



INSTALLATION MANUAL

GROUND SOURCE HEAT PUMPS **IGLU Aleut Max**



TABLE OF CONTENTS

1. Important safety instructions	5
2. About this document.	6
2.1 Introduction	6
2.2 Purpose	6
2.3 Liability	6
2.4 Warranty	7
2.5 Product packaging and transportation	7
2.6 Display of energy consumption, energy yields and efficiencies.	7
2.7 Applicability of the Installation Manual	8
3. Safety precautions	9
3.1 General Safety Information.....	9
3.2 Selection of the installation place.....	10
3.3 Sound emissions.....	11
3.4 Refrigerant – in case of R410A or R407C	12
3.5 Brine Handling and Safety.....	13
3.6 Heating Circuit Safety.....	13
3.7 Electrical safety	13
4. Handling the box	14
4.1 Accessories IGLU Aleut MAX	15
5. Unit Installation.....	15
5.1 Installation dimensions and clearances of IGLU Aleut MAX 24/ 36 /45	15
5.2 Installation dimensions and clearances of IGLU Aleut MAX 70/ 90.....	16
6. Preliminary preparation of the pipelines	17
7. Outdoor circuit.....	17
7.1 Installation and filling.....	17
7.2 Filling and circulating unit	17
7.3 Automatic air release valves	18
7.4 Outdoor circuit pump	18
8. Internal circuit.....	18
8.1 Heating system filling	18
8.3 Heating system filter and valves	19
8.4 Internal circuit circulation pump.....	19
8.5 Heating system rinsing and filling	19
8.6 Thermal insulation requirements	20

8.7 Dimensions and connection nozzles of IGLU Aleut MAX 24/ 36/ 45	21
8.8 Dimensions connection nozzles of IGLU Aleut Max 70/ 90	22
9. Unit Installation and Application Examples	23
9.1 Hydraulic Scheme abbreviations and legends.	23
9.2 Hydraulic Scheme – IGLU Aleut MAX.....	24
9.3 Hydraulic Scheme – IGLU Aleut MAX Cascade.....	25
10. Electrical installation	26
10.1 Electrical Installation work.....	27
10.2 Temperature sensors	27
10.3 Phase sequence relay.....	28
10.4 Electrical connection scheme – IGLU Aleut Max 24/36/45	29
10.5 Electrical connection scheme – IGLU Aleut 70/90	31
11. Start of operation.....	33
11.1 Logo illumination	34
11.2 In case of failure.....	34

Correct Disposal of This Product
(Waste Electrical & Electronic Equipment)



(Applicable in countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

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1.Important safety instructions



This manual contains critical safety instructions for the installation, operation, and maintenance of the IGLU Aleut Max Heat Pump. These instructions must be followed exactly to ensure safe and correct operation.

Installation and servicing of the IGLU Aleut Max must be performed only by IGLU TECH Certified Installers. The unit involves pressurized refrigerants and high-voltage components, requiring qualified technical expertise.

IGLU TECH assumes no liability for injury, equipment damage, or property loss caused by unauthorized servicing or failure to follow the instructions provided. All warnings and cautions included in this manual must be strictly observed.

Product specifications

All specifications and descriptions in this document are accurate as of the time of printing. However, because IGLU TECH is committed to continuous improvement, we may make product modifications at any time. The images in this document are for demonstration purposes only. Product details may vary slightly depending on the version and region.

Errors or omissions

If you notice any inaccuracies or omissions in this manual, please email us at: info@iglutech.eu

Meaning of warnings and symbols

Symbol / Label	Meaning
	WARNING: indicates a hazardous situation which, if not avoided, could result in injury or death.
	CAUTION: indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.
	NOTE: indicate an important step or tip that leads to the best results but is not safety or damage related
	REFER TO OPERATING INSTRUCTIONS: indicates that the user should refer to operating or installation instructions before proceeding
	RISK OF ELECTRIC SHOCK: indicates components that present the risk of electrical shock.
	WARNING: FLAMMABLE MATERIAL

2. About this document.

2.1 Introduction

This installation manual provides information on the installation of the IGLU Aleut Max geothermal heat pump. It is an integral part of the product and must be easily accessible to the installer. The manual must be available throughout the life of the device. In the event of a change in the owners of the device, the manual must be passed on to the new owners or users.

Read the instructions before installing the heat pump. Follow all instructions as specified by the manufacturer.

If you have any questions, please contact the company that performs the installation of heat pumps or your local manufacturer's representative.

This installation manual was written for several types of devices; you must always follow the parameters applicable to the respective type of equipment.

2.2 Purpose

The manual is intended only for people who install the devices. Treat all constituents responsibly. The heat pump may only be used for its intended purpose, which means:

- Heating
- Domestic hot water preparation
- Cooling

The device can only be operated according to its technical parameters.

2.3 Liability

The manufacturer shall not be liable for damage caused by improper use or installation of the heat pump. The manufacturer's liability shall also not apply:

- If work has been performed that differs from the specifications in these operating instructions.
- If work has been carried out on the equipment which is not described in this manual, or which has not been approved in writing by the manufacturer.
- If the equipment or its components have been modified, altered, or removed without the written consent of the manufacturer.

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.

2.4 Warranty

The product is covered by an IGLU TECH manufacturer's warranty.

To maintain warranty coverage, it is essential that the product is installed, operated, and maintained strictly in accordance with the instructions and requirements provided in this manual. Failure to comply with these instructions — including improper installation, unauthorized modifications, use of non-approved components, or lack of maintenance — will void the warranty.

Details regarding the warranty and post-warranty periods, including all applicable terms and conditions, are provided in the purchase documents.

2.5 Product packaging and transportation

After purchasing a heat pump:

- Inspect the delivered product for external packaging damage during delivery;
- If you notice any damage or defects, inform the company that sold the device immediately and file a claim.

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.

Lifting devices, i.e., belt and crossbeams shall be provided by the customer.

The load capacity of each belt and crossbeam must be at least equal to the transport weight

2.6 Display of energy consumption, energy yields and efficiencies.

The product, the system control and the app show approximate values for energy consumption, energy yields and efficiencies, which are extrapolated based on calculation algorithms. The values that are displayed in the app may differ from the other display options due to staggered transfer intervals. The determined values depend on:

- Installation and system of heating installation
- User behaviour
- Seasonal weather effects
- Various tolerances of unit-internal components

The recording of the values only includes the product in the factory-delivered condition. Supplementary accessories, even if they are installed on the product, as well as any other components in the heating system and other external consumers, are not part of data recording. Deviations between the determined values and the actual values may be significant. The determined values are therefore not suitable for creating or comparing energy billing, for example.

2.7 Applicability of the Installation Manual

Model	Model Code
IGLU Aleut Max 24	MA024FNNNNNTrb
IGLU Aleut Max 36	MA036FNNNNNTrb
IGLU Aleut MAX 45	MA045FNNNNNTrb
IGLU Aleut MAX 70	MA070FNNNNNTra
IGLU Aleut MAX 90	MA090FNNNNNTra



NOTE

The exact model code can be found on the internal product label attached to the unit itself or on the packing box label.

The sequence of IGLU TECH products configuration

X1 – IGLU Aleut/IGLU Aleut WT/IGLU Aleut I/IGLU Aleut WTI – AL;

X1 – IGLU ALEUT WTI (598x674x1876) – AS;

X1 – IGLU Inuit /IGLU Inuit WT – IN;

X1 – IGLU Inuit WT (598x674x1876) – IS;

X1 – IGLU Max – MA;

X1 – IGLU Inuit Mono/IGLU Inuit Mono WT – MB;

X2 – Capacity of pump – 5/7/9... kW;

X3 – Kind of compressor (I – inverter/F – fixed speed);

X4 – Water tank – (W);

X5 – Active cooling – (A);

X6 – Passive cooling – (P);

X7 – Construction – Split (S);

X8 – Unit location – Inside/Outside, (I/O);

X9 – Energy supply:

Sr - single phase 1P 230 V;

Tr - triple phase 3P 400V;

Sn – single phase to north 2P 230 V;

Tn – triple phase to north 3P 230 V;

X10 – Agent (R 410A – a; R 407C – b; R32 – c; R 290– d);

N – not applicable;

An example of the full code of a specific heat pump model:

X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
MA	024	F	N	N	N	N	N	Tr	b

3. Safety precautions

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 understand 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 that apply everywhere. This is especially true when using personal protective equipment.



WARNING!

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



CAUTION

Observe the safety signs on and inside the device

3.1 General Safety Information



Carefully follow the precautions listed below because they are essential to guarantee the safety of IGLU TECH products.

- Carefully read the content of this manual before installing the ground source heat pump and store the manual in a safe place in order to be able to use it as a reference after the installation.
- All materials supplied in this manual are indispensable for the safety of the equipment. Users shall establish appropriate safety and health practices and determine the applicability of regulatory limitations based on the following descriptions before use.
- Verify that installation and testing operations are performed by qualified personnel.
- Verify that the ground source heat pump is not installed in an easily accessible area (vandalism/ sabotage/ other harmful activities).
- For maximum safety, installers shall always carefully read the warnings mentioned in this installation manual.
- Store the user and installation manual in a safe location and remember to hand it over to the new owner if the ground source heat pump is sold or transferred of ownership.
- Make sure installation, testing and applied materials comply with applicable legislation.
- Wear adequate personal protective equipment (protective gloves, safety glasses,...) when installing, maintaining or servicing the system.
- The manufacturer shall not be responsible for damages arising from noncompliant units or parts.
- The manufacturer shall not be responsible for damage originating from unauthorized changes or the improper connection of electric and hydraulic lines. Failure to comply with these instructions or to comply with the requirements outlined in the "Operating limits" indicated in the manual shall immediately invalidate the warranty.

- To prevent serious system damage and user injuries, precautions and other notices shall be observed.
- Do not use the units if you see some damages on the units and recognize something problematic such as loud noise or smell of burning.
- To prevent electric shocks, fires or injuries, always stop the unit, ultimately rendering the product powerless. Contact to technical support if the unit produces smoke, if the power cable is hot or damaged or if the unit is very noisy.
- Always remember to inspect the unit, electric connections, refrigerant pipework and protections regularly. These operations shall be performed by qualified personnel only.
- Always make sure that the power supply is compliant with local safety standards.
- Be sure not to perform power cable modification, extension wiring, and multiple wire connection. It may cause electric shock or fire due to poor connection, poor insulation, or current limit exceedance.
- The unit contains moving and electrical parts, which should always be kept out of the reach of children.
- Do not attempt to repair, move, alter or reinstall the unit by unauthorized personnel. These operations may cause product damage, electric shocks, and fires.
- All the materials used for the manufacturing and packaging of the ground source heat pump are recyclable.
- The packing material and must be disposed of in accordance with local regulations.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the appliance use by a person responsible for their safety. Children should be supervised to ensure they do not play with the appliance.
- Do not use means to accelerate the defrosting operation or to clean, other than those recommended.
- Be aware that refrigerants may not contain an odour.
- Determine the installation location regarding the conditions cited in this reference guide and obtain the user's approval.
- The outdoor unit must not be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.
- Do not pierce or burn.

3.2 Selection of the installation place

- Provide sufficient space around the unit for servicing and air circulation (see "installation dimensions and clearances" section)
- Make sure the installation site withstands the weight and vibration of the unit.
- The device must be mounted on a flat and stationary surface with a permissible load of at least 700 kg kg/m². Minor surface irregularities can be compensated by adjusting the feet of the device.
- Make sure the unit is level.
- Do not use extra platforms.
- There must be no aggressive chemicals in the environment.
- There are no sources of ignition such as dust, gases, vapours or naked flames at the installation site.
- **Do NOT** install the unit in the following places:
 - In potentially explosive atmospheres.
 - In places where there is machinery that emits electromagnetic waves. Electromagnetic

waves may disturb the control system, and cause malfunction of the equipment.

-In places where there is a risk of fire due to the leakage of flammable gases (example: thinner or gasoline), carbon fibre, ignitable dust.

-In places where corrosive gas (example: sulphurous acid gas) is produced. Corrosion of copper pipes or soldered parts may cause the refrigerant to leak.

- When choosing the installation place of the heat pump, keep in mind that the heat pump produces a certain level of noise (see Technical Data Sheet).
- Never install the appliance directly below or next to bedrooms.
- The heat pump should not be installed close to walls; the front of the unit should always be accessible.
- The ambient temperature near the heat pump must be between 10°C and 35°C, and the relative humidity must not exceed 80%.
- Make sure the area is well ventilated. Do NOT block any ventilation openings
- A drainage system must be provided in the room where the unit is installed. In this case, leaking water can be drained.
- 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

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

3.3 Sound emissions

- The installation site should not be located in a corner or close to a bedroom or living space. The surrounding walls may amplify the noise of the appliance.
- Ensure that the entire appliance frame is in full contact with the substrate. Uneven substrates can increase sound emissions.
- Avoid installation on large, echoing floor areas, e.g. tiled floors.
- Implement pipe outlets through walls and ceilings with anti-vibration insulation.
- Secure the supply lines with structure-borne noise attenuation on noise-sensitive walls.
- Align the appliance feet.
 - For installation on floating screeds, make provisions for quiet heat pump operation.
 - Isolate the installation surface around the heat pump by means of a recess. After completing the installation, seal the recess with a waterproof, sound insulating material, such as silicone.

3.4 Refrigerant – in case of R410A or R407C



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;
- Do not release refrigerant into the environment.
- inform the manufacturer's customer service.



CAUTION

The refrigerant circuit is factory sealed. It must not be opened or serviced except by certified personnel, in compliance with applicable legislation - EN 378, EU F-Gas regulation



WARNING

- Do NOT touch the refrigerant piping, water piping or internal parts during and immediately after operation. It could be too hot or too cold. Give it time to return to normal temperature. If you must touch it, wear protective gloves.
- Do NOT touch any accidental leaking refrigerant.

- NEVER pressurize the product with a pressure higher than the maximum allowable pressure (as indicated in the Technical Data Sheet).
- Take sufficient precautions in case of refrigerant leakage. If refrigerant gas leaks, ventilate the area immediately. Possible risks:
 - Excessive refrigerant concentrations in a closed room can lead to oxygen deficiency.
 - Toxic gas might be produced if refrigerant gas comes into contact with fire.
- ALWAYS recover the refrigerant. Do NOT release them directly into the environment. Use certified recovery equipment and vacuum pumps.
- To avoid compressor breakdown, do NOT charge more than the specified amount of refrigerant.
- When the refrigerant system is to be opened, refrigerant MUST be treated according to the applicable legislation.
- In case recharge is required, see the nameplate of the unit. It states the type of refrigerant and necessary amount.
- Only use tools exclusively for the refrigerant type used in the system, this to ensure pressure resistance and prevent foreign materials from entering into the system.
- Open refrigerant cylinders slowly.
- Charge the refrigerant in liquid form. Adding it in gas form may prevent normal operation
- When the refrigerant charging procedure is done or when pausing, close the valve of the refrigerant tank immediately. If the valve is NOT closed immediately, remaining pressure might charge additional refrigerant. **Possible consequence:** Incorrect refrigerant amount.

3.5 Brine Handling and Safety

- The selection of the brine **MUST** be in accordance with the applicable legislation.
- Use only approved antifreeze solutions (e.g. ethylene glycol or propylene glycol, depending on local regulations).
- Take sufficient precautions in case of brine leakage. If brine leaks, ventilate the area immediately and contact authorized service personnel.
- In case of a brine leak, contact with leaked brine or hot parts inside the unit can create a hazardous situation.
- The use and installation of the application **MUST** comply with the safety and environmental precautions specified in the applicable legislation.
- A dirt strainer must be fitted on the return line from brine system, as close to the heat pump as possible.

3.6 Heating Circuit Safety

- Heating systems may contain suspended solids (e.g. rust, sludge, magnetite). To ensure long service life and reliability, system water must be kept as clean as possible.
- If magnetite is expected, the system should be cleaned and a magnetic filter installed.
- A dirt strainer must be fitted on the return line from the heating system, as close to the heat pump as possible.
- Chemical or oil contamination of the water circuit must be avoided.
- In areas with hard water, a softening filter may be necessary to reduce scale formation and protect components.

3.7 Electrical safety



DANGER!

Danger of fatal injuries due to electric shock.

The electrical connection may only be installed by a qualified electrician.

Always disconnect the power supply of the Ground Source Heat Pump before servicing it or accessing components inside the unit.

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage **MUST** be less than 50 V DC before you can touch electrical components.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- A main switch or other means of disconnection, with contact separation in all poles and providing full disconnection under overvoltage category III conditions, must be installed in the fixed wiring at the user's distribution panel.
- **ONLY** use copper wires.
- Make sure the field wiring complies with the applicable legislation.
- All field wiring **MUST** be performed in accordance with the wiring diagram supplied with the

product.

- NEVER squeeze bundled cables and make sure they do NOT come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to install the required fuses or circuit breakers.
- Make sure to install an earth leakage protector. Failure to do so may cause electrical shock or fire.
- When installing the earth leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the earth leakage protector.
- When connecting the power supply: connect the earth cable first, before making the current-carrying connections.
- When disconnecting the power supply: disconnect the current-carrying cables first, before separating the earth connection.
- The length of the conductors between the power supply stress relief and the terminal block itself must be as such that the current-carrying wires are tightened before the earth wire is in case the power supply is pulled loose from the stress relief.
- Do NOT connect wiring of different thicknesses to the power terminal block (slack in the power wiring may cause abnormal heat).
- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal board.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will damage the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.
- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting up the unit.

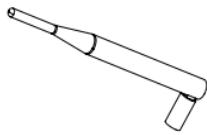
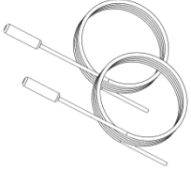
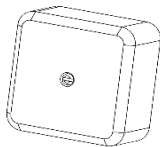
4. Handling the box



NOTE

- Upon receipt of the product, carefully inspect the packaging and unit for any visible transport damage. Any damage or missing parts must be reported immediately to the distributor or supplier before installation or storage
- After inspection, keep the product in its original or equivalent protective packaging to prevent mechanical damage, dirt, or moisture ingress. The unit must remain covered and protected until final installation.
- The product weighs over 50kg, make sure that the product is carried by at least two people, or use suitable lifting equipment when moving the unit.
- Use approved lifting and transport equipment, that complies with your local safety regulations.
- During transport, do not tilt the heat pump by any more than the maximum angle of 45°, to prevent oil or refrigerant displacement inside the compressor.
- Follow your workplace's risk assessment and safe working practices when lifting or handling the product.
- Keep all supplied accessories together with the unit until installation is completed.

4.1 Accessories IGLU Aleut MAX

Installation manual (1)	User manual (1)	Technical Data sheet (1)
		
Wi-Fi Antenna (1)	Temperature sensor (3)	Internal Temperature sensor box (1)
		
Outdoor temperature sensor box (1)		
		

5. Unit Installation

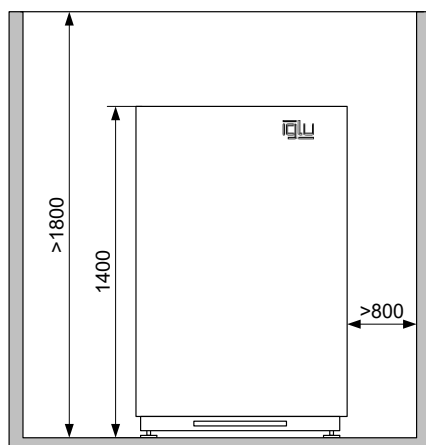
5.1 Installation dimensions and clearances of IGLU Aleut MAX 24/ 36 /45



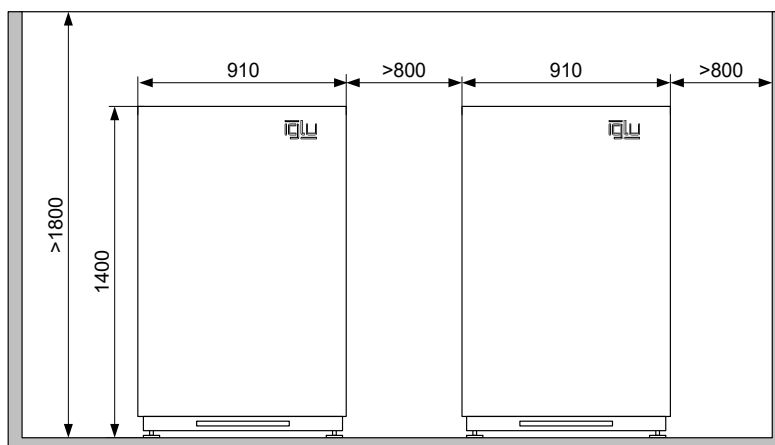
CAUTION

The units must be installed according to distances declared, in order to permit accessibility from each side, to guarantee correct operation of maintenance or repairing of the products. The unit's parts must be accessible and serviceable under safe working conditions (for people or things).

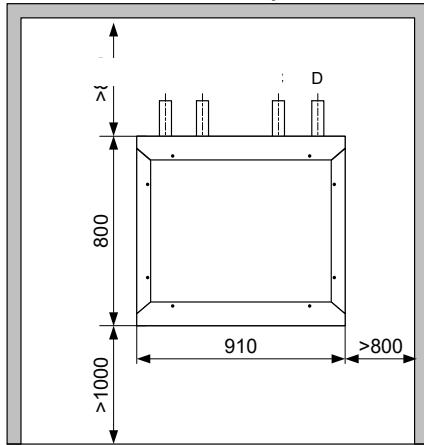
View from the front.



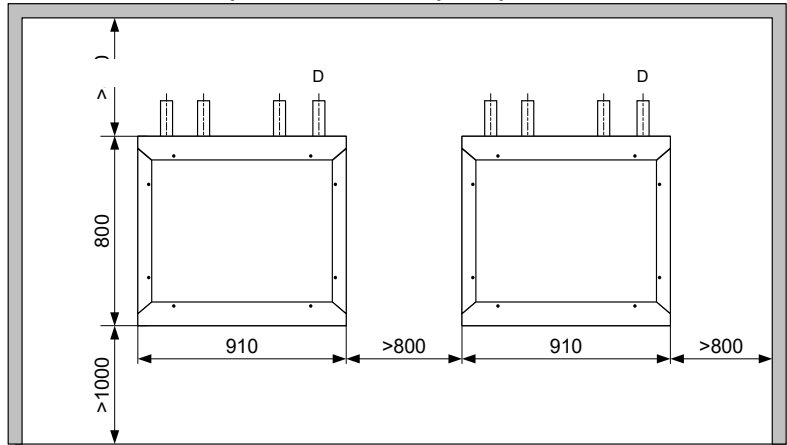
Front view: 2 heat pumps



View from the top.

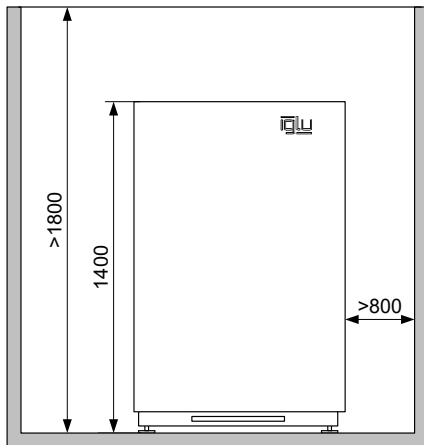


Top view: 2 heat pumps

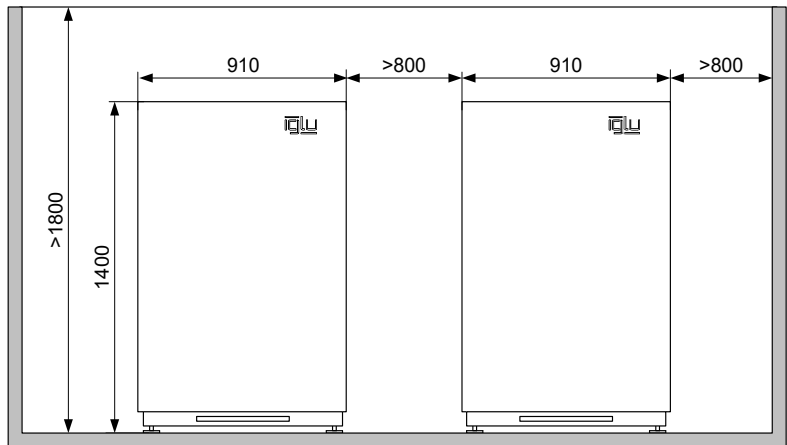


5.2 Installation dimensions and clearances of IGLU Aleut MAX 70/ 90

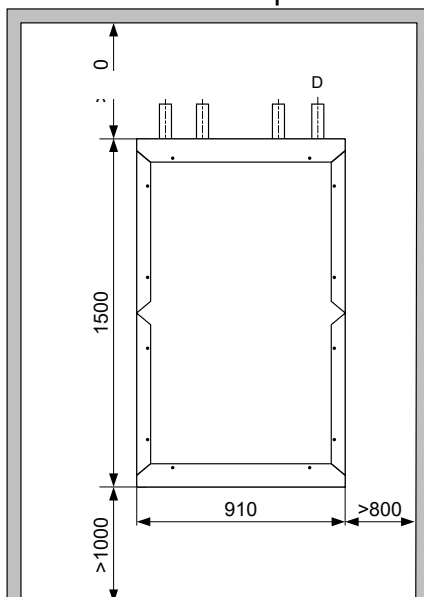
View from the front.



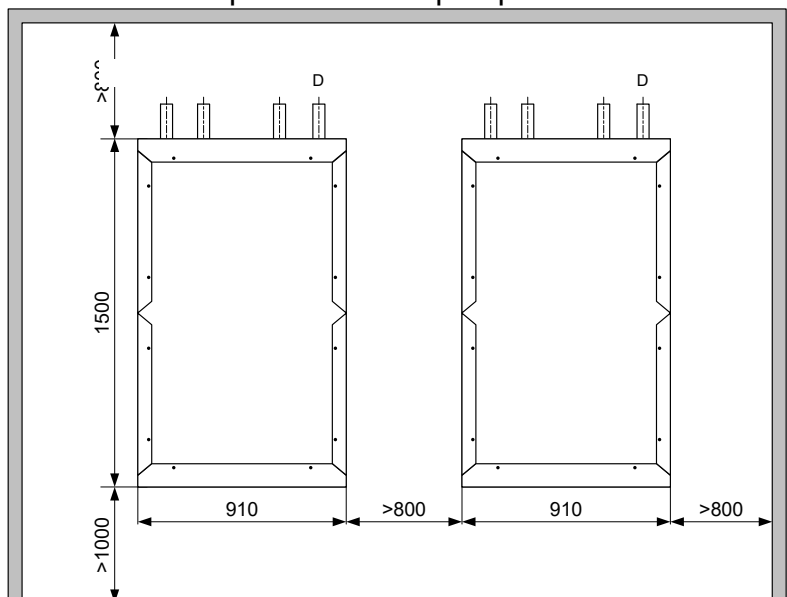
Front view: 2 heat pumps



View from the top.



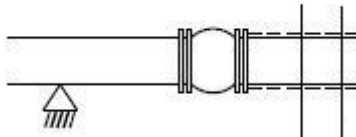
Top view: 2 heat pumps



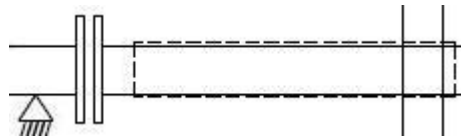
6. Preliminary preparation of the pipelines

The connecting pipes for the outdoor circuit, the heating circuit and, if provided, the hot water circuit must be laid up to the intended location of installation of the heat pump. When connecting a heat pump to a pipeline with a heat output of 70 kW or more, a flange anti-vibration connection or a flexible hose is required. A corrosion-resistant connection is required for the outdoor circuit. It is also recommended to choose a corrosion-resistant connection for the internal circuit. Install an expansion vessel, safety valves, coarse suction filters and pressure gauges for the outdoor and heating circuit, and boiler. The circuits must have a provided filling point.

Flange anti-vibration connection



Connection with flexible hose



7. Outdoor circuit

7.1 Installation and filling

The outdoor circuit can be vertical (geothermal wells) or horizontal. The horizontal circuit must be installed below the freezing zone, depending on the ground of the area. Fill the outdoor circuit with glycol, which ensures that it does not freeze in temperatures up to -15°C. **Do not use the salt-based solution.** The following fluids are approved for the outdoor circuit:

- monoethylene glycol;
- propylene glycol.

It is recommended to use a mixture of water and monoethylene glycol concentrate in a ratio of 3:1.

The applicable rules and regulations must be observed when installing and filling the outdoor circuit. There must be no stones or sharp objects in the ground where the outdoor circuit is installed that could damage the pipes. Prior to filling the system, make sure that the system is tightly sealed.

When installing the outdoor circuit, it is necessary to protect the pipes from penetration of dirt or gravel. If the system is dirty, the heat pump may become clogged and individual components of the device may be damaged or corrupted.

7.2 Filling and circulating unit

In order to be able to replenish the circuit when the system pressure drops, and to perform the external and glycol mixing procedure, the outdoor system replenishment device must be installed next to the inlet of the circuit. **This filling unit is not included in the heat pump package.**

7.3 Automatic air release valves

In order to ensure that no air clogs occur in the outdoor circuit system and that the heat pump does not signal an alarm as a result, it is necessary to install automatic air release valves on the outdoor circuit. The air release valves must be installed at the highest points of the circuit.

7.4 Outdoor circuit pump

The outdoor circuit pump is not supplied with the heat pump. The pump is selected for the outdoor circuit according to the technical requirements (see, *Annex No 1 and Annex No 2*). The circulation pump is controlled by the central processor while maintaining the flow. The control system controls the operation of the circulation pumps and a warning is received in the event of a deviation.

8. Internal circuit

To avoid gas accumulation, it is not recommended not to use galvanised pipes in the systems.



WARNING!

The area of the domestic hot water tank heat exchanger must correspond to the capacity of the heat pump. The water capacity must be such that the heat output of the heat pump is transmitted as efficiently as possible.



NOTE

Integrate the hot water tank into the heat pump system to match the heating system scheme you have selected.

8.1 Heating system filling

Set the pressure of the heating circuit in the expansion vessel to 1.5 bar. Usually the replenishment of the heating circuit is stationary, pre-connected to the water inlet, in which case the replenishment takes place individually according to the system. If the filler in the heating circuit is not water, then the system is filled with the appropriate liquid. As an additional protection against freezing, in some cases the water in the heating system may be mixed with glycol, however, this concentration should not exceed 15%. In this case, the efficiency of the heat pump decreases.

8.2 Flow through the heating system

A bypass is required in the mixing circuit, if an adjustable circulation pump is used, which is controlled by differential pressure. Bypass is not included with the heat pump. If a buffer tank is installed in parallel with the heating system, no bypass is required.

8.3 Heating system filter and valves

The heat pump does not include a filter and a safety valve. These components must be installed on the pre-prepared heating system return line. The safety valve shall be installed vertically.



CAUTION!

Do not leave the safety valve closed.

8.4 Internal circuit circulation pump

The internal circuit circulation pump is not supplied with the heat pump. The pump for the internal circuit is selected according to the technical requirements (see, Annex No 1). The circulation pump is controlled by the central processor while maintaining the flow. The control system controls the operation of the circulation pumps and a warning is received in the event of a deviation.

8.5 Heating system rinsing and filling

The heat pump is an integral part of the heating system. Heat pump failures are usually caused by poor water quality in the heating system, or by presence of air in the system. The presence of air in the system produces corrosive products such as magnetite or sediment. Magnetite has an abrasive effect that is especially enhanced in pumps, valves, or eddy-flow components, such as a condenser. Prior to installing a heat pump in a heating system that needs to be filled or uses water that is not pure, auxiliary measures such as the installation of filters and automatic release valves must be taken. Filling the system with untreated potable water will inevitably cause limescale to form on the heat transfer surfaces. This can reduce the efficiency of the unit and increase electricity consumption (1 millimetre of limescale causes a 10% energy loss). In extreme cases, this can even damage the heat exchangers.

Do not use water treatment additives in the heating system. Additives for adjusting the pH of water can be used. The recommended pH value of water is 7.5-9. The safest and most efficient operation of the system is achieved by using low-salt water.

When combining a heat pump with a boiler, it may be possible to fill the system with desalinated water to protect the boiler from corrosion. This reduces electrical conductivity and risk of corrosion.



WARNING!

Sediment in the piping can damage the heat pump. To prevent this, make sure to flush the pipes.

Damage to sediment and corrosion heating systems is low if:

- planning and start-up are carried out properly;
- the system is closed in terms of corrosion;
- pressure in the heating system is adequate;
- regular maintenance and prevention.

It is recommended that a system log be kept containing the relevant maintenance data.

Damage that may occur due to a malfunctioning system:

- component failures (e.g., pumps, valves);
- internal and external leaks (e.g., from heat exchangers);
- reduction in cross-section and flow blockage (e.g., limescale and corrosion can clog the heat exchanger, pipes and pump);
- faster wear;
- gas cushion formation (cavitation);
- adverse effects due to heat transfer (coatings, sedimentation) and associated noise (e.g., roaring, flow noise).

8.6 Thermal insulation requirements

All heat- and cold-conductive components of the piping system — including heating circuits, domestic hot water lines, and tank connections — must be insulated using appropriate thermal insulation materials.

Thermal insulation must comply with the following standard:

„EN 12828 – Heating systems in buildings – Design for water-based heating systems: This standard defines insulation requirements for heating circuits, including the use of suitable materials, full coverage across fittings and joints, and protection against condensation.“

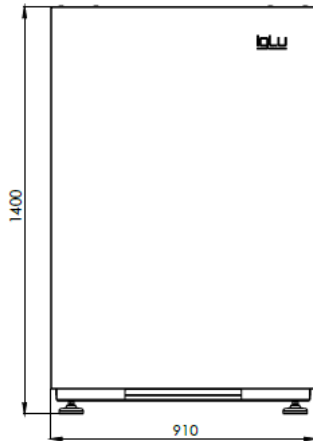


NOTE

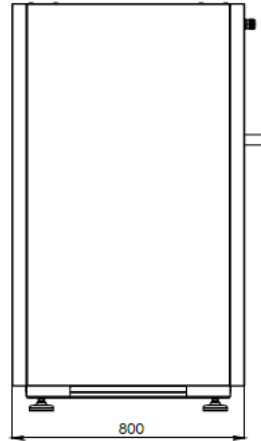
Proper insulation ensures energy efficiency, user safety, and reliable system operation.

8.7 Dimensions and connection nozzles of IGLU Aleut MAX 24/ 36/ 45

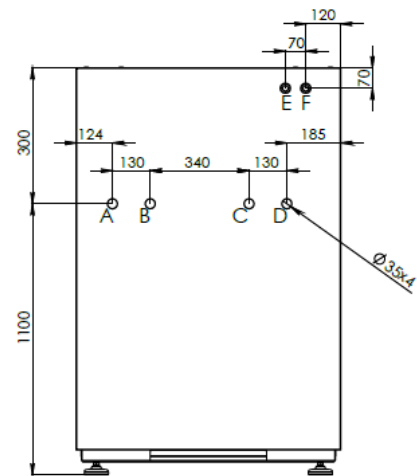
View from the front.



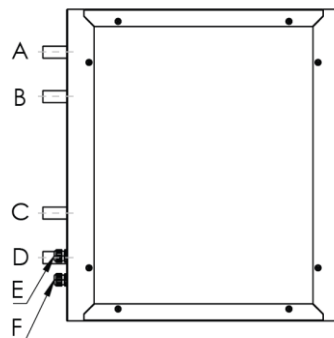
View from the side.



View from the end.



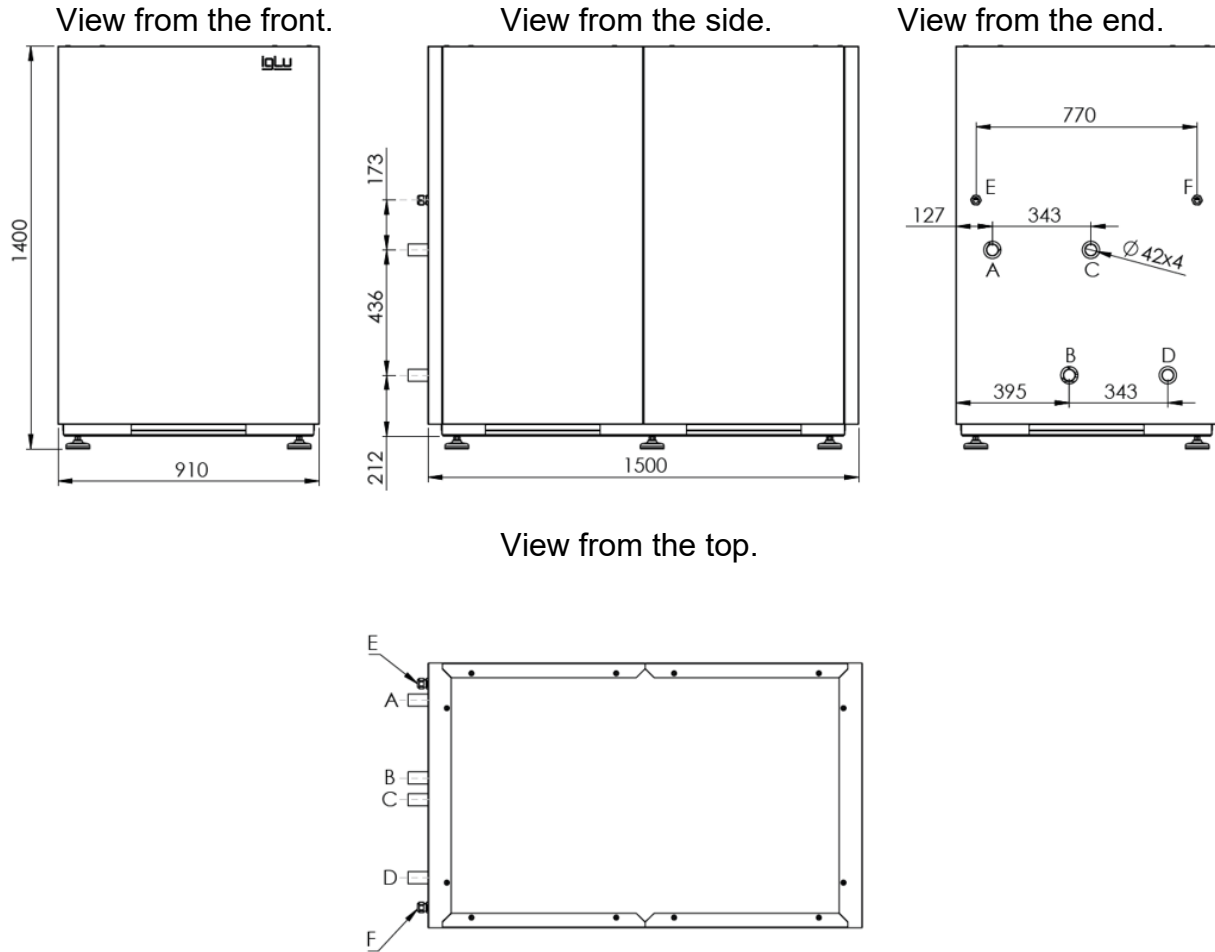
View from the top.



Where:

- A – Return from system (IN)
- B – Supply to system (OUT)
- C – Return from brine (IN)
- D – Supply to brine (OU)
- E - heat pump power cable opening;
- F – communication/data cable opening;

8.8 Dimensions connection nozzles of IGLU Aleut Max 70/ 90



Where:

- A - supply heating water connection nozzle;
- B - return heating water connection nozzle;
- C - incoming glycol connection nozzle;
- D - outgoing glycol connection nozzle;
- E - heat pump power cable opening;
- F – communication/data cable opening;

9. Unit Installation and Application Examples

The hydraulic application examples given below are for illustration purposes only.

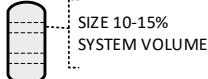
The unit is only to be used in a closed-water system. Application in an open water circuit can lead to excessive corrosion of the water piping.

IGLU TECH cannot be responsible for incorrect or unsafe situations in the water system. Make sure that the boiler, radiators, convectors, solar collectors, UFHs, FCUs, additional pumps, piping, and controls in the water system are in accordance with relevant local laws and regulations under the installer's responsibility.

IGLU TECH shall not be held liable for any damage resulting from not observing this rule.

Please note that IGLU TECH does not provide specific water system components such as Pressure relief valves, Air vent valve, buffer tank, etc. Installers and end-users shall consider how to install the below-designated components in the overall water system depending on the installation conditions. If the components are not installed in an appropriate location, the water system cannot be operated as designed.

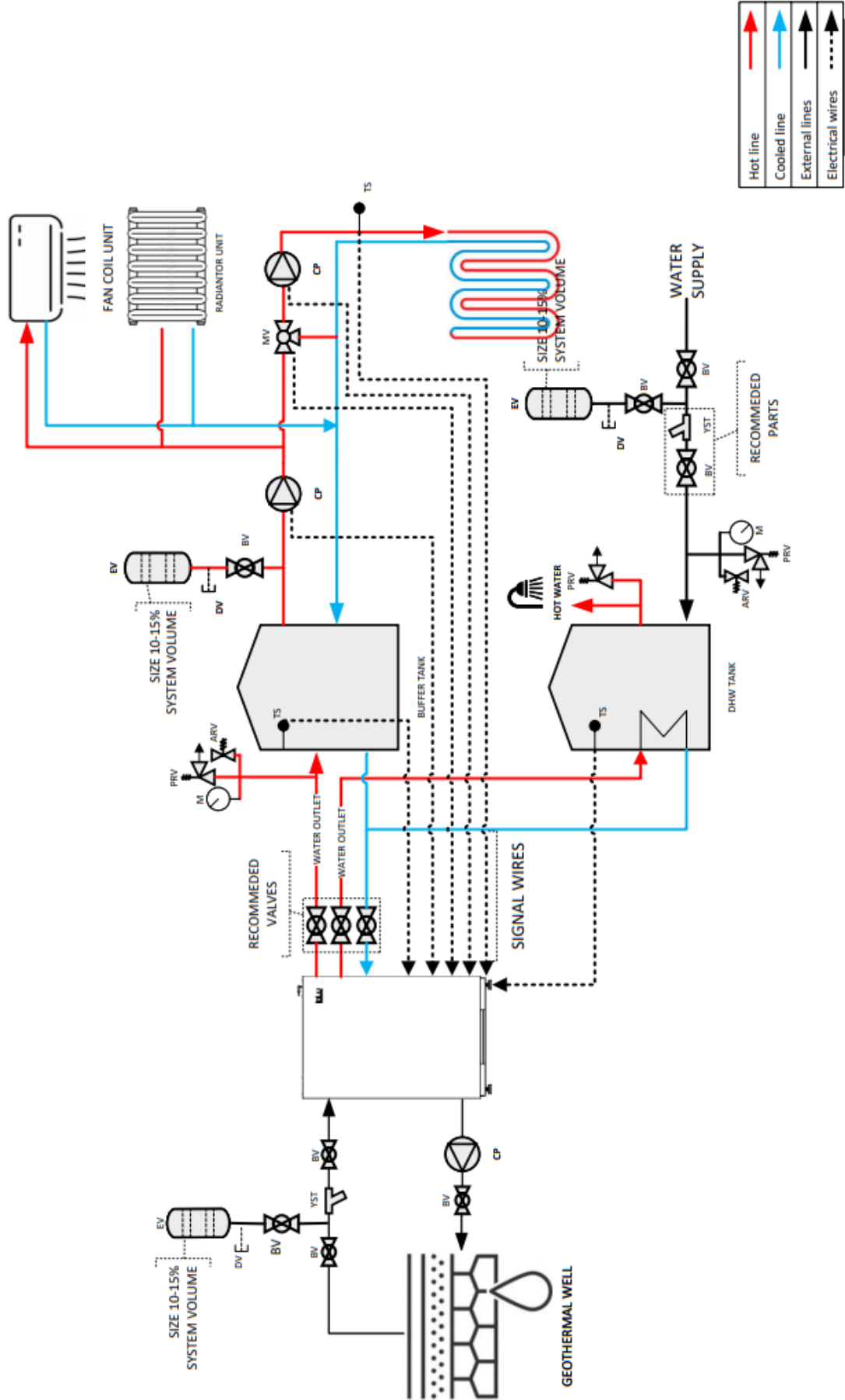
9.1 Hydraulic Scheme abbreviations and legends.

ABBREVIATIONS			
Ball valve (BV)		Drain valve (DV)	
Check valve (CV)		Circulating pump (CP)	
Y Strainer (YST)		Temperature sensor (TS)	
Monometer (M)		Expansion vessel (EV)	
Pressure relief valve (PRV)		By-pass valve (BPV)	
Air relief valve (ARV)		Thermostat (TH)	
Mixing valve (MV)		Hot water	 HOT WATER

9.2 Hydraulic Scheme – IGLU Aleut MAX

1. Freeze Protection: 25%- 35% glycol in the system fluid.
2. Air relief valves should be used at the highest point of the system.

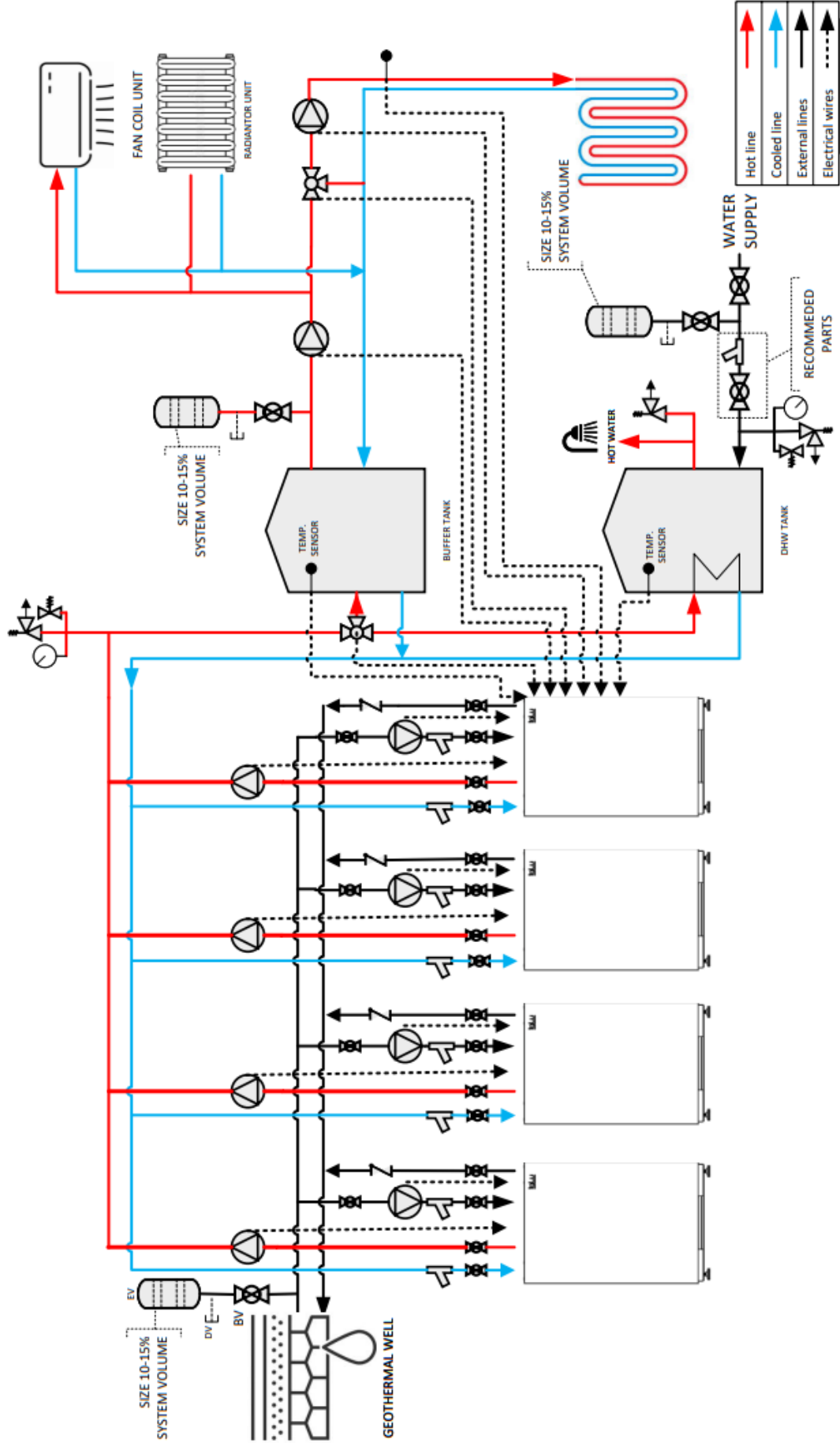
MAX CLASSIC SCHEME



9.3 Hydraulic Scheme – IGLU Aleut MAX Cascade

MAX CASCADE SCHEME

1. Freeze Protection: 25%- 35% glycol in the system fluid.
2. Air relief valves should be used at the highest point of the system.
3. 2-core, 0.75 mm² shielded cable should be used for the communication line between the cascade units.



10. Electrical installation



WARNING

- Make sure first the water piping is connected before the electrical wiring work.
- When removing or relocating the equipment, power off first and then disconnect the electrical wiring.
- Connect the ground source heat pump to a protected earth (PE) before connecting the phase and neutral to the product.
- Follow the local installation standards and regulations when installing electrical wiring. Electrical wiring should be installed by a certified electrician or certified installer. Failing to comply, might lead to damaging the product, starting a fire and personal injury, electrocution or death.

- Make sure that wiring work must be done by an authorized electrician. The wiring materials and wiring work must comply with the applicable legislation.
- Always verify that a suitable grounding connection is available.
- Verify that the voltage and frequency of the power supply comply with the specifications and that the installed power is sufficient to ensure the operation of any other domestic appliance connected to the same electric lines.
- Always verify that the cut-off and protection switches are suitably dimensioned.
- Verify that the ground source heat pump is connected to the power supply in accordance with the instructions provided in the wiring diagram included in the manual.
- Always verify that electric connections (cable entry, the section of leads, protections...) comply with the electric specifications, local regulations and installation standards and with the instructions provided in the wiring scheme. Always verify that all connections comply with the standards applicable to the installation of ground source heat pumps.
- Depending on the condition of power supply, unstable power or voltage may cause malfunction of the parts or control system. (Avoid using power supply from an electric generator, like on a ship etc).



- Make sure that you earth the cables.
 - Do not connect the earth wire to the gas pipe, water pipe, lighting rod or telephone wire. If earthing is not complete, electric shock or fire may occur.
- Install the circuit breaker.
 - Failing to install a circuit breaking device may result in electric shock and fire occurrence.
- Be sure to install both an earth leakage detector and circuit breaker with specified capacity in accordance with relevant local and national regulations.
 - If it is not installed properly, it may cause electric shocks and fire.

10.1 Electrical Installation work

- Remove the front shield of the heat pump by unscrewing the screws on the top of the device.
- Connect the power cable (see section "Electrical connection diagrams") according to the heat pump model. Connect the power cable where L1, L2, L3, N and PE are marked, respectively.

10.2 Temperature sensors

The temperature sensors are connected to the terminal blocks, which are shown in the layout diagram of the control elements (see, Section: "Heat pump electrical connection diagram"). A two-core $0.5 \div 1 \text{ mm}^2$ cable must be routed from the heat pump central control panel (if cascade control is implemented) to the outdoor temperature installation location.

It is recommended that the outdoor sensor be installed on the north side or in a place that is not exposed to direct sunlight.

In models without integrated water heater, a two-core $0.5 \div 1.0 \text{ mm}^2$ cable must be routed from the heat pump to the hot water tank.

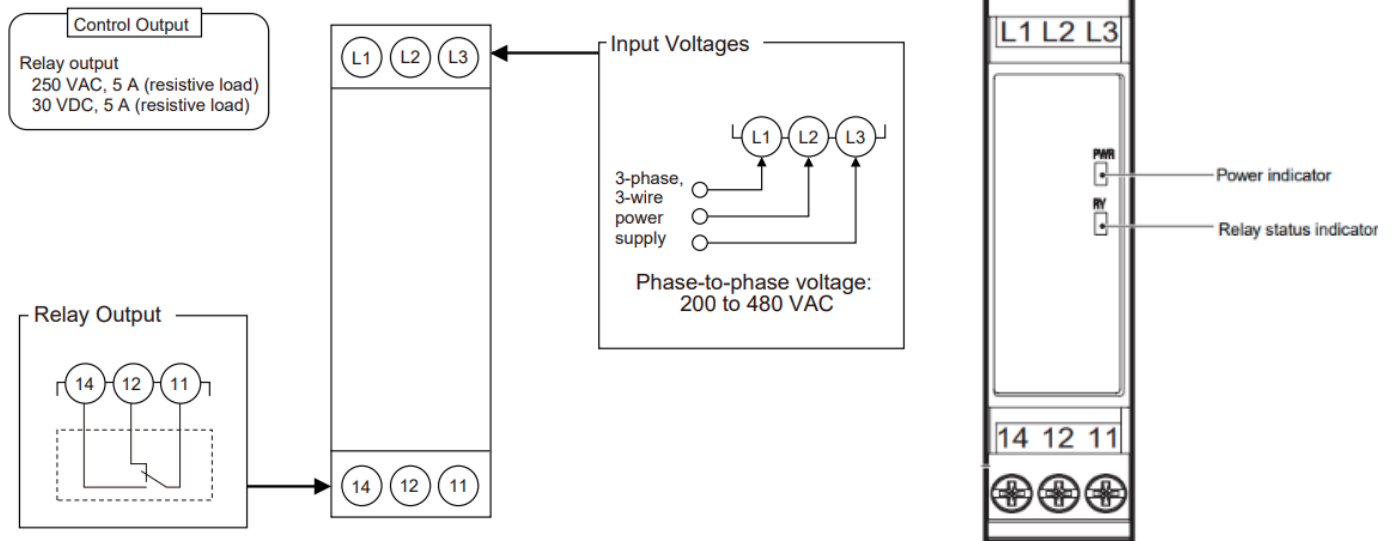
Characteristics of temperature sensors NTC 10K

T [°C]	R [Ω]	T [°C]	R [Ω]	T [°C]	R [Ω]
-30.0	175203	50.0	3605	130.0	298
-25.0	129289	55.0	2989	135.0	262
-20.0	96360	60.0	2490	140.0	232
-15.0	72502	65.0	2084	145.0	206
-10.0	55047	70.0	1753	150.0	183
-5.0	42158	75.0	1481	155.0	163
0.0	32555	80.0	1256	160.0	145
5.0	25339	85.0	1070	165.0	130
10.0	19873	90.0	915	170.0	117
15.0	15699	95.0	786	175.0	105
20.0	12488	100.0	677	180.0	95
25.0	10000	105.0	586	185.0	85
30.0	8059	110.0	508	190.0	77
35.0	6535	115.0	443	195.0	70
40.0	5330	120.0	387	200.0	64
45.0	4372	125.0	339		

10.3 Phase sequence relay

The heat pump features a built-in phase sequence relay that ensures that the compressor is running in the correct phase sequence. The relay is equipped with PWR and RY indicator lights. When the heat pump is switched on and the phases are in the correct sequence, the PWR display lights up in green and RY lights up in yellow. If it is not connected properly, the PWR indicator lights up in green and the RY indicator does not light up. In this case, reset the correct phase sequence so that the RY indicator lights up in yellow. It can be done by switching two random phase wires between each other from the main power side.

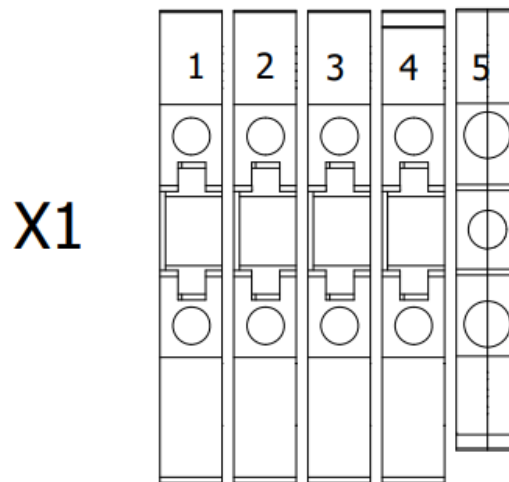
Terminal Diagram



10.4 Electrical connection scheme – IGLU Aleut Max 24/36/45

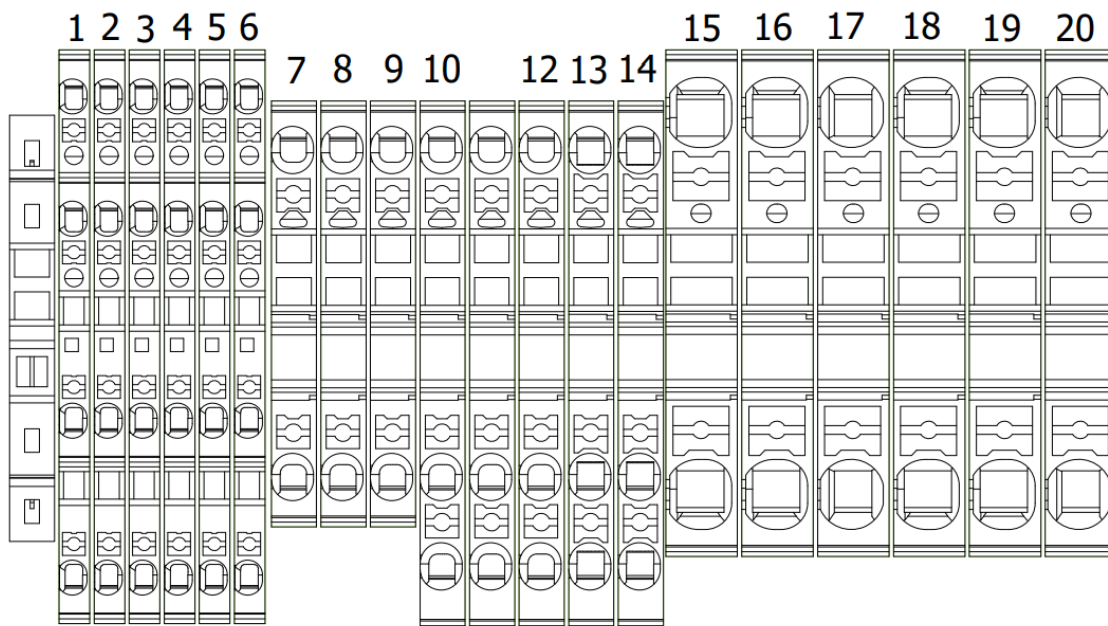


- The electrical connection scheme show bridges (or jumpers), which indicate a connection between terminals. These connections are already made by the manufacturer.
- **NOTE:** the configuration of electrical cabinet may differ dependent from the particular heat pump and its capacity but the connections of the electrical terminals remain the same



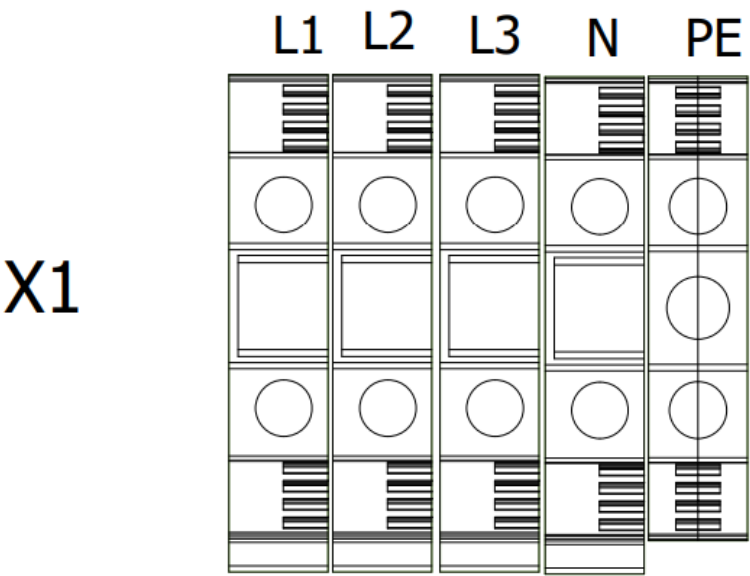
No.	Component	Connection	Purpose
1	EL000086	Input	L1
2	EL000086	Input	L2
3	EL000086	Input	L3
4	EL000119	Input	N
5	EL000120	Input	PE

X2

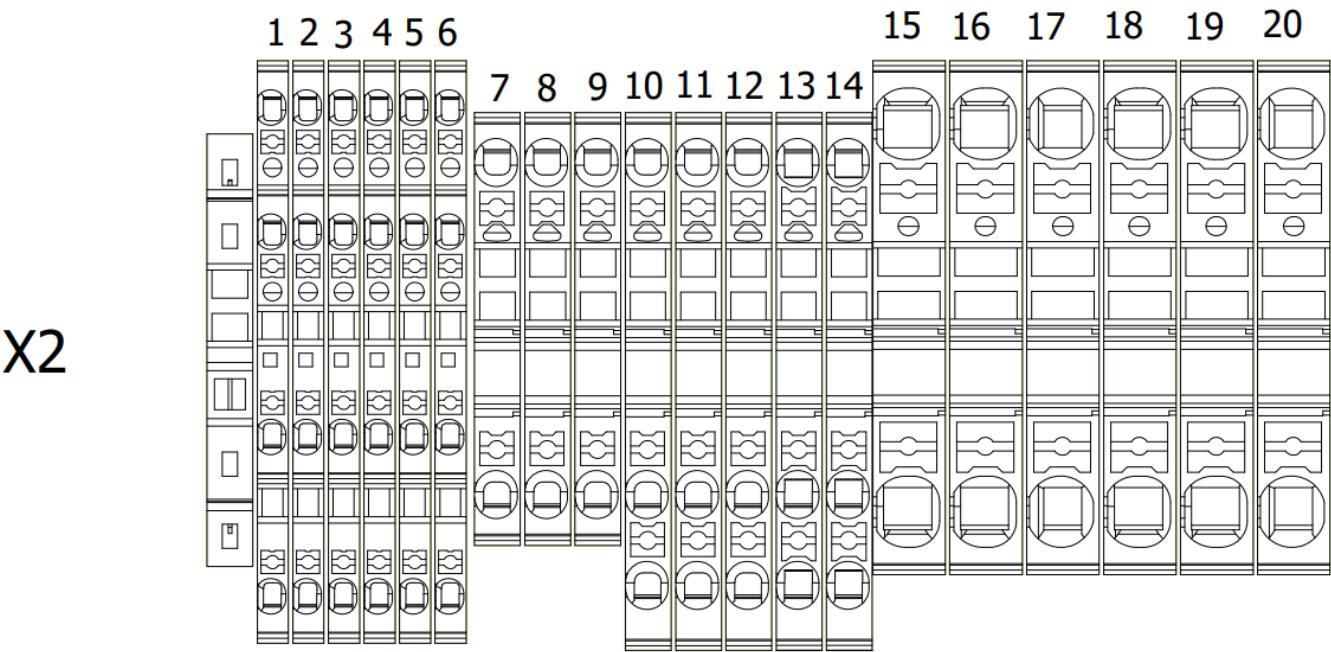


No.	Component	Connection	Purpose	Jumper
1.1	EL000419	B3	Outdoor T sensor NTC10K	AI
1.2		GND	COM	AI
2.1	EL000419	B2	Indoor T sensor NTC10K	AI
2.2		GND	COM	AI
3.1	EL000419	B2	Buffer tank T sensor NTC10K	AI
3.2		GND	COM	AI
4.1	EL000419	B1	Boiler T sensor NTCK10K	AI
4.2		GND	COM	AI
5.1	EL000419	ID6	Cooling requirement	DI
5.2		GND	COM	DI
6.1	EL000419	ID8	External start	DI
6.2		GND	COM	DI
7	EL000420	NO6	Buffer tank pump ON/OFF	DO
8	EL000420	NO11	Cooling valve ON/OFF	DO
9	EL000420	NO12	Three-way valve ON/OFF	DO
10	EL000421	L	Unit:L 230V	L
11	EL000422	N	Unit:N	N
12	EL000422	N	Buffer tank N	N
13	EL000423	PE	Unit:PE	PE
14	EL000423	PE	Buffer tank PE	PE
15	EL000424	NO9	Outdoor circulation pump L	DO
16	EL000425	N	Outdoor circulation pump N	N
17	EL000426	PE	Outdoor circulation pump PE	PE
18	EL000424	NO8	Indoor circulation pump L	DO
19	EL000425	N	Indoor circulation pump N	N
20	EL000426	PE	Indoor circulation pump PE	PE

10.5 Electrical connection scheme – IGLU Aleut 70/90



No.	Component	Connection	Purpose
1	EL000112	Input	L1
2	EL000112	Input	L2
3	EL000112	Input	L3
4	EL000113	Input	N
5	EL000114	Input	PE
6	EL000114	Compressor	PE



No.	Component	Connection	Purpose	Jumper
1.1	EL000419	B3	Outdoor T sensor NTC10K	AI
1.2		GND	COM	AI
2.1	EL000419	B2	Indoor T sensor NTC10K	AI
2.2		GND	COM	AI
3.1	EL000419	B2	Buffer tank T sensor NTC10k	AI
3.2		GND	COM	AI
4.1	EL000419	B1	Boiler T sensor NTC10K	AI
4.2		GND	COM	AI
5.1	EL000419	ID6	Cooling requirement	DI
5.2		GND	COM	DI
6.1	EL000419	ID8	External Start	DI
6.2		GND	COM	DI
7	EL000420	NO6	Buffer tank pump ON/OFF	DO
8	EL000420	NO11	Cooling valve ON/OFF	DO
9	EL000420	NO12	Three-way valve ON/OFF	DO
10	EL000421	L	Unit: L 230V	L
11	EL000422	N	Unit: N	N
12	EL000422	N	Buffer tank N	N
13	EL000423	PE	Unit: PE	PE
14	EL000423	PE	Buffer tank PE	PE
15	EL000424	NO9	Outdoor circulation pump L	DO
16	EL000425	N	Outdoor circulation pump N	N
17	EL000426	PE	Outdoor circulation pump PE	PE
18	EL000424	NO8	Indoor circulation pump L	DO
19	EL000425	N	Indoor circulation pump N	N
20	EL000426	PE	Indoor circulation pump PE	PE

11. Start of operation

Prior to start of operation of the heat pump, be sure to check that:

- the heat pump has been installed in accordance with the requirements of this installation manual;
- the electrical installation works have been properly performed;
- the heating circuit has been flushed and properly filled;
- all valves and shut-off devices in the heating system are open;
- all piping systems and components are leakproof;
- the pressures in outdoor and indoor circuits meet the requirements;
- the cables have been laid in accordance with the requirements up to the outdoor and hot water tank and remote control;

Wi-Fi or wired internet connection is available to be able to monitor and control the heat pump remotely. In industrial facilities, heat pumps must be connected to the Internet using an RJ45 connection to ensure the reliability and stability of the Internet connection. This ensures uninterrupted data transfer to the IGLU Portal service platform, where the operation of the heat pumps is constantly monitored.



NOTE

Minimum Internet connection requirements

A reliable connection requires a speed of at least 10 Mbit/s and a response time of faster than 100 ms (*ping*):

- for wired connection: 10/100Mbps;
- Wi-Fi 802.11b/g/n 2.4GHz, minimum signal strength – 95 dBm.

The heat pump start-up and tune-up works are carried out by the manufacturer or by the staff of the manufacturer's authorised representative. **Start-up and adjustment work is performed against remuneration!** Once the specialist completes the work, the person responsible for the start-up shall fill out and sign the heat pump start-up report.

11.1 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.



11.2 In case of failure

If the illuminated IGLU logo on the front panel or the remote control reports system errors, 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).



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