MT-TUA-17S-11-9240

Time Relays

NEW product

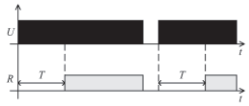
- Multifunction time relay
- 10 time functions: E, Wu, Bp, Bi, T, R, Ws, Wa, Esa, B
- 8 time ranges: 1 s ❶; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
- Wide input voltage range: 12...240 V AC/DC
- 1 changeover contact: 1 C/O
- Rated load: 16 A / 250 V AC at cat. AC1
- Installation design: width 17,5 mm
- Recognitions, certifications, directives: CE

Type of relay		**MT-TUA-17S-11-9240**
Output circuit		
Number and type of contacts		1 C/O - changeover
Rated load	AC1	16 A / 250 V AC
Input circuit		
Supply voltage U_n		12...240 V AC/DC, AC: 50/60 Hz; terminals A1(+)-A2(-)
Drop-out voltage		≥ 6 V
Operating range of supply voltage		$0,9 < U_n < 1,1$
Rated frequency		AC: 48...63 Hz
Duty cycle		100%
Control contact	• activation	connection A1-S
	• loadable	yes
	• max. line length	10 m
	• trigger level (sensitivity)	automatic adaption to supply voltage
Insulation		
Rated surge voltage		2 500 V AC
Overvoltage category		II PN-EN 60664-1
Insulation pollution degree		2, if built-in 3 PN-EN 60664-1
General data		
Electrical life	• resistive AC1	≥ $0,7x10^5$ 16 A, 250 V AC
Mechanical life		≥ 2 x 10^7 cycles
Dimensions (L x W x H)		98,8 x 17,5 x 63,5 mm
Weight		67 g
Ambient temperature	• storage, transport	-40...+70 °C
	• operating	-25...+45 °C PN-EN 60068-1
Housing protection category		IP20
Relative humidity		15...85% PN-EN 60721-3-3 class 3K3
Time module data		
Functions		E, Wu, Bp, Bi, T, R, Ws, Wa, Esa, B permanent switching ON and OFF
Time intervals		1 s ❶; 10 s; 1 min.; 10 min.; 1 h; 10 h; 1 d; 10 d
Timing adjustment		smooth - (0,1...1) x time interval
Base accuracy		± 1% (calculate from final range value)
Setting accuracy		± 5% (calculate from final range value)
Repeatability		± 0,5% or ± 5 ms
Temperature influence		± 0,01% / °C
Recovery time		≤ 50 ms
Min. pulse of the control contact		50 ms
LED indicator		green LED U ON - indication of supply voltage U green LED U flashing - measurement of T time yellow LED R ON/OFF - output relay status

❶ For the first range setpoint (1s) setting accuracy and repeatability are smaller than the given ones in technical parameters. Recommend to set measuring time by experimental method.

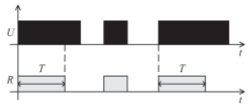
TIME FUNCTIONS

E - ON Delay



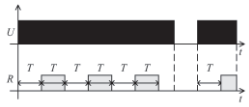
After the supply voltage U has been switched on, the set time T is being measured. After the T time has lapsed, the R operating relay shall start operating and remains in operating position until the supply voltage U is switched off.

Wu - Single shot leading edge voltage controlled



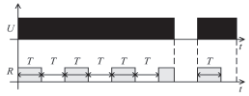
After the supply voltage U has been switched on, the operating relay R starts immediately and the set time T is being measured. After the set time T has lapsed, the operating relay R returns to the initial position.

Bp - Flasher pause first



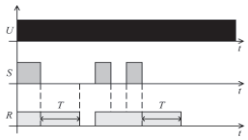
After the supply voltage U has been switched on, the set time T is being measured. After the time has lapsed, the operating relay R starts operating and the T time is being measured again. After the time has lapsed, the operating relay R returns to the initial state, and another cycle of the relay operation commences. The relay operates until the supply voltage is switched off.

Bi - Flasher pulse first



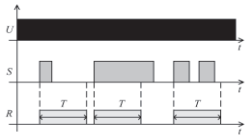
After the supply voltage U has been switched on, the set time T is being measured and the operation relay R is switched on. After the time has lapsed, the operating relay R starts operating and the T time is being measured again. After the time has lapsed, the operating relay R returns to the initial state, and another cycle of the relay operation commences. The relay operates until the supply voltage is switched off.

R - OFF Delay



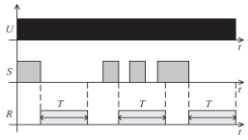
The supply voltage U must be constantly applied to the time relay. After the control contact S has been closed, the operating relay R starts operation immediately. After the control contact S has been opened, the set time T is being measured. After the T time has lapsed, the operating relay R returns to the initial position. When the control contact S is closed again, even before the T time has lapsed, the time measured thus far is reset, and when S is opened, the set time T is being measured again.

Ws - Single shot leading edge with control contact



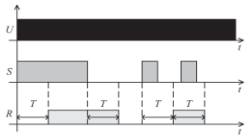
The supply voltage U must be constantly applied to the time relay. After the control contact S has been closed, the operating relay R starts immediately and the set time T is being measured. After the set time T has lapsed, the operating relay R returns to the initial position. In course of measuring the T time, the control contact S may be closed and opened repeatedly with no impact upon the operating relay R. Only after the T time has lapsed, closing S will make the operating relay R operate and the T time will be measured.

Wa - Single shot trailing edge with control contact



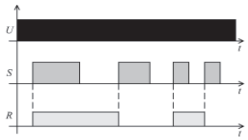
The supply voltage U must be constantly applied to the time relay. Closing of the control contact S does not trigger the measurement of the time delay or operation of the operating relay R. Only opening of the control contact S causes the immediate operation of the operating relay R, and the set time T is being measured. After the T time has lapsed, the operating relay R returns to the initial position. In course of measuring the T time, the control contact S may be closed and opened repeatedly with no impact upon the output relay. Only after the T time has lapsed, closing and opening of S will make the operating relay R operate and the T time will be measured.

Esa - ON and OFF delay with control contact



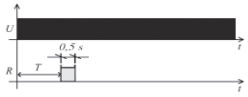
The supply voltage U must be constantly applied to the time relay. After the control contact S has been closed, the set time T is being measured and when it lapses, the operating relay R is switched on. On opening of the control contact S the set time T is measured again, and after the time has lapsed, the operating relay R is switched off. In case the time of closing of the control contact S is shorter than the set time delay T, the operating relay R shall start operation after the set delay has lapsed, and it will continue to operate for the T time. In course of the operation of the R relay, closing of the control contact S does not affect the function.

B - Bistable relay leading edge with control contact



Each closing of the control contact S changes the operating relay status to the opposite one (a feature of a bi-stable relay).

T - generating the 0.5 s pulse after the T time



Permanent switching ON and OFF
The functions ON and OFF are selected with TIME potentiometer. In the ON function, the normally open contacts are closed all the time whereas in the OFF function they are open. The position of the FUNC potentiometer is of no significance in these functions as is the preset measurement time. The ON or OFF functions are used for the time relay operation control in electric systems.

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

ADDITIONAL FUNCTIONS

Supply diode: it is lit permanently when the time is not being measured. In course of the time measurement, it flashes at 500 ms period where it is lit for 80% of the time, and off for 20% of the time.

Adjustment of the set values:
- the values of time and range are read in course of the unit operation. The set values may be modified at any moment,
- the set function is read while the supply is switched on. In course of the unit operation the function cannot be changed.

Release: the relay is released on connection of the S contact to the A1 line. For DC supply, the positive pole must be connected to the A1 line. The level of the S contact activation is adjusted automatically depending on the supply voltage, and it is approximately 50% of the U_n.

Supply: the relay may be supplied with DC voltage or AC voltage 48...63 Hz of 10,8...250 V. A programmed control of the supply voltage has been applied so the processor shall not start operation if the voltage is lower than approximately 10 V. The supply voltage is permanently monitored in course of the operation of the relay. When the voltage drops below 9 V for more than 40 ms, the relay shall be reset. Owing to this, the regeneration time is programmed to 40 ms, and it does not depend on the tolerance of the elements.