

Electronic timer CT-SDE

Star-delta change-over with 1 n/c + 1 n/o contact

The CT-SDE is an electronic time relay with star-delta change-over. It is from the CT-E range. The CT-E range is the economic range of ABB's time relays and offers a cost effective price-performance ratio for OEM users. This is achieved by simplified functionality and results in the simplest of setup procedures. The CT-E range is ideally suited for repeat applications.



2CDC 251 059 F0003

Characteristics

- 3 versions:
 - 1 single time range (0.3-30 s) and 3 different rated control supply voltage ranges (24 V AC/DC / 220-240 V AC, 110-130 V AC and 380-415 V AC)
- Single-function timer with star-delta change-over
- Starting time (star) adjustable
- Transition time 30 ms fixed
- 1 n/c and 1 n/o contact with common contact
- 22.5 mm (0.89 in) width
- 2 LEDs for the indication of operational states

Approvals

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

Marks

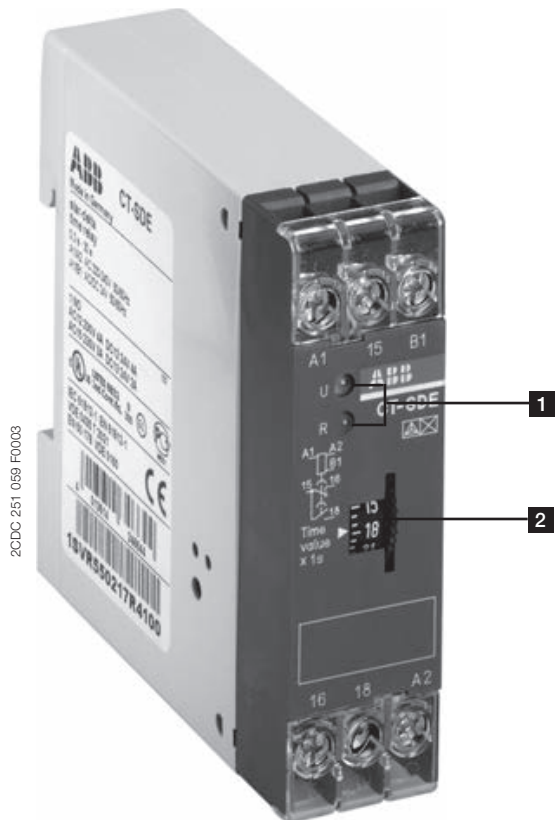
- CE
- C-Tick

Order data

Type	Rated control supply voltage	Time range	Order code
CT-SDE	110-130 V AC	0.3-30 s	1SVR 550 210 R4100
	24 V AC/DC, 220-240 V AC		1SVR 550 217 R4100
	380-415 V AC		1SVR 550 212 R4100

Functions

Operating controls



1 Indication of operational states

U: green LED – Control supply voltage applied

R: red LED – Output relay energized

2 Thumbwheel for the fine adjustment of the starting time

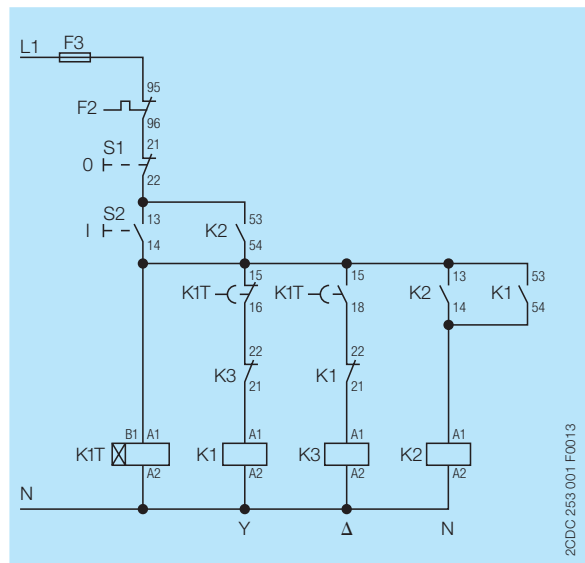
Application

Their conception makes the CT-E range timers ideal for repeat applications.

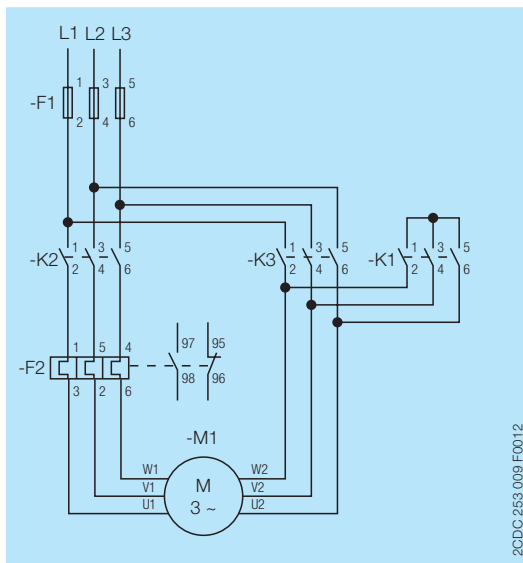
Operating mode

The fine adjustment of the time delay is made via the front-face thumbwheel.

Examples of application



Star-delta change-over, control circuit diagram

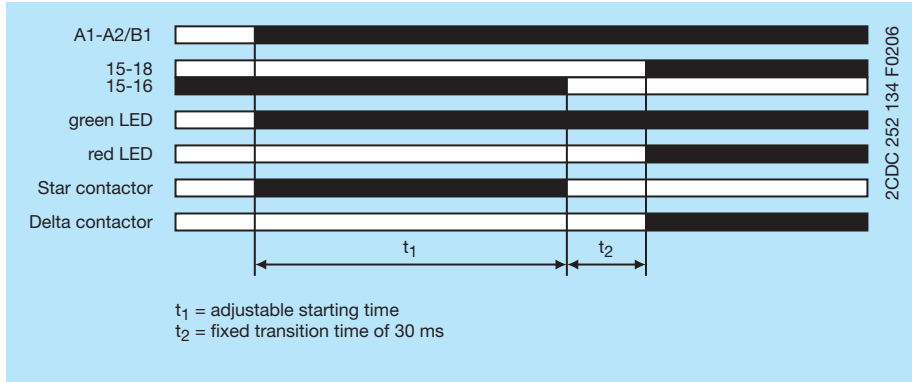


Star-delta change-over, power circuit diagram

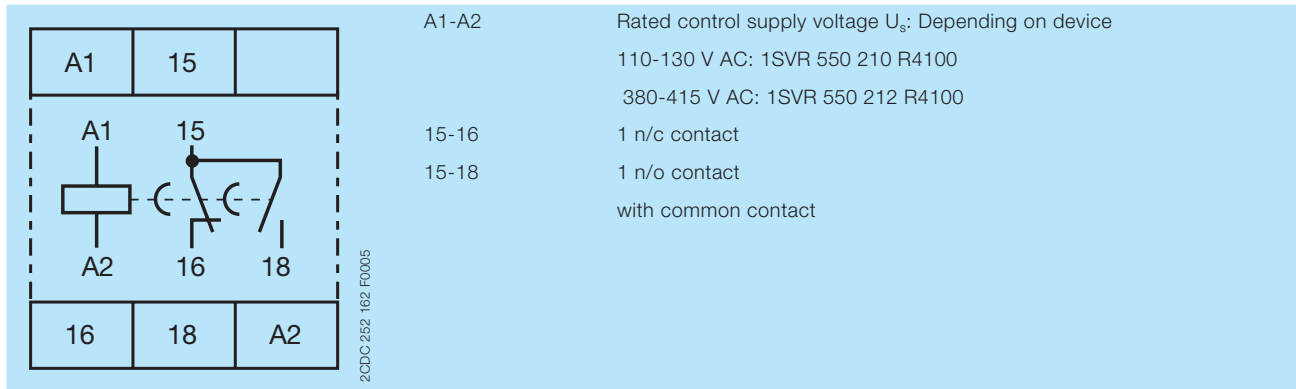
Function diagram

Star-delta change-over (Star-delta starting)

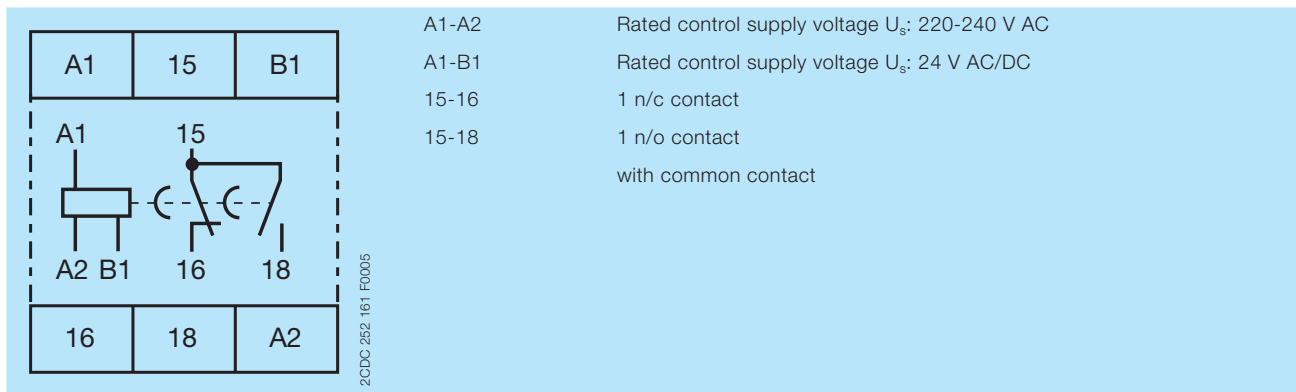
Applying control supply voltage energizes the star contactor (K1) and the line contactor (K2) and begins the set starting time. When the starting time is complete, contact 15-16 de-energizes the star contactor (K1). Now, the fixed transition time starts. When the transition time is complete, contact 15-18 energizes the delta contactor (K3).



Electrical connection



Connection diagram 1SVR 550 210 R4100 and 1SVR 550 212 R4100



Connection diagram 1SVR 550 217 R4100

Technical data



Data at $T_a = 25\text{ °C}$ and rated values, unless otherwise indicated

Input circuits

Supply circuit		
Rated control supply voltage U_s	A1-A2	110-130 V AC
	A1-A2	220-240 V AC
	A1-A2	380-415 V AC
	A1-B1	24 V AC/DC
Rated control supply voltage U_s tolerance		-15...+10 %
Typical current / power consumption	24 V AC/DC	approx. 1.0 VA/W
	110-130 V AC	approx. 2.0 VA
	220-240 V AC	approx. 2.0 VA
	380-415 V AC	approx. 3.0 VA
Rated frequency	AC/DC version	DC or 50/60 Hz
	AC version	50/60 Hz

Timing circuit	
Starting time	0.3 - 30 s
Star-delta transition time	30 ms fixed
Recovery time	< 400 ms
Repeat accuracy (constant parameters)	$\Delta t < 1\%$
Accuracy within the rated control supply voltage tolerance	$\Delta t < 0.5\% / V$
Accuracy within the temperature range	$\Delta t < 0.1\% / \text{°C}$

User interface

Indication of operational states		
Control supply voltage	U: green LED	 : control supply voltage applied
Relay status	R: red LED	 : output relay energized

Output circuit

Kind of output	15-16, 15-18	relay, 1 n/c and 1 n/o with common contact
Contact material		AgCdO
Rated operational voltage U_e (IEC/EN 60947-1)		250 V
Maximum switching voltage		250 V AC, 250 V DC
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
AC rating (UL 508)	Utilization category (Control Circuit Rating Code)	B 300
	max. rated operational voltage	300 V AC
	Maximum continuous thermal current at B300	5 A
	max. making/breaking apparent power at B300	3600 VA / 360 VA
Mechanical lifetime		30×10^6 switching cycles
Electrical lifetime	AC12, 230 V, 4 A	0.1×10^6 switching cycles
Maximum fuse rating to achieve	n/c contact	10 A fast
short-circuit protection	n/o contact	10 A fast

General data

MTBF	on request		
Duty time	100 %		
Dimensions (W x H x D)	product dimensions	22.5 x 78.0 x 78.5 mm (0.89 x 3.07 x 3.09 in)	
	packaging dimensions	84.2 x 83.1 x 24.6 mm (3.31 x 3.27 x 0.97 in)	
Weight	net weight	1SVR550210R4100	0.068 kg (0.150 lb)
		1SVR550217R4100	0.077 kg (0.170 lb)
		1SVR550212R4100	0.079 kg (0.174 lb)
	gross weight	1SVR550210R4100	0.079 kg (0.174 lb)
		1SVR550217R4100	0.089 kg (0.196 lb)
		1SVR550212R4100	0.090 kg (0.198 lb)
Mounting	DIN rail (IEC/EN 60715), snap-on mounting without any tool		
Mounting position	any		
Degree of protection	housing	IP50	
	terminals	IP20	

Electrical connection

Wire size	fine-strand with wire end ferrule	2 x 0.75-1.5 mm ² (2 x 18-16 AWG)
	fine-strand without wire end ferrule	2 x 1-1.5 mm ² (2 x 18-16 AWG)
	rigid	2 x 0.75-1.5 mm ² (2 x 18-16 AWG)
Stripping length	10 mm (0.39 in)	
Tightening torque	0.6-0.8 Nm (5.31-7.08 lb.in)	

Environmental data

Ambient temperature ranges	operation	-20...+60 °C
	storage	-40...+85 °C
Operational reliability	IEC/EN 60068-2-6	6 g
Mechanical resistance	IEC/EN 60068-2-6	10 g
Damp heat, cyclic	IEC/EN 60068-2-30	24 h cycle, 55 °C, 93 % rel., 96 h

Isolation data

Rated insulation voltage between supply, control and output circuit (IEC/EN 60947-1)	Control supply voltage up to 240 V: 300 V
	Control supply voltage up to 440 V: 500 V
Rated impulse withstand voltage U_{imp} between all isolated circuits (IEC/EN 60664)	4 kV / 1.2-50 μ s
Test voltage between all isolated circuits (routine test)	2.5 kV, 50 Hz, 1 min.
Pollution degree (IEC/EN 60664, IEC/EN 60255-5)	III/C
Overvoltage category (IEC/EN 60664, IEC/EN 60255-5)	III/C

Standards

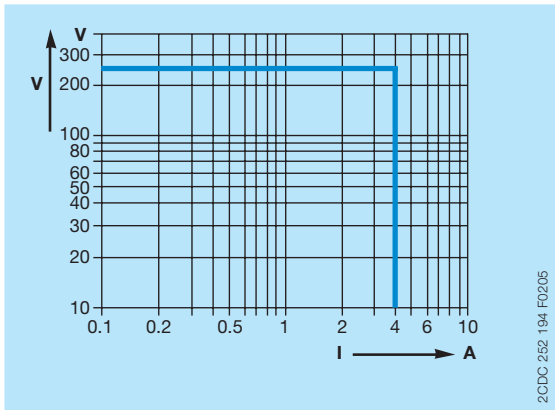
Product standard	IEC 61812-1, EN 61812-1 +A11
Low Voltage Directive	2006/95/EC
EMC directive	2004/108/EC

Electromagnetic compatibility

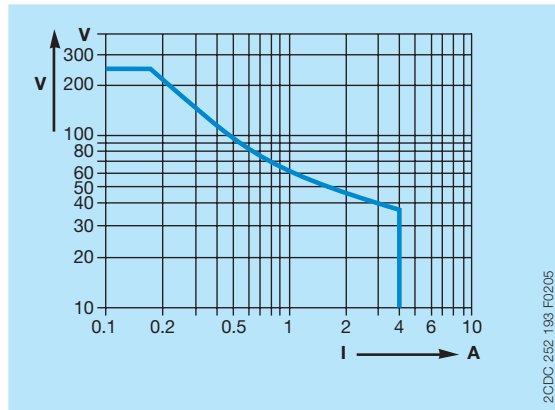
Interference immunity to	IEC/EN 61000-6-2	
electrostatic discharge	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3 (10 V/m)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
surge	IEC/EN 61000-4-5	Level 4 (2 kV L-L)
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3 (10 V)
Interference emission	IEC/EN 61000-6-4	

Technical diagrams

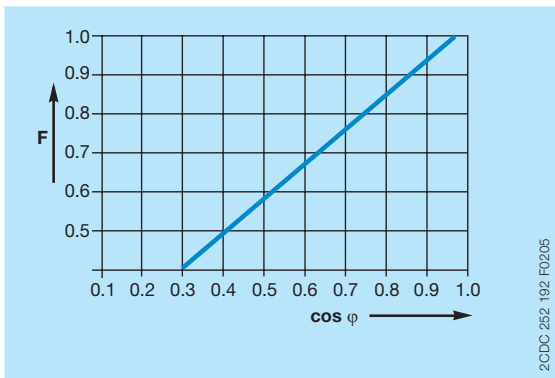
Load limit curves



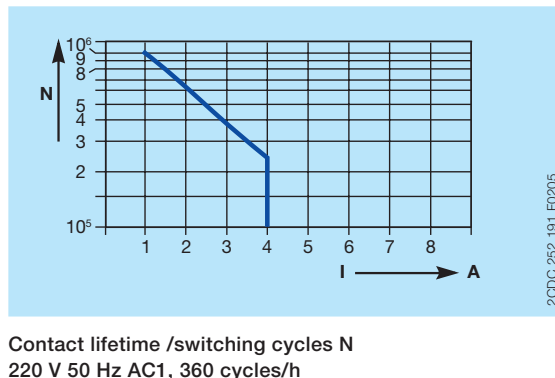
AC load (resistive)



DC load (resistive)



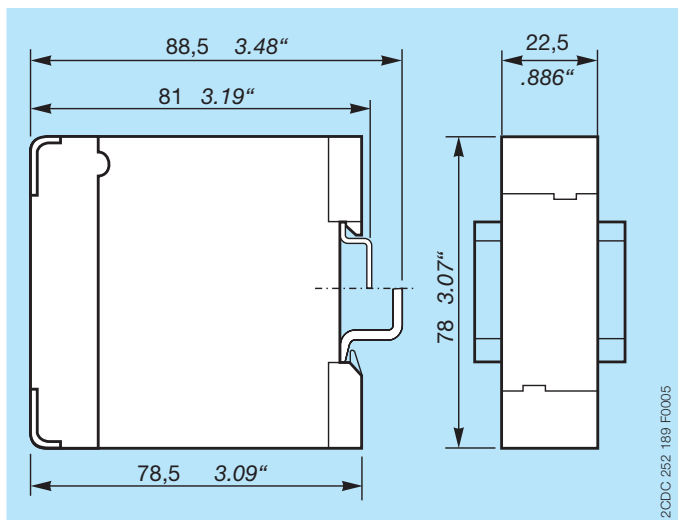
Derating factor F for inductive AC load



Contact lifetime /switching cycles N
220 V 50 Hz AC1, 360 cycles/h

Dimensions

in **mm** and *inches*



Further documentation

Document title	Document type	Document number
Electronic products and relays	Technical catalogue	2CDC 110 004 C02xx

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

CAD system files

You can find the CAD files for CAD systems at <http://abb-control-products.partcommunity.com/PARTcommunity/Portal/abb-control-products> -> Low Voltage Products & Systems -> Control Products -> Electronic Relays and Controls -> Time Relays -> CT-E - Time Relays.

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