

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

## Output Specifications

<b>Output</b>	DPDT relay
Rated insulation voltage	250 VAC
<b>Contact ratings (AgSnO<sub>2</sub>)</b>	$\mu$
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
<b>Mechanical life</b>	$\geq 30 \times 10^6$ operations
<b>Electrical life</b>	$\geq 10^5$ operations (at 8 A, 250 V, $\cos \varphi = 1$ )
<b>Operating frequency</b>	$\leq 3600$ operations/h
<b>Dielectric strength</b>	
Dielectric voltage	$\geq 2$ kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 $\mu$ s)

## Supply Specifications

<b>Power Supply</b>	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
<b>Power consumption</b>	
Rated operational power	
AC	3 VA
DC	1.5 W

## General Specifications

<b>Indication for</b> Power supply On Output relays ON	LED, green LED, yellow (flashing when timing)	<b>Weight</b>	Approx. 95 g
<b>Environment</b> 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%	<b>Approvals</b>	UL, CSA
<b>Housing</b> Dimensions Material	48 x 48 mm PA66	<b>CE marking</b>	Yes
		<b>EMC</b> Immunity Emission	Electromagnetic Compatibility According to EN 61000-6-2 According to EN 61000-6-3
		<b>Timer specifications</b>	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:

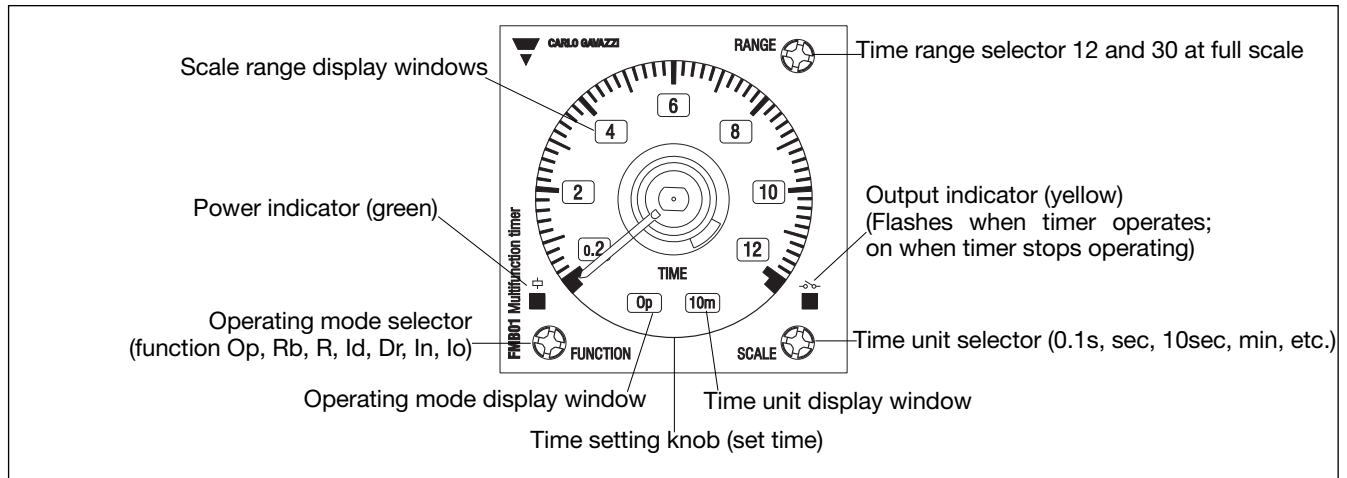
Time range selector

**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.

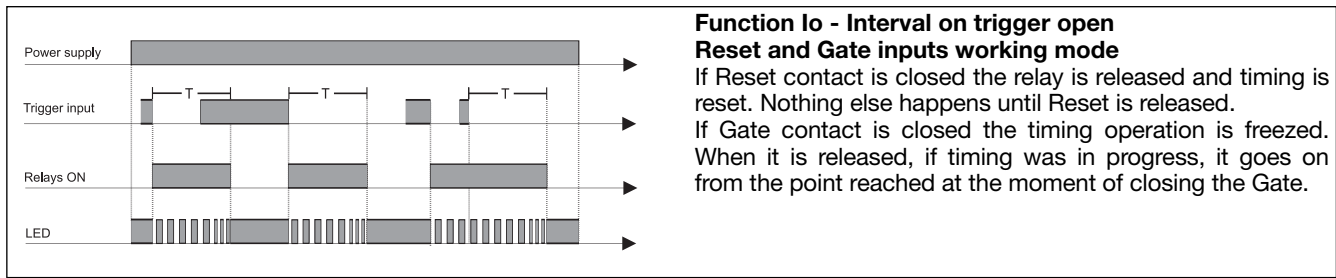
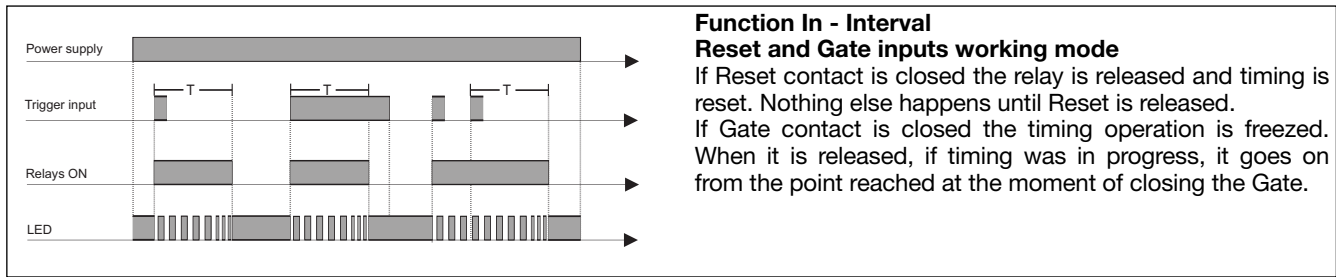
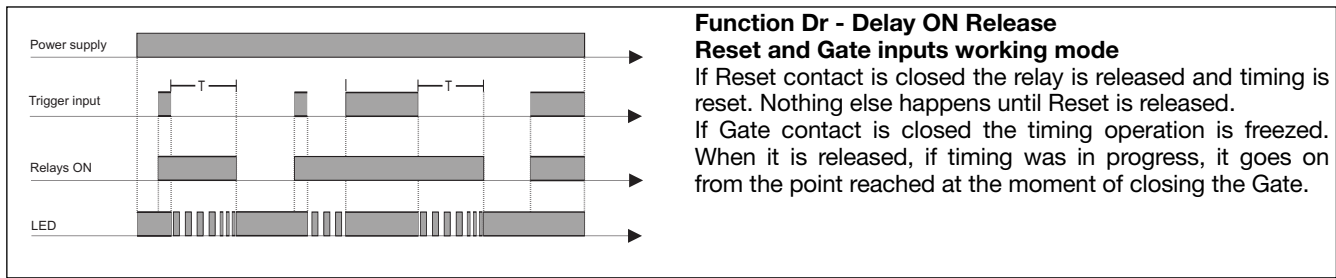
**Function R - Symmetrical Recycler ON first**  
**Reset and Gate inputs working mode**

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.

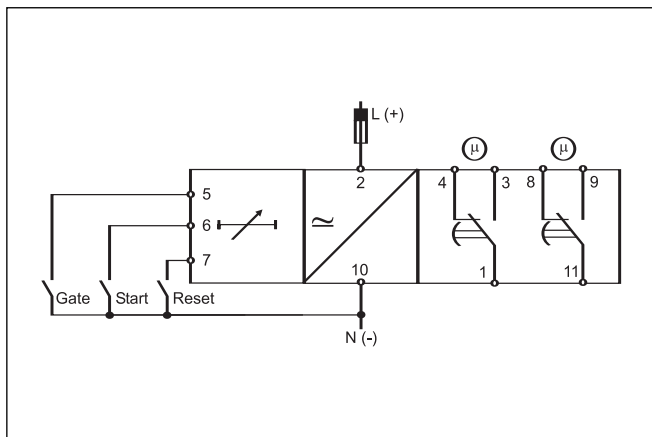
**Function Id - Double interval**  
**Reset and Gate inputs working mode**

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

