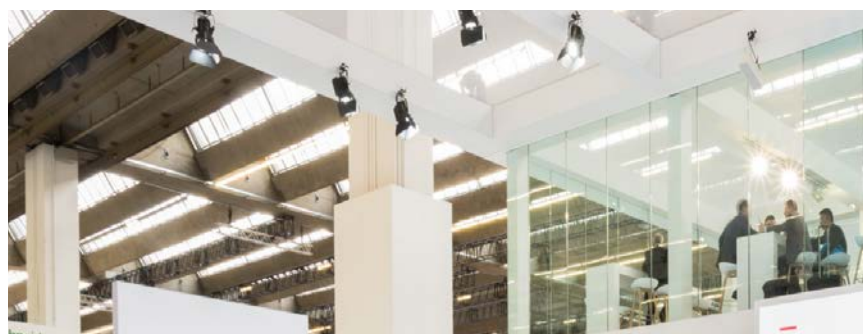
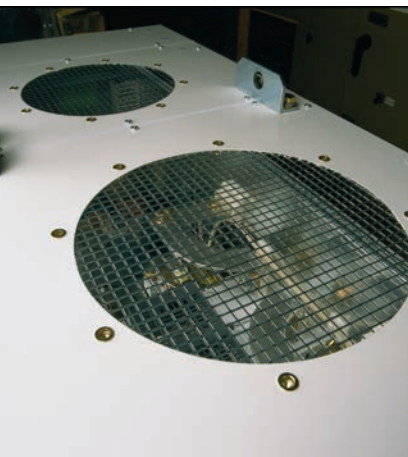

Time relays for building applications

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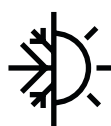
Time relays for building applications

Applications

The CT-D range is designed in a modular housing, making it well suited for building and residential applications. In just 12 order codes the CT-D range covers all the main timing functions needed for building automation, safely and reliably.



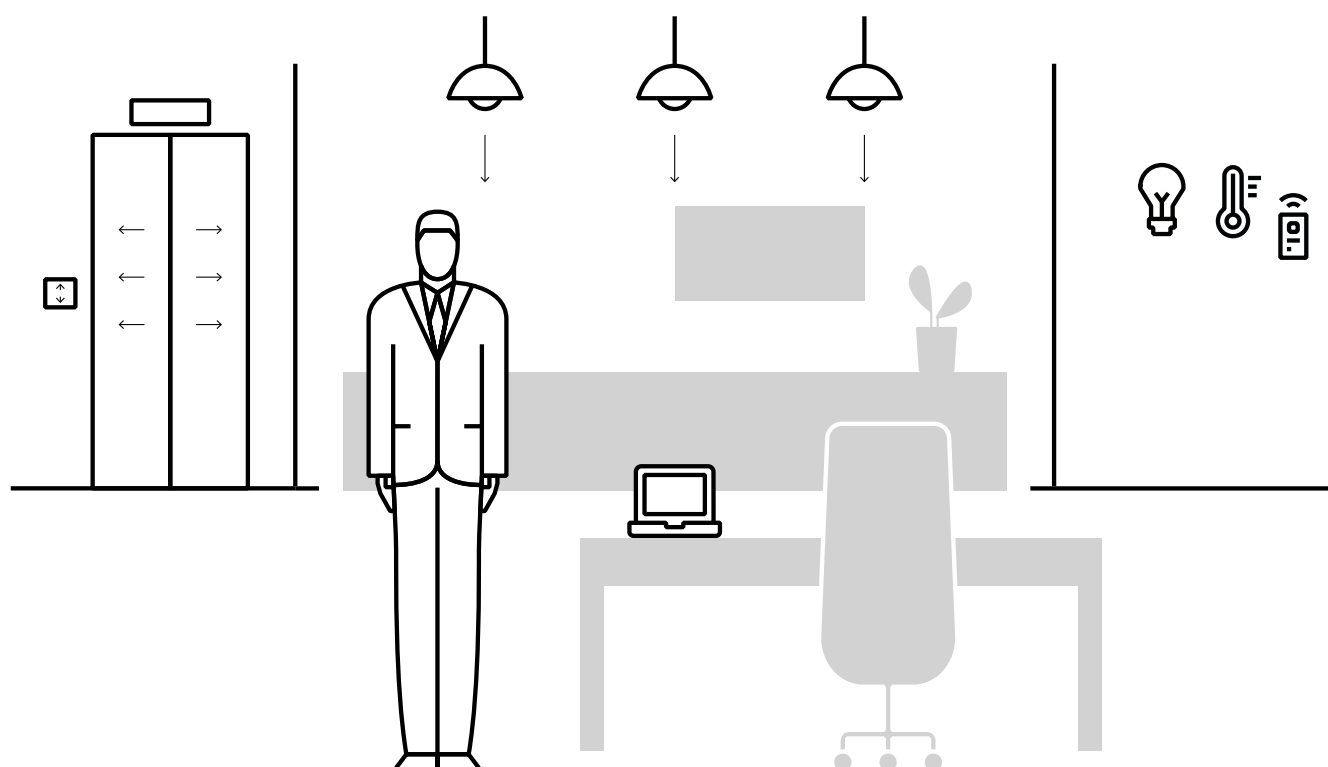
A typical application for timers is delayed switching. Switching several rows of lamps on and off in corridors, stairwells, staircases, etc, is a widespread application in which the excellent functionality of the CT-D timers is undisputed.



Air conditioning systems, heaters and fans can be found everywhere in buildings - just like the CT-D timers long used to switch them. On-delay, off-delay and a range of other functions cover all requirements.



Elevators, escalators, gates, compressors and doors - here too ABB timers ensure optimum and time-delayed opening as required. ABB's CT-D timers cover most functions with just 12 order codes.

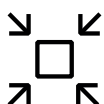


CT-D range

Benefits and advantages



The CT-D range is ideal for building applications and installation panels, due to its compact modular housing. For maximum flexibility in operation, nine single-function as well as two multifunction devices with seven timing functions are available. The devices offer four or seven time ranges from 0.05 seconds up to 100 hours. Their wide supply voltage range allows their use in applications worldwide.



Space savings

The CT-D range is ideal for installation panels thanks to its compact modular housing. The housing's design helps make the status and configuration more clearly visible. The CT-D range also offers a higher output current than standard industrial types. As well as the 1 c/o contacts, ABB offers devices with 2 c/o contacts for maximum flexibility.



Easy to install

Direct reading scales help make time setting quick and easy. A pre-selection for the time range together with an additional scale for fine adjustments help improve installation efficiency. For more flexibility, the delay time can even be changed when processes are running, making optimization to fit the application even simpler. All devices can be mounted and demounted tool-free.



Global availability

The CT-D range fulfills various global standards and approvals, supporting business worldwide. Additionally, all devices from the CT-D range have a wide supply voltage from 24-48 V DC and 24-240 V AC, making it ideal for the use in installation panels around the world.

CT-D range

Operating controls



Connection terminals

Wide terminal spacing makes connection of wires simpler: 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.



Preselection of the time range



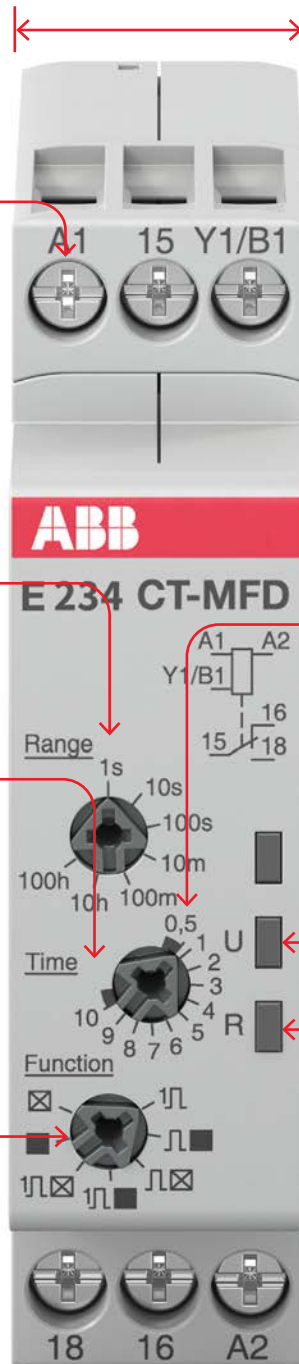
Direct reading scales

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



Selection of the timing function

- ON-delay
- OFF-delay with aux. voltage
- Impulse-ON
- Impulse-OFF with aux. voltage
- Flasher starting with ON
- Flasher starting with OFF
- Pulse former



Width 17.5 mm

With a width of just 17.5 mm, the CT-D range timers are ideally suited for installation in distribution panels.



Fine adjustment of the time delay



LEDs for status indication

All actual operational states are displayed by front-facing LEDs, thus simplifying commissioning and troubleshooting.

- U - green LED:
 control supply voltage applied /
 timing
- R, R1, R2 - yellow LED:
 output relay energized

	Type	Order number
	CT-MFD.12	1SVR500020R0000
	CT-MFD.21	1SVR500020R1100
	CT-ERD.12	1SVR500100R0000
	CT-ERD.22	1SVR500100R0100
	CT-AHD.12	1SVR500110R0000
	CT-AHD.22	1SVR500110R0100
	CT-VWD.12	1SVR500130R0000
	CT-EBD.12	1SVR500150R0000
	CT-TGD.12	1SVR500160R0000
	CT-TGD.22	1SVR500160R0100
	CT-SAD.22	1SVR500210R0100
	CT-SDD.22	1SVR500211R0100
Timing function		
ON-delay		■ ■ ■ ■
OFF-delay with aux. voltage		■ ■
Impulse-ON		■ ■
Impulse-OFF with aux. voltage		■ ■
Flasher starting with ON		■ ■
Flasher starting with OFF		■ ■
Pulse generator starting with ON or OFF		
Pulse former		■ ■
Star-delta change-over		
Features		
Control input, voltage-related triggering		■ ■
Time range		
0.05 s - 100 h		■ ■ ■ ■ ■ ■ ■ ■ 2 2
0.05 s - 10 min		■ ■
Supply voltage		
12-240 V AC/DC		■
24-48 V DC	■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
24-240 V AC	■	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Output		
c/o contact	1 2	1 2 1 2 1 1 1 1 2
n/o contact		2 2

CT-D range

Ordering details



2CDC251002V0018

CT-MFD.12



2CDC251002V0018

CT-ERD.22

- Control input with voltage-related triggering
- No triggering

Description

The CT-D range with its modular design is a perfect solution for installation panels. For maximum flexibility in operation, 10 single-function as well as two multifunction devices with seven timing functions are available. The devices offer four or seven time ranges from 0.05 seconds up to 100 hours. Their wide input range allows their use in applications worldwide.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	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		2×7 (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

CT-D range

Technical data

Data at $T_a = 25\text{ °C}$ 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 power consumption		max. 3.5 VA		
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	R, R1, R2: 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-SAC	front-face potentiometer		

CT-D range

Technical data

		CT-D with 1 c/o contact	CT-D with 2 c/o contacts	CT-MFD.21
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-SDC, CT-SAC)	
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		6 A fast-acting
	n/o contact	10 A fast-acting		
General data				
Mean time between failures (MTBF)		on request		
Duty cycle		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-stranded with(out) wire and ferrule	2 x 0.5-1.5 mm ² (2 x 20-16 AWG) 1 x 0.5-2.5 mm ² (1 x 20-14 AWG)		
		rigid	2 x 0.5-1.5 mm ² (2 x 20-16 AWG) 1 x 0.5-4 mm ² (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	EC/EN 60068-2-30	3K3		
Relative humidity range		25-85%		
Vibration, sinusoidal	IEC/EN 60068-2-6	20 m/s ² ; 10 cycles, 10...150...10 Hz		
Shock (half-sine)	IEC/EN 60068-2-27	150 m/s ² , 11 ms		

CT-D range

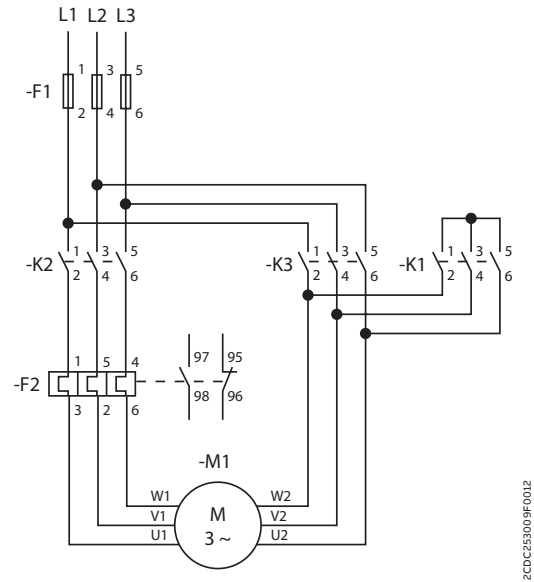
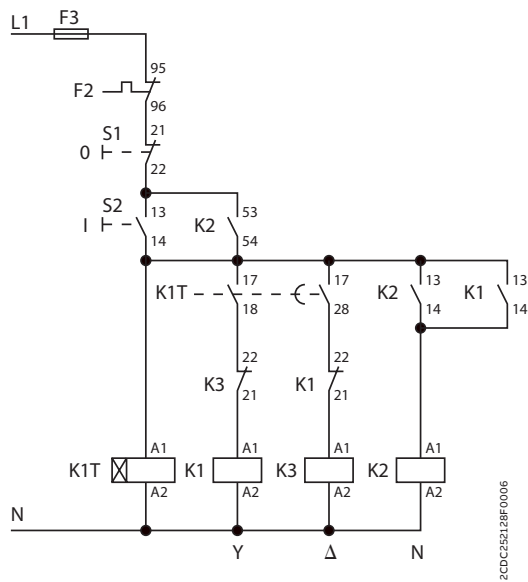
Technical data

		CT-D with 1 c/o contact	CT-D with 2 c/o contacts	CT-MFC.21
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

Example of application - Star-delta changeover

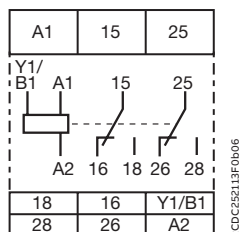


CT-D range

Technical diagrams

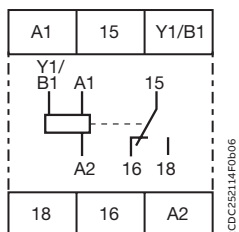
Connection diagrams

CT-MFD.21



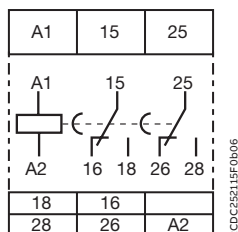
A1-A2	Supply: 12-240 V AC/DC
A1-Y1/B1	Control input
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-MFD.12



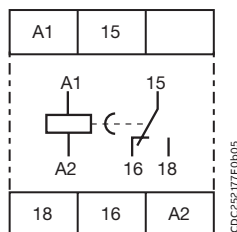
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-ERD.22



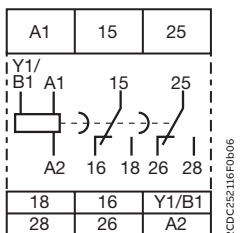
A1-A2	Supply: 24-48 V DC or 24-240 V AC
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-ERD.12



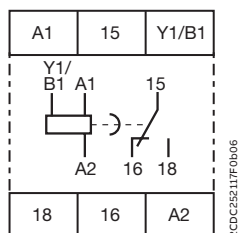
A1-A2	Supply: 24-48 V DC or 24-240 V AC
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-AHD.22



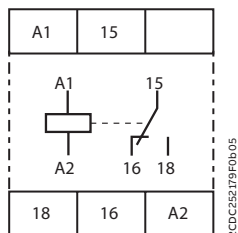
A1-A2	Supply: 24-48 V DC or 24- 240 V AC
A1-Y1/B1	Control input
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-AHD.12



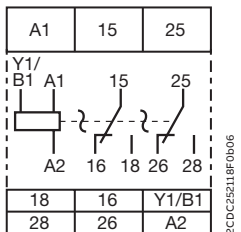
A1-A2	Supply: 24-48 V DC or 24- 240 V AC
A1-Y1/B1	Control input
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-VWD.12



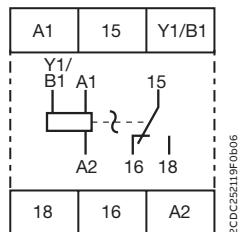
A1-A2	Supply: 24-48 V DC or 24- 240 V AC
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-TGD.22



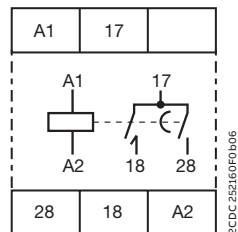
A1-A2	Supply: 24-48 V DC or 24-240 V AC
A1-Y1/B1	Control input
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-TGD.12



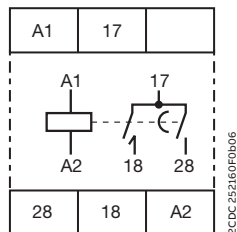
A1-A2	Supply: 24-48 V DC or 24- 240 V AC
A1-Y1/B1	Control input
15-16/18	1st c/o contact
25-26/28	2nd c/o contact

CT-SDD.22



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

CT-SAD.22



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

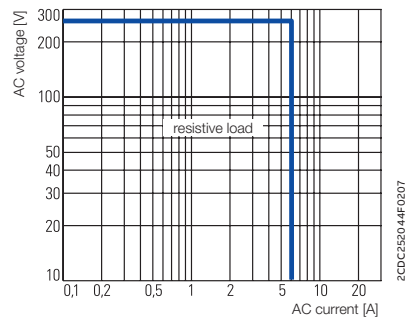
CT-D range

Technical diagrams

Load limit curves

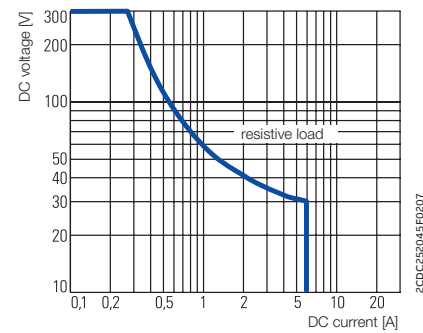
AC load (resistive)

CT-D.1x

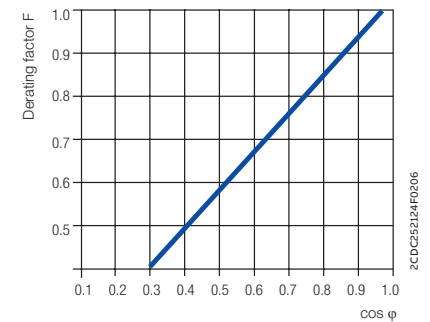


DC load (resistive)

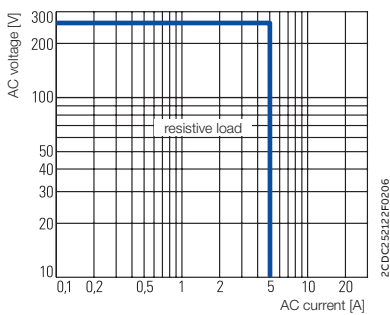
CT-D.1x



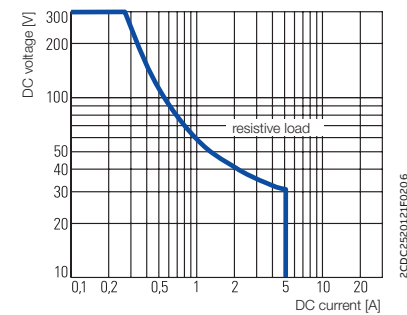
Derating factor F for inductive AC load



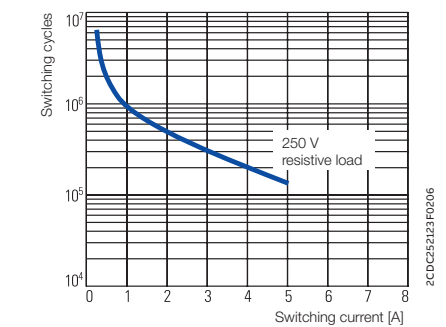
CT-D.2x



CT-D.2x

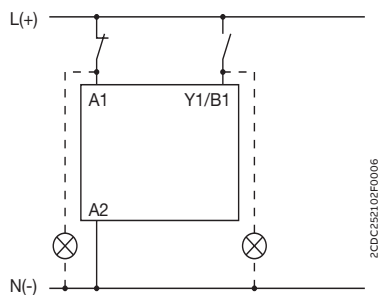


Contact lifetime

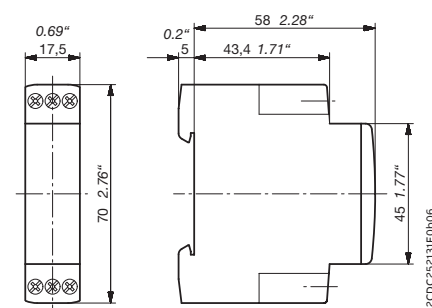


Wiring notes for devices with control input

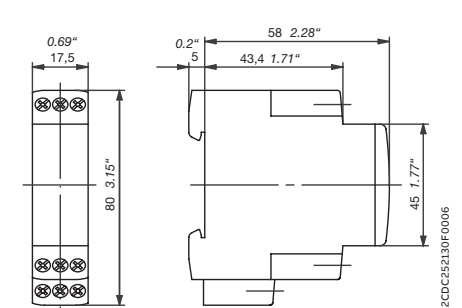
A parallel load to the control input is possible



Dimensional drawings in mm and inches



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



CT-D devices with 2 c/o contacts