

# Timers Multifunction Types DMB51, DMB71

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DMB51



DMB71

- Selectable time range 0.1 s to 100 h
- 7 knob selectable functions:
  - Op - delay on operate
  - In - interval
  - Io - interval on trigger open
  - Id - double interval
  - Dr - delay on release
  - R - symmetrical recycler ON first
  - Rb - symmetrical recycler OFF first
- Automatic or manual start
- Repeatability:  $\leq 0.2\%$
- Output: 5 A SPDT or 5 A DPDT relays
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 17.5 mm (DMB51C) or 35.5 mm (DMB71D) DIN-rail housing (DIN 43880)
- Combined AC and DC power supply
- LED indication for relay status and power supply ON

## Product Description

Multi-voltage timer with 7 knob-selectable functions and 7 knob-selectable time ranges within 0.1s and 100h. For mounting on DIN-rail. Housing 17.5 mm wide for SPDT version and 35.5 mm

for DPDT version, suitable both for back and front panel mounting. Wide power supply range: 24 VDC and 24 to 240 VAC or 12 to 240 VAC/DC.

## Ordering Key

**DMB 51 C M24**

Housing \_\_\_\_\_  
 Function \_\_\_\_\_  
 Type \_\_\_\_\_  
 Item number \_\_\_\_\_  
 Output \_\_\_\_\_  
 Power supply \_\_\_\_\_

## Type Selection

| Mounting | Output | Housing | Supply:<br>12 to 240 VAC/DC | Supply:<br>24 VDC and 24 to 240 VAC |
|----------|--------|---------|-----------------------------|-------------------------------------|
| DIN-rail | SPDT   | Mini-D  | <b>DMB 51 C W24</b>         | <b>DMB 51 C M24</b>                 |
| DIN-rail | DPDT   | Mini-D  | <b>DMB 71 D W24</b>         | <b>DMB 71 D M24</b>                 |

## Time Specifications

|                                                                                                  |                                                                                               |
|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Time ranges</b><br>Knob selectable                                                            | 0.1 to 1 s<br>1 to 10 s<br>6 to 60 s<br>60 to 600 s<br>0.1 to 1 h<br>1 to 10 h<br>10 to 100 h |
| <b>Setting accuracy</b>                                                                          | $\leq 5\%$                                                                                    |
| <b>Repeatability</b>                                                                             | $\leq 0.2\%$                                                                                  |
| <b>Time variation</b><br>Within rated power supply<br>Within ambient temperature                 | $\leq 0.05\%/V$<br>$\leq 0.2\%/^{\circ}C$                                                     |
| <b>Reset</b><br>Manual reset of time and/or relay<br>Pulse duration<br>Power supply interruption | Close the trigger contact between pins A1 and Y1<br>$\geq 100$ ms<br>$\geq 200$ ms            |
| <b>Automatic start</b>                                                                           | Connect pins A1 and Y1                                                                        |

## Output Specifications

|                                                                                     |                                                                 |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Output</b>                                                                       | SPDT or DPDT relay                                              |
| <b>Rated insulation voltage</b>                                                     | 250 VAC (rms)                                                   |
| <b>Contact Ratings (AgSnO<sub>2</sub>)</b>                                          | $\mu$                                                           |
| DMB51 (SPDT):<br>Resistive loads                                                    | AC 1 5 A @ 250 VAC<br>DC 12 5 A @ 24 VDC                        |
| Small inductive loads                                                               | AC 15 2.5 A @ 250 VAC<br>DC 13 2.5 A @ 24 VDC                   |
| DMB71 (DPDT)<br>Resistive loads                                                     | AC 1 5 A @ 250 VAC<br>AC 15 3 A @ 250 VAC<br>DC 13 3 A @ 24 VDC |
| Small inductive loads                                                               |                                                                 |
| <b>Mechanical life</b>                                                              | $\geq 30 \times 10^6$ operations                                |
| <b>Electrical life</b>                                                              | $\geq 10^5$ operations<br>(at 5 A, 250 V, $\cos \varphi = 1$ )  |
| <b>Operating frequency</b>                                                          | $< 7200$ operations/h                                           |
| <b>Dielectric strength</b><br>Dielectric voltage<br>Rated impulse withstand voltage | 2 kVAC (rms)<br>2.5 kV (1.2/50 $\mu$ s)                         |



Supply Specifications

|                                                                              |            |                                                                             |
|------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------|
| <b>Power supply</b>                                                          |            | Overvoltage cat. II<br>(IEC 60664, IEC 60038)                               |
| Rated operational voltage<br>through terminals:<br>(DMB51C)    A1, A2   M24: |            | 24 VDC ± 15% and<br>24 to 240 VAC + 10% -15%,<br>45 to 65 Hz                |
|                                                                              | W24:       | 12 to 240 VDC + 10% -15%<br>and<br>12 to 240 VAC<br>+ 10% -15%, 45 to 65 Hz |
| (DMB71D)    A1, A2   M24:                                                    |            | 24 VDC ± 15%<br>24 to 240 VAC + 10% -15%,<br>45 to 65 Hz                    |
|                                                                              | W24        | 12 to 240 VDC + 10% -15%<br>and<br>12 to 240 VAC +10% -15%,<br>45 to 65 Hz  |
| <b>Voltage interruption</b>                                                  |            | ≤ 10 ms                                                                     |
| <b>Rated operational power</b>                                               |            |                                                                             |
| (DMB51C)    AC supply:                                                       |            | 4 VA                                                                        |
|                                                                              | DC supply: | 1.5 W                                                                       |
| (DMB71D)    AC supply:                                                       |            | 5.5 VA                                                                      |
|                                                                              | DC supply: | 2 W                                                                         |

Time Setting

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| <b>Upper knob:</b>                       | <b>Centre knob:</b>                          |
| Setting of function:                     | Time setting on relative scale:              |
| Op - delay on operate                    | 1 to 10 with respect to the<br>chosen range. |
| In - interval                            |                                              |
| Io - interval on trigger open            | <b>Lower knob:</b>                           |
| Id - double interval                     | Setting of time range                        |
| Dr - delay on release                    |                                              |
| R - symmetrical recycler<br>(ON first)   |                                              |
| Rb - symmetrical recycler<br>(OFF first) |                                              |

Mode of Operation

|                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Function Op</b><br><b>Delay on operate</b><br>The time period begins as soon as the trigger contact is closed.<br>At the end of the set delay time the relay operates and does not release until the trigger contact is closed again or the power supply is disconnected. If the trigger contact is closed before the end of the delay time, the device resets and a new time period starts. | 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.                                                                              |
| <b>Function Io</b><br><b>Interval</b><br>The relay operates and the time period begins as soon as the trigger contact is closed. The relay releases at                                                                                                                                                                                                                                          | <b>Function Io</b><br><b>Interval on trigger open</b><br>The relay operates and the time period begins as soon as the trigger contact is opened. At the end of the set delay or when the power supply is disconnected the relay releases. The relay operates again when the trigger contact is opened again. If the trigger contact |

General Specifications

|                                                                                                                |  |                                                                                                |
|----------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------|
| <b>Power ON delay</b>                                                                                          |  | ≤ 100 ms                                                                                       |
| <b>Indication for</b><br>Power supply ON<br>Output relays ON                                                   |  | LED, green<br>LED, yellow<br>(flashing when timing)                                            |
| <b>Environment</b><br>Degree of protection<br>Pollution degree<br>Operating temperature<br>Storage temperature |  | (EN 60529)<br>IP 20<br>2 (IEC 60664)<br>-20° to +60°C, R.H. < 95%<br>-30° to +80°C, R.H. < 95% |
| <b>Housing</b><br>Dimensions<br>Material                                                                       |  | DMB51C<br>DMB71D<br>17.5 x 81 x 67.2 mm<br>35.5 x 81 x 67.2 mm<br>PA66                         |
| <b>Weight</b>                                                                                                  |  | 75 g                                                                                           |
| <b>Screw terminals</b><br>Tightening torque                                                                    |  | Max. 0.5 Nm according to<br>IEC EN 60947                                                       |
| <b>Approvals</b>                                                                                               |  | UL, CSA<br>RINA (DMB 51 only)                                                                  |
| <b>CE Marking</b>                                                                                              |  | Yes                                                                                            |
| <b>EMC</b><br>Immunity<br>Emissions                                                                            |  | Electromagnetic Compatibility<br>According to EN 61000-6-2<br>According to EN 61000-6-3        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| is opened before the end of the delay time the relay keeps ON and a new time period begins.                                                                                                                                                                                                                                                                                                                                                                             | the second time period the device resets and the first time period begins again.                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Function Id</b><br><b>Double interval</b><br>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 | <b>Function Dr</b><br><b>Delay on release</b><br>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. |

## Mode of Operation (cont.)

### Function R

#### Symmetrical recycler, ON-time period 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 the power supply is interrupted.

### Function Rb

#### Symmetrical recycler, OFF-time period 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 the power supply is interrupted.

### Additional Load

It's possible to wire an additional load (i.e. a relay) between pins Y1 and A2, driven by the trigger contact without damaging the device.

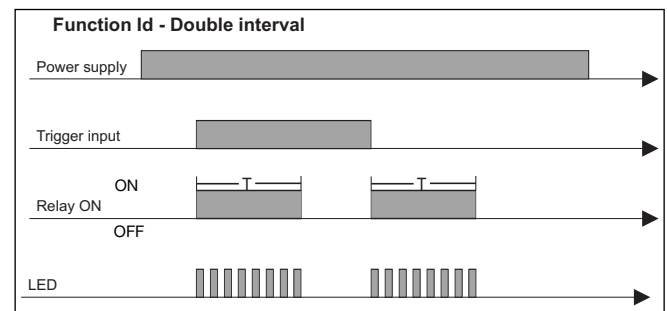
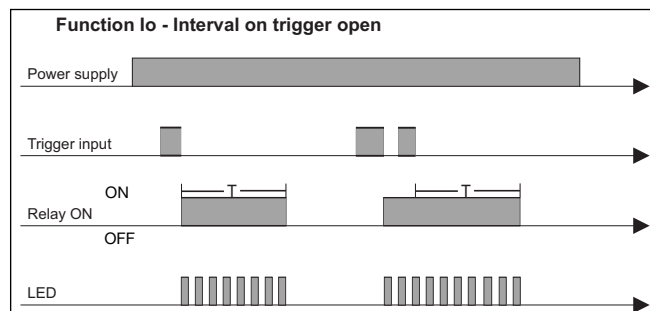
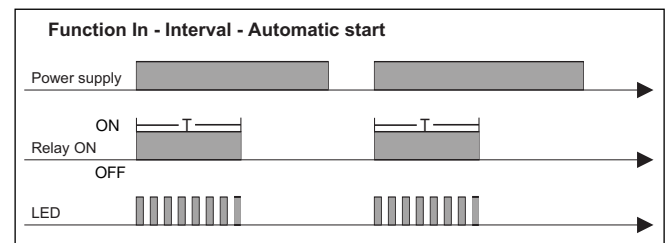
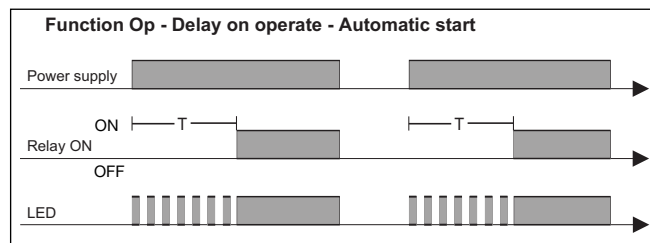
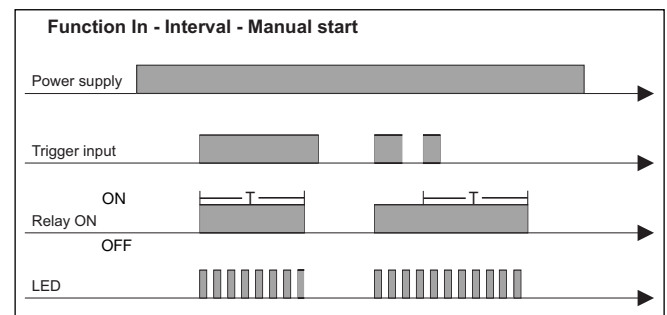
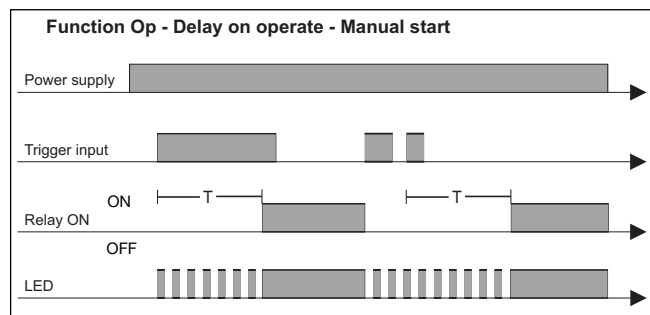
### Yellow LED working mode

Timing: Slow blinking

Relay ON: See operation diagrams

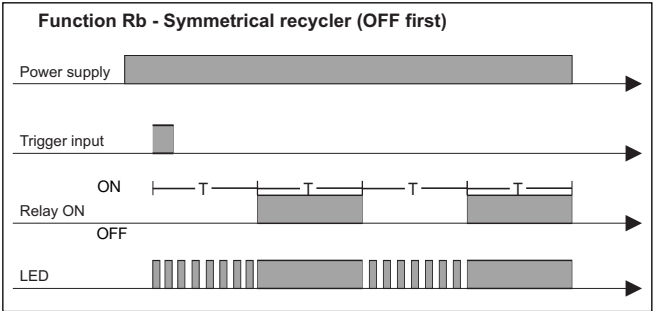
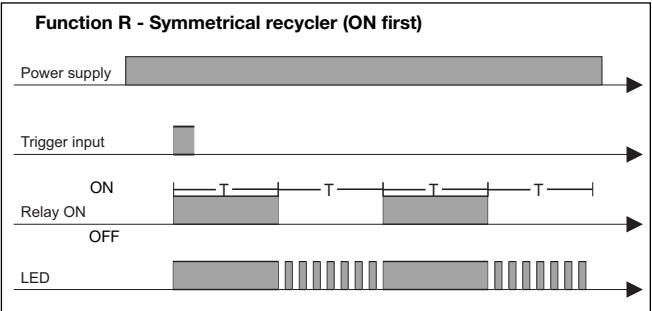
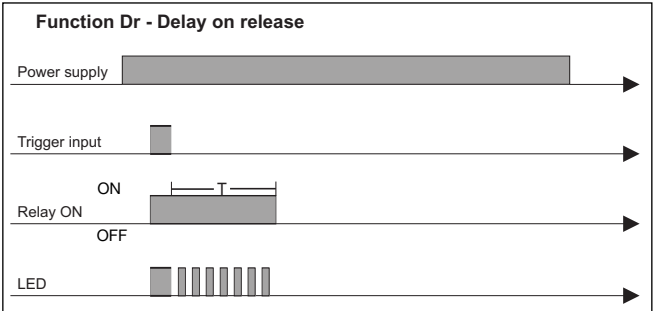
Incorrect knobs position: Fast blinking

## Operating Diagrams

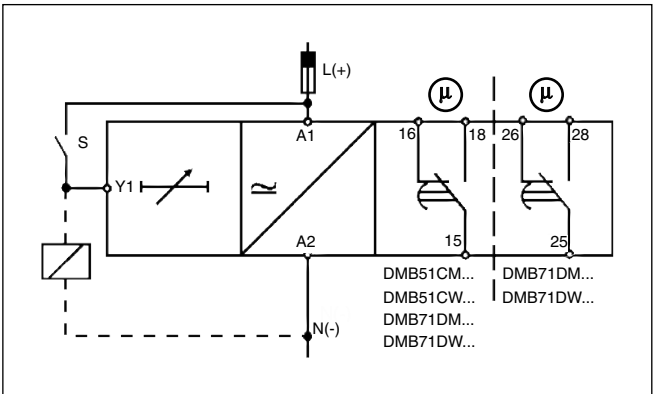




Operating Diagrams (cont.)



Wiring Diagram



Dimensions

