



TECHNICAL MANUAL

Automatic phase switch RVF-3 EKF

1 DESCRIPTION

Automatic phase switch RVF-3 EKF is designed to provide single-phase power to a 220-240V/50(60) Hz load from a three-phase network. The relay switches the power supply of a single-phase load depending on the availability and quality of the phase voltage on L1, L2 and L3 conductors. The L1 phase conductor is treated as a priority supply, the L3 — as the lowest priority supply. If the voltage on the priority phase is out of bounds, the relay switches the load to another phase. If the voltage on the reserve phases does not correspond to the operating thresholds, then the load is switched off.

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

2 TECHNICAL DATA

Table 1

Characteristics	Values
Input terminals	N, L1, L2, L3
Rated supply voltage, V AC	3 x 220-240 (N-L1/ L2/L3)
Rated frequency, Hz	50/60
Overvoltage setpoint range, V	230-280
Undervoltage setpoint range, V	160-210
Automatic re-closing time delay, sec.	1-600
Return delay range to priority phase, sec.	5-200
Backup phase switching delay, sec.	<0,2
Voltage hysteresis, V	6
Voltage measurement error, %	<1
Maximum operating voltage, V	415
Maximum impulse withstand voltage, V	450
Maximum switching current, A	16 (AC-1)

Table 1 continued

Characteristics	Values
Backup phase switching delay, sec.	0,2
Pollution degree	3
Electrical endurance, cycles	100 000
Mechanical endurance, cycles	1 000 000
Degree of protection, relay	IP20
Max. altitude above sea level, m	2000
Operating temperature, °C	- 25 to +50
Max. relative humidity at 40°C, %	≤ 50 (non-condensing)
Pollution degree	3
Storage temperature, °C	-25 to +55
Maximum cross-section of connected wires, mm ²	2,5
Tightening torque, N•m	0,5

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.

3 INSTALLATION AND OPERATION

The device is mounted onto a standard 35mm DIN rail.

Follow Figures 4 and 5 to connect the relay.

If the load current is over 16 A, use contactors rated for the appropriate current.

Turn on the power and check the correct operation of the relay.

The output voltage must be constant.

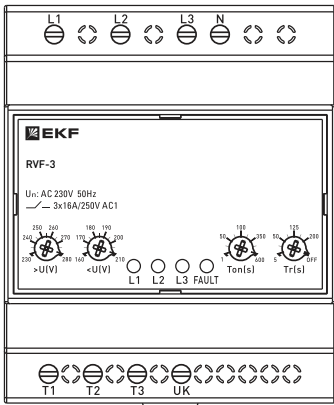


Figure 1. Device front panel

L1, L2, L3 – phases;
 N - Neutral;
 T1, T2, T3 – output terminals;
 Uk - voltage measuring terminals

Table 2. Adjustment dials

 250 260 240 270 230 280 $>U[V]$	Overvoltage setting dial
 180 190 170 200 160 210 $<U[V]$	Undervoltage setting dial
 100 50 350 1 600 $T_{on}[s]$	Re-closing delay dial
 125 50 200 5 OFF $Tr[s]$	Return to priority phase delay dial OFF - not return to the priority phase (return only if the valid phase is faulty).

Table 3. Indication

LED status	Description
 L1  L2  L3  FAULT	L1 phase connected
 L1  L2  L3  FAULT	L2 phase connected
 L1  L2  L3  FAULT	L3 phase connected
 L1  L2  L3  FAULT	Fault (load switched off)
 L1  L2  L3  FAULT	Re-closing delay / Uk fault



LED is lit



LED is off



LED is blinking

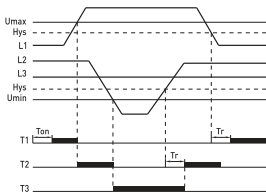


Figure 2. Relay operation with delay return to the priority phase

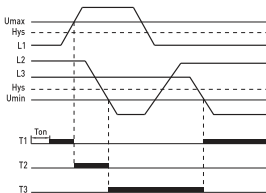


Figure 3. Relay operation without delay return to the priority phase

4 WIRING DIAGRAM

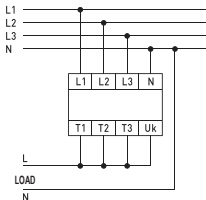


Figure 4. Wiring diagram
(Load current — below 16A)

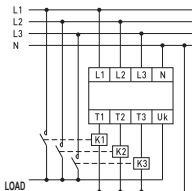


Figure 5. Wiring diagram
(Load current — over 16A)

5 OVERALL AND INSTALLATION DIMENSIONS

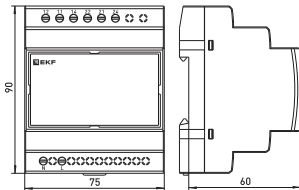


Figure 6. Overall and installation dimensions

6 DELIVERY SCOPE

Relays are supplied in an individual packaging. For all available documentation, scan the QR-code on the insert or on the inside of the package.

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 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.

MEA regional headquarters: 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 on the territory of the Republic of Kazakhstan: TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

10 CERTIFICATE OF ACCEPTANCE

Automatic phase switches RVF-3 EKF have been manufactured in compliance with the effective laws and regulations and have been approved for operation.

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

Quality control stamp





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