EKF

TECHNICAL MANUAL

Time relay RT-10 (10 preset scenarios) EKF

1 DESCRIPTION

Multifunctional time relay RT-10 EKF is an electronic switching device with adjustable time settings and multiple relay operation scenarios. The relay is designed to switch the load on or off according to specified time values and selected scenarios. Timers and scenarios can be adjusted using the dials on the front panel of the relay. The time relay complies with IEC 61000-4-4:2004.
The relay is used in industrial and household automation systems: in ventilation, heating, and lighting systems.

2 TECHNICAL DATA

Table 1

Characteristics	**Values**			
Item code	**RT-10**	**RT-10-2**	**RT-10-12-240**	**RT-10-12-240-2**
Rated voltage, V AC/DC	24-240		12-240	
Rated impulse withstand voltage, V AC	380			
Power consumption	AC: ⩽1,5 VA; DC: ⩽1 W			
Time delay range	0,1 seconds to 100 hours			
Setpoint accuracy, %	⩽5			
Repeatability, %	⩽0,2			
Power interruption, ms	min 200			
Electrical life, cycles	100 000			

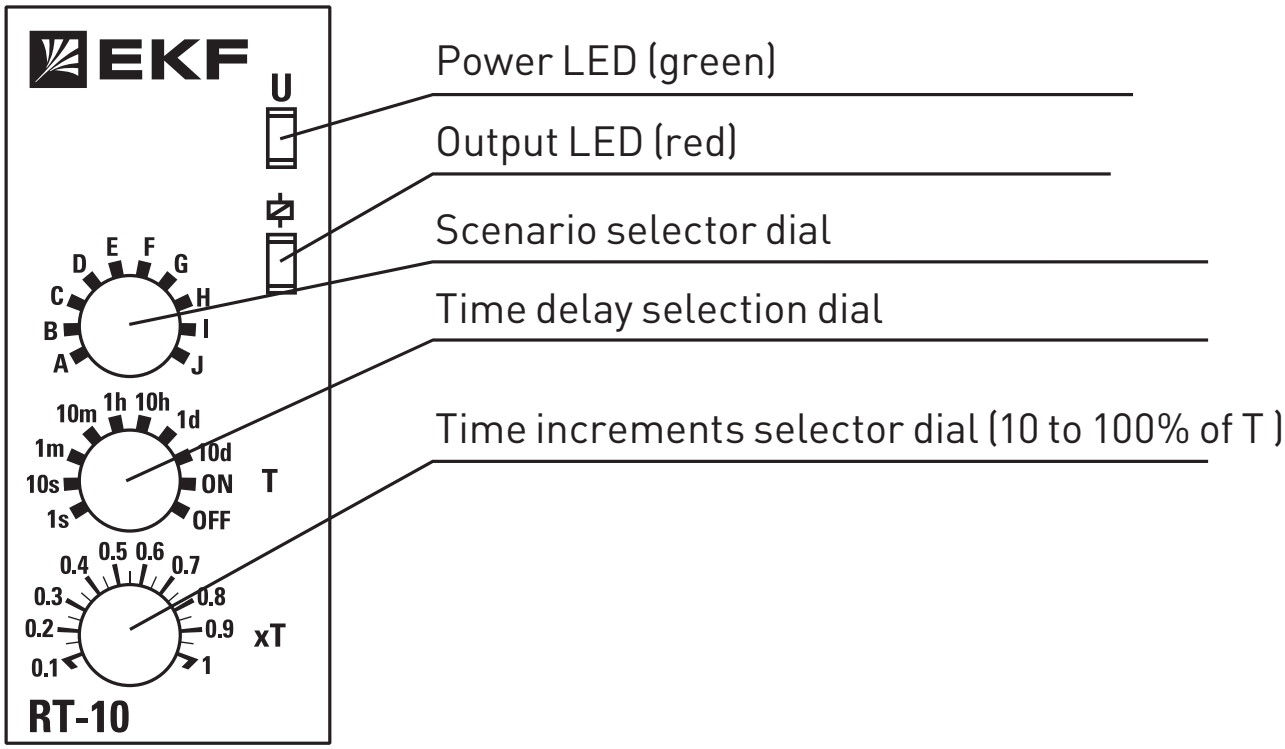
Table 1 continued

Characteristics	**Values**			
Item code	**RT-10**	**RT-10-2**	**RT-10-12-240**	**RT-10-12-240-2**
Mechanical life, cycles	1 000 000			
Number of switching contacts	1	2	1	2
Rated load current, A	8 at 230V, AC1			
Interference immunity	3 in accordance with IEC 61000-4-4:2004			
Max. altitude above sea level, m	2000			
Degree of protection	IP20			
Pollution degree	3			
Operating temperature, °C	-5 to + 40			
Storage temperature	-25 to +75			
Connection	Screw terminals, max. conductor cross-section 2,5 mm^2			
Tightening torque, N*m	0,5			
Mounting	35 mm DIN rail			

Indication

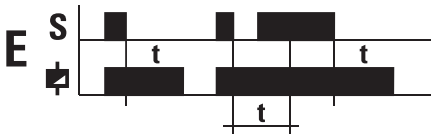
Green "U" LED: constantly lit when the relay is powered.
Red "⏻" LED: flashes red during timer countdown.
The relay is on, contacts 15-18 (25-28) are closed - constantly lit.
The relay is off, contacts 15-18 (25-28) are open - does not light up.
Attention! In order to repeat the cycle after power off, wait for at least 200 ms before reconnecting the supply.

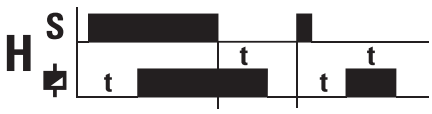
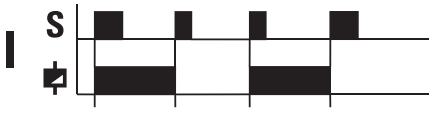
Control panel



Function diagram

Function diagram	Description
	Delay On (NOTC). After the relay is energized, a countdown (T) is started. During the countdown, relay contacts 15-16 (25-26) remain closed and contacts 15-18 (25-28) remain open (relay is off). Once the countdown is finished, contacts 15-16 (25-26) open, and contacts 15-18 (25-28) close (relay is on), remaining in this state until the relay is de-energized.
	Delay Off. After the relay is energized, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close, and a countdown (T) is started. Once the countdown is finished, contacts 15-18 (25-28) open, contacts 15-16 (25-26) close and remain closed until the relay is de-energized.
	Recycle (NO) After the relay is energized, a countdown (T) is started. During the countdown, relay contacts 15-16 (25-26) remain closed and contacts 15-18 (25-28) remain open. Once the countdown is finished, contacts 15-16 (25-26) open, and contacts 15-18 (25-28) close for the period of (T); the cycle repeats as long as the relay is energized.
	Recycle (NC) After relay is energized, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close, and a countdown (T) is started. Once the countdown is finished, contacts 15-18 (25-28) open, and contacts 15-16 (25-26) close for the period of (T); the cycle repeats as long as the relay is energized.

Function diagram	Description
	Leading edge On / Trailing edge Delay Off. After the relay is energized, it remains in a steady state until a signal (S) is detected. As soon as the signal is detected, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close, and relay remains in the steady state while the signal (S) is being detected. As soon as the signal (S) disappears, a countdown (T) is started. Once the countdown is finished, contacts 15-18 (25-28) open, and contacts 15-16 (25-26) close. The cycle repeats when the signal (S) reappears.
	Delay Off (Leading edge).After the relay is energized, it remains in a steady state until a signal (S) is detected. As soon as the signal is detected, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close, and the countdown (T) is started. Once the countdown is finished, contacts 15-18 (25-28) open, and contacts 15-16 (25-26) close. The cycle repeats when the signal (S) reappears. Reappearance of the signal (S) while the countdown is running does not affect the execution of the relay scenario.
	Delay Off (Trailing edge)After the relay is energized, it remains in a steady state until a signal (S) is detected and then disappears. As soon as the signal disappears, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close, and the countdown (T) is started. Once the countdown is finished, contacts 15-18 (25-28) open, and contacts 15-16 (25-26) close. The cycle repeats when the signal (S) appears and disappears again.

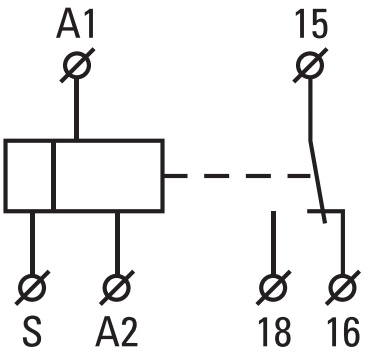
Function diagram	Description
	Reappearance of the signal (S) while the countdown is running does not affect the execution of the relay scenario.
	Delay On (Leading edge) / Delay Off (Trailing edge).After the relay is energized, it remains in a steady state until a signal (S) is detected. Once the signal (S) is detected, a countdown (T) is started. After the countdown is finished, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close and as long as the signal (S) is detected, the relay will remain in this state. As soon as the signal disappears, a countdown (T) is started. Once the countdown is finished, contacts 15-18 (25-28) open, and contacts 15-16 (25-26) close. The cycle repeats when the signal (S) reappears. IMPORTANT! If the signal (S) is shorter than the time delay (T), relay will function as if Scenario 3 (Recycle NO) was selected, switching on at the signal (S) detection.
	One-shot Bi-stable. After the relay is energized, it remains in a steady state until a signal (S) is detected. As soon as the signal is detected, contacts 15-16 (25-26) open, contacts 15-18 (25-28) close, and relay remains in this state. As soon as the second signal is detected, contacts 15-18 (25-28) open, and contacts 15-16 (25-26) close. Therefore, after detecting each signal pulse the contacts will switch over from open to closed and vice versa.

Function diagram	Description
	Delay On One-shot (0,5s).After the relay is energized, a countdown (T) is started. During the countdown, relay contacts 15-16 (25-26) are closed and contacts 15-18 (25-28) are open. Once the countdown is finished, contacts 15-16 (25-26) open, and contacts 15-18 (25-28) close for 0,5 s and then open again, remaining open for as long as the relay is energized.

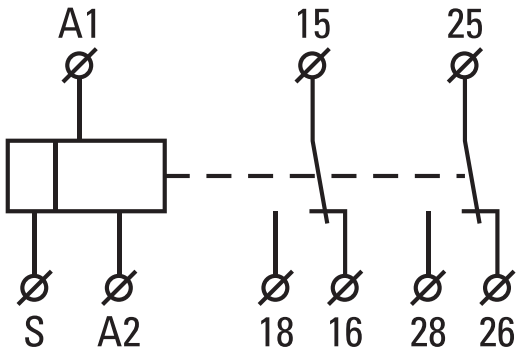
Setup:

- Install and secure the relay in the intended location.
- Connect the relay as per wiring diagram.
- Energize the relay, the "U" LED will light up green.
- Select the required scenario and time delay.

Wiring diagram

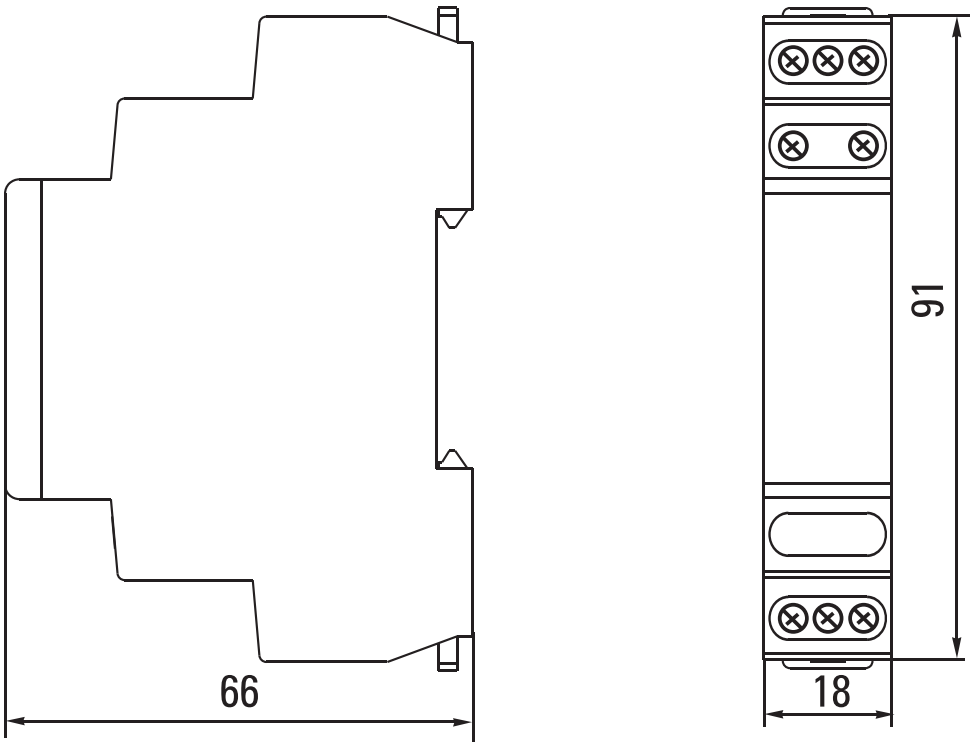


RT-10, RT-10-12-240



RT-10-2, RT-10-12-240-2

3 OVERALL AND INSTALLATION DIMENSIONS



4 OPERATING CONDITIONS

4.1 Operating temperature: -5°C to +40°C
4.2 Max. altitude above sea level: 2000 m.

5 DELIVERY SCOPE

1. Time relay RT-10 EKF – 1 pc.;
2. Technical manual - 1 pc.

6 SAFETY REQUIREMENTS

6.1. Do not operate relays with visible mechanical damage.
6.2. The relays conform to IEC 61140 Class 0 for protection against electrical shock and must be installed in Class 1 enclosures or higher.

7 MAINTENANCE

7.1. For maintenance, follow national safety rules for operation of electrical Installations.

7.2. Under normal operating conditions, visually inspect the relay and check the set modes and trigger time every 6 months. Tighten the clamping screws during the inspection, as they may become loose due to cyclical changes in the ambient temperature and material flow.

7.3 The relay must be installed and maintained by qualified personnel.

7.4 Follow the wiring diagram when installing the relay.

7.5 Do not install the relay without protective cover in any area which is exposed to water or direct sunlight.

8 TRANSPORTATION AND STORAGE

8.1 Relays can be transported by any means of enclosed transport that protects the packaged goods from mechanical impact and weather exposure.

8.2 Relays shall be stored indoors, in their original packaging, at the ambient temperatures from -25°C to +75°C and max. relative humidity of 80% at +25°C.

9 MANUFACTURER'S WARRANTY

9.1 The manufacturer guarantees the relays comply with the declared characteristics, provided that the consumer observes the operation, transportation and storage conditions and requirements.

9.2 Warranty period: 7 years.

9.3 Shelf life: 7 years.

9.4 Service life: 10 years.

Manufacturer: for information, refer to the product packaging.
Importer and EKF trademark service representative:
EKF ELECTRICAL SOLUTION – FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates.
Importer and EKF trademark service representative on the territory of the Russian Federation:
ООО «Electroresheniya», Otradnaya st., 2b bld. 9, 5th floor, 127273, Moscow, Russia. Tel.: +7 (495) 788-88-15.
Importer and EKF trademark service representative on the territory of the Republic of Kazakhstan:
ТОО «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

10 CERTIFICATE OF ACCEPTANCE

Time relay RT-10 EKF has been manufactured in compliance with the laws and regulations in effect and has been approved for operation.

Date of manufacture:
For information, refer to the product package.

Technical control stamp

ekfgroup.com

v3