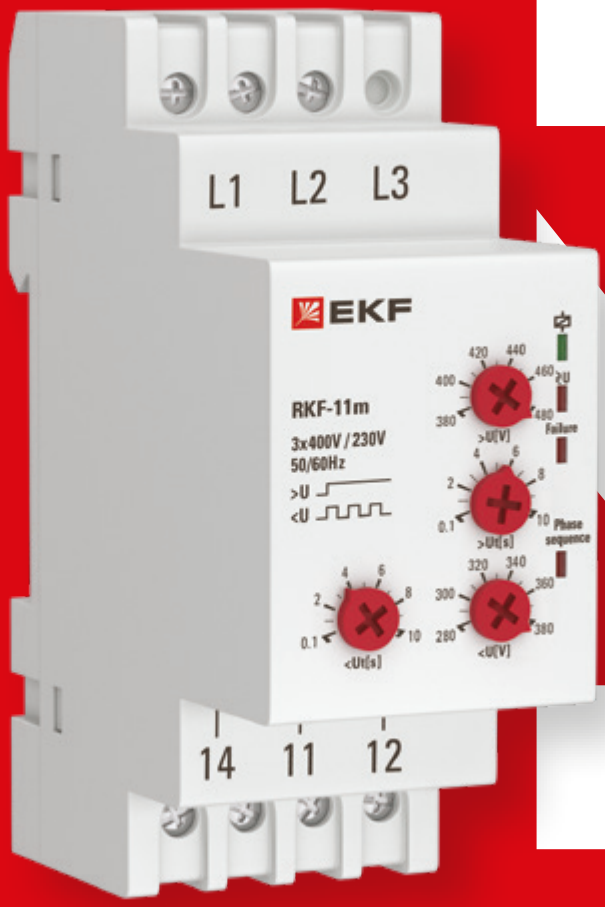
EKF



TECHNICAL MANUAL
Phase monitoring relay RKF-11m EKF

1 DESCRIPTION

Multifunctional phase monitoring relay RKF-11m EKF is a micro-processor-based device used in automated control circuits to monitor voltage quality and protect electrical equipment in three-phase AC circuits up to 1000 V.

The relay monitors the following conditions:

- phase loss, with no time delay;
- undervoltage, with time delay;
- overvoltage, with time delay;
- phase sequence, with no time delay.

The relay has easy to read LED indicators and front dial adjustable user settings.

The phase monitoring relay complies with IEC 60947-5-1:2009.

2 TECHNICAL DATA

The main technical data are listed in Table 1 below.

Table 1

Characteristics	Value
Supply voltage (Ue), V	400
Rated frequency, Hz	50–60
Overvoltage range, V	380–480
Undervoltage range, V	280–380
Voltage hysteresis, V	6
Overvoltage time delay range, s	0,1–10
Undervoltage time delay range, s	0,2–10
Max. trip time at phase loss, phase sequence fault, s	⩽0,2

Characteristics	Value
Voltage measurement accuracy, %	<1 (full scale)
Trip delay accuracy, %	±10
Rated insulation voltage, V	500
Contacts	1CO
Degree of protection	IP20
Pollution degree	3
Electrical life, cycles	100 000
Mechanical life, cycles	1 000 000
Rated contact current, A	8 (AC-1)
Rated load current, A	8 at 250 V (AC-1)
Maximum power consumption, VA	2
Max. altitude above sea level, m	2000
Operating temperature, °C	-5 to +40
Storage temperature	-25 to +75
Max. conductor cross-section, mm^2	1,5

Operation

If the power supply is normal, the contacts of the relay (11–14) are closed and the controlled device will be energized. In the event of a fault, relay contacts open and the controlled device is de-energized. The relay trips with an adjustable time delay (0,1–10 seconds) to prevent accidental load drop due to short-term changes in supply voltage. The relay will automatically re-close after the supply voltage returns to the normal range.

Functional diagram

Phase loss and phase sequence (no-delay tripping).

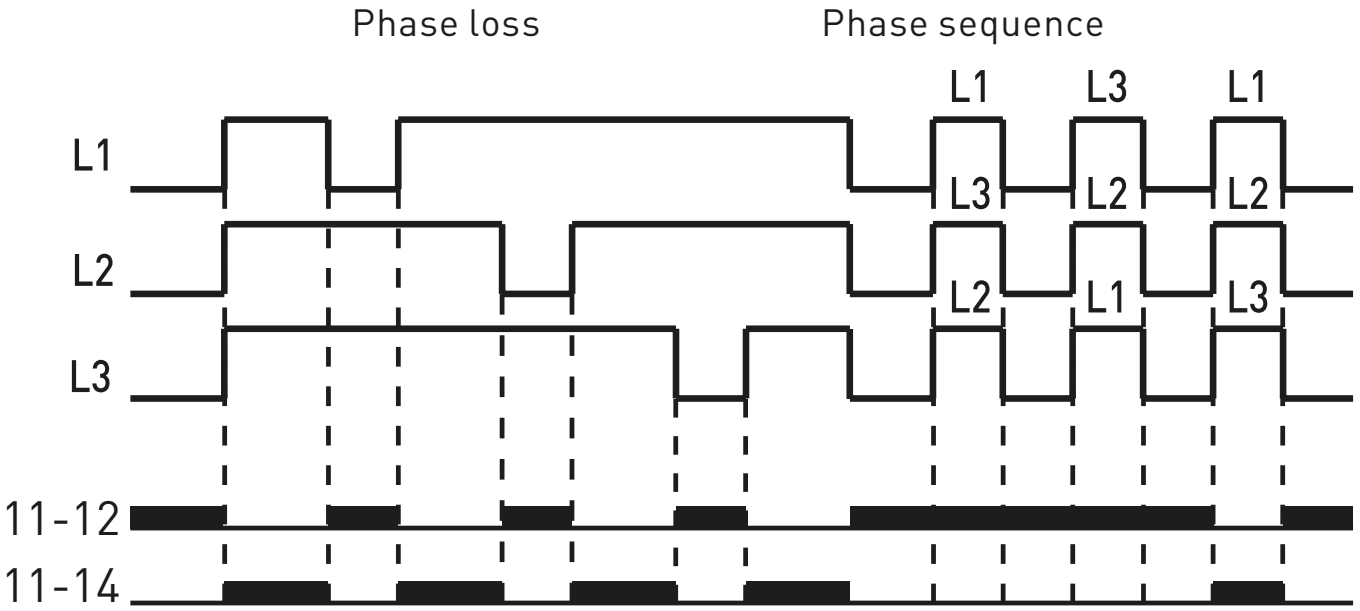
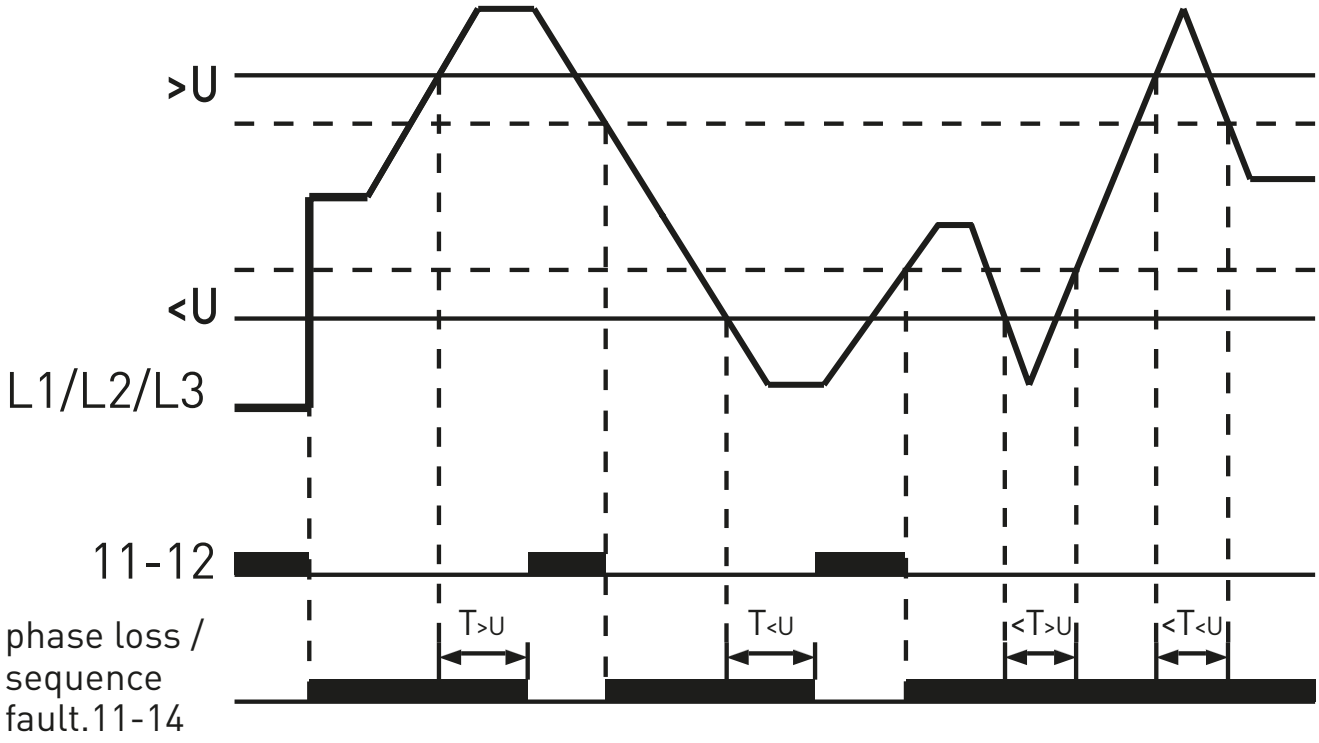


Figure 1 – Principles of relay operation during

Overvoltage and undervoltage (with time delay).



T>U: Overvoltage delay

T<U: Undervoltage delay

Figure 2 – Principles of relay operation during over- or undervoltage

3 INSTALLATION AND OPERATION

Setup:

1. Install and secure the relay;
2. Install the relay according to the wiring diagram (Figure 3);
3. Set the desired voltage setpoints;
4. Set the desired trip delay.

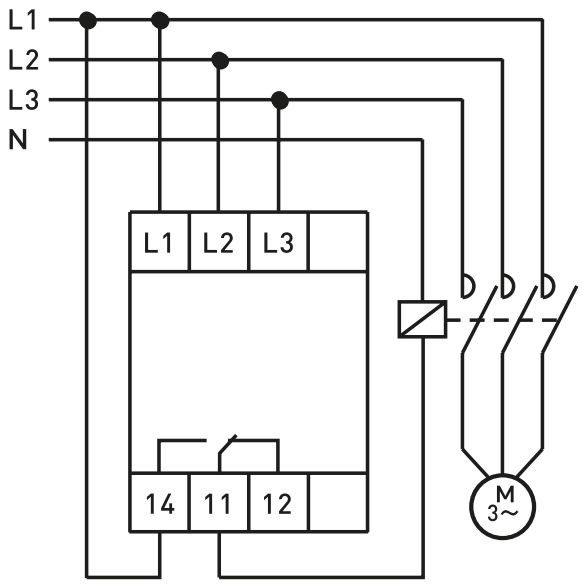


Figure 3 – Relay wiring diagram

5. After the relay is energized and no faults are detected, a yellow LED will light up and the output contacts will be switched: 11–12 will open, and 11–14 will close. If the relay does not switch, check the LED indicators for active fault.
6. At phase loss or phase sequence fault the relay will trip immediately, ignoring trip delay timer.
7. If the circuit voltage is ⩽0,5 Ue, the relay will trip with phase loss.
8. If the circuit voltage is ⩾1,5 Ue, the relay will trip with no time delay.

CONTROL PANEL

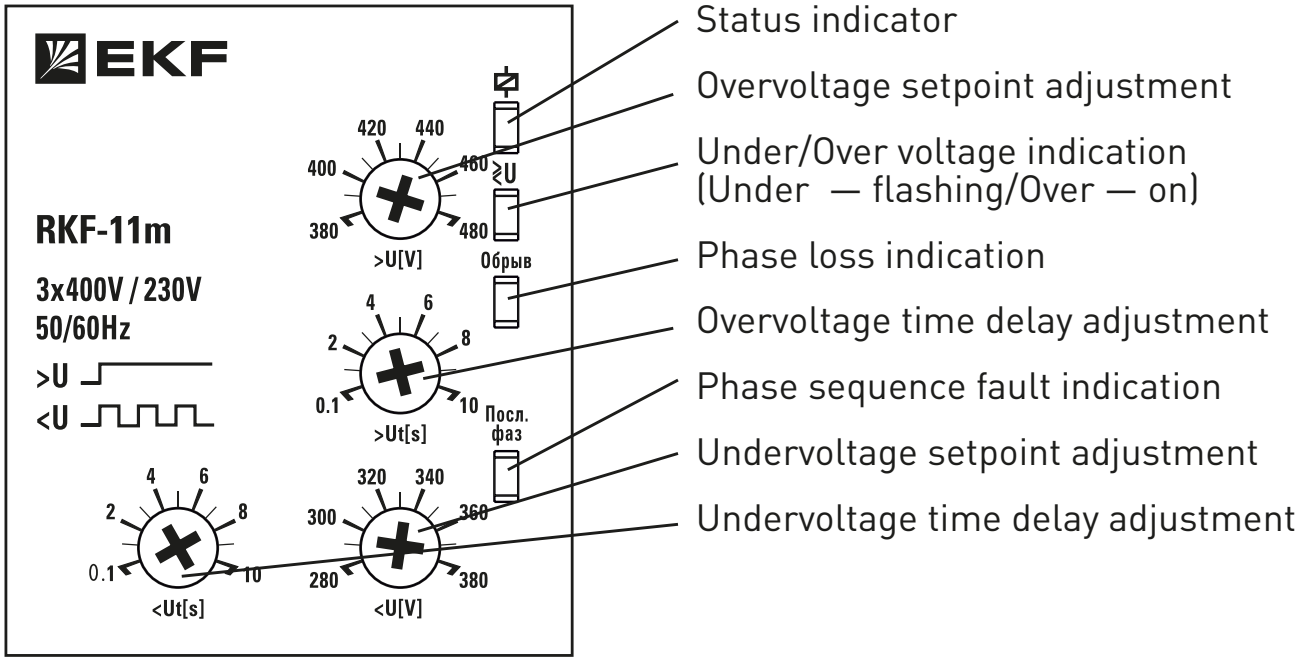
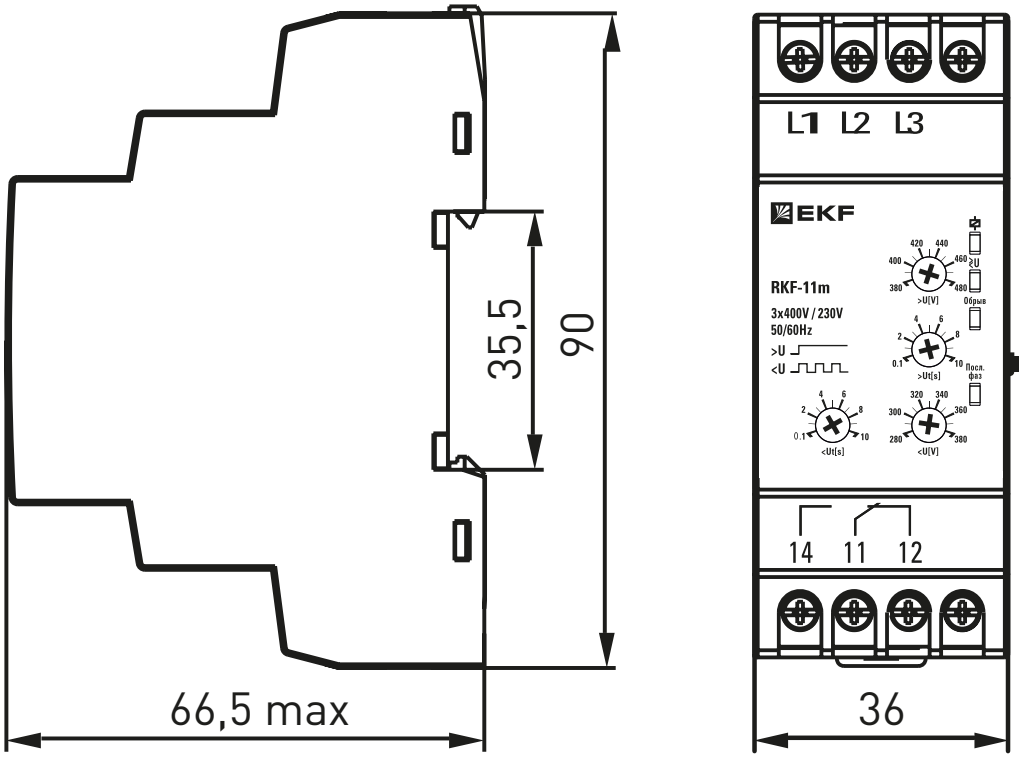


Figure 4 – Main control elements of the relay

4 DIMENSIONS



5 DELIVERY SCOPE

Phase monitoring relay RKF-11m;

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 screw terminals during the inspection, as they may become loose due to cyclical changes in the ambient temperature and material flow.

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

7.4 Follow the wiring diagram when connecting 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 DISPOSAL

Life-expired and failed relays 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 national and local laws and regulations in force.

10 MANUFACTURER'S WARRANTY

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

10.2 Service life: 10 years.

10.3 Shelf life: 7 years.

10.4 Warranty period: 7 years.

Manufacturer: for information, refer to the product package.

Importer and EKF trademark service representative: EKF ELEC-TRICAL 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.

11 CERTIFICATE OF ACCEPTANCE

Phase monitoring relay RKF-11m EKF has been manufactured in compliance with the applicable regulations and requirements and has been approved for operation.

Date of manufacture:

For information, refer to the product package.

Quality control stamp

ekfgroup.com

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