Data sheet

Electronic timer CT-WBS.22

Impulse generating and flashing with 2 c/o (SPDT) contacts

The CT-WBS.22 is a multifunctional electronic timer from the CT-S range. It provides 10 timing functions and 10 time ranges.

All electronic timers from the CT-S range are available with two different terminal versions. You can choose between the proven screw connection technology (double-chamber cage connection terminals) and the completely tool-free Easy Connect Technology (push-in terminals).

2CDC 251 029 V0011

Characteristics

- Rated control supply voltage 24-48 V DC, 24-240 V AC
- 7 timing 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
- 10 time ranges (0.05 s - 300 h)
- Precise adjustment by front-face operating elements
- Screw connection technology or
  Easy Connect Technology available
- Housing material for highest fire protection classification UL 94 V-0
- Tool-free mounting and demounting on DIN-rail
- 2 c/o (SPDT) contacts
- 22.5 mm (0.89 in) width
- 2 LEDs for status indication

Approvals

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

Marks

CE
C-Tick

Order data

Electronic timers

Type	Rated control supply voltage	Connection technology	Time ranges	Order code
CT-WBS.22P	24-48 V DC, 24-240 V AC	Push-in terminals	0.05 s - 300 h	1SVR 740 040 R3300
CT-WBS.22S	24-48 V DC, 24-240 V AC	Screw type terminals	0.05 s - 300 h	1SVR 730 040 R3300

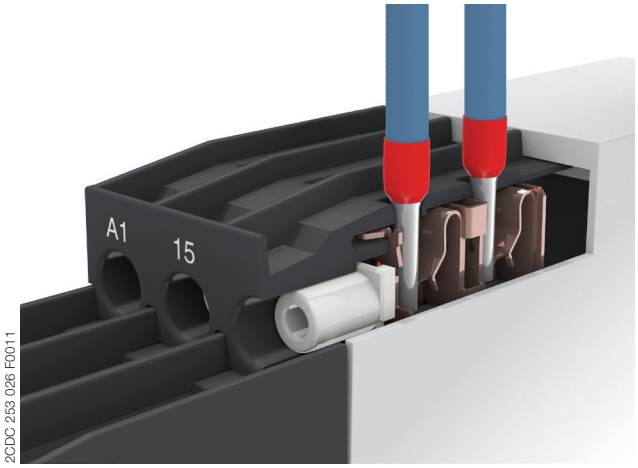
Accessories

Type	Description	Order code
ADP.01	Adapter for screw mounting on panel	1SVR 430 029 R0100
MAR.01	Beschriftungsschild für Geräte ohne DIP-Schalter	1SVR 366 017 R0100
COV.11	Plombierbare Klarsichtabdeckung	1SVR 730 005 R0100

Connection technology

Maintenance free Easy Connect Technology with push-in terminals

Type designation CT-xxS.yyP



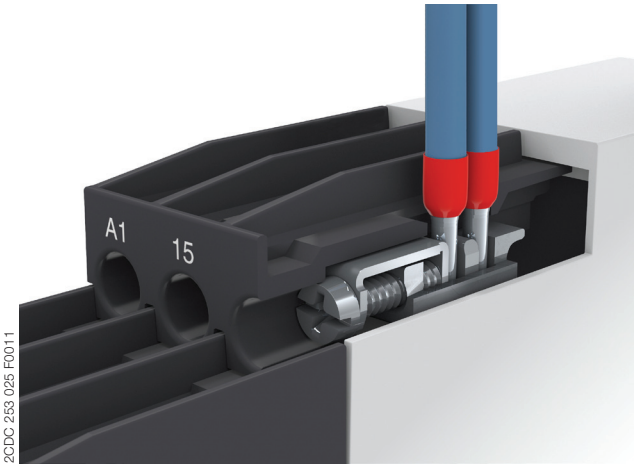
2CDC 253 026 F0011

Push-in terminals

- Tool-free connection of rigid and flexible wires with wire end ferrule according to DIN 46228-1-A 4-9, DIN 46228-4-E 4-10
  Wire size: 2 x 0.5-1.5 mm², (2 x 20 - 16 AWG)
- Easy connection of flexible wires without wire end ferrule by opening the terminals
- No retightening necessary
- One operation lever for opening both connection terminals
- For triggering the lever and disconnecting of wires you can use the same tool (Screwdriver according to DIN ISO 2380-1 Form A 0.8 x 4 mm (0.0315 x 0.157 in), DIN ISO 8764-1 PZ1 ø 4.5 mm (0.177 in))
- Constant spring force on terminal point independent of the applied wire type, wire size or ambient conditions (e. g. vibrations or temperature changes)
- Opening for testing the electrical contacting
- Gas-tight

Approved screw connection technology with double-chamber cage connection terminals

Type designation CT-xxS.yyS



2CDC 253 025 F0011

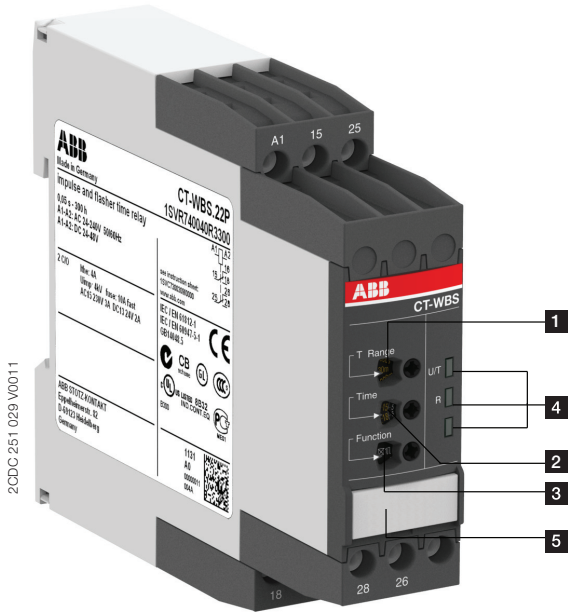
Double-chamber cage connection terminals

- Terminal spaces for different wire sizes:
  fine-strand with/without wire end ferrule:
  1 x 0.5-2.5 mm² (2 x 20 - 14 AWG),
  2 x 0.5-1.5 mm² (2 x 20 - 16 AWG)
  rigid:
  1 x 0.5-4 mm² (1 x 20 - 12 AWG),
  2 x 0.5-2.5 mm² (2 x 20 - 14 AWG)
- One screw for opening and closing of both cages
- Pozidrive screws for pan- or crosshead screwdrivers according to DIN ISO 2380-1 Form A 0.8 x 4 mm (0.0315 x 0.157 in), DIN ISO 8764-1 PZ1 ø 4.5 mm (0.177 in)

Both the Easy Connect Technology with push-in terminals and screw connection technology with double-chamber cage connection terminals have the same connection geometry as well as terminal position.

Functions

Operating controls and terminals



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

2 **Fine adjustment of the time delay**

3 **Rotary switch for the preselection of the timing function**

4 **Indication of operational states**

U: green LED - control supply voltage / timing

R: yellow LED - status of output relays

5 **Marker label**

Application

The CT-S range timers are designed for use in industrial applications. They operate over a universal range of supply voltages and a large time delay range, within compact dimensions. The easy-to-set front-face potentiometers, with direct reading scales, provide accurate time delay adjustment.

Multifunction timers are ideally suited for service and maintenance applications, because one device can replace a number of time relays with different functions, voltage and time ranges. This reduces inventory and saves money.

Operating mode

The CT-WBS.22 with 2 c/o (SPDT) contacts offers 7 timing functions. The function is rotary switch selectable on the front of the unit. Each function is indicated by an international function symbol.

One of 10 time ranges, from 0.05 s to 300 h, can be selected with an other rotary switch. The fine adjustment of the time delay is made via an internal potentiometer, with a direct reading scale, on the front of the unit.

Timing is displayed by a flashing green LED labelled U/T.

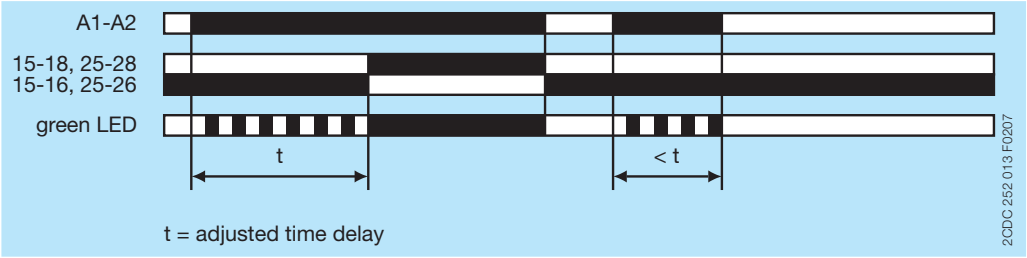
Function diagram

ON-delay

This function requires continuous control supply voltage for timing.

Timing begins when control supply voltage is applied. The green LED flashes during timing. When the selected time delay is complete, the output relay energizes and the flashing green LED turns steady.

If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

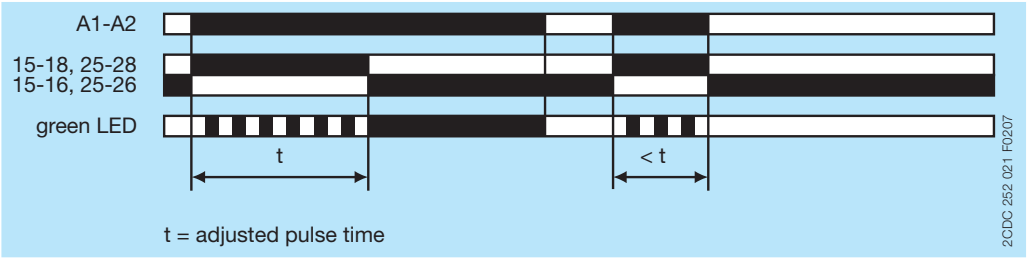


Impulse-ON

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. The green LED flashes during timing. When the selected pulse time is complete, the flashing green LED turns steady.

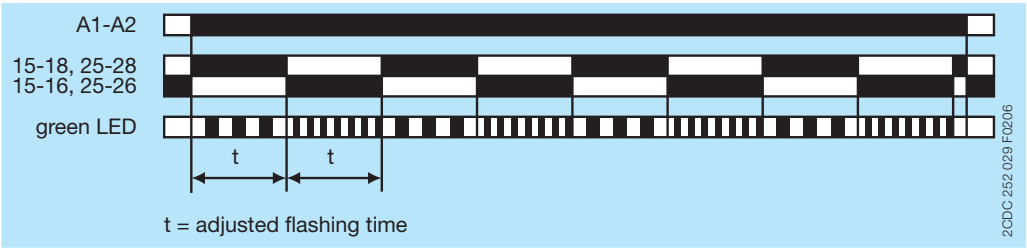
If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.



Flasher, starting with ON

Applying control supply voltage starts timing with symmetrical ON / OFF times. The cycle starts with an ON time first. The ON / OFF times are displayed by the flashing green LED, which flashes twice as fast during the OFF time.

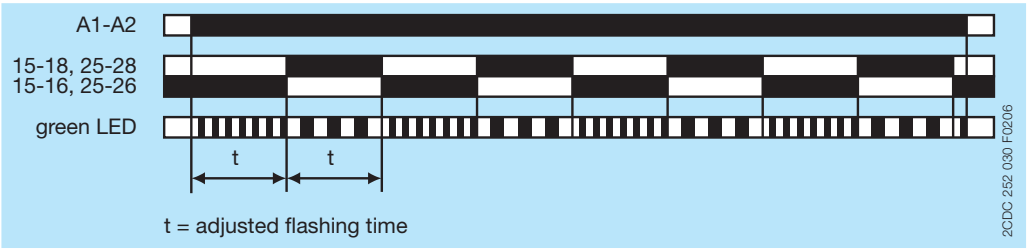
If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.



Flasher, starting with OFF

Applying control supply voltage starts timing with symmetrical ON / OFF times. The cycle starts with an OFF time first. The ON / OFF times are displayed by the flashing green LED, which flashes twice as fast during the OFF time.

If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

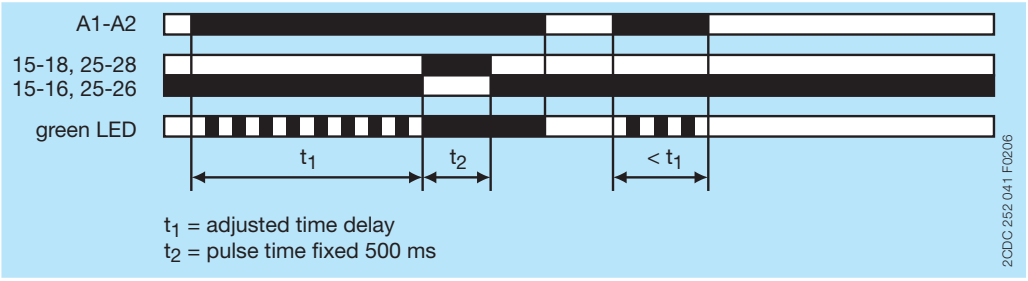


Fixed impulse with adjustable time delay

This function requires continuous control supply voltage for timing.

The time delay t_1 starts when control supply voltage is applied. The green LED flashes during timing. When t_1 is complete, the output relay energizes for the fixed impulse time t_2 of 500 ms and the flashing green LED turns steady.

If control supply voltage is interrupted, the time delay is reset. The output relay does not change state.

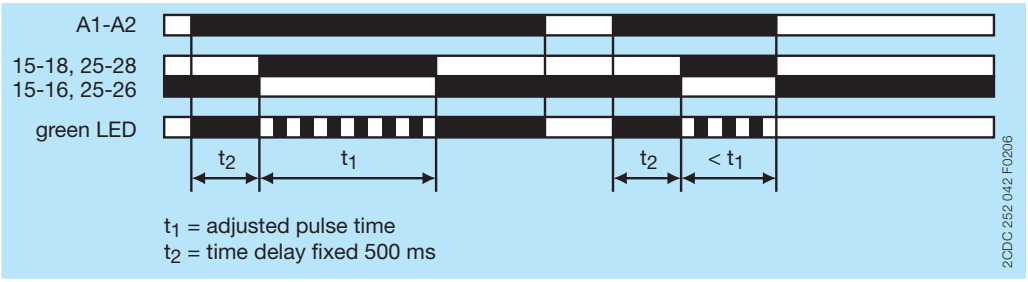


Adjustable impulse with fixed time delay

This function requires continuous control supply voltage for timing.

Applying control supply voltage starts the fixed time delay t_2 of 500 ms. When t_2 is complete, the output relay energizes and the selected pulse time t_1 starts. The green LED flashes during timing. When t_1 is complete, the output relay de-energizes and the flashing green LED turns steady.

If control supply voltage is interrupted, the pulse time is reset. The output relay does not change state.



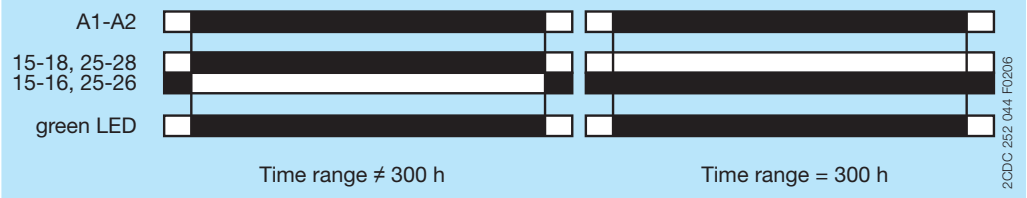
ON/OFF-function

This function is used for test purposes during commissioning and troubleshooting.

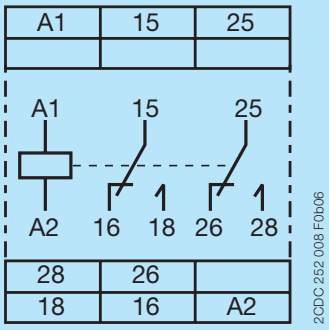
If the selected max. value of the time range is smaller than 300 h (front-face potentiometer “T Range” not 300 h), applying control supply voltage energizes the output relay immediately and the green LED glows. Interrupting control supply voltage, de-energizes the output relay.

If the selected max. value of the time range is 300 h (front-face potentiometer “T Range” = 300 h) and control supply voltage is applied, the green LED glows, but the output relay does not energize.

Time settings and operating of the control inputs have no effect on the operation.



Electrical connection



15-16/18	1. c/o (SPDT) contact
25-26/28	2. c/o (SPDT) contact
A1-A2	Rated control supply voltage U_S 24-48 V DC or 24-240 V AC

Connection diagram

Technical data

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

Input circuits

Supply circuit		**A1-A2**		
Rated control supply voltage U_S		24-48 V DC, 24-240 V AC		
Rated control supply voltage U_S tolerance	24-48 V DC	-15...+10 %		
	24-240 V AC	-15...+10 %		
Rated frequency	DC	n/a		
	AC	50/60 Hz		
Frequency range	AC	47-63 Hz		
Typical current / power consumption		**24 V DC**	**230 V AC**	**115 V AC**
	24-48 V DC	16 mA / on request	- / -	- / -
	24-240 V AC	- / -	60 mA / on request	36 mA / on request
Power failure buffering time	24 V DC	min. 15 ms		
	230 V AC	min. 20 ms		

Timing circuit		
Kind of timer	Impulse and flasher timer	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
Time ranges 0.05 s - 300 h		0.05-1 s, 0.15-3 s, 0.5-10 s, 1.5-30 s, 5-100 s, 15-300 s, 1.5-30 min, 15-300 min, 1.5-30 h, 15-300 h
Recovery time		< 80 ms
Repeat accuracy (constant parameters)		Δt <± 0.2 %
Accuracy within the rated control supply voltage tolerance		Δt < 0.004 %/V
Accuracy within the temperature range		Δt < 0.03 %/°C

User interface

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

Output circuits

Kind of output	15-16/18	Relay, 1. c/o (SPDT) contact
	25-26/28	Relay, 2. c/o (SPDT) contact
Contact material		Cd-free
Rated operational voltage U_e		250 V
Minimum switching voltage / Minimum switching current		12 V / 10 mA
Maximum switching voltage / Minimum switching current		see 'Load limit curves' on page 10
Rated operational current I_e (IEC/EN 60947-5-1)	AC12 (resistive) at 230 V	4 A
	AC15 (inductive) at 230 V	3 A
	DC12 (resistive) at 24 V	4 A
	DC13 (inductive) at 24 V	2 A
AC rating (UL 508)	utilization category (Control Circuit Rating Code)	B 300
	max. rated operational voltage	300 V AC
	max. continuous thermal current at B 300	5 A
	max. making / breaking apparent power at B 300	3600/360 VA
Mechanical lifetime		30 x 10^6 switching cycles
Electrical lifetime	AC12, 230 V, 4 A	0.1 x 10^6 switching cycles
Maximum fuse rating to achieve short-circuit protection (IEC/EN 60947-5-1)	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	22.5 x 85.6 x 103.7 mm (0.89 x 3.37 x 4.08 in)	
	packaging dimensions	97 x 109 x 30 mm (3.82 x 4.29 x 1.18 in)	
Weight		**Screw connection technology**	**Easy Connect Technology (Push-in)**
	net weight	0.123 kg (0.271 lb)	0.115 kg (0.254 lb)
	gross weight	0.145 kg (0.320 lb)	0.137 kg (0.302 lb)
Mounting		DIN rail (IEC/EN 60715), snap-on mounting without any tool	
Mounting position		any	
Minimum distance to other units	vertical	not necessary	
	horizontal	not necessary	
Material of housing		UL 94 V-0	
Degree of protection	housing	IP50	
	terminals	IP20	

Electrical connection

		Screw connection technology	**Easy Connect Technology (Push-in)**
Wire size	fine-strand with(out) wire end ferrule	1 x 0.5-2.5 mm² (1 x 20-14 AWG) 2 x 0.5-1.5 mm² (2 x 20-16 AWG)	2 x 0.5-1.5 mm² (2 x 20-16 AWG)
	rigid	1 x 0.5-4 mm² (1 x 20-12 AWG) 2 x 0.5-2.5 mm² (2 x 20-14 AWG)	2 x 0.5-1.5 mm² (2 x 20-16 AWG)
Stripping length		8 mm (0.32 in)	
Tightening torque		0.6 - 0.8 Nm (5.31 - 7.08 lb.in)	-

Environmental data

Ambient temperature ranges	operation	-25...+60 °C
	storage	-40...+85 °C
Damp heat, cyclic (IEC/EN 60068-2-30)		6 x 24 h cycle, 55 °C, 95 % RH
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	100 m/s², 11 ms, 3 shocks/direction
	resistance	300 m/s², 11 ms, 3 shocks/direction

Isolation data

Rated insulation voltage U_i	output circuit 1 / output circuit 2	300 V
	input circuit / output circuit	500 V
Rated impulse withstand voltage U_{imp} between all isolated circuits (IEC/EN 60664-1, VDE 0110)		4 kV; 1.2/50 µs
Power-frequency withstand voltage test between all isolated circuits (test voltage)		routine test: 2.0 kV; 50 Hz, 1 s type test: 2.5 kV; 50 Hz, 1 min
Basic insulation (IEC/EN 61140)	input circuit / output circuit	500 V
Protective separation (IEC/EN 61140; IEC/EN 50178; VDE 0106 part 101 and part 101/A1)	input circuit / output circuit	250 V
Pollution degree (IEC/EN 60664-1, VDE 0110)		3
Overvoltage category (IEC/EN 60664-1, VDE 0110)		III

Standards

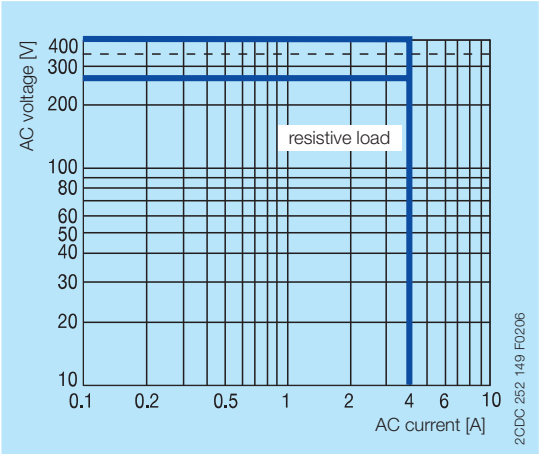
Product standard	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 part 2021
Low Voltage Directive	2006/95/EC
EMC Directive	2004/108/EC
RoHS Directive	2002/95/EC

Electromagnetic compatibility

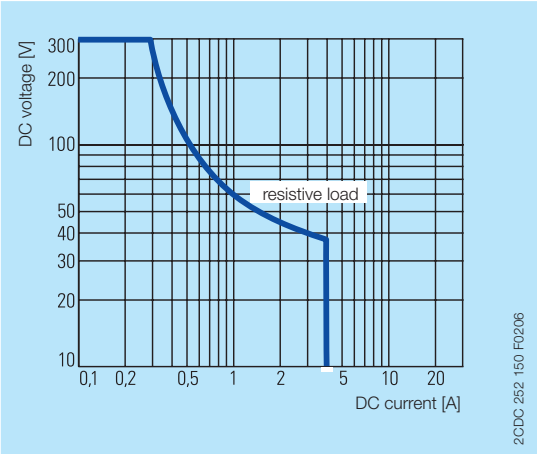
Interference immunity to		IEC/EN 61000-6-1, IEC/EN 61000-6-2
electrostatic discharge	IEC/EN 61000-4-2	Level 3, 6 kV / 8 kV
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3, 10 V/m (1 GHz) / 3 V/m (2 GHz) / 1 V/m (2.7 GHz)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 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	Level 3
Interference emission		IEC/EN 61000-6-3, IEC/EN 61000-6-4
high-frequency radiated	IEC/CISPR 22, EN 55022	Class B
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B

Technical diagrams

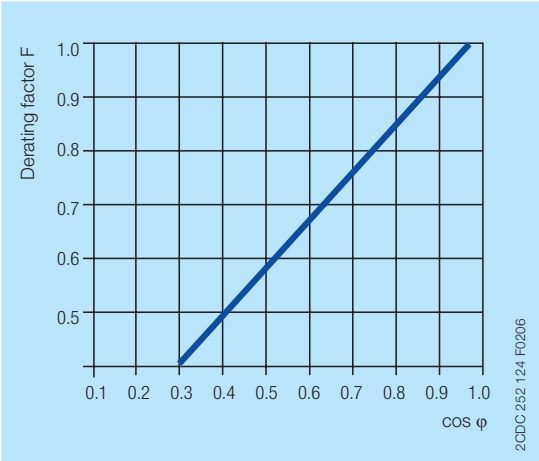
Load limit curves



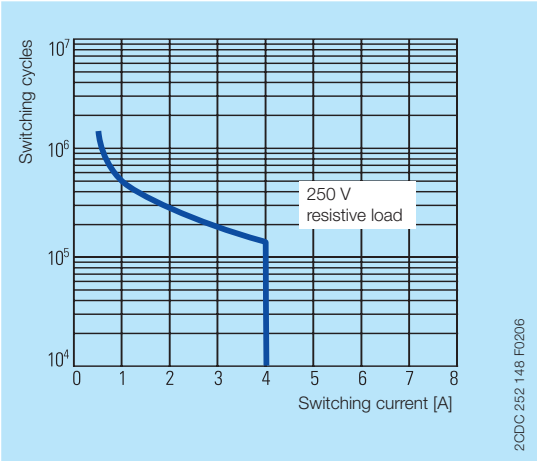
AC load (resistive)



DC load (resistive)



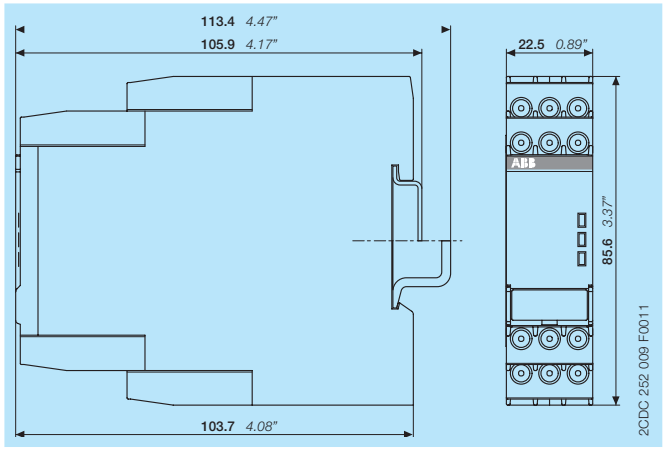
Derating factor F for inductive AC load



Contact lifetime

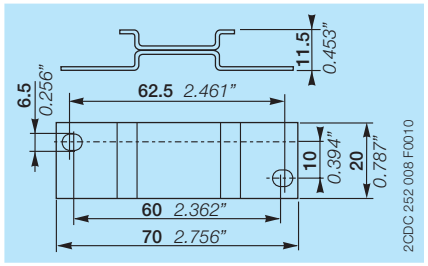
Dimensions

in **mm** and *inches*

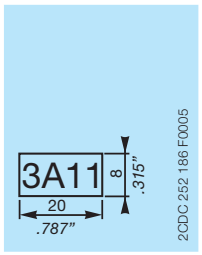


Accessories

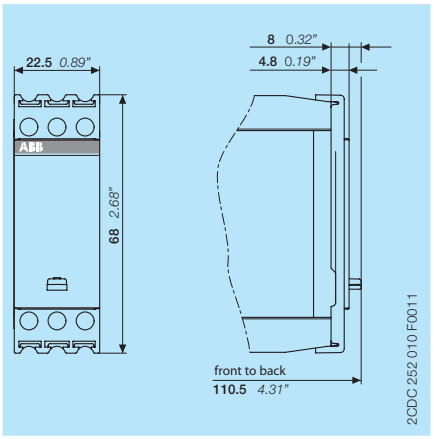
in **mm** and *inches*



ADP.01 - Adapter for screw mounting



MAR.01 - Marker label



COV.11 - Sealable transparent cover

Further documentation

Document title	Document type	Document number
Electronic Products and Relays	Technical catalogue	2CDC 110 004 C020x
CT-MXS, CT-WBS	Instruction manual	1SVC 730 030 M0000

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

Contact us

ABB STOTZ-KONTAKT GmbH
P. O. Box 10 16 80
69006 Heidelberg, Germany
Phone: +49 (0) 6221 7 01-0
Fax: +49 (0) 6221 7 01-13 25
E-mail: info.desto@de.abb.com

You can find the address of your
local sales organization on the
ABB home page
http://www.abb.com/contacts
-> Low Voltage Products and Systems

Document number 2CDC 111 129 D0201 printed in Germany (04/2011)

Note:
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.