



# USER MANUAL

GROUND SOURCE HEAT PUMPS IGLU Aleut



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## INTRODUCTION

Thank you for purchasing an **IGLU Aleut** ground source 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. The device can also be controlled via a mobile application. All you have to do is download the user-friendly **IGLU Home** app (see, page 7).

**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.

### “WARNING!” SYMBOL

Warning of minor heating system faults or parameter deviations. Errors are not critical, the system can continue to operate.

### “ATTENTION!” SYMBOL

System failure warning. The heat pump is stopped.

## 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.

### Customer recommendation

**Functional check.** We recommend that you check the functioning of the device regularly, at least once a year\*. Contact us for functionality check by e-mail [help@iglutech.eu](mailto:help@iglutech.eu). The extended warranty for the device is valid even in cases where preventive maintenance is not performed regularly.

### Liability and guarantees:

The manufacturer undertakes to rectify the device free of charge within a period of two years, provided that the user has not violated the technical requirements and operating conditions specified in the user manual.

The product has a 24-month warranty upon submission of the purchase documents.

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

- there is an additional cost of 5% of the pump price (payable immediately at the time of ordering);
- it is mandatory to connect the pump to our server for remote monitoring.

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!

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 or the IGLU Home mobile application reports system errors (see, page 8), please contact us immediately and report any error by specifying:

- date of purchase of the device;
- error that occurred;
- environmental conditions (indoor and hot water tank temperature).

**You can register the heat pump failure using “Iglu home” mobile application.**

In case of failure please contact with nearest Iglu Tech equipment distributor.

## 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 heat pumps

- Uses inexhaustible and ecological underground energy
- Next-generation technologies and solutions ensure maximum efficiency and minimum cost
- One device performs three functions – room heating, cooling and hot water preparation
- Comfort at home can be controlled from anywhere in the world

## 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/m<sup>2</sup>. 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 <sup>3</sup>
R 410 A	0,44 kg/m <sup>3</sup>

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

## LOGO ILLUMINATION

The IGLU Aleut 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.






## IGLU HOME MOBILE APPLICATION



IGLU Aleut ground source heat pumps are controlled via the IGLU Home app. It allows to control the device and monitor the operating parameters of the heating system, electricity consumption, thermal energy produced and instantaneous or seasonal coefficient of performance in real time.



### INSTALLATION OF THE APPLICATION

**Download and install the IGLU Home app.**

The iOS version is available [here](#).

The Android version is available [here](#).

You can also download the app by scanning the QR codes on page 8.



App Store



Google Play

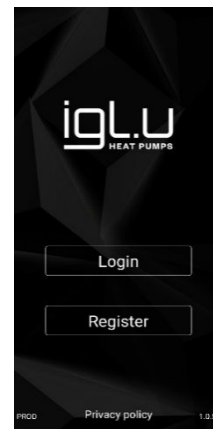
### LOGIN AND REGISTRATION

When you open the IGLU Home app for the first time, you will need to log in or register by clicking the **Login** or **Register** buttons (*Window 1*).

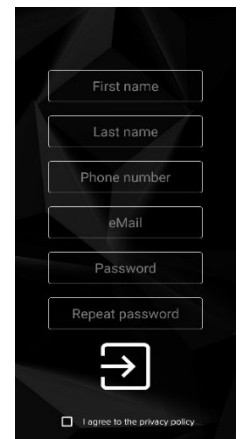
**When the registration window opens, enter the following information** (*Window 2*):

- Name;
- Surname;
- Phone number;
- E-mail address;
- Password.

Please also read the [Privacy Policy](#) and indicate that you agree to the terms specified.



*Window 1*



*Window 2*



To complete the registration, click the button:



When the login window opens, enter the following information

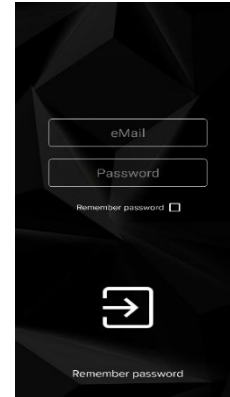
(Window 3):

- E-mail address;
- Password.

You can log in by clicking the button:



If you forgot your password, click **Remember password**.



Window 3



Window 4

## ADDING A NEW DEVICE

Upon successful registration, you will be directed to the Add New Device window (Window 4), where you need to:

- Enter the address of installation of the heat pump;
- Give the device a name to make it easier to distinguish between the devices in use;
- Enter the serial number according to the scanned QR code (you will find the QR code on the device).

After entering this information, click **“ADD DEVICE”**.

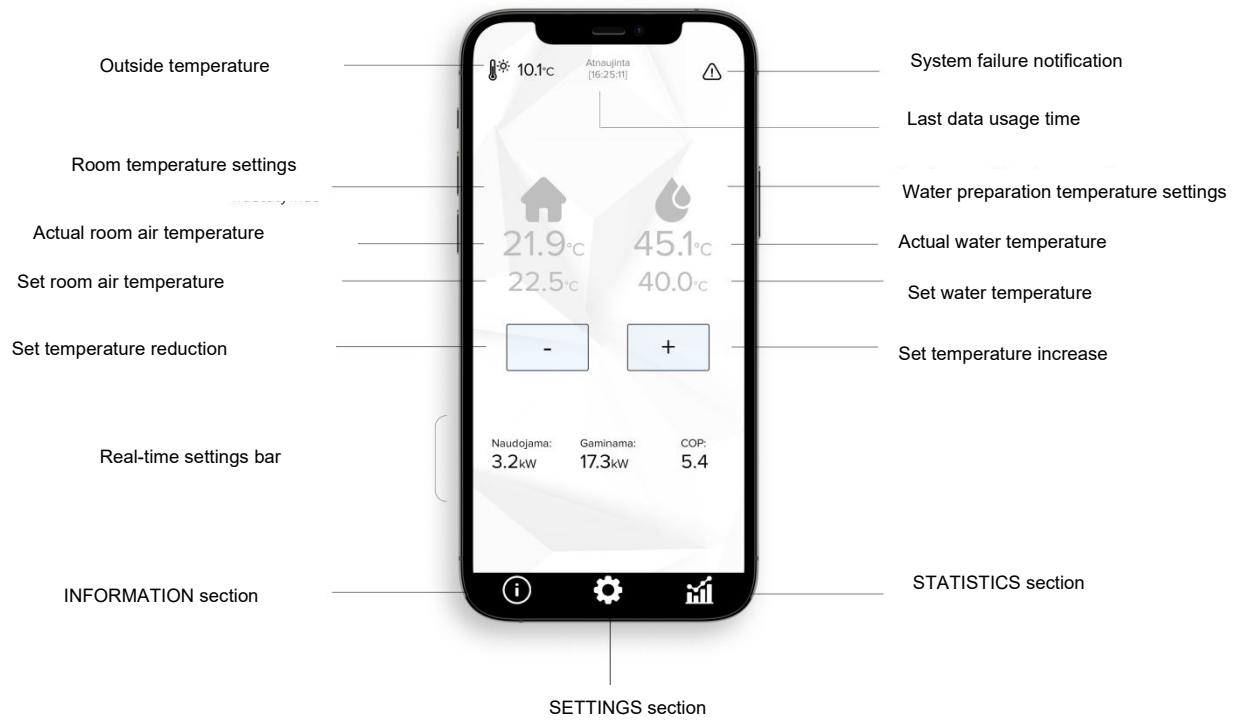
## MAIN APPLICATION WINDOW

When you log in to the application, you will see the following information at the top of the main window:

- outside temperature;
- last data update time (data is automatically updated every 10 seconds); data can also be updated manually by swiping a finger from top to bottom;
- system error and failure notifications.

In the real-time settings bar, you will see:

- how much kW of electricity is being used;
- how much kW of heat energy is being produced;
- what is the coefficient of performance (COP) (the ratio of thermal energy produced to electricity consumed to produce that heat).



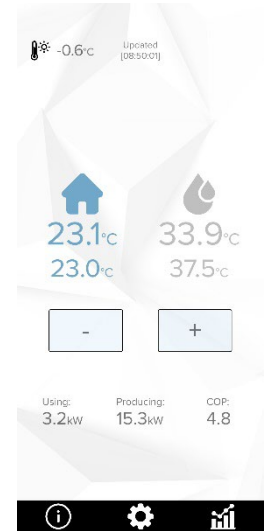
**IMPORTANT!**

The IGLU Home application is supported by the latest versions of iOS and Android OS, but may not work properly with some mobile phone models. E.g.: OnePlus, Xiaomi. This list is not exhaustive.

## TEMPERATURES SETTINGS

In the main window you can set the desired room air and hot water temperatures (*Window 5*). This is carried out at follows:

- by clicking on one of the symbols, the settings of which you want to change (the activated function turns blue);
- use +/- buttons to increase or decrease the indoor air or hot water temperature;
- the numbers above indicate the current temperature and the numbers below indicate the set temperature (set for the system);
- the settings can be “locked” by clicking on the symbol again.



*Window 5*

## SYSTEM ERROR AND FAILURE INDICATIONS

If the symbol in the right corner of the main window is flashing or – the system indicates a system error or fault. In the event of a system fault (bright triangle), the heat pump will continue to operate, but every effort should be made to rectify the fault. In the event of a system fault (dark triangle), the heat pump operation will stop.

By clicking on the flashing symbol you will be redirected to the **Active Messages** window (*Window 6*), where you will see a list of system errors and faults. The full list of the meanings of these messages and possible causes is provided below, as well as instructions on the actions the user should take.

When a non-critical issue is resolved, the error message disappears automatically (without confirmation). After of elimination of other errors or a system failure, they can be confirmed from the app by pressing button "Reset" (window 6) or local control panel. See, section Control Panel on page 18. The fault is confirmed by pressing the button "Reset" on the control panel for >4 seconds (window 2)



*Window 6*

## LIST OF SYSTEM ERRORS AND FAULTS

ITEM	POSSIBLE CAUSE	ACTION
<b>Incoming glycol temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Outgoing glycol temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Outgoing heating water temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Incoming heating water temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Water heater temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Room temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Outdoor temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>LP low pressure</b>	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.
<b>HP high pressure</b>	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.
<b>Compressor thermal protection</b>	Overvoltage, low voltage.	Contact customer service.

<b>Voltage and phase control</b>	Bad phase sequence. One or two phases are missing.	When the problem is resolved, the error disappears automatically.
<b>Hot water preparation time too long</b>	Three-way valve failure.	Contact customer service.
<b>Large temperature difference in the outdoor circuit</b>	Low glycol flow in the outdoor circuit.	Clean the outdoor circuit filter.
		If the problem persists, contact customer service.
<b>Large temperature difference in the internal circuit</b>	Low heating water flow in the internal circuit.	Clean the internal circuit filter.
		If the problem persists, contact customer service.
<b>Tank temperature sensor</b>	Temperature sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Communication between controllers</b>	Control unit failure.	Contact customer service.
<b>Low pressure sensor</b>	Pressure sensor failure.	Contact customer service.
<b>High pressure sensor</b>	Pressure sensor failure.	Contact customer service.
<b>Exhaust temperature sensor</b>	Temperature sensor failure.	Contact customer service.
<b>Valve controller failure</b>	Control unit failure.	Contact customer service.
<b>Solar collector sensor</b>	Sensor or connection failure.	Contact customer service.
		When the problem is resolved, the error disappears automatically.
<b>Valve configuration</b>	Incorrect EEV valve configuration.	Contact customer service.
<b>FC not ready</b>	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.

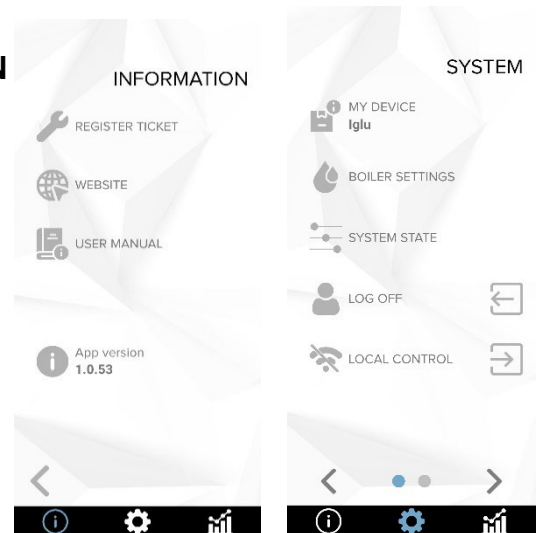
<b>External alarm</b>	External failure (DI). If it is provided that the heat pump can be stopped from an external signal.	Eliminate the external fault signal.
<b>Possible refrigerant leakage</b>	Possible refrigerant leakage.	Contact customer service.
<b>Blocking of the outdoor circuit circulation pump (jamming)</b>	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.
<b>Electrical failure of the outdoor circuit circulation pump</b>	Electrical failure of the outdoor circuit circulation pump.	Contact customer service.
<b>High temperature in the outdoor circuit circulation pump electronics</b>	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.
<b>Operation failure of the outdoor circuit circulation pump</b>	Operation failure of the outdoor circuit circulation pump.	Contact customer service.
<b>Blocking of the internal circuit circulation pump (jamming)</b>	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.
<b>Electrical failure of the internal circuit circulation pump</b>	Electrical failure of the internal circuit circulation pump.	Contact customer service.
<b>High temperature in the indoor circuit circulation pump electronics</b>	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.
<b>Operation failure of the internal circuit circulation pump</b>	Operation failure of the internal circuit circulation pump.	Contact customer service.
<b>Electric heater protection has tripped</b>	Electric heater protection has tripped.	Contact customer service.
<b>Thermal disinfection failed</b>	The required disinfection temperature has not been reached for too long.	Contact customer service.
<b>Risk of freezing</b>	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.
<b>Supply temperature too high</b>	Supply temperature too high.	Contact customer service.
<b>Controller communication failure</b>	The connection between the controller modules is lost.	Contact customer service.
<b>Internal circuit circulating pump power measurement failure</b>	Fault in the power measurement chain of the internal circuit's circulating pump.	Contact customer service.

<b>Outdoor circuit circulating pump power measurement failure</b>	Fault in the power measurement chain of the outdoor circuit's circulating pump.	Contact customer service.
<b>Compressor frequency converter failure</b>	Compressor frequency converter failure. Details are displayed on the frequency converter screen.	Contact customer service.
<b>Internal circuit flow sensor failure</b>	Internal circuit pressure sensor is defective.	Contact customer service.
<b>Failure of analogue measurement from frequency converter</b>	Measurement failure of the frequency converter's power measurement circuit.	Contact customer service.

## INFORMATION SECTION

Clicking on the **Information** icon on the bottom bar will take you to the information window (*Window 7*) where you can:

- register system failure;
- visit the manufacturer's website;
- access this User Manual.



*Window 7*

*Window 8*

## SETTINGS SECTION

Clicking on the **Settings** icon on the bottom bar will take you to the **System** window (*Window 8*), where you will see:

- the name of the currently selected device;
- water heater settings;
- system status;
- disconnect function.

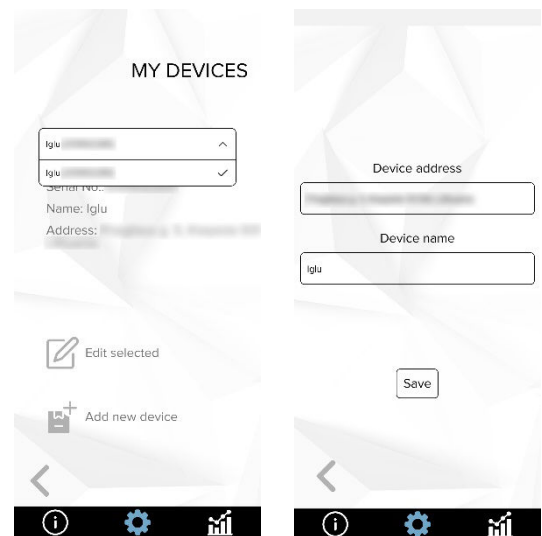
You can move to the next window by pressing “<” and return by pressing “>”.

After selecting **My Device**, in the window that opens (*Window 9*) you can:

- see the name of the currently selected device and select another device from the list of devices;
- see information related to the device (serial number, name, address at which the heat pump is installed);
- edit the information of the selected device;
- add new device.

Clicking the **Edit Selection** button will take you to the device edit window (*Window 10*) where you can update:

- device address;
- name of the device.



*Window 9*

*Window 10*

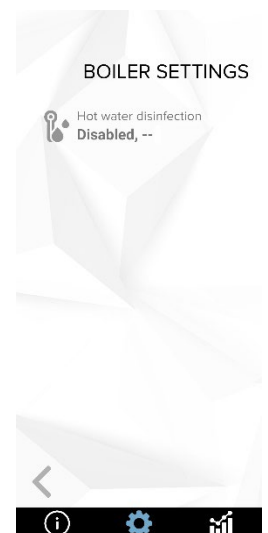
After making adjustments, click the **Save** button.

In the **SETTINGS** section, clicking the “>” button will take you to an additional window (*Window 11*) where you can:

- turn the device on/off;
- change the language of the IGLU Home app.



*Window 11*



*Window 12*



## THERMAL DISINFECTION

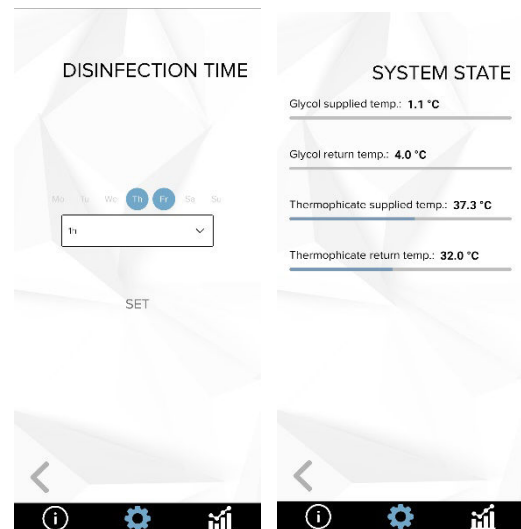
When a water heater is installed in the system and an electric heating element is integrated, the system periodically performs thermal disinfection. In the water heater settings window (*Window 12*) you can see information on the time of the next thermal disinfection.

Clicking the **Thermal Disinfection** takes you to the disinfection time setting window (*Window 13*), where you can select the desired disinfection time.

In the **Disinfection Time** window, you can select:

- the day of the week or days when you want the water heater to be disinfected;
- the time you want the water heater to be disinfected.

After selecting the days of the week and the preferred time, click **Set**.



Window 13

Window 14

## SYSTEM STATUS

In the **System Status** window (*Window 14*) you can see the device settings, such as:

- temperature of the glycol delivered to the ground;
- temperature of the glycol returning from the ground;
- temperature of the supplied heating water;
- temperature of the returning heating water.

## STATISTICS SECTION

Clicking the **Chart** icon on the bottom bar will take you to the **Statistics. Home heating**, (*Window 15*) where you will see daily, weekly, monthly or yearly energy consumption statistics, heat production statistics and coefficient of performance.



Window 15

Window 16

**IMPORTANT!** When you select the annual statistics view, you will see the **seasonal coefficient of performance (SCOP)** below the graph.

**The blue bar shows how many kilowatt-hours of electricity were consumed during the selected period, and black – the number of kilowatt-hours of heat produced.** Click on a column to see its exact value.

Pressing “>” will take you to the water heating statistics window.

In the window “**Statistics. Water heating.**” (*Window 16*) you can see daily, weekly, monthly or yearly energy consumption and heat production statistics.

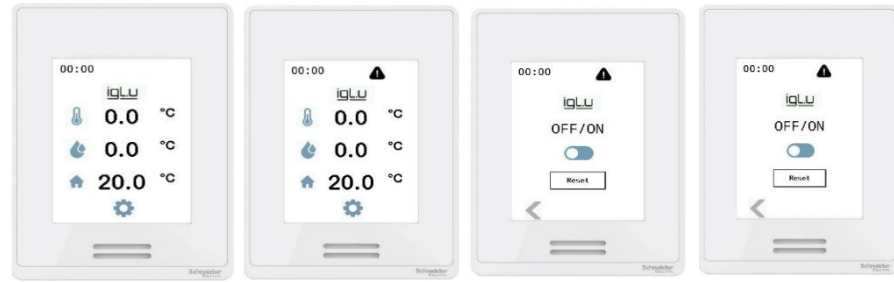
**The blue bar shows how many kilowatt-hours of electricity were consumed during the selected period, and black – the number of kilowatt-hours of heat produced.** Click on a column to see its exact value.

## CONTROL PANEL

The control panel comes with the IGLU Aleut heat pump.

The main panel window (*Window 1*) displays:

- outside temperature;
- water temperature;
- set room air temperature.



*Window 1*

*Window 2*

In the device status window (*Window 2*) you can:

- turn the device off or on;
- reset faults if any;

Navigation between windows in the control panel is performed using the “<” and “>” buttons.

In the water temperature window (*Window 3*) you can:

- see the set hot water temperature;

In the room temperature window (*Window 4*) you can:

- see the current room temperature;



*Window 3*

*Window 4*

## 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.

USER MANUAL VERSION: 1.3.4 IGLU TECH UAB 2024