



TECHNICAL MANUAL

Pulse relay RIO-1 EKF

1 DESCRIPTION

Pulse relays RIO EKF are designed to switch lighting or other electrical equipment over a two-wire network from multiple points using parallel connected momentary switches.

Relays comply with IEC 60947-1 and IEC 60947-5-1.

2 TECHNICAL DATA

Table 1

Characteristics		Value
Rated supply voltage U_n , V AC		220-240
Rated frequency, Hz		50/60
Rated control circuit voltage, V		220/230/240
Insulation voltage U_i , V		250
Rated contact current, A	at $\cos\varphi = 1$	10
	at $\cos\varphi = 0,7$	6
Utilization category		AC-1
Type and number of contacts		1 C/O
Control current, mA		≤ 1
Max. power consumption, VA		0,8
Electrical endurance, cycles		100 000
Mechanical endurance, cycles		1 000 000
Max. conductor cross-section, mm ²		1,5
Tightening torque, N*m		0,5
Degree of protection		IP20
Max weight, g		100

Table 2

Characteristics	Value
Operating temperature, °C	-5 to 50
Max. altitude above sea level, m	2000
Max. relative humidity at 40°C	(non-condensing), %60
Pollution degree	3
Position in space	Arbitrary
Mounting	35mm DIN rail

The product must be operated under the following ambient conditions:

- non-explosive environment;
- no corrosive gases and vapors in concentrations damaging to metals and insulation;
- no saturation with conductive dust and vapors;
- no direct exposure to ultraviolet radiation (for the relay).

The product housing is made of flame retardant ABS plastic.

The front panel features a power LED (green) and a load status LED (red).

When the relay is powered on, the green LED lights up. When a momentary switch is closed and the control signal pulse is received, the output contact 15-18 closes and the red LED lights up. When the pulse is repeated, the contact opens and the red LED turns off.

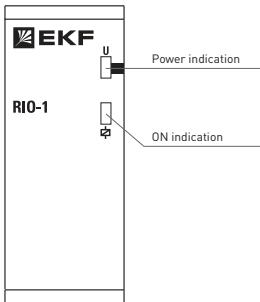


Figure 1. Control panel

For relay operation diagram, refer to Figure 2.

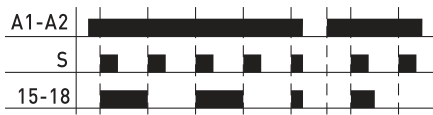


Figure 2. Relay operation diagram

Pulse relays simplify the control circuit, reduce circuit losses and the amount of laid cable, compared to a circuit with pass-through switches.

The relay does not have a memory function, i.e. when the power is off, contacts 15-18 open and will remain open after the power is back on.

Relays can be used with backlit button switches.

3 INSTALLATION AND OPERATION

The device is installed in the distribution enclosure onto a 35 mm DIN rail.

To avoid interference, false tripping, or malfunctioning of the relay, do not route the relay power supply wires along the power circuit wiring. If necessary, use a shielded cable. If a large number of relays (10 or more) are installed within the same enclosure, we recommend installing a 0,15–0,33 μF AC275V capacitor between pins A1 and S. Copper and aluminum wire connections are supported (max. cross-section is 1,5mm²). Before connecting stranded conductors, terminate them with a ferrule or a sleeve using an appropriate tool. Follow Figure 4 to connect the relay.

Pulse relays are compatible only with momentary (non-latching) switches.

Relay does not require any additional maintenance. Tighten screw terminals of the relay min. once every 6 months.

For load power, refer to Table 3.

Table 3

Relay contact current			DC-1	
			24V	230V
		Incandescent, halogen lamps, electric heaters		
		Luminescent lamps		
		Fluorescent compensated lamps		
		ESL, ESG lamps		
	AC-1	Active load		
	AC-3	Electric motors		
	AC-15	Contactor coils		
		DC non-inductive load		
10A			240 W	40 W

Switching capacity vs. switching voltage for DC-1 utilization category is specified in Figure 3.

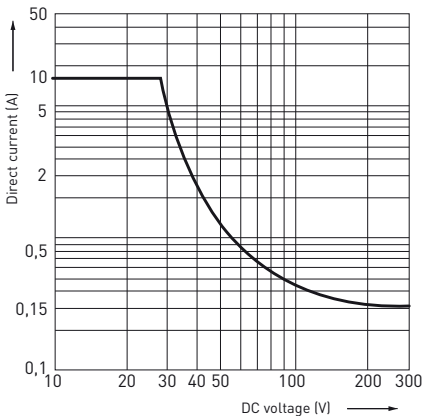
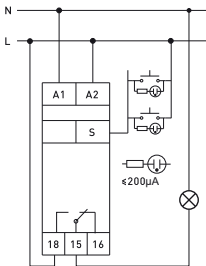


Figure 3. Switching capacity vs. switching voltage

4 WIRING DIAGRAM

Phase (L) control pulse



Neutral (N) control pulse

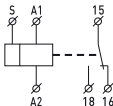
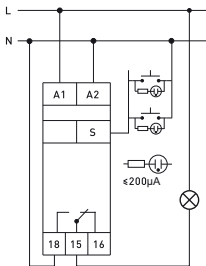


Figure 4. Wiring diagram

5 OVERALL AND INSTALLATION DIMENSIONS

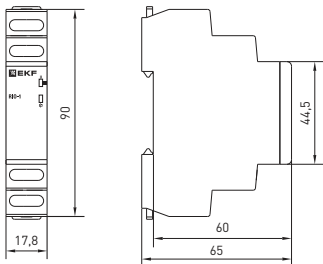


Figure 5. Overall and installation dimensions

6 DELIVERY SCOPE

Relays are supplied in an individual package.

Scan the QR-code on the insert or on the inside of the package for all available documentation.

7 SAFETY REQUIREMENTS

WARNING! Hazardous voltage.

The device conforms to IEC 61140 Class 0 for protection against electrical shock.

The devices must be installed and serviced by qualified electrical personnel only.

Do not operate relays with visible mechanical damage.
For maintenance, follow national safety rules for operation of electrical Installations.
Do not operate the relays with damaged housing.
Failure to comply with the instructions may lead to product malfunction, electrical shock or fire.

8 TRANSPORTATION AND STORAGE

Relays can be transported by any means of enclosed transport that protects the packaged goods from mechanical impact and weather exposure.
Relays shall be stored indoors, in their original packaging, at the ambient temperatures from -40 °C to +55 °C and max. relative humidity of 80% at +25 °C.

9 DISPOSAL

Life-expired and failed products shall be disposed of in compliance with the national and local laws and regulations in force.
To dispose of the product, send it to an authorized company for recycling in compliance with the effective national and local laws and regulations.

10 MANUFACTURER'S WARRANTY

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

Warranty period: 7 years from the date of sale specified in the sales receipt.

Shelf life: 7 years from the date of manufacture specified on the product package or housing.

Service life: 10 years.

Manufacturer: OOO Electroresheniya, Otradnaya st., 2b/9, 127273, Moscow, Russia, tel. +7 (495) 788-88-15.

Importer and EKF trademark service representative: EKF ELECTRICAL SOLUTION — FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates, tel. +971-4-547-06-18.

Importer and EKF trademark service representative in the territory of the Republic of Kazakhstan: TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

11 CERTIFICATE OF ACCEPTANCE

The pulse relay RIO-1 EKF has been manufactured in compliance with the effective laws and regulations and has been approved for operation.

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

Quality control stamp



v3

EHL



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EKF