

# Electronic timer CT-AHD.22

## OFF-delayed with 2 c/o (SPDT) contacts

The CT-AHD.22 is an electronic time relay with OFF-delay. It is from the CT-D range.

With their MDRC profile and a width of only 17.5 mm, the CT-D range timers are ideally suited for installation in distribution panels as well as for industrial applications where compact dimensions are required.



2CDC 251 083 F0006

### Characteristics

- Rated control supply voltage 24-48 V DC, 24-240 V AC
- Single-function timer OFF-delay
- 7 time ranges (0.05 s - 100 h) in one device
- Control input: voltage-related triggering, polarized, capable of switching a parallel load
- Light-grey enclosure in RAL 7035
- 2 c/o (SPDT) contacts (250 V / 5 A)
- Width of only 17.5 mm (0.689 in)
- 2 LEDs for the indication of operational states

### Approvals

- UL 508, CAN/CSA C22.2 No.14
- EAC
- CCC
- RMRS

### Marks

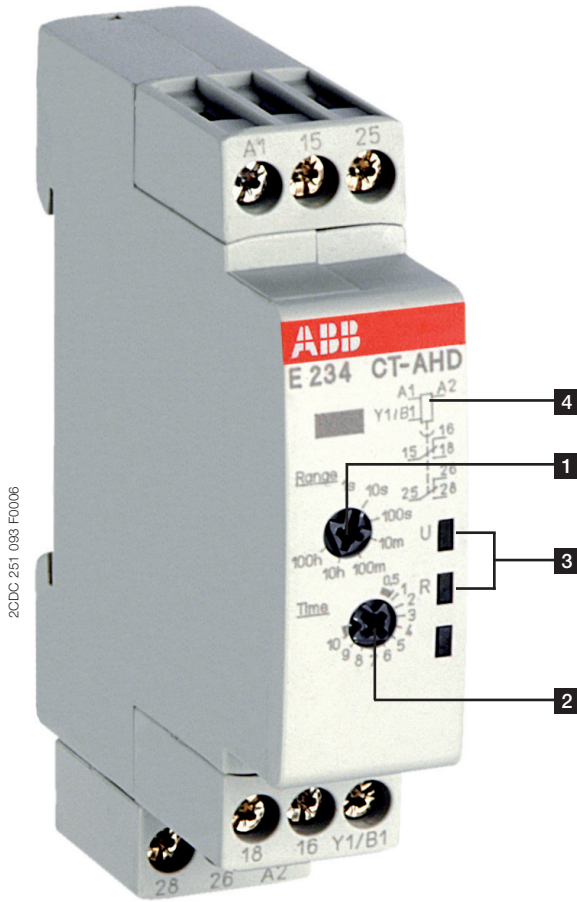
- CE
- RCM

### Order data

Type	Rated control supply voltage	Time range	Output	Control input	Order code
CT-AHD.22	24-48 V DC, 24-240 V AC	0.05 s - 100 h	2 c/o (SPDT) contacts	voltage-related triggering	1SVR 500 110 R0100

## Functions

### Operating controls




**1** Rotary switch for the preselection of the time range

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

**3** Indication of operational states

U: green LED

 control supply voltage applied

 timing

R: yellow LED

 output relays energized

**4** Circuit diagram

### Application

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

### Operating mode

The CT-AHD.22 with 2 c/o contacts and offers 7 time ranges, from 0.05 s to 100 h. The time delay range is rotary switch selectable on the front of the unit. The fine adjustment of the time delay is made via an internal potentiometer, with a direct reading scale, on the front of the unit.

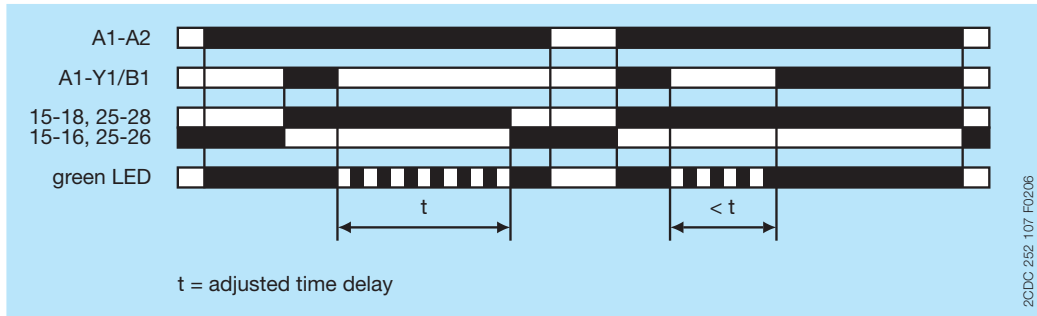
**Function descriptions / diagrams**

**OFF-delay with auxiliary voltage**

This function requires continuous control supply voltage for timing.

If control input A1-Y1/B1 is closed, the output relays energize immediately. If control input A1-Y1/B1 is opened, the time delay starts. The green LED flashes during timing. When the selected time delay is complete, the output relays de-energize and the flashing green LED turns steady.

If control input A1-Y1/B1 recloses before the time delay is complete, the time delay is reset and the output relays do not change state. Timing starts again when control input A1-Y1/B1 re-opens. If control supply voltage is interrupted, the output relays de-energize and the time delay is reset.



**Electrical connection**

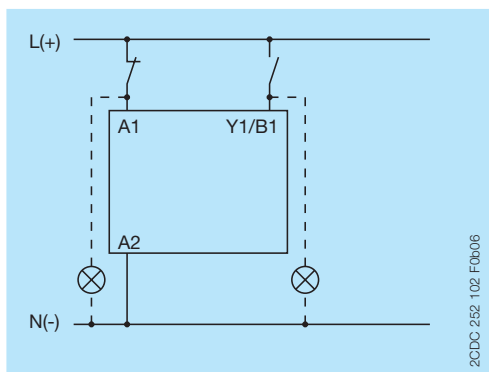
<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <td style="width: 33%;">A1</td> <td style="width: 33%;">15</td> <td style="width: 33%;">25</td> </tr> <tr> <td style="text-align: center;">Y1/ B1</td> <td style="text-align: center;">A1</td> <td style="text-align: center;">15</td> </tr> <tr> <td style="text-align: center;">A2</td> <td style="text-align: center;">16</td> <td style="text-align: center;">18</td> </tr> <tr> <td style="text-align: center;">28</td> <td style="text-align: center;">26</td> <td style="text-align: center;">28</td> </tr> </table>	A1	15	25	Y1/ B1	A1	15	A2	16	18	28	26	28	<p>A1-A2                      Rated control supply voltage <math>U_s</math> 24-48 V DC or 24-240 V AC</p> <p>A1-Y1/B1                  Control input</p> <p>15-16/18                  1st c/o (SPDT) contact</p> <p>25-26/28                  2nd c/o (SPDT) contact</p>
A1	15	25											
Y1/ B1	A1	15											
A2	16	18											
28	26	28											

2CDC 252 116 F0606

Connection diagram

**Wiring instructions**

Parallel load to control input possible / allowed



## Technical data

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

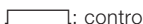
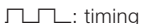
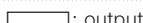
### Input circuits

Supply circuit		A1-A2
Rated control supply voltage $U_s$		24-240 V AC, 24-48 V DC
Rated control supply voltage $U_s$ tolerance		-15...+10 %
Typical current / power consumption	24 V DC	21 mA / 0.5 W
	115 V AC	20 mA / 1.2 VA
	230 V AC	31mA / 1.9 VA
Rated frequency		DC; 50/60 Hz
Frequency range AC		47-63 Hz
Power failure buffering time		min. 20 ms
Release voltage		> 10 % of the min. rated control supply voltage $U_s$

Control circuit		
Control input, control function	A1-Y1/B1	start timing external
Kind of triggering		voltage-related triggering
Resistance to reverse polarity		yes
Polarized		yes
Capable of switching a parallel load		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 $U_s$
Current /power consumption of the control input	24 V DC	0.9 mA / 0.02 W
	115 V AC	3.2 mA / 0.4 VA
	230 V AC	6.4 mA / 1.4 VA

Timing circuit		
Kind of timer	Single-function timer	OFF-delay with auxiliary voltage
Time ranges 0.05 s - 100 h		0.05-1 s, 0.5-10 s, 5-100 s, 0.5-10 min, 5-100 min, 0.5-10 h, 5-100 h
Recovery time		< 50 ms
Repeat accuracy (constant parameters)		$\Delta t < \pm 0.5\%$
Accuracy within the rated control supply voltage tolerance		$\Delta t < 0.005\% / V$
Accuracy within the temperature range		$\Delta t < 0.06\% / \text{°C}$
Setting accuracy of time delay		$\pm 10\%$ of full-scale value

### User interface

Indication of operational states		
Control supply voltage / timing	U: green LED	 : control supply voltage applied
		 : timing
Relay status	R: yellow LED	 : output relays energized

## Output circuit

Kind of output	15-16/18	relay, 1st c/o (SPDT) contact
	25-26/28	relay, 2nd c/o (SPDT) contact
Contact material		Cd-free
Rated operational voltage $U_e$		250 V
Minimum switching voltage / Minimum switching current		12 V / 100 mA
Maximum switching voltage / Minimum switching current		see load limit curve / see load limit curve
Rated operational current $I_e$	AC-12 (resistive) at 230 V	5 A
	AC-15 (inductive) at 230 V	3 A
	DC-12 (resistive) at 24 V	5 A
	DC-13 (inductive) at 24 V	2 A
AC rating (UL 508)	utilization category (Control Circuit Rating Code)	B 300
	max. rated operational voltage	300 V AC
	maximum continuous thermal current at B 300	5 A
	max. making/breaking apparent power at B 300	3600 VA / 360 VA
Mechanical lifetime		30 x 10 <sup>6</sup> switching cycles
Electrical lifetime	AC-12, 230 V, 4 A	0.1 x 10 <sup>6</sup> switching cycles
Maximum fuse rating to achieve short-circuit protection	n/c contact	6 A fast-acting
	n/o contact	10 A fast-acting

## General data

MTBF		on request
Duty time		100 %
Dimensions (W x H x D)	product dimensions	17.5 x 80 x 58 mm (0.69 x 3.15 x 2.28 in)
	packaging dimensions	89 x 65 x 20 mm (3.50 x 2.56 x 0.79 in)
Weight	net weight	0.066 kg (0.146 lb)
	gross weight	0.079 kg (0.174 lb)
Mounting		DIN rail (IEC/EN 60715), snap-on mounting without any tool
Mounting position		any
Minimum distance to other units, normal operation mode	horizontal	not necessary
	vertical	not necessary
Degree of protection	housing	IP50
	terminals	IP20

## Electrical connection

Connecting capacity	fine-strand with wire end ferrule	2 x 0.5-1.5 mm <sup>2</sup> / 1 x 0.5-2.5 mm <sup>2</sup> (2 x 20-16 AWG / 1 x 20-14 AWG)
	fine-strand without wire end ferrule	2 x 0.5-1.5 mm <sup>2</sup> / 1 x 0.5-2.5 mm <sup>2</sup> (2 x 20-16 AWG / 1 x 20-14 AWG)
	rigid	2 x 0.5-1.5 mm <sup>2</sup> / 1 x 0.5-4 mm <sup>2</sup> (2 x 20-16 AWG / 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 ranges	operation	-20...+60 °C (-4...+140 °F)
	storage	-40...+85 °C (-40...+185 °F)
Climatic class (IEC/EN 60068-2-30)		3k3
Relative humidity range		25 % to 85 %
Vibration, sinusoidal (IEC/EN 60068-2-6)		20 m/s <sup>2</sup> , 10 cycles, 10...150...10 Hz
Shock, half-sine (IEC/EN 60068-2-27)		150 m/s <sup>2</sup> , 11 ms

## Isolation data

Rated insulation voltage $U_i$	input circuit / output circuit	300 V
	output circuit 1 / output circuit 2	300 V
Rated impulse withstand voltage $U_{imp}$	between all isolated circuits	4 kV; 1.2/50 $\mu$ s
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
Protective separation (IEC/EN 61140, EN 50178)	input circuit / output circuit	250 V
Pollution degree		3
Overvoltage category		III

## Standards / Directives

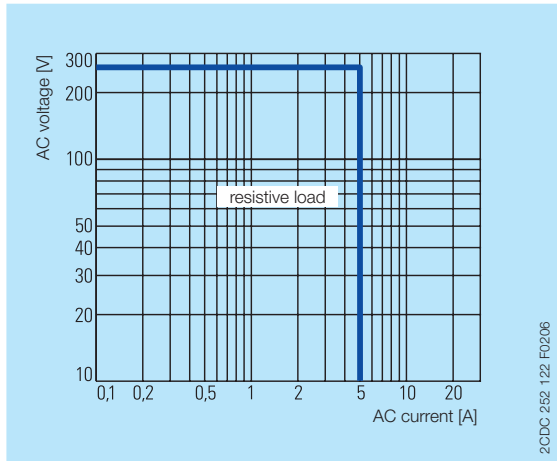
Standards	IEC/EN 61812-1
Low Voltage Directive	2014/35/EU
EMC directive	2014/30/EU
RoHS Directive	2011/65/EC

## Electromagnetic compatibility

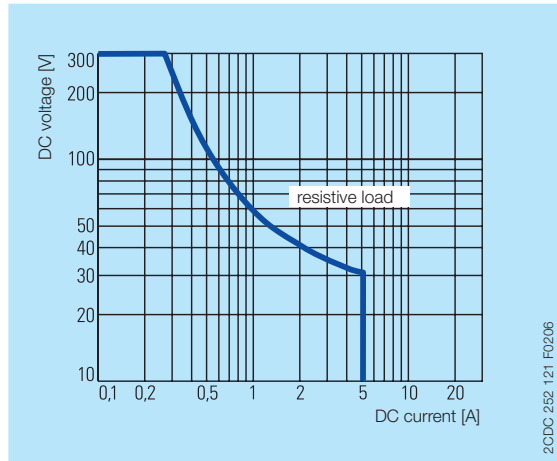
Interference immunity to		IEC/EN 61000-6-2
electrostatic discharge	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3 (10 V/m)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
surge	IEC/EN 61000-4-5	Level 3 (2 kV L-L)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

## Technical diagrams

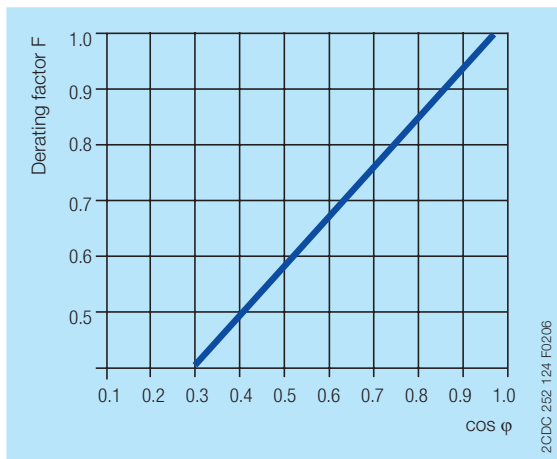
### Load limit curves



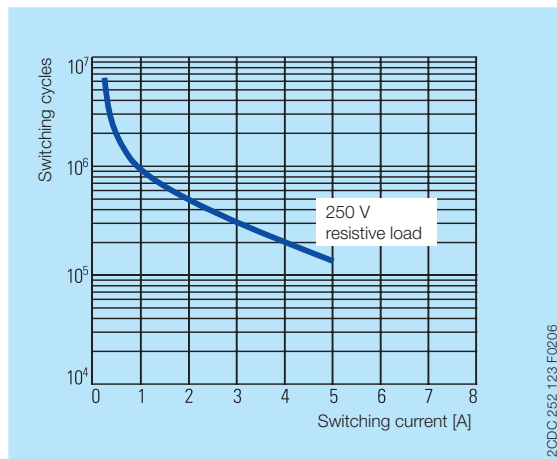
AC load (resistive)



DC load (resistive)



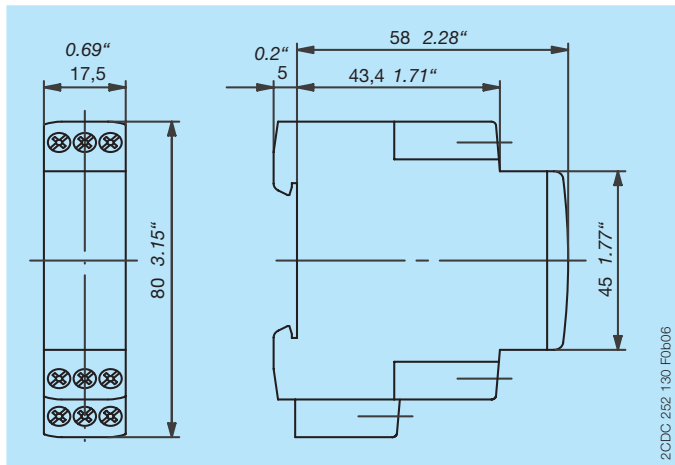
Derating factor F for inductive AC load



Contact lifetime

## Dimensions

in **mm** and *inches*



## Further documentation

Document title	Document type	Document number
Electronic products and relays	Technical catalogue	2CDC 110 004 C02xx
CT-D range	Instruction manual	1SVC 500 010 M1000

You can find the documentation on the internet at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage)  
-> Automation, control and protection -> Electronic relays and controls -> Electronic timers.

## CAD system files

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

# Contact us

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