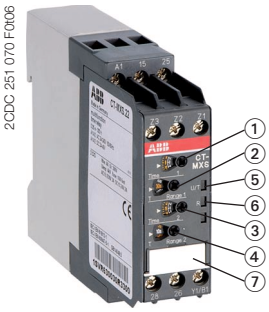
Electronic timer CT-MXS.22

Multifunctional with 2 c/o contacts

Data sheet



① Potentiometer with direct reading scale for the fine adjustment of the time delay 1

② Rotary switch for the preselection of the time range 1

③ Potentiometer with direct reading scale for the fine adjustment of the time delay 2

④ Rotary switch for the preselection of the time range 2

⑤ U/T: green LED -
control supply voltage applied
timing

⑥ R: yellow LED -
output relays energized

⑦ Marker label

Features

- Rated control supply voltage 24-48 V DC, 24-240 V AC
- Multifunction timer with 5 timing functions:
  Asymmetrical ON- and OFF-delay, Impulse-ON/OFF, Pulse generator starting with ON or OFF, Single pulse generator, ON/OFF-function
- One device includes 2 x 10 time ranges (0.05 s - 300 h)
- 2 c/o contacts
- Control input with voltage-related triggering to start timing
- 2 remote potentiometer connections
- 2 LEDs for status indication
- Width of 22.5 mm
- Sealable transparent cover (optional accessory) for protection against unauthorized changes of time values
- Integrated marker label

Approvals

	cULus	
	GL	
	GOST	
	CB scheme	
	CCC	pending
	RMRS	pending

Marks

CE	CE	
	C-Tick	pending

Order data

Type	Rated control supply voltage	Time range	Output	Control input	Order code
CT-MXS.22	24-48 V DC, 24-240 V AC	2 x 0.05 s - 300 h	2 c/o contacts	voltage-related triggering	1SVR 630 030 R3300

Order data - Accessories

Adapter for screw mounting on panel

Type	Width in mm	Order code
ADP.01	22.5	1SVR 430 029 R0100

Sealable transparent cover

Type	Width in mm	Order code
COV.01	22.5	1SVR 430 005 R0100

Marker label

Type	Width in mm	Order code
MAR.01	22.5	1SVR 366 017 R0100

Remote potentiometer

50 kΩ±20 % - 0.2 Ω with direct reading scale (graduated scale supplied)

Type	Diameter in mm	Degree of protection	Order code
CT-POT.01	30.5	IP65	1SVR 700 800 R1000
CT-POT.02	22.5	IP65	1SVR 701 800 R1000
CT-POT.03	10.5	IP40	1SVR 214 017 R0900

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-MXS.22 with 2 c/o contacts offers 5 timing functions. The function is rotary switch selectable on the front of the unit. Each function is indicated by an international function symbol.

Two rotary switches, on the front of the unit, allow selection of one of the 10 time ranges from 0.05 s - 300 h for each time delay. The fine adjustment of the time delays is made via internal potentiometers, with direct reading scales, on the front of the unit. When external potentiometers are connected to terminals Z1-Z2 and Z3-Z2, the internal adjustment is disabled and external adjustment is enabled.

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

Function diagram(s)

Remarks

Legend:

Control supply voltage not applied / Output contact open

Control supply voltage applied / Output contact closed

A1-Y1/B1 Control input with voltage-related triggering

Remote potentiometer connection:

When external potentiometers are connected to the remote potentiometer connections (terminals Z1-Z2 and Z3-Z2), the internal, front-face potentiometers are disabled and the time adjustment is made via the external potentiometers.

Terminal designations on the device and in the diagrams:

The 1st c/o contact is designated 15-16/18. The 2nd c/o contact is designated 25-26/28. Control supply voltage is applied to terminals A1-A2.

Function of the yellow LED:

The yellow LED R glows as soon as the output relays energize and turns off when the output relays de-energize.

Asymmetrical ON- and OFF-delay

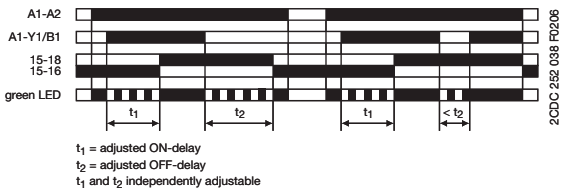
This function requires continuous control supply voltage for timing.

Closing control input **A1-Y1/B1** starts the ON-delay t_1. When timing is complete, the output relay energizes. Opening control input **A1- Y1/B1** starts the OFF-delay t_2. When the OFF-delay is complete, the output relay de-energizes. Both timing functions are displayed by the flashing green LED. The ON-delay and OFF-delay are independently adjustable.

If control input **A1-Y1/B1** opens before the ON-delay is complete ($< t_1$), the time delay is reset and the output relay remains de-energized.

If control input **A1-Y1/B1** closes before the OFF-delay is complete ($<t_2$), 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.



t_1 = adjusted ON-delay
t_2 = adjusted OFF-delay
t_1 and t_2 independently adjustable

Function diagram(s)

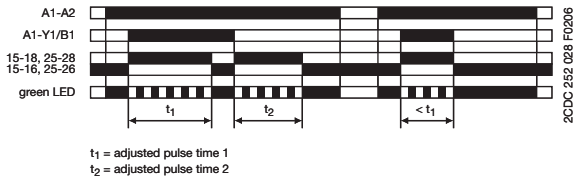
Impulse-ON and Impulse-OFF

This function requires continuous control supply voltage for timing.

If control supply voltage is applied, closing control input **A1-Y1/B1** energizes the output relay immediately and starts the pulse time t_1. The green LED flashes during timing. When t_1 is complete, the output relay de-energizes and the flashing green LED turns steady. Re-opening control input **A1-Y1/B1** energizes the output relay immediately and starts the pulse time t_2. The green LED flashes during timing. When t_2 is complete, the output relay de-energizes and the flashing green LED turns steady. t_1 and t_2 are independently adjustable.

If control input **A1-Y1/B1** changes state before the pulse time is complete, the output relay de-energizes and the pulse time is reset. If control input **A1-Y1/B1** 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.



t_1 = adjusted pulse time 1
t_2 = adjusted pulse time 2

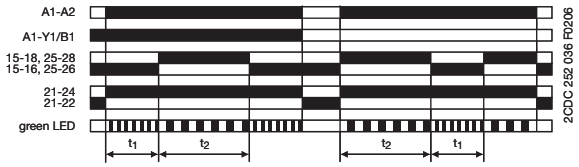
Pulse generator, starting with ON or OFF

This function requires continuous control supply voltage for timing.

Applying control supply voltage, with open control input **A1-Y1/B1**, starts timing with an ON time t_2 first. Applying control supply voltage, with closed control input **A1-Y1/B1**, starts timing with an OFF time t_1 first. The ON / OFF times are displayed by the flashing green LED, which flashes twice as fast during the OFF time.

The ON / OFF times are independently adjustable.

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



t_1 = adjusted OFF time
t_2 = adjusted ON time

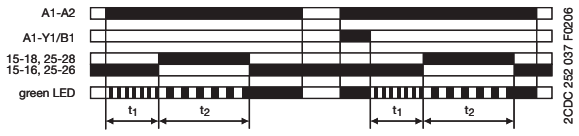
Single pulse generator, starting with OFF

This function requires continuous control supply voltage for timing.

Applying control supply voltage, or, if control supply voltage is already applied, opening control input **A1-Y1/B1** energizes the output relay after the OFF time t_1 is complete. When the following ON time t_2 is complete, the output relay de-energizes. The ON / OFF times are displayed by the flashing green LED, which flashes twice as fast during the OFF time.

The ON / OFF times are independently adjustable.

Closing control input **A1-Y1/B1**, with control supply voltage applied, de-energizes the output relay and resets the time delay. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.

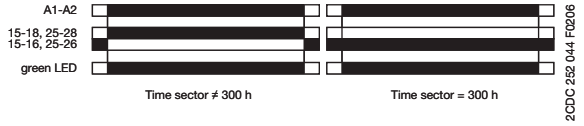


t_1 = adjusted OFF time
t_2 = adjusted ON time
t_1 and t_2 independently adjustable

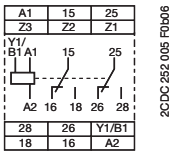
Function diagram(s)

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” 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 “Time sector” = 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.



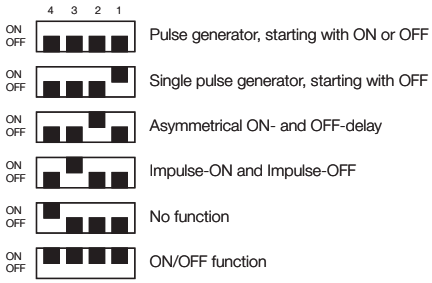
Connection diagram(s)



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

DIP switch functions

Select function



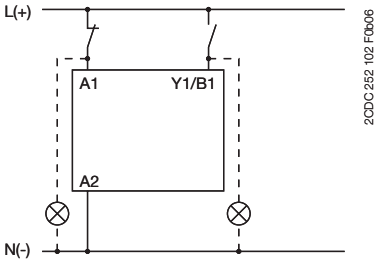
2CDC 252 043 F0207

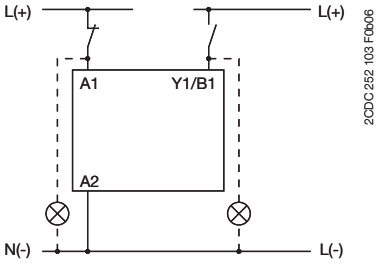
Default setting: all DIP switches in OFF position

Wiring instructions

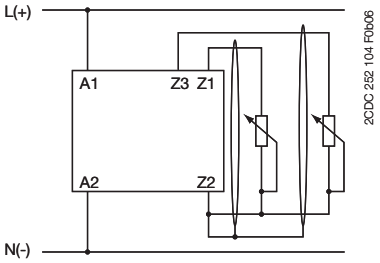
Control input
(voltage-related triggering)

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



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Data sheet

Technical data

Data at T_a = 25 °C and rated values, if noting else indicated

Input circuits - Supply circuit		1SVR 630 030 R3300		
Rated control supply voltage U_S	A1-A2	24-48 V DC		
	A1-A2	24-240 V AC		
Rated control supply voltage tolerance	24-48 V DC	-15...+10 %		
	24-240 V AC	-15...+10 %		
Typical current / power consumption		24 V DC	230 V AC	115 V AC
	24-48 V DC	17 mA / on request	- / -	- / -
	24-240 V AC	- / -	57 mA / on request	33 mA / on request
Rated frequency		DC; 50/60 Hz		
Frequency range AC		47-63 Hz		
Power failure buffering time		min. 20 ms		

Input circuits - Control circuit		1SVR 630 030 R3300
Control input, control function	A1-Y1/B1	start timing external
Kind of triggering		voltage-related triggering
Restistance to reverse polarity		yes
Polarized		no
Capable for switching a parallel load		yes
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 U_S
Current consumption of the control input	24 V DC	1.2 mA
	230 V AC	8 mA
Remote potentiometer connection	Z1-Z2	50 kΩ
	Z3-Z2	50 kΩ
Maximum cable length to the control input		2 x 25 m, shielded with 100 pF/m
Shield connection		Z2

Timing circuit		1SVR 630 030 R3300
Kind of timer	Multifunction timer	Asymmetrical ON- and OFF-delay
		Impulse-ON and Impulse-OFF
		Pulse generator, starting with ON or OFF
		Single pulse generator, starting with OFF
		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
Accuracy within the rated control supply voltage tolerance		Δt < 0.004 %/ΔU
Accuracy within the temperature range		Δt < 0.03 %/°C

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Data sheet

Indication of operational states		1SVR 630 030 R3300
Control supply voltage / timing	U/T: green LED	⎍‾‾⎍: control supply voltage applied
Control supply voltage / timing	U/T: green LED	⎍⎍⎍⎍: timing
Relay status	R1: yellow LED	⎍‾‾⎍: output relay energized

Output circuits		1SVR 630 030 R3300
Kind of output	15-16/18	Relay, 1. c/o contact
	25-26/28	Relay, 2. c/o 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 / see load limit curves
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
Mechanical lifetime		30 x 10^6 switching cycles
Electrical lifetime		0.1 x 10^6 switching cycles (AC12, 230 V, 4 A)
Short-circuit resistance, maximum fuse rating (IEC/EN 60947-5-1)	n/c contact	6 A fast-acting
	n/o contact	10 A fast-acting

General data		1SVR 630 030 R3300
Duty time		100 %
Repeat accuracy (constant parameters)		$\Delta t < \pm 0.2$ %
Dimensions (W x H x D)		22.5 x 78 x 100 mm (0.89 x 3.07 x 3.94 inches)
Electrical connection - all circuits		Screw connection
Wire size	fine-strand with wire end ferrule	2 x 0.75-2.5 mm^2 (2 x 18-14 AWG)
	fine-strand without wire end ferrule	2 x 0.75-2.5 mm^2 (2 x 18-14 AWG)
	rigid	2 x 0.5-4 mm^2 (2 x 20-12 AWG)
Stripping length		7 mm (0.28 inches)
Tightening torque		0.6-0.8 Nm
Weight		0.131 kg (0.29 lb)
Mounting position		any
Minimum distance to other units		
normal operation mode	horizontal	none
	vertical	none
Mounting		DIN rail (EN 60715) snap-on mounting without any tool
Degree of protection	enclosure / terminals	IP50 / IP20

Environmental data		1SVR 630 030 R3300
Ambient temperature range	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)		40 m/s^2, 20 cycles, 10...58/60...150 Hz
Shock, half-sine (IEC/EN 60068-2-27)		100 m/s^2, 11 ms, 3 shocks, all directions

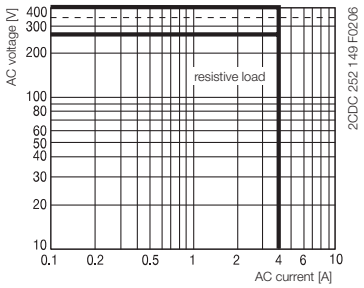
Standards / Directives	1SVR 630 030 R3300
Product standard	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 part 2021
EMC Directive	89/336/EEC
Low Voltage Directive	73/23/EEC
RoHS Directive	2002/95/EEC

Electromagnetic compatibility		1SVR 630 030 R3300
Interference immunity		IEC/EN 61000-6-1 IEC/EN 61000-6-2
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	Level 3 (10 V/m)
fast transients (Burst)	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
powerful impulses (Surge)	IEC/EN 61000-4-5	Level 4 (2 kV A1-A2)
HF line emission	IEC/EN 61000-4-6	Level 3 (10 V)
Interference emission		IEC/EN 61000-6-3 IEC/EN 61000-6-4
electromagnetic field (HF radiation resistance)	IEC/CISPR 22, EN 55022	Class B
HF line emission	IEC/CISPR 22, EN 55022	Class B

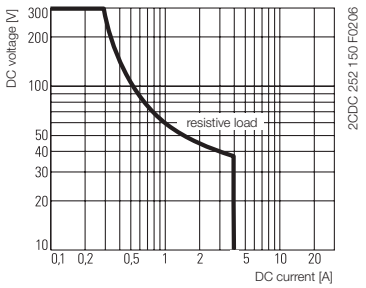
Isolation data		1SVR 630 030 R3300
Rated insulation voltage U_i	output circuit 1 / output circuit 2	300 V
	input circuit / output circuit	500 V
Rated impulse withstand voltage U_{imp} (type test) (IEC 60664-1, VDE 0110)	between all isolated circuits	4 kV; 1.2/50 µs
Power-frequency withstand voltage test (Test voltage, routine test)	between all isolated circuits	2.0 kV; 50 Hz, 1 s
Basic insulation (IEC/EN 61140)	input circuit / output circuit	500 V
Protective separation (IEC/EN 61140; VDE 0106 part 101 and part 101/A1)	input circuit / output circuit	250 V
Pollution degree	(IEC/EN 60664, VDE 0110, UL 508)	2
Overvoltage category	(IEC/EN 60664, VDE 0110, UL 508)	III

Technical diagrams

Load limit curve

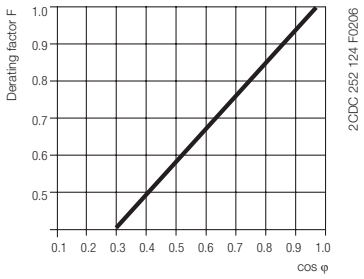


AC load (resistive)



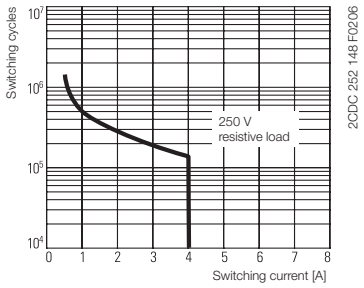
DC load (resistive)

Derating factor F



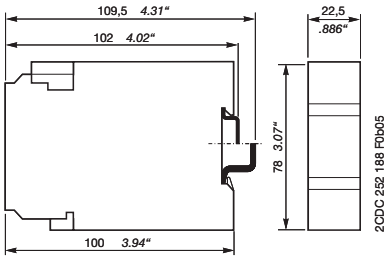
for inductive AC load

Contact lifetime

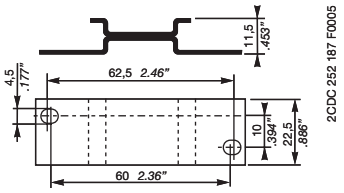


Dimensions

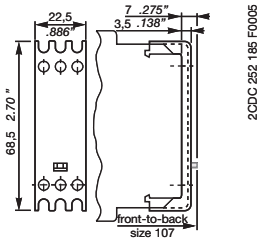
in mm



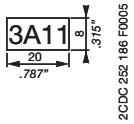
Dimensions accessories
in mm



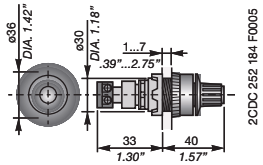
ADP.01 - Adapter for screw mounting on panel



COV.01 - Sealable transparent cover

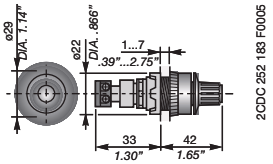


MAR.01 - Marker label

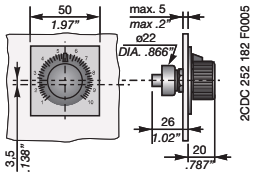


CT-POT.01 - Potentiometer 30.5 mm

Dimensions accessories
in mm



CT-POT.02 - Potentiometer 22.5 mm



CT-POT.03 - Potentiometer 10.5 mm

Synonyms

Used expression	Alternative expression(s)	Used expression	Alternative expression(s)
2 c/o contacts	1 DPDT / 2 SPDT	voltage-related	wet / non-floating

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