

Control and protective relays

Section 13

Control and protective relays

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Limit switches

Inventory



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	22mm SS roller	Snap action	1NC + 1NO	LS45M42B11
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

See [catalog](#) for full description

Time relays

Inventory



Function	Time ranges	Input voltage	Output contacts	Ordering code
Timer-compact				
Multifunction CT-MFC	(0.05s-100h)	24-48VDC/24-240VAC	1 c/o	1SVR508020R0000
Multifunction CT-MFC	(0.05s-100h)	12-240VAC/DC	2 c/o	1SVR508020R1100
ON-delay CT-ERC	(0.05s-100h)	24-48VDC/24-240VAC	1 c/o	1SVR508100R0000
OFF-delay w/ auxilliary voltage CT-AHC	(0.05s-100h)	24-48VDC/24-240VAC	1 c/o	1SVR508110R0000
Timer-MDRC				
Multifunction CT-MFD.12	(0.05s-100h)	24-240V AC/24-48V DC	1 c/o	1SVR500020R0000
Multifunction CT-MFD.21	(0.05s-100h)	24-240V AC/24-48V DC	2 c/o	1SVR500020R1100
ON-delay CT-ERD.12	(0.05s-100h)	24-240V AC/24-48V DC	1 c/o	1SVR500100R0000
ON-delay CT-ERD.22	(0.05s-100h)	24-240V AC/24-48V DC	2 c/o	1SVR500100R0100
OFF-delay CT-AHD.12	(0.05s-100h)	24-240V AC/24-48V DC	1 c/o	1SVR500110R0000
OFF-delay CT-AHD.22	(0.05s-100h)	24-240V AC/24-48V DC	2 c/o	1SVR500110R0100
Flasher CT-EBD.12	(0.05s-100h)	24-240V AC/24-48V DC	1 c/o	1SVR500150R0000
Pulse generator CT-TGD.12	(0.05s-100h)	24-240V AC/24-48V DC	1 c/o	1SVR500160R0000
Timer-sophisticated				
Multifunction CT-MFS.21S	(0.05s-300h)	24-240VAC/DC	2 c/o	1SVR730010R0200
Multifunction CT-MVS.21S	(0.05s-300h)	24 - 48V DC/24 - 240V AC	2 c/o	1SVR730020R0200
Multifunction CT-MXS.22S	(0.05s-300h)	24 - 48V DC/24 - 240V AC	2 c/o	1SVR730030R3300
Impulse and flasher CT-WBS.22S	(0.05s-300h)	24 - 48V DC/24 - 240V AC	2 c/o	1SVR730040R3300
ON-delay CT-ERS.22S	(0.05s-300h)	24 - 48V DC/24 - 240V AC	2 c/o	1SVR730100R3300
ON-delay CT-ERS.21S	(0.05s-300h)	24 - 48V DC/24 - 240V AC	2 c/o	1SVR730100R0300
OFF-delay CT-ARS.21S	0.05 s to 300 h	24-240VAC/DC	2 c/o	1SVR730120R3300

See [catalog](#) for full description

Type selection

	multi-functional	single-functional	multi-functional	single-functional
Timing function	CT-C		CT-S	
☒ ON-delay	CT-MFC, CT-MKC	CT-ERC	CT-MVS, CT-MFS, CT-MBS, CT-WBS	CT-ERS
■ OFF-delay	CT-MFC, CT-MKC, CT-ARC	CT-AHC	CT-MVS, CT-MFS, CT-MBS	CT-APS, CT-AHS, CT-ARS
☒■ ON- and OFF-delay			CT-MVS, CT-MXS, CT-MFS, CT-MBS	
1☒ Impulse-ON	CT-MFC, CT-MKC	CT-VWC	CT-MVS, CT-MFS, CT-MBS, CT-WBS	
1■ Impulse-OFF	CT-MFC, CT-MKC, CT-ARC		CT-MVS, CT-MFS, CT-MBS	
1☒ Impulse-ON and OFF			CT-MXS	
☒ Flasher starting with ON	CT-MFC, CT-MKC	CT-EBC	CT-MFS, CT-MBS, CT-WBS	
☒ Flasher starting with OFF	CT-MFC, CT-MKC	CT-EBC	CT-MFS, CT-MBS, CT-WBS	
☒ Flasher starting with ON or OFF			CT-MVS	
☒ Pulse generator starting with ON or OFF		CT-TGC	CT-MXS	
☐ Pulse former	CT-MFC, CT-MKC		CT-MVS, CT-MFS, CT-MBS	
△ Star-delta change-over		CT-SDC, CT-SAC		CT-SDS
△1☒ Star-delta change-over with impulse			CT-MVS.2x, CT-MFS, CT-MBS	
☒+ ☒1☒ ■1☒ ☐ further functions (depending on device)			CT-MVS, CT-MXS, CT-MFS, CT-MBS, CT-WBS	
Alternating without time delay		CT-PAC		

Pluggable relays

PCB and miniature relays



Pluggable interface relays

Description	Input Voltage	Output type	Contacts	Output contacts	Output rating	Ordering code
Pcb relays (CR-P)						
Relay	24V DC	Electromechanical	Standard	1 c/o	250V 16A	1SVR405600R1000
Relay	230V AC	Electromechanical	Standard	1 c/o	250V 16A	1SVR405600R3000
Relay	24V AC	Electromechanical	Standard	2 c/o	250V 8A	1SVR405601R0000
Relay	24V DC	Electromechanical	Standard	2 c/o	250V 8A	1SVR405601R1000
Relay	120V AC	Electromechanical	Standard	2 c/o	250V 8A	1SVR405601R2000
Logic socket w/ separation	---	---	---	---	---	1SVR405650R0000
Standard socket 1 or 2 c/o	---	---	---	---	---	1SVR405650R1000
Miniature relays (CR-M)						
Relay w/out LED	24V DC	Electromechanical	Standard	2 c/o	250V 12A	1SVR405611R1000
Relay w/LED	24V DC	Electromechanical	Standard	2 c/o	250V 12A	1SVR405611R1100
Relay w/LED	24V AC	Electromechanical	Standard	2 c/o	250V 12A	1SVR405611R0100
Relay w/LED	110V AC	Electromechanical	Standard	2 c/o	250V 10A	1SVR405611R7100
Relay w/LED	120V AC	Electromechanical	Standard	2 c/o	250V 12A	1SVR405611R2100
Relay w/out LED	24V DC	Electromechanical	Standard	3 c/o	250V 10A	1SVR405612R1000
Relay w/out LED	110V AC	Electromechanical	Standard	3 c/o	250V 10A	1SVR405612R7000
Relay w/out LED	120V AC	Electromechanical	Standard	3 c/o	250V 10A	1SVR405612R2000
Relay w/out LED	24V DC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R1000
Relay w/out LED	110V AC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R7000
Relay w/out LED	120V AC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R2000
Relay w/LED	24V DC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R1100
Relay w/LED	24V AC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R0100
Relay w/LED	110V AC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R7100
Relay w/LED	120V AC	Electromechanical	Standard	4 c/o	250V 6A	1SVR405613R2100
Relay w/LED gold-plated	120V AC	Electromechanical	Gold-plated	4 c/o	250V 6A	1SVR405618R2100

See [catalog](#) for full description

Accessories



Description	Input Voltage	Output type	Ordering code
Miniature relays (CR-M) only			
Socket for 2 c/o	---	---	1SVR405651R1000
Socket for 3 c/o	---	---	1SVR405651R2000
Socket for 2 or 4 c/o	---	---	1SVR405651R3000
Logic socket 2 or 4 c/o	---	---	1SVR405651R3100
Holder for CR-M socket	---	---	1SVR405659R1000
Metal holder for CR-M	---	---	1SVR405659R1100
PCB (CR-P) and miniature relays (CR-M)			
Polarity module	6 - 220V DC	A1+, A2-	1SVR405651R0000
Diode/LED/rev/free whl module	6-24V DC	Green, A1+, A2-	1SVR405652R1000

Pluggable relays

Universal relays



Universal relays						
Description	Input voltage	Output type	Contacts	Output	Output rating	Ordering code
Relay w/out LED	24V DC	Electromechanical	Standard	2 c/o	250V 10A	1SVR405621R1000
Relay w/out LED	230V AC	Electromechanical	Standard	2 c/o	250V 10A	1SVR405621R3000
Relay w/LED	110V AC	Electromechanical	Standard	2 c/o	250V 10A	1SVR405621R7100
Relay w/LED	120V AC	Electromechanical	Standard	2 c/o	250V 10A	1SVR405621R2100
Relay w/out LED	120V AC	Electromechanical	Standard	3 c/o	250V 10A	1SVR405622R2000
Relay w/LED	24V DC	Electromechanical	Standard	3 c/o	250V 10A	1SVR405622R1100
Relay w/LED	120V AC	Electromechanical	Standard	3 c/o	250V 10A	1SVR405622R2100
Socket for 2 c/o & module	---	---	---	---	---	1SVR405670R0000
Socket for 3 c/o & module	---	---	---	---	---	1SVR405660R0000
Holder for CR-U socket	---	---	---	---	---	1SVR405669R0000

See [catalog](#) for full description

Relays

Slim, boxed electromechanical and solid state



Interface relays

Description	Input voltage	Output type	Contacts	Output	Output rating	Ordering code
Slim (CR-S)						
Pluggable relay	24 V DC	Electromechanical	Standard	1 c/o	250V 6A	1SVR405501R3010
relay + socket, screw	24 V AC/DC	Electromechanical	Standard	1 c/o	250V 6A	1SVR405541R3110
relay + socket, spring	110 V AC/DC	Electromechanical	Standard	1 c/o	250V 6A	1SVR405541R6210
Boxed (R600)						
Interface relay	24 V AC/DC	Electromechanical	Standard	1 c/o	250V 3mA- 6A	1SNA645001R0300
Interface relay	24 V DC	Electromechanical	Standard	1 c/o	250V 10mA- 6A	1SNA645071R0000
Interface relay	115V AC/DC	Electromechanical	Standard	1 c/o	250V 10mA- 6A	1SNA645003R0500
Interface relay, spring	24 V AC/DC	Electromechanical	Standard	1 c/o	250V 10mA- 6A	1SNA645501R0500
Interface relay	5 - 12 V DC	Transistor	Solid state	---	250V 100mA	1SNA645047R0000
Interface relay	5 - 12 V DC	MOS-FET	Solid state	---	250V 2A	1SNA645050R1700
Interface relay	24 V DC	Transistor	Solid state	---	250V 100mA	1SNA645021R2600
Interface relay	24 V DC	MOS-FET	Solid state	---	250V 2A	1SNA645051R0400
Interface relay	24 V DC	Triac	Solid state	---	250V 2A	1SNA645029R0600
Interface relay	24 V DC	Electromechanical	Gold-plated	1 c/o	250V 3mA- 6A	1SNA645072R0000
Interface relay	24 V AC/DC	Electromechanical	Gold-plated	1 c/o	250V 3mA- 6A	1SNA645005R0700
Interface relay	24 V AC/DC	Electromechanical	Gold-plated	2 c/o	250V 1mA - 8A	1SNA645012R2500
Interface relay	115V AC/DC	Electromechanical	Gold-plated	1 c/o	250V 3mA- 6A	1SNA645007R0100
Interface relay	115V AC/DC	Electromechanical	Gold-plated	2 c/o	250V 1mA - 8A	1SNA645041R0200

See [catalog](#) for full description

Power supplies

Sophisticated, economy and three-phase



Rated input voltage	Output voltage	Output current	Output power	Ordering code
Standard CP-S.1				
100-240 V AC / 100-250 V DC	24V	3A	72W	1SVR320361R1000
100-240 V AC / 100-250 V DC	24V	5A	120W	1SVR320561R1000
100-240 V AC / 100-250 V DC	24V	10A	240W	1SVR320661R1000
100-240 V AC / 100-250 V DC	24V	20A	480W	1SVR320761R1000
110-240 V AC / 110-250 V DC	24V	40A	960W	1SVR320861R1000
Economy CP-E				
100 - 240 V AC	5 V DC	3A	15W	1SVR427033R3000
100 - 240 V AC	12 V DC	2.5A	30W	1SVR427032R1000
115 / 230 V AC	12 V DC	10A	120W	1SVR427035R1000
100 - 240 V AC	24 V DC	0.75 A	18W	1SVR427030R0000
100 - 240 V AC	24 V DC	1.25 A	30W	1SVR427031R0000
100 - 240 V AC	24 V DC	2.5 A	60W	1SVR427032R0000
115 / 230 V AC	24 V DC	5A	120W	1SVR427034R0000
115 / 230 V AC	24 V DC	10A	240W	1SVR427035R0000
115 / 230 V AC	24 V DC	20A	480W	1SVR427036R0000
115 / 230 V AC	48 V DC	10A	480W	1SVR427035R2000
Three-phase CP-T				
3x 400 - 500 V AC	24 V DC	5A	120W	1SVR427054R0000
3x 400 - 500 V AC	24 V DC	10A	240W	1SVR427055R0000
3x 400 - 500 V AC	24 V DC	20A	480W	1SVR427056R0000

See [catalog](#) for full description

Measuring and monitoring relays

Inventory



Function	Supply voltage	Measuring range	Output	Ordering code
Single-phase monitoring - CM-E and CM-S				
Single function voltage*	24 - 240 V AC/DC	0.3-15 A	2 c/o	1SVR730760R0500
Single function voltage*	24 - 240 V AC/DC	0.3-15A RMS	2 c/o	1SVR730840R0500
Single function voltage*	24 - 240 V AC/DC	3 - 600 V	2 c/o	1SVR730750R0400
Single function voltage*	24 - 240 V AC/DC	3 - 600 V	2 c/o	1SVR730830R0400
Single function voltage*	24 - 240 V AC/DC	3 - 600 V	2 c/o	1SVR730830R0500
Single function voltage*	110 - 130 V AC	0.3-15A	1 c/o	1SVR730840R0300
Single function voltage*	110 - 130 V AC	0.3-15A RMS	2 c/o	1SVR730841R0500
Single function voltage*	110 - 130 V AC	3-600VRMS	2 c/o	1SVR740831R0400
Single function voltage*	110 - 130 V AC	3mA-1A RMS	1 c/o	1SVR730841R0200
Multifunctional*	24 - 240 V AC/DC	0.3-15A RMS	2 c/o	1SVR730840R0700
Three-phase monitoring CM-M and CP-P				
Multifunctional*	(L-N) 90 - 170 V AC	(L-N) 90 - 170 V AC	2 c/o	1SVR730885R1300
Multifunctional*	(L-L) 160 - 300 V AC	(L-L) 160 - 300 V AC	2 c/o	1SVR730884R1300
Multifunctional*	(L-L) 160 - 300 V AC	(L-L) 160 - 300 V AC	2 c/o	1SVR740774R1300
Multifunctional*	(L-L) 160 - 300 V AC	(L-L) 160 - 300 V AC	2 c/o	1SVR730794R1300
Multifunctional*	(L-L) 300 - 500 V AC	(L-L) 300 - 500 V AC	2 c/o	1SVR730884R3300
Multifunctional*	(L-L) 300 - 500 V AC	(L-L) 300 - 500 V AC	2 c/o	1SVR730774R3300
Multifunctional*	(L-L) 300 - 500 V AC	(L-L) 300 - 500 V AC	2 c/o	1SVR730794R3300
Multifunctional*	(L-L) 350 ... 580 V AC	(L-L) 350 ... 580 V AC	2 x 1 or 1 x 2 c/o	1SVR750487R8300
Multifunctional*	(L-L) 450 ... 720 V AC	(L-L) 450 ... 720 V AC	2 x 1 or 1 x 2 c/o	1SVR750488R8300
Phase sequence*	(L-L) 200 ... 500 V AC	(L-L) 200 ... 500 V AC	2 c/o	1SVR730824R9300
Phase sequence*	(L-L) 208 - 440 V AC	(L-L) 208 - 440 V AC	1 c/o	1SVR550824R9100
Current transformer CM-CT				
Current transformer*	---	75 A	---	1SVR450116R5100
DIN Snap-on fastener for CM-CT*	---	---	---	1SVR450118R1000

*See [catalog](#) for full description

Measuring and monitoring relays

Inventory



Function	Supply voltage	Measuring range	Output	Ordering code
Liquid level monitoring - CM-EN				
Liquid level*	24 - 240 V AC/DC	0.1-1000kOhm	2 c/o	1SVR730850R0300
Liquid level*	110-130VAC/220-240VAC	5-100kOhm	1 c/o	1SVR730850R2100
Liquid level*	110-130VAC/220-240VAC	0.1-1000kOhm	1 c/o	1SVR730850R2200
Temperature monitoring - CM-TC				
Temperature*	24 - 240 V AC/DC	---	2 x 1 or 1 x 2 c/o	1SVR730740R0300
Thermistor motor protection - CM-MS				
Thermistor motor*	110-130 V AC	1 sensor circuit	1 n/o	1SVR550800R9300
Thermistor motor*	24 V AC/DC	---	1 c/o	1SVR730700R0100
Thermistor motor*	24 - 240 V AC/DC	---	2 x 1 c/o	1SVR730712R1300
Thermistor motor*	24 - 240 V AC/DC	---	1 c/o + 1 n/o	1SVR730712R1400
Thermistor motor*	110-130VAC/220-240VAC	---	2 c/o	1SVR730712R2200
Thermistor motor*	24 - 240 V AC/DC	---	1 c/o + 1 n/o	1SVR730720R1400
Insulation monitoring CM-I				
Insulation*	24 - 240 V AC/DC	1 - 100 kΩ	1 c/o	1SVR730660R0100
Insulation*	0-690V AC / 0-1000V DC	1-100 kΩ 2-200 kΩ	1 x 2 c/o or 2 x 1 c/o	1SVR470670R1000

*See [catalog](#) for full description