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# Operation manual

Liquid pre-heaters

BINAR-5S  
BINAR-5S-TM  
BINAR-5S-24-TM (diesel)

BINAR-5S (diesel)  
BINAR-5S-TM (diesel)



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Dear Customers!

Allow us to thank you for your choice! We have done everything to ensure that this product meets your requirements and for its quality to correspond to the top world brands.

## Introduction

The BINAR-5S type fluid pre-heaters are intended for:

- heating the engine at low ambient air temperatures;
- ancillary tempering when the engine is running in extreme frost conditions;
- to heat the cabin and windscreen at very low temperatures (to eliminate frost), when the engine is not running.

The pre-heater operates independent of the engine of the means of transport. The operating principle of the pre-heater consists in heating the fluid in the cooling system, which is pumped through the exchanger system of the heater.

Carefully read this operating manual in order to get properly acquainted with all the pre-heater functions.

## Health and safety rules

**Installation of the pre-heater and its components must be entrusted to specialist organisations approved by the manufacturer. Installation of the pre-heater must be done only by experts according to the installation instructions.**



Risk to human health

- The pre-heater may be used only for purposes stipulated in this operating manual.
- Due to the risks that arise from the exhaust gases of the pre-heater when it is in operation, it is not possible to use the pre-heater when the vehicle is parked in closed unventilated spaces (garages, workshops, etc.).

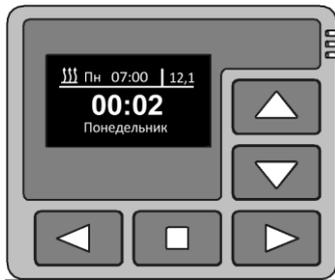


Risk of damage to/destruction of property

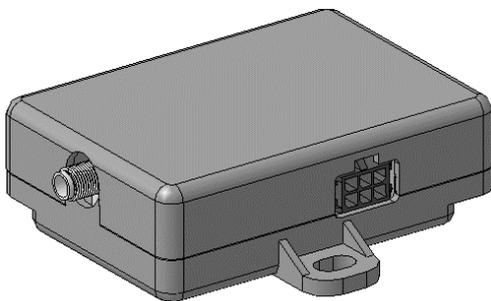
- A vehicle equipped with a pre-heater must have a fire-extinguisher.
- When refuelling, the pre-heater must be off.
- It is prohibited to disconnect the electric power supply of the pre-heater before end of the purging cycle.
- It is prohibited to connect and disconnect the sockets of the pre-heater when the pre-heater power supply is on.
- It is prohibited to climb onto the heater and place items on it.
- If electrical welding work is being done on the motor vehicle, it is necessary to disconnect the pre-heater from the battery.
- After shut-down the pre-heater may not be restarted earlier than after lapse of 5-10 seconds.
- If attempts to start-up the pre-heater fail twice in a row, it is necessary for reason of safe operation of the pre-heater to contact the service centre, which shall repair such fault.

## Control of the pre-heater

### Control panel PU-27

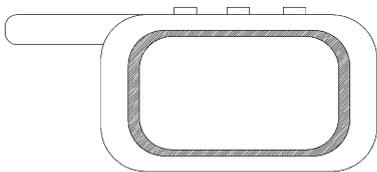


- Manual start and shutoff of the product.
- Manual start and shutoff of the pump (for the pre-heater).
- Manual start and shutoff of ventilation (for the heater).
- Fluid temperature display (for the pre-heater).
- Power supply voltage display.
- Current time and operating time display.
- Activation of the product startup timer.
- Economy mode activation (for the pre-heater).
- Additional heater operation mode selection (for the pre-heater).
- Display of malfunction code in case of product malfunctions.
- Display of control panel and control unit software version.



### Modem GSM-SIMCOM

- Remote, manual or automatic start-up of the pre-heater.
- Remote, manual start-up of the pump.
- Viewing of coolant temperature data.
- Viewing of power supply voltage data.
- Viewing of the actual operating time.
- Indication of the error code.



### Remote signalling

- Start-up of the heater (the operating time corresponds to the last entered variable)

## Liability



The consequence of failure to respect this operating manual and the requirements contained in it is demise of any liability on the part of the manufacturer. The same applies to repairs done by an expert without the appropriate qualifications, or repairs in which genuine spare parts were not used and such spare parts were not authorised by the manufacturer.

In case of any problems, we emphatically recommend that you contact the authorised service centres, whose addresses and telephone numbers are available from the dealer or at the website [www.autoterm-europe.com](http://www.autoterm-europe.com)

The list of companies performing warranty repair of Autoterm products can be found on the website [www.autoterm-europe.com](http://www.autoterm-europe.com).

## Complete assembly

The standard complete pre-heater assembly contains the following:

- heater;
- control panel;
- fuel pump;
- pump;
- fuel intake or T-branch;
- harnesses;
- air intake with silencer;
- exhaust pipe;
- installation kit.

As accessories to the standard pre-heater assembly, it is possible to additionally purchase install the following:

- modem GSM-SIMCOM;
- relay kit (for connection to the heating equipment in the cabin or control of the overall climatic conditions in the cabin);
- exhaust pipe silencer;
- bushing (rubber ring, which protects the plastic elements of the motor vehicle from contact with the hot exhaust pipe)

## Specifics of automatic control

- 1) if the pre-heater fails to start-up for whatever reason, then the start-up process is repeated automatically. After 2 unsuccessful attempts, the pre-heater goes off;
- 2) if the combustion process fails during pre-heater operation, the pre-heater re-ignites. Maximum number of flame failures – 3;
- 3) upon drop of voltage below 9.5V (20V) or its rise above 16V (30V) the pre-heater is shut-down; The values for products with a nominal voltage of 24V are shown in brackets;
- 4) in case of emergency shut-down of the pre-heater, a digital error code appears on the control panel (PU-27);
- 5) if on timer has been switch the system of engine warm-up and the battery is connected to the charger, while the terminals from the car are not disconnected, the pre-heater will turn on and will work until the battery charger is disconnected from the battery.



If the pre-heater operation ends in an error, the next start-up is in reheat mode. For further operation, it is necessary to start-up the pre-heater manually. This procedure is necessary to erase the error.

## Technical service

We recommend regular technical maintenance and inspection of the pre-heater at specialised service centres.

**A lot of work related to the repair and technical service of the pre-heater requires professional knowledge and use of special tools. Unprofessionally done technical maintenance and service may result in damage to the pre-heater.**



We recommend the separate performance of the following tasks:

- If the pre-heater is not in operation, then in order to ensure its reliable operation, it is necessary to start it up once per month for 5-10 minutes, including the summer season.
- Regularly check the battery charge level.
- If the vehicle is parked or stationary for a long time, it is necessary to disconnect the pre-heater from the power supply (battery). In this way, we prevent complete discharge of the battery (even in inoperational state the pre-heater consumes current (30 ÷ 40) mA).
- The reliable operation of the heater depends on the brand of the fuel used. The fuel brand must be chosen according to the ambient temperature.

## Faults

What to do in case of fault:

- check the presence of fuel in the tank and the fuel pipe downstream of the pump;
- check the 25A circuit breaker;
- check the reliability of the contract connections in the sockets and circuit-breaker terminals (it is not possible to rule out the oxidation of contacts);
- disconnect the power terminal for 1-2 minutes and reconnect.

All other arising faults can be identified according to the error code, which appears on the panel.

## Characteristics

Names of parameters	Models		
	BINAR-5S BINAR-5S-TM	BINAR-5S (diesel) BINAR-5S-TM (diesel)	BINAR-5S-24-TM (diesel)
Heating output, kW	5±0.5		
Rated voltage, V	12		24
Operating voltage, V	9.5...16		20...30
Fuel type	Petrol (GOST P 51105)	motor diesel (GOST 305)	
Fuel consumption (max),	0.7	0.62	
Heating medium	Tosol, anti-freeze coolant		
Electric power input together with pump (maximum), W	42		
Start-up power input (100 s), W	122		120
Start-up mode	manual or automatic		
Duration of one operating	20...120		
Weight of the pre-heater with all accessories, kg, maximum	8		