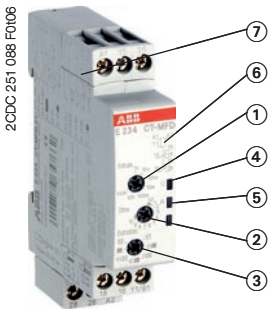
Electronic timer CT-MFD.21

Multifunctional with 2 c/o contacts

Data sheet



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 Rotary switch for the preselection of the timing function

④ U: green LED -
┌──┐
control supply voltage applied
┌┐┌┐└
timing

⑤ R: yellow LED -
┌──┐
output relays energized

⑥ Circuit diagram

⑦ Function diagram

Features

- Rated control supply voltage 12-240 V AC/DC
- Multifunction timer with 7 timing 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
- 7 time ranges (0.05 s - 100 h) in one device
- 2 c/o contacts (250 V / 5 A)
- Control input: voltage-related triggering, polarized, capable of switching a parallel load
- 2 LEDs for status indication
- Width of only 17.5 mm
- Light-grey enclosure in RAL 7035

Approvals

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

Marks

CE	CE	
	C-Tick	pending

Order data

Type	Rated control supply voltage	Time range	Output	Control input	Order code
CT-MFD.21	12-240 V AC/DC	0.05 s - 100 h	2 c/o contacts	voltage-related triggering	1SVR 500 020 R1100

Application

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

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-MFD.21 has 2 c/o contacts and provides 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 7 time delay ranges, from 0.05 s to 100 h, can be selected with another 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.

Function diagram(s)

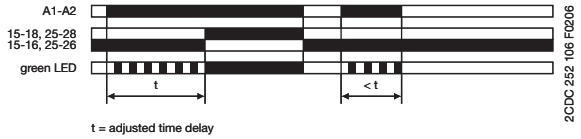
ON-delay

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.

Control input **A1-Y1/B1** is disabled when this function is selected.



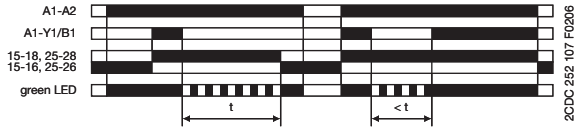
t = adjusted time delay

OFF-delay with auxiliary voltage

This function requires continuous control supply voltage for timing.

If control input **A1-Y1/B1** is closed, the output relay energizes 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 relay de-energizes 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 relay does not change state. Timing starts again when control input **A1-Y1/B1** re-opens. If control supply voltage is interrupted, the output relay de-energizes and the time delay is reset.



t = adjusted time delay

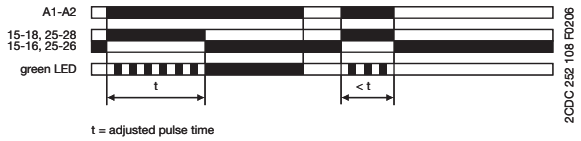
Impulse-ON

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.

Control input **A1-Y1/B1** is disabled when this function is selected.



t = adjusted pulse time

Function diagram(s)

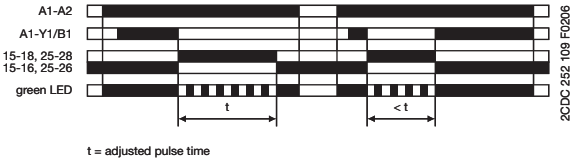
1 Impulse-OFF with auxiliary voltage

This function requires continuous control supply voltage for timing.

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

Closing control input **A1-Y1/B1**, before the time delay is complete, 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.



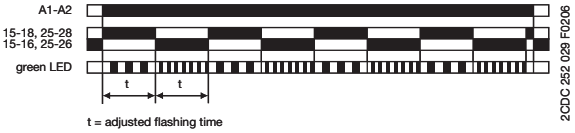
t = adjusted pulse time

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.

Control input **A1-Y1/B1** is disabled when this function is selected.



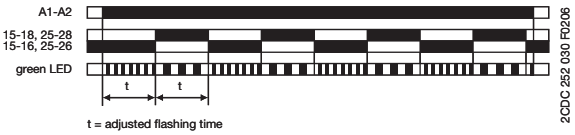
t = adjusted flashing time

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.

Control input **A1-Y1/B1** is disabled when this function is selected.



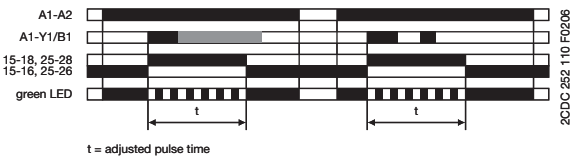
t = adjusted flashing time

Pulse former

This function requires continuous control supply voltage for timing.

Closing control input **A1-Y1/B1** energizes the output relay immediately and starts timing. Operating the control contact switch **A1-Y1/B1** during the time delay has no effect. The green LED flashes during timing. When the selected ON time is complete, the output relay de-energizes and the flashing green LED turns steady. After the ON time is complete, it can be restarted by closing control input **A1-Y1/B1**.

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



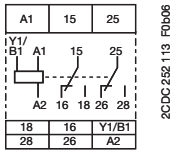
t = adjusted pulse time

Electronic timer CT-MFD.21

Multifunctional with 2 c/o contacts

Data sheet

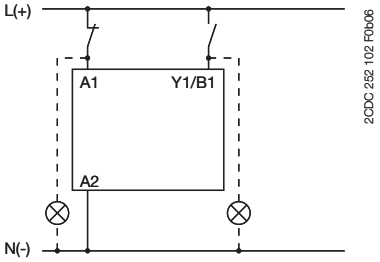
Connection diagram(s)



15-16/18	1. c/o contact
25-26/28	2. c/o contact
A1-A2	Rated control supply voltage U_S 12-240 V AC/DC
A1-Y1/B1	Control input

Wiring instructions

Parallel load to control input possible / allowed



Electronic timer CT-MFD.21

Multifunctional with 2 c/o contacts

Data sheet

Technical data

Data at T_a = 25 °C and rated values, if nothing else indicated

Input circuits - Supply circuit		1SVR 500 020 R1100		
Rated control supply voltage U_S	A1-A2	12-240 V AC/DC		
Rated control supply voltage tolerance	12-240 V AC/DC	-15...+10 %		
Typical current / power consumption		12 V DC	230 V AC	115 V AC
	12-240 V AC/DC	35.01 mA / -	6.26 mA / -	34.25 mA / -
Rated frequency		DC; 50/60 Hz		
Frequency range AC		47-63 Hz		
Power failure buffering time		min. 30 ms		

Input circuits - Control circuit		1SVR 500 020 R1100
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		30 ms
Control voltage potential		see rated control supply voltage U_S
Current consumption of the control input	12 V DC	0.0183 mA
	230 V AC	0.0099 mA
	115 V AC	0.0098 mA

Timing circuit		1SVR 500 020 R1100
Kind of timer	Multifunction timer	ON-delay
		OFF-delay with auxiliary voltage
		Impulse-ON
		Impulse-OFF with auxiliary voltage
		Flasher, starting with ON
		Flasher, starting with OFF
		Pulse former
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
Accuracy within the rated control supply voltage tolerance		Δt < 0.005 %/V
Accuracy within the temperature range		Δt < 0.06 %/°C

Indication of operational states		1SVR 500 020 R1100
Control supply voltage / timing	U: green LED	⎍‾‾⎍: control supply voltage applied
Control supply voltage / timing	U: green LED	⎍⎍⎍_: timing
Relay status	R: yellow LED	⎍‾‾⎍: output relay energized

Electronic timer CT-MFD.21

Multifunctional with 2 c/o contacts

Data sheet

Output circuits		1SVR 500 020 R1100
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
Derating		
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 (IEC 60947-5-1)	AC12 (resistive) at 230 V	5 A
	AC15 (inductive) at 230 V	n/c: 0.75 A
	DC12 (resistive) at 24 V	5 A
	DC13 (inductive) at 24 V	1 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 500 020 R1100
Duty time		100 %
Repeat accuracy (constant parameters)		Δt <± 0.5 %
Dimensions (W x H x D)		17.5 x 80 x 58 mm (0.69 x 3.15 x 2.28 inches)
Weight		approx. 65 g (approx. 0.14 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

Electrical connection		1SVR 500 020 R1100
all circuits		Screw connection
Wire size	fine-strand with wire end ferrule	2 x 0.5-1.5 mm^2 / 1 x 0.5-2.5 mm^2 (2 x 20-16 AWG) / (1 x 20-14 AWG)
	fine-strand without wire end ferrule	2 x 0.5-1.5 mm^2 / 1 x 0.5-2.5 mm^2 (2 x 20-16 AWG) / (1 x 20-14 AWG)
	rigid	2 x 0.5-1.5 mm^2 / 1 x 0.5-4 mm^2 (2 x 20-16 AWG) / (1 x 20-12 AWG)
Stripping length		7 mm (0.28 inches)
Tightening torque		0.5-0.8 Nm

Environmental data		1SVR 500 020 R1100
Ambient temperature range	operation	-20...+60 °C
	storage	-40...+85 °C
Damp heat, cyclic (IEC/EN 60068-2-30)		6 x 24 h cycles, 55 °C, 95 % RH
Vibration, sinusoidal (IEC/EN 60068-2-6)		4 m/s^2, 20 cycles, 10...150...10 Hz

Electronic timer CT-MFD.21

Multifunctional with 2 c/o contacts

Data sheet

Environmental data		1SVR 500 020 R1100
Shock, half-sine (IEC/EN 60068-2-27)		100 m/s², 11 ms

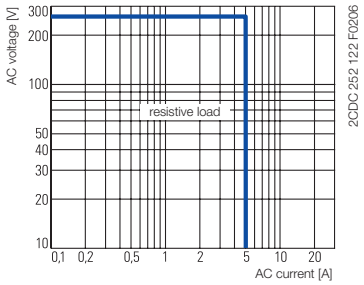
Isolation data		1SVR 500 020 R1100
Rated isolation voltage U_i	Output circuit 1 / Output circuit 2	300 V
	Input circuit / Output circuit	300 V
Rated impulse withstand voltage U_{imp} (type test) (IEC/EN 60664-1, VDE 0110)	between all isolated circuits	4 kV; 1.2/50 µs
Power-frequency withstand voltage test (Test voltage, routine test)	between all isolated circuits	2.5 kV, 50 Hz, 1 s
Basic insulation (IEC/EN 61140)	Input circuit / Output circuit	300 V
Protective separation (IEC/EN 61140, VDE 0106 part 101 and part 101/A1)	Input circuit / Output circuit	250 V
Pollution degree (IEC/EN 60664-1, VDE 0110, UL 508)		3
Overvoltage category (IEC/EN 60664-1, VDE 0110, UL 508)		III

Standards / Directives	1SVR 500 020 R1100
Product standard	IEC 61812-1, EN 61812-1 + A11, DIN VDE 0435 part 2021
EMC Directive	2004/108/EC
Low Voltage Directive	2006/95/EC
RoHS Directive	2002/95/EC

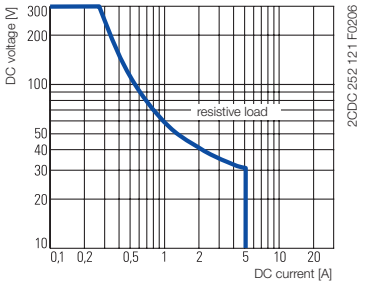
Electromagnetic compatibility		1SVR 500 020 R1100
Interference immunity		IEC/EN 61000-6-1 IEC/EN 61000-6-2
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	Level 3 (10 V/m)
fast transients (Burst)	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
powerful impulses (Surge)	IEC/EN 61000-4-5	Level 4 (2 kV L-L)
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

Technical diagrams

Load limit curve

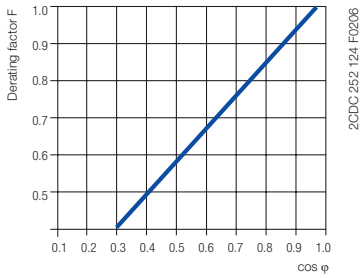


AC load (resistive)



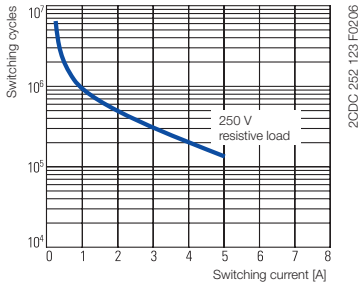
DC load (resistive)

Derating factor F



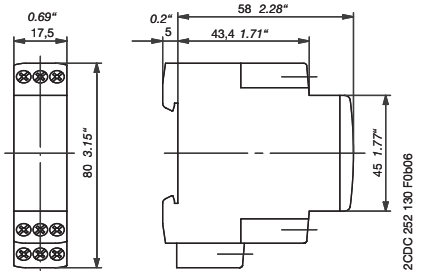
for inductive AC load

Contact lifetime



Dimensions

in mm



CT-MFD.21

Synonyms

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

Further Documentation

Document title	Document type	Document number
Electronic Products and Relays	Technical catalogue	2CDC 110 004 C020x

You can find the documentation in the internet under www.abb.com/lowvoltage → Control Products → ...

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Document number: 2CDC 111 059 D0201 (12/2007)

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