

Klippon® Relay

Compact Timing Relays For Universal Applications In Factory and Building Automation

Application range – Timing Functions



Weidmüller 

Solutions for more productivity

Highly flexible design processes – with Klippon® Relay

For more than 40 years, we have specialized in the optimization of cabinet infrastructures. Our wide range of relay modules, solid-state relays and additional value-added services combine the highest standards with ultimate quality. Less wiring effort, housing optimization through space saving, optimal marking and cost reductions – our customers' challenges are our motivation. Our assortment impresses through reliability, longevity and safety. Supplemented by our digital data support, switching load consulting and online selection guides, we support our customers throughout the entire work process – from the planning phase to installation and operation.

In our universal range, you will find an extensive portfolio of relay modules and solid-state relays in various designs.



TERMISERIES



Solid-state relays

**Universal
range**



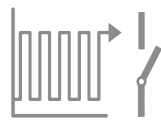
Timing functions



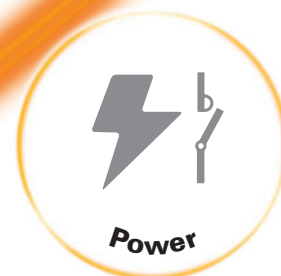
Special loads



Sensor isolation



High switching frequencies



In our application range, you will find a tailor-made portfolio of products to increase your productivity and safety for various fields of application.



Visit our website for more information

Reliable switch of timing functions

TFI-SERIES

Compact timing relays for building and factory automation

Timing relays fulfill many functions in industrial environments. In automation technology, they are used to compensate for errors caused by high clock rates. Timing relays extend short pulses so that downstream control components can reliably detect them.

Our new timing relay portfolio includes five different devices:

Multifunction, star-delta switch, clock generator, on-delay, and off-delay. They cover the most critical applications in building and factory automation.

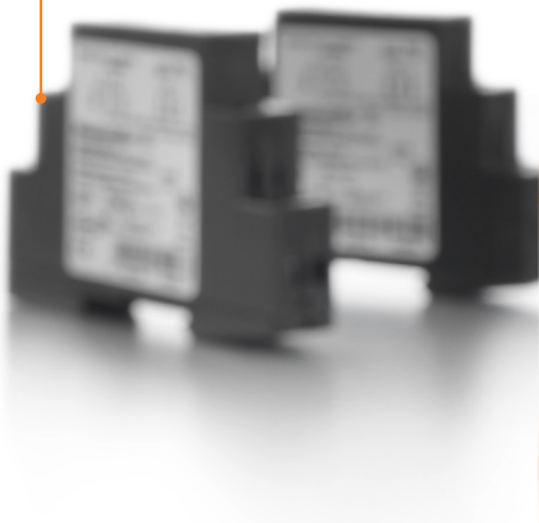
Your special advantages:

- Recessed potentiometer buttons
- Analog indication of LED
- Temperature range
-25 °C to +60 °C
- CE-conform & UL-certified



Simple configuration via rotary switches

Timing functions and time ranges are configured utilising rotary switches on the front of the devices.



According to the requirements of EN 61812

The devices comply in design and function with the international standard for timing relays according to EN 61812.

Compact
industrial
design



With cULus listing for USA and Canada

All timing relays have a cULus listing for use in the North American market, without any problems.



Visit our website for more information

Multi-function TFI-SERIES

Technical Data

Input

- Rated control voltage: 12 - 240 V UC

Output

- Contact type: 1 changeover
- Continuous current: 8 A

General Data

- Installation design
- Status displays:
 - LED green (U/t):
 - Flashes when time runs
 - Lights permanently with supply voltage is applied
 - LED yellow (R):
 - Relay closed
- Dimensions (W x H x D): 17.5 x 87 x 60 mm
- Temperature range: -25 °C to 55 °C
- Connection: Screw connection

Time ranges

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h,
30 min - 10 h, 5 h - 100 h

Type	Order No.
TFS 12-240VUC 1CO M7C	2697250000

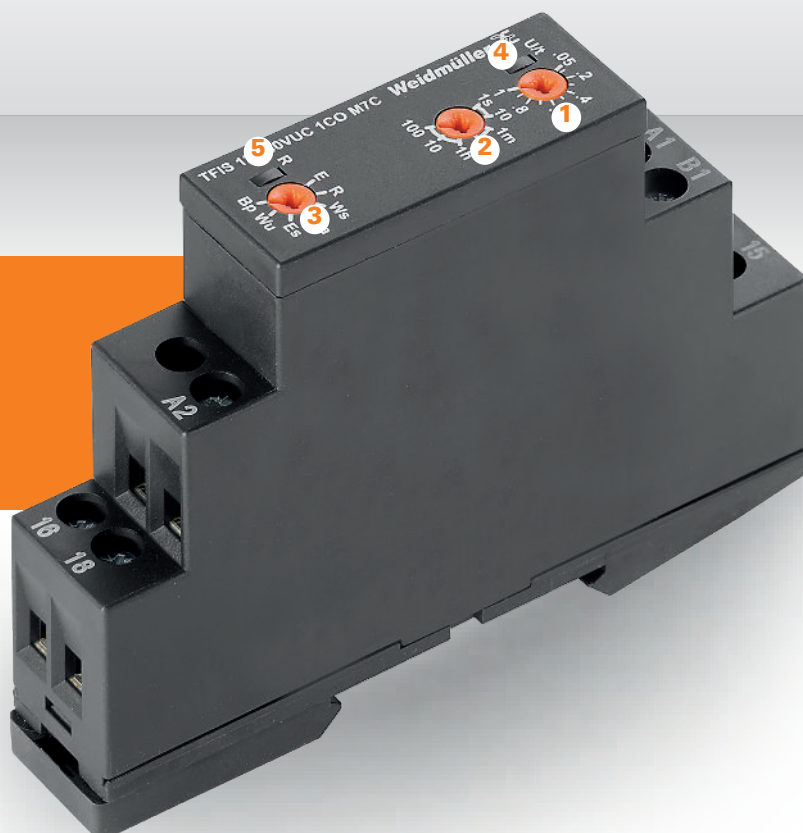
Timing functions

- Bp** Clock generator pause first
- E** On-delay
- Es** On-delay with control input
- R** Off-delay with control input
- Wa** Single shot falling edge with control input
- Ws** Single shot rising edge with control input
- Wu** Single shot rising edge supply voltage controlled

- 1 Time setting
- 2 Timescale
- 3 Timing function
- 4 Status display (green): Supply voltage
- 5 Status display (yellow): Relay closed

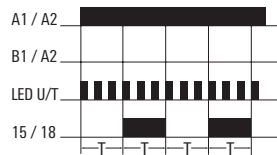


Visit our website for more information



Timing functions

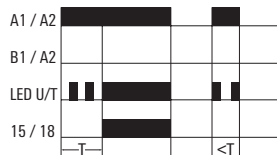
Bp Clock generator pause first



Clock generator pause first (Bp)

When the supply voltage U is applied, the set interval t begins. After the interval t has expired, the output relay R switches into on-position and the set interval t begins again. After the interval t has expired, the output relay switches into off-position. The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.

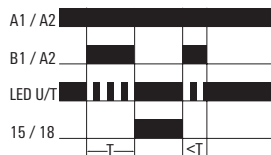
E On-delay



On-delay (E)

When the supply voltage U is applied, the set interval t begins. After the interval t has expired the output relay R switches into on-position. This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the set interval, the interval t already expired is erased and is restarted when the supply voltage is next applied.

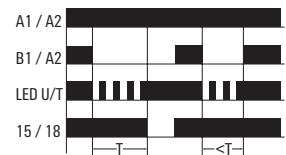
Es On-delay with control input



On-delay with control input (Es)

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the set interval t begins. After the interval t has expired the output relay R switches into on-position. This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.

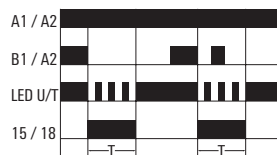
R Off-delay with control input



Off-delay with control input (R)

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches into on-position. If the control contact is opened, the set interval t begins. After the interval t has expired the output relay switches into off-position. If the control contact is closed again before the set interval has expired, the interval already expired is erased and is restarted.

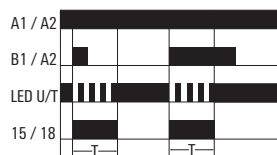
Wa Single shot falling edge with control input



Single shot falling edge with control input (Wa)

The supply voltage U must be constantly applied to the device. Closing the control contact S has no influence on the condition of the output R. When the control contact is opened, the output relay switches into on-position and the set interval t begins. After the set interval has expired, the output relay switches into off-position. During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

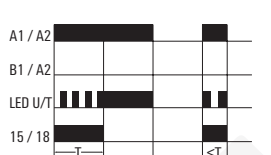
Ws Single shot rising edge with control input



Single shot rising edge with control input (Ws)

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches into on-position and the set interval t begins. After the interval t has expired the output relay switches into off-position. During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

Wu Single shot rising edge supply voltage controlled



Single shot rising edge supply voltage controlled (Wu)

When the supply voltage U is applied, the output relay R switches into on-position and the set interval t begins. After the interval t has expired the output relay switches into off-position. This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position. The interval is already erased and is restarted when the supply voltage is next applied.

On-delay

TFI-SERIES

Technical Data

Input

- Rated control voltage: 12 - 240 V UC

Output

- Contact type: 1 changeover
- Continuous current: 8 A

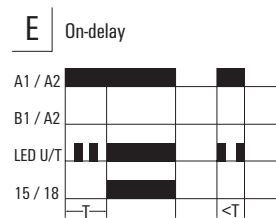
General Data

- Installation design
- Status displays:
 - LED green (U/t):
 - Flashes when time runs
 - Lights permanently with supply voltage is applied
 - LED yellow (R):
 - Relay closed
- Dimensions (W x H x D): 17.5 x 87 x 60 mm
- Temperature range: -25 °C to 55 °C
- Connection: Screw connection

Time ranges

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h, 30 min - 10 h, 5 h - 100 h

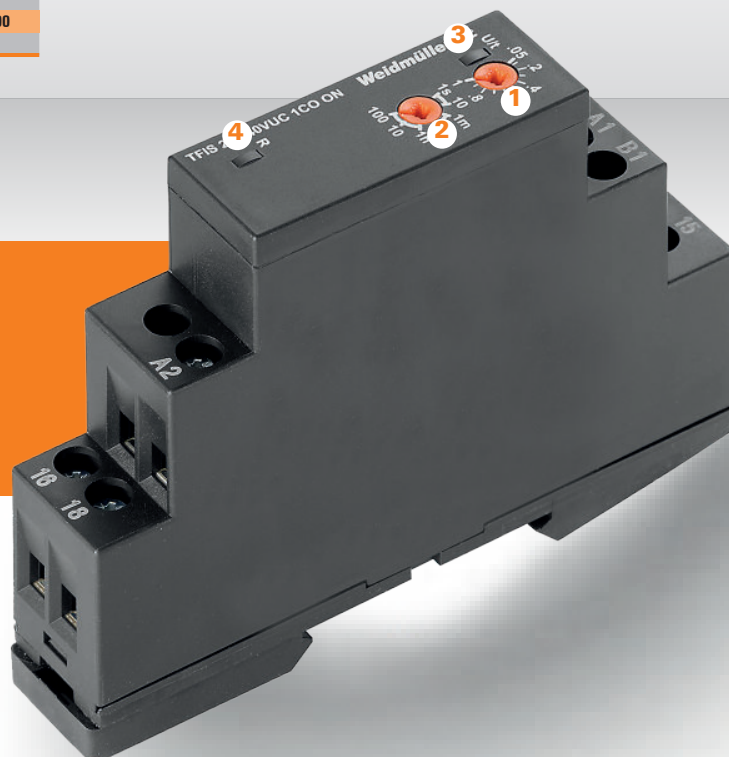
Timing functions



On-delay (E)

When the supply voltage U is applied, the set interval t begins. After the interval t has expired the output relay R switches into on-position. This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the set interval, the interval t already expired is erased and is restarted when the supply voltage is applied next.

Type	Order No.
TFIS 24-240VUC 1CO ON	2697280000



- Time setting**
- Timescale**
- Status display (green):** Supply voltage
- Status display (yellow):** Relay closed

Off-delay TFI-SERIES

Technical Data

Input

- Rated control voltage: 12 - 240 V UC

Output

- Contact type: 1 changeover
- Continuous current: 8 A

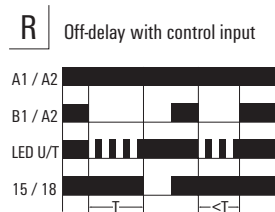
General Data

- Installation design
- Status displays:
 - LED green (U/t):
 - Flashes when time runs
 - Lights permanently with supply voltage is applied
 - LED yellow (R):
 - Relay closed
- Dimensions (W x H x D): 17.5 x 87 x 60 mm
- Temperature range: -25 °C to 55 °C
- Connection: Screw connection

Time ranges

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h,
30 min - 10 h, 5 h - 100 h

Timing functions

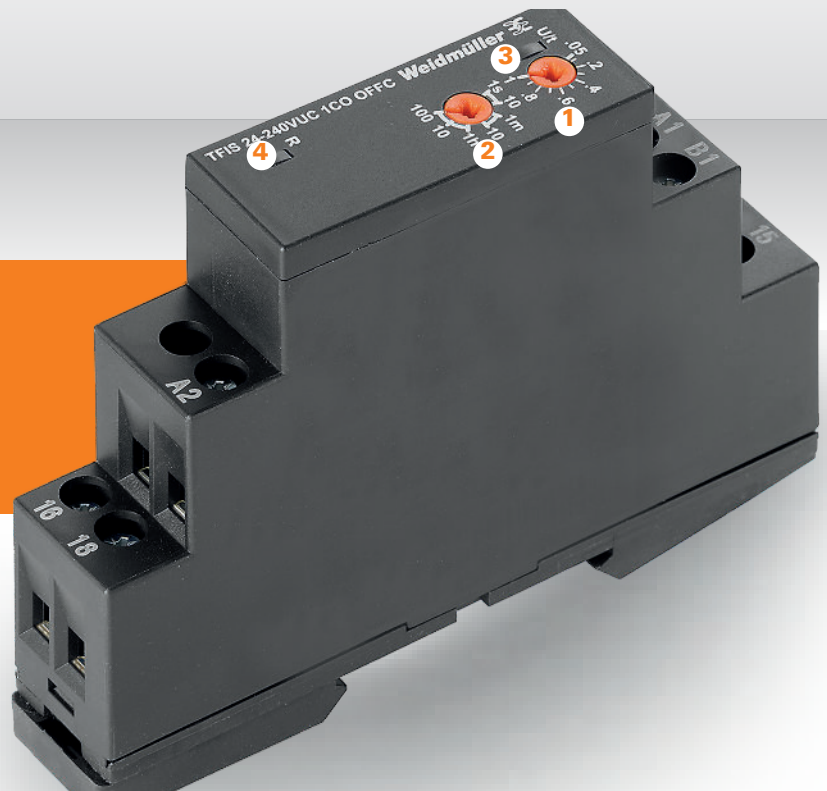


Off-delay with control input (R)

The supply voltage U must be constantly applied to the device. When the control contact S is closed, the output relay R switches into on-position. If the control contact is opened, the set interval t begins. After the interval t has expired the output relay switches into off-position. If the control contact is closed again before the set interval has expired, the interval already expired is erased and is restarted with next cycle.

Type	Order No.
TFIS 24-240VUC 1CO OFFC	2697290000

- Time setting
- Timescale
- Status display (green): Supply voltage
- Status display (yellow): Relay closed



Visit our website for more information

Clock generator

TFI-SERIES

Technical Data

Input

- Rated control voltage: 12 - 240 V UC

Output

- Contact type: 1 changeover
- Continuous current: 8 A

General Data

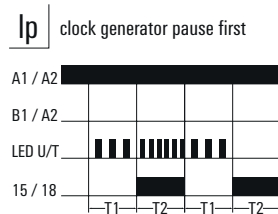
- Installation design
- Status displays:
 - LED green (U/t):
 - Flashes slowly when time t1 runs
 - Flashes quickly when time t2 runs
 - Lights permanently when supply voltage is applied
- LED yellow (R)
 - Relay closed
- Dimensions (W x H x D): 17.5 x 87 x 60 mm
- Temperature range: -25 °C to 55 °C
- Connection: Screw connection

Time ranges

0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 30 s - 10 min, 3 min - 1 h, 30 min - 10 h, 5 h - 100 h

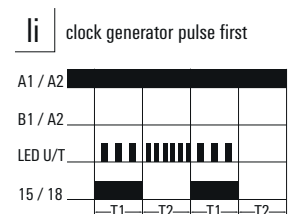
Type	Order No.
TFIS 12-240VUC 1CO CG	2697260000

Timing functions



Clock generator pause first (Lp)

When the supply voltage U is applied, the set interval t1 begins. After the interval t1 has expired, the output relay R switches into on-position and the set interval t2 begins. After the interval t2 has expired, the output relay switches into off-position. The output relay is triggered at the ratio of the both set times until the supply voltage is interrupted.

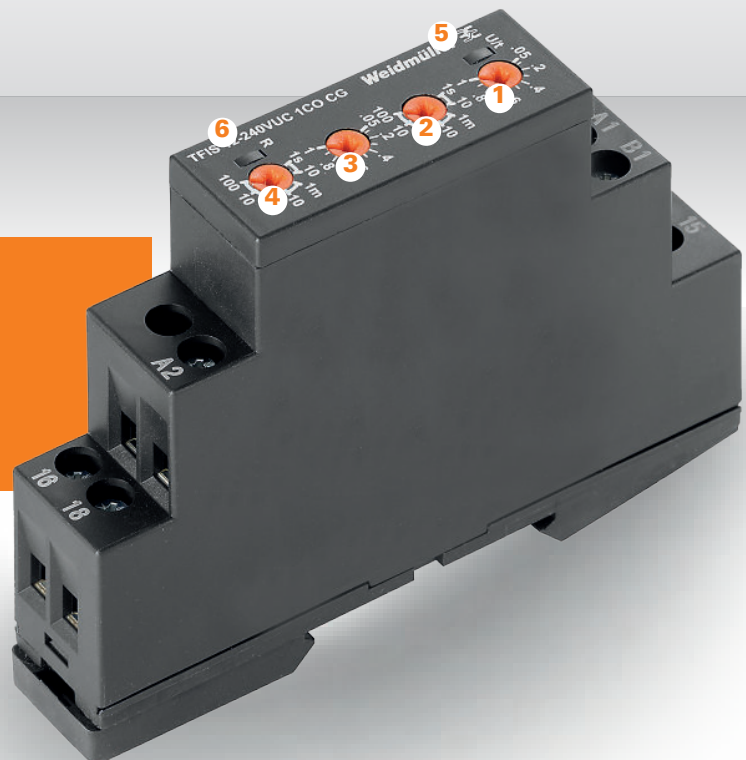


Function **lp** with fixed jumper **A1-B1**

Clock generator pulse first (Li)

When the supply voltage U is applied, the output relay R switches into on-position and the set interval t1 begins. After the interval t1 has expired, the output relay switches into off-position and the set interval t2 begins. After the interval t2 has expired, the output relay switches into on-position. The output relay is triggered at the ratio of the both set times until the supply voltage is interrupted.

- Time setting (t1)
- Timescale (t1)
- Time setting (t2)
- Timescale (t2)
- Status display (green): Supply voltage
- Status display (yellow): Relay closed



Visit our website for more information

Star-Delta

TFI-SERIES

Technical Data

- Input**
- Rated control voltage: 12 - 240 V UC

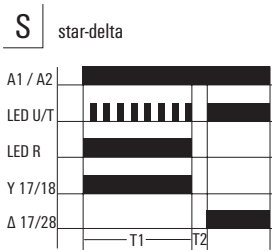
- Output**
- Contact type: 2 normally open
 - Continuous current: 3 A

- General Data**
- Industrial design
 - Status displays:
 - LED green (U/t):
 - Flashes slowly when star-relay is closed, time t1 runs
 - Lights permanently when delta-relay is closed
 - LED yellow (R)
 - Star-relay closed
 - Dimensions (W x H x D): 22.5 x 67 x 75 mm
 - Temperature range: -25 °C to 60 °C
 - Connection: Screw connection

- Time ranges**
- 0.05 s - 10 s, 1.5 s - 30 s, 3 s - 60 s, 9 s - 180 s

Type	Order No.
TFIS 12-240VUC 2NO SD	2697270000

Timing functions



Star-Delta Start-up (S)

When the supply voltage U is applied, the star-relay switches into on-position and the set star-time t1 begins. After the time t1 has expired the star-relay switches into off-position and the set transit-time t2 begins. After the time t2 has expired the delta-relay switches into on-position. To restart the function the supply voltage must be interrupted and reapplied.

- 1 Time setting
- 2 Timescale Y
- 3 Timescale Y-Δ
- 4 Status display (green): Supply voltage
- 5 Status display (yellow): Star-relay closed



Adjust control signals even more easily

TERMSERIES TIMER

TERMSERIES timing relay with additional functions

Timing relays are used in automation technology to high offset errors from cycle rates. Short pulses are extended and reliably detected by downstream control components. For this task, TERMSERIES timing relays are special designed.

To increase the advantage of our TERMSERIES, we have implemented timing functions. The DIP switches on the side conveniently set the timing functions and time ranges. A Duo-LED on the ejection lever indicates the respective switching status. By providing extensive accessories in TERMSERIES, we guarantee high flexibility and enable easy integration into existing systems.

Your special advantages:

- **Duo-LED on the ejection lever**
- **Empty sockets for solid-state relays and mechanical relays**
- **Simple setting of the timing functions and time ranges**



Available with screw connection and
PUSH IN-connection technology



International approvals

TERMSERIES timing relays comply with EN 61812 for universal, world-wide application.

Comfortable adjustment

Timing function and time ranges are set easily via the DIP switches on the side.

Clear display

Due to the integrated Duo-LED on the ejection lever, power supply and switching status can be checked at a glance.



Visit our website for more information

Adjust control signals even more easily

TERMSERIES TIMER

Technical Data

Input

- Rated control voltage: 24 V DC

Output

- Contact type: 1 changeover
- Continuous current: 6 A and 10 A

General Data

- 6 mm narrow design
- Status displays:
 - Duo-LED orange:
 - Lights permanently when relay closed
 - Duo-LED green:
 - Lights permanently when supply voltage is applied
 - Flashes in case of incorrect configuration, no function
- Dimensions (W x H x D): 6.4 x 90 x 88 mm
- Temperature range: -20 °C to 60 °C
- Version: PUSH IN / Screw connection
- Connection: Relay modul/Empty socket

Time ranges

0.01 s - 0.1 s, 0.1 s - 1 s, 1 s - 10 s, 10 s - 100 s

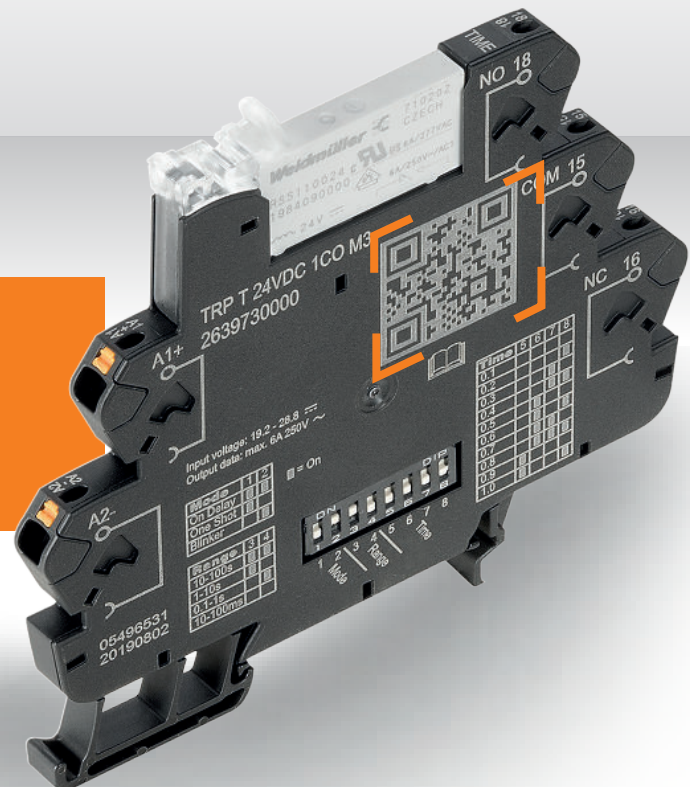
Example: DIP switch adjustment for a on delay of 0.7 s

Function	DIP switch							
Mode = On Delay	1	2	3	4	5	6	7	8
Time range = 0.1...1 s	■	■		■		■	■	
Time factor = 0.7								

■ = ON (DIP switch position)

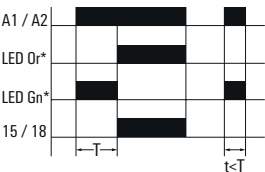
Scan the QR-Code

Scan the QR-Code on the TERMSERIES TIMER and you can access the product directly in our online catalogue.



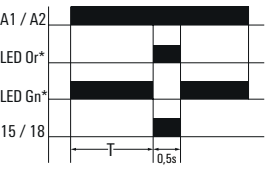
Timing functions

On Delay



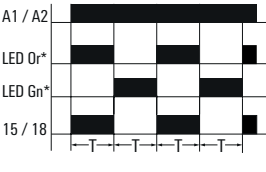
On Delay
When the supply voltage A1/A2 is applied, the set time T begins to run. When the time has passed, the output relay 15/18 switches into on-position. This state remains active until the supply voltage is interrupted. If the supply voltage is interrupted before time T has passed, the already run time is deleted and restarted with the next application of supply voltage.

One Shot



One Shot
When the supply voltage A1/A2 is applied, the set time T runs. After the time T has passed, the output relay 15/18 switches into on-position for 0.5 s. After 0.5 s the output relay switches into off-position. The time function is not restarted until the next time the supply voltage is applied.

Blinker



Blinker
When the supply voltage A1/A2 is applied, the output relay 15/18 switches into on-position. After the set pulse time T has passed, the output relay switches into off-position. After the pause time T has passed, the output relay switches into on-position again. The output relay is activated for the set time until the supply voltage is interrupted. (T=pulse time=pause time)

T = Time factor x Time range (final value) | *LED Or = LED Orange | *LED Gn = LED Green



TERMSERIES TIMER

Order No.	2639730000	2639740000	2639560000	2639720000
Type	TRP T 24VDC 1CO M3	TRP T 24VDC 1CO M3 EMPTY	TRS T 24VDC 1CO M3	TRS T 24VDC 1CO M3 EMPTY
Connection	PUSH IN	PUSH IN	Screw connection	Screw connection
Continuous current	6 A	10 A	6 A	10 A
Version	Relay modul	Empty socket	Relay modul	Empty socket



Visit our website for more information

Compact Time Relay for Easy Control Signal Adjustment

IT-TIMER

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

Timing relays are used in automation engineering in order to compensate for malfunctions caused by high clock rates. Short pulses are extended and hence are reliably identified by downstream control components. Various timing functions such as on- and off-delays and clock generator are available to users.

With the IT-TIMER, Weidmüller offers a highly efficient, multifunctional timing relay with multi-voltage input which fulfills the product standards according to EN 618121.

Your special advantages:

- **High functionality and 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.

- **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.

- **Global standard**

International usage is guaranteed in accordance with the standard EN 618121.



Seven timing functions

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



Technical Data

Input

- Rated control voltage: 24 - 48 V DC / 24 - 240 V AC

Output

- Contact type: 1 changeover
- Continuous current: 5 A

General Data

- Installation design
- Status displays:
 - LED green (U/t):
 - Flashes when time runs
 - Lights permanently with supply voltage is applied
 - LED yellow (R):
 - Relay closed
- Multifunction timing relays
- Dimensions (W x H x D): 17.5 x 98 x 57,9 mm
- Temperature range: - 25 °C to 50 °C
- Connection: Screw connection

Time ranges

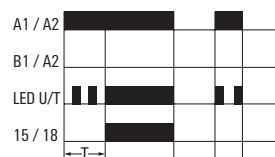
0.05 s - 1 s, 0.5 s - 10 s, 3 s - 60 s, 0.5 min - 10 min,
3 min - 1 h, 0.5 h - 10 h

Type	Order No.
ITS 24-240VUC 1C0 M7C	2496190000
ITS 24-240VUC M7C PU10	2545120000

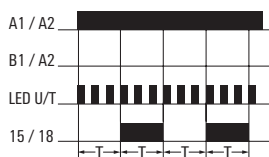
- Time setting
- Timescale
- Timing function
- Status display (green): Supply voltage
- Status display (yellow): Relay closed

Timing functions

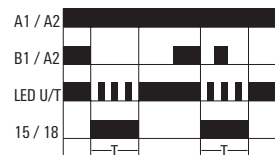
A On-delay



B Pulse emitter



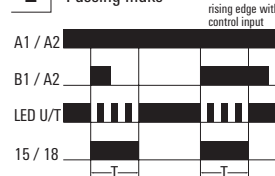
C Passing make



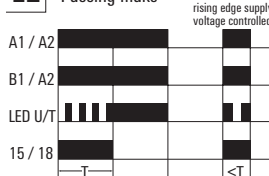
D Off delay



E Passing make

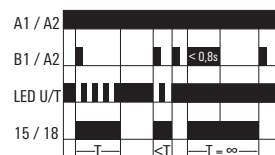


E2 Passing make



Function E with jumper between A1-B1

F Flip-flop / latching



Visit our website for more information

Pulse stretcher

MCZ TO

With a width of 6 mm, the MCZ TO pulse stretcher is one of the slimmest of its kind

These pulse stretchers are ideal for extending very short input pulses of <10 ms in automation technology.

The extended pulses are passed on to the PLC inputs for further processing. Conventional timing relays are not able to process very short input pulses. Such short pulses are generated e.g. by light barriers. Special features of the MCZ TO are:

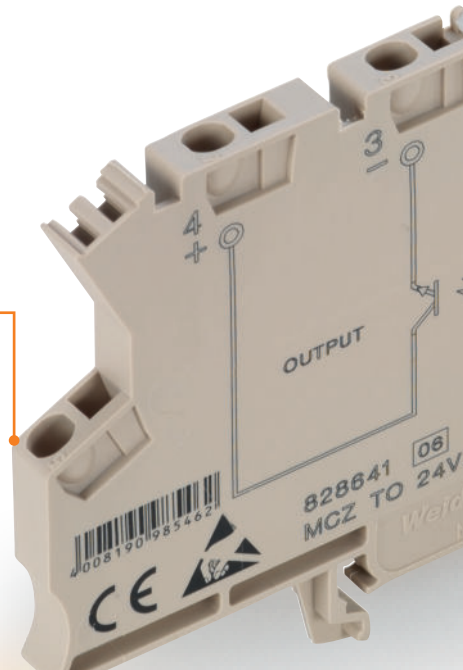
- No auxiliary voltages required for input or output
- Very short pulses ≥ 3.5 ms can be extended
- Restart of the off-delay (watchdog) possible
- Very compact design
- Precisely fitting accessories: cross-connections, markers, end plate

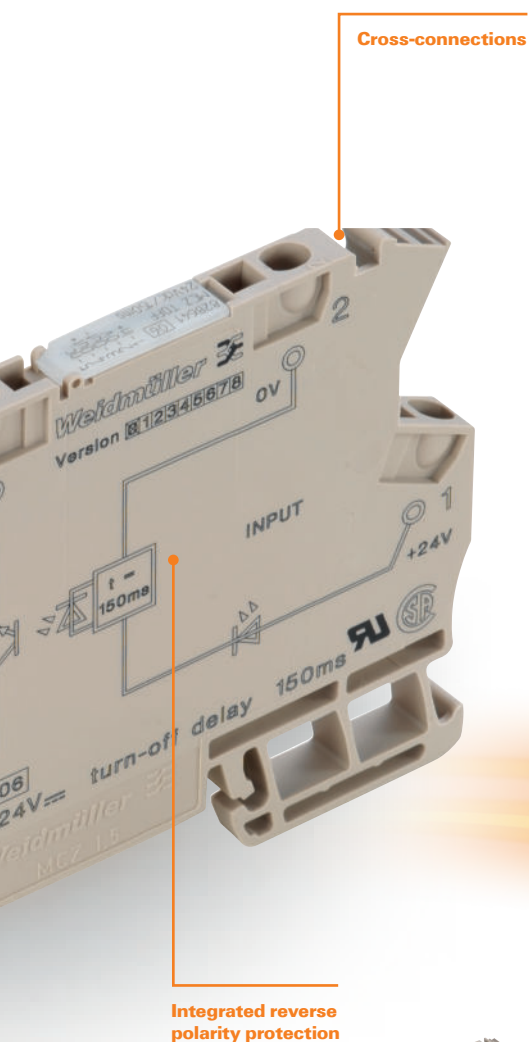
Your special advantages:

- **Identifies very short input pulses ($\geq 3,5$ ms)**
- **3 Cross-connections possibilities**
- **Tension clamp connection**
- **6 mm width**



No auxiliary voltage
is required





Cross-connections

Integrated reverse
polarity protection



Type	Order No.
MCZ TO 24VDC/150MS	8286410000
MCZ TO 24VDC/50MS	8324590000

Technical Data

Input

- Rated control voltage: 24 V DC
- Status displays: LED green

Output

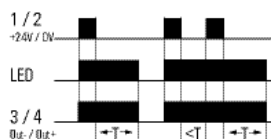
- Contact type: 1 changeover (Transistor)
- Rated switching voltage: 5 - 48 V DC
- Continuous current: 20 mA
- Switch-off delay: 50 ms or 150 ms

General Data

- Dimensions (W x H x D): 6.1 x 91 x 63.2 mm
- Temperature range: -25 °C to 50 °C
- Connection: Tension clamp

Timing functions

Off-delay



Visit our website for more information

Weidmüller – Your partner in Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

We cannot guarantee that there are no mistakes in the publications or software provided by us to the customer for the purpose of making orders. We try our best to quickly correct errors in our printed media. All orders are based on our general terms of delivery, which can be reviewed on the websites of our group companies where you place your order. On demand we can also send the general terms of delivery to you.

Weidmüller, Inc

821 Southlake Blvd.
Richmond, Virginia 23236
Telephone: (800) 849-9343
Website: www.weidmuller.com
Email: customerservice@weidmuller.com

Personal support can
be found on our website:
www.weidmueller.com/contact

