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zameL

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DESCRIPTION

PNM-10 voltage relay is used for control of voltage values in the single-phase networks to protect the receiver against increase or decrease of voltage outside the set values: minimum and maximum. The relay is equipped with switching off time regulation. The system detects a so-called effect of "soft net" switching the receiver off 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.



NOTE

The device should be connected to a one-phase network in accordance with legally binding standards. The connection method is described in this manual. Any activities related to installation, connection, and adjustment should be performed by qualified electricians who have read this user's manual and familiarised themselves with device functions. Removing the enclosure voids the warranty and poses a risk of electric shock. Before installation, make sure that there is no voltage on connection cables. To install the device, use a cross-head screwdriver with a diameter of 3.5 mm. The proper operation of the device is affected by how the device is transported, stored, and used. It is not advisable to install the device in the following cases: lack of any components, damage to or deformation of the device. If the device operates improperly, please contact the manufacturer.

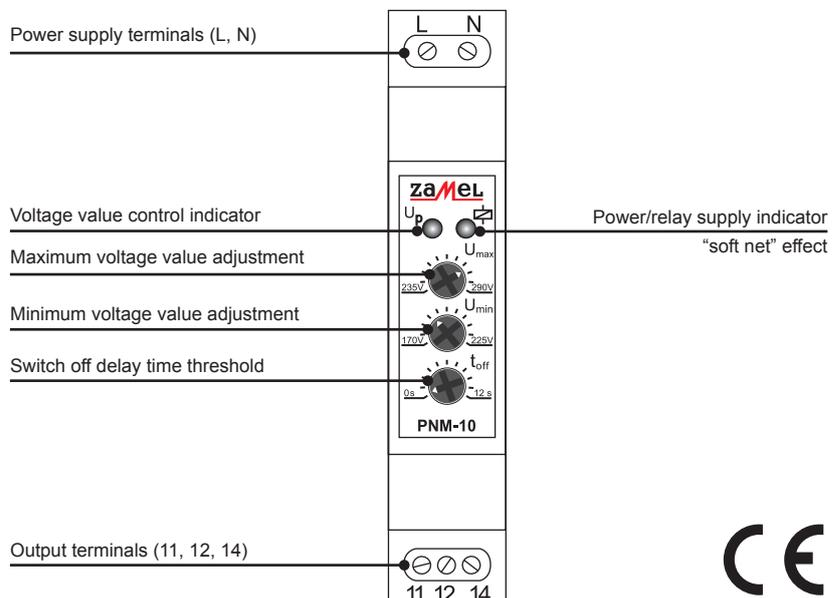


Do not dispose of this device together with other waste! To avoid harmful effects on the environment and human health, the worn-out device should be stored in designated areas. Electrical waste from households may be handed over to the waste collector established for this purpose free of charge and in any amount, as well as to the store when purchasing new equipment.

TECHNICAL DATA

PNM - 10	
Power supply terminals:	L, N
Rated supply voltage:	230 V AC
Tolerance of supply voltage:	from -15 to +10 %
Nominal frequency:	50 / 60 Hz
Rated power consumption:	35 mA
Voltage value control indicator:	green LED
Power/relay supply indicator and "soft net":	red LED
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)
Overvoltage category:	II
Pollution degree:	2
Rated impulse withstand voltage:	2 kV (PN-EN 61000-4-5)
Dimensions (height / width / depth):	single-module (17,5 mm) 90x17,5x66 mm
Weight:	0,07 kg

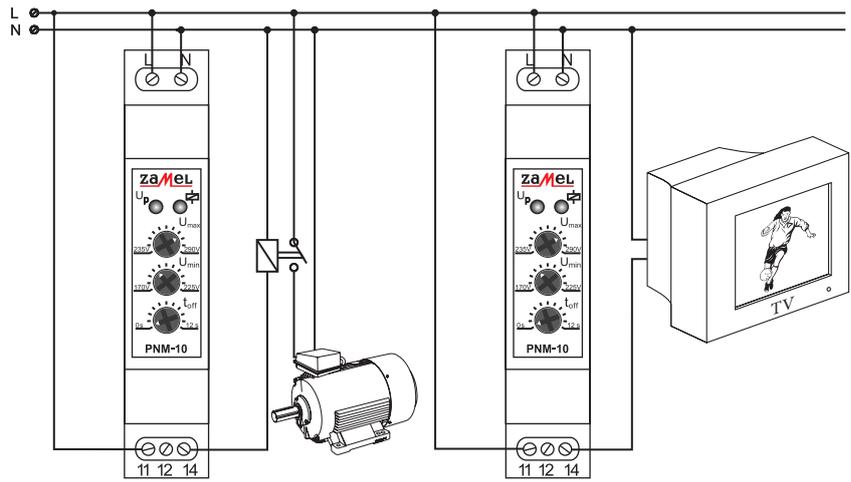
APPEARANCE



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 switch-board 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 U_{max} and U_{min} and time delay switch off toff.

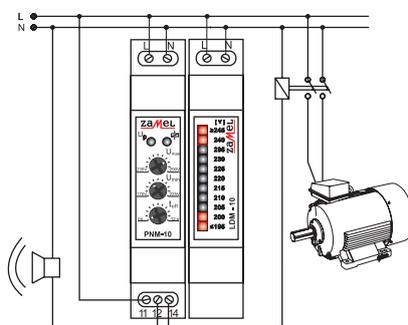
CONNECTING



FUNCTIONING

After the relay has been switched on it controls the voltage value on its supply terminals. In case the voltage is above the $\langle U_{min}, U_{max} \rangle$ 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 U_{min} . 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 $\langle U_{min}, U_{max} \rangle$. The green LED pulses rapidly, when voltage is higher than U_{max} or it pulses slowly when voltage is lower than U_{min} .

EXAMPLE OF INSTALLATION

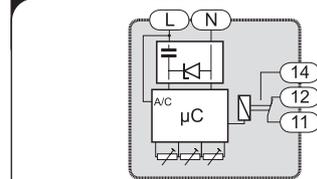


PNM-10 voltage relay cooperates with the LDM-10 voltage indicator. The value of voltage in a single-phase network is measured in the circuit of the relay whose outputs cut off the power supply to the protected circuit (e.g. motor) if the set voltage range has been exceeded. Voltage indicator allows ongoing visualisation of value of voltage supplying the protected circuit.

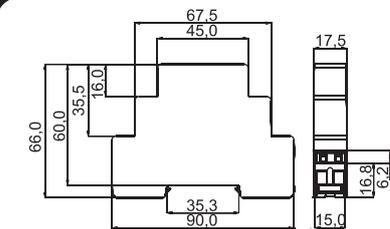
RELAY CAPACITY



INNER DIAGRAM



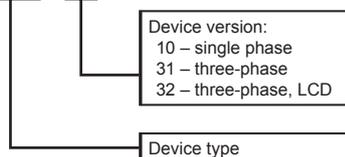
DIMENSIONS



PRODUCT FAMILY

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

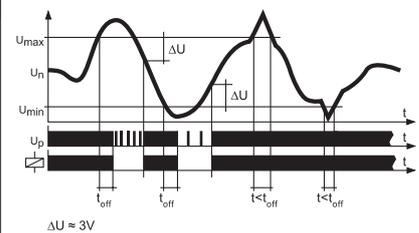
PNM - xx



LED MODE

UP	Mode
	Voltage in the adjusted time, relay switched on.
	Voltage higher than U_{max} , relay switched off.
	Voltage lower than U_{min} , relay switched off.
	"Soft net" effect detected.

TIME COURSE



WARRANTY CARD

Manufacturer provides a 24-month warranty

1. ZAMEL Sp. z o.o. shall offer a 24-month warranty on the products sold.
2. The warranty provided by ZAMEL Sp. z o.o. shall not cover:
 - a) mechanical damage caused during transport, loading/unloading or in other circumstances,
 - b) damage caused by incorrect installation or operation of products manufactured by ZAMEL Sp. z o.o.,
 - c) damage resulting from any changes made by the BUYER or third parties in the products sold or equipment necessary for the proper operation of the products sold,
 - d) damage resulting from force majeure or other fortuitous events for which ZAMEL Sp. z o.o. is not liable.
3. Any warranty claims shall be made by the BUYER at the point of sale or to ZAMEL z o.o. in writing after defects have been identified.
4. ZAMEL Sp. z o.o. undertakes to handle complaints in accordance with the applicable provisions of Polish law.
5. The choice of the form of complain resolution, e.g. replacement of a product with a product free from defects, repair, or reimbursement of money, shall lie with ZAMEL Sp. z o.o.
6. The warranty does not exclude, limit, or suspend BUYER's rights under the statutory warranty for defects in the item sold.

Seller's stamp and signature, date of sale