POWER LIMITER
three-phase

OM-630

5 9 0 8 3 1 2 5 9 6 4 4 8

Purpose

The OM-630 power consumption limiter is designed for continuous monitoring of the power consumption of the receivers connected to the three-phase network. The limiter allows to disconnect the receivers in case of exceeding the specified power consumption. In addition, the OM-360 controller is equipped with the power supply voltage control function and protects the receiving installation from damage that may occur due to disconnection of the neutral wire (if the neutral wire is disconnected before the OM-630 power limiter).

Functioning

The OM-630 relay analyzes the power consumption of the devices connected to the receiving line on the basis of continuous measurements of voltages connected to terminals L1, L2, L3 and N as well as the currents flowing through the built-in current relays. When the power consumed by the receivers exceeds the value set by the user than after the TON time the K1 relay and load will be disconnected. After the TOFF time the K1 relay will reconnect. If the power consumption is still exceeded, then after the TON time the load will be disconnected again. This sequence can be repeated six times, after which the load will be disconnected for 10 minutes. After that interval the sequence starts from the beginning.

In addition, the limiter is equipped with the power supply voltage control function and when the voltage drops below 160 V, or exceeds 260 V, then the limiter will switch off the K1 relay and disconnect the receivers.

## Installation

1. Turn off the power supply.
2. Mount the limiter on a DIN rail in distribution box.
3. Connect the controller to the electrical system as shown in the diagram below paying particular attention to:
   a. The order of connection of the supply voltage phases - connecting phase to the N input may damage the device.
   b. Pull the current wires through the holes of the current transformers from bottom to top (the order of the phases must be the same as in the case of connecting the voltage lines) and connect them to the input of the main contacts of the K1 contactor.
   c. Connect the receiving line and the receivers to the output of the main contacts of the K1 contactor.
   d. The K2 relay can be used for indicating the exceeding of the preset power.
4. Using a screwdriver, set the parameters of the power limiter operation:
   a. Start time and time of the interval between activations in the event of exceeding the preset power.
   b. The level of power limit – the first of the stepping potentiometers allows to adjust the rough power value and the second one allows to set the precise power value.
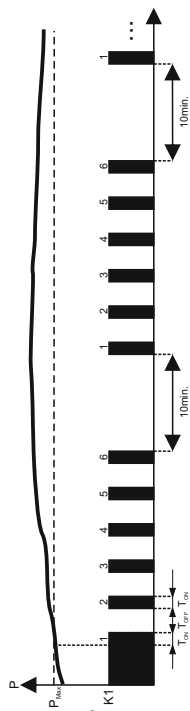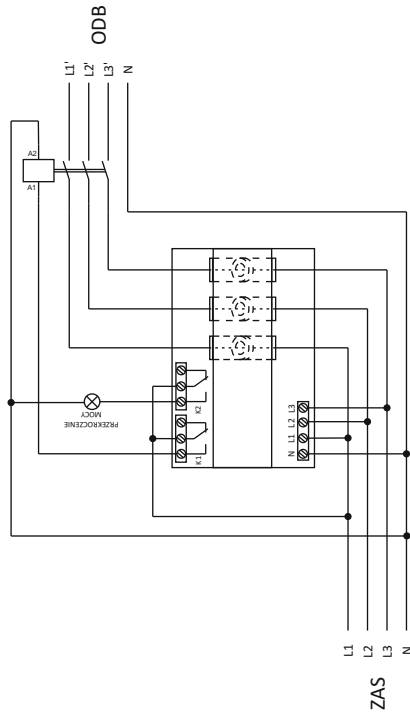
Operating the device

The configuration of the OM-630 relay is implemented through four stepping potentiometers located on the front panel of the relay:

T_{OFF} - Shutdown delay

If the power consumption is greater than the maximum value for the time specified with T_{OFF} parameter then the K1 relay will be switched off and the relays will be disconnected.

You can select one of the following values: 2 s – 10 s – 30 s – 1 min – 3 min – 5 min – 10 min – 30 min – 60 min.

T_{ON} - Time interval

Time for which the K1 relay and the receivers will be switched off in case of exceeding the preset power level.

You can select one of the following values: 1 s - 2 s - 10 s - 20 s - 60 s - 90 s - 120 s - 180 s - 240 s.
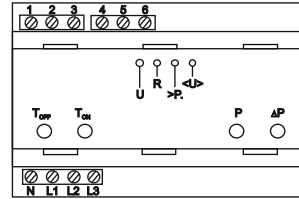
P - Power (rough)

Defining a preset level of power limit.

Potentiometer P_{ZG} allows you to roughly select one of the power sections in the range of 5 to 50 kW.

ΔP - Power (precise)

Potentiometer PDOK allows you to precisely adjust the power in the range of 0 to 4.5 kW.

Technical data

power supply voltage	3×50÷450V 50Hz
range of controlled power	5÷50kW
precise power setting - step	0.5 kW
load shutdown delay	1÷240 sec
time interval between consecutive starts	2÷3600 sec
shutdown delay for voltage <160 V	5 sec
shutdown delay for voltage >260 V	0,1 sec
shutdown delay for overcurrent protection	0,1 sec
output circuits	2×8A (AC-1)
K1 – load control	
K2 – indication of exceeding the preset power	
voltage measurement accuracy	<2% (50÷300V)
current measurement accuracy	<3% (3÷100A)
working temperature	-25÷50°C
diameter of the passage of the current transformer	12.5mm
dimensions	6 modules (105mm)
mounting	on TH-35 mm rail
protection level	IP20

Indications

The indication of the power limiter operating state is implemented through four LEDs:

U - power supply
R - relay
>P - exceeding the power
<U>- voltage out of range

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Description	The system is working properly - the K1 relay and load are both switched-on.	Exceeding of the allowable power - countdown the TOFF time to K1 relay shutdown.	K1 relay locked due to 6-fold exceeding of the preset power level. Countdown of the 10 minutes interval to the next load switching-on.	K1 relay locked due to 6-fold exceeding of the preset power level. Countdown of the 10 minutes interval to the next load switching-on.	Power supply voltage (on at least one phase) lower than 160 V.	Power supply voltage (on at least one phase) higher than 260 V.
>P <U>	○	○	○	○	●	☀
>P	○	☀	○	○	○	○
R	●	●	☀	○	○	○
U	●	●	●	●	●	●

● - the LED is on   ☀ - the LED blinks   ○ - the LED is off