

Timers Multifunction Type FMB01

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- Time range 0.05 s to 300 h
- Knob selection of time range
- Knob adjustable time setting
- Knob selection of operating mode (7 functions):
 - Op - delay on operate
 - Rb - symmetrical recycler OFF first
 - R - symmetrical recycler ON first
 - Id - double interval
 - Dr - delay on release
 - In - interval
 - Io - interval on trigger open
- Manual start
- Gate and reset inputs
- Repeatability: $\pm 0.2\%$ on full scale
- Output: 8 A DPDT relay
- 48 x 48 mm housing for front panel mounting
- 11 pin socket
- LED indication for relay status and power supply ON

Product Description

Multifunction timer with 7 functions and selectable time range from 0.05 seconds to 300 hours. 48 x 48 mm for front panel mounting and on 11-pin socket.

Ordering Key

FMB 01 D W24

Housing _____
 Function _____
 Type _____
 Item number _____
 Output _____
 Power supply _____

Type Selection

Mounting	Output	Plug
Front or socket	DPDT	11-pin

Supply: 12 to 240 VAC/DC

FMB01DW24

Time Specifications

Time ranges	Knob selectable	Full scale 12	Full scale 30
		0.02 to 1.2s	0.05 to 3s
		0.2 to 12s	0.5 to 30s
		2 to 120s	5 to 300s
		0.2 to 12min	0.5 to 30min
		2 to 120min	5 to 300min
		0.2 to 12h	0.5 to 30h
		2 to 120h	5 to 300h
Setting accuracy		$\pm 5\%$ on full scale ± 50 ms	
Repeatability		$\pm 0.2\%$ on full scale or ± 200 ms	
Time variation			
Within rated power supply		$\leq 0.05\%/V$	
Within ambient temperature		$\leq 0.2\%/^{\circ}C$	
Reset			
Power supply interruption		> 100 ms	
Pulse width		> 50 ms	

Output Specifications

Output	DPDT relay
Rated insulation voltage	250 VAC
Contact ratings (AgSnO ₂)	μ
Resistive loads AC 1	8 A @ 250 VAC
DC 12	5 A @ 24 VDC
Small inductive loads AC 15	2.5 A @ 250 VAC
DC 13	2.5 A @ 24 VDC
Mechanical life	$\geq 30 \times 10^6$ operations
Electrical life	$\geq 10^5$ operations (at 8 A, 250 V, $\cos \varphi = 1$)
Operating frequency	≤ 3600 operations/h
Dielectric strength	
Dielectric voltage	≥ 2 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μ s)

Supply Specifications

Power Supply	Overvoltage cat II (IEC 60947-1)
Rated operational voltage	12 to 240 VDC + 10% - 15%
through terminals: 2, 10	12 to 240 VAC + 10% -15%, 45 to 65 Hz
Power consumption	
Rated operational power	
AC	3 VA
DC	1.5 W

General Specifications

Indication for Power supply On Output relays ON	LED, green LED, yellow (flashing when timing)	Weight	Approx. 95 g
Environment Degree of protection Operating temperature Storage temperature	IP 50 (front panel) -10 to +55 °C, R.H. < 85% -10 to +55 °C, R.H. < 85%	Approvals	UL, CSA
Housing Dimensions Material	48 x 48 mm PA66	CE marking	Yes
		EMC Immunity Emission	Electromagnetic Compatibility According to EN 61000-6-2 According to EN 61000-6-3
		Timer specifications	According to EN 61812-1

Mode of Operation

Function Op

Delay on operate

The time period begins as soon as the trigger contact is closed. At the end of the set delay time the relay operates and doesn't release until the power supply is disconnected.

The trigger contact is invalid while the timer is in operation.

Function Rb

Symmetrical recycler (OFF first)

The time period begins as soon as the input contact is closed. The relay is OFF during the set delay period, after this time it operates for the same time period. This sequence continues with equal OFF- and ON- time periods until power supply is interrupted.

Function R

Symmetrical recycler (ON first)

The relay operates and the time period begins as soon as the input contact is closed. After the set delay period the relay releases for the same time period. This sequence continues with equal ON- and OFF- time periods until power supply is interrupted.

Function Id

Double interval

The relay operates and the time period begins as soon as the trigger contact is closed. The relay releases at the end of this period or when the power supply is disconnected. When the trigger contact is opened the relay operates again for the set delay period. If the trigger contact is opened before the end of the first time period the second one

begins; if the trigger contact is closed before the end of the second time period the relay keeps ON and the first time period begins again.

Function Dr

Delay on release

The relay operates as soon as the trigger contact is closed. The time period begins when the trigger contact is opened. The relay releases at the end of the set delay time or when the power supply is disconnected. The relay operates again when the input contact is closed again. If it is opened before the end of the delay time the relay keeps ON, a new time period begins as soon as the contact is closed again.

Function In

Interval

The relay operates and the time period begins as soon

as the trigger contact is closed. The relay releases at the end of this period or when the power supply is disconnected. The relay operates again when the trigger contact is closed again. If the trigger contact is closed before the end of the delay time, the device resets and a new time period starts.

Function Io

Interval on trigger open

The relay operates and the time period begins as soon as the trigger contact is opened. The relay releases at the end of this period or when the power supply is disconnected. The relay operates again when the trigger contact is opened again. If the trigger contact is opened before the end of the delay time, the device resets and a new time period starts.

Function and Time Setting

Lower left knob:

Setting of function

Op - delay on operate

Rb - symmetrical recycler (OFF first)

R - symmetrical recycler (On first)

Id - double interval

Dr - delay on release

In - interval

Io - interval on trigger open

Lower right knob:

Time unit selector

0.1s (0.1 seconds)

sec (seconds)

10sec (10 seconds)

min (minutes)

10m (10 minutes)

hrs (hours)

10h (10 hours)

Upper right knob:

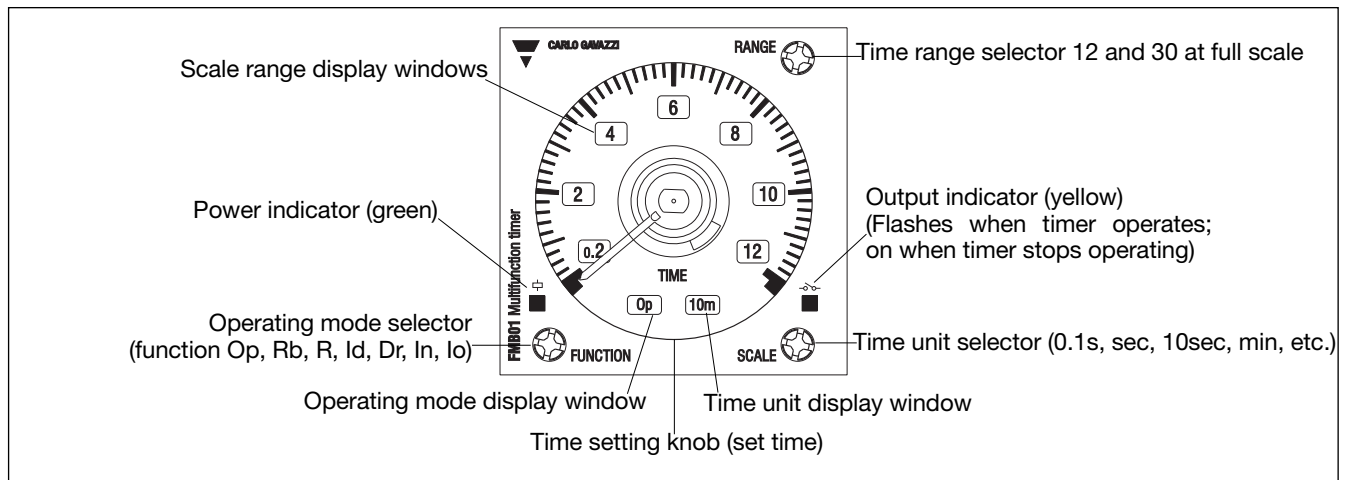
Time range selector

12 or **30**

Centre knob:

Time setting on absolute scale

Range and operation mode selection



Operating Diagrams

Function Op - Delay ON Operate
Reset and Gate inputs working mode

If Reset contact is closed the relay is released and timing is reset. Nothing else happens until Reset is released.
 If Gate contact is closed the timing operation is frozen. When it is released, if timing was in progress, it goes on from the point reached at the moment of closing the Gate.

Function Rb - Symmetrical Recycler OFF first
Reset and Gate inputs working mode

If Reset contact is closed the function is interrupted, the relay is released and timing is reset. Nothing else happens until Reset is released.
 If Gate contact is closed while recycling, the timing operation is frozen and the output is kept at the state it was when Gate has been closed. When it is released, timing goes on from the point reached at the moment of closing the Gate.

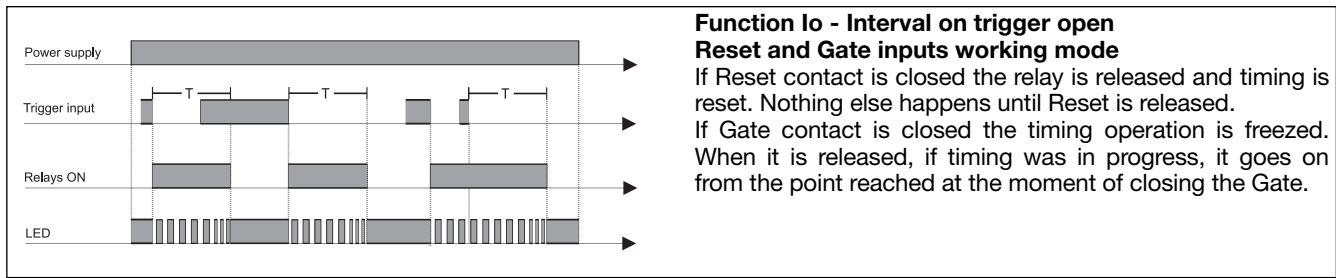
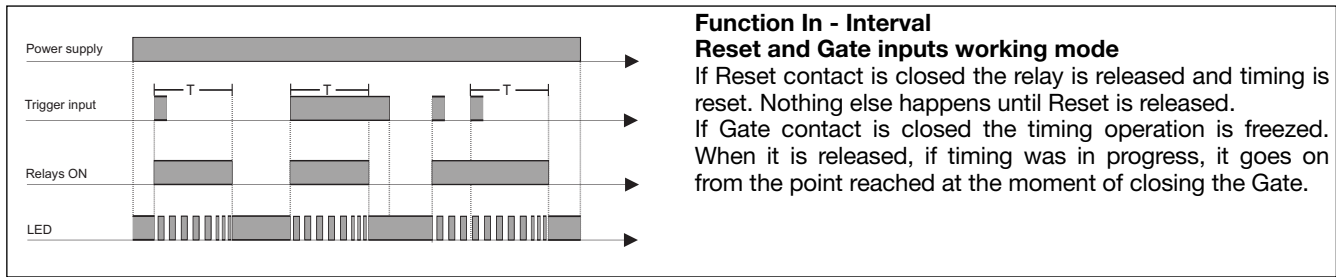
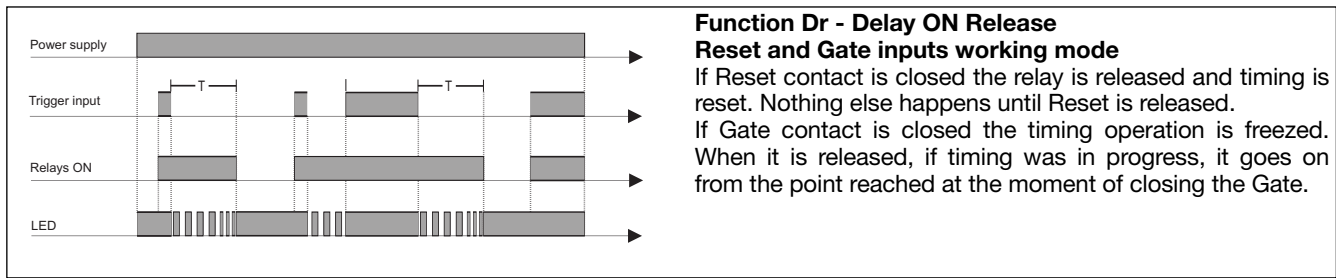
Function R - Symmetrical Recycler ON first
Reset and Gate inputs working mode

If Reset contact is closed the function interrupted, the relay is released and timing is reset. Nothing else happens until Reset is released.
 If Gate contact is closed while recycling, the timing operation is frozen and the output is kept at the state it was when Gate has been closed. When it is released, timing goes on from the point reached at the moment of closing the Gate.

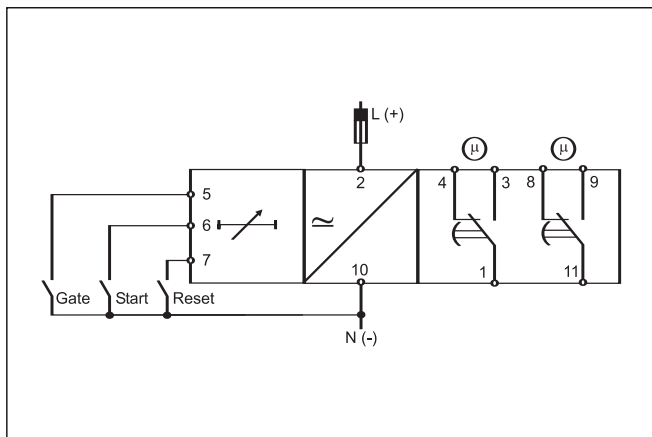
Function Id - Double interval
Reset and Gate inputs working mode

If Reset contact is closed the relay is released and timing is reset. Nothing else happens until Reset is released.
 If Gate contact is closed the timing operation is frozen. When it is released, if timing was in progress, it goes on from the point reached at the moment of closing the Gate.

Operating Diagrams (cont.)



Wiring Diagrams



Dimensions

