## Timer

<table>
<thead>
<tr>
<th>Timer</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT-TIMER – Timing relay</td>
<td>E.2</td>
</tr>
<tr>
<td>BT-SERIES - Overview</td>
<td>E.6</td>
</tr>
<tr>
<td>BT-SERIES - Timer</td>
<td>E.8</td>
</tr>
<tr>
<td>MCZ-SERIES - Timer</td>
<td>E.12</td>
</tr>
</tbody>
</table>
Compact timing relay for easy adjustment of the control signals

IT-TIMER multi-functional timing relay with multi-voltage input

Timing relays are frequently used in automation engineering in order to compensate malfunctions caused by high cycle rates. Short pulses are extended and hence are reliably identified by downstream control components.

The timing relay offers high functionality on a small footprint. Due to the flat front panel, an easy-to-read LED display as well as operating elements adjustable by standard tools, the configuration is particularly straightforward.

With the IT-TIMER, Weidmüller offers a highly efficient multi-functional timing relay with multi-voltage input, which fulfils the product standards in accordance with IEC 61812-1.

Your special advantages:

A compact device with easy configuration of the time functions. Its compact size, the multi-voltage input and an easy configuration of the time functions make the IT-TIMER a smart solution for your application.
Multi-voltage input
The timing relay operates from 24 V DC up to 48 V DC and from 24 V AC up to 240 V AC. It can therefore be used in a wide range of applications.

Global standard
International usage is guaranteed in accordance with the standard IEC 61812-1.

Seven timing functions
Due to its multi-functional concept, the IT-TIMER covers a broad range of typically needed time functions.
**Timing relay**

- Multi-voltage input:
  - 24...48 V DC
  - 24...240 V AC
- Space-saving construction
- 7 time functions with separate control input

---

**Technical data**

<table>
<thead>
<tr>
<th>Input</th>
<th>Rated control voltage</th>
<th>Power rating</th>
<th>Status indicator</th>
<th>Repeat accuracy</th>
<th>Setting tolerance</th>
<th>Min. pulse duration</th>
<th>Time ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24, 48 V DC: 15 % / + 10 % / 24, 240 V AC: 15 % / + 10 %</td>
<td>8 VA @ 230 V AC, 0.4 W at 24 V DC</td>
<td>LED green (U/t): flashes when timer runs, lights permanently with supply voltage applied; LED yellow (R): relay closed</td>
<td>&lt; 0.5 % or ±5 ms</td>
<td>&lt; 1.5 % (of scale-end value)</td>
<td>50 ms</td>
<td>0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 0.5 min - 10 min, 3 min - 1 h, 0.5 h - 10 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>Rated switching voltage</td>
<td>Max. switching voltage, AC</td>
<td>Max. switching voltage, DC</td>
<td>Continuous current</td>
<td>AC switching capacity (resistive), max.</td>
<td>DC switching capacity (resistive), max.</td>
<td>Max. switching frequency at rated load</td>
</tr>
<tr>
<td></td>
<td>250 V AC</td>
<td>250</td>
<td>30 V</td>
<td>5 A</td>
<td>1250 VA</td>
<td>90 W</td>
<td>0.1 Hz</td>
</tr>
<tr>
<td></td>
<td>4 pN</td>
<td>1 x 10² switching cycles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General data**

- Ambient temperature (operational): -25 °C...50 °C
- Storage temperature: -40 °C...70 °C
- Humidity: 25 - 75%, no condensation
- Version: with separate control input
- Resistance to vibration EN 61812-1: 10 Hz...60 Hz: 0.15 mm, 60 Hz...150 Hz: 2 g
- CE

**Insulation coordination**

- Rated voltage
- Creepage and clearance distance input – output
- Dielectric strength input – output
- Impulse withstand voltage
- Protection degree

**Dimensions**

- Clamping range (nominal / min. / max.) mm²
- Depth x width x height mm

**Ordering data**

- Screw connection
- Screw connection

**Accessories**

- Note

---

**Time functions**

**A** on-delay

**B** off delay

**C** passing make

**D** passing make

**E** passing make

**F** Flip-flop / latching

---

**Ordering data**

- Type: ITS 24-240 V UC 1 CO M7C
- Qty: 1
- Order No: 2496180000

- Type: ITS 24-240 V UC 1 CO M7C PLUS
- Qty: 10
- Order No: 2545120000
The electronic timer from the BT product range offers ideal solutions for industrial applications.

The BT product range provides the following functions:
- Pick-up delay (BTR)
- Pulse emitter (BTTT)
- Multifunction with control input (BTM)
- Multifunction without control input (BTMF)
- Star-delta change-over

Time ranges and power supplies for timer

Using the central button, you can select the functions of the modules over either 4 or 8 time ranges.

The multi-voltage supply range offers a wide bandwidth for industrial use (see technical data).

**Connection of the timer**

Note:  1. Pole numbers are not necessary for DC voltage supply.
2. The contact symbol of BTM is marked with as it provides several operating modes and differs from the delayed contacts of conventional timer.
BT-SERIES – Overview

Time ranges

<table>
<thead>
<tr>
<th>Display of time scale</th>
<th>Time ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 s</td>
<td>0.1 to 1.2 s</td>
</tr>
<tr>
<td>1 s</td>
<td>1 to 12 s</td>
</tr>
<tr>
<td>0.1 min</td>
<td>0.1 to 1.2 min</td>
</tr>
<tr>
<td>1 min</td>
<td>1 to 12 min</td>
</tr>
<tr>
<td>0.1 h</td>
<td>0.1 to 1.2 h</td>
</tr>
<tr>
<td>1 h</td>
<td>1 to 12 h</td>
</tr>
<tr>
<td>10 h</td>
<td>1O to 120 h</td>
</tr>
</tbody>
</table>

Note:
If the rotary button for time adjustment is set to “0”, the output will be switched without delay.

Choosing the time range

The time range is chosen by turning the rotary switch for the ON-time scale and OFF-time scale. The time scales are visible in the display to the left of the rotary switch in the following order: 0.1 s, 1 s, 0.1 m, 1 m, 0.1 h, 1 h.

Note:
The time scales “1 s” and “0.1 h” are given twice. Both adjustments represent the same time scale.

Locking/unlocking of selectors and time setting dial

The rotary switches for the ON/OFF time adjustment and the option selector for the time scale can be locked with the locking key.

This pen-style special tool is available separately. To lock either rotary switches or the option selector, simply insert the locking key into the keyhole bottom right of the rotary switch/option selector and turn it clockwise until the button/switch is totally covered by the red cover. To unlock, simply turn the key in the opposite direction.

Connection system

The units offers the following connection technologies:

Screw connection
- 2 x 1.5 mm² with wire end ferrule,
- 2 x 2.5 mm² without wire end ferrule

Tension clamp connection
- 2 x 1.5 mm² with wire end ferrule,
- 2 x 1.5 mm² without wire end ferrule
### Installation timer

- Screw or tension clamp connection
- LED status indicator
  - Input: voltage present
  - Output: output active
- Approvals:
  - UL 508
  - EN 61812-1
  - IEC 60947-5-1
  - IEC 60664-1
  - EN 55011

### Type designation:

<table>
<thead>
<tr>
<th>B</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Timer</td>
</tr>
<tr>
<td>R</td>
<td>Response Delay</td>
</tr>
<tr>
<td>TT</td>
<td>Two Times</td>
</tr>
<tr>
<td>M</td>
<td>Multifunction, 8 ranges</td>
</tr>
<tr>
<td>MF</td>
<td>Multifunction, 4 ranges</td>
</tr>
<tr>
<td>DS</td>
<td>Delta, Star</td>
</tr>
<tr>
<td>S</td>
<td>Screw</td>
</tr>
<tr>
<td>Z</td>
<td>Tension</td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Designation</th>
<th>Qty.</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT Lock Pen</td>
<td>1</td>
<td>8659840000</td>
</tr>
</tbody>
</table>

### Input

<table>
<thead>
<tr>
<th>Contacts hard gold plated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage 24 ... 230 V AC, 50/60 Hz, 24 ... 48 V DC</td>
</tr>
<tr>
<td>Voltage tolerance 85 ... 110 % of rated voltage</td>
</tr>
<tr>
<td>Breaking voltage Max. 2.4 V DC/DC</td>
</tr>
<tr>
<td>Power consumption per type V AC 21 ... 33 VA at 230 V</td>
</tr>
<tr>
<td>V DC 0.6 ... 1.3 W at 24 V</td>
</tr>
<tr>
<td>Reset time Min. 0.1 s (BTDS: 0.5 s)</td>
</tr>
</tbody>
</table>

### Insulation

- Insulation resistance 100 MΩ min., at 500 V DC
- Insulation test voltage between input and output, to enclosure 2000 V AC, 50/60 Hz, 1 min
- Insulation test voltage between non-adjacent contacts 1000 V AC, 50/60 Hz, 1 min

### Output

- Contact/contact material 1 change-over contact (BTDS 2 NOC) / AgNi 90/10
- Service life mechanical min. 10^7 switching cycles (no load, 1800/h)
- Service life electrical min. 10^5 switching cycles (5A at 250 V AC, resistive load at 1800/h)
- Time range 0.10 s ... 120 h
- Repetition accuracy ± 1 %

### Other data

- Flammability class as per UL94 V-2
- Ambient temperature/storage temperature -10 ... +55 °C / -25 ... +65 °C (without condensation)
- Humidity 35 ... 85 % rel. humidity, no condensation
- Screw connection Tension clamp connection

<table>
<thead>
<tr>
<th>Clamping range (nominal/min/max) mm²</th>
<th>1.5 / 0.5 / 2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth x Width x Height mm</td>
<td>73.0 x 17.5 x 80.0</td>
</tr>
</tbody>
</table>
Functions

**Function A – on-delay**
Connect power supply (A1/A2). When the input signal (B1/A2) is applied, the set time T begins to delay. After the time has expired, the output R (15/18) disconnects the load. To reset, the input signal needs to be switched off.

**Function B – pulse emitter (starting at normal position)**
Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) switches the load synchronously and alternately between the normal and operated positions within the set time T. In this function, the cycle starts at the normal position.

**Function B2 – pulse emitter (starting at operated position)**
Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) switches the load synchronously and alternately between the normal and operated positions within the set time T. In this function, the cycle starts at the operated position.

**Function C – interval time-delay**
Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) connects the load for the set time T. Output R (15/18) switches the load off again at the end of time T. After switching off the input signal (B1/A2), output R (15/18) connects the load again for the set time T. Output R (15/18) switches the load off again at the end of time T.

**Function D – off-delay function**
Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) connects the load. The time delay T begins after the input signal (B1/A2) has been switched off. At the end of time T, output R (15/18) switches the load off again.

**Function E – passing make function (Watchdog)**
Connect power supply (A1/A2). After applying the input signal (B1/A2), output R (15/18) connects the load immediately. At the end of the set delay time T, output R (15/18) switches the load off again.

**Function G – on and off-delay function**
Connect power supply (A1/A2). Time delay T begins after applying the input signal (B1/A2). At the end of this time, output R (15/18) connects the load (on-delayed). After the input signal (B1/A2) has been switched off again, the output switches the load off again after the set time (off-delayed).

**Function J – on-delay with pulse**
Connect power supply (A1/A2). Time delay T begins after applying the input signal (B1/A2). At the end of this time, output R (15/18) connects the load for 1 second.

---

Ordering data

<table>
<thead>
<tr>
<th>Connection system</th>
<th>Type</th>
<th>Qty</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw connection</td>
<td>BTM-S</td>
<td>1</td>
<td>8647700000</td>
</tr>
<tr>
<td>Tension clamp</td>
<td>BTM-Z</td>
<td>1</td>
<td>8647710000</td>
</tr>
</tbody>
</table>

---

Multifunction relay with control input (BTM)
Multi-function relay without control input (BTMF)

**Ordering data**

<table>
<thead>
<tr>
<th>Connection system</th>
<th>Type</th>
<th>Qty</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw connection</td>
<td>BTMF-S</td>
<td>1</td>
<td>8647680000</td>
</tr>
<tr>
<td>Tension clamp</td>
<td>BTMF-Z</td>
<td>1</td>
<td>8647690000</td>
</tr>
</tbody>
</table>

**Functions**

**Function A – on-delay**

When the input signal (A1/A2) is applied, the on-delay lasting for the set time T starts. The output R (15/18) connects the load at the end of the set time. To reset, the power supply has to be switched off.

**Function B2 – pulse emitter (starting at operated condition)**

After applying the input signal (A1/A2), output R (15/18) switches the load synchronously and alternately between the normal and operated positions within the set time T. In this function, the cycle starts at the operated position.

**Function E – passing make function**

After applying the input signal (A1/A2), output R (15/18) connects the load immediately. At the end of the set delay time T, output R (15/18) switches the load off again.

**Function J – on-delay with pulse**

Time delay T begins after applying the input signal (A1/A2). At the end of this time, the output R (15/18) connects the load for 1 second.

---

Timer (BTR)

**Ordering data**

<table>
<thead>
<tr>
<th>Connection system</th>
<th>Type</th>
<th>Qty</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw connection</td>
<td>BTR-S</td>
<td>1</td>
<td>8647720000</td>
</tr>
<tr>
<td>Tension clamp</td>
<td>BTR-Z</td>
<td>1</td>
<td>8647730000</td>
</tr>
</tbody>
</table>

**Functions**

**Function A – on-delay**

When the power supply is connected (A1/A2), the on-delay lasting for the set time T starts. The output R (15/18) connects the load at the end of the set time.
Timer (BTTT)

Ordering data

<table>
<thead>
<tr>
<th>Connection system</th>
<th>Type</th>
<th>Qty</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw connection</td>
<td>BTTT-S</td>
<td>1</td>
<td>8647740000</td>
</tr>
</tbody>
</table>

Functions

Function BTTT – pulse emitter

When the power supply is connected (A1/A2), the repeat cycle begins with two independently adjustable times. The standard setting is to start at the normal position. A bridge between connections A1 and A2 allows the module to start at the operated position.
Miniconditioner MCZ TO

- Components for lengthening short pulses for the PLC
- Fixed switch-off delay
- Low input power
- Screw connection system
- Width 6 mm
- For mounting on TS 35

Technical data

### Input
- Rated control voltage
- Rated current AC / DC
- Power rating
- Min. pulse duration
- Status indicator

### Output
- Rated switching voltage
- Continuous current
- Switch-off delay
- Max. switching frequency at rated load

### Rated data
- Ambient temperature (operational)
- Storage temperature
- Humidity
- Approvals

### Insulation coordinates
- Rated voltage
- Overvoltage category
- Dielectric strength input – output
- Dielectric strength to mounting rail
- Creepage and clearance distance input – output
- Impulse withstand voltage
- Pollution degree

### Dimensions
- Clamping range (nominal / min. / max.)
- Depth x width x height

### Ordering data

<table>
<thead>
<tr>
<th>Type</th>
<th>Qty.</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCZ TO 24VDC/50MS</td>
<td>10</td>
<td>8324530000</td>
</tr>
</tbody>
</table>

### Accessories

- AP MCZ end plate 8389030000