VOLTAGE RELAY PNM-10

INSTRUCTION MANUAL

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DESCRIPTION

The device is used to control the voltage value in one-phase net in order to secure the output from voltage increase and decrease below the preset minimum and maximum values. The system is equipped with switching off time regulation. The system detects the “soft net” effect switching of the output (load) for 10 minutes.

FEATURES

- It is used to protect one phase output (load) from voltage drop,
- voltage value control indicator,
- power/relay supply indicator,
- minimum value adjustment (170 - 225 V) and maximum (235 - 290 V) voltage,
- switch off time delay adjustment (0-12 seconds),
- “soft net” effect detection,
- voltage relay output - 1 change over contact (NO/NC) max 10 A capacity,
- monomodular casing,
- TH-35 DIN rail installation.

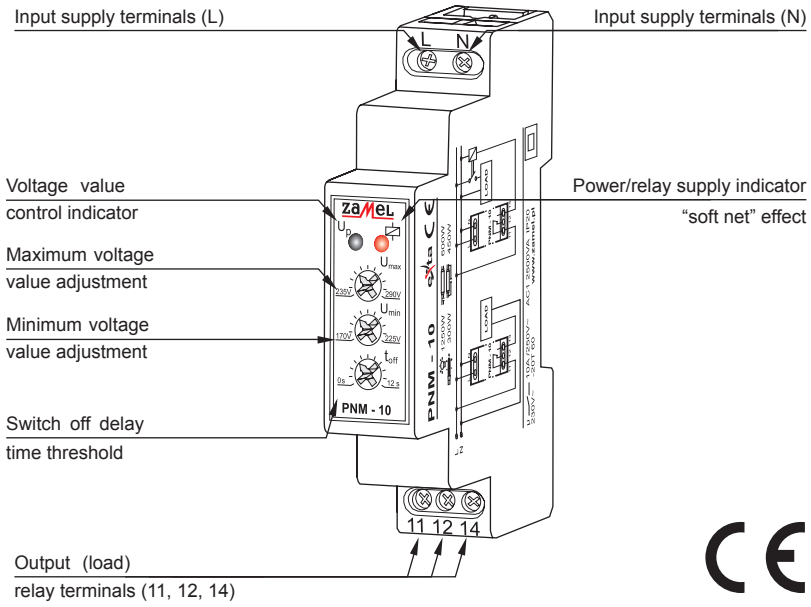
TECHNICAL PARAMETERS

PNM - 10	
Input (supply) terminals:	L, N
Input rated voltage:	230 V~
Input voltage tolerance:	from -15 to +10 %
Nominal frequency:	50 / 60 Hz
Rated power consumption:	35 mA
Voltage value control indicator:	LED green
Power/relay supply indicator and “soft net”:	LED red
Voltage threshold adjustment:	2x rotary potentiometer
Voltage threshold adjustment range U_{min}:	from 170 to 225 V
Voltage threshold adjustment range U_{max}:	from 235 to 290 V
Switch off time adjustment t_{off}:	from 0 to 12 s rotary potentiometer
Time/Voltage measure accuracy:	±1,5 / ±5 %
Switch off time after “soft net” detection:	10 min (LED red pulses)
Output relay parameters:	1NO/NC - 10 A / 250 V AC1 2500 VA
Number of terminal clamps:	5
Section of connecting cables:	from 0,2 to 2,50 mm^2
Ambient temperature range:	from -20 to +60 °C
Operating position:	free
Mounting:	TH35 rail (PN-EN 60715)
Protection degree:	IP20 (PN-EN 60529)
Protective class:	II
Overvoltage category:	II
Pollution degree:	2
Rated impulse withstand voltage:	2 kV (PN-EN 61000-4-5)
Dimensions (height / width / depth):	monomodular (17,5 mm) 90x17,5x66 mm
Weight:	73 g
Reference standards:	PN-EN 60730-1; PN-EN 60730-2-1; PN-EN 61000-4-2,3,4,5,6,11

CAUTION

The device is designed for one-phase installation and must be installed in accordance with standards valid in a particular country. The device should be connected according to the details included in this operating manual. Installation, connection and control should be carried out by a qualified electrician staff, who act in accordance with the service manual and the device functions. Disassembling of the device is equal with a loss of guarantee and can cause electric shock. Before installation make sure the connection cables are not under voltage. The cruciform head screwdriver 3,5 mm should be used to instal the device. Improper transport, storage, and use of the device influence its wrong functioning. It is not advisable to instal the device in the following cases: if any device part is missing or the device is damaged or deformed. In case of improper functioning of the device contact the producer.

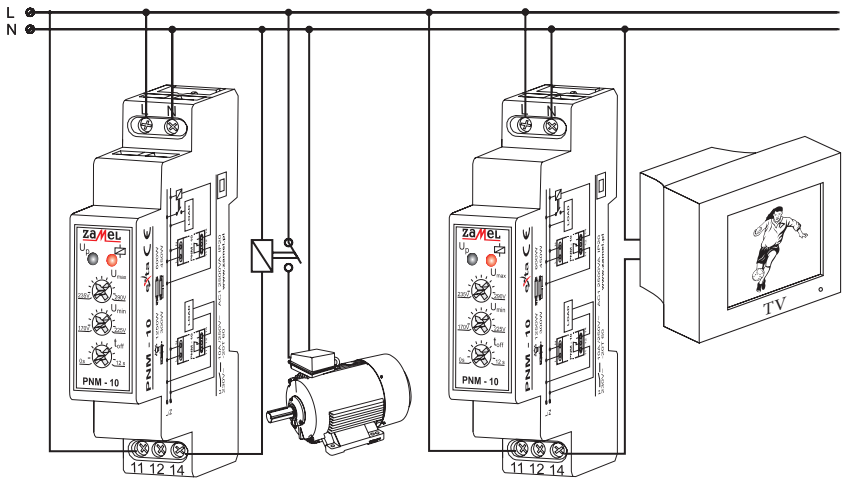
APPEARANCE



MOUNTING

1. Disconnect the power supply from the mains by the phase fuse, the circuit-breaker or the switch-disconnector that are joined to the proper circuit,
2. **Check if there is no voltage on connection cables by means of a special measure equipment,**
3. Install PNM-10 device in the switchboard on TH-35 DIN rail,
4. Connect the cables with the terminals according to installing diagram,
5. Switch on the power supply from the mains,
6. Adjust the required voltage value Umax and Umin and time delay switch off toff.

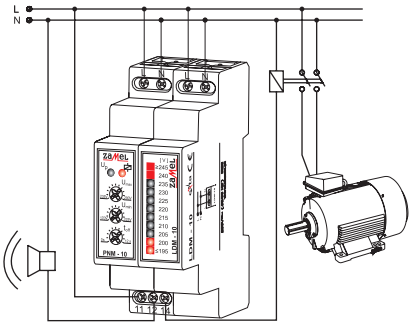
CONNECTING



FUNCTIONING

After the relay has been switched on it controls the voltage value on its supply terminals. In case the voltage is above the <Umin, Umax> level, toff time is measured. The relay is switched off if the voltage is not equal with the preset voltage value. The relay is not switched off in case voltage value is lower than toff time. Another relay switch on occurs when the voltage value is equal with the preset voltage value (taking into account the hysteresis about 3 V). The system protects the load capacity from the “soft net” effect that occurs in a situation when the connected load causes voltage drop below Umin. In case there are three switch off effects the output access is cut for about 10 minutes (red LED diode pulses). The green LED diode is switched on when there is a proper voltage value, in the range <Umin, Umax>. The green LED pulses rapidly, when voltage is higher than Umax or it pulses slowly when voltage is lower than Umin.

EXAMPLE OF INSTALLATION



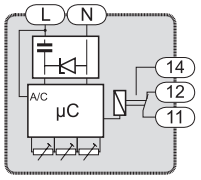
PNM-10 voltage relay cooperates with LDM-10 voltage indicator. Voltage value in a one phase net is measured in the relay system whose outputs cut the supply of the security system (e.g. motor) in situation voltage value is exceeded. The voltage relay enables permanent visualization of supply voltage value of the secured system.

RELAY CAPACITY

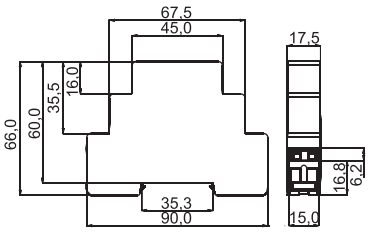
1250 W — 600 W

300 W — 450 W

INNER DIAGRAM

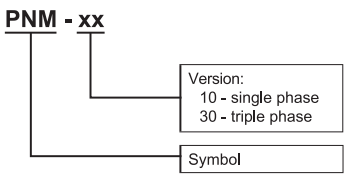


DIMENSIONS



PRODUCT FAMILY

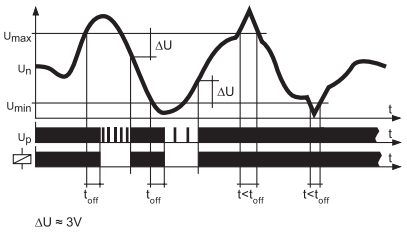
PNM-10 voltage relay belongs to PNM voltage relay product family.



LED MODE

Up		Mode
✸	✸	Voltage in the adjusted time, relay switched on.
✸	○	Voltage higher than Umax, relay switched off.
✲	○	Voltage lower than Umin, relay switched off.
✸	✲	“Soft net” effect detected.

TIME COURSE



GUARANTEE CARD

There is 24 months guarantee on the product

Salesman stamp and signature, date of sale

1. ZAMEL provides a two-year warranty for its products.
2. The ZAMEL warranty does not cover:
   a) mechanical defects resulting from transport, loading / unloading or other circumstances,
   b) defects resulting from incorrect installation or operation of ZAMEL products,
   c) defects resulting from any changes made by CUSTOMERS or third parties, to products sold or equipment necessary for the correct operation of products sold,
   d) defects resulting from force majeure or other aleatory events for which ZAMEL is not liable.
3. All complaints in relation to the warranty must be provided by the CUSTOMER in writing to the retailer after discovering a defect.
4. ZAMEL will review complaints in accordance with existing regulations.
5. The way a complaint is settled, e.g. replacement of the product, repair or refund, is left to the discretion of ZAMEL.

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