

1. Role, purpose

1.1 Electrical band heaters of NOMACON PB-100 series are destined for diesel fuel filter heating during pre-starting regime and while the engine is running at the ambient operating temperatures from -40°C (-40°F) to +45°C (113°F).

The role of the PB-100 series heaters is to assure the filter's fuel flow at the optimal level by reducing diesel fuel viscosity and dissolution of the paraffin plugs formed inside of the filter at low temperatures.

1.2 The heaters are destined for heating metal fuel filters of vehicles running on standard European diesel fuel types (DIN-EN 590 and DIN 51606), as well as other types of diesel fuel.

1.3 The heater is mounted on the body of a metal fuel filter and connected to the electrical circuit of the vehicle. In case of the manual controlled version the switcher is placed in the driver's cabin. The timer-control version is available as well.

1.4 The heater exists in different diameters, voltage and power configurations, hence it can be used with almost any new or old metal filter on the market for road cars and cargo trucks as well.

2. Completeness

(please check the completeness for missing or broken parts and, if any, notify your dealer)

Heater	1 pc.
Manual control wire kit ⁽¹⁾	1pc.
Timer-control wire kit ⁽²⁾	1 pc.
Mounting band-clips	2 pc.
User manual	1 pc.

(1) – Wire kit for manual control: switcher, relay, LED indicator, fuse 20A, Wires: N1 red or blue S=0,75 mm², N2 red S=0,75 mm², N3 black S=0,75 mm², N4 and N5 reds S=1,5 mm², N6 thick black S=1,5 mm². Thermal insulation of wires: +125°C

(2) – Timer-control wire kit: Control unit, button switcher with LED indicator, fuse 20A, Wires: N1 blue S=0,75 mm², N2 yellow S=0,75 mm², N3 black S=0,75 mm², N4 and N5 reds S=1,5 mm², N6 black S=1,5 mm², N7 red S=0,75 mm². Thermal insulation of wires: +125°C.

3. Technical parameters

Index name	PB-101	PB-102	PB-103	PB-104	PB-105	PB-106	PB-107
Bore diameter of the filter's body, mm	68-73	73-86	78-91	90-105	73-86	90-105	117-125
Heater's height, mm	52	67	52	82	67	82	80
Power voltage of the direct current, V	12	12	12	12	24	24	24
Nominal power rating, W	70	90	90	120	100	120	150
Maximal temperature of the heating surface, °C (°F)	130 (266)	130 (266)	130 (266)	130 (266)	130 (266)	130 (266)	130 (266)
Operating temperature, °C (°F)	From -40 (-40) till +45 (113)						
Weight, kg	0,180	0,250	0,270	0,350	0,250	0,350	0,410
Working regimes	pre-starting regime of 3-10 min from the battery and cruise regime from vehicle's alternator						

4. Safety measures

4.1 The installation of PB-100 heaters should be done according to the general safety rules of automobile electronic equipment installation and also this user manual.

4.2 Only the personnel that had trained and studied its construction and safety rules shall be admitted to the installation of this device.

4.3 During the installation it is vital to verify the thermal compliance of wires with the ambient operating temperature, the correct core diameter of wires, to provide reliable cable connection on each clamp, to ensure the device form the short circuit and overloading.

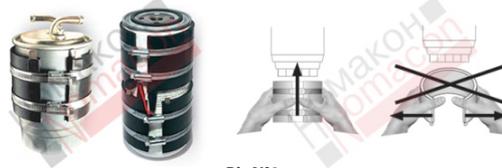
4.4 To ensure the safety measures it is PROHIBITED
- to use the device in engines systems running on petrol or on mixture of diesel and petrol.

- PROHIBITED to use the device to heat anything else which is not mentioned in the present user manual;
- PROHIBITED to repair or inspect the device while it is connected to a live electrical circuit or an alternator of a working engine;
- PROHIBITED to activate the device while there is no fuel in the fuel filter;
- PROHIBITED to activate the device on air or without proper installation into the fuel system of an engine.

5. Installation procedure

5.1 ATTENTION ! Installation should be executed either at the special service centers or maintenance facilities that can provide skilled personnel in the domain of electronic equipment installation for cars and trucks.

5.2 The heater is fitted on the body of the filter as it is shown on the pictures 1 and 2 and tightly wringed up.



Pic N°1

Pic N°2

ATTENTION ! It is strictly prohibited to over-expand the heater or to use it on a filter with larger diameter, exceeding the figures mentioned in the section 3 of the present user manual.

5.3 It is prohibited to fit the heater on a dirty body of a filter or on a body that has deformations or is not circular.

Also it is prohibited to use the heater on filters made of plastic.

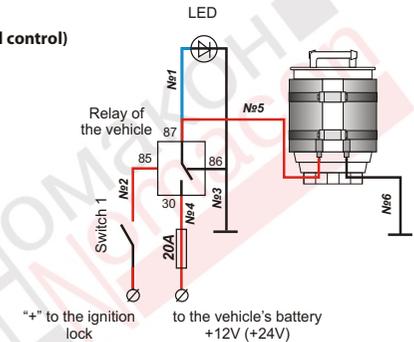
With vehicles using 24V electrical grid and having tall fuel filters as it is shown on the picture N°1 (right) it is possible to use two 12V heaters connected sequentially. At the same time the 24V wire kit is needed for that configuration.

5.4 The electrical connections are done according to the pictures N°3 and N°4.

5.5 In case of manual control version (picture N°3)

- the blue wire N°1 going from the relay's clamp 87 is connected to the positive clamp of the LED indicator. The negative clamp of the LED indicator is connected to the frame of the vehicle through the wire N°3 and to the clamp 86 of the relay.
- the red wire N°2 from the clamp 85 of the relay is connected through the switcher 1 to the positive clamp of the ignition lock.
- using red power-lead cables N°4 and N°5 connect the heater through the relay's clamps 87 and 30 and fuse 20A to the positive clamp of the vehicle's battery.
- the black wire N°6 is connected to the frame of the vehicle (or any negative clamp)
- the LED indicator and the switch 1 is mounted in the driver's cabin.

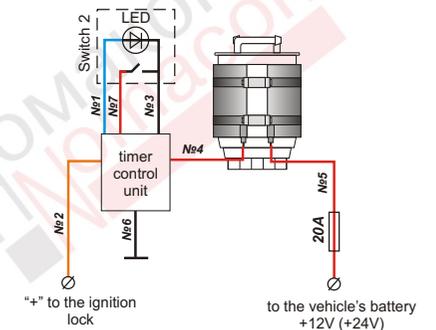
Pic N°3
(manual control)



5.6 In case of timer-control version (picture N°4)

- the switch 2 with integrated LED indicator is connected to the timer-control unit with three wires according to the following colors:
- the blue wire N°1 goes to the positive clamp of LED indicator,
- the red wire N°7 goes to the positive clamp of the power switch,
- the black wire N°3 goes to the negative clamp of the power switch;
- the yellow wire N°2 (timer unit switch) goes to the ignition clamp;
- using red power-lead cables N°4 and N°5 connect the heater to the timer control unit and through the fuse 20A to the positive clamp of the vehicle's battery.
- the black wire N°6 is connected to the frame of the vehicle.
- the switch 2 with integral LED indicator is mounted in the driver's cabin.

Pic N°4
(timer-control)



6. Function guideline

6.1 In case of manual control version the device is activated by pushing the switch 1 while the ignition lock is on. The heater activation is shown by continues light of the LED indicator in the driver's cabin.

6.2 In case of timer-control version the device is activated by pushing the switch 2 while the ignition lock is on. Then the heater activation is shown by blinking light of the LED indicator incorporated into the switch 2 in the driver's cabin. The heater desactivates automatically after 10 min and the LED indicator dims away as well. Manual desactivation of the heater is also possible by pushing once the switch 2 while it is blinking or by switching off the ignition lock.

6.3 Depending on the operating temperature from +5°C (41°F) to -40°C (-40°F) the required heating time might last between 3 and 10 minutes.

ATTENTION

It is forbidden to power-on the heater for more than 10 minutes if the engine is not yet started in order to avoid premature discharge of the battery and the local overheating of the filter's body.

6.4 If needed the heater can be left in the switched-on position permanently

while the engine is running and fuel flow in the filter is present. In case of using the timer-control unit the permanent switched-on position is achieved by pressing the Switcher 2 for minimum 3 seconds until the LED indicator is permanently on. Canceling the permanent switched-on mode is done by pressing the Switcher 2 button again or by switching-off the ignition key.

6.5 After 3 to 5 cycles of heating it is recommended to tighten up the mounting band-clips of the heater.

6.6 During the use of the heater it is recommended to inspect the tightening of the band-clips regularly. The efficiency and long-lasting life of the heater depends directly of the fact that the band-clips are tightened. It is recommended as well to check the electrical connections.

6.7 The body of the heater is sealed and is not designed to be opened and repaired if malfunctioned.

6.8 If malfunction occurs during the warranty period the device can be replaced through your local dealer, on the condition of complying with warranty terms.

7. Storage, disposal

7.1 When stored or transported to the installation facilities the heater must be properly packed in the package provided by the manufacturer or the dealer.

7.2 The PB-100 series heaters do not contain any substances that are harmful in any way to the environment or to a human body.

8. The content of precious and non-ferrous metals

8.1 Precious metals: not present

8.2 Non-ferrous metals: aluminium – 20 g, tin – 1,5 g.

9. Warranty

9.1 The manufacturer guarantees the adequacy of the PB-100 series heaters to the description in the present reference documentation if complied with the conditions of storage, transport, installation and usage.

9.2 Storage period – 2 years from the manufacturing date

9.3 Usage warranty – 18 months from the date of purchase or from the date of manufacture if the purchase date is not known.

9.4 During the warranty period the consumer has a right to replace the malfunctioned heater by sending back all pieces of it to the local dealer with the copy of the purchase invoice. Postage costs are not refunded to the consumer. (It is recommended to include a short description in English language concerning the circumstances of the malfunction). The local dealer in its turn will send the new heater to the consumer.

9.5 Warranty claim will be refused if:

- the malfunctioned device is not sent or delivered to the local dealer;
- the malfunctioned device is sent without a proof of purchase such as purchase invoice;
- the device is sent with some of its pieces missing (no cables or band clips)
- the device has mechanical damage or scratches that do not normally occur during its usage. For example after a road accident;
- the device has mechanical damages that indicate that it was used on a filter made of plastic or that the band clips were not properly tightened or overtightened;
- any indications of non-compliance with the conditions of storage, transport, installation and usage are the reasons for the warranty claim refusal.

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NOMACON



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ELECTRICAL BAND HEATERS for diesel fuel filters

NOMACON™ PB-100 series

Timer-control

Manual control

- PB-101 (12V) (ø70)
- PB-102 (12V) (ø80)
- PB-103 (12V) (ø85)
- PB-104 (12V) (ø100)
- PB-105 (24V) (ø80)
- PB-106 (24V) (ø100)
- PB-107 (24V) (ø120)

USER MANUAL

