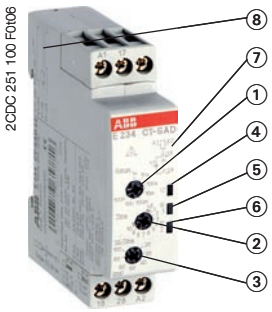
Electronic timer CT-SAD.22

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 Rotary switch with direct reading scale for the fine adjustment of the transition time

④ U: green LED -
control supply voltage applied
timing

⑤ R1: yellow LED -
output relay 1 energized

⑥ R2: yellow LED -
output relay 2 energized

⑦ Circuit diagram

⑧ Function diagram

Features

- Rated control supply voltage 24-48 V DC, 24-240 V AC
- Single-function timer star-delta change-over
- 4 time ranges (0.05 s - 10 min) in one device
- 2 n/o contacts
- 2 LEDs for status indication
- Width of only 17.5 mm
- Light-grey enclosure in RAL 7035

Approvals

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

Marks

CE	CE	
	C-Tick	pending

Order data

Type	Rated control supply voltage	Time range	Output	Order code
CT-SAD.22	24-48 V DC, 24-240 V AC	0.05 s - 10 min	2 n/o contacts	1SVR 500 210 R0100

Application

With their structural form and their width of 17.5 mm only, the CT-D range timers are ideally suited for installation in distribution cabinets.

Operating mode

The CT-SAD.22 has 2 n/o contacts and offers 4 time ranges, from 0.05 s to 10 min, for the adjustment of the starting time. The time delay range is rotary switch selectable on the front of the unit. The fine adjustment of the time delay is made via a potentiometer, with a direct reading scale, on the front of the unit. The star-delta transition time can also be adjusted in steps of 10 ms within a range of 20-100 ms.

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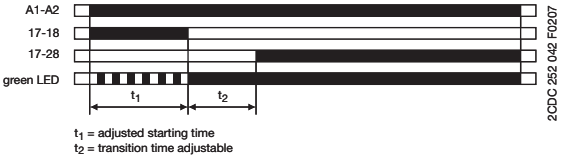
Function diagram(s)

⚠ 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 transition time t_2 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.

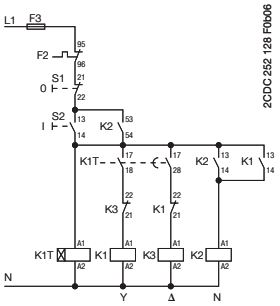


t_1 = adjusted starting time
t_2 = transition time adjustable

Example(s) of application

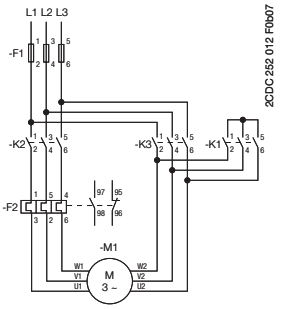
Star-delta change-over

Control circuit diagram

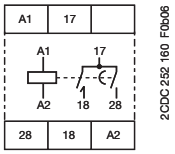


Star-delta change-over

Power circuit diagram



Connection diagram(s)



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, if nothing else indicated

Input circuits - Supply circuit		1SVR 500 210 R0100		
Rated control supply voltage U_S	A1-A2	24-240 V AC		
	A1-A2	24-48 V DC		
Rated control supply voltage tolerance	24-240 V AC	-15...+10 %		
	24-48 V DC	-15...+10 %		
Typical current / power consumption		24 V DC	230 V AC	115 V AC
	24-48 V DC	16.69 mA / -	- / -	- / -
	24-240 V AC	- / -	66.04 mA / -	51.10 mA / -
Rated frequency		DC; 50/60 Hz		
Frequency range AC		47-63 Hz		
Power failure buffering time		min. 30 ms		

Timing circuit		1SVR 500 210 R0100
Kind of timer	Single-function timer	Star-delta change-over
Time ranges 0.05 s - 10 min		0.05-1 s, 0.5-10 s, 5-100 s, 0.5-10 min
Recovery time		< 50 ms
Accuracy within the rated control supply voltage tolerance		Δt < 0.005 %/V
Accuracy within the temperature range		Δt < 0.06 %/°C
Star-delta transition time		20-100 ms (adjustable in steps of 10 ms)
Star-delta transition time tolerance		± 3 ms

Indication of operational states		1SVR 500 210 R0100
Control supply voltage / timing	U: green LED	⎍‾‾⎍: control supply voltage applied
Control supply voltage / timing	U: green LED	⎍⎍⎍_: timing
Relay status	R: yellow LED	⎍‾‾⎍: output relay energized

Output circuits		1SVR 500 210 R0100
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
Derating		
Minimum switching voltage / Minimum switching current		12 V / 100 mA
Maximum switching voltage / Minimum switching current		see load limit curve / see load limit curve
Rated operational current I_e (IEC 60947-5-1)	AC12 (resistive) at 230 V	5 A
	AC15 (inductive) at 230 V	3 A
	DC12 (resistive) at 24 V	5 A
	DC13 (inductive) at 24 V	2 A
Mechanical lifetime		30 x 10^6 switching cycles
Electrical lifetime		0.1 x 10^6 switching cycles (AC12, 230 V, 4 A)
Short-circuit resistance, maximum fuse rating (IEC/EN 60947-5-1)	n/c contact	6 A fast-acting
	n/o contact	10 A fast-acting

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General data		1SVR 500 210 R0100
Duty time		100 %
Repeat accuracy (constant parameters)		Δt <± 0.5 %
Dimensions (W x H x D)		17.5 x 70 x 58 mm (0.69 x 2.76 x 2.28 inches)
Weight		approx. 65 g (approx. 0.14 lb)
Mounting position		any
Minimum distance to other units		
normal operation mode	horizontal	none
	vertical	none
Mounting		DIN rail (EN 60715), snap-on mounting without any tool
Degree of protection	enclosure / terminals	IP50 / IP20

Electrical connection		1SVR 500 210 R0100
all circuits		Screw connection
Wire size	fine-strand with wire end ferrule	2 x 0.5-1.5 mm² / 1 x 0.5-2.5 mm² (2 x 20-16 AWG) / (1 x 20-14 AWG)
	fine-strand without wire end ferrule	2 x 0.5-1.5 mm² / 1 x 0.5-2.5 mm² (2 x 20-16 AWG) / (1 x 20-14 AWG)
	rigid	2 x 0.5-1.5 mm² / 1 x 0.5-4 mm² (2 x 20-16 AWG) / (1 x 20-12 AWG)
Stripping length		7 mm (0.28 inches)
Tightening torque		0.5-0.8 Nm

Environmental data		1SVR 500 210 R0100
Ambient temperature range	operation	-20...+60 °C
	storage	-40...+85 °C
Damp heat, cyclic (IEC/EN 60068-2-30)		6 x 24 h cycles, 55 °C, 95 % RH
Vibration, sinusoidal (IEC/EN 60068-2-6)		4 m/s², 20 cycles, 10...150...10 Hz
Shock, half-sine (IEC/EN 60068-2-27)		100 m/s², 11 ms

Isolation data		1SVR 500 210 R0100
Rated isolation voltage U_i	Output circuit 1 / Output circuit 2	300 V
	Input circuit / Output circuit	300 V
Rated impulse withstand voltage U_{imp} (type test) (IEC/EN 60664-1, VDE 0110)	between all isolated circuits	4 kV; 1.2/50 µs
Power-frequency withstand voltage test (Test voltage, routine test)	between all isolated circuits	2.5 kV, 50 Hz, 1 s
Basic insulation (IEC/EN 61140)	Input circuit / Output circuit	300 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

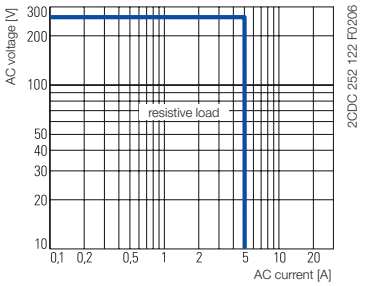
Standards / Directives	1SVR 500 210 R0100
Product standard	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 part 2021
EMC Directive	2004/108/EC

Standards / Directives		1SVR 500 210 R0100
Low Voltage Directive		2006/95/EC
RoHS Directive		2002/95/EC

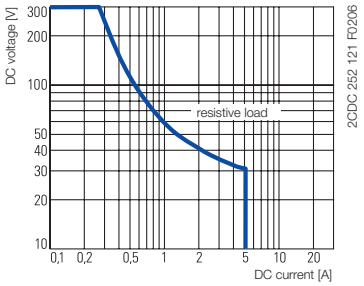
Electromagnetic compatibility		1SVR 500 210 R0100
Interference immunity		IEC/EN 61000-6-1 IEC/EN 61000-6-2
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	Level 3 (10 V/m)
fast transients (Burst)	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
powerful impulses (Surge)	IEC/EN 61000-4-5	Level 4 (2 kV L-L)
HF line emission	IEC/EN 61000-4-6	Level 3 (10 V)
Interference emission		IEC/EN 61000-6-3 IEC/EN 61000-6-4
electromagnetic field (HF radiation resistance)	IEC/CISPR 22, EN 55022	Class B
HF line emission	IEC/CISPR 22, EN 55022	Class B

Technical diagrams

Load limit curve

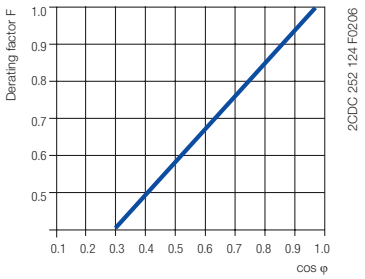


AC load (resistive)



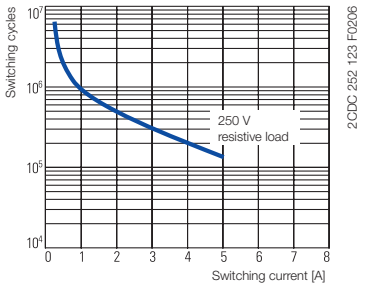
DC load (resistive)

Derating factor F



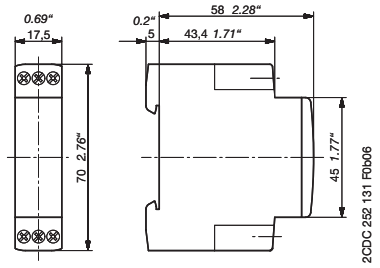
for inductive AC load

Contact lifetime



Dimensions

in mm



CT-SAD.22

Further Documentation

Document title	Document type	Document number
Electronic Products and Relays	Technical catalogue	2CDC 110 004 C020x

You can find the documentation in the internet under www.abb.com/lowvoltage → Control Products → ...

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Document number: 2CDC 111 060 D0201 (12/2007)

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