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## DESCRIPTION

The PBM-06 bistable relay is used to control lighting or any other device by means of unipolar push buttons connected in a parallel way. The relay is equipped with two independent outputs activated in accordance with a selected impulse sequence given to the (IN) inputs. It allows to control two circuits / branches simultaneously. A potentiometer, placed on the front panel, is used to choose a sequence (1 out of 5). The control impulse can only be the "L" line signal. The trigger input structure enables cooperation with backlit push buttons (including LED backlight). The total current of backlight for the IN input can not exceed 1,5 mA. The device is designed to be mounted in distribution boards (TH35 rail). LEDs on the front panel indicate power supply (green LED) and the correct output status (2 x red LED).

## FEATURES

- control of lighting and other devices according to a defined sequence,
- selection 1 out of 5 operation modes (sequences) by means of a potentiometer,
- output status indicated by red LEDs (2 x red LED),
- power supply indication (1 x green LED),
- system release only from the "L" line,
- possibility of cooperation with unipolar backlit push buttons,
- two-wire control installation,
- two independent relay outputs – (dry contacts) 2 NO /NC contacts with a maximum load of 16 A,
- mounting in distribution boards (TH35 rail).



The device is designed for single-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 manual instruction. 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. In case of casing dismantling, the guarantee is lost and an electric shock may occur. Before installation make sure the connection cables are not under voltage. Improper transport, storage, and use of the device influence its wrong functioning. It is not advisable to install 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.

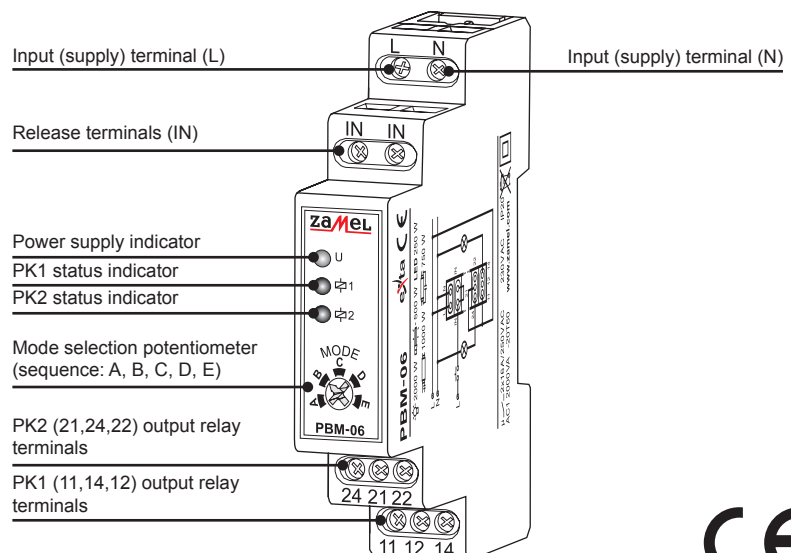


The symbol means selective collecting of electrical and electronic equipment. It is forbidden to put the used equipment together with other waste.

## TECHNICAL DATA

PBM-06	
Input (supply) terminals:	L, N
Nominal supply voltage:	230 V AC
Nominal supply voltage tolerance:	-15 ÷ +10 %
Nominal frequency:	50 Hz
Nominal power consumption:	stand-by: 0,4 W 1 active output: 0,7 W 2 active outputs: 1,1 W
Optical signalling of relay status:	2x red LED
Release terminals:	IN, IN
Release control current:	7,5 mA
Cooperation with backlit push buttons:	yes
Total current of the push button backlight:	< 1,5 mA
Minimum impulse release time:	70 ms
Output devices:	2 x relays
Relay contact parameters:	NO/NC – 16 A / 250 VAC
Number of connection terminals:	10
Cross-section of connection cables:	0,2 ÷ 2,5 mm <sup>2</sup>
Operating temperature range:	-20 ÷ +45 °C
Operation position:	free
Casing mounting:	TH35 rail
Casing protection degree:	IP20
Protection class:	II
Overvoltage category:	II
Pollution degree:	2
Dimensions:	90 x 17,5 x 66 mm
Weight:	0,090 kg
Reference standard:	PN-EN 60669-1, PN-EN 60669-2-1 PN-EN 61000-4-2,3,4,5,6,11

## APPEARANCE



## MOUNTING, FUNCTIONING

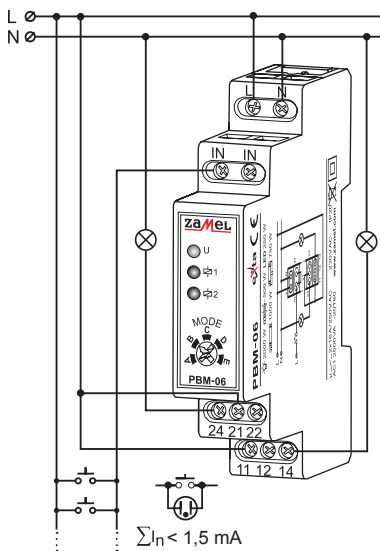
1. Disconnect power supply by the phase fuse, the circuit-breaker or the switch-disconnector combined to the proper circuit.
2. Check if there is no voltage on the connection cables by means of a special measuring equipment.
3. Install PBM-06 on a TH35 rail in the distribution board.
4. Connect the device cables with the terminals in accordance with the installing diagram.
5. Switch on the power supply from the mains.
6. Select a correct operation mode (sequence) by means of a potentiometer. Press a push button connected to the (IN) release input a few times to check if the device operates properly.

After supply voltage has been applied, the device is ready to operate. Correct operation can be checked by pressing a push button connected to the release terminal (IN) a few times. The system should switch on / switch off loadings connected to its output terminals (PK1-11,12,14 and PK2-21,22,24) according to the selected operation mode (sequence). Unipolar push buttons can be connected in a parallel way and provide lighting control of several places. These push buttons are available with backlight. Changing the operation mode (sequence) by means of a potentiometer placed on the front panel results in switching off the PK1, PK2 relays.

### CAUTION:

**PBM-06 can cooperate with backlit push buttons. The total current consumption before backlight can not exceed 1,5 mA. The (IN) release input structure is used to a continuous triggering.**

## CONNECTION DIAGRAM

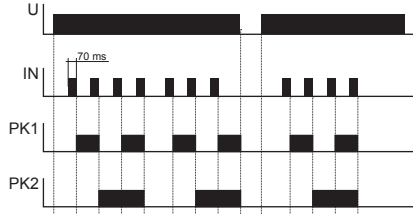


## OPERATION MODES

### Mode A

After supply voltage has been applied or after its decay both relays PK1 and PK2 are switched off. In Mode A, in case the subsequent impulses are given to the (IN) input, the device operation will include the following sequences:

- PK1 relay is switched on,
- PK1 relay is switched off and PK2 relay is switched on,
- both relays are switched on,
- both relays are switched off.

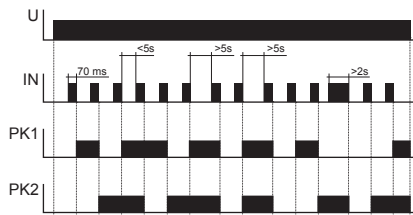


### Mode B

After supply voltage has been applied or after its decay both relays PK1 and PK2 are switched off. In Mode B, in case the subsequent impulses are given to the (IN) input in intervals shorter than 5 seconds, the device operation will include the following sequences:

- PK1 relay is switched on,
  - PK1 relay is switched off and PK2 relay is switched on,
  - both relays are switched on,
  - PK2 relay is switched off and PK1 relay is switched on.
- Switching on a relay (relays) is performed in two ways:
- in case the following control impulse appears after 5 seconds from the previous one,
  - in case the following control impulse appears in less than 5 seconds from the previous one and lasts longer than 2 seconds.

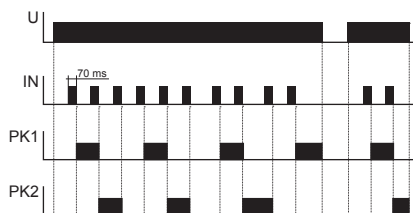
After a relay (relays) has been switched off, the following control impulse switches them on to the previously memorised step (status memory).



### Mode C

After supply voltage has been applied or after its decay both relays PK1 and PK2 are switched off. In Mode C, in case the subsequent impulses are given to the (IN) input, the device operation will include the following sequences:

- PK1 relay is switched on,
- PK1 relay is switched off and PK2 relay is switched on,
- PK2 relay is switched off,
- PK1 relay is switched on.



### Mode D

After supply voltage has been applied or after its decay both relays PK1 and PK2 are switched off. In Mode D, in case the subsequent impulses are given to the (IN) input in intervals shorter than 5 seconds, the device operation will include the following sequences:

- PK1 relay is switched on,
- PK1 relay is switched off and PK2 relay is switched on,
- PK2 relay is switched off and PK1 relay is switched on.

Switching off a relay (PK1 or PK2) is performed in two ways:

- in case the following control impulse appears after 5 seconds from the previous one,
- in case the following control impulse appears in less than 5 seconds from the previous one and lasts longer than 2 seconds.

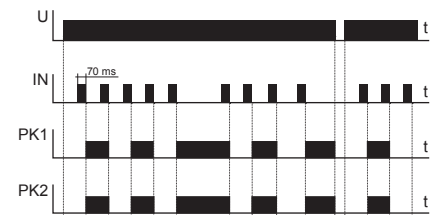
After the relay has been switched off, the following control impulse switches it on.



### Mode E

After supply voltage has been applied or after its decay both relays PK1 and PK2 are switched off. In Mode E, in case the subsequent impulses are given to the (IN) input, the device operation will include the following sequences:

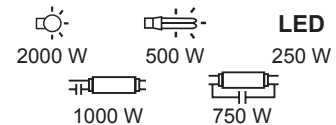
- both relays are switched on,
- both relays are switched off,
- both relays are switched on.



### General impulse release requirements:

- The PBM-06 relay reacts to the falling edge of the release impulse (reaction to the button release connected to the (IN) input).
- Minimum duration of impulse release – 70 ms.
- Minimum time interval between subsequent impulses – 250 ms.

## CAPACITY



The above values are only indicative. They depend, to a large extent, on a particular capacity (mainly it refers to LED bulbs, energy-saving lamps and switched-mode power supplies), switching on frequency and operating conditions.

## WARRANTY CARD

There is a 24 month guarantee on the product

1. ZAMEL Sp. z o.o. assures a 24 month guarantee for the product.
2. The manufacturer's guarantee does not cover any of the following actions:
  - a) mechanical damage during transport, loading / unloading or under other circumstances,
  - b) damage caused by incorrect product mounting or misuse,
  - c) damage caused by unauthorised modifications made by the PURCHASER or any third parties to the product or any other devices required for the product functioning,
  - d) damage caused by Act of God or any other incidents independent of the manufacturer – ZAMEL Sp z o.o.
3. The PURCHASER shall lay any claims in writing in the place of purchase or to ZAMEL Sp. z o.o.
4. ZAMEL Sp. z o.o. is liable for processing any claim according to current Polish legislation.
5. ZAMEL Sp. z o.o. shall process the claim at its own discretion: product repair, replacement or money return.
6. The manufacturer's guarantee is valid in the Republic of Poland.
7. The PURCHASER's statutory rights in any applicable legislation whether against the retailer arising from the purchase contract or otherwise are not affected by this warranty.

Salesman stamp and signature, date of sale