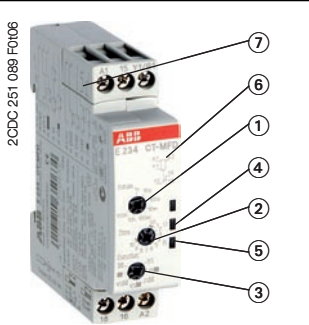



# Electronic timer CT-MFD.12

## Multifunctional with 1 c/o contact

### 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 relay energized
- ⑥ Circuit diagram
- ⑦ Function diagram


### Features

- Rated control supply voltage 24-48 V DC, 24-240 V AC
- 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
- 1 c/o contact (250 V / 6 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 scheme
-  CCC

### Marks

-  CE
-  C-Tick

### Order data

Type	Rated control supply voltage	Time range	Output	Control input	Order code
CT-MFD.12	24-48 V DC, 24-240 V AC	0.05 s - 100 h	1 c/o contact	voltage-related triggering	1SVR 500 020 R0000

### 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.12 has 1 c/o contact 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.

# Electronic timer CT-MFD.12

## Multifunctional with 1 c/o contact

### Data sheet

#### 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.

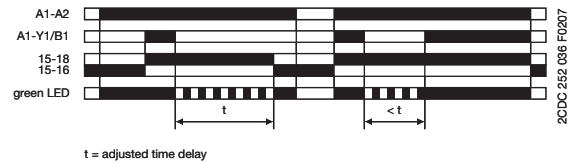


##### ■ OFF-delay with auxiliary voltage

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.



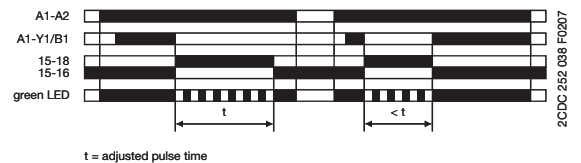
##### 1□■ Impulse-OFF with auxiliary voltage

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.



# Electronic timer CT-MFD.12

## Multifunctional with 1 c/o contact

### Data sheet

#### Function diagram(s)

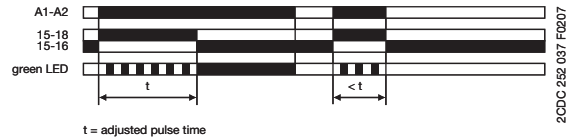
##### Impulse-ON

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.

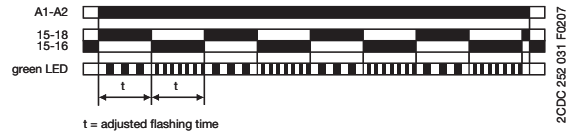


##### Flasher, starting with ON

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.

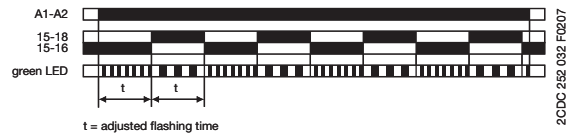


##### Flasher, starting with OFF

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.

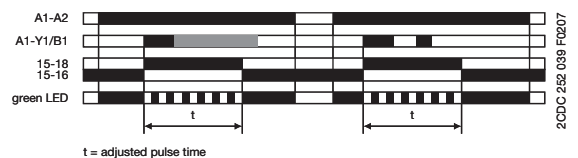


##### Pulse former

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.

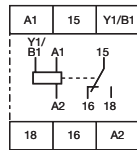


# Electronic timer CT-MFD.12

Multifunctional with 1 c/o contact

Data sheet

## Connection diagram(s)



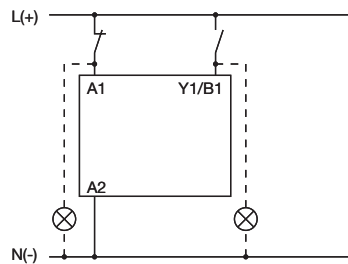
2CDC 292 114 F0006

15-16/18  
A1-A2  
A1-Y1/B1

1. c/o contact  
Rated control supply voltage  $U_s$   
24-48 V DC or 24-240 V AC  
Control input

## Wiring instructions

Parallel load to control input possible / allowed



2CDC 292 102 F0006



# Electronic timer CT-MFD.12

## Multifunctional with 1 c/o contact

### Data sheet

#### Technical data


Data at  $T_a = 25\text{ °C}$  and rated values, if nothing else indicated

Input circuits - Supply circuit		1SVR 500 020 R0000		
Rated control supply voltage $U_s$	A1-A2	24-240 V AC		
	A1-A2	24-48 V DC		
Rated control supply voltage tolerance	24-240 V AC	-15...+10 %		
	24-48 V DC	-15...+10 %		
Typical current / power consumption		24 V DC	230 V AC	115 V AC
	24-48 V DC	12.81 mA / -	- / -	- / -
	24-240 V AC	- / -	59.12 mA / -	46.37 mA / -
Rated frequency		DC; 50/60 Hz		
Frequency range AC		47-63 Hz		
Power failure buffering time		min. 20 ms		
Input circuits - Control circuit		1SVR 500 020 R0000		
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	24 V DC	3.71 mA		
	230 V AC	24.19 mA		
	115 V AC	21.86 mA		
Timing circuit		1SVR 500 020 R0000		
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		$\Delta t < 0.005\ %/V$		
Accuracy within the temperature range		$\Delta t < 0.06\ %/^{\circ}C$		
Indication of operational states		1SVR 500 020 R0000		
Control supply voltage / timing	U: green LED	 : control supply voltage applied		
Control supply voltage / timing	U: green LED	 : timing		

# Electronic timer CT-MFD.12

Multifunctional with 1 c/o contact

Data sheet

Indication of operational states		1SVR 500 020 R0000	
Relay status	R: yellow LED	 : output relay energized	
Output circuits		1SVR 500 020 R0000	
Kind of output	15-16/18	Relay, 1. 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	6 A	
	AC15 (inductive) at 230 V	3 A	
	DC12 (resistive) at 24 V	6 A	
	DC13 (inductive) at 24 V	2 A	
Mechanical lifetime		30 x 10 <sup>6</sup> switching cycles	
Electrical lifetime		0.1 x 10 <sup>6</sup> 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 R0000	
Duty time		100 %	
Repeat accuracy (constant parameters)		$\Delta t \leq \pm 0.5 \%$	
Dimensions (W x H x D)		17.5 x 70 x 58 mm (0.69 x 2.76 x 2.28 inches)	
Weight		approx. 60 g (approx. 0.13 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 R0000	
all circuits		Screw connection	
Wire size	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 inches)	
Tightening torque		0.5-0.8 Nm	
Environmental data		1SVR 500 020 R0000	
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	

# Electronic timer CT-MFD.12

## Multifunctional with 1 c/o contact

### Data sheet

<b>Environmental data</b>		1SVR 500 020 R0000
Vibration, sinusoidal (IEC/EN 60068-2-6)		4 m/s <sup>2</sup> , 20 cycles, 10...150...10 Hz
Shock, half-sine (IEC/EN 60068-2-27)		100 m/s <sup>2</sup> , 11 ms
<b>Isolation data</b>		1SVR 500 020 R0000
Rated isolation voltage U <sub>i</sub>	Output circuit 1 / Output circuit 2	300 V
	Input circuit / Output circuit	300 V
Rated impulse withstand voltage U <sub>imp</sub> (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
<b>Standards / Directives</b>		1SVR 500 020 R0000
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
<b>Electromagnetic compatibility</b>		1SVR 500 020 R0000
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

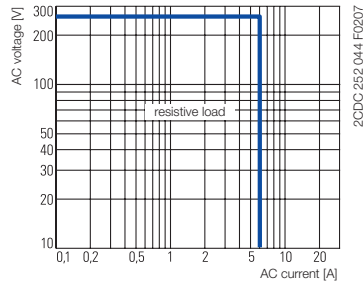
# Electronic timer CT-MFD.12

## Multifunctional with 1 c/o contact

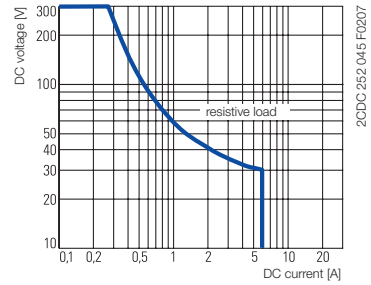
### Data sheet

#### Technical diagrams

##### Load limit curve

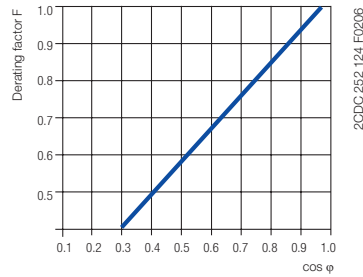


AC load (resistive)



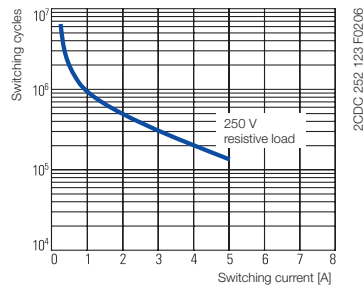
DC load (resistive)

##### Derating factor F



for inductive AC load

##### Contact lifetime





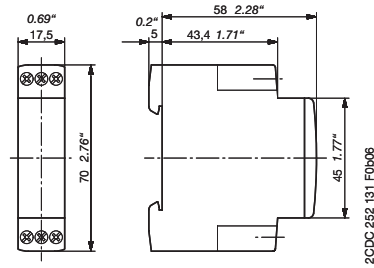
# Electronic timer CT-MFD.12

Multifunctional with 1 c/o contact

Data sheet

## Dimensions

in mm



CT-MFD.12

## Synonyms

Used expression	Alternative expression(s)	Used expression	Alternative expression(s)
1 c/o contact	1 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](http://www.abb.com/lowvoltage) → Control Products → ...



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Document number: 2CDC 111 058 D0201 (12/2007)

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**ABB STOTZ-KONTAKT GmbH**

Eppelheimer Strasse 82, 69123 Heidelberg, Germany  
Postfach 10 16 80, 69006 Heidelberg, Germany  
Internet <http://www.abb.com/lowvoltage> → Control Products