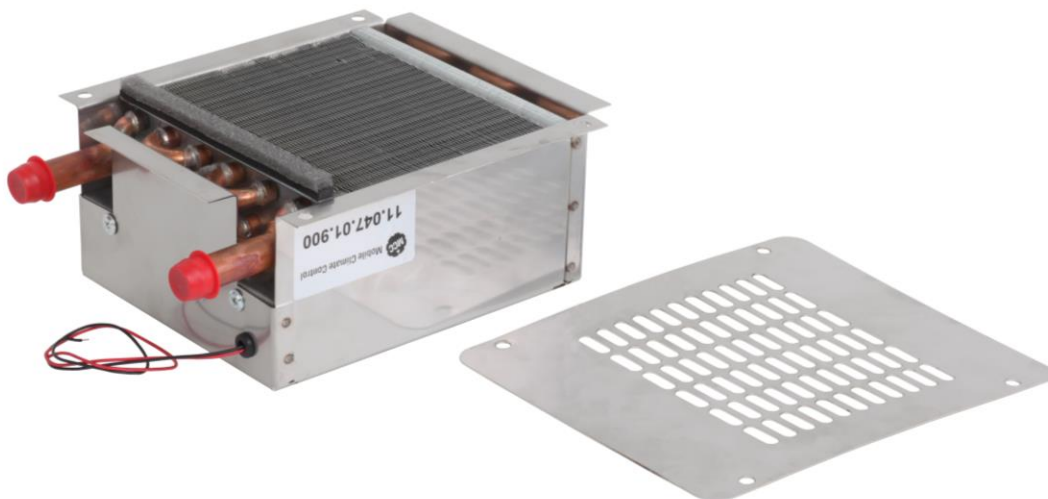


Instruction for use

Marine Defroster 2 kW



This instruction for use is structured according to the European Commission COUNCIL RESOLUTION (98/C 411/01) of 17 December 1998 on operating instructions for technical consumer goods.

Albin Pump Marine defrosters are designed and manufactured to the highest standards of reliability and safety.

The content of this manual is in accordance with the design and construction of the equipment at the time of publishing. Albin Pump Marine reserves the right to introduce design modifications without prior notice.

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1. Introduction

1.1. Intended use of product

This equipment is intended for use in marine environment, incorporated in marine vessels. The equipment is not designed for use and operation in explosive environments.

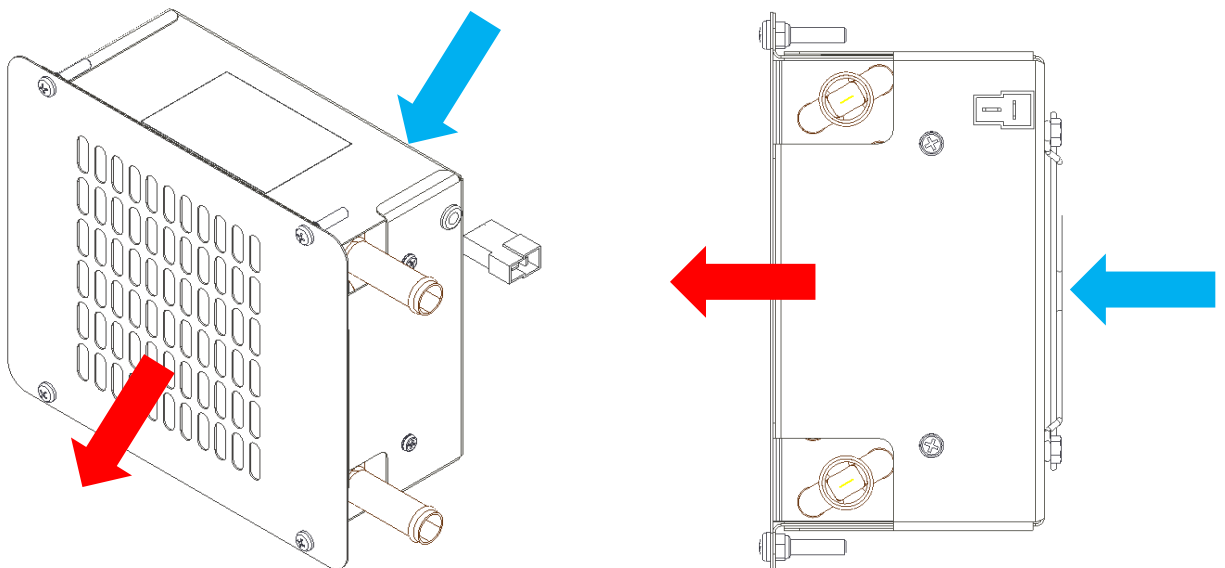
This product has been designed and manufactured for the purpose to provide heated air during normal working conditions.

1.2. General description of product

This product comprises mainly of metal casing, heat exchanger and fan. Detailed information about ingoing components can be found in drawings and schematics. Purpose of the product is to heat up air passing through the unit and distribute it through air ducts to desired locations.

1.3. Main function of product

Main function of the product is to heat and circulate the air by means of heat exchanger connector to water-based system and electrical fan. Air is sucked through inlet located back of the product and ejected through grill outlet located in front of the product.



2. Safety information



This product must only be operated, maintained and repaired by personnel who have been informed of the residual risks involved in operating it, and who have been warned of the risks involved if not following the instructions in this manual.

No modifications to the product are allowed without consulting the manufacturer.

Read and understand the manual before using this equipment!



Hazardous voltage may shock and burn. The power supply must be securely turned off before any maintenance is performed inside the electrical powered equipment on the product.


Familiarize yourself with the proper operation of any service equipment you will be using. Always read the manual enclosed with the equipment, and always follow the manufacturer instructions. Failure to do so, could cause personal injury or damage to your equipment. Never perform any maintenance or service on your equipment before consulting authorized service personnel.

Always unplug unit before any maintenance.

Always use appropriate protective equipment, wear goggles and gloves.

Always work in pairs. Never work on the equipment alone.

2.1. Warnings


	Do not perform any work on the system unless power is turned off!
	Do not put body parts or clothes etc. into fan's rotating parts, unless power supply is disconnected!
	Immediately turn of the system in case of any suspicion of malfunction!

3. Technical data

Parameter	Value	
Part number	09-01-001 kit	09-01-002 kit
Description	Marine defroster 2 kW 12V	Marine defroster 2 kW 24V
Rated voltage	12 V DC	24 V DC
Rated heating performance (max)	2 kW (6800 BTU/h)	
Rated air flow (max)	80 m ³ /h (47 cfm)	
Rated power consumption (max)	0.8 A	0.6 A
Electrical connection (unit)	AMP Faston 6.3 2-pole female, AMP 180908	
Electrical connection (extension cable)	AMP Faston 6.3 2-pole female, AMP 180908	
Fuse (not included)	3 A	2 A
Water connection	16 mm (5/8") copper pipes with DIN 71550 bead	
Water pressure (max)	2.5 bar (36 psi)	
Air connection	Inlet	Single inlet 119 mm (4.7") with finger protection
	Outlet	Grill outlet 135 x 117 mm (5.3" x 4.6") (66 oblongs)
Noise level (max)	70 db(A)	
Dimensions	Width	218 mm (8.6")
	Height	185 mm (7.3")
	Depth	97 mm (3.8")
Weight	2.0 kg (4.4 lb)	

4. Handling

Product is packed in carton box and can be handled by any available means, due to its low weight and compact size.

	Wear protective gloves to prevent any cuts from possible sharp edges.
	Do not carry the product holding it either by the cable harness or by water connection tubes.

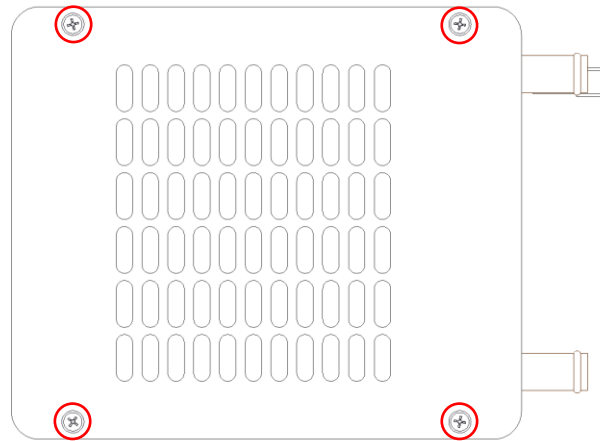
5. Preparing for use and installation

Unpack the equipment and start mounting the unit as described below. Also check with instructions from vessel manufacturer.

5.1. Defroster

Securely mount defroster in one of following positions (vertical or horizontal) by means of provided screws and nuts and 4 slots in defroster's casing.

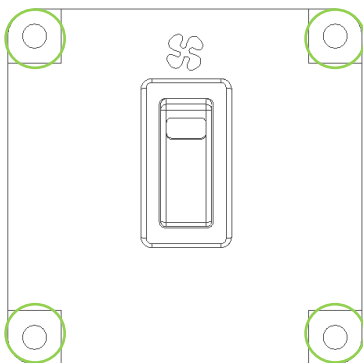
Defroster can be installed in a way, that vessel's wall is located between product's casing and front cover.



5.2. Control panel


Mount control panel in designated place by means of suitable screws or bolts (not included).

Control panel has four $\Phi 4.5$ mm (0.18") holes shown below.



5.3. Electrical connection

Connect the unit directly or by means of extension cable to the vessel's power supply with adequate voltage, using matching connectors (see section 3 for details). Connect control panel to extension cable.

	<p>Make sure that wires with cross section of at least 0.75 mm² (AWG 18) are used to connect the unit to power supply.</p>
	<p>Make sure that all connectors are properly connected and will not become loose during normal operation.</p>
	<p>Make sure defroster's electrical circuit is fused with appropriately sized fuse (see section 3).</p>
	<p>Make sure that defroster is connected to adequate power supply with voltage matching rated voltage of defroster. Incorrect connection can damage product.</p>

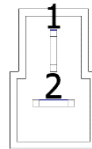
We recommend applying technical vaseline to additionally protect electrical connectors against moisture and dirt.

5.3.1. Pinning

Positions in each connector given in this instruction are matching markings on connectors and related manufacturer's documentation.

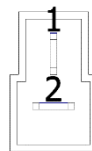
Main connector pinning is as follow:

1. Power (maximum speed)
2. Ground



Extension cable pinning is as follow:

1. Power
2. Ground



Control panel pinning is as follow (viewed from the back):

- C Voltage In
- 1. Ground
- 3. Voltage Out

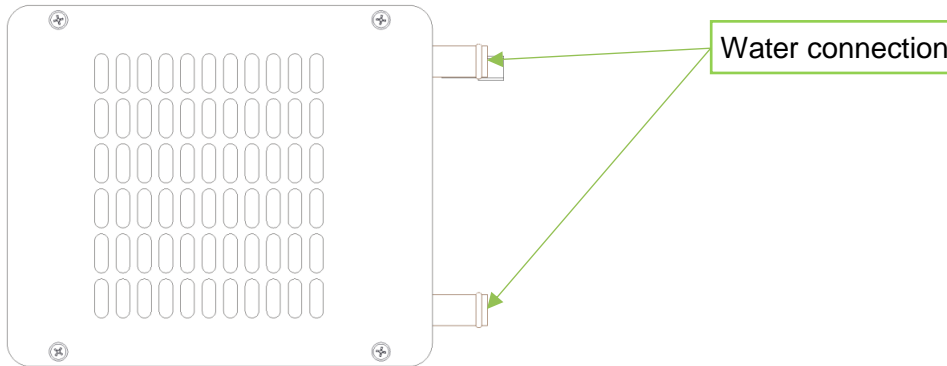


In case of reversed polarity (power and ground swapped) fan will not turn on.

Please also refer to wiring schematic for additional information.

5.4. Water connection

Product is connected to water-based system by means of two 5/8" (outer diameter, ≈ 16 mm) copper pipes with beads according to DIN 71550 standard.



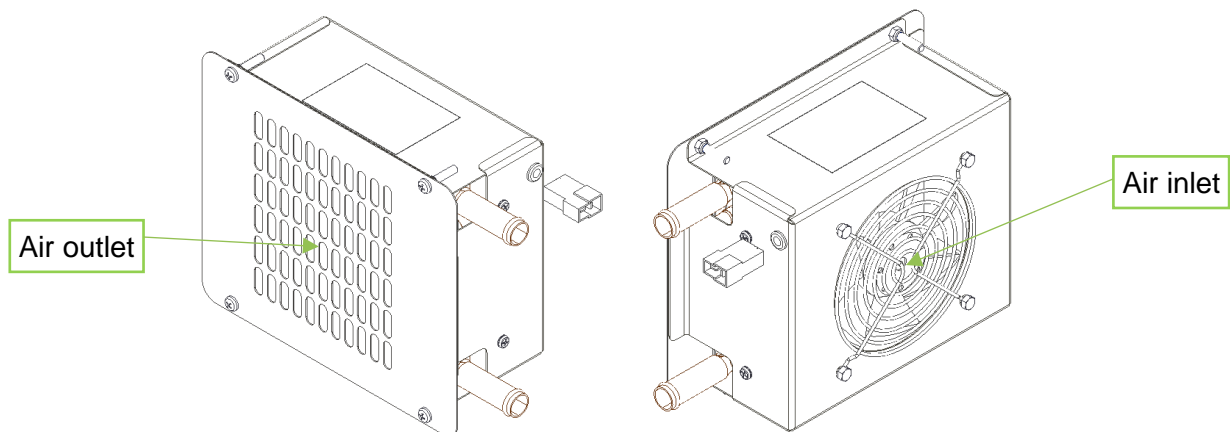
Appropriate set of hoses and hose clamps should be used to connect the product to the system. Make sure that hose clamps are mounted according to recommendation from manufacturer in order to avoid any leakages or malfunctions. Pay attention to proper tightening torque and positioning of clamps.

It does not matter which pipe will be used as inlet and which as outlet.

To ensure best performance, mount the product below water level in storage tank.

5.5. Air connection

Defroster does not have any connections for air hoses. Air is directly sucked from inlet side and ejected from outlet side.



It is recommended to install defroster in a way to ensure that inlet air is filtered. This will ensure longer product life and will prevent defroster from distributing dusty air.

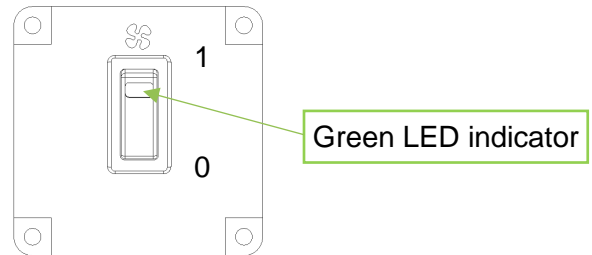
6. Operation

6.1. Control panel

Heater can be run only in maximum speed or turned off completely. Use rocker switch in control panel to turn product on or off.

Possible switch positions to select from:

- 1 – fan at maximum speed (LED on)
- 0 – fan turned off (LED off)



Refer to water valve manual or vessel manual to get instructions how to regulate fluid flow.

7. Maintenance

It is recommended to perform following check-up before and after each season:

- Control that fan works normally, does not make any unusual noise and does not vibrate more than normal
- Control electrical connectors and make sure that they did not become loose, damaged or rusted
- Control hose clamps and make sure they are securely holding hoses; if needed, re-tighten them, following clamp's manufacturer's recommendations

If any malfunction is noticed, please refer to Spare parts section for list of available spare parts or replace faulty product, if spare parts are not available for faulty component.

8. Troubleshooting

#	Malfunction	Possible cause	Action
1	Unusual noise from the fan motor	The fan motor might not operate correctly	Replace fan. Contact technical service!
2	Insufficient airflow	Obstruction: dust, dirt	Remove obstructions from inlets, air ducts or filter.
		Air leakage	Check duct connections and their condition (cracks). Contact technical service!
3	No airflow	Jammed fan fan	Remove obstruction.

#	Malfunction	Possible cause	Action
		No power supply to fan	Check electrical connections. Contact technical service!
		Broken blower or fan motor	Replace fan. Contact technical service!
4	Insufficient heating	Electrical connections	Check wiring and connections. Contact technical service!
		Broken electrical components	Contact technical service!

9. Consumables and spare parts

Following list of spare parts is suggested by Albin Pump Marine.

Albin Pump Marine may not be considered liable of possible damages caused from faulty spare parts, if the spare parts are:

- Not supplied by Albin Pump Marine
- Not correctly installed according to the drawings, instructions or in any way not installed following the rules of “good technique”
- Not been correctly used
- Unsecured

For other spare parts than listed below the replacement shall be made under approval of Albin Pump Marine. Otherwise any guaranties are not valid.

9.1. Spare parts

Following parts are available as spare parts.

APM P/N	Description	Note
09-66-015	Control panel, 12V	
09-66-016	Control panel, 24V	
09-66-019	Extension cable, 5 m (16.4 ft), 12-24V	

10. Packaging and product recycling

The packaging must be submitted to the nearest environmental recycling center.

The product cannot be treated as household waste. It shall instead be left at a collection site for recycling of electrical- and electronic components.

For further Recycling information, contact your local authorities, waste collection service.



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