



TECHNICAL MANUAL

Power limiter
OM-630 EKF

1 DESCRIPTION

Three-phase power limiter OM-630 EKF is designed for continuous monitoring of the power consumption and disconnecting the load when it exceeds the maximum power limit, as well as for protecting the power circuit from short circuit fault. The power limiter protects consumers (load) from voltage surges that occur in three-phase networks when the neutral is lost.

The limiter controls the voltage and the current consumed by the load using an integrated current transformer, calculates the effective power consumption per each phase, sums up the values ($P_{set}=P_a+P_b+P_c$) and when the power value P rises above the set value ($P>P_{set}$) disconnects the load for the time set by the operator. The product is connected to the network via a three-phase contactor. The power limiter relay controls the contactor coil. The overload trip time and restart time can be set by the dials on the front panel.

The power limiter protects the consumer by disconnecting the load from the power supply network if the neutral is lost. The power limiter has a voltage relay function to protect consumers from a voltage rise above 260 V and a voltage drop below 160 V. The power limiter prevents restart if the overload trip has occurred 5 times within a preset time limit, provided that the power supply load has not been reduced within this period. The power limiter will restart after 10 minutes.

The relay remains functional when supplied from a single phase.

2 TECHNICAL DATA

Table 1

Characteristics		Values
Supply voltage, V		3x150-450
Rated frequency, Hz		50 / 60
Utilization category		AC-1, AC-3
Monitored power range, kW		5 to 50
Power setting step, rough, kW		5
Power setting step, fine, kW		0,5
Overload shutdown time delay range T _{off} , sec.		1 to 240
Re-closing delay (T _{on}), sec.		2 to 3600
Tripping time at:	voltage drop below 160 V, sec.	5
	voltage surge over 260 V, sec.	0,1
	overcurrent, sec.	0,1
Relay contacts current rating, A		2x8
Contacts		2 C/O
Measurement error, %	Voltage range 50-300V	max. 2
	Current range 3-100A	max. 3

*For current over 180 A, measurement error may increase to 10%.
If the power of the connected equipment exceeds 2kW, the load must be controlled by an additional switching device, e.g. a contactor.

Table 1 continued

Characteristics	Values
Current transformer openings diameter, mm	10,5
Dimensions	105x90x65
Mounting	35mm DIN rail
Operating temperature, °C	-25 to +50
Degree of protection	IP20

The load is divided into two groups: priority load R_p , which should preferably stay energized, and non-priority load R_n . In the event of overload, R_n is switched off immediately. If this clears the overload, R_n will stay switched off, and R_p will stay switched on. If the overload persists, R_p turns off after a set time delay T_{off} . When the total power consumption falls below the maximum power limit, R_p will be switched on after a set time delay (T_{on}), then, after the same time delay, the load R_n will be switched on. For operation diagram, refer to Figure 1. For wiring diagram, refer to Figure 2. Advantages: priority load is not immediately disconnected from the supply, total consumer load can be higher than total available power supply. For proper functioning, R_n should not exceed 25% of the total load.

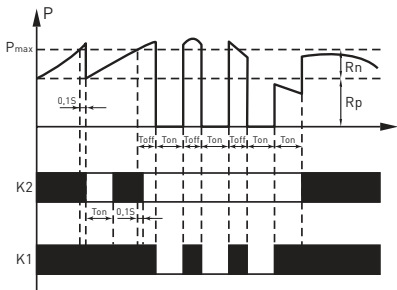


Figure 1. Power limiter operation with priority load

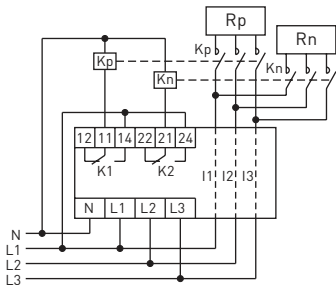


Figure 2. Wiring diagram

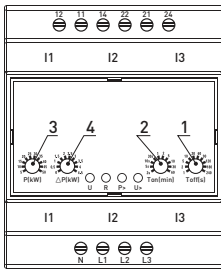


Figure 3. Indication and controls

1-Toff — Overload trip delay timer, 10 positions

2-Ton — Restart delay timer, 10 positions

3-P — Power (5 kW increment) setting dial

4-ΔP — Power (0,5 kW increment) setting dial

LED indicators:

- Green "U>" LED, power ON
- Yellow "R" LED, load connected
- Red "U>" LED, voltage out of bounds
- Red "P>" LED, overload

For status and alarm indication, refer to Table 2.

Table 2

Power limiter status	LED			
	U	R	P>	U>
Normal operating mode	●	●	○	○
Load reset countdown	●	☀	○	○
Overload or non-priority load switched off (in priority load operation mode)	●	●	●	○
Load switched off for 10 minutes (after 5 successive overload trips)	●	○	○	○
Overcurrent (power supply short circuit) trip	●	○	☀	○
Undervoltage, one- or two-phase loss	●	○	○	●
Overvoltage	●	○	○	☀

- Terminals N, L1, L2, L3 - power supply, 3 phases and neutral
- Terminals 12, 11, 14 - K1 relay contacts - priority load
- Terminals 22, 21, 24 - K2 relay contacts - non-priority load
- I1, I2, I3 - duct for load power supply wire

3 OVERALL AND INSTALLATION DIMENSIONS

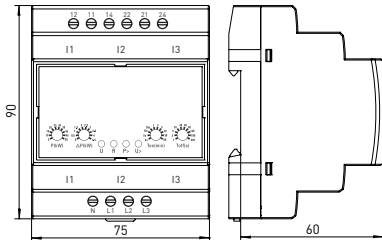


Figure 4. Overall and installation dimensions

4 INSTALLATION AND CONNECTION

The device must be mounted and connected by qualified electrical personnel. The product must be connected to a three-phase network observing all the applicable rules and regulations. Make sure that the conductors are not live before beginning the installation.

Connection:

- De-energize the supply circuit.
- Connect the neutral wire to terminal N and the phase wires to terminals L 1, L2, L3. Connect contactors to terminals 12, 11, 14, 22, 21, 24 as per supplied selected wiring diagram (Figures 2 & 3).
- Pass the load power supply wires through the pass-through openings in the housing, the wire from the L1 phase through the leftmost opening and the wire from the L3 phase through the rightmost.

Operation test

1. Turn the dials to the leftmost position. Switch on the power supply. The 'U' LED will light up, then after Ton time yellow 'R' LED will light up, and the load will switch on.

2. Connect the load of more than 5kW to any of the phases, the 'P>' LED will light up after 1 second, the load will switch off, then after Ton time the load will switch on.

3. Check the lockout function for 10 minutes: Repeat step 2. Record 5 overload trips. The load will switch off, the green LED will flash and the yellow LED will turn off. The load will switch on after 10 minutes.

Note! If the power limiter does not measure the power correctly, check if the connection was done correctly: the power supply wire of the phase load connected to terminal L1 must go through the leftmost opening of the housing, the wire from phase L3 - through the rightmost opening.

5 SAFETY REQUIREMENTS

Do not operate the devices with visible mechanical damage.

Power limiters must be operated and serviced only by qualified personnel. Failure to follow the guidelines herein may result in severe injury and damage to the equipment.

6 MAINTENANCE

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

Do not operate power limiters with damaged housing.

7 TRANSPORTATION AND STORAGE

Power limiters can be transported by any means of enclosed transport that protects the packed goods from mechanical impact and weather exposure. Power limiters shall be stored indoors in the original package at the ambient temperature from -40°C to +75°C.

8 DISPOSAL

Life-expired and failed products shall be disposed of in compliance with the effective national and local laws and regulations.

To dispose of the product, send it to an authorized company for recycling in compliance with the effective national and local laws and regulations.

9 MANUFACTURER'S WARRANTY

The manufacturer guarantees the products comply with the declared characteristics, provided that consumers follow the operation, transportation and storage conditions.

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

MEA regional headquarters: EKF ELECTRICAL SOLUTION FZCO, Techno Hub-2, DSO, P.O. box 341079, 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.

10 CERTIFICATE OF ACCEPTANCE

The power limiters OM-630 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

EHF



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