

EN



# CHX WATER HEATER MATRIX

## User's manual

**Manufacturer:** AUTOTERM LLC

Paleju 72, Marupe, Latvia, LV-2167

**Warranty Department** [warranty@autoterm.com](mailto:warranty@autoterm.com)

**Technical Support** [service@autoterm.com](mailto:service@autoterm.com)

[www.autoterm.com](http://www.autoterm.com)

v09.2021

## CONTENTS

|                                     |    |
|-------------------------------------|----|
| INTRODUCTION .....                  | 3  |
| SAFETY INSTRUCTIONS .....           | 4  |
| LIABILITY .....                     | 6  |
| 1. GENERAL INFORMATION .....        | 6  |
| 2. OPERATION AND INSTALLATION ..... | 7  |
| 3. ELECTRICAL CONNECTION .....      | 10 |
| 4. TECHNICAL DATA .....             | 11 |
| 5. DIMENSIONS.....                  | 12 |

## INTRODUCTION

Dear Customer!

Thank You for choosing CHX water heater matrix! We are doing everything to make this product meet Your requirements, so its quality satisfies every customer.

The CHX water heater matrix is designed to be easy to install and to use, to ensure the best experience when it comes to controlling Your climate.

The CHX water heater matrix is compatible with all AUTOTERM FLOW heaters.



Please read carefully this manual before installing and operating the product.

This manual contains needful information in order to use this product correctly.

Disregard of these instructions can void the warranty of the product, lead to damage of product and/or property and be a risk to health.



If the product is handled and/or installed improperly, there is a possibility of a fire hazard and damage of property because of high temperatures and electrical components are being used. **That is why all safety precautions, operation and installation instructions must be observed.**

---

For other languages of this manual, please see [www.autoterm.com/manuals](http://www.autoterm.com/manuals).

## SAFETY INSTRUCTIONS



### **Risk to health and/or damage of product**

- The product may only be used for the purposes specified in this operation manual.
- DO NOT use the product in closed and/or poorly ventilated places (e.g., garage, workshop, etc.)
- Do not step on the heater or put any objects on it and in it.
- Do not put any body parts or items in to the fan of the product.
- Do not allow hot air to be blown directly at people, animals or heat sensitive objects.
- To avoid burns, do not touch the radiator core and the liquid hoses while the product is operating.



### **Risk of damage due electrical nature**

- Disconnect the product from the power supply before working on the product.
  - Do not connect/disconnect any wiring of the product while it is connected to the power supply or operating.
  - Do not connect the product to the power circuit of the vessel, when the engine is operating and there is no battery.
  - Do not use fuses rated differently from indicated on the electric circuit diagram.
-



### **Risk of fire and explosion**

- The heater is not designed for installation and use on any type of ADR transportation vehicle.
- The vehicle or space where the product is installed must be equipped with a fire extinguisher.
- Do not cover the product with clothing, pieces of fabric and so on, and do not place such objects in front of the front panel of the product.
- Do not use or install the product in places, where flammable vapors or gases or large amounts of dust may form and accumulate.
- Do not use or install the product in places, where flammable and/or explosive items or substances are stored.
- Avoid contact of any flammable objects with the product's liquid hoses.



### **Personnel certified by AUTOTERM is needed**

- In case of faults in the operation of the product, contact specialized repair organizations authorized by AUTOTERM.
-

## LIABILITY

---



IN THE CASE OF NON-COMPLIANCE with the requirements, the persons who installed the heaters assume all risks and any responsibility for the occurrence of adverse consequences and related damage resulting from installing and repairing by personnel not having AUTOTERM certification, and/or using non-original spare parts for repair.

---

In case of any problems, we strongly recommend to contact certified service centres. Contact information and location of certified service centres can be found at our website [www.autoterm.com](http://www.autoterm.com)

### 1. GENERAL INFORMATION

CHX matrix water heaters are intended for heating various confined spaces (e.g., drivers' cabin, living compartments, cargo hold etc.) of different vehicles and maritime transport and to maintain comfortable temperature for a long time in said spaces.

It is done by transferring the heat from the hot liquid to the ambient air. This heater matrix consists of radiator core, two axial blowers, aluminium frame and stainless-steel front plate.

Through this simple design its advantages are:

- compact size
- low onboard power consumption
- brushless blower motor
- stepless blower motor speed regulation (with the optional AUTOTERM FC9 controller)
- noiseless operation
- ideal solution for small boats, campervans and RV's

## 2. OPERATION AND INSTALLATION

The CHX heater matrix can be connected either to the vehicle engines cooling system or to an AUTOTERM FLOW series heater. Hot liquid, heated by the vehicle engine or liquid parking heater, circulating through the radiator core and fresh air pushed by blower through the radiator core gets heated.

The CHX can be turned on/off via additional switch, CHM36 thermostat, relay, AUTOTERM FC9 controller or simultaneously with AUTOTERM FLOW heater. AUTOTERM FC9 controller allows to control the fan speed manually. Without the controller fan works with maximum speed.

### **Reliable operating conditions:**

- Product must be in a ventilated place.
- This product is intended for indoor use only. Humidity cannot exceed 65%.
- Operating temperature have to be between -10°C and +80°C.
- Cooling fluid must be an antifreeze and anticorrosive for copper and aluminium.

### Successful installation requirements:

- Make sure there is enough space between the wall and frame for the liquid hoses.
- CHX matrix can be installed only horizontally. Hot liquid supply hose must be connected to the upper outlet of the radiator core to ensure proper circulation (*see Fig. 1*).
- Use only rubber liquid hoses with inner diameter of 16mm.
- Make sure there are no restrictions of the air flow through the heater matrix.
- If the liquid hoses are ran through walls, heat insulation is recommended. The temperature of the hoses can reach +80°C.



Do not replace the black screws with different size or length to avoid damaging the radiator core.

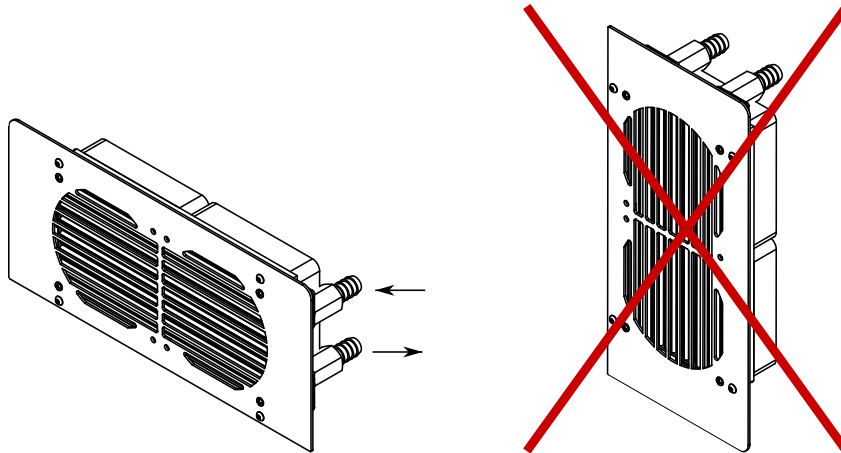


Fig. 1 - Installation positions



**Installation process (see Fig.2):**

- 1) Unscrew the four silver stainless steel hexagon screws from the front plate
- 2) Remove the frame
- 3) Fasten the frame to an even horizontal or vertical surface using the mounting holes (screws are not included in the supply kit)
- 4) Make sure to tighten the clamps of liquid pipes, to avoid leaks.
- 5) Place the radiator core inside the frame
- 6) Fasten the front plate to the frame with four hexagon screws
- 7) Make sure all screws are tightened.

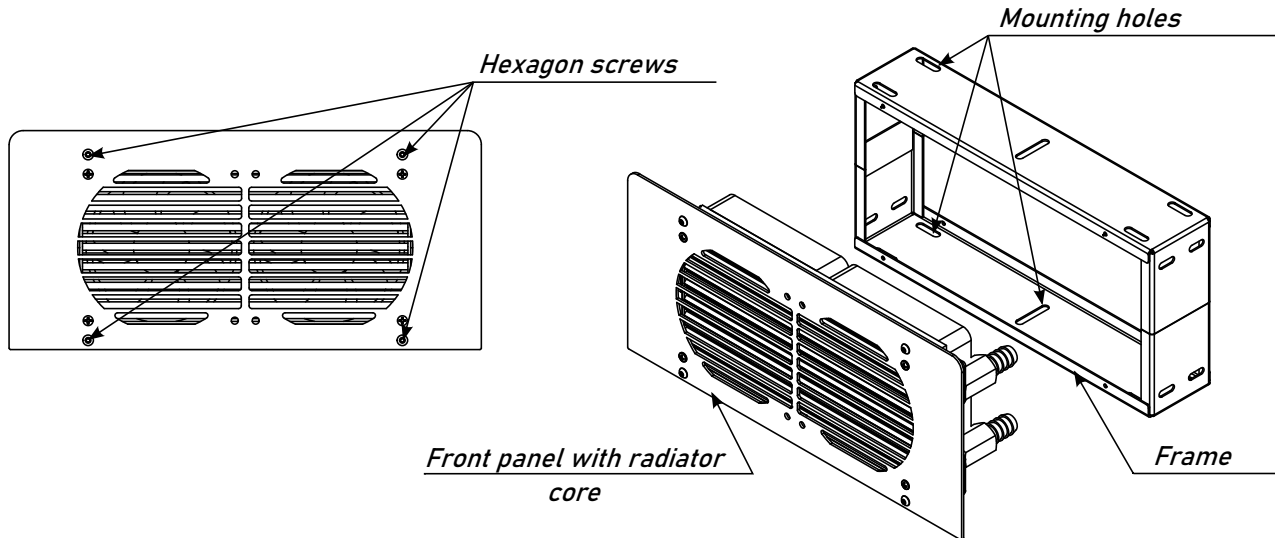


Fig. 2 - CHX structure

### 3. ELECTRICAL CONNECTION

The fan wiring is equipped with FC2 connector for direct connection to the CHM36 thermostat or AUTOTERM FC9 fan speed controller.

To connect the fans directly to different kind of power source or switch, cut off the FC2 connector and connect the wires according the connection diagram (see Fig.3), where “M” is fan motor.

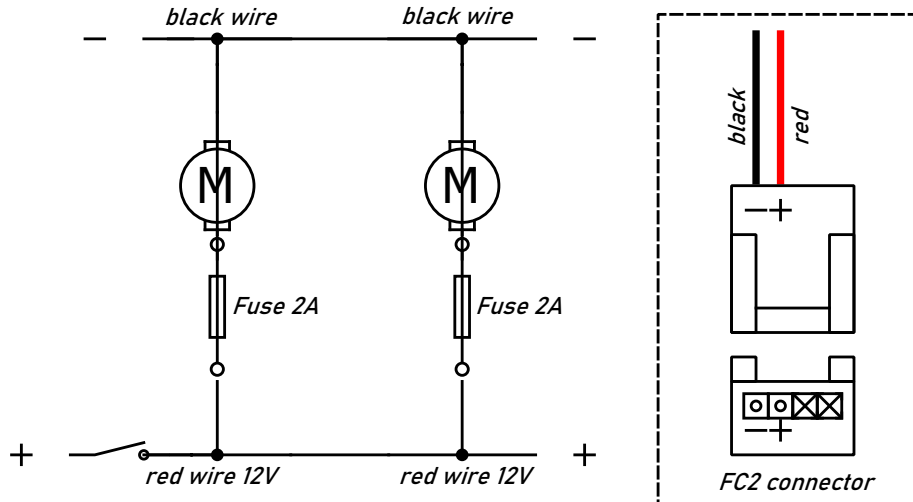


Fig. 3 - Electrical connection diagram

## 4. TECHNICAL DATA

|                               |                        |
|-------------------------------|------------------------|
| Rated voltage:                | 12V                    |
| Operating voltage range:      | 6-14V                  |
| Electrical power consumption: | 14W                    |
| Weight:                       | 2.4kg                  |
| Operating temperature range:  | -10 C deg. + 80 C deg. |
| Air flow:                     | 140 m <sup>3</sup> /h  |
| Airflow static pressure:      | 7.1mm H <sub>2</sub> O |
| Rated blower motor speed:     | 3100 RPM +/- 10%       |
| Noise level:                  | 44.5 dB                |
| Heating capacity:             | 1400 Watts             |

## 5. DIMENSIONS

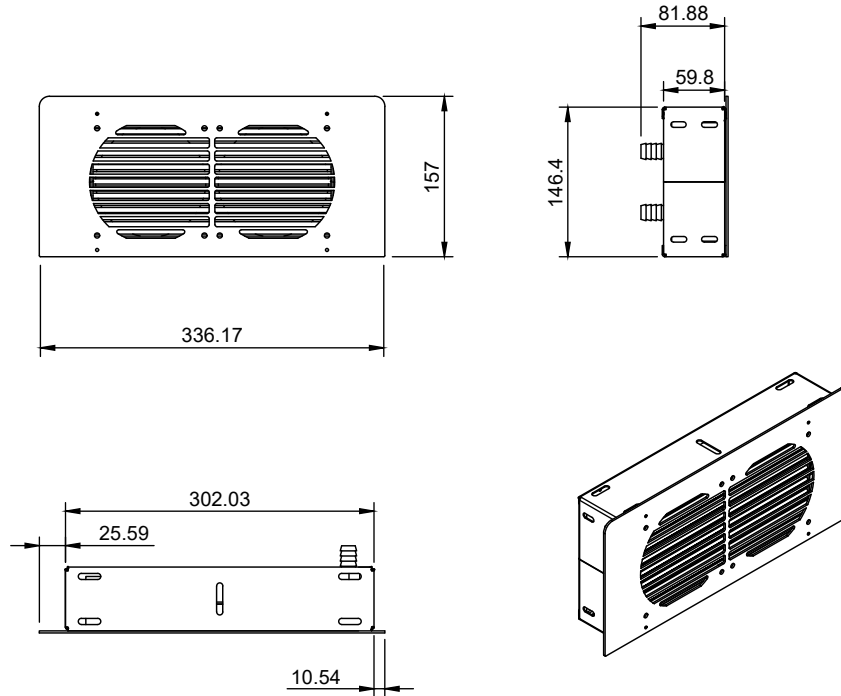


Fig. 4 - Dimensions of CHX



**autoterm**

air and liquid heaters