



**NEW**  
product

- Multifunction time relay
- 7 time functions: E, Wu, Bp, R, Ws, Wa, Es
- 7 time ranges: 1 s; 10 s; 1 min.; 10 min.; 1 h; 10 h; 100 h
- Wide input voltage range: 12...240 V AC/DC
- 1 changeover contact: 1 C/O
- Rated load: 8 A / 250 V AC at cat. AC1
- Installation design: width 17,5 mm
- Recognitions, certifications, directives: **CE**

Type of relay

TR-EM1P-UNI

## Output circuit

Number and type of contacts		1 C/O - changeover	
Rated load	AC1	8 A / 250 V AC	
Max. breaking capacity	AC1	2 000 VA	
Max. operating frequency		3 600 cycles/hour	PN-EN 60947-5-1
• at 100 VA resistive load • at 1 000 VA resistive load		360 cycles/hour	

## Input circuit

Supply voltage U		12...240 V AC/DC, AC: 50/60 Hz; terminals A1(+)-A2
Drop-out voltage		AC: $\geq 0,3 U_n$
Operating range of supply voltage		$0,9 < U_n < 1,1$
Rated power consumption		4,0 VA / 1,5 W
Rated frequency		AC: 48...63 Hz
Duty cycle		100%
Residual ripple to DC		10%
Control contact	<ul style="list-style-type: none"> <li>• input</li> <li>• loadable</li> <li>• max. line length</li> <li>• trigger level (sensitivity)</li> </ul>	terminals A1-B1 yes 10 m automatic adaption to supply voltage

## Insulation

Rated surge voltage		4 000 V AC
Overtoltage category		III PN-EN 60664-1
Insulation pollution degree		2, if built-in 3 PN-EN 60664-1

## General data

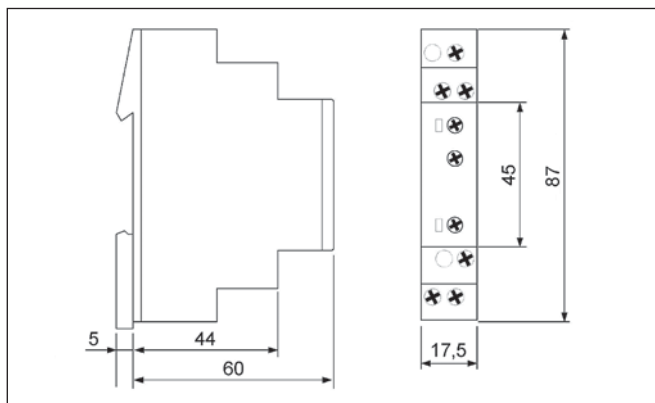
Electrical life	• resistive AC1	$\geq 2 \times 10^5$ 1 000 VA
Mechanical life (cycles)		$\geq 2 \times 10^7$
Dimensions (L x W x H)		87 x 17,5 x 60 mm
Weight		63 g
Ambient temperature	<ul style="list-style-type: none"> <li>• storage, transport</li> <li>• operating</li> </ul>	-25...+70 °C -25...+55 °C PN-EN 60068-1
Housing protection category		IP40
Relative humidity		15...85% PN-EN 60721-3-3 class 3K3
Shock resistance		15 g 11 ms PN-EN 60068-2-27
Vibration resistance		0,35 mm DA 10...55 Hz PN-EN 60068-2-6

## Time module data

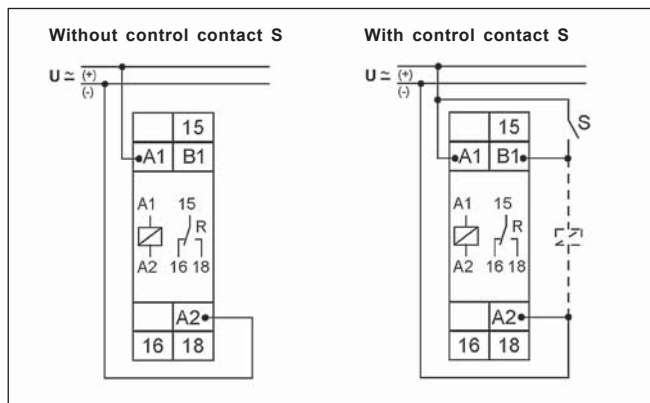
Functions		E, Wu, Bp, R, Ws, Wa, Es <b>1</b>
Time intervals (timing adjustment)		1 s (50 ms...1 s); 10 s (0,5...10 s); 1 min. (3 s...1 min.); 10 min. (30 s...10 min.); 1 h (3 min. ...1 h); 10 h (30 min. ...10 h); 100 h (5...100 h)
Base accuracy		$\pm 1\%$ (calculate from final range value)
Setting accuracy		$\pm 5\%$ (calculate from final range value)
Repeatability		$\pm 0,5\%$ or $\pm 5$ ms
Temperature influence		$\pm 0,01\%$ / °C
Recovery time		100 ms
Min. pulse of the control contact		AC: 100 ms DC: 50 ms
LED indicator		green LED U/T ON - indication of supply voltage green LED U/T flashing - indication of time period T yellow LED R ON/OFF - indication of output relay

**1** The function has to be set before connecting the relay to the supply voltage.

## Dimensions



## Connections diagrams



## Mounting, mechanical design

Relays **TR-EM1P-UNI** are designed for direct mounting on 35 mm DIN rail mount, EN 50022. Mounting position: any. Self-extinguishing plastic housing, IP 40. Shockproof terminal connection according to VBG 4 (PZ1 required), IP 20. Maximum screw torque: 1,0 Nm. Terminal capacity: 1 x 0,5 do 2,5 mm<sup>2</sup> with/without multicore cable end, 1 x 4 mm<sup>2</sup> without multicore cable end, 2 x 0,5 do 1,5 mm<sup>2</sup> with/without multicore cable end, 2 x 2,5 mm<sup>2</sup> flexible without multicore cable end.

## Functions

### E - ON delay



When the supply voltage **U** is applied, the set interval **T** begins (green LED **U/T** flashes). After the interval **T** has expired (green LED **U/T** illuminated) the output relay **R** switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval **T**, the interval already expired is erased and is restarted when the supply voltage is next applied.

### Wu - single shot leading edge voltage controlled



When the supply voltage **U** is applied, the output relay **R** switches into on-position (yellow LED illuminated) and the set interval **T** begins (green LED **U/T** flashes). After the interval **T** has expired (green LED **U/T** illuminated) the output relay switches into off-position (yellow LED not illuminated). 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 already is erased and is restarted when the supply voltage is next applied.

### Bp - flasher pause first



When the supply voltage **U** is applied, the set interval **T** begins (green LED **U/T** flashes). After the interval **T** has expired, the output relay **R** switches into on-position (yellow LED illuminated) and the set interval **T** begins

again. After the interval **T** has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.

### R - OFF delay



The supply voltage **U** must be constantly applied to the device (green LED **U/T** illuminated). When the control contact **S** is closed, the output relay **R** switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval **T** begins (green LED flashes). After the interval **T** has expired (green LED **U/T** illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval **T** has expired, the interval already expired is erased and is restarted.

### Ws - single shot leading edge with control input S



The supply voltage **U** must be constantly applied to the device (green LED **U/T** illuminated). When the control contact **S** is closed, the output relay **R** switches into on-position (yellow LED illuminated) and the set interval **T** begins (green LED **U/T** flashes). After the interval **T** has expired (green LED **U/T** illuminated) the output relay switches into off-position (yellow LED not illuminated). 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.

### Wa - single shot trailing edge with control input S



The supply voltage **U** must be constantly applied to the device (green LED **U/T** illuminated). 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 (yellow LED illuminated) and the set interval **T** begins (green LED **U/T** flashes). After the interval **T** has expired (green LED **U/T** illuminated), the output relay switches into off-position (yellow LED not illuminated). 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.

### Es - ON delay with control input S



The supply voltage **U** must be constantly applied to the device (green LED **U/T** illuminated). When the control contact **S** is closed, the set interval **T** begins (green LED **U/T** flashes). After the interval **T** has expired (green LED **U/T** illuminated) the output relay **R** switches into on-position (yellow LED illuminated). 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.

**U** - supply voltage; **R** - output relay;  
**S** - control contact; **T** - timing adjustment