NOVATEK ELECTRO
ISO 9001

TIME RELAY PB-123

OPERATING MANUAL

The quality management system of development and production complies with the requirements of ISO 9001:2015

Dear Customer,
NOVATEK-ELECTRO Ltd. thanks you for purchasing our devices. You will be able to use properly the device after carefully studying the Operating Manual. Store the Operating Manual throughout the service life of the device.

DEVICE SERVICE

Time relay PB-123 (hereinafter referred to as device or PB-123) is designed to disconnect the load (fan) after opening the contacts of the switch within the time interval set by the user. For example, in ventilation systems, bathrooms, etc. Use the switch to turn on the lights. The fan will turn on. When the lighting is switched off, the load (fan) will switch off after a set time interval.

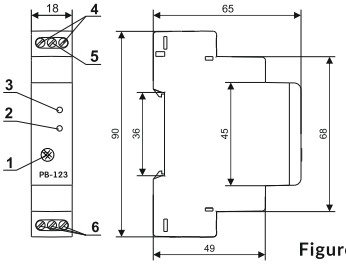


Figure 1

1 – time setting regulator T;
2 – indicator of relay switching on;
3 – ipower supply indicator;
4 – input contacts 230 V N, L;
5 – control input contact S;
6 – relay output contacts:
«NO1» – normally open contact;
«NC1» – normally closed contact;
«C1» – switching contact.

OPERATION CONDITIONS

The device is designed for operation in the following conditions:
– ambient temperature: from minus 30 to +55°C;
– atmospheric pressure: from 84 to 106.7 kPa;
– relative air humidity (at temperature of +25°C): 30...80 %.

If the temperature of the device after transportation or storage differs from the environment temperature at which it is expected to operate, then before connection to electric mains keep the device under the operating conditions within two hours (because the device elements may have moisture condensation).

ATTENTION! The device is not intended for operation in the following conditions:
– significant vibration and shocks;
– high humidity;
– aggressive environment with content in the air of acids, alkalis, etc., as well as severe contaminations (grease, oil, dust, etc.).

TRANSPORTATION AND STORAGE

The device in the original package is permitted to be transported and stored at the temperature from minus 45 to +60 °C and relative humidity of no more than 80 %.

TECHNICAL SPECIFICATIONS

Main technical specifications

Rated supply voltage	230/240 V
Mains frequency	45 – 65 Hz
Voltage at which operation is maintained	160 – 300 V
Permissible harmonic composition (non-sinusoidality) of the supply voltage	EN 50160
Ready time at supply voltage application	≤ 0.4 s
Accuracy of time delay	≥ 30 %
Time delay	from 1 to 15 min.
Time delay adjustment	Smooth
Number and type of contacts (switching)	1
Power consumption (under load)	≤ 1 W
Switching resource of output contacts: - at the load of 16 A (cos φ = 1.0) - at the load of 1 A (cos φ = 1.0)	≥ 100 000 times ≥ 1 mln. times
Designation of the device	Control and distribution equipment
Nominal operating mode	Continuous
Climatic version	NF 3.1
Front panel protection	IP 40
Terminal block protection	IP 20
Pollution rate	II
Category of overload	II
Electric shock protection class	II
Nominal insulation voltage	450 V
Rated impulse withstand voltage	2.5 kV
Cross-section of connection terminal wires	0.5 – 2 mm²
Screw torque of terminal clams	0.4 N*m
Weight	≤ 0.15 kg
Overall dimensions, HxBxL	90x18x65 mm
The device meets the requirements of: EN 60947-1; EN 60947-6-2; EN 55011; EN 61000-4-2	
Mounting – on standard DIN-rail 35 mm	
The device remains operational capability in any position in space	
Housing material – self-extinguishing plastic	
Harmful substances in concentration more than allowed are absent	

Load relay contact characteristics

Relay contact current	Load power							
					Category of application			
					AC-1	AC-3	AC-15	DC-1
	Incandescent, halogen, electric heaters	Luminescent	LED	Energy saving lamps, lamps with EBs	Active load (electric heater)	Electric motor	Contactor coils	Inductance-free DC load
16 A	1000 W	100 W	200W	90W	3.6 kW	500 W	400 W	24 V / 16 A 230 V / 0.35 A

ACCEPTANCE CERTIFICATE

PB-123 has been manufactured and accepted in accordance with the requirements of valid technical documentation and classified as fit for operation.

Head of QCD
_____

Date of manufacture
_____

Seal

THE DEVICE CONNECTION

DEVICE TERMINALS AND INTERNAL COMPONENTS ARE UNDER POTENTIALLY LETHAL VOLTAGE.

Attention! The device is not designed to switch the load in case of short circuits. Therefore, a circuit breaker with a maximum current of 16 A must be installed in the load supply circuit.

To improve the performance of the device, it is recommended to install the fuse (fuse element) or its equivalent in the PB-123 supply circuit for current of 1 A.

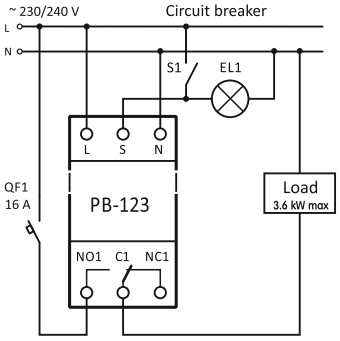
All connections must be performed when the device is de-energized.

It is not allowed to leave exposed portions of wire protruding beyond the terminal block.

To ensure the reliability of electrical connections, the flexible (stranded) wires with insulation for voltage of at least 450 V should be used, the ends of which it is necessary to be striped of insulation for 5±0.5 mm and tightened with bootlaces. The cross-section of the wire for connecting the protected equipment depends on the current (power) of the load. For example, for current of 16 A it should be no less than 1.5 mm^2. Wires fastening should exclude mechanical damage, twisting and abrasion of the wire insulation.

For a reliable contact, tighten the terminal screws with the force indicated 0.4 N*m.

When reducing the tightening torque, the junction point is heated, the terminal block may be melted and wire can burn. If you increase the tightening torque, it is possible to have thread failure of the terminal block screws or the compression of the connected wire.



QF1 – circuit breaker (fuse), maximum current 16 A;
S1 – circuit breaker;
EL 1– light bulb.

Warning! Hold down the S1 switch for at least 2 seconds for the correct dwell time.

Figure 2

1) Set the required dwell time within the range of 1 to 15 minutes using the «T» controller.

2) Connect the device according to the diagram shown in Fig. 2.

3) Apply the power supply voltage to the device terminals.

OPERATION OF THE DEVICE

When the device is energized, the power indicator « ⏻ » will illuminate. The NO1-C1 contacts are open.

Closing switch S1 causes NO1-C1 contacts to close. Opening of switch S1 causes the user set time to count down, after which the load relay will be de-energized. The NO1-C1 contacts open.

SAFETY PRECAUTIONS

Do not make any attempt to open and repair the device yourself.

Do not use the device with mechanical damage to the case.

Do not allow water to enter the internal parts of the device, the receptacle and the plug.

During operation and maintenance, meet the requirements of the «Rules for the technical operation of electriitygenerating equipment of consumers», «The safety regulations for operation of electricitygenerating equipment of consumers» and «Labor protection during operation of electricitygenerating equipment».

MAINTENANCE

Maintenance of the device must be performed by the skilled professionals.

Recommended frequency of maintenance is every six months.

Maintenance Procedure:

1) Check the connection reliability of the wires, if necessary, clamp with the force 0.4 N*m;

2) Visually check the integrity of the housing, in case of detection of cracks and damages take the device out of service and send for repair;

3) If necessary, wipe the front panel and the housing of the device with cloth.

Do not use abrasives and solvents for cleaning.

SERVICE LIFE AND WARRANTY

The lifetime of the device is 10 years. Upon expiration of the service life, contact the manufacturer.

Shelf life is 3 years.

Warranty period of the device operation is 5 years from the date of sale.

During the warranty period of operation (in the case of failure of the device) the manufacturer is responsible for free repair of the device.

Attention! If the device has been operated in violation of the requirements of this Manual, the user will lose the right to warranty service.

Warranty service is performed at the place of purchase or by the manufacturer of the device.

Post-warranty service of the device is performed by the manufacturer at current rates.

Before sending for repair, the device should be packed in the original or other packing excluding mechanical damage.

CLAIMS DATA

You are kindly requested, in case of the device return and transfer it to the warranty (post-warranty) service please indicate detailed reason for the return in the field of the claims data.

The Company is grateful to you for the information about the quality of the device and suggestions for its operation.

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For all questions, please contact the manufacturer:

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Date of sale _____ VN240221