■	
	40 A						■
<b>Rated output power</b>	72 W		■				
	120 W			■			
	240 W				■		
	480 W					■	
	960 W						■
<b>Rated input voltage</b>	100-240 V AC		■	■	■	■	
	100-250 V DC		■	■	■	■	
	110-240 V AC						■
	110-250 V DC						■
<b>Features</b>	Power reserve design		■	■	■	■	■
	Adjustable output voltage		■	■	■	■	■
	Integrated input fuse		■	■	■	■	■
	Short-circuit stable		■	■	■	■	■
	Fold-forward behavior (U/I)		■	■	■	■	■
	Power factor correction		no	act	act	act	act
	Signalling contact		■	■	■	■	■
	Parallel connection		3	3	3	3	3
	Serial connection		2	2	2	2	2
	Coated PCBA		■	■	■	■	■

pas = passive, act = active

# Primary switch mode power supplies

## Single-phase



CP-D 12/0.83, CP-D 24/0.42 CP-D 12/2.1, CP-D 24/1.3 CP-D 24/2.5



CP-E 5/0.75 CP-E 12/2.5 CP-E 48/5.0 CP-E 24/20.0

CP-C.1 24/5.0  
CP-C.1 24/5.0-C



CP-C.1 24/10.0  
CP-C.1 24/10.0-C



CP-C.1 24/20.0  
CP-C.1 24/20.0-C



CP-C.1 24/5.0  
light grey



CP-C.1 24/10.0  
light grey

### Selection table

Order number	Single-phase													
	CP-D				CP-E				CP-C.1					
1SVR427041R1000														
1SVR427043R1200														
1SVR427041R0000														
1SVR427043R0100														
1SVR427044R0200														
1SVR427045R0400														
1SVR427033R3000														
1SVR427032R1000														
1SVR427035R1000														
1SVR427030R0000														
1SVR427031R0000														
1SVR427032R0000														
1SVR427034R0000														
1SVR427035R0000														
1SVR427036R0000														
1SVR427030R2000														
1SVR427031R2000														
1SVR427034R0000														
1SVR427035R2000														
1SVR360563R1001														
1SVR360663R1001														
1SVR360763R1001														
1SVR360563R2001														
1SVR360663R2001														
1SVR360763R2001														
1SVR361563R1001														
1SVR361663R1001														
1SVR361763R1001														

Rated output voltage	CP-D				CP-E				CP-C.1					
5 V DC														
12 V DC	■	■				■	■							
24 V DC			■	■			■	■			■	■	■	■
48 V DC											■	■	■	■

Rated output current	CP-D				CP-E				CP-C.1					
0.42 A			■											
0.625 A								■						
0.75 A							■							
0.83 A	■													
1.25 A							■							
1.3 A			■											
2.1 A		■												
2.5 A				■		■		■						
3 A					■									
4.2 A								■						
5 A														
10 A							■					■		■
20 A								■					■	■

Rated output power	CP-D				CP-E				CP-C.1					
10 W	■		■											
15 W						■								
18 W							■							
25 W		■												
30 W			■			■		■						
60 W				■			■					■		
100 W														
120 W							■							
240 W								■				■		■
480 W								■					■	■

Rated input voltage	CP-D				CP-E				CP-C.1					
100-240 V AC	■	■	■	■	■	■	■	■	■	■	■	■	■	■
115/230 V AC auto select						■								
115-230 V AC														

(Table continued on next page)

# Primary switch mode power supplies

## Single-phase



CP-D 12/0.83,  
CP-D 24/0.42

CP-D 12/2.1,  
CP-D 24/1.3

CP-D 24/2.5

CP-E 5/0.75

CP-E 12/2.5

CP-E 48/5.0

CP-E 24/20.0

CP-C.1 24/5.0  
CP-C.1 24/5.0-C



CP-C.1 24/10.0  
CP-C.1 24/10.0-C



CP-C.1 24/20.0  
CP-C.1 24/20.0-C



CP-C.1 24/5.0  
light grey



CP-C.1 24/10.0  
light grey

### Selection table (continued)

Order number	Single-phase															
	CP-D				CP-E				CP-C.1							
1SVR427041R1000																
1SVR427043R1200																
1SVR427041R0000																
1SVR427043R0100																
1SVR427044R0200																
1SVR427045R0400																
1SVR427033R3000																
1SVR427032R1000																
1SVR427035R1000																
1SVR427030R0000																
1SVR427031R0000																
1SVR427032R0000																
1SVR427034R0000																
1SVR427035R0000																
1SVR427036R0000																
1SVR427030R2000																
1SVR427031R2000																
1SVR427034R0000																
1SVR427035R2000																
1SVR360563R1001																
1SVR360663R1001																
1SVR360763R1001																
1SVR360563R2001																
1SVR360663R2001																
1SVR360763R2001																
1SVR361563R1001																
1SVR361663R1001																
1SVR361763R1001																

#### DC input voltage range

DC input voltage range	CP-D				CP-E				CP-C.1							
90-300 V DC																
90-375 V DC																
120-375 V DC																
210-375 V DC																

#### Features

Features	CP-D				CP-E				CP-C.1							
Power reserve design																
Adjustable output voltage																
Integrated input fuse																
Short-circuit stable																
Fold-forward behavior (U/I)																
Fold-back behavior (hiccup)																
Power factor correction																
Signalling contact																
Extended temp. range																
Parallel connection																
Serial connection																
Coated PCBA																

pas: passive  
act: active

# Primary switch mode power supplies

## Three-phase



CP-T 24/5.0



CP-T 24/10.0, CP-T 48/5.0



CP-T 24/20.0, CP-T 48/10.0

### Selection table

	Order number	15VR427054R0000	15VR427055R0000	15VR427056R0000	15VR427057R0000	15VR427054R2000	15VR427055R2000	15VR427056R2000
<b>Three-phase</b>								
<b>CP-T</b>								
<b>Rated output voltage</b>								
24 V DC		■	■	■	■			
48 V DC						■	■	■
<b>Rated output current</b>								
5 A		■				■		
10 A			■				■	
20 A				■				■
40 A					■			
<b>Rated output power</b>								
120 W		■						
240 W			■			■		
480 W				■			■	
960 W					■			■
<b>Rated input voltage</b>								
3 x 400-500 V AC		■	■	■	■	■	■	■
<b>DC input voltage range</b>								
480-820 V DC		■	■	■	■	■	■	■
<b>Features</b>								
Adjustable output voltage		■	■	■	■	■	■	■
Integrated input fuse		■	■	■	■	■	■	■
Short-circuit stable		■	■	■	■	■	■	■
Fold forward behavior (U/I)		■	■	■		■	■	
Fold back behavior (hiccup)		■	■	■	■	■	■	■
Extended temp. range		■	■	■	■	■	■	■
Signalling contact		■	■	■	■			
Parallel connection			2	2	2	2	2	2
Serial connection			2	2	2	2	2	2

## Electronic protection devices

### EPD24



EPD24-TB-101-3A

#### Description

The protection devices EPD24 extend the ABB product range of modular DIN rail components by electronic overcurrent protection modules for selective protection of 24 V DC load circuits. This protection is achieved by a combination of active electronic current limitation in the case of a short circuit and an overload deactivation from  $1.1 \times I_n$  upwards.

If a fault occurs in a load circuit, the protection device EPD24 will detect this rapidly and reliably, then disable the power output transistor and hence interrupt the current flow in the defective circuit. The maximum possible overcurrent is always limited to 1.3...1.8 times the selected rated current. An activation of capacitive loads up to 20,000  $\mu\text{F}$  is possible, deactivation only occurring in the case of overloads or short circuits. Selective deactivation of the defective current circuit means undefined error states and a complete system stop are prevented.

#### Ordering details

Rated current $I_n$ A	bbn 40 16779 EAN	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
0.5	829960	EPD24-TB-101-0.5A	2CDE601101R2905	4	0.065 (1.433)
1	829984	EPD24-TB-101-1A	2CDE601101R2001	4	0.065 (1.433)
2	830003	EPD24-TB-101-2A	2CDE601101R2002	4	0.065 (1.433)
3	830027	EPD24-TB-101-3A	2CDE601101R2003	4	0.065 (1.433)
4	830041	EPD24-TB-101-4A	2CDE601101R2004	4	0.065 (1.433)
6	830065	EPD24-TB-101-6A	2CDE601101R2006	4	0.065 (1.433)
8	830089	EPD24-TB-101-8A	2CDE601101R2008	4	0.065 (1.433)
10	830102	EPD24-TB-101-10A	2CDE601101R2010	4	0.065 (1.433)
12	830126	EPD24-TB-101-12A	2CDE601101R2012	4	0.065 (1.433)

Description	bbn 40 16779 EAN	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Busbars for LINE+ and 0V, grey insulation, length 500 mm <sup>1</sup>	830140	EPD-BB500	2CDE605100R0500	10	0.2 (0.441)
Signal bars for aux. contacts, grey insulation, length 21 mm	830164	EPD-SB21	2CDE605200R0021	10	0.4 (0.882)

<sup>1</sup> Max. load with one line entry  $I_{max} = 50 \text{ A}$  (recommended: mid line entry)  
Max. load with two line entries  $I_{max} = 63 \text{ A}$



## Electronic protection devices

### EPD24



EPD24-A4 0.5-12,  
Power jumper for 24 V DC and signal  
jumper for 0 V, signal and reset

#### Selective protection of 24 V DC load circuits

Electronic protection devices are used for the reliable protection of standard components in industrial automation applications with 24 V DC. The EPD24 offer selective overcurrent protection for the loads connected and react to short circuit or overload more rapidly than the supplying switch mode power supply; they then selectively switch off the electrical circuit affected. In this way straightforward, quick troubleshooting is made possible. The 4-channel devices feature very high efficiency and significantly reduced power loss. With a rated current setting from 0.5 to 12 A, a width of 25 mm, seamless expandability by means of jumpers, front-top wiring and straightforward combination with ABB switch mode power supplies, they ensure a uniform portfolio.

#### Characteristics

- 4-channel electronic protection device
- 24 V DC supply terminal
- Variable rated currents can be set on **Advanced** from 0.5 A to 12 A or on **Entry** from 1 A to 10 A
- Selective load protection using electronic trip characteristic curve
- **Advanced** with active linear current limiting, total current max. 48 A
- **Entry** with time-controlled tripping, total current max. 40 A
- Integrated fail-safe element matched to the maximum rated current
- Very high efficiency
- No derating up to 60 °C ambient temperature
- Switching on of capacitive loads up to 40,000 µF at 12 A rated current
- ON/OFF/Reset button with multicolor LED status indicator
- Signal output (13, 14) with 1 NO contact for group signaling
- Reset input (RST) for remote resetting of tripped channels
- All connection terminals equipped with push-in terminals
- Several devices can be combined using power jumpers for supply and signal jumpers for 0 V, signal and reset
- **Entry** and **Advanced** devices can be combined using jumpers



UL 508  
CSA C22.2 No. 14  
Ind. Cont. Eq.  
E321314



#### Ordering details

##### Electronic protection devices

Type	Function	Input	Characteristics	Channels	Rated current	Order code
EPD24-E4 1-10	Entry	24 V DC	Time-controlled tripping	4	1–10 A	2CDE601102R0110
EPD24-A4 0.5-12	Advanced	24 V DC	Active current limiting	4	0.5–12 A	2CDE601102R0512

#### Accessories

Type	Characteristics	Order code
EPD24 jumpers (1 sets)	1 power jumper for 24 V DC and 3 signal jumpers for 0 V, signal and reset	2CDE605300R0010
EPD24 jumpers (5 sets)	5 power jumpers for 24 V DC and 15 signal jumpers for 0 V, signal and reset	2CDE605300R0050
EPD24 jumpers (25 sets)	25 power jumpers for 24 V DC and 75 signal jumpers for 0 V, signal and reset	2CDE605300R0250

## Pluggable interface relays

CR-S range



### How to use the selection table

Choose the desired control supply voltage from the column "Control voltage", e.g. "5 V DC".

Choose the desired kind of connection terminal from the column "Connection terminal", e.g. "spring".

Choose the desired material of contact from the column "Contact Material" e.g. "gold plated".

Control voltage	Connection terminal	Contact material	Socket type	Socket order code	Relay type	Relay order code
5 V DC	screw	standard	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1RG	1SVR405501R1020
	spring	standard	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1R	1SVR405501R1010
		gold plated	<b>CR-S006/024VDC1SZ</b>	<b>1SVR405521R1200</b>	<b>CR-S005VDC1RG</b>	<b>1SVR405501R1020</b>
12 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020



### Example

When you have chosen 5 V DC as control supply voltage, spring connection as connection terminal and gold plated as contact material the following order codes and type designators are valid:

Socket: CR-S006/024VDC1SZ, 1SVR405521R1200

Relay: CR-S005VDC1RG, 1SVR405501R1020

## Pluggable interface relays

### CR-S range



CR-S socket



CR-S relay

#### CR-S range relay assemblies

Control voltage	Connection terminal	Contact material	Socket type	Socket order code	Relay type	Relay order code
5 V DC	screw	standard	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SS	1SVR405521R1100	CR-S005VDC1RG	1SVR405501R1020
	spring	standard	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1R	1SVR405501R1010
		gold plated	CR-S006/024VDC1SZ	1SVR405521R1200	CR-S005VDC1RG	1SVR405501R1020
12 V DC	screw	standard	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020
12 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S012VDC1RG	1SVR405501R2020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1R	1SVR405501R2010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S012VDC1RG	1SVR405501R2020
24 V DC	screw	standard	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S006/024VDC1SS or CR-S012/024VADC1SS	1SVR405521R1100 or 1SVR405521R3100	CR-S024VDC1RG	1SVR405501R3020
	spring	standard	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S006/024VDC1SZ or CR-S012/024VADC1SZ	1SVR405521R1200 or 1SVR405521R3200	CR-S024VDC1RG	1SVR405501R3020
24 V AC	screw	standard	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1RG	1SVR405501R3020
	spring	standard	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1R	1SVR405501R3010
		gold plated	CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1RG	1SVR405501R3020
48 V AC/DC	screw	standard	CR-S048/060VADC1SS	1SVR405521R5100	CR-S048VDC1R	1SVR405501R4010
		gold plated	CR-S048/060VADC1SS	1SVR405521R5100	CR-S048VDC1RG	1SVR405501R4020
	spring	standard	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S048VDC1R	1SVR405501R4010
		gold plated	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S048VDC1RG	1SVR405501R4020
60 V AC/DC	screw	standard	CR-S048/060VADC1SS	1SVR405521R5100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S048/060VADC1SS	1SVR405521R5100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S048/060VADC1SZ	1SVR405521R5200	CR-S060VDC1RG	1SVR405501R5020
110-125 V AC/DC	screw	standard	CR-S110/125VADC1SS	1SVR405521R6100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S110/125VADC1SS	1SVR405521R6100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S110/125VADC1SZ	1SVR405521R6200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S110/125VADC1SZ	1SVR405521R6200	CR-S060VDC1RG	1SVR405501R5020
220-240 V AC/DC	screw	standard	CR-S220/240VADC1SS	1SVR405521R7100	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S220/240VADC1SS	1SVR405521R7100	CR-S060VDC1RG	1SVR405501R5020
	spring	standard	CR-S220/240VADC1SZ	1SVR405521R7200	CR-S060VDC1R	1SVR405501R5010
		gold plated	CR-S220/240VADC1SZ	1SVR405521R7200	CR-S060VDC1RG	1SVR405501R5020



CR-S optocoupler

#### CR-S optocoupler range relay assemblies

Control voltage	Connection terminal	Output characteristics	Socket type	Socket order code	Opto type	Opto order code
24 V DC	screw	Transistor 100 mA - 48 V DC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1TRA	1SVR405510R3050
			CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1TRA	1SVR405510R3050
	spring	MOS-FET 2 A - 24 V DC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1MOS	1SVR405510R3060
			CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1MOS	1SVR405510R3060
	screw	Triac 2 A - 240 V AC	CR-S012/024VADC1SS	1SVR405521R3100	CR-S024VDC1TRI	1SVR405510R3070
			CR-S012/024VADC1SZ	1SVR405521R3200	CR-S024VDC1TRI	1SVR405510R3070

## Pluggable interface relays

### CR-S range



CR-S complete interface relay



The complete versions of the CR-S range comprise of a pluggable interface relay, socket and marker.

#### CR-S complete versions

Type	Order code	Relay				Socket					
		CR-S024VDC1R3010	CR-S024VDC1R3020	CR-S060VDC1R5010	CR-S060VDC1R5020	CR-S012/024VADC1S3100	CR-S012/024VADC1S3200	CR-S110/125VADC1S6100	CR-S110/125VADC1S6200	CR-S220/240VADC1S7100	CR-S220/240VADC1S7200
CR-S024VDC1R											
CR-S024VDC1RG											
CR-S060VDC1R											
CR-S060VDC1RG											
CR-S012/024VADC1SS											
CR-S012/024VADC1SZ											
CR-S110/125VADC1SS											
CR-S110/125VADC1SZ											
CR-S220/240VADC1SS											
CR-S220/240VADC1SZ											

#### Complete versions

Order code	Type	CR-S024VDC1R3010	CR-S024VDC1R3020	CR-S060VDC1R5010	CR-S060VDC1R5020	CR-S012/024VADC1S3100	CR-S012/024VADC1S3200	CR-S110/125VADC1S6100	CR-S110/125VADC1S6200	CR-S220/240VADC1S7100	CR-S220/240VADC1S7200
1SVR405541R3110	CR-S024VADC1CRS	■				■					
1SVR405541R3120	CR-S024VADC1CRGS		■			■					
1SVR405541R3210	CR-S024VADC1CRZ	■					■				
1SVR405541R3220	CR-S024VADC1CRGZ		■				■				
1SVR405541R6110	CR-S110VADC1CRS			■				■			
1SVR405541R6120	CR-S110VADC1CRGS				■			■			
1SVR405541R6210	CR-S110VADC1CRZ			■					■		
1SVR405541R6220	CR-S110VADC1CRGZ				■				■		
1SVR405541R7110	CR-S230VADC1CRS			■						■	
1SVR405541R7120	CR-S230VADC1CRGS				■					■	
1SVR405541R7210	CR-S230VADC1CRZ			■							■
1SVR405541R7220	CR-S230VADC1CRGZ				■						■

## Pluggable interface relays and optocouplers

### CR-P range



CR-P relay

#### CR-P pluggable relays

Type	Order code
CR-P012DC1	1SVR405600R4000
CR-P024DC1	1SVR405600R1000
CR-P048DC1	1SVR405600R6000
CR-P110DC1	1SVR405600R8000
CR-P024AC1	1SVR405600R0000
CR-P048AC1	1SVR405600R5000
CR-P110AC1	1SVR405600R7000
CR-P120AC1	1SVR405600R2000
CR-P230AC1	1SVR405600R3000
CR-P012DC2	1SVR405601R4000
CR-P024DC2	1SVR405601R1000
CR-P048DC2	1SVR405601R6000
CR-P110DC2	1SVR405601R8000
CR-P012AC2	1SVR405601R0200
CR-P024AC2	1SVR405601R0000
CR-P048AC2	1SVR405601R5000
CR-P110AC2	1SVR405601R7000
CR-P120AC2	1SVR405601R2000
CR-P230AC2	1SVR405601R3000
CR-P024DC2G	1SVR405606R1000
CR-P024AC2G	1SVR405606R0000
CR-P110AC2G	1SVR405606R7000
CR-P230AC2G	1SVR405606R3000

Input voltage	CR-P012DC1	CR-P024DC1	CR-P048DC1	CR-P110DC1	CR-P024AC1	CR-P048AC1	CR-P110AC1	CR-P120AC1	CR-P230AC1	CR-P012DC2	CR-P024DC2	CR-P048DC2	CR-P110DC2	CR-P012AC2	CR-P024AC2	CR-P048AC2	CR-P110AC2	CR-P120AC2	CR-P230AC2	CR-P024DC2G	CR-P024AC2G	CR-P110AC2G	CR-P230AC2G	
12 V DC	■									■														
24 V DC		■									■													
48 V DC			■									■												
110 V DC				■									■											
12 V AC															■									
24 V AC						■										■								
48 V AC							■										■							
110 V AC								■										■						
120 V AC									■										■					
230 V AC										■										■				■

Output rating	CR-P012DC1	CR-P024DC1	CR-P048DC1	CR-P110DC1	CR-P024AC1	CR-P048AC1	CR-P110AC1	CR-P120AC1	CR-P230AC1	CR-P012DC2	CR-P024DC2	CR-P048DC2	CR-P110DC2	CR-P012AC2	CR-P024AC2	CR-P048AC2	CR-P110AC2	CR-P120AC2	CR-P230AC2	CR-P024DC2G	CR-P024AC2G	CR-P110AC2G	CR-P230AC2G	
250 V 16 A	■	■	■	■	■	■	■	■	■															
250 V 8 A										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Output contacts	CR-P012DC1	CR-P024DC1	CR-P048DC1	CR-P110DC1	CR-P024AC1	CR-P048AC1	CR-P110AC1	CR-P120AC1	CR-P230AC1	CR-P012DC2	CR-P024DC2	CR-P048DC2	CR-P110DC2	CR-P012AC2	CR-P024AC2	CR-P048AC2	CR-P110AC2	CR-P120AC2	CR-P230AC2	CR-P024DC2G	CR-P024AC2G	CR-P110AC2G	CR-P230AC2G	
c/o	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Gold plated contacts																					■	■	■	■















## Pluggable interface relays and optocouplers CR-M range



CR-M

### CR-M pluggable relays with gold plated contacts

Type	Order code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CR-M024DC4G	1SVR405618R1000																				
CR-M024AC4G	1SVR405618R0000	■																			
CR-M110AC4G	1SVR405618R7000																				
CR-M230AC4G	1SVR405618R3000																				
CR-M230AC4G	1SVR405618R3000																				
CR-M012DC4LG	1SVR405618R4100																				
CR-M024DC4LG	1SVR405618R1100																				
CR-M048DC4LG	1SVR405618R6100																				
CR-M060DC4LG	1SVR405618R4300																				
CR-M110DC4LG	1SVR405618R8100																				
CR-M125DC4LG	1SVR405618R8300																				
CR-M220DC4LG	1SVR405618R9100																				
CR-M024AC4LG	1SVR405618R0100																				
CR-M048AC4LG	1SVR405618R5100																				
CR-M110AC4LG	1SVR405618R7100																				
CR-M120AC4LG	1SVR405618R2100																				
CR-M230AC4LG	1SVR405618R3100																				
CR-M012DC4LDG	1SVR405618R4400																				
CR-M024DC4LDG	1SVR405618R1400																				

Input voltage	
12 V DC	
24 V DC	■
48 V DC	
60 V DC	
110 V DC	
125 V DC	
220 V DC	
24 V AC	■
48 V AC	
60 V AC	
110 V AC	■
120 V AC	
230 V AC	■

Output rating	
250 V 6 A	■
250 V 10 A	
250 V 12 A	

Output contacts	
c/o	4
Gold plated contacts	■

Additional features	
LED	■
Free-wheeling diode	■



# Pluggable interface relays and optocouplers

## CR-M range



CR-M complete version



The complete versions of the CR-M range comprise of a pluggable interface relay, socket, holder, marker and where applicable a function module.

### CR-M complete versions

Type	Order code	Relay	Socket	Function module	Holder
	1SVR405618R4400				
	1SVR405613R1000				
	1SVR405618R1000				
	1SVR405618R1100				
	1SVR405618R1400				
	1SVR405613R0000				
	1SVR405613R3000				
	1SVR405618R3000				
	1SVR405618R3100				
	1SVR405651R3000				
	1SVR405651R3100				
	1SVR405651R3200				
	1SVR405651R0000				
	1SVR405652R0000				
	1SVR405652R1000				
	1SVR405652R9100				
	1SVR405655R1000				
	1SVR405654R0100				
	1SVR405655R1100				
	1SVR405659R1000				

### Complete versions

Order code	Type	Relay	Socket	Function module	Holder
1SVR405618R4410	CR-M012DC4LDGSS	■			■
1SVR405613R1010	CR-M024DC4SS42V		■		■
1SVR405613R1011	CR-M024DC4LS42V			■	■
1SVR405613R1012	CR-M024DC4LC42			■	■
1SVR405618R1011	CR-M024DC4GSS42V		■		■
1SVR405618R1010	CR-M024DC4GLC62CV			■	■
1SVR405618R1110	CR-M024DC4LGLC22			■	■
1SVR405618R1410	CR-M024DC4LDGSS		■		■
1SVR405613R0010	CR-M024AC4LS62CV			■	■
1SVR405613R3110	CR-M230AC4SS92CV		■		■
1SVR405613R3011	CR-M230AC4LS92CV			■	■
1SVR405613R3012	CR-M230AC4LC92			■	■
1SVR405618R3112	CR-M230AC4GSS92CV		■		■
1SVR405618R3110	CR-M230AC4LGLC			■	■
1SVR405618R3111	CR-M230AC4LGSS		■		■













# Boxed interface relays

## R600 range



R600 - 6 mm



R600 - 12 mm

Selection table

Type	Order number																			
RBR121-48-60VUC	1SNA645502R0600																			
RBR121G-48-60VUC	1SNA645506R0200																			
RBR122G-48-60VUC	1SNA645040R1500																			
RBR122G-48-60VUC	1SNA645540R1700																			
RB121-115VUC	1SNA645003R0500																			
RB121G-115VUC	1SNA645007R0100																			
RB121R-115VUC	1SNA645046R0700																			
RBR121-115VUC	1SNA645503R0700																			
RBR121G-115VUC	1SNA645507R0300																			
RB122G-115VUC	1SNA645041R0200																			
RBR122G-115VUC	1SNA645541R0400																			
RB111-115VUC	1SNA645016R2100																			
RB111-230VUC	1SNA645017R2200																			
RB121-230VUC	1SNA645004R0400																			
RB121G-230VUC	1SNA645008R1200																			
RB121R-230VUC	1SNA645011R2400																			
RBR121-230VUC	1SNA645504R0000																			
RBR121G-230VUC	1SNA645508R1400																			
RBR121R-230VUC	1SNA645511R2600																			
RB122G-230VUC	1SNA645013R2600																			
RBR122G-230VUC	1SNA645513R2000																			
RB121-60-230VUC	1SNA645020R0100																			
RBR121-60-230VUC	1SNA645520R0300																			

Input voltage																				
5 V DC																				
12 V DC																				
24 V DC																				
48-60 V DC	■	■	■	■																
115 V DC					■	■	■	■	■	■	■	■								
230 V DC													■	■	■	■	■	■	■	■
60-230 V DC																			■	■
24 V AC																				
48-60 V AC	■	■	■	■																
115 V AC					■	■	■	■	■	■	■	■								
230 V AC													■	■	■	■	■	■	■	■
60-230 V AC																			■	■

Output rating																				
10 mA - 6 A	■				■	■	■				■	■	■	■	■	■	■	■	■	■
3 mA - 6 A		■				■			■						■			■		
1 mA - 8 A			■	■						■	■							■	■	

Output contacts																				
c/o	1	1	2	2	1	1	1	1	1	2	2			1	1	1	1	1	2	2
n/o														1	1					
n/c																				
Gold plated contacts		■	■	■		■			■	■	■				■		■		■	■

Terminal type																				
Screw			■		■	■	■			■			■	■	■	■	■		■	■
Spring	■	■		■					■	■	■							■	■	■



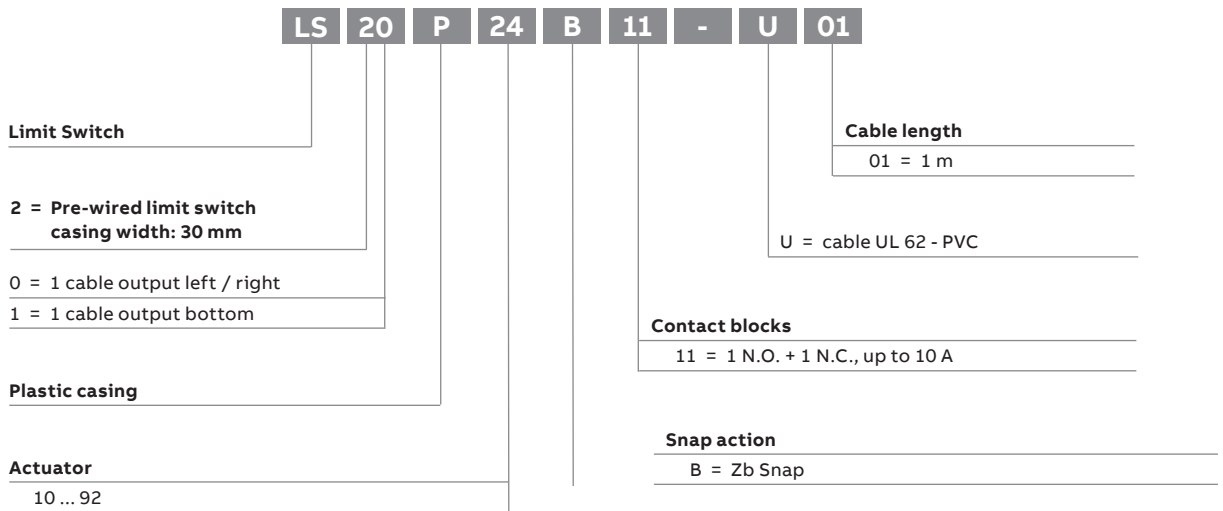
# Limit switches

## Overview

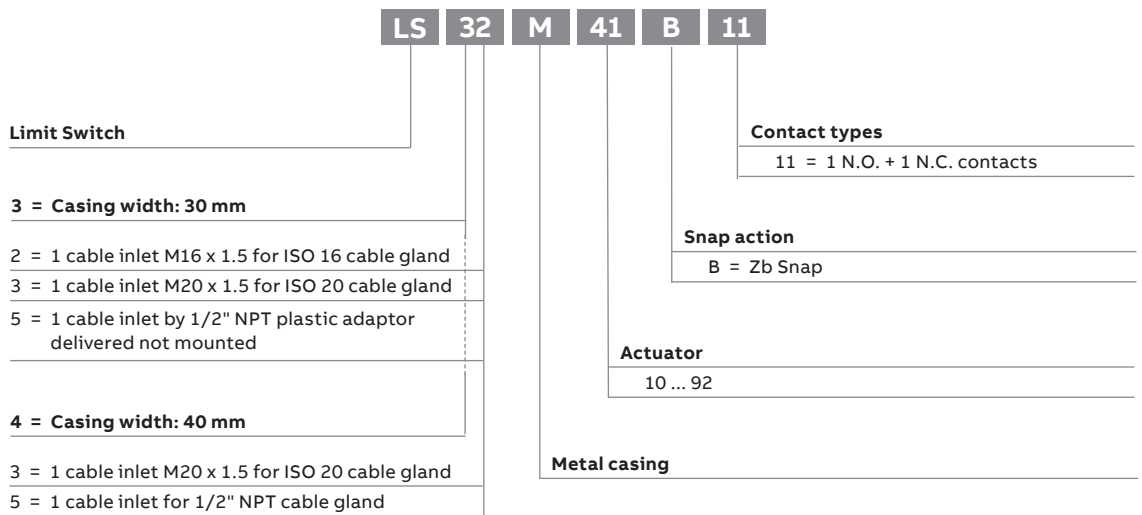
Limit switches are electromechanical devices. The contacts are mechanically linked to an actuator for visible operations. By combining different types of actuators and casings, our limit switches are perfectly suited to a large variety of applications.



### Prewired LS2..



### Cable inlet LS3.., LS4..












This represents an overview of ABB's limit switches offering. Please reference the **Limit Switches catalog** for the complete portfolio.

## Limit switches

### Overview

#### Actuators and movements to be detected

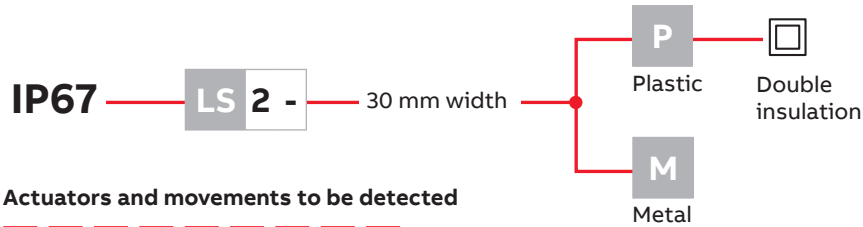
Actuator type	Symbol	Actuator number	Comments*
Plungers		10 11 21	Plastic or metal plunger
Roller plungers		12 13 14 15 22 24	Plastic or metal roller Roller or ball at the tip
Roller levers + plunger	 or 	31 32	For horizontal or vertical movement
Roller levers		41 42 45 46	Plastic, metal or rubber roller Different roller diameters Different lever sizes and shape
Adjustable roller levers		51 52	Plastic, metal or rubber roller Different roller diameters
Rod Levers		71 72	Metal, fiber glass or nylon rod Different rod diameters
Spring rod levers	 or 	91 92	Plain or insulated spring tip

\* NOTE: a same number can be a slightly different actuator from one range to the other. For accurate description of the actuator, please refer to the ordering details pages.  
Ex: actuator n°13 is a plastic roller plunger for LS20 and LS30 but a metal roller plunger for LS40 ranges.

This represents an overview of ABB's limit switches offering. Please reference the **Limit Switches catalog** for the complete portfolio.

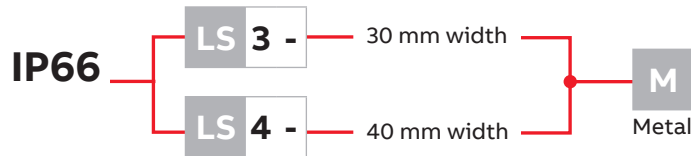
# Limit switches

## Overview



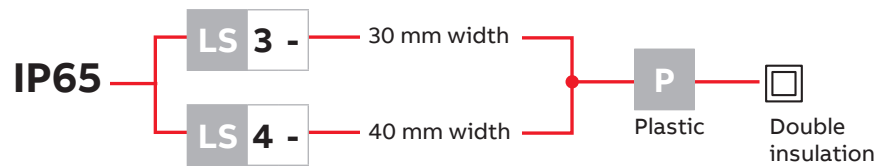
Actuators and movements to be detected

- 11
- 12
- 13
- 14
- 15
- 21
- 22
- 24
- 41
  
- 42
- 45
- 46
- 51
- 54
- 71
- 91
- 92



Actuators and movements to be detected

- 11
- 12
- 13
- 31
- 32
- 41
- 42
  
- 51
- 52
- 71
- 72
- 91
- 92



Actuators and movements to be detected

- 10
- 11
- 12
- 13
- 31
- 32
- 41
  
- 42
- 51
- 52
- 71
- 72
- 91
- 92

This represents an overview of ABB's limit switches offering. Please reference the **Limit Switches catalog** for the complete portfolio.

Double insulation

A Class II or double insulated electrical appliance does not require a safety connection to electrical earth (ground).

The degree of protection required for electrical equipment depends on the environmental characteristics.

Ingress Protection	First digit solids protection	Second digit liquids protection
<b>IP</b>	<b>6</b> Dust Tight	<b>5</b> Low pressure water jet
		<b>6</b> Powerful water jets
		<b>7</b> Temporary immersion (up to 1 m)



## Limit switches

### Stocked switches



#### Limit switches

Casing width	Electrical connection	Casing material	Actuator type	Contact type	Contact block	Ordering code
20mm	Pre-wired	Metal	45mm rubber roller lever	Snap action	1 NC+1NO	LS20M42B11-U02
30mm	1/2" NPT	Plastic	n/a	Slow action	1 NC+1NO	LS35P80D11-S
30mm	1/2" NPT	Plastic	Adj 3mm SS rod lever	Snap action	1 NC+1NO	LS35P71B11
30mm	1/2" NPT	Plastic	18mm plastic roller lever	Snap action	1 NC+1NO	LS35P41B11
30mm	1/2" NPT	Plastic	18mm plastic roller lever	Snap action	2 NC	LS35P41B02-R
30mm	1/2" NPT	Metal	Adj 18mm plastic roller lever	Snap action	1 NC+1NO	LS35M51B11
30mm	1/2" NPT	Plastic	Adj 18mm plastic roller lever	Snap action	1 NC+1NO	LS35P51B11
30mm	1/2" NPT	Plastic	Adj 18mm plastic roller lever	Snap action	2 NC	LS35P51B02
30mm	Pre-wired	Metal	Plain steel plunger	Snap action	1 NC+1NO	LS20M11B11-U03
30mm	1/2" NPT	Plastic	Plain steel plunger	Snap action	1 NC+1NO	LS35P11B11
30mm	1/2" NPT	Plastic	Plastic roller plunger	Snap action	1 NC+1NO	LS35P13B11
30mm	1/2" NPT	Plastic	Plastic roller, steel plunger	Snap action	1 NC+1NO	LS35P31B11
30mm	1/2" NPT	Plastic	Plastic roller, steel plunger	Slow action	1 NC+1NO	LS35P32D11-R
30mm	1/2" NPT	Plastic	Spring rod	Snap action	1 NC+1NO	LS35P91B11
30mm	1/2" NPT	Plastic	Straight key	Snap action	1 NC+1NO	LS35P16B11
40mm	1/2" NPT	Metal	w/out head	Snap action	1 NC+1NO	LS45M00B11
40mm	1/2" NPT	Metal	Adj 3mm SS rod lever	Snap action	1 NC+1NO	LS45M71B11
40mm	1/2" NPT	Plastic	Adj 3mm SS rod lever	Snap action	2 NC+1NO	LS45P71B11
40mm	1/2" NPT	Metal	Adj 18mm plastic roller lever	Snap action	1 NC+1NO	LS45M51B11
40mm	1/2" NPT	Plastic	Adj 18mm plastic roller lever	Snap action	1 NC+1NO	LS45P51B11
40mm	1/2" NPT	Metal	18mm plastic roller lever	Snap action	1 NC+1NO	LS45M41B11
40mm	1/2" NPT	Metal	Adj 22mm SS ball-bearing roller	Snap action	1 NC+1NO	LS45M53B11
40mm	1/2" NPT	Metal	Adj 45mm rubber roller lever	Snap action	1 NC+1NO	LS45M54B11
40mm	1/2" NPT	Metal	Adj 52mm rubber roller lever	Snap action	1 NC+1NO	LS45M52B11
40mm	1/2" NPT	Metal	Plastic roller plunger	Snap action	1 NC+1NO	LS45M13B11
40mm	1/2" NPT	Metal	Spring rod	Snap action	1 NC+1NO	LS45M91B11
40mm	1/2" NPT	Metal	SS lateral plunger	Snap action	1 NC+1NO	LS45M21B11
60mm	1/2" NPT	Metal	Adj 18mm plastic roller lever	Snap action	1 NC+1NO	LS75P41B11
60mm	1/2" NPT	Metal	Pull action w/ring	Snap action	1 NC+1NO	LS75M98B11-A
Yellow free movement IPS footswitch					1 NC+1NO	IPSY1A11

This represents an overview of ABB's limit switches offering. Please reference the **Limit Switches catalog** for the complete portfolio.