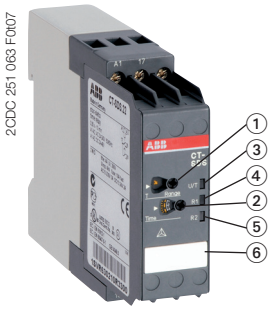
Electronic timer CT-SDS.22

Star-delta change-over with 2 n/o contacts
Data sheet



① Rotary switch for the preselection of the time range

② Potentiometer with direct reading scale for the fine adjustment of the time delay

③ U/T: green LED -
control supply voltage applied
timing

④ R1: yellow LED -
output relay 1 energized

⑤ R2: yellow LED -
output relay 2 energized

⑥ Marker label

Features

- Rated control supply voltage 24-48 V DC, 24-240 V AC
- Single-function timer with star-delta change-over
- One device includes 7 time ranges (0.05 s - 10 min)
- 2 n/o contacts
- 3 LEDs for status indication
- Width of 22.5 mm
- Sealable transparent cover (optional accessory) for protection against unauthorized changes of time values
- Integrated marker label

Approvals

UL 508, CAN/CSA C22.2 No.14
GL
GOST
CB scheme
CCC

Marks

CE
C-Tick

Order data

Type	Rated control supply voltage	Time range	Output	Order code
CT-SDS.22	24-48 V DC, 24-240 V AC	0.05 s - 10 min	2 n/o contacts	1SVR 630 210 R3300

Order data - Accessories

Adapter for screw mounting on panel

Type	Width in mm	Order code
ADP.01	22.5	1SVR 430 029 R0100

Sealable transparent cover

Type	Width in mm	Order code
COV.01	22.5	1SVR 430 005 R0100

Marker label

Type	Width in mm	Order code
MAR.01	22.5	1SVR 366 017 R0100

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Application

The CT-S range timers are designed for use in industrial applications. They operate over an universal range of supply voltages and a large time delay range, within compact dimensions. The easy-to-set front-face potentiometers, with direct reading scales, provide accurate time delay adjustment.

Operating mode

The CT-SDS.22 has 2 n/o contacts and includes 2 separated timing circuits: an adjustable motor starting delay, the time the star contactor is energized, and an 50 ms fixed open transition delay before the delta contactor is energized. A rotary switch, on the front of the unit, allows selection of one of 7 time ranges from 0.05 s - 10 min. The fine adjustment of the time delay is made via an internal potentiometer, with a direct reading scale, on the front of the unit.

Timing is displayed by a flashing green LED labelled U/T.

Function diagram

Remarks

Legend:

▭ Control supply voltage not applied / Output contact open

▬ Control supply voltage applied / Output contact closed

Terminal designations on the device and in the diagrams:

The 1st n/o contact is designated 17-18. The 2nd n/o contact is designated 17-28. Control supply voltage is applied to terminals A1-A2.

Function of the yellow LEDs:

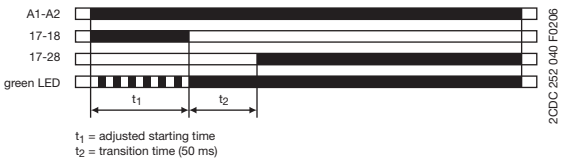
The two yellow LEDs are designated R1 and R2. LED R1 shows the status of the 1st n/o contact (17-18) and LED R2 shows the status of the 2nd n/o contact (17-28). LED R1 or R2 glows as soon as the corresponding output relay energizes and turns off when the corresponding output relay de-energizes.

⚠ Star-delta change-over

This function requires continuous control supply voltage for timing.

Applying control supply voltage to terminals **A1-A2**, energizes the star contactor connected to terminals **17-18** and begins the set starting time t_1. The green LED flashes during timing. When the starting time is complete, the first output contact de-energizes the star contactor.

Now, the fixed transition time t_2 of 50 ms starts. When the transition time is complete, the second output contact energizes the delta contactor connected to terminals **17-28**. The delta contactor remains energized as long as control supply voltage is applied to the unit.



t_1 = adjusted starting time
t_2 = transition time (50 ms)

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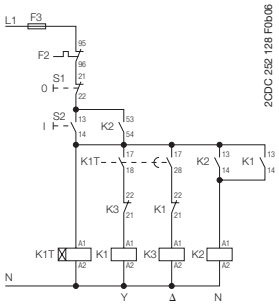
Examples of application

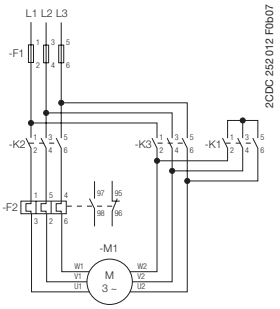
Star-delta change-over

Control circuit diagram

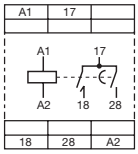


Star-delta change-over

Power circuit diagram



Connection diagram



17-18 1. n/o contact

17-28 2. n/o contact

A1-A2 Rated control supply voltage U_S
24-48 V DC or 24-240 V AC

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Technical data

Data at T_a = 25 °C and rated values, unless otherwise indicated

Input circuits - Supply circuit		1SVR 630 210 R3300
Rated control supply voltage U_S	A1-A2	24-48 V DC
	A1-A2	24-240 V AC
Rated control supply voltage tolerance	24-48 V DC	-15...+10 %
	24-240 V AC	-15...+10 %
Typical current / power consumption		24 V DC / 230 V AC / 115 V AC
	24-48 V DC	12 mA / on request / - / - / - / -
	24-240 V AC	- / - / 50 mA / on request / 33 mA / on request
Rated frequency		DC; 50/60 Hz
Frequency range AC		47-63 Hz
Power failure buffering time	24 V DC	min. 15 ms
	230 V AC	min. 20 ms

Timing circuit		1SVR 630 210 R3300
Kind of timer	Single-function timer	Star-delta change-over
Time ranges 0.05 s - 10 min		0.05-1 s, 0.15-3 s, 0.5-10 s, 1.5-30 s, 5-100 s, 15-300 s, 0.5-10 min
Recovery time		< 80 ms
Repeat accuracy (constant parameters)		Δt <± 0.2 %
Accuracy within the rated control supply voltage tolerance		Δt < 0.004 %/V
Accuracy within the temperature range		Δt < 0.03 %/°C
Star-delta transition time		fixed, 50 ms
Star-delta transition time tolerance		± 2 ms

Indication of operational states		1SVR 630 210 R3300
Control supply voltage / timing	U/T: green LED	⎍: control supply voltage applied
Control supply voltage / timing	U/T: green LED	⎍⎍: timing
Relay status	R1: yellow LED	⎍: output relay 1 energized
Relay status	R2: yellow LED	⎍: output relay 2 energized

Output circuits		1SVR 630 210 R3300
Kind of output	17-18	Relay, 1. n/o contact
	17-28	Relay, 2. n/o contact
Contact material		Cd-free
Rated operational voltage U_e		250 V
Minimum switching voltage / Minimum switching current		12 V / 10 mA
Maximum switching voltage / Minimum switching current		see load limit curves / see load limit curves
Rated operational current I_e (IEC/EN 60947-5-1)	AC12 (resistive) at 230 V	4 A
	AC15 (inductive) at 230 V	3 A
	DC12 (resistive) at 24 V	4 A
	DC13 (inductive) at 24 V	2 A

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Output circuits		1SVR 630 210 R3300
AC rating (UL 508)	Utilization category (Control Circuit Rating Code)	B 300
	max. rated operational voltage	300 V AC
	max. continuous thermal current at B 300	5 A
	max. making / breaking apparent power at B 300	3600/360 VA
Mechanical lifetime		30 x 10^6 switching cycles
Electrical lifetime		0.1 x 10^6 switching cycles (AC12, 230 V, 4 A)
Maximum fuse rating to achieve short-circuit protection (IEC/EN 60947-5-1)	n/c contact	6 A fast-acting
	n/o contact	10 A fast-acting

General data		1SVR 630 210 R3300
Duty time		100 %
Dimensions (W x H x D)		22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)
Weight		0.105 kg (0.23 lb)
Mounting position		any
Minimum distance to other units		
normal operation mode	horizontal	none
	vertical	none
Mounting		DIN rail (IECEN 60715), snap-on mounting without any tool
Degree of protection	enclosure / terminals	IP50 / IP20

Electrical connection		1SVR 630 210 R3300
all circuits		Screw connection
Wire size	fine-strand with wire end ferrule	2 x 0.75-2.5 mm^2 (2 x 18-14 AWG)
	fine-strand without wire end ferrule	2 x 0.75-2.5 mm^2 (2 x 18-14 AWG)
	rigid	2 x 0.5-4 mm^2 (2 x 20-12 AWG)
Stripping length		7 mm (0.28 inches)
Tightening torque		0.6-0.8 Nm

Environmental data		1SVR 630 210 R3300
Ambient temperature range	operation	-25...+60 °C
	storage	-40...+85 °C
Damp heat, cyclic (IEC/EN 60068-2-30)		6 x 24 h cycle, 55 °C, 95 % RH
Vibration, sinusoidal (IEC/EN 60068-2-6)	functioning	40 m/s^2, 10-58/60-150 Hz
	resistance	60 m/s^2, 10-58/60-150 Hz, 20 cycles
Vibration, seismic (IEC/EN 60068-3-3)	functioning	20 m/s^2
Shock, half-sine (IEC/EN 60068-2-27)	functioning	100 m/s^2, 11 ms, 3 shocks/direction
	resistance	300 m/s^2, 11 ms, 3 shocks/direction

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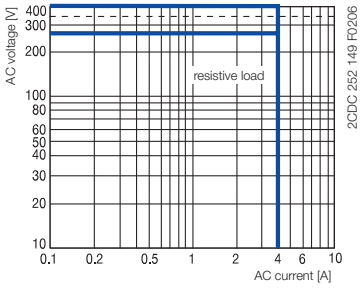
Isolation data		1SVR 630 210 R3300
Rated insulation voltage U_i	output circuit 1 / output circuit 2	300 V
	input circuit / output circuit	500 V
Rated impulse withstand voltage U_{imp} (IEC/EN 60664-1, VDE 0110)	between all isolated circuits	4 kV; 1.2/50 µs
Power-frequency withstand voltage test (test voltage)	between all isolated circuits	routine test: 2.0 kV; 50 Hz, 1 s type test: 2.5 kV; 50 Hz, 1 min
Basic insulation (IEC/EN 61140)	input circuit / output circuit	500 V
Protective separation (IEC/EN 61140; VDE 0106 part 101 and part 101/A1)	input circuit / output circuit	250 V
Pollution degree (IEC/EN 60664-1, VDE 0110, UL 508)		3
Overvoltage category (IEC/EN 60664-1, VDE 0110, UL 508)		III

Standards / Directives	1SVR 630 210 R3300
Product standard	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 part 2021
EMC Directive	2004/108/EC
Low Voltage Directive	2006/95/EC
RoHS Directive	2002/95/EC

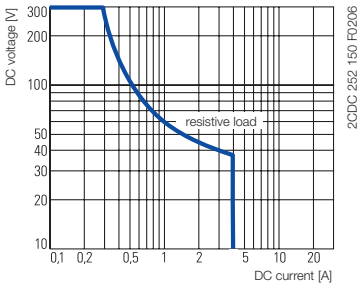
Electromagnetic compatibility		1SVR 630 210 R3300
Interference immunity to		IEC/EN 61000-6-1 IEC/EN 61000-6-2
electrostatic discharge	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3 (10 V/m)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
surge	IEC/EN 61000-4-5	Level 4 (2 kV A1-A2)
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3 (10 V)
harmonics and interharmonics	IEC/EN 61000-4-13	Level 3
Interference emission		IEC/EN 61000-6-3 IEC/EN 61000-6-4
high-frequency radiated	IEC/CISPR 22, EN 55022	Class B
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B

Technical diagrams

Load limit curve

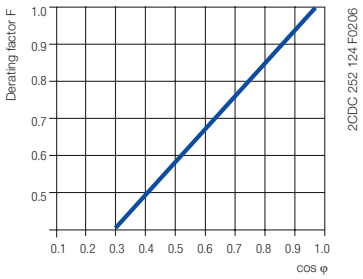


AC load (resistive)

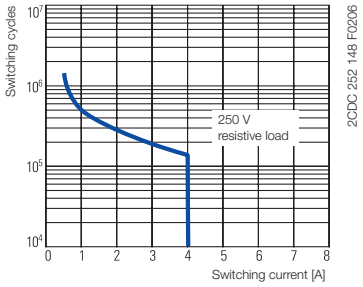


DC load (resistive)

Derating factor F

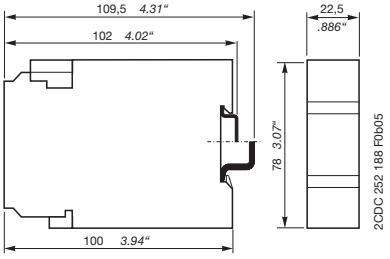


Contact lifetime



Dimensions

in mm



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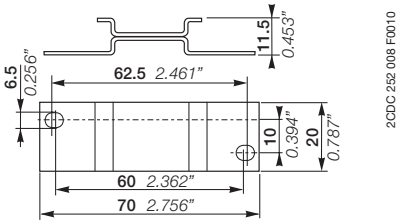
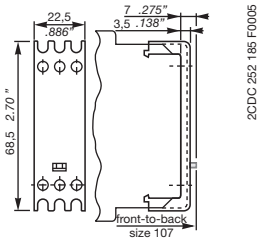
Dimensions accessories

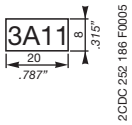
in mm



ADP.01 - Adapter for screw mounting on panel



COV.01 - Sealable transparent cover



MAR.01 - Marker label

Synonyms

Used expression	Alternative expression(s)
2 c/o contacts	1 DPDT / 2 SPDT

Further documentation

Document titel	Document type	Document number
Electronic Products and Relays	Technical catalogue	2CDC 110 004 C020x
CT-APS, CT-ERS, CT-MVS, CT-SDS	Instruction manual	1SVC 630 020 M0000

You can find the documentation on the internet at www.abb.com/lowvoltage → Control Products → Electronic Relays and Controls

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