

1. Role, purpose

1.1 The electrical in-line, self-controlled diesel fuel heaters with resistor heating elements are designed to be installed in the cut of the fuel line just before the fine filter or before the filter-separator, they function at cruise operating mode (while engine is running).

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

1.3 The heater is installed in the cut of the regular fuel line and connected to the electrical grid of the vehicle according to the picture 2. The heaters of PP-200 series have an internal electronic temperature sensor and a MOSFET temperature control unit. It's a stand-alone device and does not need to be controlled or monitored by the driver.

It switches on at the temperature of below +5°C and switches off at the temperature of over +5°C .

1.4 The heaters of PP-200 series are universal and can be used on any type of diesel engines with either 12 or 24 volts electrical circuits and the maximal fuel flow up to 680 l/h.

1.5 Minimal physical size, light weight and a fixing bracket allows fast and easy installation of the heater into the engine compartment of any vehicle.

2. Completeness

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

The heater assembled ⁽¹⁾	1 pc.
Wiring kit ⁽²⁾	1 pc.
Passport, user manual	1 pc.
Tightening clamps	2 pc.

(1) - consists of the body of the heater with wiring kit (wire №1 S=2,5 mm² – red, №2 S=2,5 mm² – black, thermal insulation of wires: up to + 125 °C), AMP connector. The heater type is mentioned on the package.

(2) – manual control wiring kit for connecting to the vehicle electrical grid: on-off switcher, relay, LED indicator, fuse 20A, wires: (wire №1 S=0,75 mm² – blue, №2 S=0,75 mm² – red, №3 S=0,75 mm² – yellow, №4 S=2,5 mm² – thick red, №5 S=2,5 mm² – black, thermal insulation of wires: up to + 125 °C), AMP connector, LED indicator, fuse 20A.

3. Technical parameters

Index name	PP-201	PP-202	PP-203
Power voltage of direct current, V	12±2	24±3	24±3
Nominal power rating, W, at the fuel temperature of: - 20 °C +5 °C	220 180	350 300	500 450
Maximal electric current, Amp, not more then	20	20	25
Threshold fuel temperature for MOSFET trigger, °C	+5 ± 2		
Ambient operating temperatures, °C (°F)	from - 40 (-40) till +45 (113)		
Maximal fuel flow, liters per hour	150	420	680
Connecting pipe nozzles diameters of input and output of the fuel, mm	9x1,25	12x1,5	12x1,5
Weight, kg - dried - with fuel inside	0,250 0,280	0,270 0,310	0,320 0,370
Working mode	cruise operating mode, powered by the vehicle's alternator		

4. Safety measures

4.1 The installation of PP-200 series heater should be done according to the general safety rules of automobile electronic equipment installation and 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 make sure about the thermal compliance of wires to the ambient operating temperature, the correct core diameter of wires, to provide reliable cable strapping on each clamp, to insulate the device from the short circuit and overloading.

4.4 To ensure the safety measures it is PROHIBITED

- to use the device in engines 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 line, or if the fuel line contains air bubbles;

- PROHIBITED to activate the device on air or without proper installation into the fuel system of an engine.

4.5 During the installation or de-installation it is important to comply to the safety measure related to the diesel fuel spills, ensuring the maximal occupational hygiene.

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 installed in the cut of the regular fuel line and connected to the electrical circuit of the vehicle according to the picture 2.

The fuel input direction is indicated on the input pipe with an arrow.

Working position of the heater - vertical. The input and output pipes must be horizontal, see the picture 1.

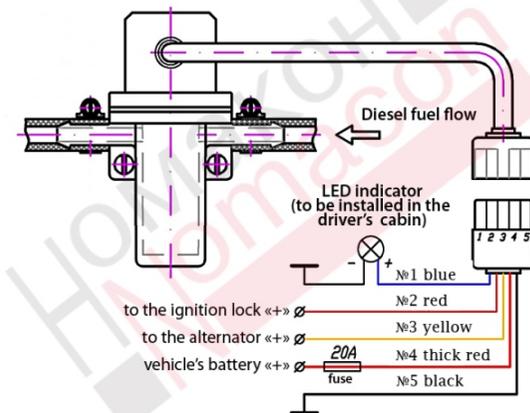
5.3 The exact position of the heater in the engine compartment differs depending on the vehicle model, but it must be in the cut of the fuel line just before and as close as possible to the fuel filter or filter-separator.

The maximal declination of the filter from the vertical position must not exceed 10-15°.

5.4 Electrical connections of the heater are done according to the layout on the picture 2.



Pic. 1



Pic. 2

6. Function guideline

6.1 The PP-200 heater is a stand-alone device and functions in self-controlling mode. Once the ignition contact is on and the engine is running, the heater starts measuring the input temperature of the fuel using its internal sensor. If the temperature is lower than +5°C the heater is activated, when the fuel temperature exceeds +5°C the heating is deactivated. The heater's activation is confirmed by the LED indicator in the driver's cabin.

6.2 The heating always stops when the ignition key is off.

6.3 While the usage the heater must always be filled with fuel.

If a vehicle with this heater installed was not used for a long period of time, it is recommended to make sure that the fuel line is not dried before starting the engine. In case of doubts it is recommended to disconnect the heater from the electrical circuit and start the engine until it becomes absolutely clear that the fuel line is filled with fuel.

6.4 It is recommended to clean the heater from inside at each yearly maintenance by removing it from the fuel line and cleaning it with a flow of diesel fuel through the input.

6.5 It is recommended to verify at each maintenance session the fixing point of the heater in the engine compartment, the absence of the fuel leaks and the tightness of the electrical contacts and nozzle clamps.

6.6 The body of PP-200 is sealed and is not designed to be opened and repaired if malfunctioned. If malfunction occurs during the warranty time the device can be replaced through the 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 PP-200 series heaters do not contain any substances that are harmful in any way to the environment or to a human body.

8. Content of precious and non-ferrous metals

8.1 Precious metals: not present.

8.2 Non-ferrous metals: – aluminium – 12g (PP-201, PP-202) – 16g (PP 203),
– copper – 0,35 g, tin – 1,5 g

9. Warranty

9.1 The manufacturer guarantees the adequacy of the PP-200 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;
- 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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IN-LINE DIESEL FUEL HEATERS

NOMACON™ PP-200 series

- PP-201 (12V)
- PP-202 (24V)
- PP-203 (24V)

USER MANUAL

