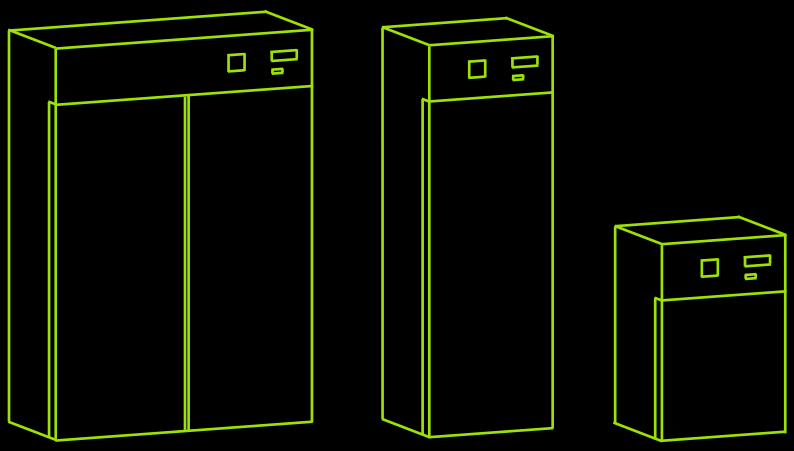
ARCTIKO
true cooling specialists



OPERATING INSTRUCTIONS

BLOOD BANK REFRIGERATOR

BBR 100 / BBR 100-D

BBR 300 / BBR 300-D

BBR 500 / BBR 500-D

BBR 700 / BBR 700-D

BBR 1400 / BBR 1400-D

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INTRODUCTION

Please take a few minutes to carefully read this manual, and become familiar with the advantages of your unit for the proper operation. To meet the high-quality demands required by the medical and pharmaceutical industry, all BBR Blood Bank Refrigerator units that leave Arctiko are carefully checked and tested to ensure high performance and quality. If the operating and installation instructions describe different models, any differences will be pointed out at the relevant.

If you would like to obtain further information about this unit and possible accessories, please visit our website **www.arctiko.com** where downloads are available for each specific product.

SYMBOLS

WARNING

Performing this action can cause injury.

CAUTION

Risk of personal or material injury. Consult the instructions before attempting to use this equipment.

Prohibition

Action is strictly prohibited.

Follow procedures

Keep the instructions handy for convenient reference.

OFF

Disconnect from power outlet before operation.

WARNING Flammable material

This unit contains flammable refrigerants.

Grounding

Be aware that the unit is grounded

Fragile

Handle with care. Indicates a device that can be damaged or broken if not handled with care.

Follow procedures

Touching surfaces may cost frostbite due to low temperature.

ABBREVIATIONS

SYMBOL	DESCRIPTION
A	Ampere
W	Watts
V	Voltage
°C	Degree Celsius
h	Hours
min	Minutes
cm	Centimeters
kg	Kilogram
N/A	Not applicable

SAFETY

Arctiko is obligated as a supplier to ensure the users safety when operating one of our units. To prevent personal and material injury or damage, please follow the instructions in this manual. This manual covers all aspects of installing and operating the unit. It also provides information that can prevent a user from being injured. «Caution» and «Warning» suggest two levels of safety implications. Please follow them carefully.

INTENDED USE

The BBR units are designed to operate within a temperature range of 4°C (+-2K). All models can be used at ambienttemperature +5°C to 32°C and a humidity of max. 60%. For safe and optimalperformance of the unit, it should only be placed indoors, in a well ventilated room and in elevations below 2000m. The unit should only be operated by instructed personnel.
The unit is designed for use with an input voltage ~230V 50/60Hz.
Voltage variation should not be more than +/- 10 percent of the nominated voltage supply.
Instantaneous over-voltage complies with second grade of installation of equipment. For the main voltage supply, the minimum and normal supply is second level.
Environmental complying with IEC664 standard, Grade 2 Contamination.

CAUTION

This unit is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

Follow procedures

Only qualified engineers or service personnel should install the unit. The installation by unqualified personnel may cause electrical shock or fire.

OFF

When removing the power plug from the outlet, pull on the plug, not the cord. Pulling the power cord may result in electric shock or fire by short circuit.

PERSONAL SAFETY

When operating BBR – Blood Bank Refrigerator units, you are exposed to a variation of possible dangerous events

- Read and understand this manual. If in doubt, contact your local Arctiko distributor.
- Crushing hands hazard, while operating the door.
- Always assure good cleaning practices by keeping the unit and the adjacent areas clean,dry and uncluttered.
- Should any malfunctions occur or be suspected, immediately call a qualified service engineer to investigate.
- Do not insert screwdrivers or other pointed objects between guards or moving parts of the unit.
- Crushing of hands hazard, while operating the door.

Prohibition

Do not insert metal objects such as pins or wires into any vent, gap or outlet on the unit. This may cause electric shock or injury by accidental contact with moving parts.

Crushing of hands hazard

Crushing of hands hazard while using the door and door lock mechanism.

Frostbite hazard

Extreme low temperatures can be reached in the cooling chamber. Do always use Arctiko Cryo gloves.

Follow procedures

If the unit is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
The manufacture declines any responsibility in case of improper use of the unit deviating from the reasonably construed intended use and for all operations carried out that are not in compliance with the instructions reported in the manual.

Prohibited

Do not use the unit outdoor. Current leakageor electric shock may result if the unit is exposed to rain.

Follow procedures

Only qualified/authorized engineers or service personnel should install the unit. Installation by unqualified personnel maycause electric shock or fire.

Follow procedures

Install the unit on a sturdy floor and take an adequate precaution to prevent the unit from tipping. If the floor is not strong enough or the installation is not adequate, this may result in injury from the unit falling over or tipping over.

Prohibited

Never install the unit in a humid place or a place where it is likely to be splashed by liquids. Deterioration of the insulation may cause current leakage or electric shock.

Prohibited

Never install the unit in a flammable or volatile location. This may cause explosion or fire.

Prohibited

Never install the unit where acid where acid or corrosive gases are present, as current leakage or electric shock may result due to corrosion.

Follow procedures

Connect the unit to a power source as indicated on the rating label attached to the unit. Use of any other voltage or frequency other than stated on the rating label, may cause fire or electric shock.

Prohibited

Never store volatile or flammable substances in this unit if the container cannot be airtight sealed. These may cause explosion or fire.

WARNING

Always ground (earth) the unit to prevent electric shock.

If the power supply outlet is not grounded, it will be necessary to install a ground by qualified engineers.

Prohibited

Never ground the unit through a gas pipe, water main, telephone line or lightning rod. Such grounding may cause electric shock in the case of an incomplete circuit or lightning weather.

Prohibition

Do not insert metal objects such as pins or wires into any vent, gap or outlet on the unit. This may cause electric shock or injury by accidental contact with moving parts.

Prohibited

Use this unit in safe area when treating the poison, harmful or radiate articles. Improper use may cause bad effect on your health or environment.

Attention

Turn OFF the power switch (if provided) and disconnect the power supply to the unit prior to any repair or maintenance of the unit in order to prevent electric shock or injury.

Prohibited

Do not touch any electrical parts (such as power supply plug) or operate switches with wet hands. This may cause electric shock.

Follow procedures

Ensure you do not inhale or consume medication or aerosols from around the unit at the time of maintenance. That may be harmful to your health.

ATTENTION

Never splash water directly onto the unit, as this may cause electrical shock or shortcircuits.

Prohibited

Never put containers with liquid on the unit as this may cause electric shock or short circuit when the liquid is spilled.

Prohibited

Never bind, process or step on the power supply cord, or never damage or break the power supply plug. A broken supply plug may cause fire or electric shock.

Prohibited

Do not use the supply cord if it is loose. Such supply cord may cause fire or electric shock.

Prohibited

Never disassemble, repair, or modify the unit yourself. Any such work carried out by an unauthorized person may result in fire, electric shock, or injury due to a malfunction.

Attention

Disconnect the power supply plug if there is something wrong with the unit. Continued abnormal operation may cause fire or electric shock.

OFF

When removing the power plug from the outlet, pull on the plug, not the cord. Pulling the power cord may result in electric shock or fire by short circuit.

Attention

Disconnect from the power outlet before moving the unit. Make sure not to damage the power cord. A damaged power cord may cause electric shock or fire.

Attention

Disconnect the unit from the power outlet when it is not in use for a longer period. Keeping the unit plugged in may cause electric shock, current leakage or fire due to the deterioration of insulation.

WARNING

If the unit is to be stored unused in an unsupervised area for an extended period, **ensure that children do not have access andthat doors cannot be closed completely.**

Follow Procedure

The disposal of the unit should be accomplished by appropriate personnel. Please dispose of all waste packaging appropriately and in accordance with all local recycling laws.

Remove the door(s) to prevent accidents such as suffocation.

Prohibited

Do not put the packing plastic bag within reach of children, as suffocation may result.

Follow Procedure

Use a dedicated power source. (a dedicated circuit with a breaker) as indicated on the rating label attached to the unit. A branched circuit may cause fire resulting from abnormal heating.

Follow Procedure

Connect the power supply plug to the power source firmly after removing the dust on the plug. A dusty plug or improper insertion may cause a heat or ignition.

Prohibited

Never store corrosive substances such as acid or alkali, in this unit if the container cannot be sealed. These may cause corrosion of inner components or electric parts.

Follow Procedure

Check the setting when starting up of operation after power failure or turning OFF of power switch. The stored items may be affected due to the change of settings.

Follow Procedure

Be careful not to tip over the unit during transport to prevent damage or injuries. Instructions on how to tip the unit are placed on the unit itself. Please follow these instructions carefully.

Follow Procedure

Always keep keys in separate place **and out of reach of children.**

Follow procedure

The power supply cable may only be **replaced by an authorized person.**

Follow Procedure

Prepare a safety check sheet when you request any repair or maintenance for the safety of service personnel.

Follow Procedure

Before servicing or cleaning the appliance **unplug it from the mains or disconnect the electrical power supply.**

Waste Disposal

The packing material is entirely recyclable. Please dispose of all waste packaging appropriately and in accordance with all local recycling laws.

ENVIRONMENTAL CONDITIONS

This BBR – Blood Bank Refrigerator device is designed for applications in the following environmental conditions. It is safe to operate the device at theses or more favorable conditions:

1. Indoor usage only
2. Elevation of less than 2000 meters
3. Ambient temperature range +5°C to 32°C
4. Voltage variation within +-10% of nominal voltage supply
5. Factory approved abnormal voltage range.
6. Instantaneous over-voltage complies with second grade of installation of equipment. For the main voltage supply, the minimum and normal supply is second level.
7. Environment complying with IEC664 standard, grade 2 contamination.
8. The unit complies with EC directives:
   2004/108/ECC
   2006/95/ECC
   93/42/ECC
9. The BBR units are only applicable for professional healthcare and/or hospitals environment.
10. The unit should not be stacked and/or placed close to other equipment.
11. Other cables and accessories from surrounding environments may affect the EMC performance negatively.
12. Portable RF communications equipment including antennas can affect the unit negatively. Such equipment should not be used closer than 30cm to any part of the unit, including the main wire, probes/external wires connected to the controller and/or the Modbus.
13. The emissions characteristics of this equipment make it suitable for use in industrial areas and hospitals.

CAUTION

This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

Guidance and manufactures declaration for electromagnetic emissions		
Emission standard	Type	Compliance to standard
CISPR 11	RF emissions	Yes, Group 1, Class B
EN/IEC61000-3-2	Harmonic emission	Yes, Class A
EN/IEC61000-3-3	Voltage fluctuations/flicker	Yes
Guidance for application Environment		
The BBR unit is suitable for use in professional healthcare facilities including environments where connected to the public supply network.		

Guidance and manufactures declaration for electromagnetic immunity				
Emission standard	*Type*	*Compliance level*		*Specific guidance for application environment*
EN/IEC61000-4-2	Electrostatic discharge (ESD)	+-8kV contact Up to +-15kV air		Suitable for use on wood, concrete, or ceramic floor materials. Keep relative humidity below 30% when used on floors of synthetic materials e.g. carpets.
EN/IEC61000-4-4	Electrical fast transients and bursts	+-2kV power line +-1kV signal lines (100khz repetition)		The device has been tested to comply with the requirements for professional healthcare facilities. Be aware of possible disturbances when used in residential areas where connected to the public supply network.
EN/IEC61000-4-5	Surge	+-2kV line-to-ground +-1kV line to line +-2kV signal lines (outdoor)		
EN/IEC61000-4-11	Dips. Interruptions and variations on power supply input	0% , 0,5 cycles @0; 45; 90; 135; 180; 225; 270; 315° 0%, 1 cycle 70%, 25/30 cycles Interruptions: 0%, 250/300 cycles		
EN/IEC61000-4-8	Power frequency magnetic field	30 A/m @ 50/60Hz		
EN/IEC61000-4-6	Conducted disturbances, inducted by RF fields	150khz to 80Mhz 3 V r.m.s. before modulation (6V ISM bands)		
EN/IEC61000-4-3	Radiated RF EM fields	3 V/m 80Mhz to 2,7Ghz, 80% AM @1khz		Portable and mobile radio devices, including their wires, should not be used closer to the unit than 30cm.
EN/IEC61000-4-3	Proximity fields from RF wireless communication equipment	Test freq. MHz	V/m	
		385 450 710, 745, 780 810, 870, 030 1720, 1845, 1970 2450 5240, 5500, 5785	27 28 9 28 28 28 9	

The essential performance criteria

- The fan should not alter during operation.
- The controller should not alter logging abilities and must regain the ability to operate within 5 minutes after exposure.
- Both controllers must not be impacted negatively at once during operation.
- During exposure of electromagnetic disturbances or electrostatic discharge in the fields described in 60601-1-1:2015 the unit must maintain a correct temperature reading of +-0,5°C in terms of essential performance.

HANDLING & TRANSPORTATION

MOVING THE UNIT

Lifting, moving and transporting the unit without suitable equipment may cause personal injury or Material damage. Always use suitable lifting equipment to load, unload and move the unit.

Attention

Disconnect from the power outlet before moving the unit. Make sure not to damage the power cord. A damaged power cord may cause electric shock or fire.

Attention

Be careful not to tip over the unit during transport to prevent damage or injuries. Instructions on how to tip the unit are placed on the unit itself. Please follow these instructions carefully.

PACKAGING

- Do not expose the package to rain.
- Always keep the package upright. DO NOT BRING THE PACKAGE TO A HORIZONTAL POSITION.
- Do not expose the package to bumps and shocks.
- Package contents are fragile.

UNPACKING

1. Inspect the packaging carefully for any damage that may have occurred during shipping. If damage is observed, report to the shipping company and your local Arctiko distributor.
2. Remove all packaging material, plastic and straps. All packing materials are entirely recyclable. For more information on where to dispose of waste, contact your local authority or recycling station.

WARNING

Plastic bags pose a suffocation risk.
Keep away from children.

INACTIVITY FOR EXTENDED PERIOD

If the unit must be switched off for a longer period and stored away, take the following precautions:

- Clean the unit both inside and outside.
- Ventilate the unit and make sure it is completely dry.
- Disconnect from the power outlet.
- Leave the door slightly open in order to prevent rot and mold.
- 

  Attention

  Disconnect the unit from the power outlet when it is not in use for a longer period.
  Keeping the unit plugged in may cause electric shock, current leakage or fire due to the deterioration of insulation.

WARNING

If the unit is to be stored unused in an unsupervised area for an extended period, **ensure that children do not have access andthat doors cannot be closed completely.**

DISPOSAL

In the event of disposal of the unit, observe relevant legal regulations to prevent harmful environmental effects.

List of critical components at disposal:

- Refrigerant
- Compressor and compressor oil
- Battery
- Electronics

WARNING

High pressure cooling system.

Waste Disposal

Please dispose of all waste packaging appropriately and in accordance with all local recycling laws.

INSTALLATION

PREPARING THE UNIT

- **Unpack the unit:** Remove all packaging materials, protective film, plastic bags and straps from all surfaces.
- **Shelf supports:** Fit the shelf support clips onto the shelf support strips, making sure that the clips for each shelf are of the same height and that they are securely engaged on the support strip.
- **Shelf installation:** Unwrap each shelf carefully, to prevent damaging their protective coating or surface finish.
  Position the shelves onto the clips.
- **Storing the key:** The key for the door is packed together with the user manual inside the unit. Keep the key in a safe place.
- **Read the quick start guide:** The quick start guide is provided with the unit.
- **Ventilate the unit:** Open the door for at least 20 min., in order to ventilate the unit before first use. The unit may contain odors from manufacturing.
- **Clean the unit:** Clean the unit on the inside and outside with a soft cloth/sponge using a solution of water and light detergent. After cleaning all surfaces of the unit, wipe the inside with a dry rag.
- **Remote alarm contact:** The terminals for the remote alarm contact are located on the backside of the unit (see Cabinet description). The contact design is a maximum load of 2A. The remote alarm contacts work in synchronization with the buzzer alarm on the unit. When an alarm is accepted on the display the remote alarm relay will return to normal. The remote alarm can be set as normally open (NO) or normally closed (NC).
- **Warning flammable material:** Do not damage the refrigerant circuit.
- **Warning flammable material:** To reduce flammability hazards, the installation of this unit, shall only be carried out by a suitably qualified person.
- **Preparation of sensor bottle**: Before using the refrigerator, inspect the sensor bottle is filled with 75ml of sensor liquid.
- **Mounting the door handle**: Before using the device, the door handle must be mounted.

REFRIGERANT

Please see the serial plate affixed to the unit, to obtain information about the refrigerant

WARNING Flammable material

Keep clear of obstruction all ventilation openings in the unit enclosure or in the structure for building-in.

WARNING Flammable material

Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

WARNING Flammable material

Do not use electrical appliances inside the storage compartments of the unit, unless they are of the type recommended by the manufacturer.

MOUNTING THE DOOR HANDLE

The door handle can easy be mounted within a few minutes by using only a Philips screwdriver.

STEP 1

During the transport, the door handle is stored inside the BBR device, together with documents.

STEP 2

Unpack the plastic bag and make sure all parts are available.

1 pcs. Door handle
2 pcs. Adapter pieces
2 pcs. Cover caps
2 pcs. screw

STEP 3

Assemble the adaptor pieces to the handle.

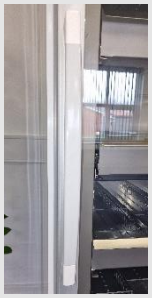
STEP 4

Screw the handle and adaptor to the door by using one screw together with the openings marked as (A).



STEP 5

After the door handle is mounted with both screws and adaptors, the cover caps can be placed for covering the screws.

LOCATION

Place the unit in a location that complies with the following conditions in order to achieve optimal operating results:

- **Handle with care:** Position the unit carefully being careful not to bump it.
- **Firm and levelled floor:** Installing the unit on a firm and flat floor reduces the risk of excessive noise and vibration, as well as to allow proper drainage from the evaporator tray, to prevent any overflow. If necessary, adjust the screw feet of the appliance to make it level.
- **Door opening space:** Ensure adequate space for fully open door is possible and to allow the door to shut and seal correctly.
- **Away from any heat source:** Avoid placing the unit near any heat dissipating devices such as a gas burner/stove, radiator, oven or other source of heat. Exposing the unit to heat will lower the performance.
- **Place the unit away from direct sunlight:** Placing the unit in direct sunlight may cause reduced performance and shorten the life expectancy.
- **Dry area:** Avoid placing the unit near damp areas such as water faucets and sinks.
- **Clean area:** Placing the unit in a clean environment will reduce risk of function failure. Avoid installing the unit in or near chemicals and materials that might have outgassing property to avoid corrosion.
- **Well ventilated:** There must be sufficient space around the unit to ensure air ventilation. Lack of such space will reduce the cooling capability of the unit. Place the unit with at least 10 cm free space to each side and least 16cm behind the unit. Do not block the front grille and/or rear air entry.
- **Do not place any objects on top** of the BBR unit.
- **Ground protection:** Grounding the refrigerator will prevent electrical shock to operators if the electrical insulation is faulty.
- **Main power plug:** The main power plug must be easily accessible, while the unit is turned on.

Warning

Failure to provide the minimum ventilation space will harm the performance of your unit, could cause fire and will invalidate the warranty.

Warning

Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building in.

Warning

If the unit has not been stored or moved in an upright position, let it stand upright for approximately 12 hours before operation.

WARNING

An electrical power socket with a ground connection must be used to power the unit. This is to prevent electrical shock.

WARNING

Do not use the unit outdoor. Current leakage or electric shock may result if the unit is exposed to rain.

WARNING

Never install the unit in a flammable or volatile location. This may cause explosion or fire.

Follow procedures

Install the unit on a sturdy floor and take an adequate precaution to prevent the unit from tipping.

Prohibited

Do not place the unit in an area where objects can fall directly onto it. To avoid damage to the refrigerator.

ELECTRICAL CONNECTION

In order to ensure an economical and reliable installation that complies with the limits of temperature and voltage drop, it is necessary to determine maximum load of units connected to the installation. In determining the maximum load for an installation or for a part of it, it is vital to consider contemporaneous factors.

For supply systems, the following must be determined:

- **Power system (AC/DC):** Data regarding voltage and absorbed power/current is given on the rating plate (see page 38).
- **Ground protection:** To prevent the user of getting exposed to electrical shock, in the event of an insulation damage, the unit must be grounded.
- **Electrical fuse:** The installation must always be secured with a minimum 10A fuse.
- **Installing multiple units:** If you have more than one unit, each unit must be connected to an individual fuse group.

When installing the unit, make sure the protected earth is grounded. If the connection is a 3-pole connection, use a three-pin plug and connect the conductor with yellow/green insulation to ground.
In order to maintain a stable operation of the unit, voltage variation cannot differ more than ±10% of the nominal voltage supply.

Always follow local regulations when preparing an installation. Contact your local authorities if in any doubt.

Never share same circuit with other appliances. Before plugging in your BBR for the first time make sure the power cable is free from damage and check that your voltage corresponds to that on the serial plate.

Once plugged in the display will show the temperature inside the unit and the compressor will run late on (the indicator light of cooling will be on at the same time). This temperature is the actual temperature recorded by the probes inside the unit and as the unit cools to the set point (factory set at 4°C). If power is cut off, wait for at least 5 minutes before plugging the unit in again to avoid damaging the compressor.

Follow procedures

Only qualified/authorized engineers or service personnel should install the unit.
Installation by unqualified personnel may cause electric shock or fire.

Grounding

Always make sure the unit is grounded to protect the user from electrical shock.

Prohibition

Do not use the power cord if it is damaged.
Such supply cord may cause fire or electric shock.

Prohibition

Never use a telephone line or lightning rod as ground protection. During lightning, there is a strong current present, which is extremely dangerous.

Prohibition

Do not use water pipes as ground protection. Modern water pipe systems are non-conductors such as PVC.

Follow procedure

Replacing the power cord may only be done by authorized personnel.

Prohibition

Never use gas lines as the ground protection for the unit. This can cause an explosion.

Follow procedures

Disconnect the power cord if there is something wrong with the unit. Continued abnormal operation may cause electric shock or fire.

GETTING STARTED

During the initial startup and continuous usage of the unit, the following procedures shall be followed:

1. Place the unit on a solid levelled floor. Make sure the room is ventilated, dry and the ambient temperature is between 16°C & 32°C. Ensure air circulation around the unit and protect it against direct sunlight.
2. Remove the protection foil from the interior as well as the bag with spares, keys, and user manual. Keep the user manual, spares and keys for later use. Place the small shelf at the interior bottom.
3. Mounting of the door handle according to instructions on page 13 of this manual.
4. Plug the power socket in a dedicated outlet. For correct voltage requirement, follow the information on the rating plate. When started, let the refrigerator unit cool for at least 2h and the freezer unit for at least 6 hours before placing any products in them.
5. Turn ON the battery back-up of the unit.

PRODUCT DESCRIPTION

The BBR Blood Bank Refrigerator range, offers best storage of blood bags at a temperature of 4°C. Equipped with drawers and a top mounted energy compartment, an easy and ergonomical access is possible.

Two controllers and a physical chart recorder gives the highest security for the stored blood as well as the opportunity for easy control of the temperature curve. Additional safety is add to the two compressor versions of BBR models.

CABINET OVERVIEW

CABINET DETAILS

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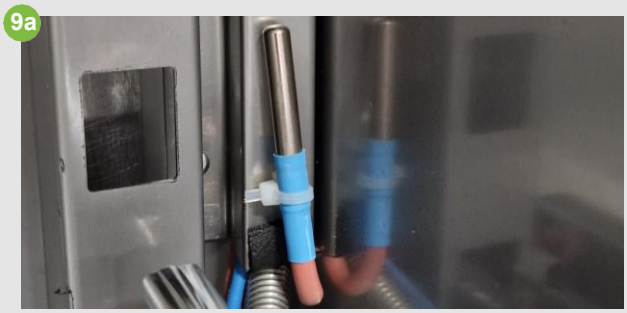
8

9b

9a



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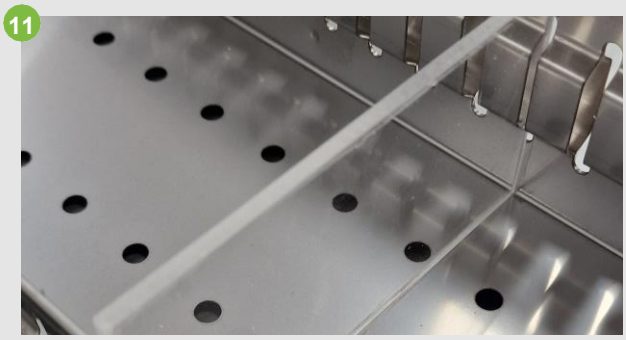


CABINET DESCRIPTION

No.	AREA	DESCRIPTION
1	Chart Recorder	
2	Battery back-up	Back-up for main controllers and secondary alarms.
3	Controller	Primary controller to control all functions
4	Rating Label	Rating label attached inside compressor compartment
5	LED light	Secure work light
6	Controller	Secondary controller for redundancy
7	Key lock	For locking the door for unwanted access
8	Adjustable drawers	Ball bearing drawers, which easily can be adjusted.
9a	Air probe	See “Probes”.
9b	Glycerin probe	See “Probes”.
10	Door handle	For easy opening. See also “Door Handle”
11	Adjustable dividers	For section separation of the drawers.
12	Castor	2pcs. front wheels with brake, 2pcs. back wheels without brake.

PROBES AND SENSOR BOTTLE

The BBR device is equipped with two probes inside the cooling chamber. One probe monitors the air temperature inside the chamber, while the second monitors the blood temperature of the stored blood bags, simulated by a glycerin solution.
When the glycerin solution is lower than the 75ml mark, a correct measurement cannot be guaranteed, and the liquid must be renewed with a glycerin solution of 10% glycerin concentration.

STEP 1
Remove the top drawer, bottom drawer, shelves and baskets.

STEP 2
Unscrew the fastener which holds the bottle and remove the bottle.

STEP 3
Careful unscrew the bottle´s cap, which is used for mounting the sensors.

STEP 4
Pour a solution of 10% glycerin concentration into the bottle, until it is filled to the 75ml mark line.

STEP 5
Mount the bottle at the initial position inside the BBR device close to the inner liner wall.

STEP 6
Install the bottle back to its original position. Place the temperature sensor back inside the temperature bottle.

DISPLAY

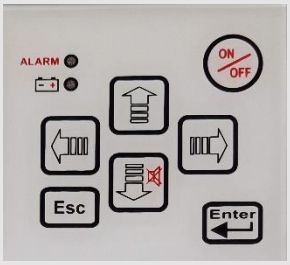
Easy and user -friendly control panel (G-214 controller), with just a 7-key resistive keyboard. Through various settings it is possible to adjust to device for your needs.

KEYBOARD

No.	AREA	DESCRIPTION
1	Compressor status	Information whenever the compressor is running / not running.
2	Temperature indicator	Showing the current temperature measured inside the glycerin bottle.
3	USB-Port	For upload of software. For download of temperature graph.
4	Date indicator	Showing the current date (manual setting).
5	Hour indicator	Showing the current time (manual setting).
6	Ambient temperature indicator	Showing the current ambient temperature.
7	Battery level	Indicator for the backup battery level.
8	Escape key	Push the ESC key to exit the menu.
9	UP; DOWN; LEFT; RIGHT keys	Navigation within the menu. Hotkeys for the “HOME” menu.
10	ENTER key	Access to the chosen menu. “ACCEPT” chosen values.
11	LED Power failure alarm	Red light visual alarm, during power failure.
12	ON / OFF key	To turn ON/OFF the device (password required).
13	LED Alarm	Red light visual alarm, during normal use conditions.
14	Alarm icon	During alarm condition, the alarm symbol will be displayed.
15	Alarm indicator	During alarm condition, a brief text of the alarm will be displayed.

DISPLAY HOME SCREEN

While in "HOME" screen, 5 keys can be used to control the unit. When any alarm is active, the main menu cannot be accessed before all current alarms are approved.

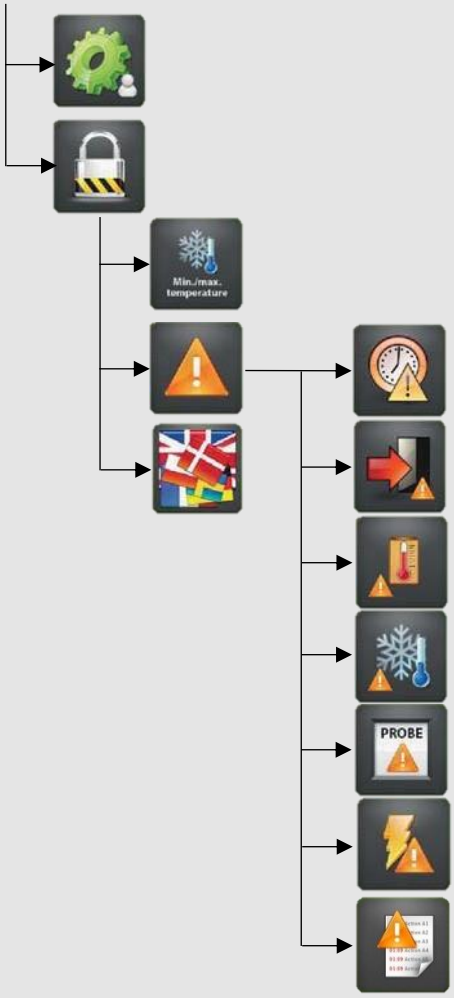


SYMBOL	KEY	DESCRIPTION
	UP KEY	Push the UP key for generate a graph.
	LEFT KEY	When showing the graph, push the LEFT key to show earlier periods (up to 10 days).
	DOWN KEY	Push the DOWN key to silent a current alarm signal. HINT: the alarm will still be active.
	ON / OFF KEY	Turn the unit OFF (requires code)
	ENTER KEY	Access the menu panel. While active alarm(s), the alarm list will be opened instead.

SETTING ICONS

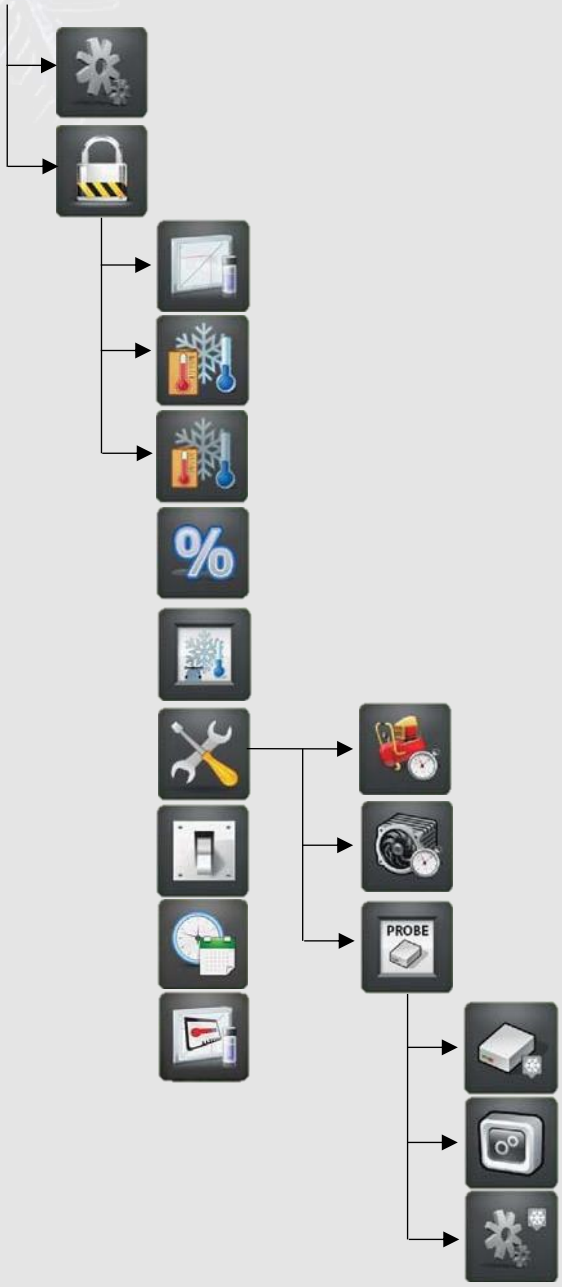
SYMBOL	KEY	DESCRIPTION
	Custom Settings	Access to main settings (Language, Date, Alarm, Setpoint mm.). (see page 23)
	Advanced Settings	Access to admin settings (Calibration, Hysteresis, mm.). (see page 24)
	Advanced Service Settings	Only for ARCTIKO staff.
	Status	Current alarm list & 24h temperature mapping. (see page 25)
	Change / Reset password	For adjusting the user password. (see page 25)

CUSTOM SETTINGS



	**Enter password** The menu **Custom setting** is protected with a password, which is “0000” to access the menu.
	Under the menu **Setpoint** the temperature for the unit will be set.
	Under the menu **Alarm Settings** the below menu will be available.
	Under the menu **Select language** you can select the desired language.
	The menu **Alarm delay** is the settings of the time from an alarm will occur on the unit and until it will be shown on the display. (Only temperature alarms)
	The menu **Door open alarm** is the settings of enabling or disabling the door open alarm.
	The menu **High temp. alarm** is the settings of the highest temperature the device must be inside before it comes with an alarm.
	The menu **Low temp. alarm** is the settings of the lowest temperature the device must be inside before it comes with an alarm.
	The menu **Probe eprom failure** is the setting of enabling or disabling the alarm in case of probe failure.
	The menu **Power failure** is the setting of enabling or disabling the alarm in case of power failure.
	The menu **Logging time interval** is the settings of the time interval for the controller to log data from the unit. The recommended setting is 1 minute.

ADVANCED SETTINGS

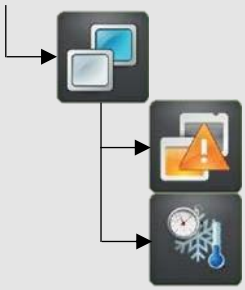


	Enter password The menu **Advanced Settings** is protected with a password which is “0000” to access the menu.
	The menu **Calibration** is the settings for offset of the temperature in the display.
	The menu **Automatic defrost** is the setting of the time between each automatic defrost cycle performed on the unit.
	Under the menu **Manual defrost** the defrost can be started immediately.
	he menu **Hysteresis** is the setting of the different from the setpoint where the compressor will start and stop.
	The menu **Temp. range limits** is the settings of the maximum and minimum temperature the unit can be used for.
	Under the menu **Service**, there is information about the unit, which is important for service on the unit.
	The menu **Compressor hours** shows, how many hours the compressor has been running.
	The menu **Fan hours** shows, how many hours the fan has been running.
	Under the menu **Probe** the temperature for the sensor mounted in the unit is displayed.
	Under the menu **Probe inside unit** the temperature of the sensor mounted inside the unit is displayed. There is mounted a sensor as standard in the unit, but it is possible to mount 3 sensors inside the device. (Controller version)
	Under the item **Probe Compressor** the temperature of the sensor mounted on the compressor is displayed. (Not all models)
	Under the point **Probe evaporator** the temperature of the sensor, that is located on the evaporator, is displayed.
	The menu **Password protection** is the setting of the protection for the unit not to be turn off and is protected with a password.
	The menu **Set date / time** is the setting of date and time.
	The menu **Ambient temp. settings** is the adjustment of the ambient temperature.

ADVANCED SERVICE SETTINGS

	This menu is ONLY used by the manufacturer service department.

STATUS

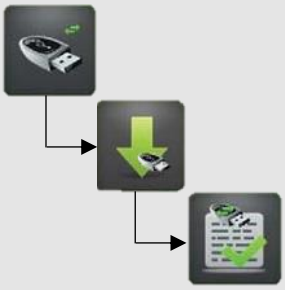


	The **Current alarms** shows the alarm, which have been on the unit with data and time.
	The **Temp. last 24 hours** shows the temperature of the unit the last 24 hours.

CHANGE / RESET PASSWORD

	Under **Change passw**ord it is possible to change the password for **Customer Settings, Advanced Settings** and **Advanced Service Settings.**
	Under **Reset password** it is possible to reset the pass- word for the **Customer Settings, Advanced Settings** and **Advanced Service Settings.** Contact the manufacturer to get the password for reset password.

DOWNLOAD DATA

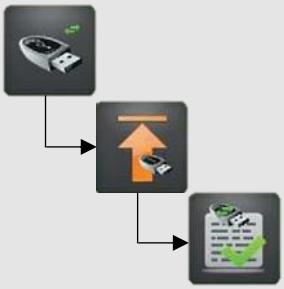


	Place the USB pen drive in the connection on the display and press the RIGHT key for **read data** from the unit to the USB pen.
	The **Read data** will be shown in the display when the data is loading to the USB pen drive
	The **Transfer complete** will be shown on the display when the loading is finished and the USB pen can be removed from the display

OPEN & PROCESS DATA ON A COMPUTER

Open the files:
“Data00” and “**param00”**
on a computer in Excel or similar

UPLOAD DATA (Only for new settings from the manufactory)



	Turn-off the display before start. Place the USB pen drive in the connection on the display and press the LEFT key for upload parameters from the USB pen to the unit.
	The **Data upload** will be shown in the display when the data is loading to the unit.
	The **Transfer complete** will be shown on the display when the loading is finished and the USB pen can be removed from the display

ALARM ON DISPLAY

Any alarm situation will be communicated visual and acoustical. The alarm will be visible as red light on the display, as well as the display is stating the word "ALARM !", together with a symbol of the certain alarm situation. The different used symbols are,

SYMBOL	KEY	DESCRIPTION
	Door open alarm	The **Door open alarm** indicate that the door is not correct closed.
	High temp. alarm	The **High temperature alarm** indicate that the temperature inside the unit is higher than permitted from setting of the unit.
	Low temp. alarm	The **Low temperature alarm** indicate that the temperature inside the unit is lower than permitted from setting of the unit.
	Probe eprom failure	The **Probe eprom failure** alarm indicate that the probe is not working.
	Power failure	The **Power failure alarm** indicate that there is no power to the unit.
	Low battery	The **Low battery alarm** indicate that the power on the battery is to low.

DEFAULT SETTINGS G-214 CONTROLLER

PARAMETER	DESCRIPTION	SETTING
C0	Defrosting frequency (h)	6
C1	Maximum defrosting time (min)	30
C2	Minimum compressor stopping time (min)	1
C3	Evaporator thawing time (min)	0
C4	Temperature delay alarms (min)	1
C5	Maximum compressor operation time (min)	40
C6	Compressor stopping time (min)	1
C7	Time for which the temp. measured directly prior to the defrosting compartment (min)	5
C8	Compressor operation time if controlling sensor has been damaged (min)	3
C9	Compressor stopping time if controlling sensor has been damaged (min)	3
C10	Fan start after start compressor (min)	0
C11	Fan stop after stop compressor (min)	0
C12	Period write data to controller (min)	1
C13	Evaporator freezing time (min)	5
C14	Hour start blockade defrosting process (hh)	0
C15	Hour end blockade defrosting process (hh)	0
C16	High hysteresis value blockade display temperature (°C)	0
C17	Low hysteresis value blockade display temperature (°C)	0
C18	Time delay alarm open the door (min)	3
C19	Time delay start two compressors (s)	30
C20	Time delay between compressor start and the moment when compressor outlet temperature is measured. (s)	30
C21	Time interval during compressor operation when the compressor outlet temp. can´t fall more than d11 parameter. (s)	30
C22	Time delay for closing the door lock	5
C23	The period of reading data from the controller to a USB flash drive 0 - read all data from memory 1 - reading data from the last 24 hours 2 - reading data from last week 3 - reading data from last month 4 - reading data from the last 3 months 5 - reading data from the last 6 months	1

PARAMETER	DESCRIPTION	SETTING
D0	User set minimum temperature (°C)	4
D1	User set maximal temperature (°C)	4
D3	Hysteresis (°C)	1
D4	Chamber sensor rescaling with relation to measured temperature (°C)	Calibrated
D5	Ambient sensor rescaling with relation to measured temperature (°C)	-16
D6	Chamber temperature higher up, will be Alarm (°C)	6
D7	Chamber temperature below this, will be Alarm (°C)	2
D8	Evaporator temperature at which fans will start their operation after the defrosting process completion (°C)	4
D9	Evaporator temperature at which the defrosting terminates (°C)	5
D10	Minimum increase of compressor outlet temperature in time C20 (°C)	4
D11	Maximum decrease of compressor outlet temp. during time interval C21 (°C)	20
D12	Rescaling temperature sensor T2	Calibrated
D13	Rescaling temperature sensor T3	n/a
D14	Temperature at which the evaporator fan will be shut down.	40

PARAMETER	DESCRIPTION	SETTING
R0	0 – Disable – Data writing to controller 1 – Enable – Data writing to controller	1
R1	0 – Disable – Power failure alarm 1 – Enable - Power failure alarm	1
R2	0 – Disable – Door open alarm 1 – Enable – Door open alarm	1
R3	0 – Disable – Probe failure alarm 1 – Enable – Probe failure alarm	1
R4	Evaporator fans operation method: 0 – Fan(s) operating according to GECO algorithm 1 – Fan(s) operating all time 2 – Fan(s) stopping	0
R5	Evaporator defrost method: 0 – Defrosting through the compressor stop 1 – Heater assisted defrosting	1
R6	Door opening sensor option: 0 – No door opening sensor present 1 – Door opening sensor available, connected when door is open. 2 – Door opening sensor available, disconnected when door is open.	2
R7	Evaporator fan(s) operation method: 0 – Fan(s) operate only when compressor is running. 1 – Fan(s) operate permanently, when connected to power supply. **NOTE: This parameter does not affect the cycle and method of evaporator defrosting.**	1

R8	Operation for alarm relay: 0 – Relay normal open (NO) 1 – Relay normal closed (NC)	1
R9	Address to controller 485	2
R10	Type device: 0 – unit with one compressor. 1 – unit with two compressors, working both at same time. 2 – unit with two compressors, working one at a time.	0 / 2
R11	Blockade, turning of alarm relay (transmitter) with “mute” button on control panel: 0 – Blockade OFF 1 – Blockade ON	1
R12	Number of cycles changes work compressor, for type refrigerator no. 2	0
R13	The display of temperature: 0 – The total value of temperature display 1 – Temperature displayed with a comma	1
R14	Light relay operation: 0 – Relay lights attached all time 1 – Relay lights attached when door is open. 2 – Relay lights attached when door is closed.	1
R15	Communication between module: 0 – Full communication with the power supply. This is set when a single PCB module is connected to a single power supply. 1 – Slave mode – PCB module does not communicate with power supply. Only Power failure detection When 2 PCB modules are connected to a single power supply. 2 – Master mode – PCB module communicates with power supply. When 2 PCB modules are connected to a single power supply.	0
R16	Door lock options: 0 – lack of door lock. 1 – lock on the front door. 2 – lock on the front door – reverse polarity.	0
R17	The choice of sensor on the main screen: 1 – T1 2 – T2 3 – T3	1

CONTROL PANEL (Dixell XR30CX Controller)

The Dixell controller is only used as backup to the alarm functions.

SYMBOL	KEY	DESCRIPTION
	LIGHT BULB KEY	n/a
	DEFROST KEY	For starting a manual defrost process.
SET	SET KEY	For displaying the target set point temperature. In programming mode used for selecting a parameter or confirm an operation.
	UP KEY	To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.
	DOWN KEY	To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.
	ON / OFF KEY	To turn the controller ON and OFF, if onF = oFF.

KEY COMBINATIONS

COMBINATION	FUNCTION
+	To lock & unlock the keyboard.
SET +	To enter programming mode.
SET +	To return to the room temperature display.

ACTION ICONS

SYMBOL	MODE	FUNCTION
	On	Compressor enabled
	Flashing	Anti-short cycle delay enabled
	On	Ventilator enabled
	On	Defrost enabled
	n/a	n/a
	On	Energy saving enabled
	On	Continuous cycle is running
	On	Alarm is occurring

RECORDED MIN. TEMPERATURE

1. Press and release the “DOWN” key.
2. The “Lo” message will be displayed, followed by the minimum temperature recorded.
3. After 5sec. the normal display will be restored.

RECORDED MAX. TEMPERATURE

1. Press and release the “UP” key.
2. The “HI” message will be displayed, followed by the minimum temperature recorded.
3. After 5sec. the normal display will be restored.

DEFAULT SETTINGS DIXELL XR30CX CONTROLLER

Label	Name	Range	Set point	Pr 1/2
ALc			Ab	Pr2
ALU			6	Pr1
ALL		-50.0°C Set/-58°F Set	2	Pr1
AFH		(0.1°C / 25.5°C)(1°F / 45°F)	1	Pr2
ALd		0 ÷ 255min	0	Pr2
dAo		0 ÷ 23h e 50´	23	Pr2
tbA		N=no; y=yes	Y	Pr2
Aro		N(0) -y(1)	Y	Pr2
ALF			Y	Pr2
bon		oP; cL	30	Pr2
AoP	Alarm relay polarity	oP=opening; cL=closing	cL	Pr2
I1P	Digital input configuration	EAL, bAL, PAL, dor; dEF; Ktr	cL	Pr1
I1F	Digital input configuration	AUS	AUS	Pr1
Adr	Serial address	0 ÷ 247	1	Pr2
PbC	Kind of probe	Ptc; ntc	Pt1	Pr2
onF	On/Off key enabling	Nu, oFF; ES	oFF	Pr2

ALARMS

ALC Temperature alarms configurations: (Ab; rE)
Ab= absolute temperature: alarm temperature is given by the ALL or ALU values. rE = temperature alarms are referred to the set point. Temperature alarm is enabled when the temperature exceeds the “SET+ALU” or “SET-ALL” values.

ALU MAXIMUM temperature alarm: (SET÷150°C; SET÷302°F)
when this temperature is reached the alarm is enabled, after the “ALd” delay time.

ALL Minimum temperature alarm: (-100.0 ÷ SET°C; -148÷302°F)
when this temperature is reached the alarm is enabled, after the “ALd” delay time.

AFH Differential for temperature alarm recovery: (0,1÷25,5°C; 1÷45°F)
Intervention differential for recovery of temperature alarm.

Ald Temperature alarm delay: (0÷255 min)
time interval between the detection of an alarm condition and alarm signaling.

dAo Exclusion of temperature alarm at startup: (from 0.0 min to 23.5h)
time interval between the detection of the temperature alarm condition after instrument power on and alarm signaling.

ALARM RELAY MANAGEMENT

tbA Alarm relay silencing (with oA1=ALr):
(n= silencing disabled: alarm relay stays on till alarm condition lasts, y =silencing enabled: alarm relay is switched OFF by pressing a key during an alarm).

Aro Alarm relay activation with power failure:
y = the alarm relay is activated if a temperature alarm happens during a power failure
n = the alarm relay is never activated during a power failure

ALF Alarm relay activation for all the alarms:
y = the alarm relay is activated for all the alarms
n = the alarm relay is activated only in case temperature alarms and regulation probe failure.

bon Time of buzzer restart after muting, in case of alarm duration:
(0÷30min; with 0 the buzzer is always off after muting)

AoP Alarm relay polarity:
it set if the alarm relay is open or closed when an alarm happens. CL= terminals 1-2 closed during an alarm; oP = terminals 1-2 open during an alarm.

DIGITAL INPUT

i1P Digital input polarity:
oP: the digital input is activated by opening the contact; CL: the digital input is activated by closing the contact.

i1F EAL = external alarm:
"EA" message is displayed; bAL = serious alarm
"CA" message is displayed. PAL = pressure switch alarm, "CA" message is displayed; dor = door switch function; dEF = activation of a defrost cycle; AUS =to switch on the second relay if oA1 = AUS; Htr = kind of action inversion (cooling – heating); FAn = not set it; ES = Energy saving.

OTHERS

Adr Serial address (1÷244):
Identifies the instrument address when connected to a ModBUS compatible monitoring system.

PbC Type of probe:
it allows to set the kind of probe used by the instrument: PtC = PTC probe, Pt1 = Pt1000 probe.

onF on/off key enable:
nu = disabled; oFF = enabled; ES = not set it.

ALARM SIGNALS

MESSAGE	CAUSE	OUTPUTS
“P1”	Room probe failure	Compressor output acc. To par. “Con” & “COF”
“HA”	Maximum temperature alarm	Output unchanged
“LA”	Minimum temperature alarm	Output unchanged
“dA”	Door open	Compressor acc. To rrd
“EA”	External alarm	Output unchanged
“CA”	Serious External Alarm (i1F=bAl)	All outputs OFF
“CA”	Pressure Switch Alarm (i1F=PAL)	All outputs OFF

ALARM RECOVERY

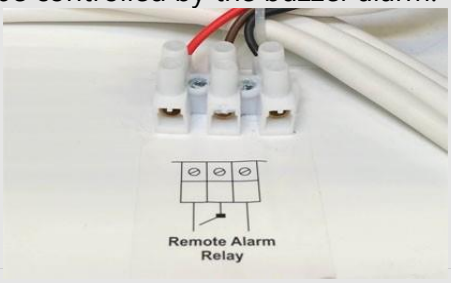
Probe alarm “P1” starts some seconds after the fault in the related probe; it automatically stops some seconds after the probe restarts normal operation.
Check connections before replacing the probe. Temperature alarms “HA” and “LA” automatically stop as soon as the thermostat temperature returns to normal values.
Alarms “EA” and “CA” (with i1F=bAL) recover as soon as the digital input is disabled.
Alarm “CA” (with i1F=PAL) recovers only by switching OFF and ON the instrument.

ALARM RECOVERY

Probe alarm “P1” starts some seconds after the fault in the related probe; it automatically stops some seconds after the probe restarts normal operation.
Check connections before replacing the probe. Temperature alarms “HA” and “LA” automatically stop as soon as the thermostat temperature returns to normal values.
Alarms “EA” and “CA” (with i1F=bAL) recover as soon as the digital input is disabled.
Alarm “CA” (with i1F=PAL) recovers only by switching OFF and ON the instrument.

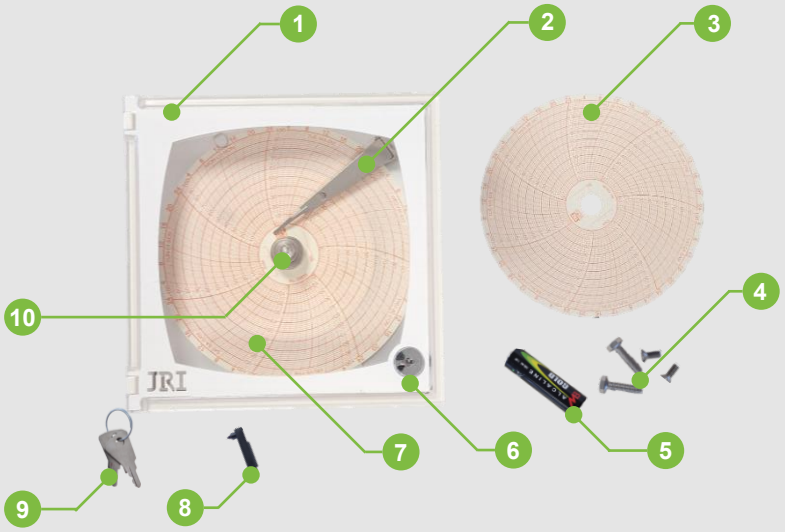
REMOTE ALARM CONTACT

The terminals for the remote alarm contact are located on the back of the unit cover panel. The potential free contacts are designed for switching a 2A load at 30 VDC or 250VAC. The remote alarm contacts work in synchronization with the buzzer alarm on the refrigerator. Therefore, the remote alarm can be terminated by pushing the buzzer alarm mute button. However, in case of a power failure, the remote alarm contacts cannot be controlled by the buzzer alarm.



Remote alarm condition: NO for Normally Open, NC for Normally Closed.

CHART RECORDER



No.	AREA	DESCRIPTION
1	Door	Door for physical protection of the diagram and measuring pen.
2	Pointer	Temperature dependent pointer.
3	Spare diagrams	Pckage with 100pcs. of spare diagrams.
4	Screws	Screws for mounting the device inside the BBR.
5	Battery	1,5V AA LR6 Battery.
6	Door lock	Door lock for limited access to the diagram.
7	Diagram	Diagram for measuring glycerin temperature during a period of seven days.
8	Pen	Fiber point pen, for marking the temperature mapping.
9	Keys	2pcs. of keys for the key lock.
10	Mounting screw	Screw for mounting the diagram to the mechanical clockwork.

The Chart recorder is a device intended to monitor the temperature.
It is made up of a neutral gas thermometer and write on a circular diagram with a fibre point pen.
The case is made up of a closed body and a perforated rear hood made of white ABS plastic, and includes:
A clockwork movement, a diagram the measurement´s drive element and the mechanical amplification device as well the interchangeable fibre point pen inscription.
The case front panel is a key locked transparent polycarbonate door.
The diagram drive is ensured by:

- A standard quartz two-speed clockwork mechanism (1x24h and 7x24h) powered by a standard commercial battery.

The recording corresponding to the rated time length is done on a complete diagram rotation.

IMPLEMENTATION AND USEAGE

A) Installing of Battery

- Open the recorder door (1).
- Lift the pointer (2) to release the diagram.
- Unscrew the knurled nut (10), and remove the diagram (7).
- Firmly hold the case in one hand and, use another hand to pull the mechanism axis toward the outside by alternatively swinging up and down to release it from its base.
- Change the battery located behind the mechanism, replace the mechanism in its case up to the stop.
  For two-speed versions, the mechanism thus taken out allows access to the speed-changing lever.
- Tighten the nut, the knurled part toward the outside, up to the stop.
  To set the time, turn the milled axis clockwise by using the end of the fiber point pen as a mark. This direction is imperative to eliminate the looseness in the clockwork mechanism.

B) Putting the fiber point pen in place

- Lift the plate´s pointer (2).
- Insert the end of the pointer into the fiber point pen´s slide rail up to the stop (8).
- Remove the cap by pulling and turning it at the same time.
- Do not place the point of the fiber point pen in contact with the fingers.
- Gently place the pointer on the diagram again.

C) Installing the diagram

- Release the pointer from the diagram (2).
- Unscrew the knurled nut (10).
- Place the diagram on the drive´s axis (7).
- Insert the diagram under tabs foreseen to hold it.
- Tighten the nut, the knurled part toward the outside, up to the stop.
- Gently bring the pointer on the diagram.

D) Use of the clockwork mechanism

Winding the clockwork spring

- Turn the knurled button (4) clockwise up to the stop without forcing it.
- When the spring is completely unwound, the winding takes from 8½ to 9 rounds. (one round per 24 hours of operation).

Replacing the diagram and setting the time

- To lessen the uncertainty of time setting, the operation shall be carried out on an even hour.
- After rewinding, lift the pointer (2).
- Unscrew the winding knob and the diagram´s locking knob (4).
- Take a blank diagram (8), note the date and identify the recording in the boxes foreseen so that effect.
- Install the diagram on the axis and slip the edge of the disk under the 2 holding tabs.
- Screw back knob, clockwise, up to the stop and then come slightly backwards so as to be able to make the diagram turn.
- Gently place the pointer back on the diagram.

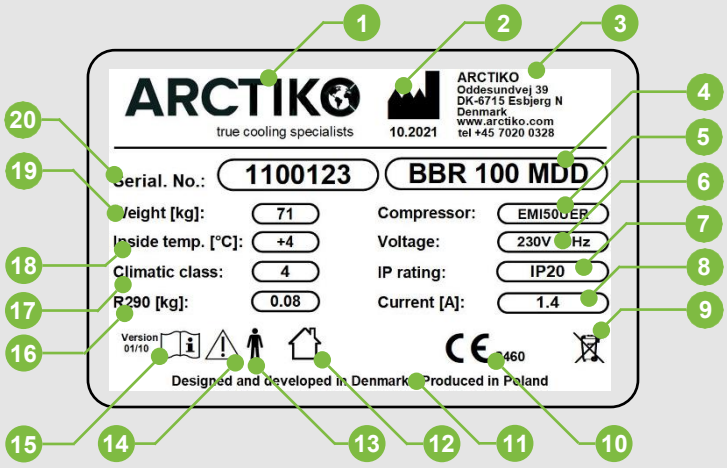
- Position the diagram facing the fibre point, on the date and 4 hours in advance. The locking of knob entails a slight slip (in the hour direction), for this reason one must anticipate this displacement so as to obtain an accurate time setting.
- Tighten locking screw , without touching the diagram, up to positioning the diagram on the exact time. The taking up of the angular play shall be carried out at the same time.
- Tighten the winding knob again.

TECHNICAL PROPERTIES

DESCRIPTION	SELF CONTAINED TEMPERATURE PROBE-RECORDER
Number of measurement channels	1
Measuring range	0 to 100°C and -10 to +40°C
Connection	Capillary tube length: 3m
Accuracy	+-2% of measuring range at 23°C
Full stroke	45mm
Viewing	Diagram disk Ø125mm
Length of recording (period)	1R / 7days (default), 1R / 24hours
Power supply, self contained	Battery ; LR6 ; 1,5V AA ; replace annually
Appointed operating conditions	-15°C to +60°C
Storage conditions	-35°C to -65°C
Size	144 x 144 x 119 (mm)
Degree of protection	IP20
Humidity	Max. 60%
Accessories: Diagrams	100pcs.
Fiber point pen	Violet

RATING PLATE

The rating plate is placed inside the machinery room on the right side.



No.	AREA	DESCRIPTION
1	Manufacturer	Company name and logo.
2	Date of manufacture	Month and year of the unit's production date.
3	Company details	Manufacturers physical address, phone number and web address.
4	Model	Model name and size
5	Compressor	Information about the mounted compressor model
6	Voltage	Required voltage and frequency of the model.
7	IP code	IP rating for solids and liquids
8	Currency	Max. possible currency of the model in Ampere (A).
9	Disposal symbol	Information regarding safe RoHS WEEE conform disposal.
10	CE-label & NB #	Certificate of conformity and Notified body number.
11	Origin	Country of origin.
12	Inhouse use only	The product may only be used in house.
13	Person use	The device can be used by persons.
14	Caution	Information about possible cautions
15	Read manual	Information regarding the user manual.
16	Refrigerant	Information regarding the used refrigerant type and amount.
17	Climate class	Information regarding the ambient temperature and humidity.
18	Default temperature	Information regarding the default setpoint temperature.
19	Weight	Weight of the empty device
20	S/N	Serial ID for the current unit. (consecutive number)

SPECIFICATIONS

DESCRIPTION	BLOOD BANK REFRIGERATOR FOR MEDICAL APPLICATION				
Model number	BBR 100 BBR 100-D	BBR 300 BBR 300-D	BBR 500 BBR 500-D	BBR 700 BBR 700-D	BBR 1400 BBR 1400-D
External Dimension [mm]	W 610 x D 659 x H 790	W 520 x D 690 x H 1997	W 620 x D 860 x H 1997	W 720 x D 860 x H 1997	W 1440 x D 860 x H 1997
Internal Dimension [mm]	W 490 x D 470 x H 434	W 400 x D 575 x H 1505	W 500 x D 695 x H 1505	W 600 x D 695 x H 1505	W 1320 x D 695 x H 1505
Effective Storage Volume [L]	94	352	523	628	1381
External Wall Surface	Vanished steel				
Internal Wall Surface	Stainless steel				
Door	Electrical heated glass door				
Insulation	Hard polyurethane foam (no fluoride)				
Drawer (stainless steel)	2pcs.	5pcs.	5pcs.	5pcs.	10pcs.
Refrigeration system	Forced air cooling				
Compressor	Hermetically sealed system				
Condenser	Finned coil condenser				
Evaporator	Finned coil evaporator				
Refrigerant	R-290				
Defrost system	Automatically forced defrost system				
Temperature controller	Electronic controller				
High Temperature Alarm	Flashing Alarm Indicator, alarm buzzer, remote alarm contact				
Low Temperature Alarm	Flashing Alarm Indicator, buzzer alarm without time delay, remote alarm contact				
Door Alarm	Alarm for door opening after 3 minutes delay				
Memory Device	Non-Volatile memory storage				
Florescent Light	8 W				
Chart Recorder	Standard including one box of recorder chart paper, and 1 piece of 9 V battery				
Accessory Items	One set of key, one certificate of warranty, one copy of operation manual, one plastic bag				
Weight [kg] (-D version)	71 (86)	133 (148)	148 (163)	163 (178)	198 (213)
Rechargable battery (G214)	BP 7-12 (12V 7AH)				
Rechargable battery (XR30CX)	FG10121 (6V 6AH)				

OPERATING PARAMETERS

DESCRIPTION	BLOOD BANK REFRIGERATOR FOR MEDICAL APPLICATION				
Model number	BBR 100 BBR 100-D	BBR 300 BBR 300-D	BBR 500 BBR 500-D	BBR 700 BBR 700-D	BBR 1400 BBR 1400-D
Sensor bottle temperature	+4° C +/- 2° C				
Design ambient temperature	+5° C to +32° C				
Sustainable alarm time	72 Hours with fully chargeable battery				

NOTE: The design parameters of this refrigerator may change without notice.

WIRES & CONNECTIONS

- Mains wire
- Door sensor
- Flat cable for display
- Flat cable for PCB/PSU
- Probe (PT1000)
- Probe for Dixell XR30CX
- Transformer
- Chart recorder
- Remote alarm contact
- LED light
- Vertical long LED (not apply to all units)
- Modbus

MAINTENANCE

Frequent and correctly executed maintenance is essential to ensure high performance and functionality of the unit. Arctiko recommends a thorough examination twice a year and cleaning at least once a month.

GENERAL MAINTENANCE

Perform the following at least twice a year.

- Lubricate hinges and gaskets. Wipe off all excess lubricant.
- Inspect all seals and gaskets. Make sure they are still soft and flexible.
- Check the battery with a voltmeter should only be performed by authorized personal and according to the service manual which is available on our website
- Battery used is 12V 7.2Ah Rechargeable Lead Acid Battery do not use any other battery than stated in the manual. For more information contact Arctiko Service. Battery must be recycled.

WARNING

Before any inspection or maintenance work is performed, the power cord of the unit should be disconnected from the power outlet. This is to prevent any potential electrical shock or injury. During the maintenance work, do not breathe the dust and aerosols near the unit, they might be harmful to your health.

Prohibition

Never disassemble, repair, or modify the unit yourself. Any such work carried out by an unauthorized person may result in fire, electric shock, or injury due to a malfunction.

WARNING

Do not touch any electrical parts or operate switches with a wet hand. This may cause electric shock.

Prohibition

Do not use flame to check for gas leak.

CLEANING

Perform the following instructions at least once a month:

- Clean the outside and inside of the unit using a dry, soft cloth or brush or a soft cloth with a solution of water and mild detergent. If a thorough cleaning or disinfection is required, we recommend using ethanol.
- Clean all gaskets using a damp cloth and, if necessary, a mild detergent. Remove dirt and wipe with a dry cloth afterwards. Do not pour water directly into the unit. By doing so, the water can damage the insulation materials and electrical components.
- After cleaning, use a dry cloth to wipe off any solution residue off the surfaces.
- Clean all gaskets using a damp cloth and, if necessary, a mild detergent. Remove dirt and wipe with a dry cloth afterwards. Do not pour water directly into the unit. By doing so, the water can damage the insulation materials and electrical components.
- Do not pour water directly into the refrigerator. By doing so, the water can damage the insulation materials and cause problems.
- Parts in the refrigeration system for this refrigerator are completely sealed. They do not require any lubrication.

ATTENTION

Do not use abrasive nor chlorine-containing products to clean the unit.

ATTENTION

Never splash water directly onto the unit, as this may cause electrical shock or short circuits.

CHART RECORDER CLEANING

- Clean the housing with soapy water and a soft rag.
- Change the battery once a year. Do not leave the battery inside the appliance during prolonged stops.

Instructions for changing the accessories:

- Install the battery, see page 36
- Install the fiber point pen, see page 36
- Installing the diagram, see page 36
- Using the mechanical clockwork, see page 36

SPARE PARTS

For requirements of spare parts, contact your Arctiko distributor. Please inform the serial number of the unit and model when contacting the distributor.

Arctiko strive for day-to-day delivery of spare parts. However, some special parts may take longer due to production time. Arctiko guarantees availability of spare parts for all units for at least 10 years after the delivery.

ARCTIKO A/S, declines any responsibility for jobs carried out by unauthorized personnel or the use of non-original spare parts.

CHART RECORDER PAPERS

The chart recorder papers are imprinted chart papers designed for the recorder. The papers that are supplied with the unit usually last about half a year. When you are running short of the chart paper, please contact your distributor. The lead time to deliver the charts is 1-3 working days after receiving the order.

SERVICE

Arctiko recommends that service is performed by authorized service personnel at least once a year. Contact your Arctiko distributor for contact information. Always have the serial number of the unit and model ready for the distributor.

AFTER-SALES

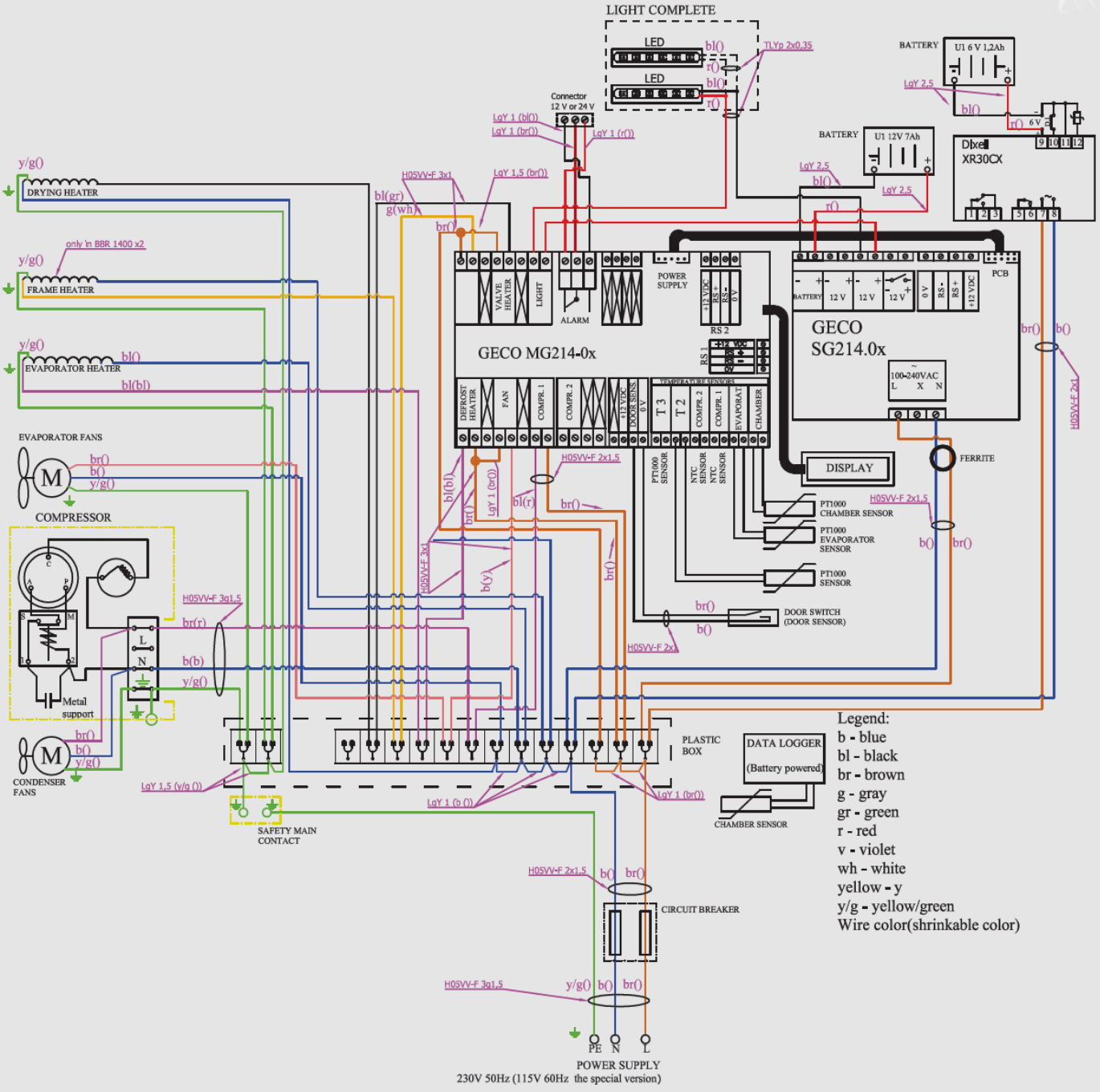
If you would like more information about your device or you would like to purchase spare parts or additional equipment, please contact your local distributor. Always have serial number of the unit and model handy when contacting the distributor.

WARRANTY

For warranty information, Arctiko refers to your distributor's terms and conditions.

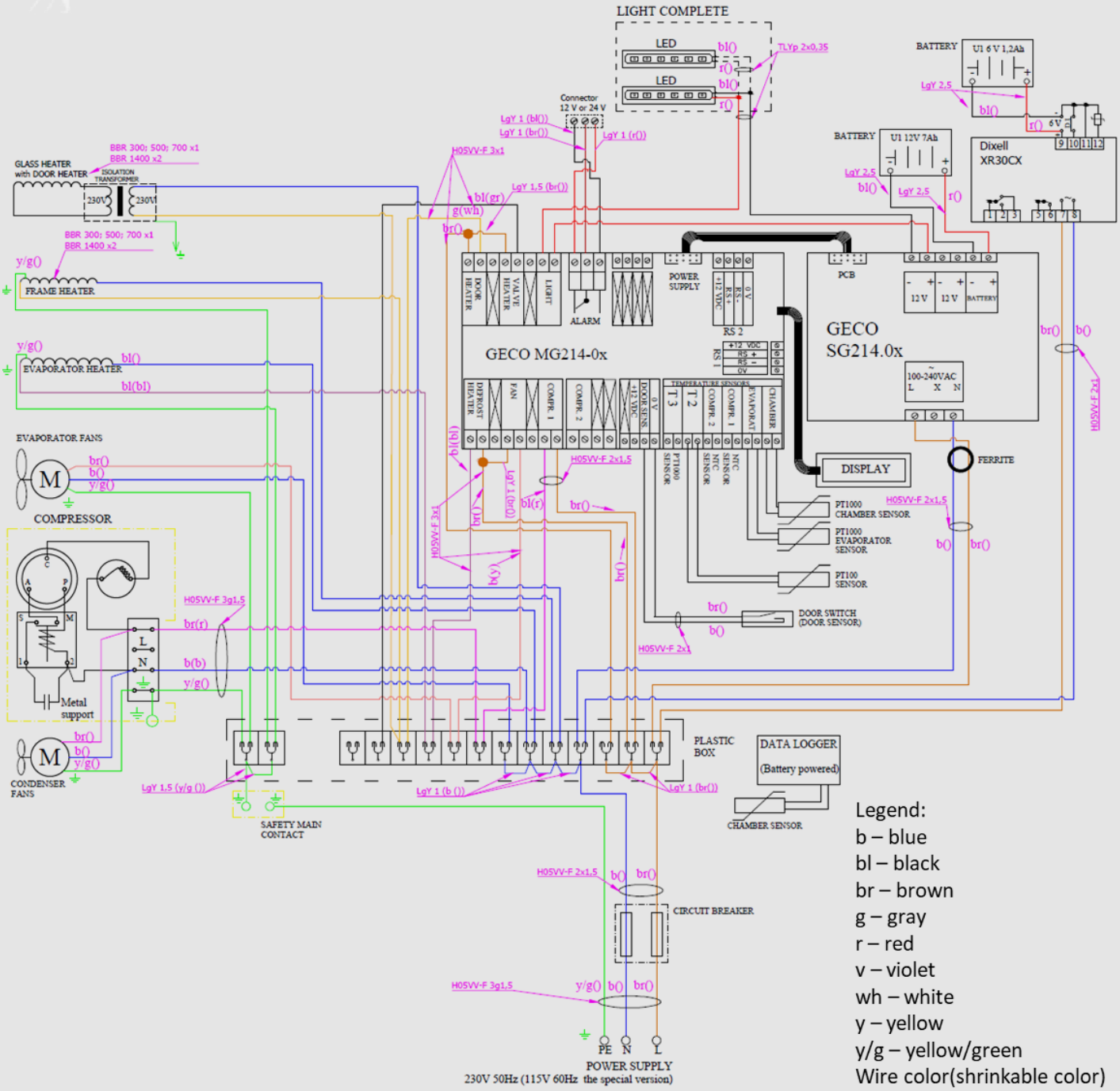
WIRING DIAGRAM

BBR 100



WIRING DIAGRAM

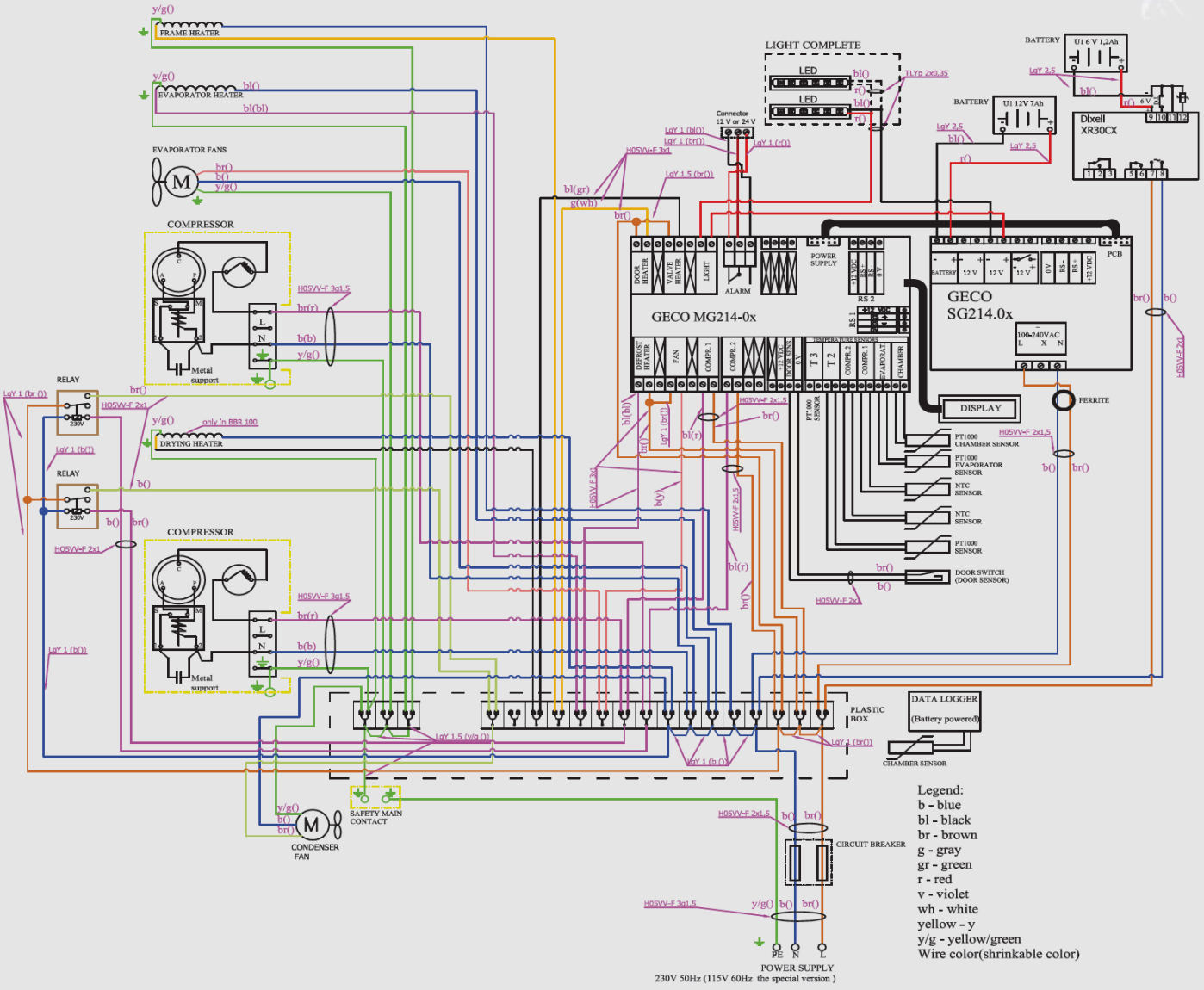
BBR 300 / 500 / 700 / 1400



Legend:
b – blue
bl – black
br – brown
g – gray
r – red
v – violet
wh – white
y – yellow
y/g – yellow/green
Wire color(shrinkable color)

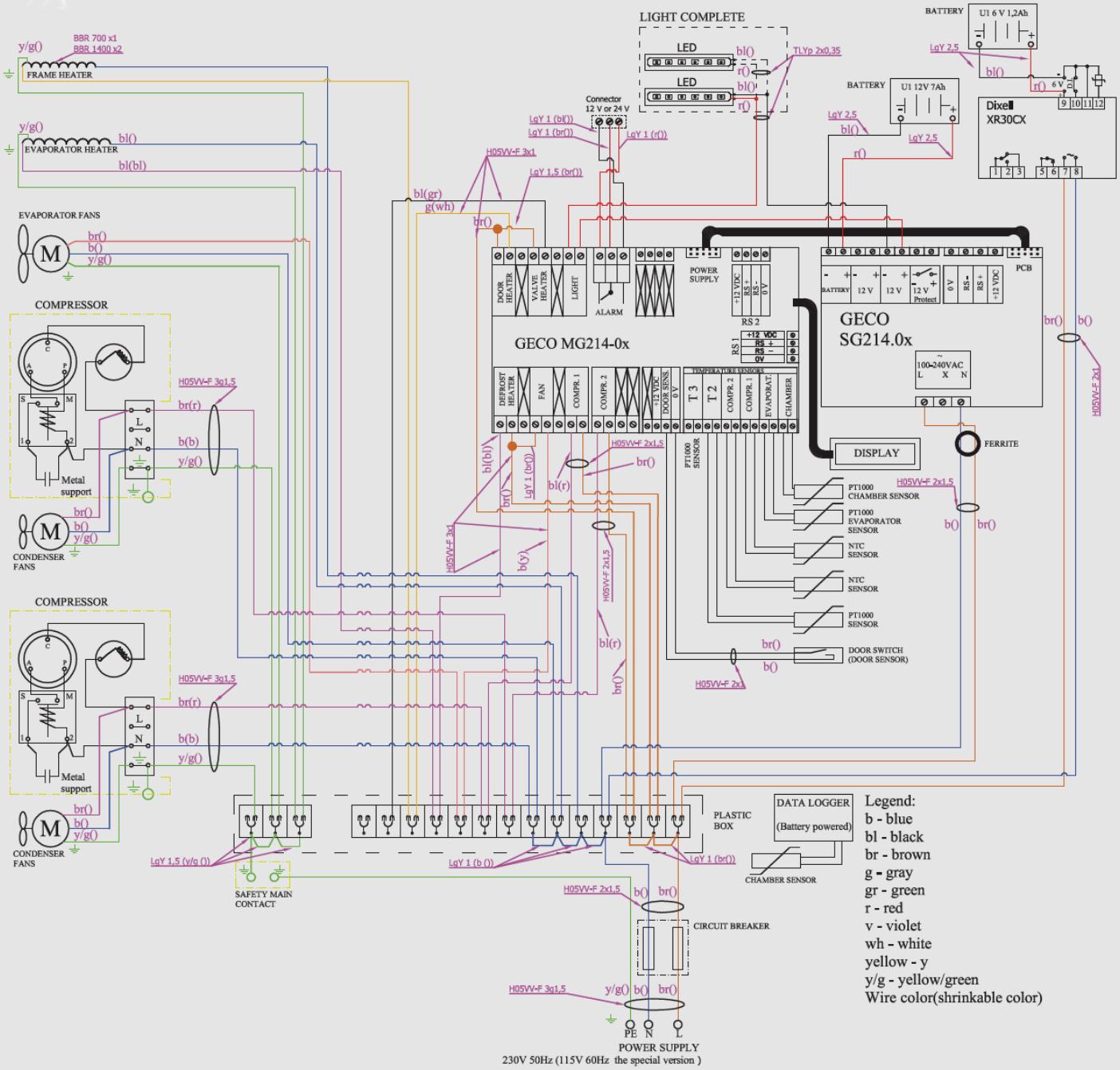
WIRING DIAGRAM

BBR 100-D / 300-D / 500-D



WIRING DIAGRAM

BBR 700-D / 1400-D



ARCTIKO

true cooling specialists

EC Declaration of conformity

MANUFACTURER (FABRIKANT):
ARCTIKO A/S

ADDRESS (ADRESSE):
LILLEBÆLTSVEJ 90,
6715 ESBJERG, DENMARK
SRN: DK-MF-000027388

PRODUCT (PRODUKT) INFORMATION:
BBR 100 / BBR 100-D / BBR 300 / BBR 300-D / BBR 500 / BBR 500-D / BBR 700 / BBR 700-D / BBR 1400 / BBR 1400-D

TYPE (MODEL):
BLOOD BANK REFRIGERATOR

CLASS & CONFORMITY ASSESSMENT (KLASSE & OVERENSSTEMMELSESREGEL)

CLASS	CLASS IIA RULE 2, ANNEX IX
CONFORMITY ASSESSMENT	CONFORMITY ASSESSMENT PROCEDURE, ANNEX V
NOTIFIED BODY:	DNV PRODUCT ASSURANCE AS - NB2460

WE HEREBY DECLARE THAT THE **ABOVE MENTIONED** PRODUCTS COMPLY WITH THE FOLLOWING DIRECTIVES, NATIONAL LAWS AND HARMONIZED STANDARDS:

*(VI ERKLÆRER HERMED, AT **OVENSTÅENDE PRODUKT** ER I OVERENSSTEMMELSE MED FØLGENDE EU DIREKTIV(-ER), RELEVANT GÆLDENDE DANSK LOVGIVNING OG HARMONISEREDE STANDARDER)*

EUROPEAN MEDICAL DEVICE DIRECTIVE 93/42/ EEC WITH AMENDMENT 2007/47/ECROHS DIRECTIVE 2011/65/EU

HARMONIZED STANDARDS (HARMONISEREDE STANDARDER):

European Medical Device Directive 93/42/ EEC with amendment 2007/47/EC

EN 60601-1:2006+A11:2011+A1:2013 +AMD2 2021	Medical electrical equipment — Part 1: General requirements for basic safety and essential performance.
EN 60601-1-2:2015+A1:2021	Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests.
EN 62366:2015+A1:2020	Medical devices – Application of usability engineering to medical devices.
EN ISO 14971:2019	Medical devices - Application of risk management to medical devices.
EN ISO 13485:2016	Medical devices - Quality management systems - System requirements for regulatory purposes.
EN 378-1:2016 & DS/EN 378-2:2016	Refrigerating systems and heat pumps - safety and environments - Part 1: Basic requirements, definitions, classification and selection criteria. Part 2: Design, construction, testing, marking and documentation.
EN 14276-2+A1:2011 clause 8.9.4.1.2	Pressure equipment for refrigerating system and Heat pumps Part 2: piping – general requirements.

CE
2460

Esbjerg 16/12/2025
City & DD/MM/YYYY

5082052-14

Name & position
John Burton
Managing Director Arctiko A/S

TROUBLESHOOTING

Most malfunctions arise in wrong use of the unit and can often be solved on the spot. In order to resolve some of the most common malfunctions please see the following troubleshooting scheme:

PROBLEM	CAUSE	ACTION
The refrigeration of the unit is not effective, temperature tends to operate out of range.	Overload or load of warm products may cause the temperature to rise.	Discharge warm or excess products.
	Products are packed too close in the unit, preventing air to flow.	Relocate the products. Make sure there is an air gap between products.
	Make sure the unit is not in direct sunlight or subject to any heat radiation.	Move the unit away from the sunlight or heat source.
	Frequent door openings may cause the temperature to rise.	Check if there have been frequent door openings. Leave the door closed until the temperature in the unit is stable.
	The ambient temperature is too high. The unit is most effective in an environment under 32°C.	Control the ambient temperature in the room in which the unit is located.
	Limited airflow reduces performance of compressor and/or condenser	Inspect air channels to see if they are blocked.
	The condenser cannot transfer remove the heat energy from refrigerant.	Check the condenser to see if it is clogged with dirt.
The unit is too noisy.	The unit is not levelled.	Adjust the castors/feet.
	The unit is touching a wall or object.	Move the unit away from the wall or objects.
Alarm light flashes, audible alarm sounds.	Warm blood products are just loaded into the unit. The alarm signal cancels when the temperature recovers to normal level.	Allow time for the temperature to recover. The alarm will stop when the temperature has recovered.
	Door is not shut properly. The Door alarm will sound if the door is even slightly opened.	Shut the door.
	Unstable power supply might cause the alarm to switch on.	Allow time for recovery.

NOTE

NOTE

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