

IGLU Aleut Max USER MANUAL VERSION: 1.8
UAB IGLU TECH 2024



USER MANUAL

GROUND SOURCE HEAT PUMPS **IGLU Aleut Max**



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INTRODUCTION

Thank you for purchasing an **IGLU TECH** heat pump!

Our team hopes you will be satisfied with your new device and enjoy efficient heating, hot water and practically free cooling for a long time.

In this manual you will find information on how to use and maintain the purchased ground source heat pump correctly. Keep this manual in a safe place for future reference.

IGLU heat pumps are designed and selected for each facility to ensure maximum heating, cooling and hot water preparation in the building.

IGLU heat pumps are equipped with a convenient control system that allows to control the functions of the heat pump, select individual settings and help to quickly find and eliminate faults.

It is important to pay attention to the safety requirements that must be observed in order not prevent injuries and enjoy the device for a long time.

CONCEPTS AND SYMBOLS

Water heater (boiler) is a device that performs a very important function – it prepares hot water.

Thermal disinfection (thermal shock) is a process in which the temperature of hot water in a water heater is raised to at least 66°C and maintained for at least 1 hour. Thermal disinfection is used to prevent legionellosis, i.e., to kill bacteria of the genus *Legionella*.

Glycol (heat carrier) – antifreeze that is used to fill up the heating system (outdoor circuit).

Heating water is a liquid harmless to the environment and health that is used to fill the indoor part of the heating system (internal circuit).

Outdoor circuit is a part of a ground source heating/cooling system located in the ground for the collection/transmission of underground thermal energy. It can be horizontal or vertical (geothermal wells).

COP – coefficient of performance. The instantaneous ratio of thermal energy produced to electricity consumed to produce that heat.

SCOP – seasonal coefficient of performance.

Electricity consumption – electricity consumption during the operation of the heat pump.

Thermal energy produced – heat energy produced during the operation of a heat pump.

IMPORTANT INFORMATION

The safety requirements are intended to protect consumers and ensure the long-term operation of the heat pump. By purchasing the device, users confirm that they undertake to use it in accordance with the manufacturer's requirements and rules. Users involved in the operation of the heat pump must be familiar with and comply with all safety requirements. Failure to follow these operating instructions will void the manufacturer's warranty and other guarantees and obligations. All work related to the transport, installation, start-up, activation and

maintenance of the heat pump must be carried out by qualified personnel, using suitable tools and test equipment. The work must be carried out in accordance with all safety requirements.

The copyright of these operating instructions belongs to IGLU TECH UAB.

Only a qualified person may transport, connect, activate and maintain the heat pump.

SAFETY INSTRUCTIONS

Storage conditions

The device must be stored in a **vertical position only**, so that the compressor is always at the bottom.

Installation and reconstruction

Only a heating system maintenance company may be authorised to install or reconstruct the device. Please contact to distributor.

Customer recommendation

Functional check. We recommend that you check the functioning of the device regularly, at least once a year*. Please contact to distributor.

Liability and guarantees:

The manufacturer provides 24 months warranty for the product if the user has not violated the technical requirements and conditions of use specified in the user manual.

The product warranty automatically is prolonged up to 60 months, under the following mandatory conditions:

- The 60 months warranty for the device is valid in cases the preventive maintenance is performed until 18 month from the moment when the heat pump is installed.
- Mandatory to connect or sustain connected the heat pump to our serve for remote monitoring;
- Mandatory to ensure a strong WI - FI without any restrictions;
- Not violated the technical requirements and operating conditions specified in the user manual.

If the heat pump does not operate in proper conditions or is not used properly, the present rules and requirements are not followed or the checks are not performed, the manufacturer shall not bear liability for the operation of the product. The heat pump operator must take precautions to prevent accidents and injuries to bystanders. The user is responsible for the safety of the heating system and compliance with environmental protection requirements.

If a fault is detected, it is necessary to react promptly, within a reasonable time and as provided in this user manual, because failure to rectify a fault in a timely manner may result in other faults or damage.

If the fault or other actions were carried out by an unqualified worker and in prejudice to the rules, the manufacturer cannot be held liable for the consequences and the warranty obligations may no longer apply.

The warranty does not apply to normal wear and tear, external damage due to improper maintenance or negligence.

SAFETY

The device is safe to use as intended. The construction and design of the device comply with all safety regulations. Prior to starting work, any person involved must read and be familiarised with the operating instructions. This also applies if the person concerned has already worked on such or similar equipment or has been trained by the manufacturer. Any person carrying out installation work must meet the health and safety requirements. This is especially true when using personal protective equipment.



DANGER!

Danger of fatal injuries due to electric shock!

The electrical connection may only be installed by a qualified electrician. Prior to opening the device, disconnect the system from the power supply and prevent it from being switched on again!



WARNING!

Work on the device and its components may only be carried out by qualified specialists (heating, refrigeration, coolant technicians and electricians).



WARNING!

Observe the safety signs on and inside the device.



WARNING!

The unit contains coolant!

Which acutely toxic, having auto ignition temperature.

If the coolant leaks, it poses risk to people and the environment, therefore, you must:

- turn off the system;
- make sure the installation room is well ventilated;
- inform the manufacturer's customer service.

ATTENTION!



Do not use pure water in the outdoor circuit.

ENVIRONMENTAL PROTECTION

Environmental protection is a priority of IGLU TECH UAB. Product quality, cost-efficiency and environmental protection are equally important to us. Therefore, we strictly adhere to environmental requirements. In order to protect the environment and take into account financial possibilities, we use the best technologies and materials in our production.

Packaging. When designing packaging, we take into account the countries' local waste recycling systems, which ensure optimal reuse. All packaging materials are environmentally friendly and recyclable.

Disposal. Obsolete devices contain recyclable materials. The structural elements can be easily disassembled. The structural elements must be sorted for processing and recycling.

Glycol (antifreeze mixture) should not be discarded into the drains. Collect glycol and dispose of properly in accordance with applicable regulations, standards and directives.

IN CASE OF FAILURE

If the illuminated IGLU logo on the front panel, please contact to product distributor immediately and report any error by specifying:

- Date of purchase of the device;
- Error that occurred;
- Environmental conditions (indoor and hot water tank temperature);
- Serial number of device. This information is placed on the product label code.

PURPOSE

Ground source heating is an alternative building heating system that uses free, underground heat. With the help of a ground-to-water heat pump, this ground source energy is extracted and used for heating, cooling and hot water preparation in buildings.

Advantages of IGLU Aleut Max heat pumps

- Uses inexhaustible and ecological underground energy
- Next-generation technologies and solutions ensure maximum efficiency and minimum cost
- One device performs three functions – heating, cooling and hot water preparation

HOW DOES A GROUND SOURCE HEAT PUMP WORK?

The principle of operation of a ground source heat pump is similar to that of a refrigerator. Only in this case cold output is directed outdoor or into soil, and the heat to the household.

The liquid (glycol) circulating in the outdoor circuit is heated by the heat accumulated in the ground, lake or groundwater. As it flows through the heat pump, the liquid enters another closed system. It contains a coolant called freon (refrigerant), which turns into gas at very low temperatures. The high-pressure compressor greatly increases the temperature of the gaseous freon. The condenser supplies heat to the home heating system and at the same time the freon becomes liquid again, ready to transform into gas again and store more thermal energy.

PRODUCT PACKAGING AND TRANSPORTATION

IMPORTANT! After purchasing a heat pump:

- Inspect the delivered product for external damage incurred during delivery;
- In the event of delivery defects, submit a claim to the company that sold the device immediately.

The heat pump may only be transported and stored in an upright position. The device can only be temporarily tilted, not laid down. The device can be stored at a temperature no lower than -10°C.

SELECTION OF THE INSTALLATION PLACE

- When choosing the place of installation of the heat pump, mind that the heat pump produces a certain level of noise (see, “*Technical data according to European Commission Regulation No 813/2013*”).
- The device must be mounted on a flat and stationary surface with a permissible load of at least 300 kg/m². Minor surface irregularities can be compensated by adjusting the feet of the device.
- The ambient temperature near the heat pump must be between 10°C and 35°C, and the relative humidity must not exceed 80%.
- There must be no aggressive chemicals in the environment.
- The heat pump should not be installed close to walls; the front of the unit should always be accessible (see, *Installation Manual “Heat pump installation drawing”*).
- A drainage system must be provided in the room where the unit is installed.
- Please take note and adhere to the applicable local standards, guidelines, and regulations, particularly concerning the minimum required volume based on the refrigerant capacity of the heat pump system (EN 378-1).

Refrigerant	Limit
R 407 C	0,31 kg/m ³
R 410 A	0,44 kg/m ³

$$\text{Minimum room volume} = \frac{\text{Refrigerant capacity [kg]}}{\text{Limit [kg/m}^3\text{]}}$$

LOGO ILLUMINATION

The IGLU Aleut Max heat pump has an illuminated IGLU logo on the front panel. The logo can be illuminated in three different colours – blue, yellow or red. Each of them has a corresponding meaning:

- **blue** – heat pump on, normal operation;
- **yellow** – warning about non-critical failure of the heat pump or slight deviation of parameters from the norm; the heat pump continues to operate, but it is necessary to react promptly, within a reasonable period of time;
- **red** – heat pump failure, operation is stopped.



1 dw. Logo illumination

CONTROL PANEL

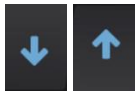
With the help of the control panel, the basic settings of the heat pump parameters can be changed, observed or monitored such as:

- The state of heat pump;
- Buffer tank temperature;
- Outdoor temperature;
- Hot water temperature;
- Alarms, warnings



2 dw. Control panel parameters

KEYS DESCRIPTION AND THEIR PURPOSE

KEY	KEY DESCRIPTION	KEY PURPOSE
	Parameter selection key (ENTER key)	Pressing the key switches from one parameter to another
	Parameter control key	For reducing and increasing the values of the parameters

1 table. Keys and their purpose

THE PARAMETERS CHANGE



3 dw. Changing the parameters

The heat pump is controlled by the buttons on the right side. In order to change a certain parameter, press the

parameter selection key  until the flashing cursor on the screen has moved to the desired parameter.

To edit the value, i.e. increase or decrease - press the decrease key  or increase 

INFORMATION MESSAGES - "ALARM/WARNING"



4 dw. Information messages

WARNING - when the information message: "**Warning**" appears (list of errors and faults bellow), it informs about minor malfunctions of the heating system, parameters deviations. Such warnings are not critical, the system can continue to operate but still has to be reacted and resolved it.



If in the screen appears information "**ALARM**" – as soon as possible call to the service. Don't operate the heat pump!

LIST OF SYSTEM ERRORS AND FAULTS

ITEM	POSSIBLE CAUSE	ACTION
Incoming glycol temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Outgoing glycol temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Outgoing heating water temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Incoming heating water temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Water heater temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Room temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Outdoor temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
LP low pressure	Low refrigerant pressure during operation.	Clean the outdoor circuit filter. Check that the outdoor circuit pump is operating properly. Check for air in the outdoor circuit system. Possible freon deficiency.
	Low glycol flow in the outdoor circuit.	Check the heating water pressure in the outdoor circuit, rate 1-2 bar. Clean the dirt trap. If the problem persists, contact customer service.
HP high pressure	High refrigerant pressure during operation.	Clean the internal circuit filter. Check that the internal circuit pump is operating properly. Check for air in the internal circuit system.
	Low heating water flow in the internal circuit.	Check the heating water pressure in the internal circuit, rate 1-2 bar. Clean the dirt trap. If the problem persists, contact customer service.
Compressor thermal protection	Overvoltage, low voltage.	Contact customer service.

Voltage and phase control	Bad phase sequence. One or two phases are missing.	When the problem is resolved, the error disappears automatically.
Hot water preparation time too long	Three-way valve failure.	Contact customer service.
Large temperature difference in the outdoor circuit	Low glycol flow in the outdoor circuit.	Clean the outdoor circuit filter.
		If the problem persists, contact customer service.
Large temperature difference in the internal circuit	Low heating water flow in the internal circuit.	Clean the internal circuit filter.
		If the problem persists, contact customer service.
Tank temperature sensor	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
Communication between controllers	Control unit failure.	Contact customer service.
Low pressure sensor	Pressure sensor failure.	Contact customer service.
High pressure sensor	Pressure sensor failure.	Contact customer service.
Exhaust temperature sensor	Temperature sensor failure.	Contact customer service.
Valve controller failure	Control unit failure.	Contact customer service.
Solar collector sensor	Sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.

Valve configuration	Incorrect EEV valve configuration.	Contact customer service.
FC not ready	The frequency converter is not ready for operation. E.g., oil return to the compressor.	Contact customer service. When the problem is resolved, the error disappears automatically.
External alarm	External failure (DI). If it is provided that the heat pump can be stopped from an external signal.	Eliminate the external fault signal.
Possible refrigerant leakage	Possible refrigerant leakage.	Contact customer service.
Blocking of the outdoor circuit circulation pump (jamming)	Blocking of the outdoor circuit circulation pump (jamming).	Clean the intake or supply nozzle of the outdoor circuit pump. If the problem persists, contact customer service.
Electrical failure of the outdoor circuit circulation pump	Electrical failure of the outdoor circuit circulation pump.	Contact customer service.
High temperature in the outdoor circuit circulation pump electronics	High temperature in the outdoor circuit circulation pump electronics.	If the operating mode was extreme: after switching off the heat pump, wait for the outdoor circulation pump to cool down. If the problem persists, contact customer service.
Operation failure of the outdoor circuit circulation pump	Operation failure of the outdoor circuit circulation pump.	Contact customer service.
Blocking of the internal circuit circulation pump (jamming)	Blocking of the internal circuit circulation pump (jamming).	Clean the intake or supply nozzle of the internal circuit pump. If the problem persists, contact customer service.
Electrical failure of the internal circuit circulation pump	Electrical failure of the internal circuit circulation pump.	Contact customer service.
High temperature in the indoor circuit circulation pump electronics	High temperature in the internal circuit circulation pump electronics.	If the operating mode was extreme: after switching off the heat pump, wait for the internal circulation pump to cool down. If the problem persists, contact customer service.
Operation failure of the internal circuit circulation pump	Operation failure of the internal circuit circulation pump.	Contact customer service.
Electric heater protection has tripped	Electric heater protection has tripped.	Contact customer service.
Thermal disinfection failed	The required disinfection temperature has not been reached for too long.	Contact customer service.
Risk of freezing	The temperature dangerously close to the possible freezing point.	In order not to damage the device, piping and heating system, measures must be taken to raise the ambient temperature.

Supply temperature too high	Supply temperature too high.	Contact customer service.
Controller communication failure	The connection between the controller modules is lost.	Contact customer service.
Internal circuit circulating pump power measurement failure	Fault in the power measurement chain of the internal circuit's circulating pump.	Contact customer service.
Outdoor circuit circulating pump power measurement failure	Fault in the power measurement chain of the outdoor circuit's circulating pump.	Contact customer service.
Compressor frequency converter failure	Compressor frequency converter failure. Details are displayed on the frequency converter screen.	Contact customer service.
Internal circuit flow sensor failure	Internal circuit pressure sensor is defective.	Contact customer service.
Failure of analogue measurement from frequency converter	Measurement failure of the frequency converter's power measurement circuit.	Contact customer service.

INFORMATION CONCERNING THE EU DECLARATION OF CONFORMITY



The IGLU Aleut heat pumps meet the basic and other essential requirements of the European Union directives and standards and are CE marked. The full text of the EU declaration of conformity can be provided by distributors or importers.