Timers
Multifunction
Type FMB01

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.

Type Selection
<table>
<thead>
<tr>
<th>Mounting</th>
<th>Output</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front or socket</td>
<td>DPDT</td>
<td>11-pin</td>
</tr>
</tbody>
</table>

Time Specifications

- 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: ±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

Ordering Key
FMB 01 D W24

<table>
<thead>
<tr>
<th>Housing</th>
<th>Function</th>
<th>Type</th>
<th>Item number</th>
<th>Output</th>
<th>Power supply</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td>FMB01DW24</td>
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</tr>
</tbody>
</table>

Time Specifications

- Time ranges
  - Knob selectable
  - Full scale 12
    - 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
  - Full scale 30
    - 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

- Setting accuracy ± 5% on full scale ±50 ms
- Repeatability ± 0.2% on full scale or ± 200 ms
- Time variation
  - Within rated power supply ≤ 0.05%/V
  - Within ambient temperature ≤ 0.2%/°C

- Reset
  - Power supply interruption >100 ms
  - Pulse width > 50 ms

Output Specifications

- Output: DPDT relay
- Rated insulation voltage 250 VAC
- Contact ratings (AgSnO2) µ
  - Resistive loads AC 1
    - 8 A @ 250 VAC
  - 5 A @ 24 VDC
  - Small inductive loads AC 15
    - 2.5 A @ 250 VAC
  - 2.5 A @ 24 VDC
- Mechanical life ≥ 30 x 10^6 operations
- Electrical life ≥ 10^6 operations (at 8 A, 250 V, cos ϕ = 1)
- Operating frequency ≤ 3600 operations/h
- Dielectric strength
  - Dielectric voltage ≥ 2 kVAC (rms)
  - Rated impulse withstand volt. 4 kV (1.2/50 μs)

Supply Specifications

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

<table>
<thead>
<tr>
<th>Function and Time Setting</th>
<th>Weight</th>
<th>Approvals</th>
<th>CE marking</th>
<th>EMC</th>
<th>Environment</th>
<th>Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication for</td>
<td>LED, green</td>
<td>UL, CSA</td>
<td>Yes</td>
<td>Electromagnetic Compatibility</td>
<td>Degree of protection</td>
<td>Dimesions</td>
</tr>
<tr>
<td>Power supply On</td>
<td>LED, yellow</td>
<td>According to EN 61000-6-2</td>
<td>IP 50 (front panel)</td>
<td>48 x 48 mm</td>
<td></td>
<td></td>
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<tr>
<td>Output relays ON</td>
<td>(flashing when timing)</td>
<td>According to EN 61000-6-3</td>
<td>-10 to +55 °C, R.H. &lt; 85%</td>
<td>Material PA66</td>
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<tr>
<td>Weight</td>
<td>Approx. 95 g</td>
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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 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 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 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 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 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 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 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 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.

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Interval on trigger open
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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 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 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.

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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.

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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 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.
Range and operation mode selection

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 while recycling, the timing operation is freezed 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 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 freezed 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 freezed 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 freezed. 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.)

Function Dr - Delay ON Release
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 freezed. When it is released, if timing was in progress, it goes on from the point reached at the moment of closing the Gate.

Function Io - Interval on trigger open
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 freezed. When it is released, if timing was in progress, it goes on from the point reached at the moment of closing the Gate.

Wiring Diagrams

Dimensions