Electronic timers
Product group picture

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Electronic timers
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Electronic timers

Electronic timers
Type selection

CT-D range in modular DIN rail housing

- Time ranges: 7 (0.05 s - 100 h)
- CT-SDD, CT-SAD: (0.05 s - 10 min)
- Wide and multi ranges of control supply voltage
- 1 or 2 c/o contacts
- CT-SDD, CT-SAD: 2 n/o contacts
- Control inputs: voltage-related triggering, polarized, capable of switching a parallel load

CT-E the economic range

- Multifunction devices:
  8 (0.05 s - 100 h)
  Single-function devices:
  0.05-1 s, 0.1-10 s, 0.3-30 s, 3-300 s, 0.3-300 min
- Wide, single and dual ranges of control supply voltage
- 1 c/ o contact
  CT-SDE: 1 n/o contact and 1 n/c contact
  CT-MKE, CT-EKE, CT-AKE: 1 thyristor
- voltage-related triggering, polarized
  CT-MFE, CT-AHE, CT-AWE:
  with auxiliary voltage

CT-S the high-performance range

- 10 (0.05 s - 300 h)
  CT-ARS, CT-SDS: 7 (0.05 s- 10 min)
- Wide, single and multi ranges of control supply voltage
- 1 or 2 c/o contacts
  CT-MVS.21, CT-MFS, CT-MBS:
  2nd c/o contact selectable as inst. contact
  CT-SDS: 2 n/o contacts
- voltage-related triggering, non-polarized, capable of switching a parallel load
  CT-MFS, CT-MBS, CT-AHS:
  volt-free triggering

	multifunctional	single-functional	multifunctional	single-functional	multifunctional	single-functional
Timing function	**CT-D**		**CT-E**		**CT-S**	
ON-delay	CT-MFD	CT-ERD	CT-MFE, CT-MKE	CT-ERE, CT-EKE	CT-MVS, CT-MFS, CT-MBS, CT-WBS	CT-ERS
OFF-delay	CT-MFD	CT-AHD	CT-MFE	CT-AHE, CT-ARE, CT-AKE	CT-MVS, CT-MFS, CT-MBS	CT-APS, CT-AHS, CT-ARS
ON- and OFF-delay					CT-MVS, CT-MXS, CT-MFS, CT-MBS	
Impulse-ON	CT-MFD	CT-VWD	CT-MFE, CT-MKE	CT-VWE	CT-MVS, CT-MFS, CT-MBS, CT-WBS	
Impulse-OFF	CT-MFD			CT-AWE	CT-MVS, CT-MFS, CT-MBS	
Impulse-ON and OFF					CT-MXS	
Flasher starting with ON	CT-MFD	CT-EBD	CT-MFE, CT-MKE		CT-MFS, CT-MBS, CT-WBS	
Flasher staring with OFF	CT-MFD		CT-MFE, CT-MKE	CT-EBE	CT-MFS, CT-MBS, CT-WBS	
Flasher starting with ON or OFF					CT-MVS	
Pulse generator starting with ON or OFF		CT-TGD			CT-MXS	
Pulse former	CT-MFD		CT-MFE		CT-MVS, CT-MFS, CT-MBS	
Star-delta change-over		CT-SDD, CT-SAD				CT-SDS
Star-delta change-over with impulse				CT-SDE	CT-MVS.2x, CT-MFS, CT-MBS	
Star-delta change-over twice ON-delayed				CT-YDE		
+ further functions (depending on device)					CT-MVS, CT-MXS, CT-MFS, CT-MBS, CT-WBS	

A detailed explanation of the different timing functions can be found at “Timing functions” on page 1/37.

Electronic timers
Notes

CT-D range
Product group picture

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CT-D range
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CT-D Range

CT-D range
Benefits and advantages

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Characteristics
- Diversity:
  - 2 multifunction timers
  - 10 single-function timers
- Control supply voltages:
  - Wide range: 12-240 V AC/DC
  - Multi range: 24-48 V DC, 24-240 V AC
- 7 time ranges from 0.05 s to 100 h or
  4 time ranges from 0.05 s to 10 min
- Width of only 17.5 mm
- Light-grey housing in RAL 7035
- Devices with:
  1 c/o contact (250 V / 6 A) or 2 c/o contacts (250 V / 5 A)
  Control input: voltage-related triggering, polarized, capable of switching parallel loads
- Various approvals and marks

Benefits

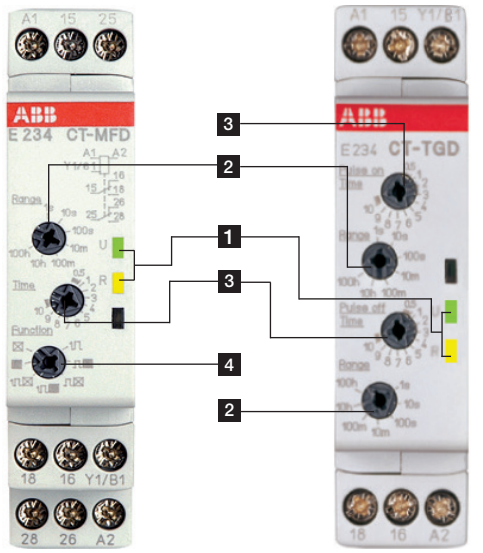
Direct reading scales ①
Direct setting of the time delay without any additional calculation provides accurate time delay adjustment.

LEDs for status indication ②
All actual operational states are displayed by front-face LEDs, thus simplifying commissioning and troubleshooting.

Switching currents
The CT-D range timers allow an output load of up to 6 A on devices with 1 c/o contact and up to 5 A on devices with 2 c/o contacts.

Connection terminals ③
Wide terminal spacing allows connection of wires:
2 x 1.5 mm² (2 x 16 AWG) with wire end ferrules or 2 x 2.5 mm² (2 x 14 AWG) without ferrules.

Width 17.5 mm ④
With their width of 17.5 mm only, the CT-D range timers are ideally suited for installation in distribution panels.



multifunctional single-functional

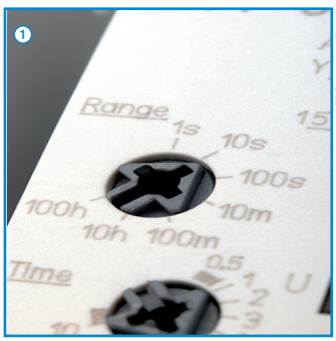
Operating controls

1 **LEDs for status indication**
U - green LED: ⎍ control supply voltage applied
⎍⎍⎍ timing
R, R1, R2 - yellow LED: ⎍ output relay energized

2 **Time range adjustment**

3 **Fine adjustment of the time delay**

4 **Preselection of the timing function**



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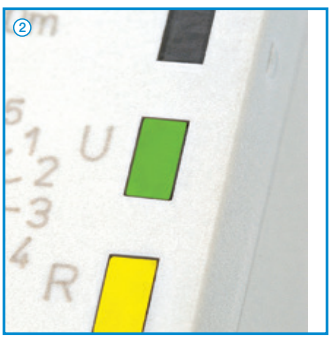

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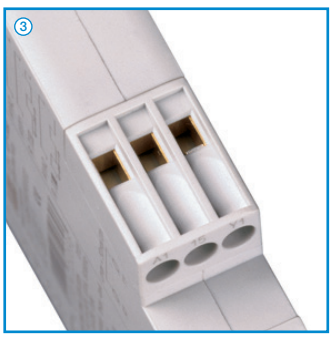

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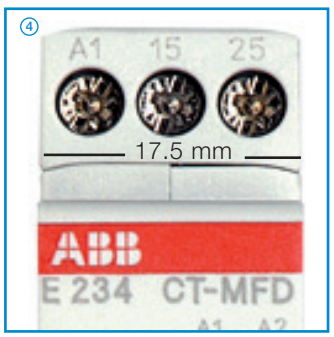


2CDC 253 021 F0004

CT-D range
Ordering details

CT-MFD.12

CT-ERD.22

Description

The CT-D range in MDRC design with a width of only 17.5 mm fits into all domestic installation and distribution panels.
The CT-D range represents a link between industry and the installation types. For maximum flexibility in operation, 10 single-function as well as 2 multifunction devices with 7 timing functions are available. The devices offer 4 or 7 time ranges from 0.05 seconds up to 100 hours. Their wide input range allows the use in applications worldwide.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Price 1 pc	Weight (1 pc) kg (lb)
Multi[1]	24-240 V AC 24-48 V DC	7 (0.05 s - 100 h)	■	1 c/o	CT-MFD.12	1SVR500020R0000		0.060 (0.132)
Multi[1]	12-240 V AC/DC	7 (0.05 s - 100 h)	■	2 c/o	CT-MFD.21	1SVR500020R1100		0.065 (0.143)
ON-delay	24-240 V AC 24-48 V DC	7 (0.05 s - 100 h)	-	1 c/o	CT-ERD.12	1SVR500100R0000		0.060 (0.132)
			-	2 c/o	CT-ERD.22	1SVR500100R0100		0.065 (0.143)
OFF-delay			■	1 c/o	CT-AHD.12	1SVR500110R0000		0.060 (0.132)
			■	2 c/o	CT-AHD.22	1SVR500110R0100		0.065 (0.143)
Impulse-ON			-	1 c/o	CT-VWD.12	1SVR500130R0000		0.060 (0.132)
Flasher starting with ON			-		CT-EBD.12	1SVR500150R0000		
Pulse generator		2x7 (0.05 s - 100 h)	■		CT-TGD.12[2]	1SVR500160R0000		0.060 (0.132)
			■	2 c/o	CT-TGD.22[2]	1SVR500160R0100		0.065 (0.143)
Star-delta change-over		4 (0.05 s - 10 min)	-	2 n/o	CT-SDD.22[3]	1SVR500211R0100		0.065 (0.143)
			-		CT-SAD.22[4]	1SVR500210R0100		

[1] Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Flasher starting with ON, Flasher starting with OFF, Pulse former
[2] ON and OFF times adjustable independently: 2 x 7 time ranges 0.05 s - 100 h
[3] Transition time 50 ms fixed
[4] Transition time adjustable

■ Control input with voltage-related triggering
- No triggering

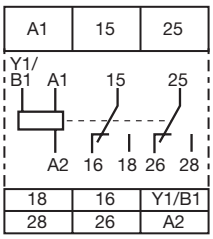
Synonyms

used expression	alternative expression(s)	used expression	alternative expression(s)
1 c/o contact	SPDT	voltage-related	wet / non-floating
2 c/o contacts	DPDT	volt-free	dry / floating

Further documentation CT-D electronic timers on www.abb.com

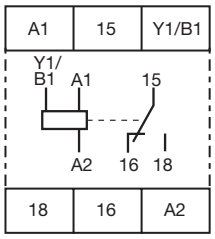
CT-D range
Connection diagrams

CT-MFD.21



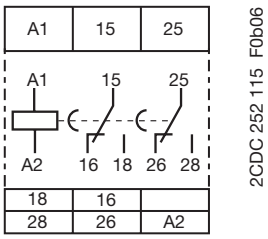
A1-A2	Supply: 12-240 V AC/DC
A1-Y1/B1	Control input
15-16/18	1. c/o contact
25-26/28	2. c/o contact

CT-MFD.12



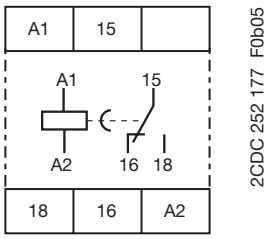
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1. c/o contact

CT-ERD.22



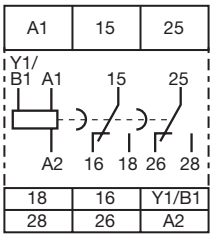
A1-A2	Supply: 24-48 V DC or 24-240 V AC
15-16/18	1. c/o contact
25-26/28	2. c/o contact

CT-ERD.12



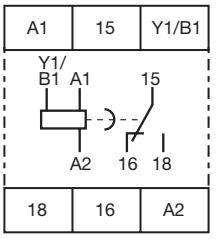
A1-A2	Supply: 24-48 V DC or 24-240 V AC
15-16/18	1. c/o contact

CT-AHD.22



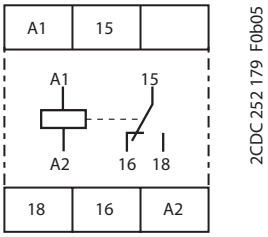
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1. c/o contact
25-26/28	2. c/o contact

CT-AHD.12



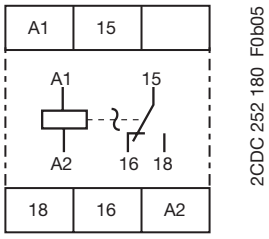
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1. c/o contact

CT-VWD.12



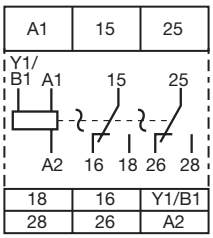
A1-A2	Supply: 24-48 V DC or 24-240 V AC
15-16/18	1. c/o contact

CT-EBD.12



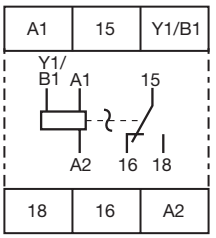
A1-A2	Supply: 24-48 V DC or 24-240 V AC
15-16/18	1. c/o contact

CT-TGD.22



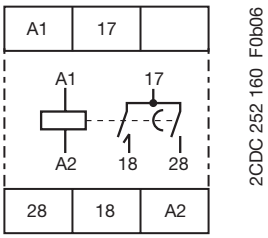
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1. c/o contact
25-26/28	2. c/o contact

CT-TGD.12



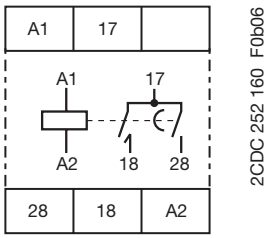
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1. c/o contact

CT-SDD.22



A1-A2	Supply: 24-48 V DC or 24-240 V AC
17-18	1. n/o contact (star contactor)
17-28	2. n/o contact (delta contactor)

CT-SAD.22



A1-A2	Supply: 24-48 V DC or 24-240 V AC
17-18	1. n/o contact (star contactor)
17-28	2. n/o contact (delta contactor)

CT-D range
Technical data

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

		CT-D with 1 c/o contact	CT-D with 2 c/o contacts	CT-MFD.21
Input circuit - Supply circuit				
Rated control supply voltage U_s		24-240 V AC / 24-48 V DC		12-240 V AC/DC
Rated control supply voltage U_s tolerance		-15...+10 %		
Rated frequency		DC or 50/60 Hz		
Frequency range AC		47-63 Hz		
Typical current / power consumption		see data sheet		
Power failure buffering time		min. 20 ms		
Release voltage		> 10 % of the minimum rated control supply voltage U_s		
Input circuit - Control circuit				
Control input, control function	A1-Y1/B1	start timing external		
Kind of triggering		voltage-related triggering		
Resistance to reverse polarity		yes		
Parallel load / polarized		yes / yes		
Maximum cable length to the control inputs		50 m - 100 pF/m		
Minimum control pulse length		20 ms		
Control voltage potential		see rated control supply voltage		
Current consumption of the control input		see data sheet		
Timing circuit				
Time ranges	7 time ranges 0.05 s - 100 h	1.) 0.05-1 s 2.) 0.5-10 s 3.) 5-100 s 4.) 0.5-10 min 5.) 5-100 min 6.) 0.5-10 h 7.) 5-100 h		
	4 time ranges 0.05 s - 10 min (CT-SDD, CT-SAD)	1.) 0.05-1 s 2.) 0.5-10 s 3.) 5-100 s 4.) 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		
Repeat accuracy (constant parameters)		Δt < ± 0.5 %		
Setting accuracy of time delay		± 10% of full-scale value		
Star-delta transition time	CT-SDD / CT-SAD	fixed 50 ms / adjustable: 20 ms, 30 ms, 40 ms, 50 ms, 60 ms, 80 ms or 100 ms		
Star-delta transition time tolerance	CT-SDD / CT-SAD	±3 ms		
Indication of operational states				
Control supply voltage / timing	U: green LED	⎍: control supply voltage applied ⎍⎍: timing		
Relay energized (1 c/o contact / 2 c/o contacts or inst. contact)	R: yellow LED	⎍: output relay energized		
Operating elements and controls				
Adjustment of the time range		front-face rotary switch, direct reading scales		
Fine adjustment of the time value		front-face potentiometer		
Preselection of the timing function at multifunction devices		front-face rotary switch, direct reading scales		
Adjustment of the transition time	CT-SAD	front-face potentiometer		
Output circuit				
Kind of output	15-16/18	Relay, 1 c/o contact	-	
	15-16/18; 25-26/28	-	Relay, 2 c/o contacts	
	17-18; 17-28		Relay, 2 n/o contacts (CT-SDD, CT-SAD)	
Contact material		AgNi alloy, Cd free		
Rated operational voltage U_e		250 V		
Minimum switching voltage / minimum switching current		12 V / 100 mA		
Maximum switching voltage / maximum switching current		250 V AC / 6 A	250 V AC / 5 A	
Rated operational current I_e	AC-12 (resistive) at 230 V	6 A	5 A	
	AC-15 (inductive) at 230 V	3 A	3 A	n/o: 3 A n/c: 0.75 A
	DC-12 (resistive) at 24 V	6 A	5 A	
	DC-13 (inductive) at 24 V	2 A	2 A	1 A
AC rating (UL 508)	utilization category (Control Circuit Rating Code)	B 300		n/o: B 300 n/c: C 300
	max. rated operational voltage	300 V AC		
	maximum continuous thermal current at B300	5 A		n/o: 5 A
	maximum continuous thermal current at C300	-		n/c: 2.5 A
	max. making/breaking apparent power at B300	3600 VA / 360 VA		n/o: 3600/360 VA
	max. making/breaking apparent power at C300	-		n/c: 1800/180 VA
Mechanical lifetime		30 x 10^6 switching cycles		
Electrical lifetime		0.1 x 10^6 switching cycles		
Max. fuse rating to achieve short-circuit protection	n/c contact	6 A fast-acting		
	n/o contact	10 A fast-acting		6 A fast-acting

CT-D range
Technical data

1

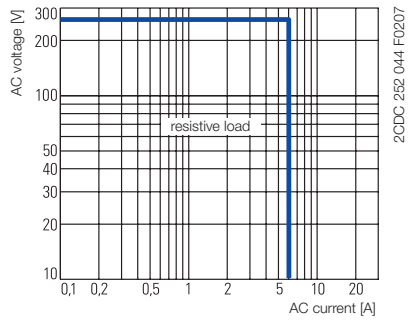
		CT-D with 1 c/o contact	CT-D with 2 c/o contacts	CT-MFD.21
General data				
Mean time between failures (MTBF)		on request		
Duty time		100%		
Dimensions		see 'Dimensional drawings'		
Mounting		DIN rail (IEC/EN 60715), snap-mounting without any tool		
Mounting position		any		
Minimum distance to other units	horizontal / vertical	no / no		
Degree of protection	housing / terminals	IP50 / IP20		
Electrical connection				
Connecting capacity	fine-strand with(out) wire end ferrule	2 x 0.5-1.5 mm² (2 x 20-16 AWG) 1 x 0.5-2.5 mm² (1 x 20-14 AWG)		
	rigid	2 x 0.5-1.5 mm² (2 x 20-16 AWG) 1 x 0.5-4 mm² (1 x 20-12 AWG)		
Stripping length		7 mm (0.28 in)		
Tightening torque		0.5-0.8 Nm (4.43-7.08 lb.in)		
Environmental data				
Ambient temperature range	operation / storage	-20 ... +60 °C / -40 ... +85 °C		
Climatic class	IEC/EN 60068-2-30	3K3		
Relative humidity range		25-85%		
Vibration, sinusoidal	IEC/EN 60068-2-6	20 m/s²; 10 cycles, 10...150...10 Hz		
Shock (half-sine)	IEC/EN 60068-2-27	150 m/s², 11 ms		
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	300 V		
	output circuit 1 / output circuit 2	not available	300 V	300 V
Rated impulse withstand voltage U_{imp}	between all isolated circuits	4 kV; 1.2/50 µs		
Power-frequency withstand voltage test(test voltage)	between all isolated circuits	2.5 kV; 50 Hz; 60 s		
Basic insulation (IEC/EN 61140)	input circuit / output circuit	300 V		
Protective separation (IEC/EN 61140, EN 50178)	input circuit / output circuit	250 V		
Pollution degree		3		
Overvoltage category		III		
Standards / Directives				
Standards		IEC/EN 61812-1		
Low Voltage Directive		2014/35/EU		
EMC Directive		2014/30/EU		
RoHS Directive		2011/65/EU		
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 61000-6-3		
high-frequency radiated	IEC/CISPR 22, EN 55022	Class B		
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B		

CT-D range
Technical diagrams, Wiring notes, Dimensional drawings

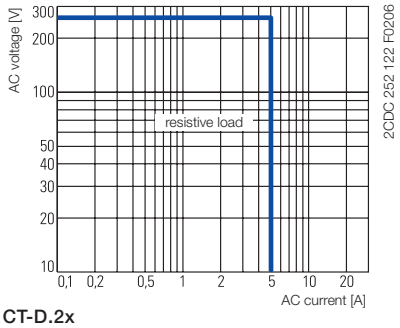
Technical diagrams

Load limit curves

AC load (resistive)

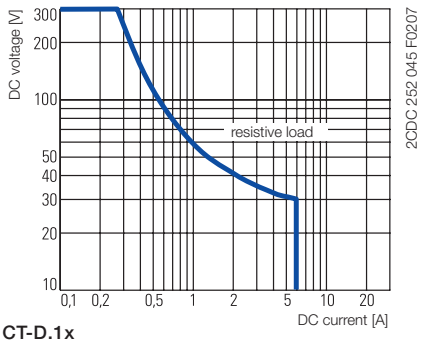


CT-D.1x

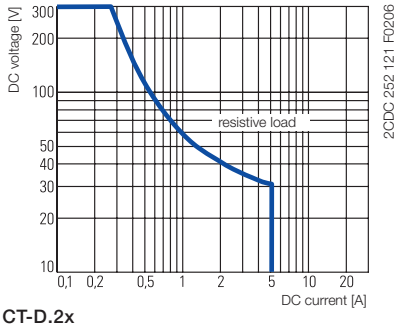


CT-D.2x

DC load (resistive)

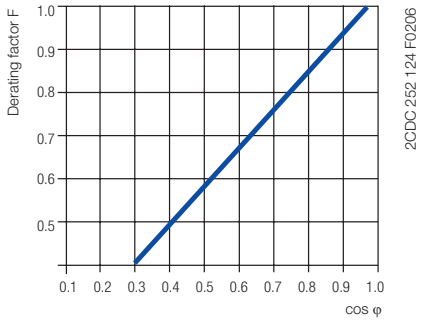


CT-D.1x

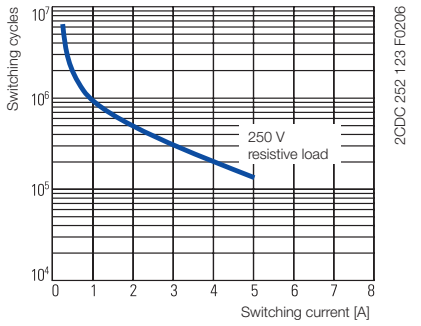


CT-D.2x

Derating factor F
for inductive AC load

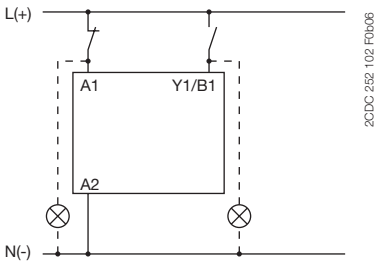


Contact lifetime



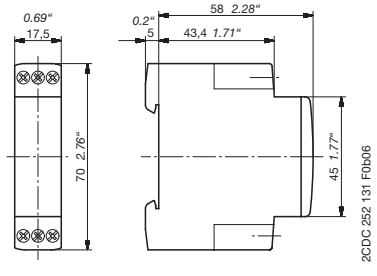
Wiring notes for devices with control input

A parallel load to the control input is possible

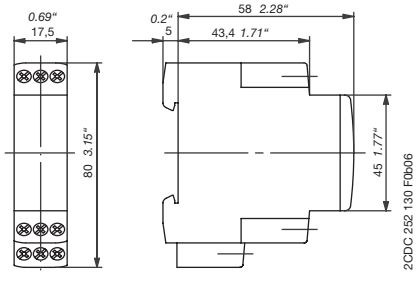


Dimensional drawings

dimensions in mm



CT-D devices with 1 c/o contact or 2 n/o contacts



CT-D devices with 2 c/o contacts

CT-E range
Product group picture

1

CT-E range
Table of contents

CT-E Range

CT-E range
Benefits and advantages

1

Characteristics
- Diversity:
  - 2 multifunction timers
  - 56 single-function timers
- Control supply voltages:
  - Dual range: 24 V AC/DC
  - Single range: 110-130 V AC, 220-240 V AC
  - Wide range: 24-240 V AC/DC (CT-MFE)
- Time ranges
  - 5 single ranges: 0.05-1 s, 0.1-10 s, 0.3-30 s, 3-300 s, 0.3-30 min
  - 8 time ranges: 0.05 s - 100 h (CT-MFE)
- Devices with 1 c/o (SPDT) contact (250 V / 4 A) or solid-state output for high switching frequencies (thyristor 0.8 A)
- Various approvals and marks

Benefits

Direct reading scales ①
Direct setting of the time delay without any additional calculation provides accurate time delay adjustment.

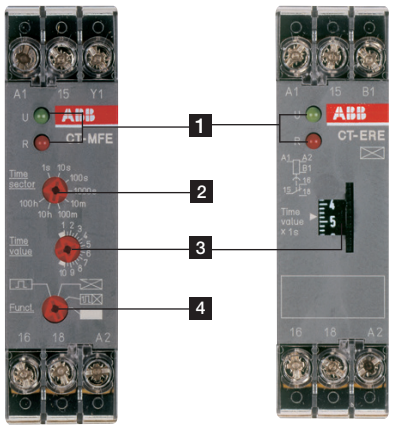
LEDs for status indication ②
All actual operational states are displayed by front-face LEDs, thus simplifying commissioning and troubleshooting.

Connection screws in M3 (Pozidrive 1) ③
Easy and fast tightening and release of the connection screws with pozidrive, pan- or crosshead screwdriver.

Solid-state output ④
Devices with solid-state output are the perfect solution for high operation cycles.

Synonyms

used expression	alternative expression(s)	used expression	alternative expression(s)
1 c/o contact	SPDT	voltage-related	wet / non-floating
2 c/o contacts	DPDT	volt-free	dry / floating



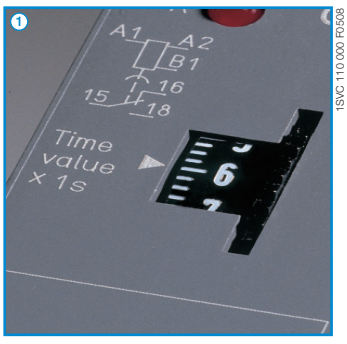
Operating controls

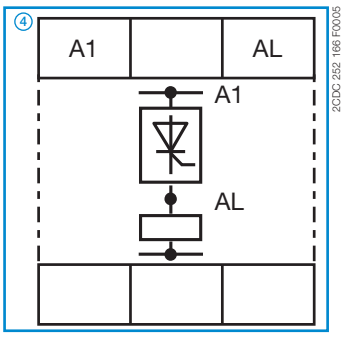
1 LEDs for status indication
U - green LED: ⌐¬ control supply voltage applied
R2: red LED: ⌐¬ output relay energized

2 Time range adjustment (only multifunctional devices)

3 Fine adjustment of the time delay

4 Preselection of the timing function (only multifunctional devices)





CT-E range
Ordering details


1SVR 550 029 R8100

CT-MFE


1SVR 550 111 F1100

CT-AHE

Description

The CT-E range with its excellent price/performance ratio offers an ideal solution for serial applications. 56 single-function devices with 5 different time ranges as well as 2 multifunction timers with 6 functions and 8 time ranges offer the highest possible flexibility for almost every application. For high operating cycles, contact-free CT-E timers with solid-state output are available.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control Input	Output	Type	Order code	Price 1 pc	Weight (1 pc) kg (lb)
Multi [1]	24-240 V AC/DC	8 (0.05 s - 100 h)	■	1 c/o	CT-MFE	1SVR550029R8100		0.08 (0.18)
ON-delay	24 V AC/DC, 220-240 V AC	0.1-10 s	-	1 c/o	CT-ERE	1SVR550107R1100		0.08 (0.18)
		0.3-30 s				1SVR550107R4100		
		3-300 s				1SVR550107R2100		
		0.3-30 min				1SVR550107R5100		
	110-130 V AC	0.1-10 s	-			1SVR550100R1100		
		0.3-30 s				1SVR550100R4100		
		3-300 s				1SVR550100R2100		
		0.3-30 min				1SVR550100R5100		
OFF-delay	24 V AC/DC	0.1-10 s	■	1 c/o	CT-AHE	1SVR550118R1100		0.08 (0.18)
		0.3-30 s				1SVR550118R4100		
		3-300 s				1SVR550118R2100		
	110-130 V AC	0.1-10 s				1SVR550110R1100		
		0.3-30 s				1SVR550110R4100		
		3-300 s				1SVR550110R2100		
	220-240 V AC	0.1-10 s				1SVR550111R1100		
		0.3-30 s				1SVR550111R4100		
		3-300 s				1SVR550111R2100		
OFF-delay[2]	24 V AC/DC, 220-240 V AC	0.1-10 s	-	1 c/o	CT-ARE	1SVR550127R1100		0.08 (0.18)
		0.3-30 s				1SVR550127R4100		
	110-130 V AC	0.1-10 s				1SVR550120R1100		
		0.3-30 s				1SVR550120R4100		
Impulse-ON	24 V AC/DC, 220-240 V AC	0.1-10 s	-	1 c/o	CT-VWE	1SVR550137R1100		0.08 (0.18)
		0.3-30 s				1SVR550137R4100		
		3-300 s				1SVR550137R2100		
	110-130 V AC	0.1-10 s				1SVR550130R1100		
		0.3-30 s				1SVR550130R4100		
		3-300 s				1SVR550130R2100		
Impulse-OFF[2]	24 V AC/DC	0.05-1 s	-	1 c/o	CT-AWE	1SVR550158R3100		0.08 (0.18)
	110-130 V AC					1SVR550150R3100		
	220-240 V AC					1SVR550151R3100		

1) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Flasher starting with ON, Flasher starting with OFF, Pulse former
2) Without auxiliary voltage, True Off-delay timer

■ Control input with voltage-related triggering
- No triggering

Further documentation CT-E electronic timers on www.abb.com

CT-E range
Ordering details

CT-AWE

CT-SDE

Ordering details

Timing function	Rated control supply-voltage	Time ranges	Control Input	Output	Type	Order code	Price 1 pc	Weight (1 pc) kg (lb)
Impulse-OFF	24 V AC/DC	0.1-10 s	■	1 c/o	CT-AWE	1SVR550148R1100		0.08 (0.18)
		0.3-30 s				1SVR550148R4100		
		3-300 s				1SVR550148R2100		
	110-130 V AC	0.1-10 s				1SVR550140R1100		
		0.3-30 s				1SVR550140R4100		
		3-300 s				1SVR550140R2100		
	220-240 V AC	0.1-10 s				1SVR550141R1100		
		0.3-30 s				1SVR550141R4100		
		3-300 s				1SVR550141R2100		
Flasher staring with OFF	24 V AC/DC, 220-240 V AC	0.1-10 s	-	1 c/o	CT-EBE [4]	1SVR550167R1100		0.08 (0.18)
	110-130 V AC					1SVR550160R1100		
Star-delta change-over twice ON-delayed	24 V AC/DC, 220-240 V AC	0.1-10 s	-	1 c/o	CT-YDE [1] [2]	1SVR550207R1100		0.08 (0.18)
		0.3-30 s				1SVR550207R4100		
		3-300 s				1SVR550207R2100		
	110-130 V AC	0.1-10 s				1SVR550200R1100		
		0.3-30 s				1SVR550200R4100		
		3-300 s				1SVR550200R2100		
Star-delta change-over with impuls	24 V AC/DC, 220-240 V AC	0.3-30 s	-	1 n/o + 1 n/c	CT-SDE [2] [5]	1SVR550217R4100		0.08 (0.18)
	110-130 V AC					1SVR550210R4100		
	380-415 V AC					1SVR550212R4100		
Multifunctional [8]	24-240V AC/DC	0.1-10 s, 3-300 s	-		CT-MKE [3] [6]	1SVR550019R0000		0.08 (0.18)
ON-delay	24-240 V AC/DC	0.1-10 s	-	solide-state	CT-EKE	1SVR550509R1000		0.08 (0.18)
		0.3-30 s				1SVR550509R4000		
		3-300 s				1SVR550509R2000		
OFF-delay	24-240 V AC	0.1-10 s	-		CT-AKE	1SVR550519R1000		0.08 (0.18)
		0.3-30 s				1SVR550519R4000		
		3-300 s				1SVR550519R2000		

[1] Without auxiliary voltage
[2] With fixed transition time
[3] Solid-state output, functions and time range selection via external jumpers
[4] Symetric ON & OFF times
[5] Common contact
[6] Functions: ON-delay (AC/DC), Impuls-ON (AC only), Flasher starting with OFF (AC only), Flasher starting with ON (AC only)

■ Control input with voltage-related triggering
- No triggering

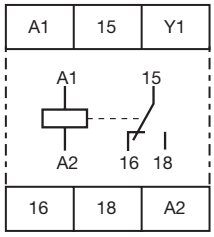
Notice

CT-…KE are solid-state timers with thyristor output for 2-wire applications. They are connected directly in series with the control coil of contactors or relays. Voltage should not be applied without a load connected, because there is no current limiting in the unit.

Further documentation CT-E electronic timers on www.abb.com

CT-E range
Connection diagrams

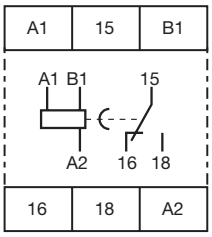
CT-MFE



2CDC 252 152 F0005

A1-A2 Supply: 24-240 V AC/DC
A1-Y1 Control input
15-16/18 c/o contact

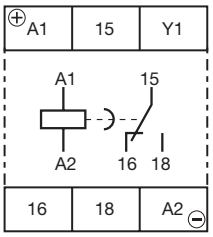
CT-ERE



2CDC 252 153 F0005

A1-A2 Supply: 220-240 V AC or 110-130 V AC
A1-B1 Supply: 24 V AC/DC
15-16/18 c/o contact

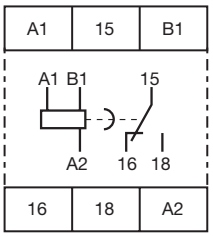
CT-AHE [1)]



2CDC 252 154 F0005

A1-A2 Supply: 24 V AC/DC or 110-240 V AC or 220-240 V AC
A1-Y1 Control input
15-16/18 c/o contact

CT-ARE



2CDC 252 155 F0005

A1-A2 Supply: 220-240 V AC or 110-130 V AC
A1-B1 Supply: 24 V AC/DC
15-16/18 c/o contact

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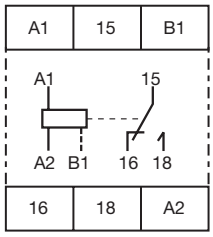
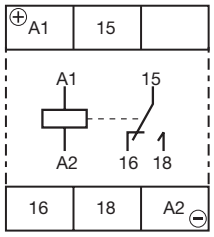
1 CT-VWE



2CDC 252 156 F0b05

A1-A2 Supply: 220-240 V AC or 110-130 V AC
A1-B1 Supply: 24 V AC/DC
15-16/18 c/o contact

1 CT-AWE

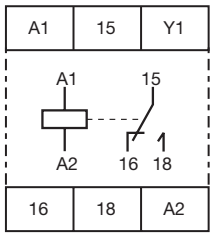


2CDC 252 157 F0b05

Device without aux. voltage

A1(+)-A2(-) Supply: 24 V AC/DC or 110-240 V AC or 220-240 V AC
15-16/18 c/o contact

1 CT-AWE [1)]

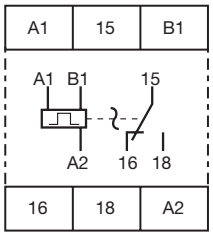


2CDC 252 158 F0b05

Device with aux. voltage

A1-A2 Supply: 24 V AC/DC or 110-240 V AC or 220-240 V AC
A1-Y1 Control input
15-16/18 c/o contact

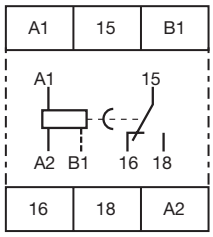
CT-EBE



2CDC 252 159 F0005

A1-A2 Supply: 220-240 V AC or 110-130 V AC
A1-B1 Supply: 24 V AC/DC
15-16/18 c/o contact

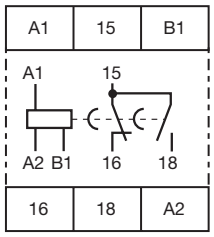
CT-YDE



2CDC 252 160 F0005

A1-A2 Supply: 220-240 V AC or 110-130 V AC
A1-B1 Supply: 24 V AC/DC
15-16/18 c/o contact

CT-SDE

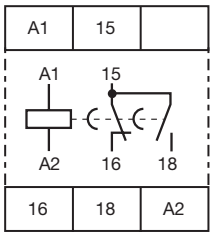


2CDC 252 161 F0005

Device: 1SVR 550 217 R4100

A1-A2 Supply: 220-240 V AC
A1-B1 Supply: 24 V AC/DC
15-16 n/c contact
15-18 n/o contact
with common contact

CT-SDE

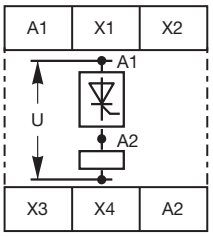


2CDC 252 162 F0005

Devices: 1SVR 550 210 R4100, 1SVR 550 212 R4100

A1-A2 Supply: 110-130 V AC or 380-415 V AC
15-16 n/c contact
15-18 n/o contact
with common contact

CT-MKE



2CDC 252 165 F0005

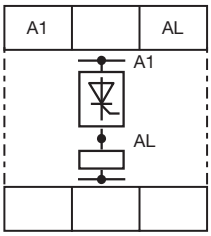
A1-A2 Supply: 24-240 V AC/DC
A1-A2 Thyristor
X1-X4 Timing function adjustment
X2-X4 Timing function adjustment
X3-X4 Time range adjustment
(Details see function diagrams)

[1)] "Wiring notes, Dimensional drawings" on page 1/22

CT-E range
Connection diagrams, Technical diagrams

1

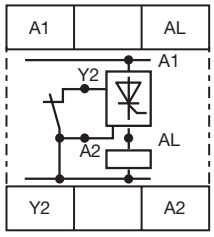
CT-EKE



2CDC 252 166 F0005

A1-AL Supply: 24-240 V AC/DC
A1-AL Thyristor

CT-AKE



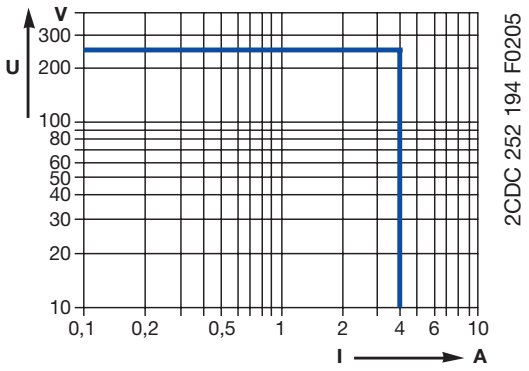
2CDC 252 167 F0005

A1-AL Supply: 24-240 V AC
A1-AL Thyristor
Y2-A2 Control input

Technical diagrams

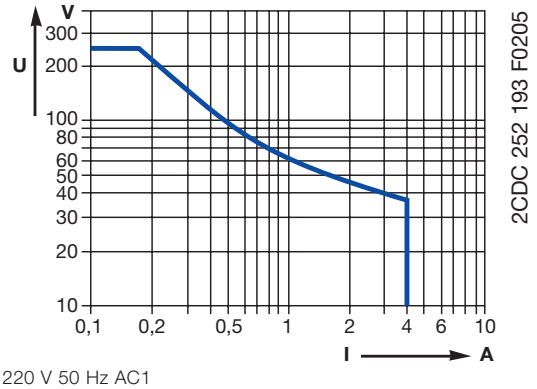
Load limit curves

AC load (resistive)



2CDC 252 194 F0205

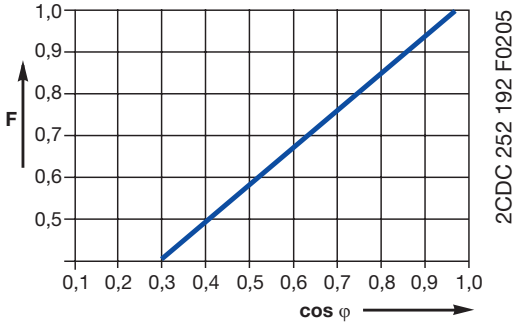
DC load (resistive)



2CDC 252 193 F0205

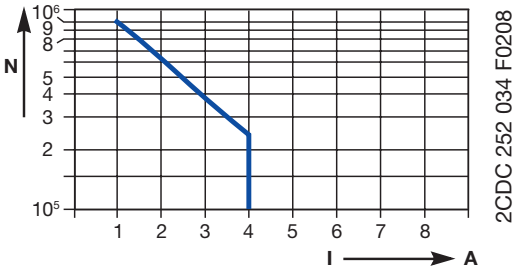
220 V 50 Hz AC1
360 cycles/h

Derating factor F for inductive AC load



2CDC 252 192 F0205

Contact lifetime



2CDC 252 034 F0208

CT-E range
Technical data

Technical data

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

		CT-E (relays)	CT-E (solid-state)
Input circuit - Supply circuit			
Rated control supply voltage U_s	A1-A2, A1-AL	24-240 V AC/DC	
	A1-A2, A1-AL	24-240 V AC	
	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 %	
Rated frequency	AC/DC versions	DC or 50/60 Hz	
	AC versions	50/60 Hz	
Typical current / power consumption	24-240 V AC/DC, 24-240 V AC	approx. 1.0-2.0 VA/W	
	110-130 V AC, 220-240 V AC	approx. 2.0 VA	-
	380-415 V AC	approx. 3.0 VA	-
	24 V AC/DC	approx. 1.0 VA/W	-
Current consumption while timing			≤ 2 mA (24-60 V AC/DC) ≤ 8 mA (60-240 V AC/DC) (CT-AKE only AC)
Minimum energizing time	CT-ARE, CT-AWE w/o aux. voltage	200 ms	-
Release voltage		> 10 % of the minimum rated control supply voltage U_s	
Input circuit - Control circuit			
Kind of triggering		voltage-related triggering	-
Control input, Control function	A1-Y1	start timing external	-
Parallel load / polarized		no / yes [1]	-
Minimum control pulse length		20 ms	-
Control voltage potential		see rated control supply voltage	-
Timing circuit			
Time ranges	1 of 5 time ranges per single-function device	0.05-1 s / 0.1-10 s / 0.3-30 s / 3-300 s / 0.3-30 min	
	CT-MFE: 8 time ranges 0.05 s - 100 h	1.) 0.05-1 s 2.) 0.5-10 s 3.) 5-100 s 4.) 50-1000 s 5.) 0.5-10 min 6.) 5-100 min 7.) 0.5-10 h 8.) 5-100 h	-
	CT-AKE, CT-EKE: 3 time ranges 0.1-300 s		1.) 0.1-10 s 2.) 0.3-30 s 2.) 3-300 s
	CT-MKE: 2 time ranges 0.1-300 s	-	1.) 0.1-10 s 2.) 3-300 s
Star-delta transition time	CT-YDE / CT-SDE	50 ms / 30 ms	-
Starting time	CT-SDE	0.3-30 s	
	CT-YDE, depending on device	0.1-10 s, 0.3-30 s or 3-300 s	
Recovery time		< 50 ms CT-ARE: < 200 ms CT-AWE, CT-SDE: < 400 ms CT-YDE: < 500 ms	CT-AKE: < 300 ms CT-EKE: < 50 ms CT-MKE: < 100 ms
Accuracy within the rated control supply voltage tolerance		Δt < 0.5 % / V	
Accuracy within the temperature range		Δt < 0.1 % / °C	
		CT-MFE: Δt < 0.06 % / °C	-
Repeat accuracy (constant parameters)		Δt < 1 %	
Setting accuracy of time delay		± 10 % of full-scale value	
Output circuit			
Kind of output	15-16/18	relay, 1 c/o contact	-
	CT-SDE: 15-16, 15-18	1 n/c, 1 n/o contact with common contact	
	A1-A2. A1-AL	-	thyristor
Contact material		silver alloy	-
Rated operational voltage U_e		250 V	
Minimum switching voltage / minimum switching current		12 V / 100 mA	
Maximum switching voltage / maximum switching current		see 'Load limit curves'	
Rated operational current I_e	AC-12 (resistive) at 230 V	4 A	-
	AC-15 (inductive) at 230 V	3 A	-
	DC-12 (resistive) at 24 V	4 A	-
	DC-13 (inductive) at 24 V	2 A	-

[1] CT-MFE: yes / no

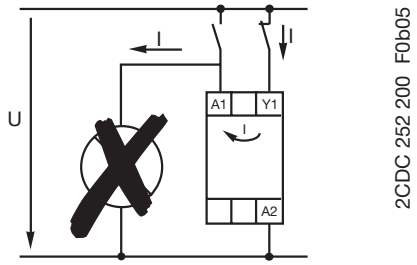
CT-E range
Technical data

			CT-E (relays)	CT-E (solid-state)
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			10 x 10^6 switching cycles	-
Electrical lifetime	at AC-12, 230 V, 4 A		0.1 x 10^6 switching cycles	-
Frequency of operation	with/without load		360/72000 h^{-1}	
Max. fuse rating to achieve short-circuit protection	n/c contact		10 A fast-acting, CT-ARE: 5 A	-
	n/o contact		10 A fast-acting, CT-ARE: 5 A	-
Minimum load current			-	CT-EKE, CT-AKE: 10 mA CT-MKE: 20 mA
Maximum load current			-	CT-EKE, CT-AKE: 0.7 A CT-MKE: 0.8 A at T_a = 20 °C
Load current reduction / Derating			-	10 mA/°C
Maximum surge current			-	CT-EKE, CT-AKE: ≤ 15 A CT-MKE: ≤ 20 A for t ≤ 20 ms
Voltage drop in connected state			-	≤ 8 V
Discharge current with blocked solid-state output			-	≤ 4 mA
Cable length between solid-state timer and connected load at 50 Hz and a cable capacity of 100 pF/m :		at 24 V AC	-	220 m / 22 nF
		at 42 V AC	-	100 m / 10 nF
		at 60 V AC	-	65 m / 6.5 nF
		at 110 V AC	-	50 m / 5 nF
		at 240 V AC	-	22 m / 2.2 nF
General data				
Duty time			100%	
Dimensions			see 'Dimensional drawings'	
Mounting			DIN rail (IEC/EN 60715)	
Mounting position			any	
Minimum distance to other units		horizontal / vertical	not necessary / not necessary	
Material of housing		lower section	UL 94 V-0	
		upper section	UL 94 V-2	
Degree of protection		housing / terminals	IP50 / IP20	
Electrical connection				
Connecting capacity	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 / storage	-20...+60 °C / -40...+85 °C	
Relative humidity range			4 x 24 h cycle, 40 °C, 93 % RH	
Vibration, sinusoidal		IEC/EN 60068-2-6	20 m/s^2, 10-58/60-150 Hz	
Shock, half-sine		IEC/EN 60068-2-27	150 m/s^2, 11 ms, 3 shocks/direction	
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit		300 V (supply up to 240 V)	-
			500 V (supply up to 440 V)	-
Rated impulse withstand voltage U_{imp}	between all isolated circuits		4 kV; 1.2/50 µs	-
Power-frequency withstand voltage (test voltage)	between all isolated circuits		2.5 kV; 50 Hz; 60 s	-
Basic insulation (IEC/EN 61140)	input circuit / output circuit		300 V	-
Pollution degree			3	
Overvoltage category			III	
Standards / Approvals				
Standards			IEC 61812-1	
Low Voltage Directive			2014/35/EU	
EMC Directive			2014/30/EU	
RoHS Directive			2011/65/EU	
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 (1 GHz) 3 V/m (2 GHz) 1 V/m (2.7 GHz)	
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 61000-6-3	

CT-E range
Wiring notes, Dimensional drawings

Wiring notes

for single-function devices with control contact (CT-AHE, CT-AWE with auxiliary voltage)



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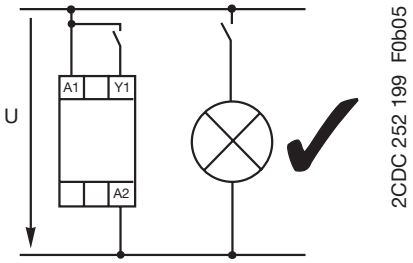

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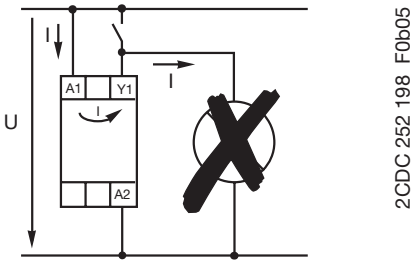

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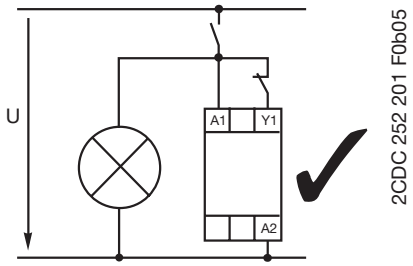

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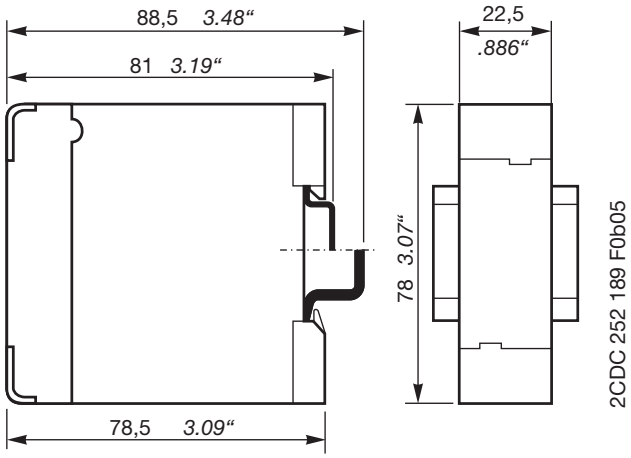
Dimensional drawing

dimensions in mm



2CDC 252 189 F0b05

CT-S range
Product group picture

1

CT-S range
Table of contents

CT-S Range

CT-S range
Benefits and advantages

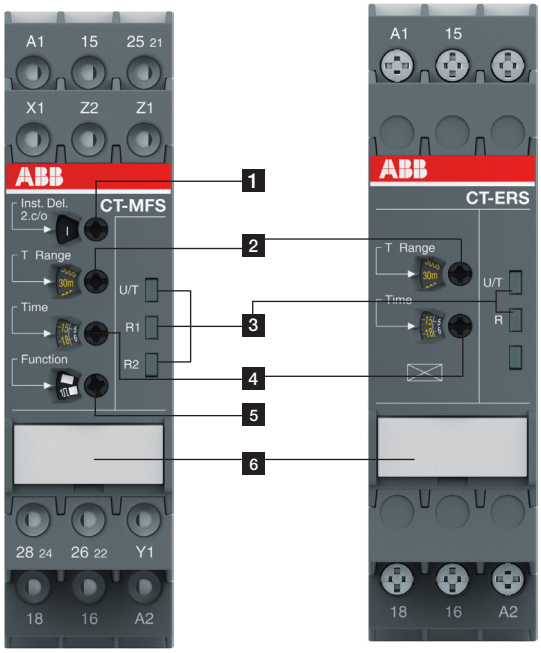
1

Characteristics

- Diversity:
  - 8 multifunction timers
  - 11 single-function timers
- Control supply voltages:
  - Multi range: 24-48 V DC, 24-240 V AC
  - Wide range: 24-240 V AC/DC
  - Single range: 380-440 V AC
- Innovative connection technology
  - Double-chamber cage connection terminals
  - Easy Connect Technology
- Devices with:
  - 1 or 2 c/o (SPDT) contacts
  - 2nd c/o contact can be selected as instantaneous contact [1)]
  - Remote potentiometer connection [1)]
  - Control input with volt-free or voltage-related triggering e.g. to start timing, pause timing
  - Extended operating temperature range down to -40 °C [1)]
- Sealable transparent cover for protection against unauthorized changes of time values
- Integrated marker label
- Various approvals and marks

1) selected devices

Operating controls



1 **2nd contact as an instantaneous contact**

2 **Preselection of the time range**

3 **Indication of operational states**

U/T: control supply voltage applied / timing

R: Output relay energized

4 **Fine adjustment of time delay**

5 **Preselection of timing function**

6 **Marker label**

CT-S range
Benefits and advantages

Easy Connect Technology ①
Tool-free wiring and excellent vibration resistance. Push-in terminals provide connection of wires up to 2 x 0.5 - 1.5 mm² (2 x 20 -16 AWG), rigid or fine-strand with or without wire end ferrules. The extended type designators for products with push-in terminals are indicated by a **P** following the extended type designator e.g. CT-xxS.xx**P**.

Double-chamber cage connection terminals ②
Double-chamber cage connection terminals provide connection of wires up to 2 x 0.5-2.5 mm² (2 x 20-14 AWG) rigid or fine-strand, with or without wire end ferrules. Potential distribution does not require additional terminals. The extended type designators for products with double-chamber cage connection terminals are indicated by a **S** following the extended type designator e.g. CT-xxS.xx**S**.

Time range preselection and fine adjustment ③
Direct assignment of the preselected time range to the fine adjustment potentiometer scale by multicolor scales.

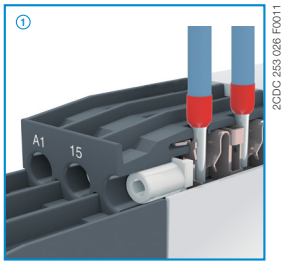
Higher utility class ④
The Easy Connect Technology provides excellent vibration resistance with gas tight push-in terminals – the right solution for harsh environment. Selected products of the electronic timers and measuring and monitoring relays comply to the latest rail standards NF F 16-101/102, EN 45545, EN 50155 and more standards which are relevant for railway applications. Find more information in the rail brochure 2CDC110084B0201.

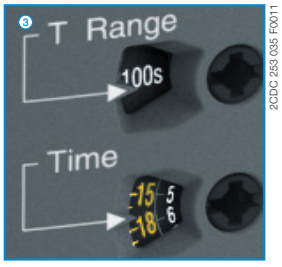
LEDs for status indication ⑤
All actual operational states are displayed by front-face LEDs, thus simplifying commissioning and troubleshooting.

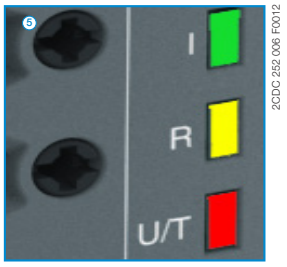
Integrated marker label ⑥
Integrated marker labels allow the product to be marked quickly and simply. No additional marker labels are required.

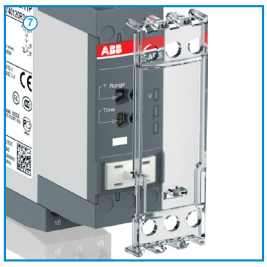
Sealable transparent cover ⑦
Protection against unauthorized changes of time and threshold values. Available as an accessory.

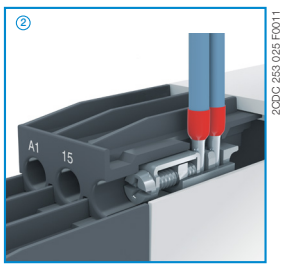
Snap-On housing ⑧
Tool-free DIN rail installation and deinstallation of the electronic timer.

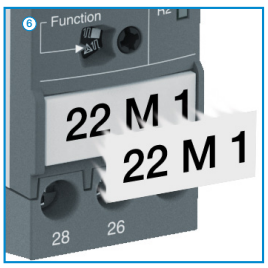


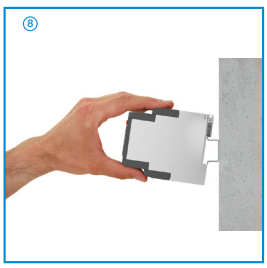








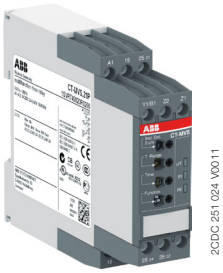




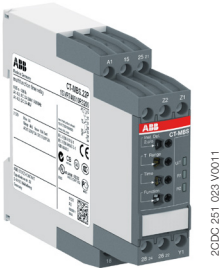
CT-S range
Ordering details - multifunctional

Description
The high-performance CT-S range in ABB's new S-range housing offers two different types of connection terminals and is ideally suited for universal use. Two different connection technologies are available:
- Double-chamber cage connection terminals
- Easy Connect Technology

Accessories:
The CT-S range offers the possibility of using accessories such as a remote potentiometer to adjust the time delay or a sealable, transparent cover to protect against unauthorized changes of time and threshold values.



CT-MVS.21P



CT-MBS.22P

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Price 1 pc	Weight (1 pc) kg (lb)
Multi [5]	24- 240 V AC/DC	10 (0.05 s - 300 h)	■	2 c/o	CT-MVS.21S [1) 2) 3)]	1SVR730020R0200		0.148 (0.326)
					CT-MVS.21P [1) 2) 3)]	1SVR740020R0200		0.136 (0.30)
	24-48 V DC, 24-240 V AC				CT-MVS.22S	1SVR730020R3300		0.142 (0.313)
					CT-MVS.22P	1SVR740020R3300		0.131 (0.289)
	380-440 V AC				CT-MVS.23S	1SVR730021R2300		0.144 (0.317)
					CT-MVS.23P	1SVR740021R2300		0.133 (0.293)
Multi [6]	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	■	1 c/o	CT-MVS.12S	1SVR730020R3100		0.107 (0.236)
					CT-MVS.12P	1SVR740020R3100		0.102 (0.225)
Multi [7]	24-48 V DC, 24-240 V AC	2×10 (0.05 s - 300 h)	■	2 c/o	CT- MXS.22S [4)]	1SVR730030R3300		0.142 (0.313)
					CT-MXS.22P [4)]	1SVR740030R3300		0.131 (0.289)
Multi [8]	24- 240 V AC/DC	10 (0.05 s - 300 h)	☐ / ☐	2 c/o	CT-MFS.21S [1) 2) 3)]	1SVR730010R0200		0.145 (0.32)
					CT-MFS.21P [1) 2) 3)]	1SVR740010R0200		0.133 (0.293)
	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	☐ / ☐	2 c/o	CT-MBS.22S [2) 3)]	1SVR730010R3200		0.14 (0.309)
					CT-MBS.22P [2) 3)]	1SVR740010R3200		0.129 (0.284)
Multi [9]	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	-	2 c/o	CT-WBS.22S	1SVR730040R3300		0.123 (0.271)
					CT-WBS.22P	1SVR740040R3300		0.115 (0.254)

■ Control input with voltage-related triggering
☐ Control input with volt-free triggering
☐ / ☐ Two control input with volt-free triggering
- No triggering

S: Screw connection
P: Push-in / easy connect

[1)] Extended temperature range -40 °C
[2)] Remote potentiometer connection
[3)] 2nd c/o contact selectable as instantaneous contact
[4)] 2 remote potentiometer connections
[5)] Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON or OFF, Star-delta change-over with impulse, Pulse former, Accumulative ON-delay, ON/OFF-function
[6)] Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON or OFF, Pulse former, Accumulative ON-delay, ON/OFF-function
[7)] Functions: Select function via DIP switches behind the marker label on the front of the unit, asymmetrical ON- and OFF-delay, Impulse-ON/OFF, Pulse generator starting with ON or OFF, Single pulse generator, ON/OFF-function
[8)] Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON, Flasher starting with OFF, Star-delta change-over with impulse, Pulse former, ON/OFF-function
[9)] Functions: Flasher starting with ON, Flasher starting with OFF, Impulse-ON, ON-delay, fixed impulse with adjustable time delay, adjustable impulse with fixed time delay, ON/OFF-function

Further documentation CT-S electronic timers on www.abb.com

CT-S range
Ordering details - singlefunctional


2CDC 251 030 V0011

CT-ERS.21P


2CDC 251 033 V0011

CT-AHS.22P


2CDC 251 040 V0011

CT-SDS.23P

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Price 1 pc	Weight (1 pc) kg (lb)
ON-delay	24-240 V AC/DC	10 (0.05 s - 300 h)	-	2 c/o	CT-ERS.21S[1]	1SVR730100R0300		0.13 (0.287)
					CT-ERS.21P[1]	1SVR740100R0300		0.121 (0.267)
	24-48 V DC, 24-240 V AC				CT-ERS.22S	1SVR730100R3300		0.121 (0.267)
					CT-ERS.22P	1SVR740100R3300		0.113 (0.249)
	24-48 V DC, 24-240 V AC		-	1 c/o	CT-ERS.12S	1SVR730100R3100		0.106 (0.234)
					CT-ERS.12P	1SVR740100R3100		0.101 (0.222)
OFF-delay	24-240 V AC/DC	10 (0.05 s - 300 h)	■	2 c/o	CT-APS.21S[1]	1SVR730180R0300		0.146 (0.322)
					CT-APS.21P[1]	1SVR740180R0300		0.125 (0.276)
	24-48 V DC, 24-240 V AC				CT-APS.22S	1SVR730180R3300		0.138 (0.304)
					CT-APS.22P	1SVR740180R3300		0.127 (0.28)
			■	1 c/o	CT-APS.12S	1SVR730180R3100		0.109 (0.24)
					CT-APS.12P	1SVR740180R3100		0.103 (0.227)
	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	■	2 c/o	CT-AHS.22S	1SVR730110R3300		0.136 (0.30)
					CT-AHS.22P	1SVR740110R3300		0.125 (0.276)
OFF-delay[5]	24-240 V AC/DC	7 (0.05 s - 10 min)	-	1 c/o	CT-ARS.11S	1SVR730120R3100		0.106 (0.234)
					CT-ARS.11P	1SVR740120R3100		0.10 (0.22)
			-	2 c/o	CT-ARS.21S	1SVR730120R3300		0.124 (0.273)
					CT-ARS.21P	1SVR740120R3300		0.115 (0.254)
Star-delta change-over[6]	24-48 V DC, 24-240 V AC	7 (0.05 s - 10 min)	-	2 n/o	CT-SDS.22S	1SVR730210R3300		0.114 (0.251)
					CT-SDS.22P	1SVR740210R3300		0.108 (0.238)
	380-440 V AC				CT-SDS.23S	1SVR730211R2300		0.118 (0.26)
					CT-SDS.23P	1SVR740211R2300		0.112 (0.247)

[1] Extended temperature range -40 °C
[2] Remote potentiometer connection
[3] 2nd c/o contact selectable as instantaneous contact
[4] 2 remote potentiometer connections
[5] Without auxiliary voltage
[6] 50 ms transition time

■ Control input with voltage-related triggering
☐ Control input with volt-free triggering
☐ / ☐ Two control input with volt-free triggering
- No triggering

S: Screw connection
P: Push-in / easy connect

Further documentation CT-S electronic timers on www.abb.com

CT-S range
Ordering details - Accessories

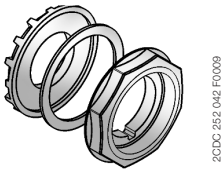
MT-x50B

Remote potentiometer

50 kΩ ±20 % - 0.2 Ω, degree of protection IP66

Material	Diameter in mm	Type	Order code	Price 1 piece	Pack.-unit pieces	Weight 1 piece g / oz
Plastic, black	22.5	MT-150B	1SFA611410R1506		1	0.040
Plastic, chrome	22.5	MT-250B	1SFA611410R2506		1	0.040
Metal, chrome	22.5	MT-350B	1SFA611410R3506		1	0.048

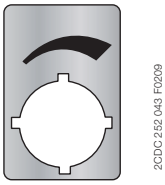
Data sheet remote potentiometer



30 mm adapters

30 mm adapter for attaching the potentiometer 22 mm in 30 mm mounting hole

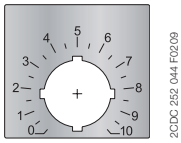
Material	Type	Order code	Price 1 piece	Pack.-unit pieces	Weight 1 piece g / oz
Plastic, black	KA1-8029	1SFA616920R8029		1	
Metal, chrome	KA1-8030	1SFA616920R8030		1	



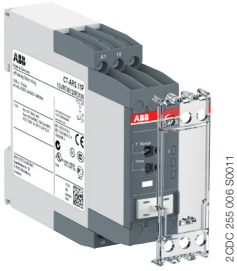
Marker label 29.6 x 44.5 mm

Marker label

Caption	Type	Order code	Price 1 piece	Pack.-unit pieces	Weight 1 piece g / oz
Symbol (see illustration)	SK 615 562-87	GJD6155620R0087		1	0.002
Scale 0 - 10	SK 615 562-88	GJD6155620R0088		1	0.002
Scale 0 - 30	MA16-1060	1SFA611940R1060		1	0.002



Marker label with scale 0-10
48.5 x 44.5 mm



Sealable transparent cover for CT-S in new housing

Accessories for CT-S in new housing (1SVR7...)

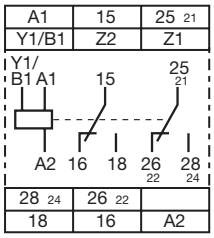
Description	Type	Order code	Price 1 piece	Pack.-unit pieces	Weight 1 piece g / oz
Adapter for screw mounting	ADP.01	1SVR430029R0100		1	0.018 (0.040)
Sealable transparent cover	COV.11	1SVR730005R0100		1	0.004 (0.009)
Marker label for devices w/o DIP switches	MAR.01	1SVR366017R0100		10	0.001 (0.002)
Marker label for devices with DIP switches	MAR.12	1SVR730006R0000		10	0.001 (0.002)

Accessories for CT-S in old housing (1SVR4...)

Description	Type	Order code	Price 1 piece	Pack.-unit pieces	Weight 1 piece g / oz
Adapter for screw mounting	ADP.01	1SVR430029R0100		1	0.018 (0.040)
Sealable transparent cover	COV.01	1SVR430005R0100		1	0.004 (0.009)
Marker label for devices w/o DIP switches	MAR.01	1SVR366017R0100		10	0.001 (0.002)
Marker label for devices with DIP switches	MAR.02	1SVR430043R0000		10	0.001 (0.002)

CT-S range
Connection diagrams

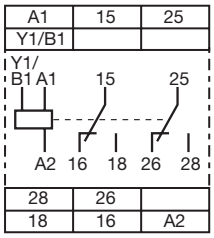
CT-MVS.21



2CDC 252 002 F0b06

A1-A2 Supply: 24-240 V AC/DC
A1-Y1/B1 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact
21-22/24 2. c/o contact as instantaneous contact
Z1-Z2 Remote potentiometer connection

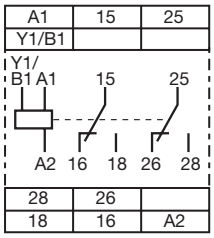
CT-MVS.22



2CDC 252 003 F0b06

A1-A2 Supply: 224-48 V DC or 24-240 V AC
A1-Y1/B1 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact

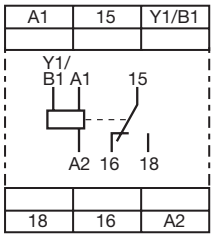
CT-MVS.23



2CDC 252 003 F0b06

A1-A2 Supply: 380-440V AC
A1-Y1/B1 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact

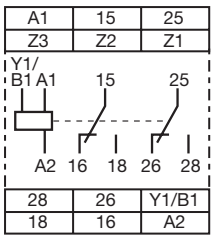
CT-MVS.12



2CDC 252 004 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1 Control input
15-16/18 1. c/o contact

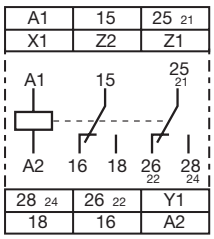
CT-MXS.22



2CDC 252 005 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact
Z1-Z2 Remote potentiometer connection
Z3-Z2 Remote potentiometer connection

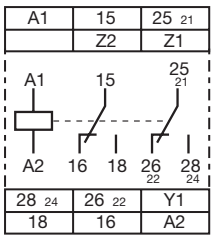
CT-MFS.21



2CDC 252 006 F0b06

A1-A2 Supply: 24-240 V AC/DC
15-16/18 1. c/o contact
25-26/28 2. c/o contact
21-22/24 2. c/o contact as instantaneous contact
Y1-Z2 Control input
X1-Z2 Control input
Z1-Z2 Remote potentiometer connection

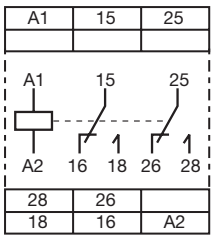
CT-MBS.22



2CDC 252 007 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
15-16/18 1. c/o contact
25-26/28 2. c/o contact
21-22/24 2. c/o contact as instantaneous contact
Y1-Z2 Control input
Z1-Z2 Remote potentiometer connection

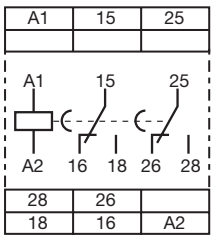
CT-WBS.22



2CDC 252 008 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
15-16/18 1. c/o contact
25-26/28 2. c/o contact

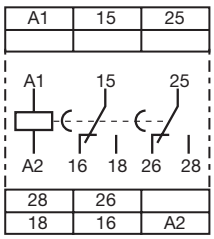
✉ CT-ERS.21



2CDC 252 009 F0b06

A1-A2 Supply: 24-240 V AC/DC
15-16/18 1. c/o contact
25-26/28 2. c/o contact

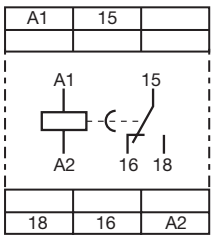
✉ CT-ERS.22



2CDC 252 009 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
15-16/18 1. c/o contact
25-26/28 2. c/o contact

✉ CT-ERS.12

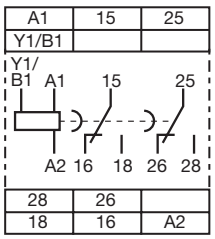


2CDC 252 010 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
15-16/18 1. c/o contact

CT-S range
Connection diagrams

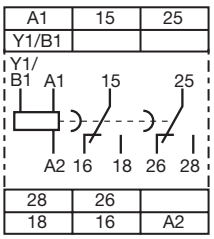
CT-APS.21



2CDC 252 011 F0b06

A1-A2 Supply: 24-240 V AC/DC
A1-Y1/B1 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact

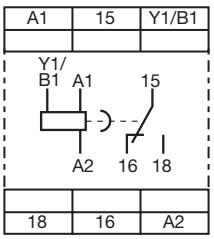
CT-APS.22



2CDC 252 011 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact

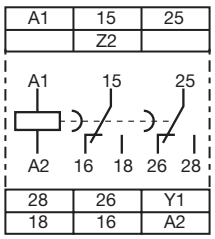
CT-APS.12



2CDC 252 012 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1 Control input
15-16/18 1. c/o contact

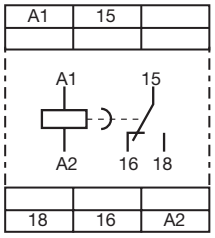
CT-AHS.22



2CDC 252 013 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
Y1-Z2 Control input
15-16/18 1. c/o contact
25-26/28 2. c/o contact

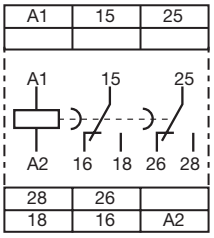
CT-ARS.11



2CDC 252 014 F0b06

A1-A2 Supply: 24-240 V AC/DC
15-16/18 1. c/o contact

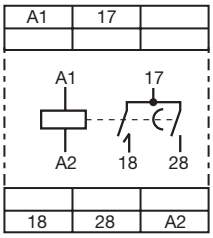
CT-ARS.21



2CDC 252 015 F0b06

A1-A2 Supply: 24-240 V AC/DC
15-16/18 1. c/o contact
25-26/28 2. c/o contact

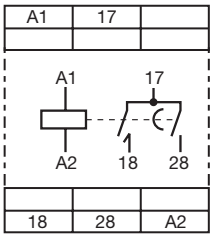
⚠ CT-SDS.22



2CDC 252 016 F0b06

A1-A2 Supply: 24-48 V DC or 24-240 V AC
17-18 1. n/o contact
17-28 2. n/o contact

⚠ CT-SDS.23



2CDC 252 016 F0b06

A1-A2 Supply: 380-440 V AC
17-18 1. n/o contact
17-28 2. n/o contact

CT-S range
Technical data

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

		CT-S
Input circuit - Supply circuit		
Rated control supply voltage U_s	CT-xxx.x1	24-240 V AC/DC
	CT-xxx.x2	24-48 V DC, 24-240 V AC
	CT-xxx.x3	380-440 V AC
Rated control supply voltage U_s tolerance		-15...+10 %
Rated frequency		DC or 50/60 Hz
Frequency range AC		47-63 Hz
Typical current / power consumption		depending on device, see data sheet
Power failure buffering time	24 V DC	min. 15 ms
	230/400 V AC	min. 20 ms
Release voltage		> 10 % of the minimum rated control supply voltage U_s
Minimum energizing time		100 ms (CT-ARS)
Formatting time [1]		5 min (CT-ARS)
Input circuit - Control circuit		
Kind of triggering	CT-MVS, CT-MXS, CT-APS	voltage-related triggering
Control input, Control function	A1-Y1/B1	start timing external
Parallel load / polarized		yes / no
Maximum cable length to the control input		50 m - 100 pF/m
Minimum control pulse length		20 ms
Control voltage potential		see rated control supply voltage
Current consumption of the control input	24 V DC	1.2 mA
	230 V AC	8 mA
	400 V AC	6 mA
Kind of triggering	CT-MFS, CT-MBS, CT-AHS	volt-free triggering
Control input, Control function	Y1-Z2	start timing external
	X1-Z2	pause timing / accumulative functions (CT-MFS)
Maximum switching current in the control circuit		1 mA
Maximum cable length to the control input		50 m - 100 pF/m
Minimum control pulse length		20 ms
No-load voltage at the control inputs		10-40 V DC
Remote potentiometer		
Remote potentiometer connections, resistance value	Z1-Z2	50 kΩ (CT-MFS, CT-MBS, CT-MVS.21, CT-MXS)
	Z3-Z2	50 kΩ (CT-MXS)
Maximum cable length to remote potentiometer		2 x 25 m, shielded with 100 pF/m
Shield connection		Z2
Timing circuit		
Time ranges	10 time ranges 0.05 s - 300 h	1.) 0.05-1 s 2.) 0.15-3 s 3.) 0.5-10 s 4.) 1.5-30 s 5.) 5-100 s 6.) 15-300 s 7.) 1.5-30 min 8.) 15-300 min 9.) 1.5-30 h 10.) 15-300 h
	7 time ranges 0.05 s - 10 min (CT-SDS, CT-ARS)	1.) 0.05-1 s 2.) 0.15-3 s 3.) 0.5-10 s 4.) 1.5-30 s 5.) 5-100 s 6.) 15-300 s 7.) 0.5-10 min
Recovery time	24-240 V AC/DC	< 50 ms
	24-48 V DC, 24-240 V AC	< 80 ms
	380-440 V AC	< 60 ms
Accuracy within the rated control supply voltage tolerance		Δt < 0.004 % / V
Accuracy within the temperature range		Δt < 0.03 % / °C
Repeat accuracy (constant parameters)		< ±0.2 %
Setting accuracy of time delay		± 6 % of full-scale value
Star-delta transition time		fixed 50 ms (CT-SDS, CT-MBS, CT-MFS, CT-MVS.2x)
Star-delta transition time tolerance		±2 ms

[1] prior to first commisioning and after a six-month stop in operation

CT-S range
Technical data

Indication of operational states		
Control supply voltage / timing	U/T: green LED	⎍: control supply voltage applied / ⎍⎍: timing
Control supply voltage	U: green LED	⎍: control supply voltage applied
Relay state	R, R1, R2: yellow LED	⎍: output relay energized
Output circuit		
Kind of output	15-16/18	relay, 1 c/o contact
	15-16/18; 25-26/28	relay, 2 c/o contacts
	15-16/18; 25(21)-26(22)/28(24)	relay, 2 c/o contacts, 2nd c/o contact selectable as inst. contact
	17-18; 17-28	relay, 2 n/o contacts (CT-SDS)
Contact material		Cd-free, on request
Rated operational voltage U_e	IEC/EN 60947-1	250 V
Minimum switching voltage / minimum switching current		12 V / 10 mA
Maximum switching voltage / maximum switching current		see load limit curves
Rated operational current I_e	AC-12 (resistive) at 230 V	4 A
	AC-15 (inductive) at 230 V	3 A
	DC-12 (resistive) at 24 V	4 A
	DC-13 (inductive) at 24 V	2 A (CT-ARS; 1.5 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 x 10^6 switching cycles
Electrical lifetime	at AC-12, 230 V, 4 A	0.1 x 10^6 switching cycles
Frequency of operation	with/without load	360/72000 h^{-1} **CT-ARS:** 1200/18000 h^{-1}
Max. fuse rating to achieve short-circuit protection	n/c contact	6 A fast-acting
	n/o contact	10 A fast-acting
General data [2]		
MTBF		on request
Duty time		100%
Dimensions		see 'Dimensional drawings'
Mounting		DIN rail (IEC/EN 60715), snap-on mounting without any tool
Mounting position		any
Minimum distance to other units	vertical / horizontal	not necessary / not necessary
Material of housing		UL 94 V-0
Degree of protection	housing / terminals	IP50 / IP20

Electrical connection [2]

		Screw connection technology	Easy Connect Technology (Push-in)
Connecting capacity	fine-strand with(out) wire end ferrule	1 x 0.5-2.5 mm^2 (1 x 18-14 AWG) 2 x 0.5-1.5 mm^2 (2 x 18-16 AWG)	2 x 0.5-1.5 mm^2 (2 x 18-16 AWG)
	rigid	1 x 0.5-4 mm^2 (1 x 20-12 AWG) 2 x 0.5-2.5 mm^2 (2 x 20-14 AWG)	2 x 0.5-1.5 mm^2 (2 x 20-16 AWG)
Stripping length		8 mm (0.32 in)	
Tightening torque		0.6-0.8 Nm (7.08 lb.in)	-

[2] Data for all references 1SVR 730 xxx xxx and 1SVR 740 xxx xxx. For devices with 1SVR 430 xxx xxx please refer to the data sheet.

CT-S range
Technical data

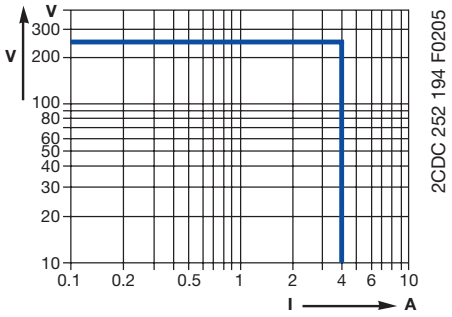
Environmental data			
Ambient temperature ranges	operation / storage	-25...+60 °C / -40...+85 °C, -40...+60 °C / -40...+85 °C (CT-MVS.21, CT-MFS.21, CT-ERS.21, CT-APS.21)	
Relative humidity range		25 % to 85 %	
Vibration, sinusoidal (IEC/EN 60068-2-6)	functioning	40 m/s², 10-58/60-150 Hz	
	resistance	60 m/s², 10-58/60-150 Hz, 20 cycles	
Vibration, seismic (IEC/EN 60068-3-3)	functioning	20 m/s²	
Shock, half-sine (IEC/EN 60068-2-27)	functioning	150 m/s², 11 ms, 3 shocks/direction	
	resistance	300 m/s² , 11 ms, 3 shocks/direction	
Isolation data		**CT-S with 1 c/o**	**CT-S with 2 c/o**
Rated insulation voltage U_i	input circuit / output circuit	500 V	
	output circuit 1 / output circuit 2	not available	300 V
Rated impulse withstand voltage U_{imp}	between all isolated circuits	4 kV; 1.2/50 µs except devices CT-xxx.23: input / output: 6 kV; 1.2/50 µs output 1 / output 2: 4 kV; 1.2/50 µs	
Power-frequency withstand voltage (test voltage)	between all isolated circuits	2.0 kV; 50 Hz; 60 s	
Basic insulation (IEC/EN 61140)	input circuit / output circuit	500 V	
Protective separation (IEC/EN 61140; EN 50178)	input circuit / output circuit	250 V	
Pollution degree		3	
Overvoltage category		III	
Standards / Directives			
Standards		IEC/EN 61812-1	
Low Voltage Directive		2014/35/EU	
EMC Directive		2014/30/EU	
RoHS Directive		2011/65/EU	
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 (1 GHz) 3 V/m (2 GHz) 1 V/m (2.7 GHz)	
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	Class 3	
Interference emission		IEC/EN 61000-6-3	
high-frequency radiated	IEC/CISPR 22, EN 55022	Class B	
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B	

CT-S range
Technical diagrams

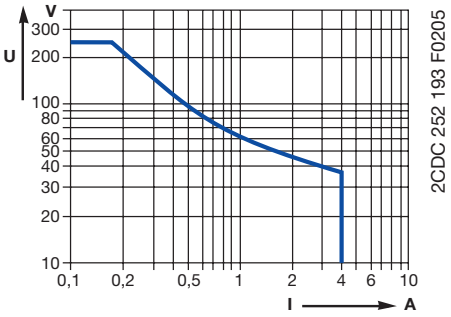
Technical diagrams

Load limit curves

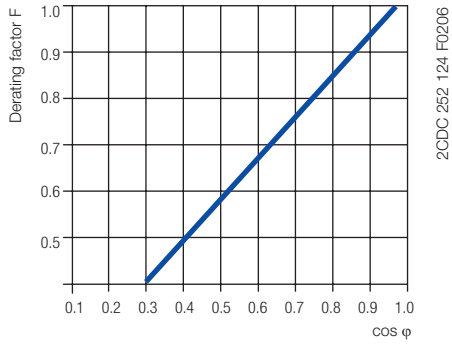
AC load (resistive)



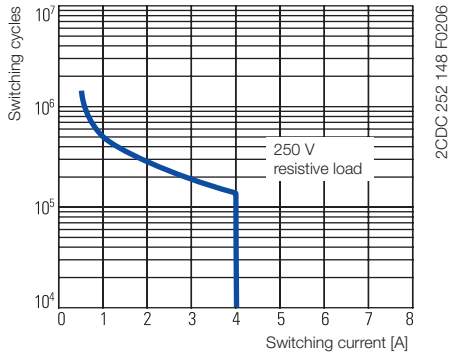
DC load (resistive)



Derating factor F for inductive AC load



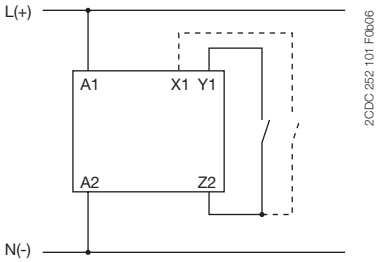
Contact lifetime



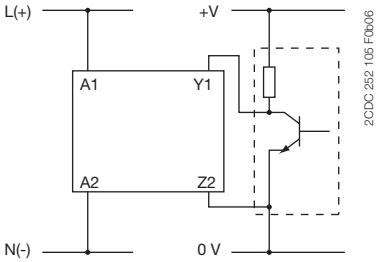
CT-S range
Wiring notes, Dimensional drawings

Wiring notes

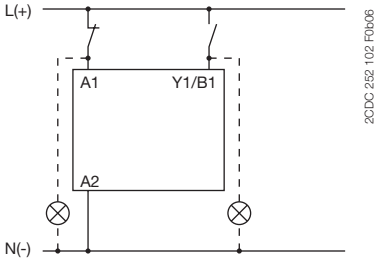
Control inputs (volt-free triggering)

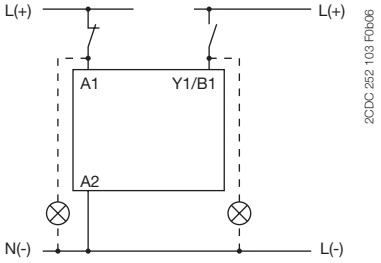


Triggering of the control inputs (volt-free) with a proximity switch (3 wire)



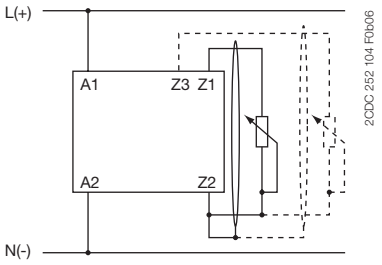
Control inputs (voltage-related triggering)





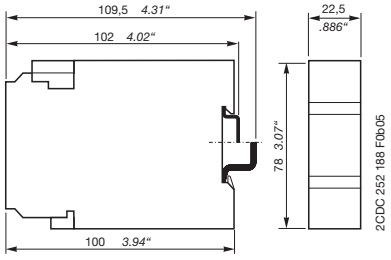
The control input Y1/B1 is triggered with electric potential against A2. It is possible to use the control supply voltage from terminal A1 or any other voltage within the rated control supply voltage range.

Remote potentiometer

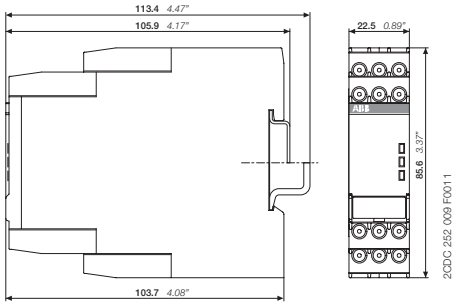


Dimensional drawing

dimensions in mm



1SVR 430 xxx xxx



1SVR 730 xxx xxx, 1SVR 740 xxx xxx

Electronic timers
Timing functions

1

For a detailed overview of product specific timing functions please refer to the corresponding data sheet.

On delay functions (Delay on make)

ON-delay

This function requires continuous control supply voltage for timing.
Timing begins when control supply voltage is applied. When the selected time delay is complete, the output relay energizes. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

ON-delay accumulative

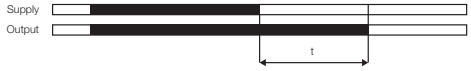
This function requires continuous control supply voltage for timing. Timing begins when control supply voltage is applied. When the selected time delay is complete, the output relay energizes. Timing can be paused by closing control input. The elapsed time t1 is stored and continues from this time value when the control input is re-opened.
If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

OFF delay functions (Delay on break)

OFF-delay with auxiliary voltage

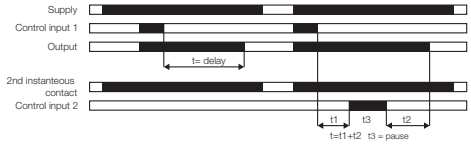
This function requires continuous control supply voltage for timing. If control input is closed, the output relay energizes immediately. If control input is opened, the time delay starts. When the selected time delay is complete, the output relay de-energizes.
If control input recloses before the time delay is complete, the time delay is reset and the output relay does not change state. Timing starts again when control input re-opens. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

OFF-delay without auxiliary voltage



The OFF-delay function without auxiliary voltage does not require continuous control supply voltage for timing.
Applying control supply voltage, energizes the output relay. If control supply voltage is interrupted, the OFF-delay starts. When timing is complete, the output relay de-energizes. If control supply voltage is re-applied before the time delay is complete, the time delay is reset and the output relay remains energized. Control supply voltage must be applied for the minimum energizing time (200 ms), for proper operation.

OFF-delay with auxiliary voltage (Delay on break)



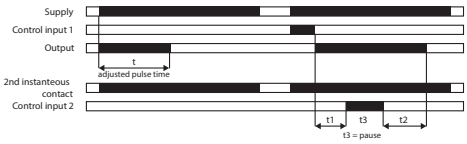
This function requires continuous control supply voltage for timing. If control input is closed, the output relay energizes immediately. If control input is opened, the time delay starts. When the selected time delay is complete, the output relay de- energizes. If control input closes before the time delay is complete, the time delay is reset and the output relay does not change state. Timing starts again when control input reopens.
Pause timing / Accumulative OFF-delay: Timing can be paused by closing control 1. The elapsed time t1 is stored and continues from this time value when control input 1 is re-opened. This can be repeated as often as required. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Impulse-ON functions

Impulse-ON (interval)

This function requires continuous control supply voltage for timing. The output relay energizes immediately when control supply voltage is applied and de-energizes after the set pulse time is complete. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Impulse-ON (with pause)

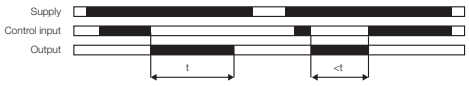


This function requires continuous control supply voltage for timing. The output relay energizes immediately when control supply voltage is applied and de-energizes after the set pulse time is complete. If control input 1 is open, timing begins when control supply voltage is applied. Or, if control supply voltage is already applied, opening control input 1 starts timing. When the selected pulse time is complete, the output relay de-energizes. Closing control input 1, before the pulse time is complete, de-energizes the output relay and resets the pulse time.
Pause timing / Accumulative impulse-ON: Timing can be paused by closing control input 2. The elapsed time t1 is stored and continues from this time value when control input 2 is re-opened. This can be repeated as often as required.
If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Electronic timers
Timing functions

Impulse-OFF functions 1

Impulse-OFF

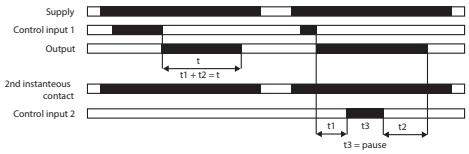


This function requires continuous control supply voltage for timing. The output relay energizes immediately when the control input is de-energized and the output de-energizes after the set pulse time is complete. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Impulse-OFF without auxiliary voltage

This function does not require continuous control supply voltage for timing. If control supply voltage is interrupted, the output relay energizes and the OFF time starts. When timing is complete, the output relay de-energizes. If control supply voltage is re-applied before the time delay is complete, the time delay is reset and the output relay de-energizes. Control supply voltage must be applied for the minimum energizing time (200 ms), for proper operation.

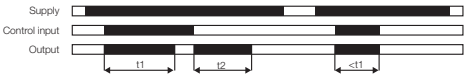
Impulse-OFF with auxiliary voltage (Trailing edge interval)



This function requires continuous control supply voltage for timing. If control supply voltage is applied, opening control input 1 energizes the output relay immediately and starts timing. When the selected pulse time is complete, the output relay de-energizes. Closing control input 1, before the pulse time is complete, de-energizes the output relay and resets the pulse time.
Pause timing / Accumulative impulse-OFF: Timing can be paused by closing control input 2. The elapsed time t1 is stored and continues from this time value when control input 2 is re-opened. This can be repeated as often as required.
If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Impuls-ON and Impulse-OFF functions 1

Impulse-ON and impulse-OFF



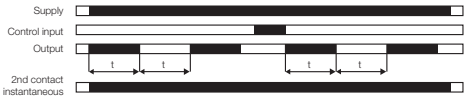
This function requires continuous control supply voltage for timing. If control supply voltage is applied, closing control input energizes the output relay immediately and starts the pulse time t1. When t1 is complete, the output relay de-energize. Re-opening control input energizes the output relay immediately and starts the pulse time t2. When t2 is complete, the output relay de-energizes. t1 and t2 are independently adjustable. If control input changes state before the pulse time is complete, the output relay de-energizes and the pulse time is reset. If control input changes state again, the interrupted pulse time restarts. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Flasher starting with ON functions

Flasher starting with ON

Applying control supply voltage starts timing with symmetrical ON & OFF times. The cycle starts with an ON time first.
If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Flasher with reset starting with ON



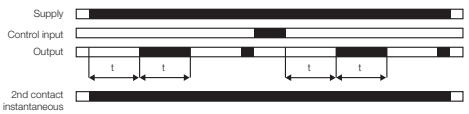
Applying control supply voltage starts timing with symmetrical ON & OFF times. The cycle starts with an ON time first.
The time delay can be reset by closing control input. Opening control input starts the timer pulsing again with symmetrical ON & OFF times. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Flasher starting with OFF functions

Flasher starting with OFF

Applying control supply voltage starts timing with symmetrical ON & OFF times. The cycle starts with an OFF time first. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Flasher with reset starting with OFF



Applying control supply voltage starts timing with symmetrical ON & OFF times. The cycle starts with an OFF time first. The time delay can be reset by closing control input. Opening control input starts the timer pulsing again with symmetrical ON & OFF times. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Flasher starting with ON or OFF functions

Flasher starting with ON or OFF

Applying control supply voltage starts timing with symmetrical ON / OFF times. If the control input is open while supply voltage is connected the cycle starts with an ON time first. If the control input is closed while supply voltage is connected the cycle starts with an OFF time first.

Electronic timers
Timing functions

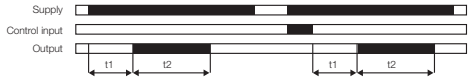
Pulse former

Pulse former (single shot)

This function requires continuous control supply voltage for timing. Closing control input energizes the output relay immediately and starts timing. Operating the control input during the time delay has no effect. When the selected ON time is complete, the output relay de-energizes. After the ON time is complete, it can be restarted by closing control input. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Single-pulse former

Single-pulse generator, starting with OFF



This function requires continuous control supply voltage for timing. Applying control supply voltage while the control input is open energizes the output relay after the OFF time t1 is complete. When the following ON time t2 is complete, the output relay de-energizes. Alternatively, when control supply voltage is already applied, the timing process can be started by opening control input. Closing control input with control supply voltage applied, de-energizes the output relay and resets the time delay. The ON & OFF times are independently adjustable.

Impulse with delay

Fixed impulse with adjustable time delay

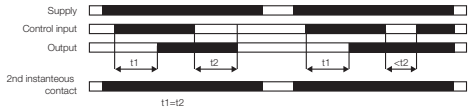
This function requires continuous control supply voltage for timing. The time delay t1 starts when control supply voltage is applied. When t1 is complete, the output relay energizes for the fixed impulse time t2 of 500 ms.
If control supply voltage is interrupted, the time delay is reset. The output relay does not change state.

Adjustable impulse with fixed time delay

This function requires continuous control supply voltage for timing. As soon as the control supply voltage is applied the output relay will close after 500 ms. When t2 is complete, the output relay energizes and the selected pulse time t1 starts. When t1 is complete, the output relay de-energizes. If control supply voltage is interrupted, the pulse time is reset and the output relay de-energizes

ON- and OFF-delay

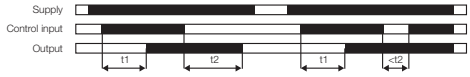
Symmetrical ON- and OFF-delay [1)]



This function requires continuous control supply voltage for timing. Closing control input starts the ON-delay time t1. When timing is complete, the output relay energizes. Opening control input starts the OFF-delay time t2. When the OFF-delay t2 is complete, the output relay de-energizes. If control input opens before the ON-delay (<t1) is complete, the time delay is reset and the output relay remains de-energized. If control input closes before the OFF-delay time (<t2) is complete, the time delay is reset and the output relay remains energized.

1) Variant with 2nd control input for pause timing is available too.

Asymmetrical ON- and OFF-delay



This function requires continuous control supply voltage for timing. Closing control input starts the ON-delay t1. When timing is complete, the output relay energizes. Opening control input starts the OFF-delay t2. When the OFF-delay is complete, the output relay de-energizes. The ON-delay and OFF-delay are independently adjustable.
If control input opens before the ON-delay is complete (<t1), the time delay is reset and the output relay remains de-energized. If control input closes before the OFF-delay is complete (<t2), the time delay is reset and the output relay remains energized. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset

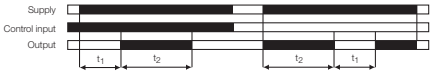
Electronic timers
Timing functions

Further functions

ON/OFF function

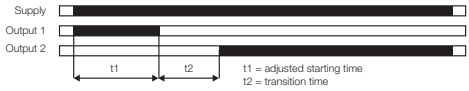
This function is used for test purposes during commissioning and troubleshooting.
If the selected max. value of the time range is smaller than 300 h (front-face potentiometer “Time sector” ≠ 300 h), applying control supply voltage energizes the output relay immediately. Interrupting control supply voltage, de-energizes the output relay.
If the selected max. value of the time range is 300 h (front-face potentiometer “Time sector” = 300 h) and control supply voltage is applied the output relay does not energize.

Pulse generator, starting with the ON or OFF time (Recycling unequal times, ON or OFF first)



This function requires continuous control supply voltage for timing. Applying control supply voltage, with closed control input, starts timing with an OFF time first. Applying control supply voltage, with open control input, starts timing with an ON time first. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

Star-Delta Changeover



This function requires continuous control supply voltage for timing. Applying control supply voltage, energizes the star contactor and begins the set starting time t1. When the starting time is complete, the first output contact de-energizes the star contactor. When the transition time t2 is complete, the second output contact energizes the delta contactor. The delta contactor remains energized as long as control supply voltage is applied. t2 is fixed to 50ms or in some variants adjustable.