- Single-function, single-voltage time relays offered in the following versions: **T-R4E** - relay with time function E, **T-R4Wu** - relay with time function Wu, **T-R4Bp** - relay with time function Bp, **T-R4Bi** - relay with time function Bi • Cadmium - free contacts • AC and DC input voltages
- For plug-in sockets, 35 mm rail mount acc. to EN 60715 or on panel mounting • Applications: as time systems in electric circuits of machines, technological lines, in automation systems, etc.
- Recognitions, certifications, directives: RoHS, recognitions R4N, CE

Output circuits - contact data

Number and type of contacts		4 CO
Contact material		**AgNi**
Max. switching voltage		250 V AC / 250 V DC
Rated load	AC1	6 A / 230 V AC
Max. inrush current		12 A
Rated current		6 A
Max. breaking capacity	AC1	1 500 VA
Min. breaking capacity		0,3 W 5 V, 5 mA
Contact resistance		≤ 100 mΩ
Max. operating frequency		
• at rated load	AC1	1 200 cycles/hour
• no load		18 000 cycles/hour

Input circuit

Rated voltage	50/60 Hz AC	24, 115, 230 V
	DC	12, 24 V
Must release voltage		AC: ≥ 0,2 U_n DC: ≥ 0,1 U_n
Operating range of supply voltage		0,8...1,1 U_n see Tables 1, 2
Rated power consumption	AC	2,2 VA
	DC	1,2 W
Range of supply frequency		48...63 Hz

Insulation according to EN 60664-1

Insulation rated voltage		250 V AC
Overvoltage category		III
Dielectric strength		
• input - outputs		2 500 V AC type of insulation: basic
• contact clearance		1 500 V AC type of clearance: micro-disconnection
• pole - pole		2 000 V AC type of insulation: basic
Input - outputs distance		
• clearance		≥ 1,6 mm
• creepage		≥ 3,2 mm

General data

Operating / release time (typical values)		10 ms / 8 ms
Electrical life		
• resistive AC1		> 10^5 6 A, 250 V AC
• cosφ		see Fig. 2
Mechanical life (cycles)		> 2 x 10^7
Dimensions (L x W x H)		T-R4 + GZM4: 75 x 27 x 91,5 mm T-R4 + GZT4: 76,3 x 27 x 90 mm T-R4 + GZMB4: 95 ❶ x 31 x 90 mm T-R4: 27,5 x 21,2 x 62,5 mm
Weight		T-R4 + GZM4: 123 g T-R4 + GZT4: 113 g T-R4 + GZMB4: 124 g T-R4: 49 g
Ambient temperature	• storage	-20...+85 °C
(non-condensation and/or icing)	• operating	-20...+55 °C
Cover protection category		IP 20 (with socket) EN 60529
Environmental protection		T-R4: RTI GZM4: RT0 EN 61810-7
Shock resistance	(NO/NC)	10 g / 5 g
Vibration resistance		5 g 10...150 Hz

The data in bold type relate to the standard versions of the relays.
❶ Length with 35 mm rail catch: 100 mm.

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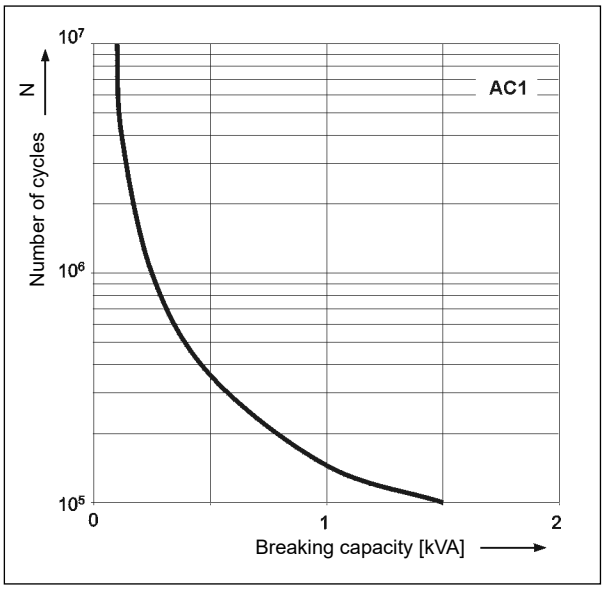
Time module data

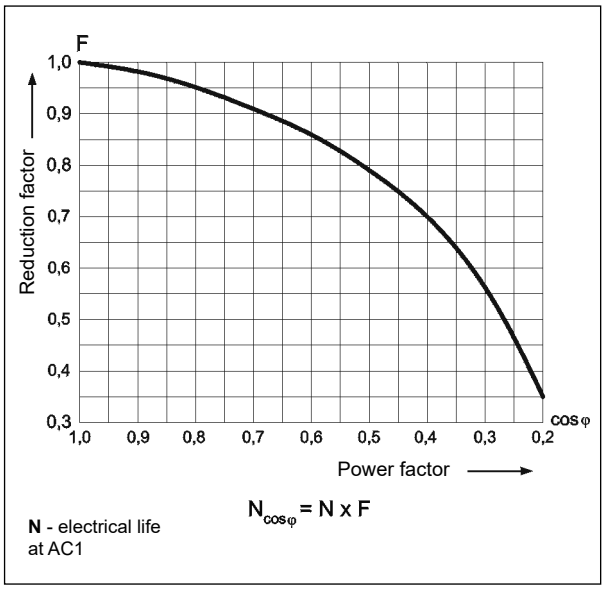
Functions	E, Wu, Bp, Bi
Time ranges	1 s ❶; 10 s; 1 min.; 10 min.; 1 h; 10 h; 100 h
Timing adjustment	range - with the range-adjusting knob / switch; within the range - with the time-adjusting knob / potentiometer
Setting accuracy	± 5% (calculated from the final range values) ❶
Repeatability	± 1% ❶
Temperature influence	± 0,01% / °C
Recovery time	100 ms
LED indicator	green LED - indication of supply voltage U yellow LED - indication of time period T and the status of outputs after the time T has been measured ❷

❶ For first range setpoint (1 s) setting accuracy and repeatability are smaller than the given ones in technical parameters (significant influence of the operational relay operating time). Recommend to set measuring time by experimental method. ❷ The yellow LED - T time measurement (pulsating); excited operational relay; time not measured (steady light); de-excited operational relay, time not measured (no light).

Electrical life at AC resistive load. Switching frequency: 1 200 cycles/hour Fig. 1

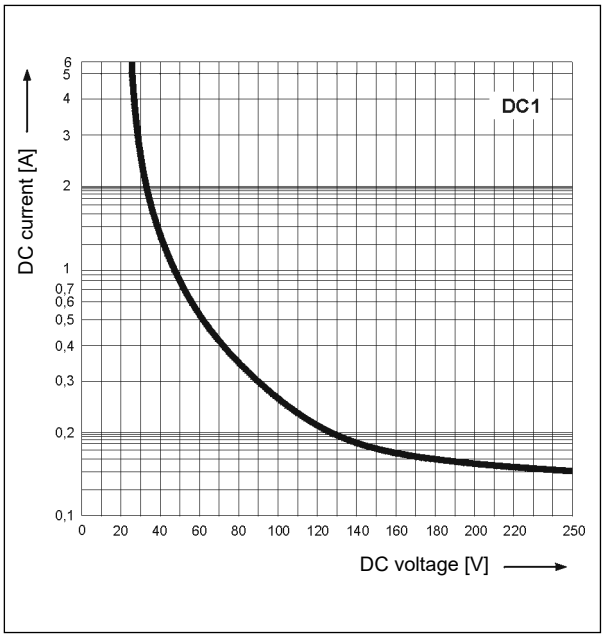


Electrical life reduction factor at AC inductive load Fig. 2

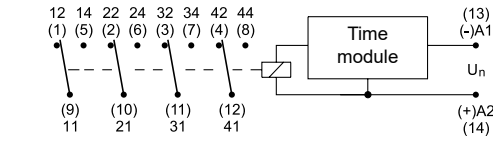


$N_{cos\varphi} = N \times F$

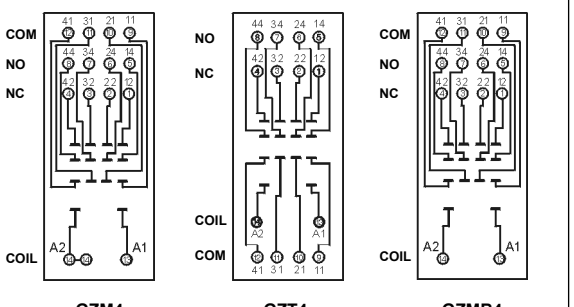
Max. DC resistive load breaking capacity Fig. 3



Connection diagrams

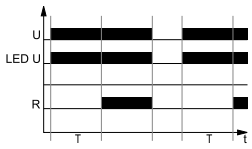


4 CO



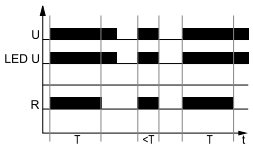
Time functions

E - ON delay.



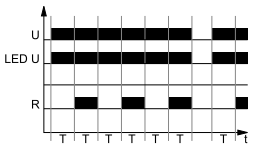
On applying the supply voltage U the set interval T begins - off-delay of the output relay R. After the interval T has lapsed, the output relay R switches on and remains on until supply voltage U is interrupted.

Wu - ON for the set interval.



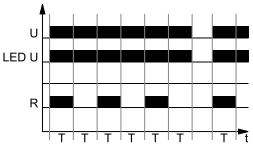
Applying the supply voltage U immediately switches the output relay R on for the set interval T. After the interval T has lapsed, the output relay R switches off.

Bp - Symmetrical cyclical operation pause first.



Applying the supply voltage U starts the cyclical operation from the interval T - switching the output relay R off followed by switching on the output relay R for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

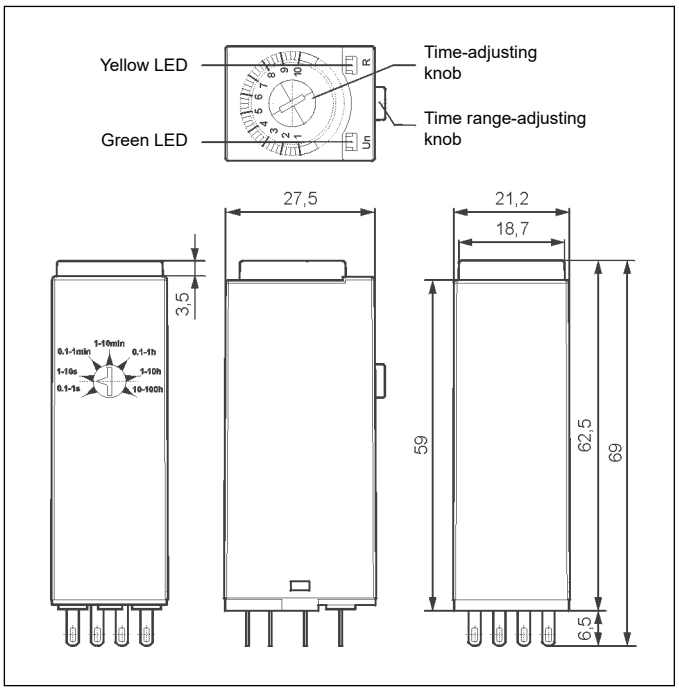
Bi - Symmetrical cyclical operation pulse first.



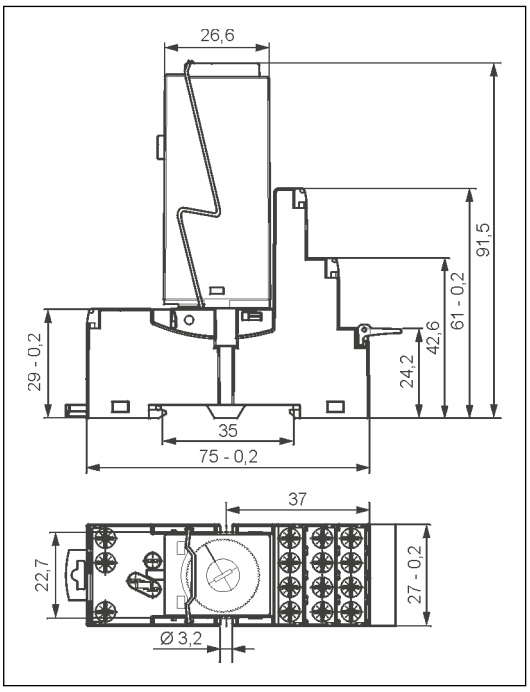
Applying the supply voltage U starts the cyclical operation from switching on the output relay R for the set interval T. After the interval T has lapsed, the output relay R switches off for the interval T. The cyclical operation lasts until the supply voltage U is interrupted.

U - supply voltage; **R** - output state of the relay; **T** - measured time; **t** - time axis

Dimensions - T-R4



Dimensions - T-R4 with socket GZM4

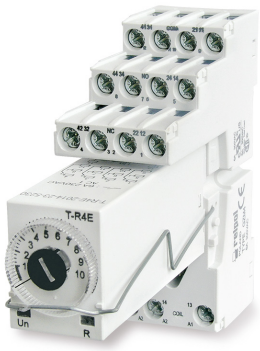


PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. **2.** Never touch any live parts of the device. **3.** Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. **4.** In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

Time relay
T-R4

with plug-in socket
GZM4



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Mounting, sockets and accessories for relays

Relays **T-R4E**, **T-R4Wu**, **T-R4Bp**, **T-R4Bi** are designed for mounting in plug-in sockets.

Sockets for T-R4	Accessories		Additional features
	Spring wire clips	Description plates	
Screw terminals sockets, 35 mm rail mount (acc. to EN 60715) or on panel mounting (two M3 screws)			
GZT4 ❹	TR4-2000	GZT4-0035	strips ❻
GZM4 ❹	TR4-2000	GZT4-0035	strips ❻
Spring terminals sockets, 35 mm rail mount (acc. to EN 60715)			
GZMB4 ❺	TR4-2000	TR	–

❹ Sockets GZT4, GZM4 - connections: max. cross section of the cables (stranded): 2 x 2,5 mm² (2 x 14 AWG), stripping length: 6,5 mm, max. tightening moment for the terminal: 0,7 Nm. ❺ Sockets GZMB4 - connections: max. cross section of the cables: 1 x 0,2...1,5 mm² (1 x 24...16 AWG), stripping length: 9...11 mm; wire connection - see www.relpol.com.pl ❻ Interconnection strips ZGGZ4 - see page 5.

Separate T-R4 control circuits from load circuits (T-R4 contacts)	GZM4, GZMB4: yes GZT4: no
Increased dielectric strength spacing between coil and contacs clamps	GZM4: min. 5 kV GZT4, GZMB4: min. 4 kV
Double A2(14) terminal is introduced for easy wiring in electrical devices	GZM4, GZMB4: yes GZT4: no

Input data - DC voltage version

Table 1

Input voltage code	Rated input voltage U_n V DC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V DC	
				min. (at 20 °C)	max. (at 55 °C)
1012	**12**	**160**	**± 10%**	**9,6**	**13,2**
1024	**24**	**640**	**± 10%**	**19,2**	**26,4**

The data in bold type relate to the standard versions of the relays.

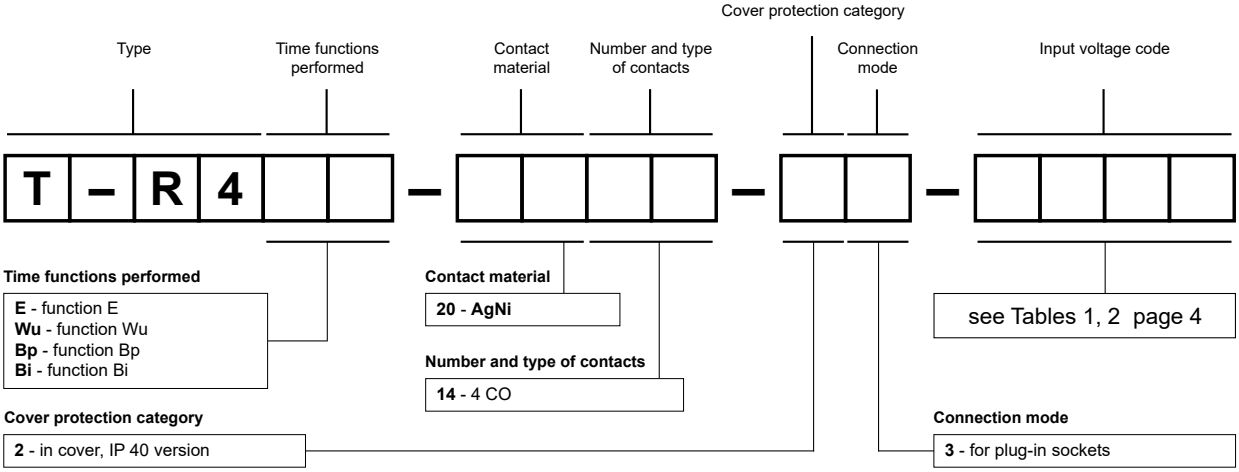
Input data - AC 50/60 Hz voltage version

Table 2

Input voltage code	Rated input voltage U_n V AC	Input resistance at 20 °C Ω	Acceptable resistance	Input - voltage range V AC	
				min. (at 20 °C)	max. (at 55 °C)
5024	**24**	**158**	**± 10%**	**19,2**	**26,4**
5115	115	3 610	± 10%	92,0	127,0
5230	**230**	**16 100**	**± 10%**	**184,0**	**253,0**

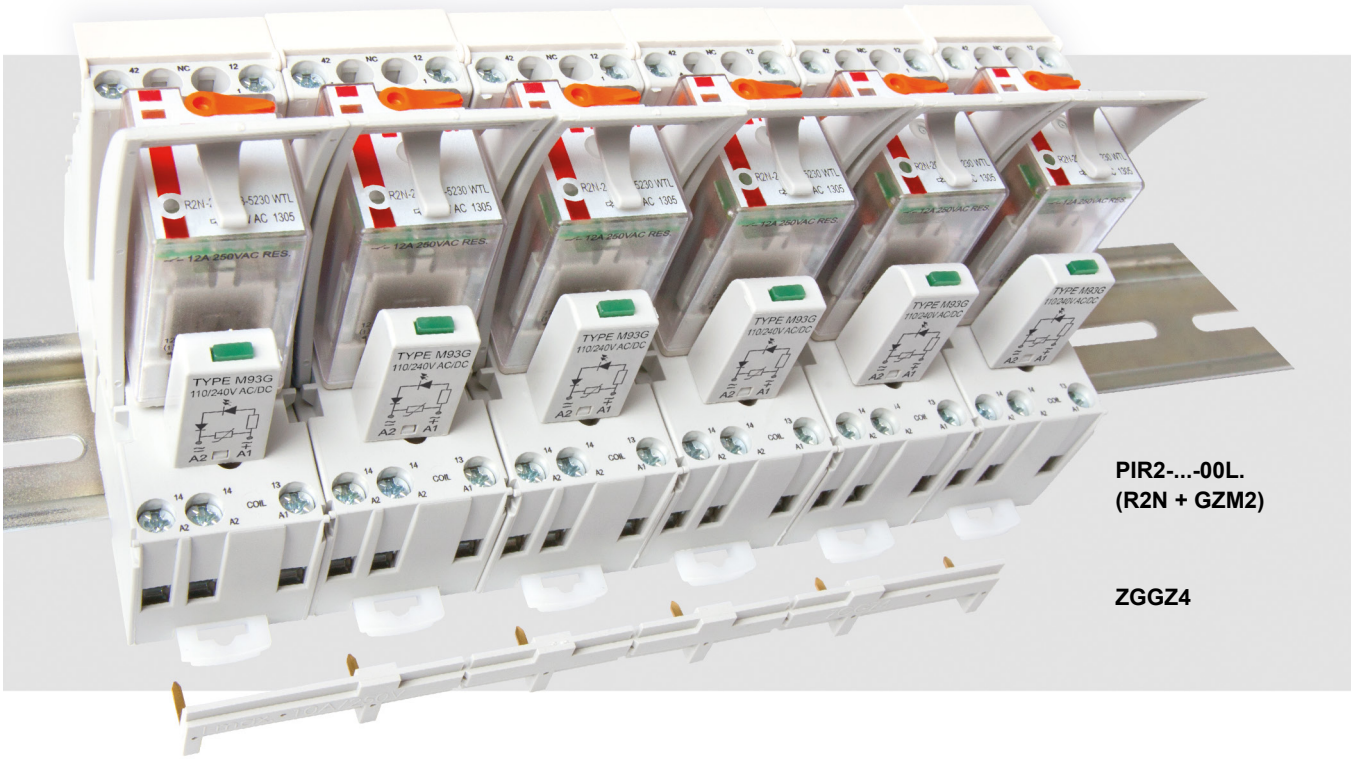
The data in bold type relate to the standard versions of the relays.

Ordering codes



Example of ordering code:

T-R4E-2014-23-1012 time relay **T-R4**, single-function (relay perform function **E** - ON delay), for plug-in sockets, four changeover contacts, contact material AgNi, rated input voltage 12 V DC, in cover IP 40



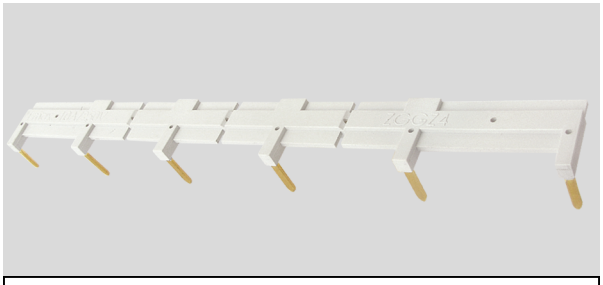
ZGGZ4 for:

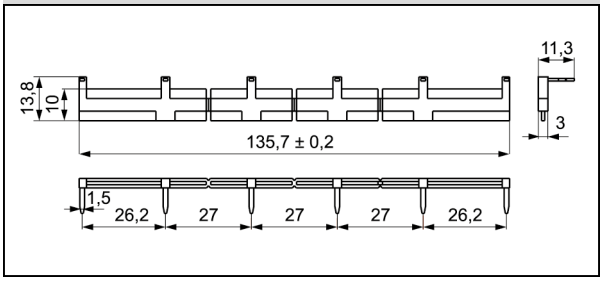
Plug-in sockets	Relays for plug-in sockets	Interface relays ❶
GZT2	R2N	PIR2-...-00L. (R2N + GZM2)
GZM2		PIR3-...-00L. (R3N + GZM3)
GZT3	R3N	PIR4-...-00L. (R4N + GZM4)
GZM3		
GZT4	R4N	
GZM4		

❶ Interface relay **PIR2** (**PIR3**, **PIR4**) is offered as a **set**: plug-in socket **GZM2** (**GZM3**, **GZM4**) + miniature industrial relay **R2N** (**R3N**, **R4N**) + signalling / protecting module **type M...** + retainer / retractor clip **GZT4-0040** + description plate **GZT4-0035**.

Interconnection strip ZGGZ4

- designed for the co-operation with plug-in sockets of miniature industrial relays and with interface relays PIR2, PIR3 and PIR4, which are equipped with screw terminals; sockets and relays are mounted on 35 mm rail mount acc. to EN 60715,
- bridges common input signals (coil terminals A1 or A2) or output signals - see photo at the top,
- maximum permissible current is 10 A / 250 V AC,
- possibility of connection of 6 sockets or relays,
- colours of strips: **ZGGZ4-1** grey, **ZGGZ4-2** black.





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