



# Installation and user guide for

*Exo Air*  
*Polaris*  
*Exotic*<sup>™</sup>

# SOLO C



# Contents

<b>Introduction .....</b>	<b>4</b>
<b>The heat pump .....</b>	<b>4</b>
ExoAir C & Polaris C .....	4
Exotic C .....	5
<b>Delivery .....</b>	<b>6</b>
Safety regulations .....	6
<b>Component overview .....</b>	<b>7</b>
ExoAir C .....	7
Polaris C .....	8
Exotic C .....	9
<b>Installation of ExoAir C &amp; Polaris C .....</b>	<b>10</b>
Positioning.....	10
Pipe installation .....	13
<b>Installation of Exotic C .....</b>	<b>15</b>
Positioning.....	15
Pipe installation .....	15
Brine medium .....	15
Heating medium.....	19
<b>Electrical installation .....</b>	<b>20</b>
Overview.....	20
High voltage supply .....	21
Main supply .....	21
External heat source control or heater cable.....	21
Low voltage connections .....	22
Overview low voltage connections .....	23
<b>Control Modes.....</b>	<b>24</b>
SoloBasiC.....	24
CONTROLLING OF EXTERNAL HEAT SOURCE.....	27
SoloDigital.....	28

<b>The display.....</b>	<b>29</b>
Rest mode.....	29
Actual values .....	29
Setting values .....	29
Errors .....	30
Factory reset.....	30
Table - Actual values.....	31
Table - Set values .....	33
Table - Errors.....	36
<b>Quick start guide .....</b>	<b>41</b>
SoloBasiC – Set condensation .....	42
SoloBasiC – floating condensation .....	43
SoloDigital.....	44
<b>Service and maintainance .....</b>	<b>45</b>
ExoAir & Polaris .....	45
Manual defrost.....	46
Exotic .....	47
R/T tables sensors.....	48
<b>Technical data .....</b>	<b>49</b>
ExoAir C .....	49
Polaris C .....	50
Exotic C .....	51
<b>Spare part list .....</b>	<b>52</b>
ExoAir C and Polaris C .....	52
Exotic C.....	52
<b>Commissioning report .....</b>	<b>53</b>
<b>Electrical diagram .....</b>	<b>54</b>

# INTRODUCTION

This manual is intended for use with the heat pump models, Euronom ExoAir, Polaris and Exotic when used as standalone units together with arbitrary boiler/accumulator system.

When installing the heat pump together with a Euronom boiler, for example VPX C, please refer to the manual packed with the boiler unit

## THE HEAT PUMP

### **Congratulations!**

You are now the owner of a top-quality product that will reduce your electricity bills and save you money that can be spent on much more enjoyable things.

The heat pump is manufactured in Sweden, who have extensive experience of manufacturing heat pumps. All heat pumps, before leaving the factory, have first been tested for functionality and technical performance. All stages of manufacturing from the plated chassis to the finished heat pump are monitored continually to maintain quality.

The chassis of the heat pump, and all included screw and rivets, are manufactured from stainless steel, which requires minimum maintenance and offers a long-lasting durable structure. The components used in the pumps are supplied by renowned suppliers, based on functionality and quality which, in turn, results in a minimum of service.

## EXOAIR C & POLARIS C

The ExoAir and Polaris models are so-called air/water heat pumps that utilise energy from the outdoor air (indirect solar energy) and, using a cooling process, transfer heat to your boiler system, thereby providing you with inexpensive energy.

The Euronom ExoAir model is a very reliable heat pump that operates at temperatures as low as -15°C and produces water temperatures of up to 60°C. The effectively sound-insulated compressor and the optimized heat exchanger offer high operating efficiency.

The Euronom Polaris model is the result of innovative solutions and technical progress regarding compressors, which allows you to extract cheap heat from the atmosphere, even if the outdoor temperature is as low as -25°C.

# EXOTIC C

The Exotic model is a so-called liquid/water heat pump which means energy is extracted from a collection pipe that is installed, for instance, in the bedrock, under the surface of the earth, in lakes etc.

Exotic uses the same reliable components as the related ExoAir and Polaris models, as well as being fitted with extra-thick sound insulation to reduce disturbing noise levels.

# DELIVERY

Check the following points when your pump has been delivered and when installing the pump:



- The ExoAir, Polaris and Exotic pumps must be transported and stored in a vertical position.
- Remove packaging and check that the product has not been damaged in transit. Report any transit damage to the freight agent.
- Make sure that at least one metre of space is available in front of the product for service access.

# SAFETY REGULATIONS

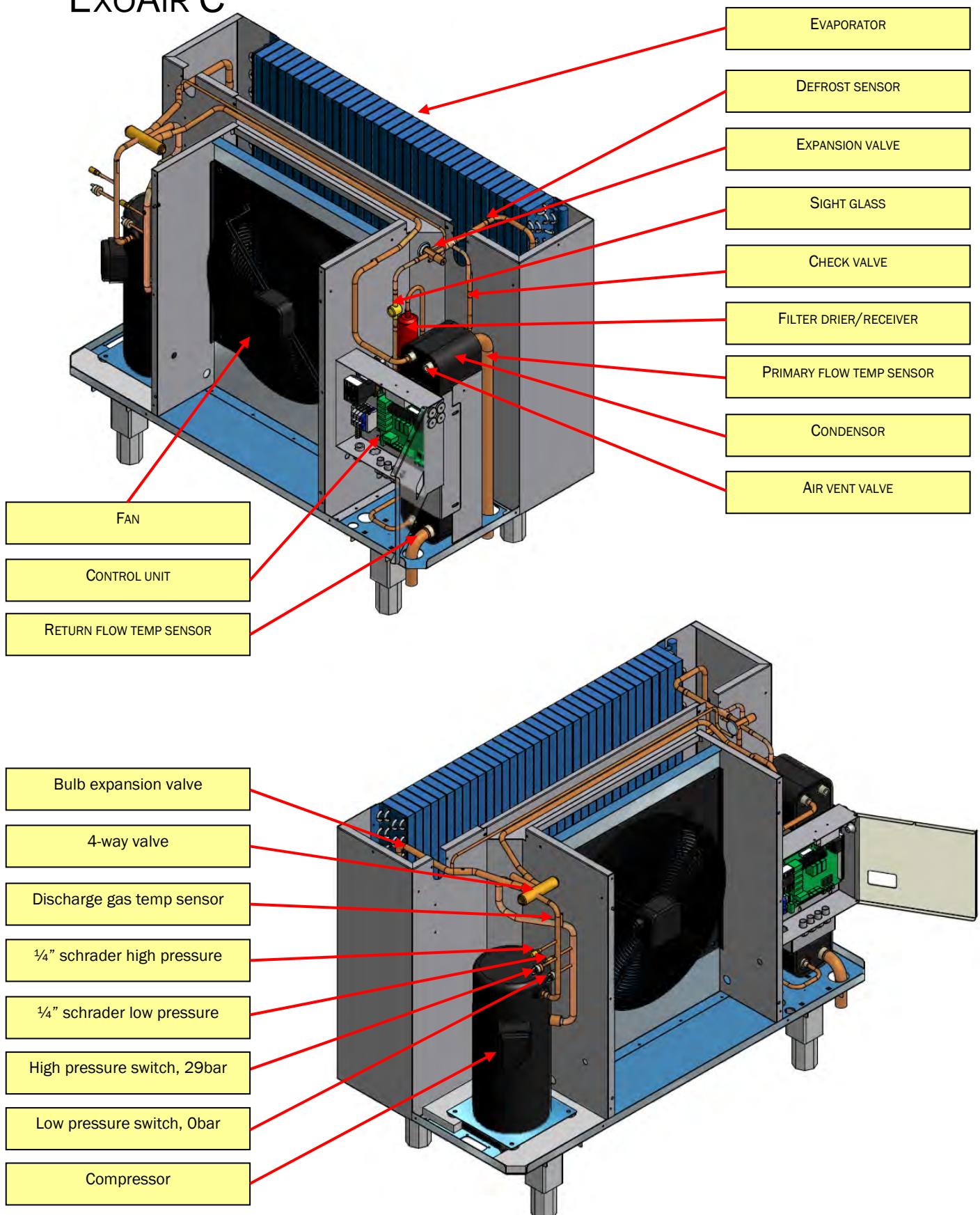
The following safety regulations must be observed when handling, installing and using the product:



- Disconnect the power supply in the control box prior to carrying out any form of maintenance and service work on the products.
- Make sure that all lifting equipment, eye bolts and other components are undamaged when handling heat pumps fitted with eye bolts or similar items. Never stand under a product when it is in an elevated position.
- Never compromise on safety by removing housings, hoods or similar that are screwed in place.
- Never compromise on safety by disconnecting safety equipment.
- Only authorised personnel are allowed to modify or service the product.

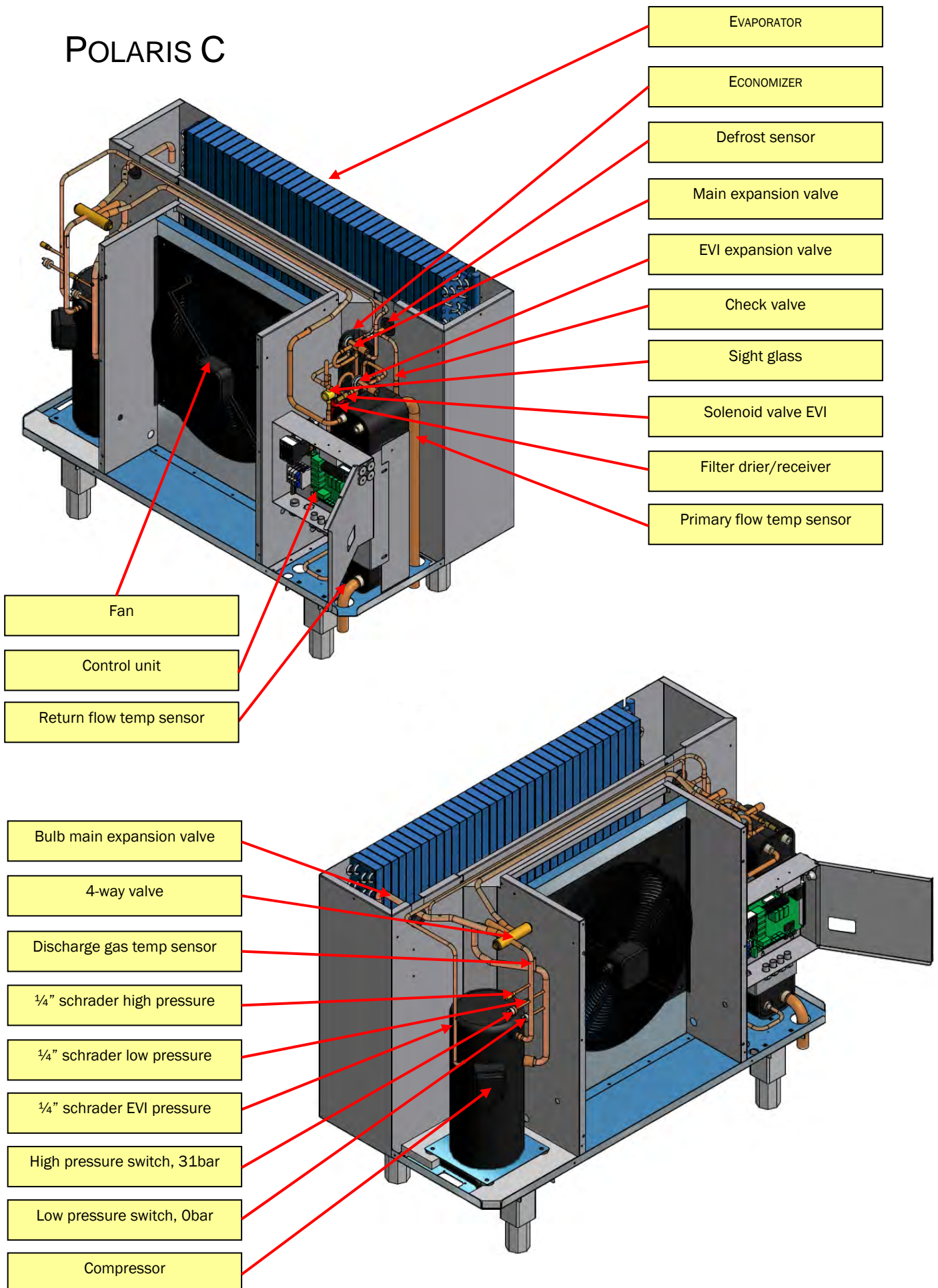
# COMPONENT OVERVIEW

## EXOAIR C



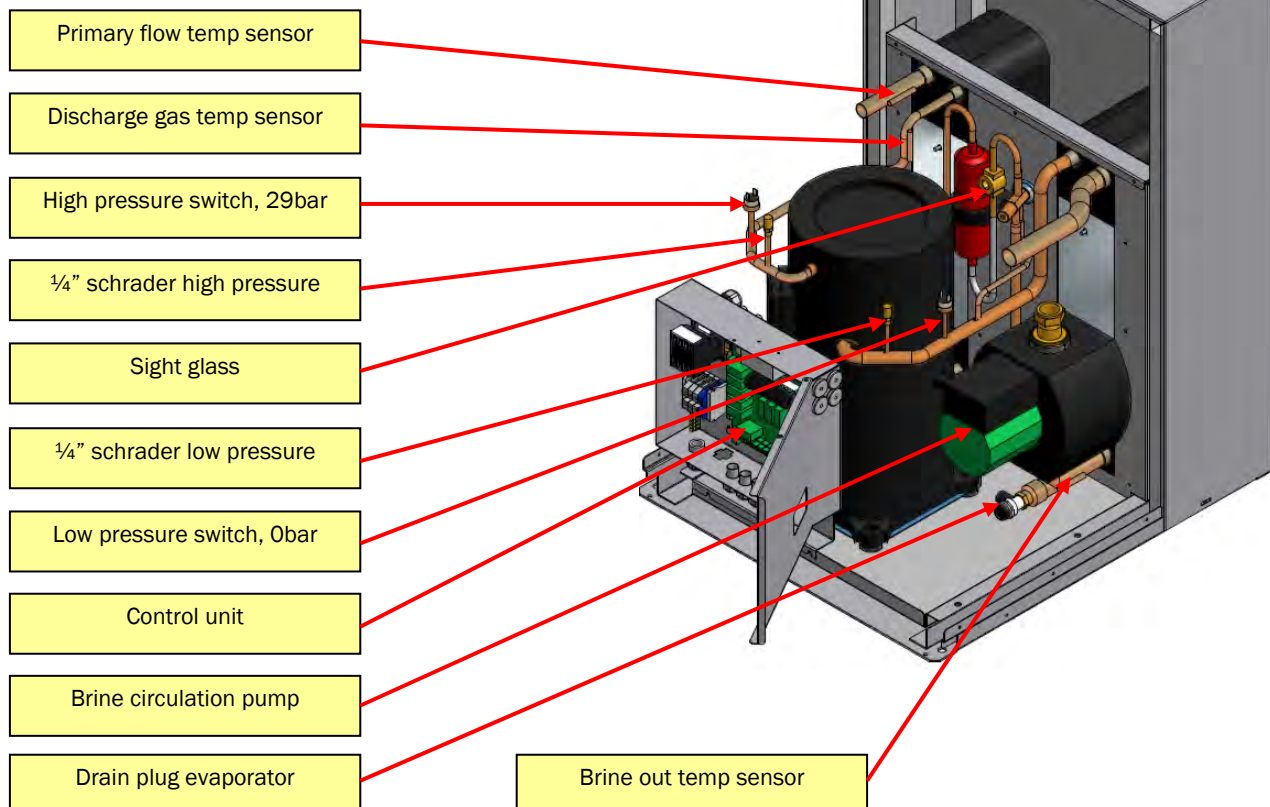
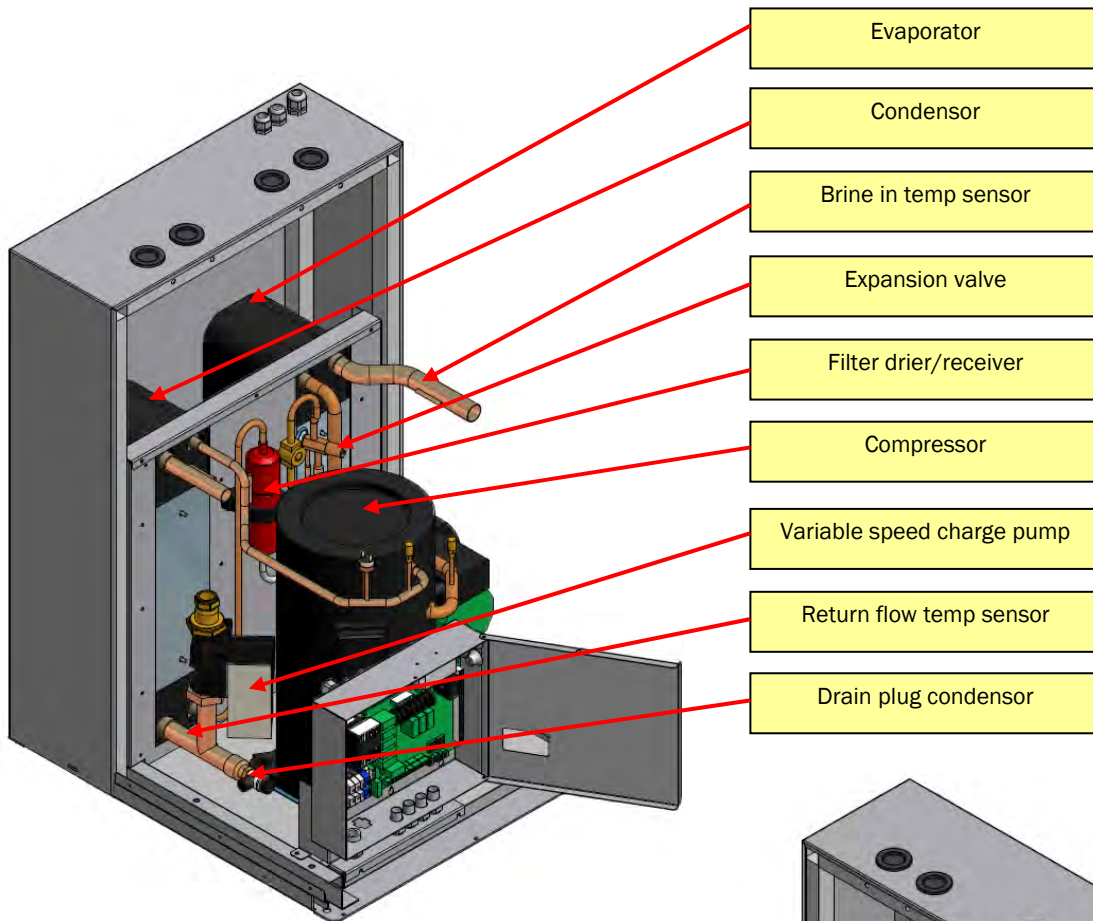


# POLARIS C





# EXOTIC C



# INSTALLATION OF EXOAIR C & POLARIS C



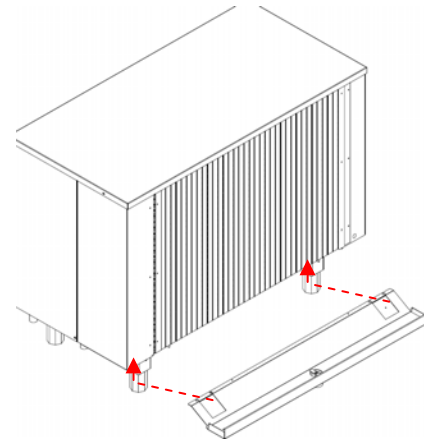
This chapter is intended for installers of the heating system. It describes how to install the ExoAir and Polaris air-water heat pump models.

- Please note that the commissioning report in the end of this manual must be filled in once the product is installed.

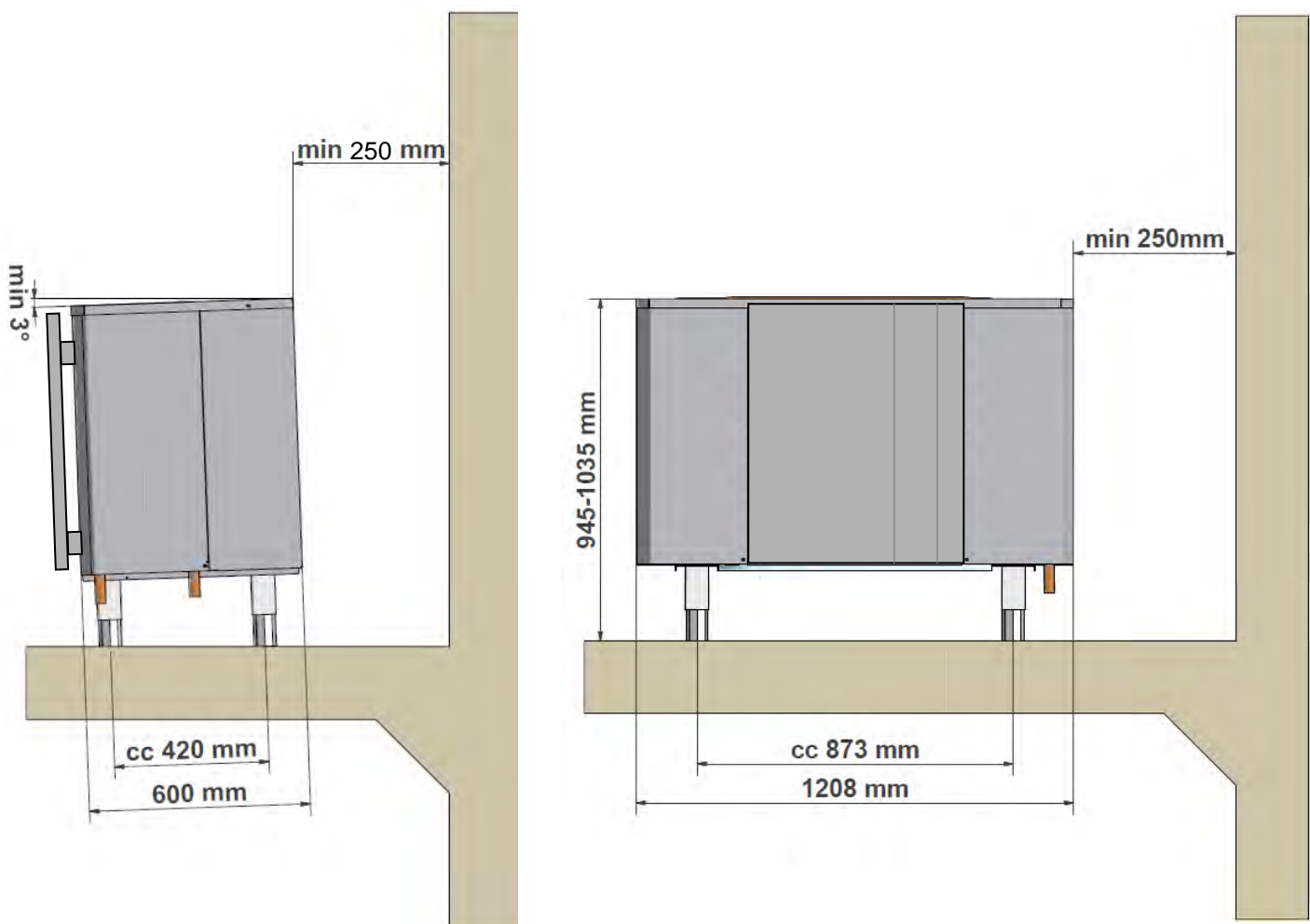
## POSITIONING

- The heat pump must be positioned outdoors and may not be installed, for instance, in a carport or any type of outhouse. The heat pump must stand freely without a roof or anything similar above it.
- In general, make sure that the heat pump is ventilated sufficiently.
- It is recommended that the heat pump be installed in close proximity to the boiler as this reduces the length of pipes to be drawn, thereby minimising heat loss.
- Even though the Euronom ExoAir and the Polaris models are well soundproofed, select an installation location that minimises noise levels for those living in the household and for neighbours. Note that the sound from the pump resonates more if it is placed on asphalt, concrete, stone paving, etc., while grass, for instance, absorbs some of the noise. Contact your local council for advice on sound levels stipulations in your area.
- The heat pump automatically reduces the fan speed during the summer depending on the break temperature set in the control panel, which in turn lowers the noise level.
- It is recommended to place the heat pump on a gravel bed with paving stones under each leg. It may be necessary, depending on where you are located, to install the pump in a higher position to cope with large volumes of snow.
- The distance from the outer wall to the heat pump must be at least 250 mm. If the pump is to be placed at a corner, maintain a minimum distance of 300 mm to the gable-end.

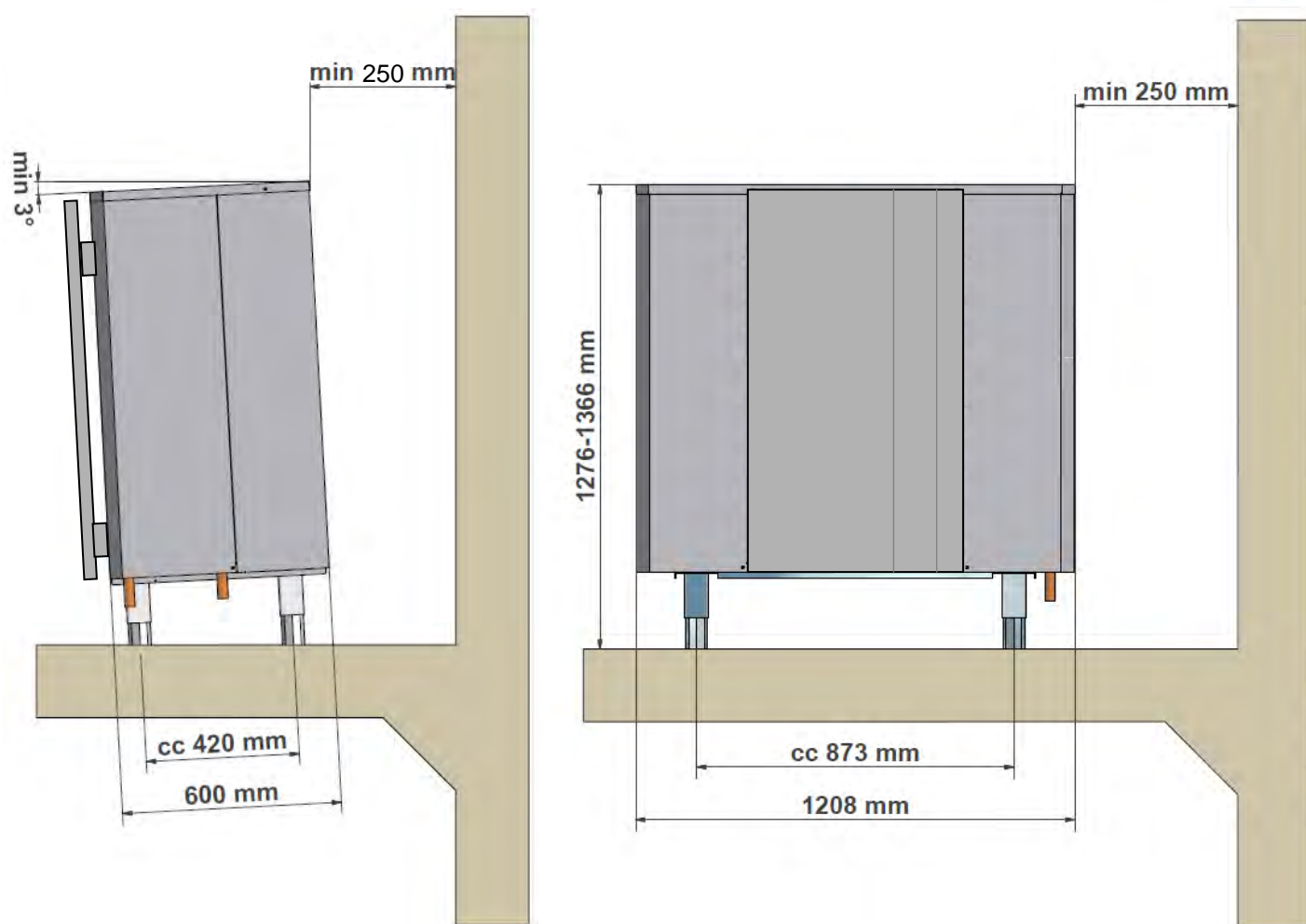
- Make sure that the heat pump is tilted slightly forwards to prevent water from running down into the evaporation coil and causing problems with ice. Use the height-adjustable legs to easily set the tilt angle.
- Defrosting can entail a certain amount of condensate from the battery, which must be drained off, for instance, using a gravel bed and to prevent the water from running off to form ice on open surfaces. If there is risk of problem the heat pump can be supplemented by a defrosting tray where the water can be piped to the sewer / drainage.  
Accessories No.: 9774708101



### *Positioning the heat pump*



**ExoAir 7,5 - 10,5 och Polaris 10**



**ExoAir 16 och Polaris 14 - 20**

# PIPE INSTALLATION

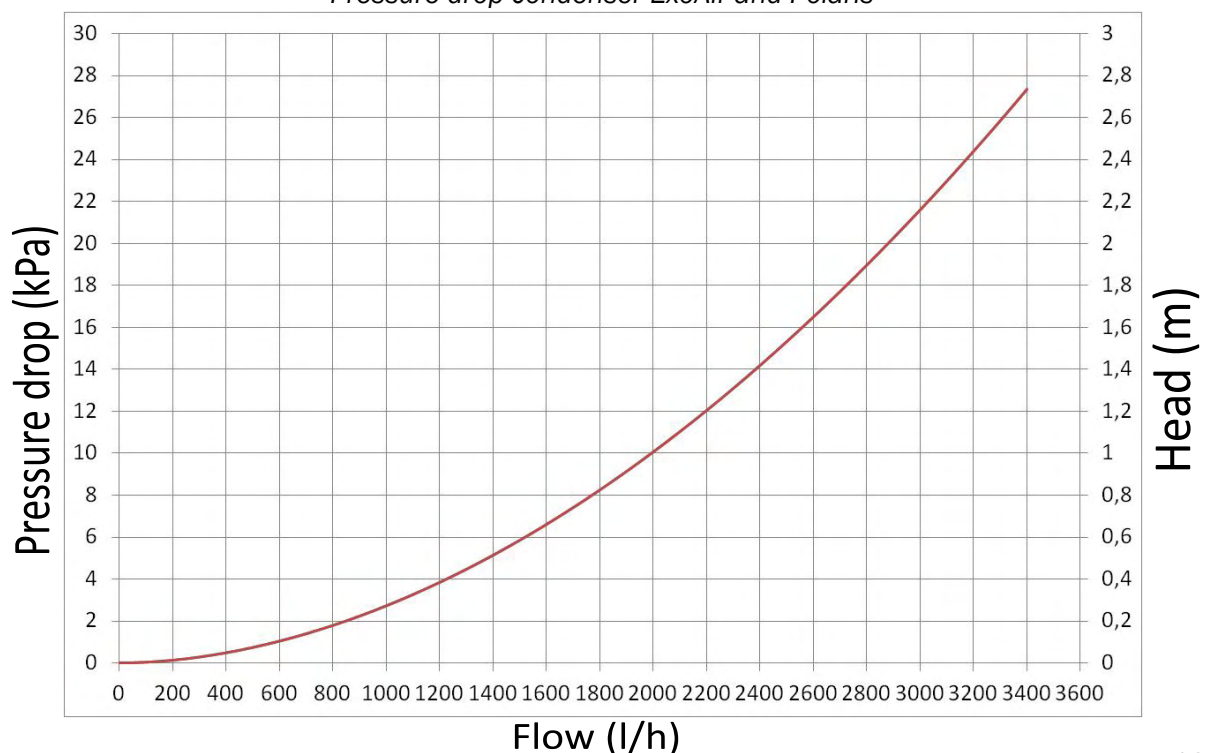
As this manual is intended for the docking of heat pumps into existing boiler systems or different types of new installations, the procedure of installing the pipework is unique for each system involved. Certain general guidelines should be adhered to.

- Copper pipes should be connected to/from the heat pump. Depending on heat pump model the dimension will differ. For correct dimension see table below.
- Nominal flow values (when using non variable speed charge pump) for each heat pump model can be found in the table below. When using variable speed charge pump (pwm-controlled) a desired delta temperature will be able to set and the flow will be controlled in the software. PWM charge pump is recommended

*Pipe dimensions*

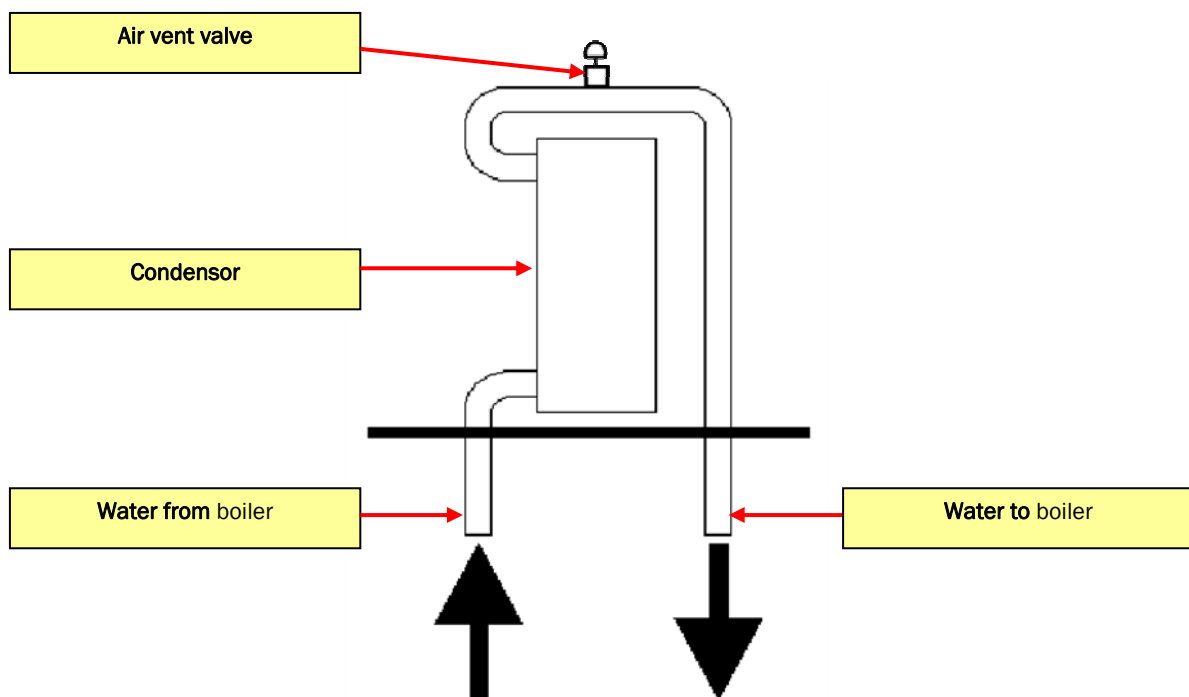
Model	Size	Connection on heat pump	Minimum connection pipe dimension	Nominal flow
ExoAir C	7,5	cu28	22mm	800l/h
	10,5			1100l/h
	16		28mm	1600l/h
Polaris C	10	cu28	22mm	1000l/h
	14		28mm	1300l/h
	20			1900l/h

*Pressure drop condenser ExoAir and Polaris*



- A metal-enclosed hosing can easily be coupled between the connecting pipe and the heat pump's condenser to prevent any vibrations/noise from being transferred to the radiator system in the house.
- Note the coupling direction of the connecting pipes/hoses on the heat pump that is displayed on the side of the condenser as outlined in figure below.
- Pipes and hoses used outdoors should be insulated with at least 15 mm of insulation, such as armaflex or likewise. The insulation must be primed against moisture to prevent it from becoming wet from the outside. On the inside, at least 8 mm of insulation should be used, but the piping does not have to be insulated if you wish to heat the boiler room instead.
- In general, pipes must be fitted in such a manner that makes the system as good as self-aerating. An aerating valve is fitted at the highest point of the condensor in the heat pump. The aerating valve is a requirement if pipes are drawn anywhere above the level of this valve.

*Coupling direction of water to the heat pump.*



# INSTALLATION OF EXOTIC C

This chapter is intended for installers of the heating system. It deals with the installation of the Exotic model.

- Please note that the commissioning report found in the end of this manual must be filled in once the product is installed.

## POSITIONING

- The Exotic model must be positioned indoors on a solid base, preferable on a concrete floor.  
Place the heat pump, if possible, with its back to an outer wall to prevent unnecessary noise.
- Avoid, if possible, positioning the pump close to a bedroom or other area that is sensitive to noise.

## PIPE INSTALLATION

As this manual is intended for the docking of heat pumps into existing boiler systems or different types of new installations, the procedure of installing the pipework is unique for each system involved.



**Note!**

Exotic has already flexible hoses connected to the heat exchangers to prevent vibrations why connections to the heat pump can be performed directly with pipes.

## BRINE MEDIUM

### Dimensioning

The collector for earth/bedrock/ground water/lake heat, etc. is dimensioned according to a computerised calculation program. Euronom can assist with this type of calculation.

### Insulation

The indoor brine medium piping must be insulated with a moisture barrier material to prevent condensation from dampness.

Note that extra insulation is required to prevent freezing or ground frost if the collector is placed close to water piping or the ground.



### **Brine fluid**

The brine medium should contain antifreeze medium, such as bio-ethanol, to maintain fluidity down to temperatures of -15°C.

### **Collector hose**

The collector hose, PEM 40 x 2.4 PN 6.3, is used as standard. Every metre of hosing holds about 1 litre of fluid.

### **Air drainage**

The earth heat collector should be installed in a manner that facilitates self-aerating without any air pockets. If this is not possible, aerating valves will have to be fitted to the highest points in the collector.

### **Filling valve**

We recommend using Euronom *Brine kit incl. level vessel, part No. 1921062* / Pre fabricated filling valves, e.g. LK 520 Multifill 25, with integrated shut off valves/dirt filter is recommended for easy and safe installation and filling of the brine fluid.

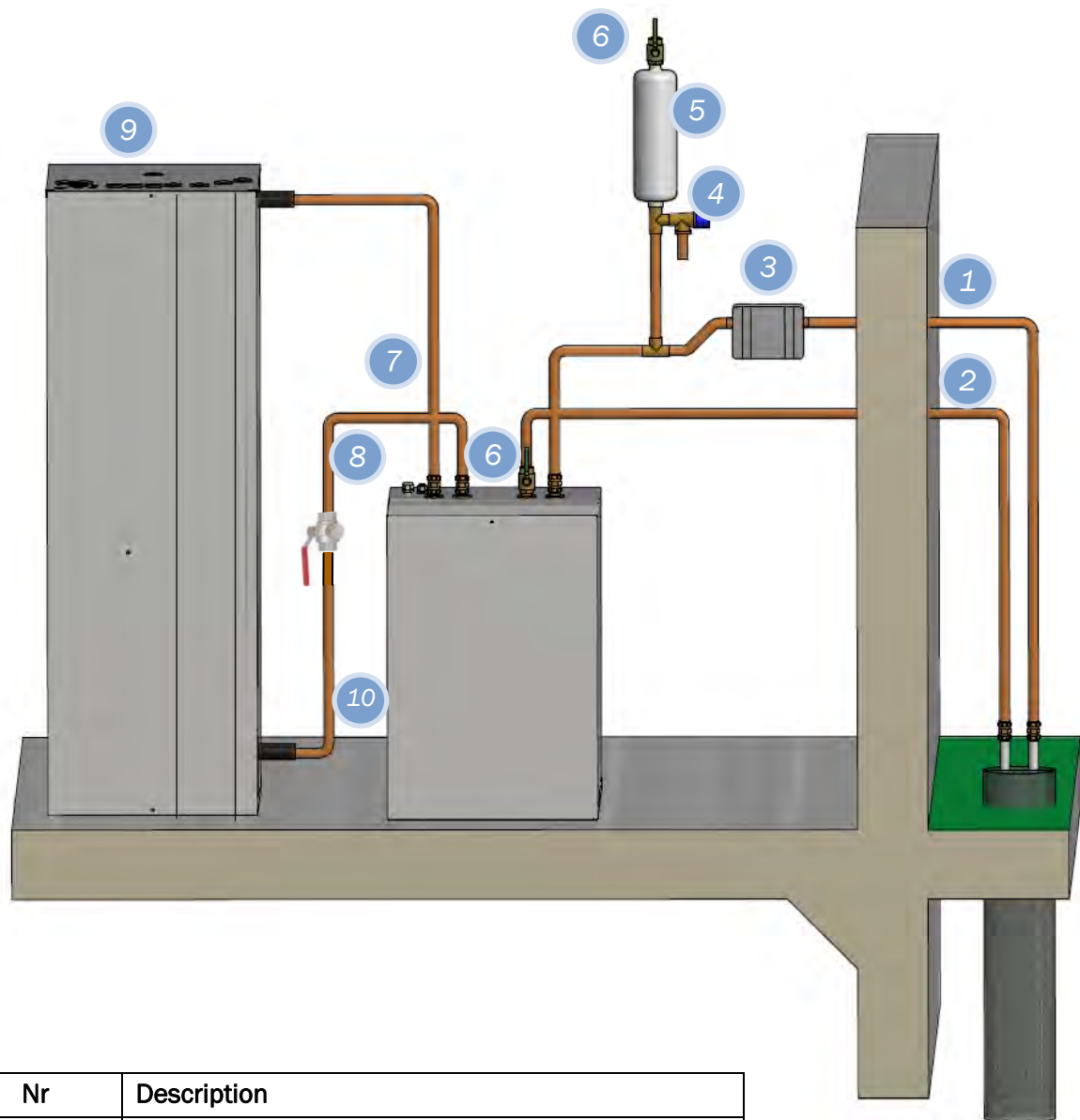
### **Level tank**

The level tank or expansion vessel should be installed as high as possible in the system on incoming brine pipe (brine in), see picture below.

### **Safety valve**

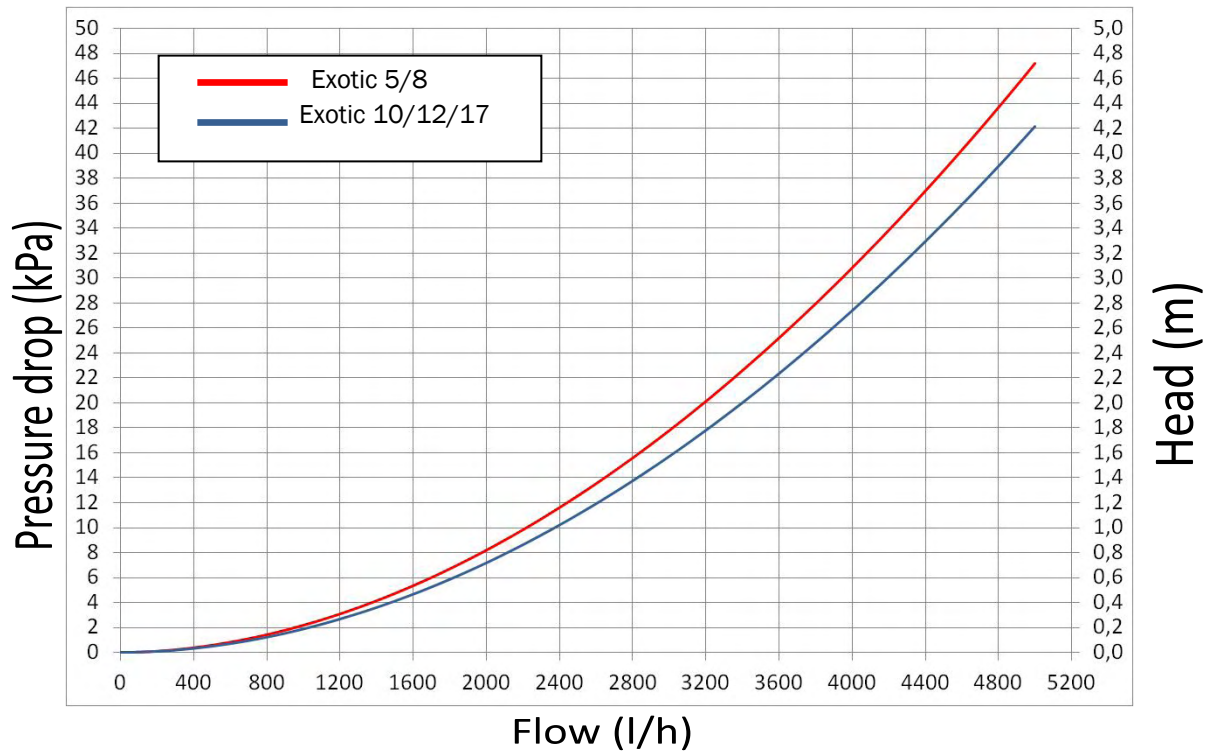
Safety valve with opening pressure of max 3 bar should be installed

*Schematic connection diagram*

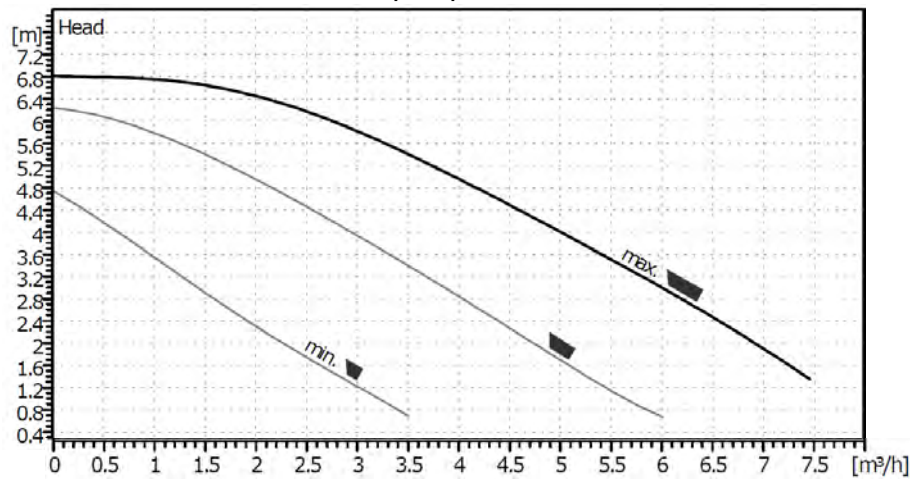


Nr	Description
1	Brine to heat pump (in)
2	Brine from heat pump (out)
3	Filling valve (including shut off valves & dirt filter)
4	Safety valve, 3 bar
5	Level tank (expansion)
6	Shut off valve
7	Water from heat pump (primary flow)
8	Water to heat pump (return flow)
9	Arbitrary boiler/accumulator tank
10	Filter valve

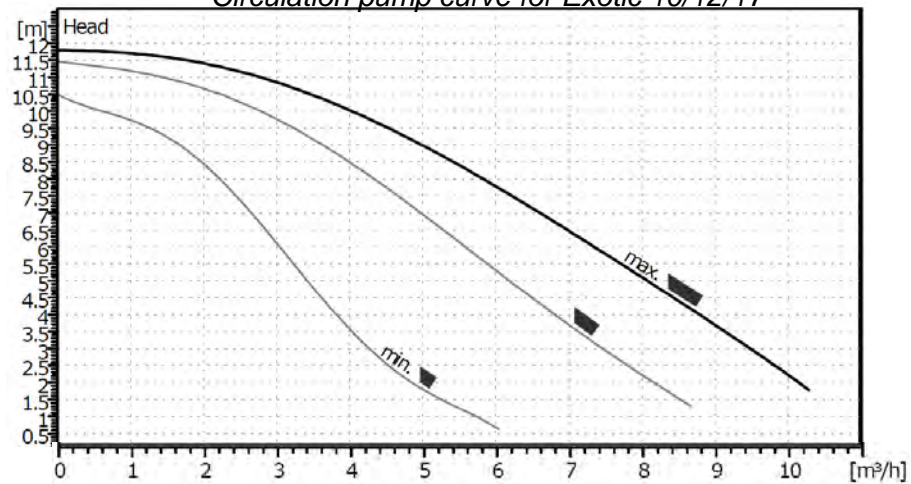
Pressure drop evaporator Exotic with 30% ethylene glycol in carrier



Circulation pump curve for Exotic 5/8



Circulation pump curve for Exotic 10/12/17

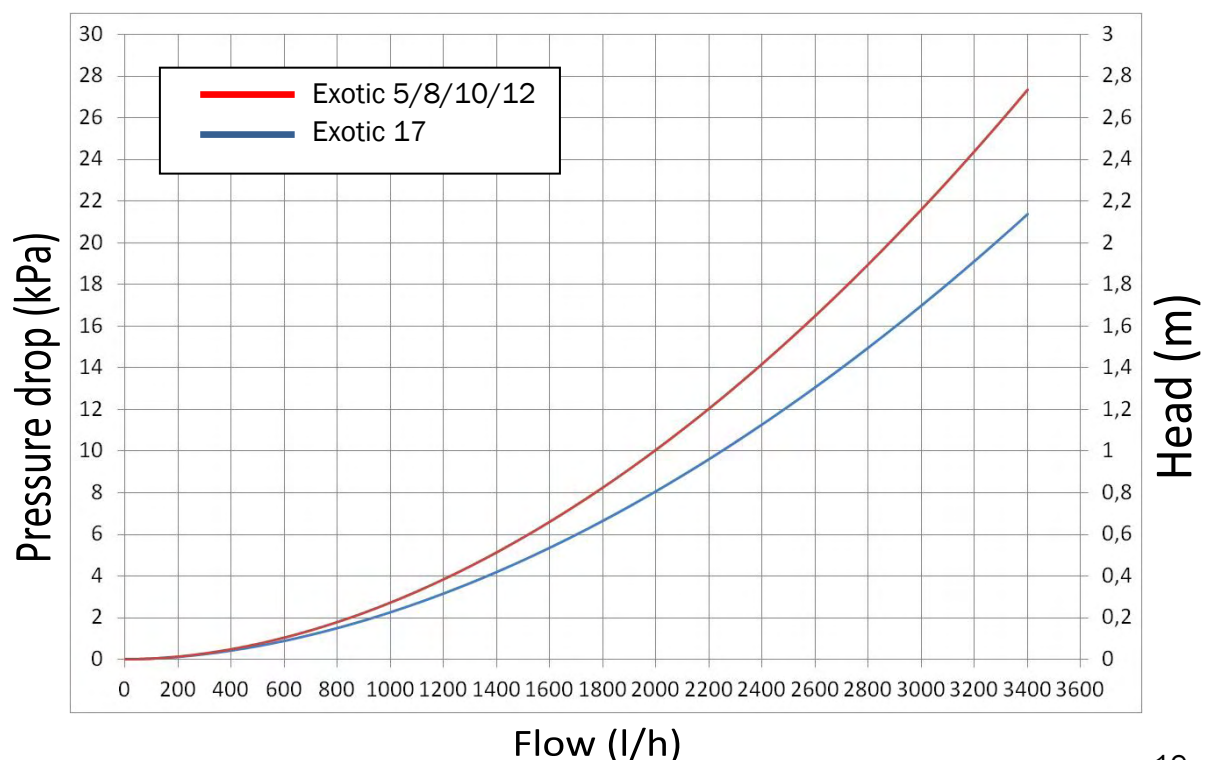


## HEATING MEDIUM

As this manual is intended for the docking of heat pumps into existing boiler system or different types of new installations, the procedure of installing the pipework is unique for each system involved. Certain general guidelines should be adhered to.

- Copper piping, 22 mm or 28mm should be connected to and from the heat pump and boiler.
- Exotic has preinstalled metal-enclosed hosing on the condenser to prevent vibrations/noise, why no further installation of hoses between tank and heat pump is necessary.
- Pipes should be insulated with 8 mm of insulation but this is not required if the surrounding area needs to be heated.
- In general, pipes must be fitted in such a manner that makes the system as good as self-aerating.
- The charge pump in the Exotic unit is a low energy variable speed circulation pump. Depending on system settings in the control unit the flow can vary. For example, a set constant delta temperature over the condenser can be set. In this case the software will control the speed of the charge pump in order to achieve the desired value. (If a Euronom boiler is used the speed will vary depending on the boilers need.)

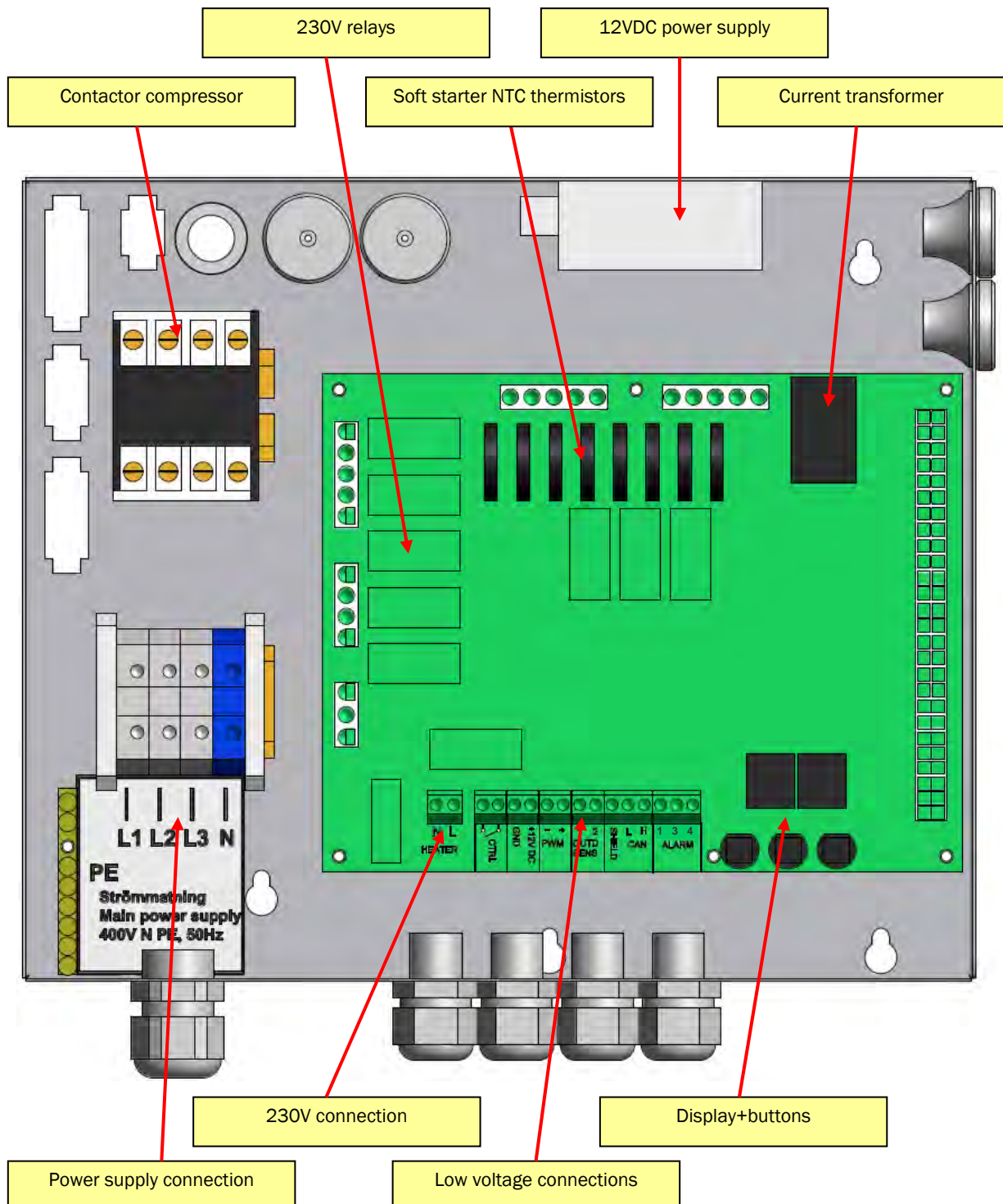
*Pressure drop condensor Exotic.*



# ELECTRICAL INSTALLATION

The electrical installation must be carried out by an authorised electrician and according to local regulations.

## OVERVIEW



# HIGH VOLTAGE SUPPLY

## MAIN SUPPLY

The supply to the heat pump must be 400V N PE. Approved cable type, and correct cross section area, according to national/local regulations for outdoor installation must be ensured.

- Note that no drilling/screwing in the heat pump chassis is allowed.
- The cable should be brought and fastened through both the gland in the heat pumps chassis and the gland in the electrical connection box.
- Connect the 3 phases L1, L2, L3, N on the terminal block according to the sticker. Earth wire is connected on the earth block

Below table shows maximum currents and provides help choosing the correct fusing. (All models are sized for 16A pre fusing.)

*Fuses and recommended cable areas.*

Model	Size	Max phase load	Recommended fusing	Recommended min cable area
ExoAir C	7,5	5,2A	10A (C)	1,5mm <sup>2</sup>
	10,5	7,4A		
	16	11,4A	16A (C)	2,5mm <sup>2</sup>
Polaris C	10	6,2A	10A (C)	1,5mm <sup>2</sup>
	14	9,0A	16A (C)	2,5mm <sup>2</sup>
	20	12,3A		
Exotic C	5	4,8A	10A (C)	1,5mm <sup>2</sup>
	8	5,7A		
	10	7,2A		
	12	8,2A		
	17	11,6A	16A (C)	2,5mm <sup>2</sup>

## EXTERNAL HEAT SOURCE CONTROL OR HEATER CABLE



It's possible to control either an external heat source, for example electric heater, or control a heater cable for the defrost tray which is an accessory for Euronom air/water heat pumps. The connection is made directly from the heat pumps circuit board when running the heat pump in control mode SoloBasiC.

The connection is made on the terminal "CTRL"

Observe that maximum current on the output is 1A.

Also read the chapter SoloBasiC and chapter "Settings".



# LOW VOLTAGE CONNECTIONS

All the low voltage connections are placed on screw connection terminals directly on the circuit board. Depending on what type of system and what type of control mode that will be chosen different connections need to be done.

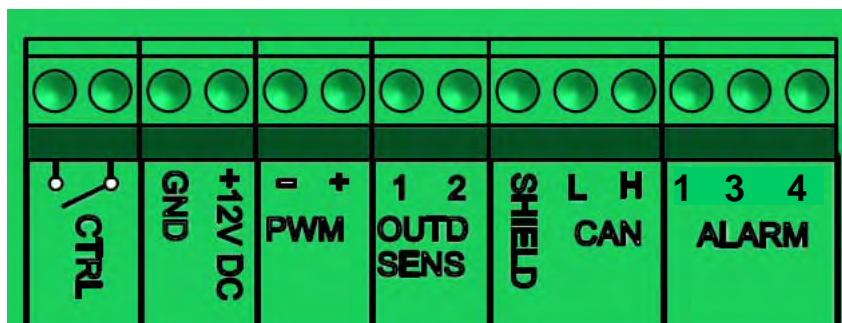


Table below shows what connections that is necessary for different system/control solutions. For further information regarding different control methods please see chapter "Control mode"

Table shows what connections that must be used and optional ones for different system/control mode

SYSTEM/ CONTROL MODE	CTRL		+12V DC		PWM		OUTD SENS		CAN		ALARM	
	A/W	B/W	A/W	B/W	A/W	B/W	A/W	B/W	A/W	B/W	A/W	B/W
Solo Basic	No	No	No	No	Opt	No	Yes	Opt <sup>1</sup>	No	No	Opt	Opt
Solo Digital	Yes	Yes	No	No	Opt	No	Yes	Opt <sup>1</sup>	No	No	Opt	Opt
Exotrol Mini	Opt	Opt	Yes	Yes	Opt	No	Yes	Opt	Yes	Yes	No	No
Exotrol Master	No	No	No	No	No	No	Opt <sup>2</sup>	Opt <sup>2</sup>	Yes	Yes	No	No
VPX C 200/300/500	No	No	No	No	No	No	Opt <sup>2</sup>	Opt <sup>2</sup>	Yes	Yes	No	No
ModBus RS485 <sup>3</sup>	No	No	No	No	Opt	No	Yes	Opt <sup>1</sup>	No	No	No	No

Yes	→	Must be connected
No	→	Should not be connected
Opt	→	Optional connection

**A/W**=ExoAir and Polaris, **B/W**=Exotic







<sup>1</sup>If floating condensation will be used outdoor sensor must be installed.

<sup>2</sup>Outdoor sensor can be installed in heat pump or in Euronom boiler/Exotrol Master

<sup>3</sup>ModBus demands an extra expansion circuit board.



## OVERVIEW LOW VOLTAGE CONNECTIONS

CTRL		CTRL is a potential free digital input which is used when running the heat pump in the control mode “SoloDigital”. Read about it in the chapter “Control modes”
+12VDC		+12VDC is the power supply to the circuit boards low voltage components. This connection is already installed from factory and don't require any actions. If MiniLogiQ should be installed this connections are used as power supply. Please read the MiniLogiQ manual for further information.
PWM		PWM is an optional connection that gives the possibility to control a variable speed charge pump directly from the circuit board. Please read more in chapter “Control mode”  <i>(Only valid for ExoAir and Polaris. Exotic has a integrated PWM controlled charge pump installed from factory)</i>
OUTD SENS		OUTD SENS is the connection for the outdoor sensor shipped together with the heat pump. For ExoAir and Polaris outdoor sensor should always be installed. For Exotic it's only necessary if the system should run at floating condensation. Read more in the chapter “Control modes – floating condensation”
CAN		CAN is a digital communication link which only should be used when the heat pump will be connected to a Euronom boiler or stand alone controller (Exotrol-Master, Multi or Mini)
ALARM		ALARM is an optional connection. The accessory SoloAlarm must be available. When SoloAlarm is connected the user can monitor if there's an error present and also make a reset without opening the heat pump. Connect to corresponding pin numbers in Solo Alarm, 1, 3, 4.

# CONTROL MODES

**Observe!** This chapter only describes how the different control modes operate and how they can be affected. In order to perform the settings (with SoloBasiC and SoloDigital) the buttons and display on the circuit board must be used. This is described in the chapter “The display”

## SOLOBASIC

### About

SoloBasiC is the most basic way to install the heat pump to an arbitrary tank or accumulator tank. The only installation that has to be done is the pipes between heat pump and boiler, charge pump (only air water heat pumps), and outdoor sensor.

The system operates by sensing the return water to the heat pump (with an integrated sensor). Depending on the settings (floating or set condensation) a target value is set and the heat pump will operate until the desired return temperature is achieved. When the target temperature is reached the heat pump stops. Restart will occur when the return water temperature has decreased a settable number of degrees.

### Must connections

- Outdoor sensor (only for ExoAir and Polaris)

### Optional connections

- Outdoor sensor (if floating condensation should be used with Exotic)
- PWM (only for ExoAir and Polaris if pwm pump should be used)
- Alarm (only if the accessory SoloAlarm should be installed)
- Control of external energy source or heater cable with the digital output “HEATER”

### Charge pump (only ExoAir and Polaris)

As the control mode Solo BasiC uses a sensor in the heat pump in order to sense when there is a need for heating water circulation must always be on. There are 2 different possibilities regarding control of the charge pump.

#### 1. Standard charge pump

A standard circulation pump is connected to the grid and speed adjusted to achieve a desired temperature difference over the heat pump. This solution implies that the circulation pump is always in operation with full power, whether the heat pump is running or not.

#### 2. PWM-controlled low energy charge pump

The best solution for both total economy and heat pump performance is to use a low energy circulation pump and let the heat pump control it. By using this type of charge pump and let the heat pump control it, the operation is limited when the heat pump is not running. It's also possible to set a desired temperature difference over the heat pump, which imply that the heat pump vary the flow according to the settings.

At heat pump stand still the flow is reduced automatically to about 400l/h

*PWM-controlled charge pump can be ordered from Euronom:*

*Art.nr: I 521237900*



**Note!** Power lines to the charge pump is not available in the heat pump, only the PWM control signal.

## Outdoor sensor

Outdoor sensor must always be installed for the air/water models ExoAir and Polaris. For the Exotic heat pump it's only necessary to install it if the system should operate at floating condensation, which is described later in this chapter.

## SET OR FLOATING CONDENSATION

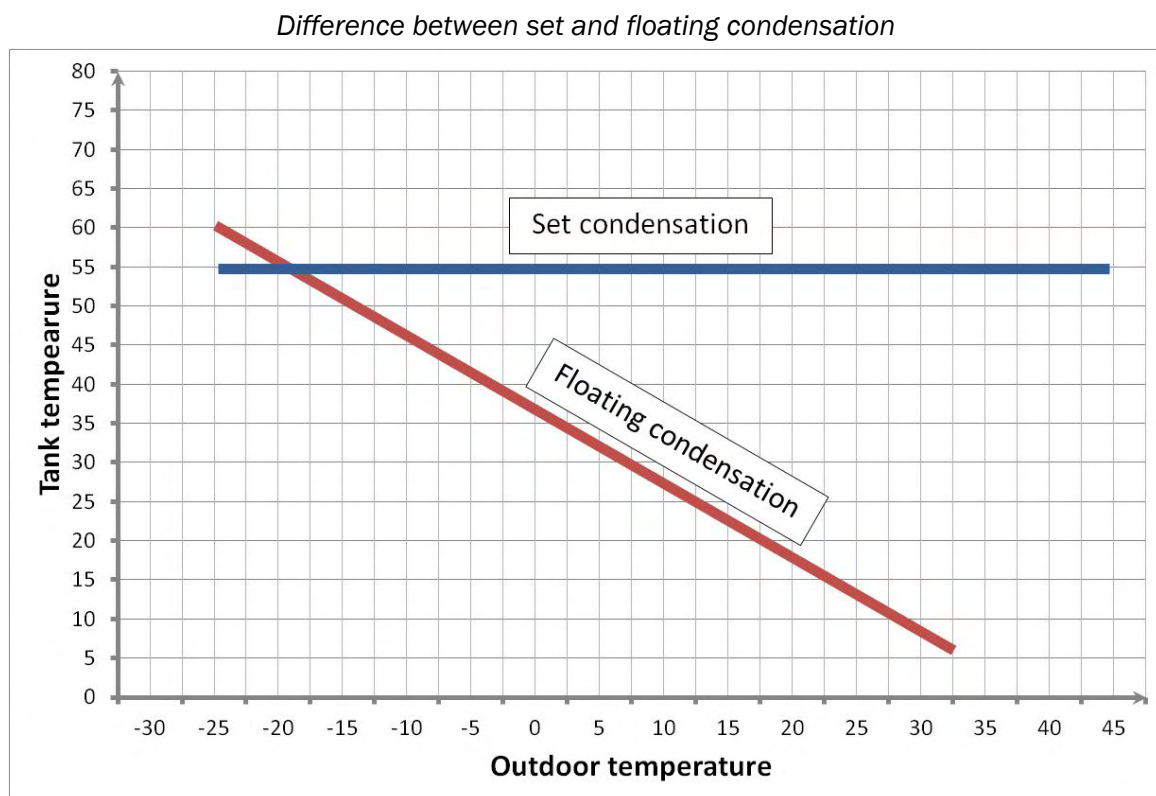
### Set condensation

Set condensation is used if the tank should keep a set temperature, e.g. 50°C at all times, i.e. independent of ambient conditions like weather, building transmissions etc.

The setting can be used if the heat pump should provide all of the domestic hot water need. (If the domestic hot water need is limited, a better alternative, in order to improve heat pump efficiency and thereby the savings, is to run at floating condensation and only pre heat the domestic hot water in the tank. In this case a water heater needs to be connected in series with the tank's domestic hot water supply.

### Floating condensation

The energy need in all buildings differs depending on different conditions. A low outdoor temperature implies higher temperatures on the water from the heat pumps, and opposite if the outdoor temperature is warmer. The best economy is achieved when the heat pump operates with as cool water as possible. This is done by setting a heating curve which is dependent on the outdoor temperature, this is what we call floating condensation. See picture below.

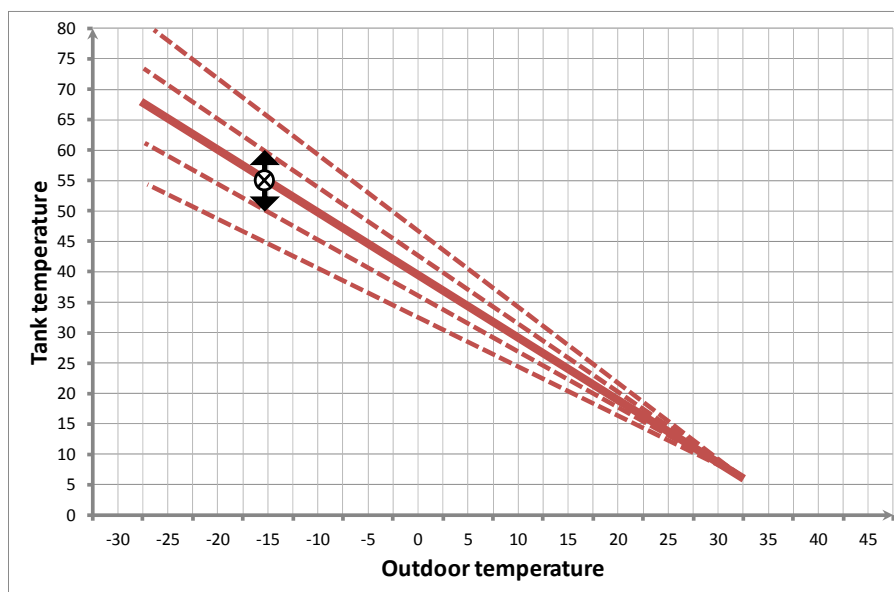


## Adjust the heating curve

There are 3 ways to control how the heat pump will operate against the tank with floating condensation.

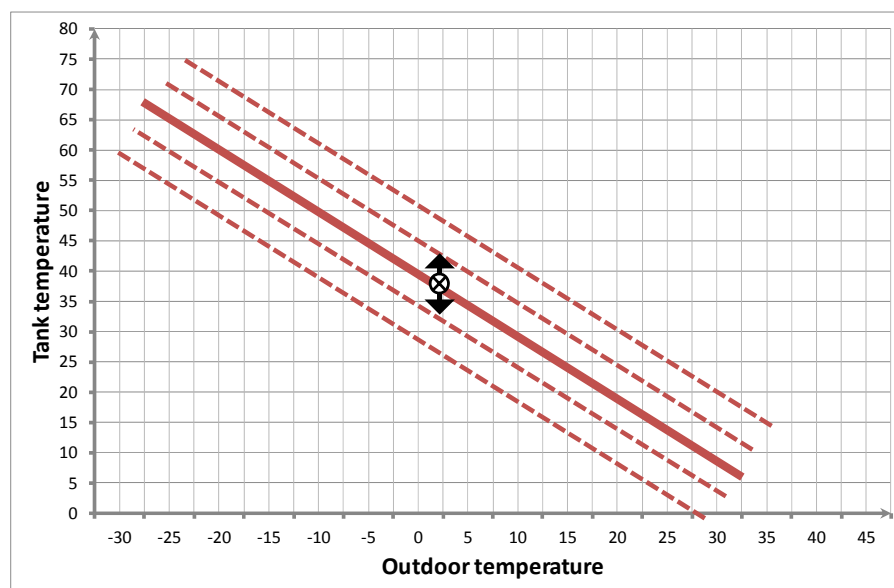
### Heat at outdoor temperature -15°C

Default setting for heat at -15°C is 50°C, i.e. when outdoor temperature is -15°C the set point for heat pump will be 50°C. This parameter can be adjusted both up and down and thereby affect the inclination of the heating curve, see picture below.



### Parallel adjustment

The parallel adjustment give possibility to move the curve up or down with a certain number of degrees, i.e. increasing or decreasing the tank temperature depending on outdoor temperature. This is done without affecting the inclination of the heating curve. See picture below.

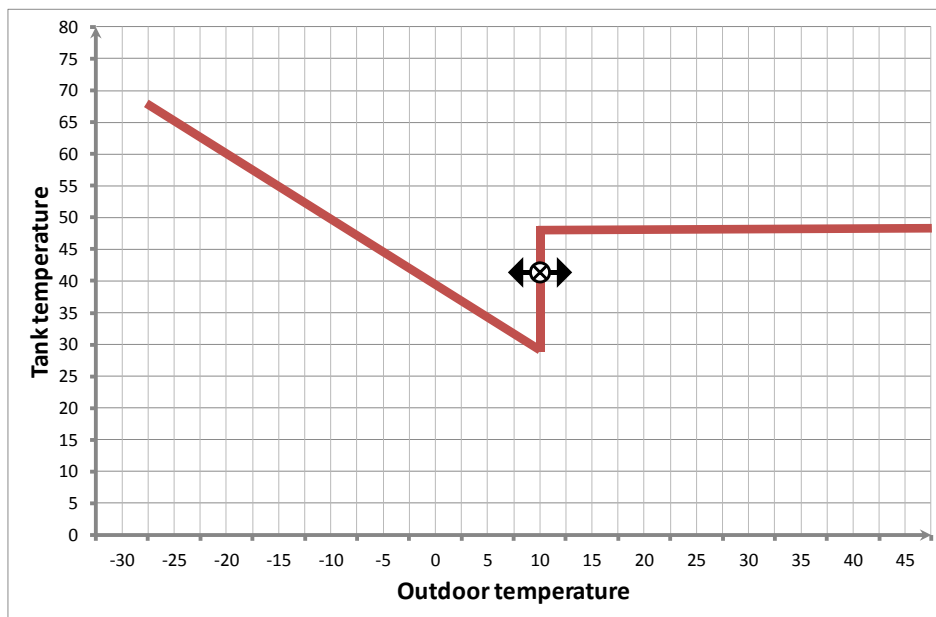


## Summer time charge

The last adjustment is a setting that gives possibility to change to set condensation at a desired outdoor temperature, often referred as “summer charging”.

At the set temperature the heat pump starts to charge until return temperature reaches maximum set flow temperature - 12 °C .

If for example max permitted flow temperature from heat pump is set to 60 °C the set point for the heat pump will be  $60 - 12 = 47$  °C



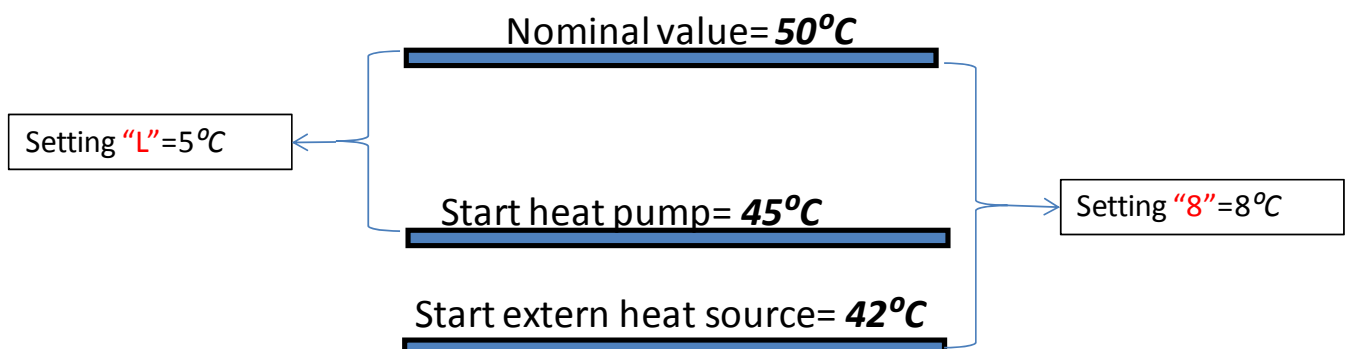
## CONTROLLING OF EXTERNAL HEAT SOURCE

It's possible to control a external heat source directly from the heat pump.

Depending on the settings, the external source will start if/when the heat pump itself can not provide all the energy needed to heat the house/hot water.

As per default the external heat source will start 3°C below the start of the heat pump. If for example the nominal value in a operation point is 50°C the heat pump will start at 45°C (setting “L”=5). If the temperature decreases even more the external heat source will start when the temperature decreases to 42°C (setting “8”=8). Also see figure below.

(Observe that this function isn't available if defrost tray with controlled heater cable is installed and used. Also see the chapter settings)



# SOLODIGITAL

## About

Solo Digital is the name of the second control mode that can be used when running the heat pump to an arbitrary tank or accumulator tank. The control method is quite straight forward. By closing/open the potential free connection "CTRL" the heat pump get start and stop commands. When closing the contact the heat pump will start, when open it again the heat pump will stop. When the switch closes, the heat pump will perform an internal check in order to prevent from starting when not allowed, to hot water for example.

The "CTRL" connection can be closed by an arbitrary switch, for example a boiler thermostat, room sensor thermostat, 3:rd part controller etc.

## Must connections

- Outdoor sensor (only for ExoAir and Polaris)
- CTRL

## Optional connections

- PWM (only for ExoAir and Polaris if pwm pump should be used)
- Alarm (only if the accessory SoloAlarm should be installed)

## Charge pump (only ExoAir and Polaris)

As for control mode SoloBasiC there are 2 different options for controlling of the charge pump, standard non-controlled or pwm-controlled charge pump. Benefits with using a pwm-controlled charge pump is that the heat pump will control and choose the best flow at all times. It will also operate the charge pump when there's a risk for freezing of water in the pipes.

### 1. Standard charge pump

A standard circulation pump is connected to the grid (or 3:rd part controller) and speed adjusted to achieve a desired temperature difference over the heat pump. If this solution is chosen it must be operated in a way that prevents freezing when heat pump is not operating.

### 2. PWM-controlled low energy charge pump

The best solution for both total economy and heat pump performance is to use a low energy circulation pump and let the heat pump control it. By using this type of charge pump and let the heat pump control it, the operation is shut off when the heat pump is not running. If there's a risk for freezing, i.e. low outdoor temperature, the heat pump will cycle a low flow in order to maintain some heat in the pipes.

It's also possible to set a desired temperature difference over the heat pump, which imply that the heat pump vary the flow according to the settings.

You can order *Hose & Pump Kit* with PWM-controlled charge pump from Euronorm:

For A/W 7,5-10,5C Art.nr: 1922015

For A/W 14-20C: 1922008

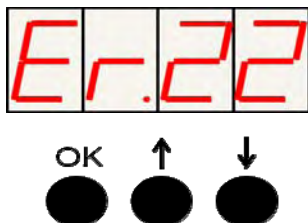


**Note!** Power lines to the charge pump is not available in the heat pump, only the *pwm control signal*.

## Outdoor sensor

Outdoor sensor must always be installed for the air/water models ExoAir and Polaris.

# THE DISPLAY



The display on the heat pump board consists of four 7-segment display units and 3 buttons. The display can show both errors and actual values and is also used for setting of the different control modes and parameters which are presented in this chapter

## REST MODE

In normal mode, i.e. no errors are present, the display will be blank.

By pressing any button the display activates and goes to **“Actual values”** mode where different system values can be seen.

If no button is pushed in 3 min the display will go to rest mode again.

## ACTUAL VALUES

Actual values are present only if no errors are active.

Depending on heat pump model different values are present.

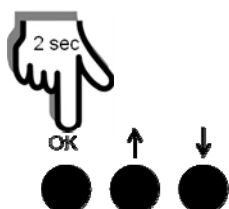
To move around in the menu the button **“OK”** is used

(Up (↑) and down (↓) button has no function in this menu)

## SETTING VALUES

To switch between **“Actual values/Error”** and **“Set mode”** the **“OK”** button is used.

Hold the button for at least 1 second to switch between the 2 modes. If the operation is successful the first decimal point on the display will start to flash.



In the **“Set mode”** menu all 3 buttons can be used.

To move around the **“OK”** button is used.

If up (↑) or down (↓) button is touched in this menu the numbers will start to flash and makes it possible to change values. In order to confirm the changing press the OK button and the value will stop to flash.



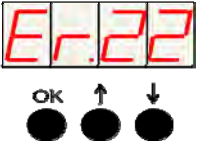
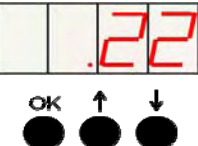
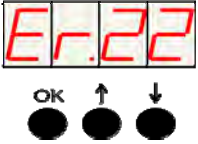
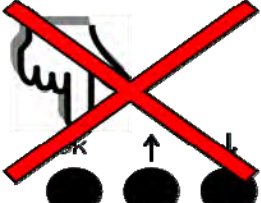
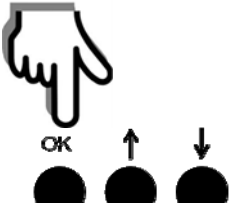
# ERRORS

If any error is present the display will show it and **“Actual values”** cannot be seen. However it’s still possible to switch to **“Set mode”** even if errors are present.

When an error is present the display will show **“Er”** and a number.

If **“Er”** flashes it means that the error is still present and cannot be reset. If **“Er”** is not flashing the error has occurred but is no longer active. Pressing the **“OK”** button will confirm and reset the error.

(It’s also possible to switch of the mains in order to reset the error.)

Display flashes “Er”	Display doesn’t flash “Er”
 	
<p>Error is still active Not possible to reset.</p> 	<p>Error is not active Confirm/reset by pressing OK</p> 

# FACTORY RESET

In order to restore factory settings all 3 buttons should be pressed for at least 5 seconds. If the action was successful the text **“dEFS”** will be shown



## TABLE - ACTUAL VALUES

Observe that this mode is not available if errors are present. To make sure that you are in this menu observe the first decimal point. If it is **not** flashing you are in the actual values menu. The first character in the view is the ID, for example, 0, 1, 2, 3 and so on.

Depending heat pump and control mode some views will not be activated. Look in right menu "Remark" for information if a particular view can be seen

(Numbers in the left column are only examples.)

Display	Description	Remark
0. 5 4 6	Actual time delay for the compressor in seconds. After every compressor stop a time delay of 10min will be present.	
1. 0	Shows if the analog start switch (CTRL) is open or closed. <b>0 = Switch open</b> <b>1 = Switch closed</b>	<i>SoloDigitaL only</i>
2. 1 - 0	First digit shows if the heat pump is waiting for the return temperature to drop (hysteresis active) to restart temperature. <b>0 = Heat pump at rest (waiting)</b> <b>1 = Start conditions fulfilled</b>  Second digit shows if the external heat source is running or not. <b>0 = External heat source off</b> <b>1 = External heat source running</b>	<i>SoloBasiC only</i>
3. 4 4. 5	Nominal value (set point) for the heat pump. When the return temperature sensor reaches this temperature the heat pump will stop. (If floating condensation is used this value will vary depending on outdoor temperature.)	<i>SoloBasiC only</i>
4. 5 8. 7	Maximum temperature that heat pump can reach at present conditions. (Observe that this value will change at lower ambient temperatures for air/water heat pumps.)	
5. 1 1 6	Actual discharge gas temperature on the compressors discharge gas line.	
6. 5 2. 4	Actual primary flow temperature from heat pump	
7. 4 7. 3	Actual return temperature to heat pump	

Display	Description	Remark
8. - 1 2	<b>ExoAir &amp; Polaris:</b> Actual evaporator temperature (used for controlling defrost cycles). <b>Exotic:</b> Brine temperature from heat pump (out).	
9. - 7	Brine temperature to heat pump (in).	<i>Exotic heat pumps only</i>
A. - 7	Actual outdoor temperature.	<i>ExoAir and Polaris only or if floating condensation used.</i>
b. 1	Outdoor temperature too low. ExoAir is limited to -15C and Polaris to -25C. <b>0 = Operation possible</b> <b>1 = Outdoor temperature too low</b>	<i>ExoAir and Polaris only.</i>
C. 3 5	Countdown to possible defrosting cycle in minutes. At different time interval the system controls if defrosting is necessary.	<i>ExoAir and Polaris only.</i>
d. 1 0. 2	Actual current consumption on phase L1	
E. 6 9	Actual speed of the variable speed charge pump in (%)	<i>Visible for Exotic. Visible for ExoAir/Polaris if pwm charge pump is installed</i>
F. 7	Number of compressor starts last 24 hours	
h. 1. 7	Version of installed software	

## TABLE - SET VALUES

To make sure that you are in this menu observe the first decimal point. If it is flashing you are in the set mode menu. The first character in the view is the ID, for example, A, b, C, d and so on. Depending on heat pump and control mode some views will not be activated. Look in right menu "Remark" for information if a special view can be seen

(Numbers in the left column are only examples.)

Display	Description	Def	Min	Max	Remark
<b>A.</b> 0	Allow compressor operation <b>0 = Compressor is blocked</b> <b>1 = Compressor is allowed to operate</b>	0	0	1	
<b>b.</b> 2	Run mode for heat pump (see manual for further explanation) <b>0 = Mode "SoloBasiC"</b> <b>1 = Mode "SoloDigital"</b> <b>2 = Mode "Euronorm boilers"</b> <b>3 = Mode "Multi control"</b>	-	0	3	<i>Not affected of factory reset.</i>
<b>C.</b> 0	CAN id. (Only relevant for multi controlling of several heat pumps)	0	0	250	<i>Mode "Multi" only</i>
<b>d.</b> 0	Choice for running with set or floating condensation with runmode SoloBasiC. <b>0 = Set condensation</b> <b>1 = Floating condensation</b>	0	0	1	<i>Mode "Solo BasiC" only</i>
<b>E.</b> 5   0	Heat curve adjustment. Sets the desired tank temperature at outdoor temperature -15°C	50,0	30,0	60,0	<i>Mode "Solo BasiC" + floating condensation only</i>
<b>F.</b> 4	Heat curve adjustment. Makes it possible to move the set heating curve up or down.	0	-10,0	10,0	
<b>h.</b> 2   2	Heat curve adjustment. Makes it possible to set an outdoor temperature were the heat pumps starts to operate at set condensation.	15,0	0	50,0	

Display	Description	Def	Min	Max	Remark
J. 4 4. 5	Desired tank temperature when SoloBasiC is used together with set condensation.	30,0	20,0	54,0	Mode "Solo Basic" + set condensation only
L. 6. 5	Desired hysteresis for restart of the heat pump. From set point the temperature on the return sensor must drop the set number of degrees.	5,0	1,0	20,0	Mode "Solo Basic" only
8. 8. 0	<p>This menu will have 2 different meanings depending on the setting on menu "9" (next page)</p> <p><b>Control of external heat source "9"=0</b> Desired hysteresis for start of external heat source. From set point the temperature on the return sensor must drop the set number of degrees for the external source to start.</p> <p><b>Heater cable control "9"=1</b> If Euronoms accessory defrost tray is installed the heater cable will be controlled from the output "HEATER" The heater cable will be active during defrost and the set number of minutes.</p>	8,0	1,0	20,0	
P. 5 6. 5	Max flow temperature from heat pump. (Observe that for ExoAir and Polaris maximum temperature will decrease at low outdoor temperatures.)	58,0	25,0	60,0 / 62,0	ExoAir&Exotic, max temp=62C Polaris, max temp=60C
r. - 4. 5	Defrost start temperature	-4,0	-9,5	5,0	ExoAir & Polaris only
S. 1 6. 5	Defrost stop temperature	18,0	5,0	25,0	
U. 1 0. 0	Outdoor temperature switch point for fan speed. Above set value the fan will operate at low speed.	10,0	0	40,0	

Display				Description	Def	Min	Max	Remark
0.	-	1	3	Set point for brine fluid freeze risk. If brine out temperature reaches set value heat pump will stop and set error.	-10	-25	10	Exotic heat pump only
1.	1	1.	5	Max delta T brine circuit. If temperature difference over evaporator is above set value (poor flow) heat pump will stop and set an error.	8,0	2,0	20,0	
2.		9.	7	Adjustment of the electronic motor protectors cut out value.	0	-3,0	+3,0	
3.			0	Setting to confirm if a pwm controlled charge pump is installed or not. <b>0 = Pwm charge pump <u>not</u> installed</b> <b>1 = Pwm charge pump installed</b>	0	0	1	ExoAir & Polaris only
4.		8.	5	Setting of desired delta T when using pwm controlled charge pump.	8,0	5,0	12,0	Visible for Exotic and if setting "U."=1
9.			0	Choose of functionality for the output "HEATER" on the circuit board. <b>0 = External heat source control</b> <b>1= Heater cable control defrost tray</b>	0	0	1	Visible for ExoAir & Polaris only

## TABLE - ERRORS

Following table gives information of what the different error codes means and also possible causes for the initiation. Observe that if the “ER” is flashing the error cannot be reset. Many errors can be present at the same time. The error with the highest priority will show up first.

Display	Description	Mark
E R 0 1	<b>Brine freeze alarm</b> This error is initiated by to low temperature in the brine circuit. (Measured on brine out sensor) <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Low brine flow</li> <li>2. Low temperature in brine collector</li> <li>3. Brine out sensor malfunction</li> </ol>	Visible only for Exotic
E R 0 2	<b>Brine in sensor error</b> this error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	
E R 0 3	<b>Compressor overload error (motor protector)</b> This error is initiated if the operation current to the compressor gets too high. <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Low voltage on power lines to heat pump.</li> <li>2. Phase missing to heat pump</li> <li>3. Compressor malfunction</li> </ol>	
E R 0 4	<b>DeltaT sensors heat pump error</b> this error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	
E R 0 5	<b>Evaporator / Brine out sensor error</b> this error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	
E R 0 6	<b>Flowtemp sensor heat pump error</b> this error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	



E R 0 7	<p><b>4-way valve stuck in heat mode</b>  This error can be initiated if there's a malfunction on the defrosting function. When the heat pump initiate a defrosting cycle energy from the water in the tank are used to heat up the evaporator, i.e. water going to the heat pump (return water) should be warmer than water going from (flow water) the heat pump. If this don't occur the heat pump doesn't defrost and this error is initiated.</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Malfunction in 4-way valve</li> <li>2. Wrong mounted flowtemp and returntemp sensor</li> </ol>	Visible only for ExoAir & Polaris
E R 0 8	<p><b>High evaporation temperature</b>  This error is initiated if the temperature on the defrosting sensor is too high or current operation point.</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Check valve (in heat pump) internal leakage</li> <li>2. Defrost sensor malfunction</li> </ol>	
E R 0 9	<p><b>Hotgas sensor error</b>  This error is initiated by sensor out of normal range</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	
E R 1 0	<p><b>Hotgas temp high</b>  This error is initiated if the discharge gas temperature on the compressors discharge pipe gets too high. Maximum allowed temperature for ExoAir and Exotic is 140°C and for Polaris 130°C.</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Expansion valve malfunction</li> <li>2. Leakage of refrigerant</li> <li>3. 4-way valve internal leakage</li> <li>4. Hot gas sensor malfunction</li> <li>5. Compressor malfunction</li> </ol>	
E R 1 1	<p><b>Hotgas temp low</b>  This error is initiated if the discharge gas temperature on the compressors discharge pipe is too low at current operation point.</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Check valve (in heat pump) internal leakage</li> <li>2. Expansion valve malfunction</li> <li>3. Hot gas sensor malfunction</li> </ol>	
E R 1 2	<p><b>Low pressure sensor error</b>  This error is initiated if the pressure sensor in the heat pump is out of range</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Cable short circuit or breakage</li> <li>2. Sensor malfunction</li> </ol>	Visible only for EEXV models

E R 1 3	<b>Low delta T warning</b> This error is initiated if the temperature difference over the heat pump, i.e. flow temperature – return temperature, is too low at present operation point. <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Too high flow on heat carrier</li> <li>2. Iced evaporator (check defrost function)</li> <li>3. Expansion valve malfunction</li> </ol>	
E R 1 4	<b>Low pressure cut out</b> This error is initiated if the pressure in the heat pump gets too low. <b>Possible causes</b> <ol style="list-style-type: none"> <li>4. Expansion valve malfunction</li> <li>5. Leakage of refrigerant</li> </ol>	
E R 1 5	<b>High pressure cut out</b> This error is initiated if the pressure in the heat pump gets too high. <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Air in water system</li> <li>2. Low flow on heat carrier</li> <li>3. Too high setting of max temp heat pump (decrease setting "P" in the setmode)</li> </ol>	
E R 1 6	<b>Outdoor sensor error</b> This error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	
E R 1 7	<b>Phase order error</b> This error is initiated if the 3 phases (power lines) are connected in the wrong direction. Switch place on 2 of the phases. <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Wrong phase direction</li> </ol>	
E R 1 8	<b>Return temp sensor heat pump error</b> This error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	
E R 1 9	<b>Suction gas sensor error</b> This error is initiated by sensor out of normal range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Short circuit in sensor or cable</li> <li>2. Sensor not installed or breakage in sensor/cable</li> </ol>	Visible only for EEXV models

E R 2 0	<p><b>Wrong serial number</b> This error is initiated if a non approved serial number is programmed in the memory of the circuit board</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Wrong programming of circuit board</li> <li>2. Circuit board malfunction</li> </ol>	
E R 2 1	<p><b>Max temp stop heat pump warning</b> This "error" is just a warning that doesn't need to be reset in order for the heat pump to restart. It is initiated if the heat pump stops on maximum permitted flow temperature set in setmode, setting "P". If 5 stops are due to max temp stop during 1 hour error "ER24" will be initiated.</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Low flow on heat carrier</li> <li>2. Too high setting on "L" in set mode</li> </ol>	
E R 2 2	<p><b>Low flow brine circuit</b> This error is initiated if the temperature difference on the brine circuit is to high, i.e. big difference between brine to and from heat pump</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Air in brine circuit</li> <li>2. Brine circulation pump wrong speed setting</li> <li>3. Block in brine circuit</li> <li>4. Brine sensors malfunction</li> </ol>	Visible only for Exotic
E R 2 3	<p><b>Wrong direction water circuit/4-way valve stuck in defrost mode</b> This error is caused if the temperature difference over the heat pump is negative, i.e. flow temperature is colder than the return temperature.</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Wrong flow direction on water pipes</li> <li>2. 4-way valve malfunction (only ExoAir and Polaris)</li> <li>3. Wrong mounting of water temperature sensors</li> <li>4. Malfunction on water temperature sensors</li> </ol>	
E R 2 4	<p><b>Repetitive stops on maximum heat pump temperature</b> This error is initiated if the heat pump stops on maximum allowed temperature 5 times during 1 hour. Also see error "ER21"</p> <p><b>Possible causes</b></p> <ol style="list-style-type: none"> <li>1. Low flow on heat carrier</li> <li>2. Too high setting on "L" in set mode</li> </ol>	

<b>E R 2 5</b>	<b>Phase L1 missing</b> This error is initiated if phase L1 is missing in the heat pump. <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Fuse broken on power lines to heat pump</li> </ol>	
<b>E R 2 6</b>	<b>Phase L2 missing</b> This error is initiated if phase L2 is missing in the heat pump. <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Fuse broken on power lines to heat pump</li> </ol>	
<b>E R 2 7</b>	<b>12VDC supply out of range</b> This error is initiated if the low voltage supply (12VDC) is out of allowed range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Malfunction on 12VDC power supply</li> </ol>	
<b>E R 2 8</b>	<b>5VDC supply out of range</b> This error is initiated if the low voltage internal supply (5VDC) is out of allowed range <b>Possible causes</b> <ol style="list-style-type: none"> <li>1. Malfunction on circuit board</li> </ol>	

# QUICK START GUIDE

This guide will help you do the most crucial settings in order to get the heat pump running. However it is recommended to read the details in this manual to get the full picture of how the heat pump will operate.

1. Make sure the pipe installation is finished and that power lines and sensors are installed to the heat pump.
2. Power up the system and make sure no errors are showing. Without errors it should look like picture below.

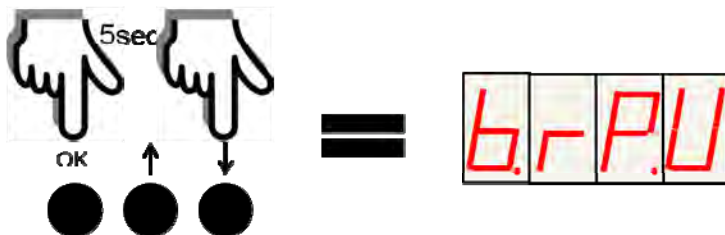


If errors are present check chapter “Error” and solve the error before continuing.

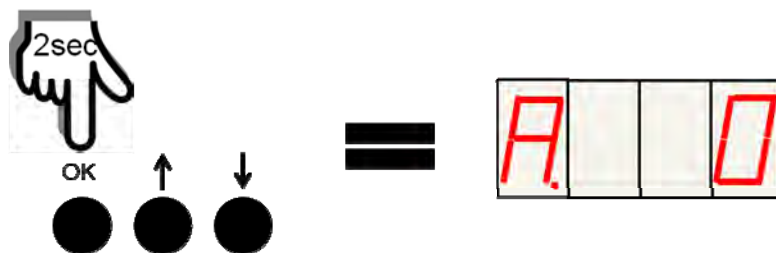
3. If an Exotic is installed you must make sure that there is an established flow on the brine collector side in order to prevent freezing.

**NOTE!** This paragraph applies only to Exotic C

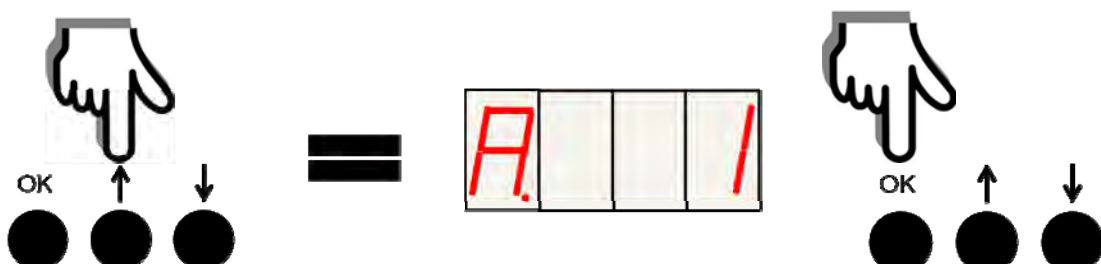
In actual value menu hold buttons “OK” and arrow down (↓) for 5 seconds until the text “brPU” is shown. This activation allows the brine pump to run continuously during 72h in order to help with air vent. Make sure that you have an established flow before continuing



4. Go to the set mode by holding the “OK” button for 2 seconds

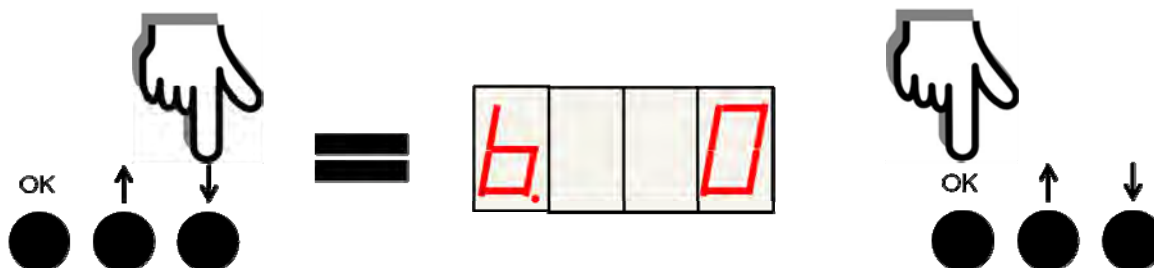


5. Allow compressor operation by setting “A” to 1. Confirm with “OK”

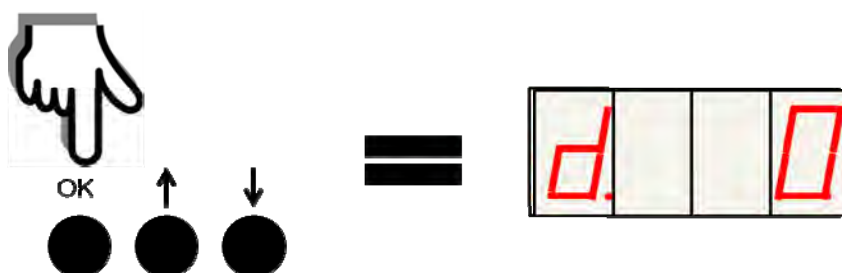


## SOLOBASIC – SET CONDENSATION

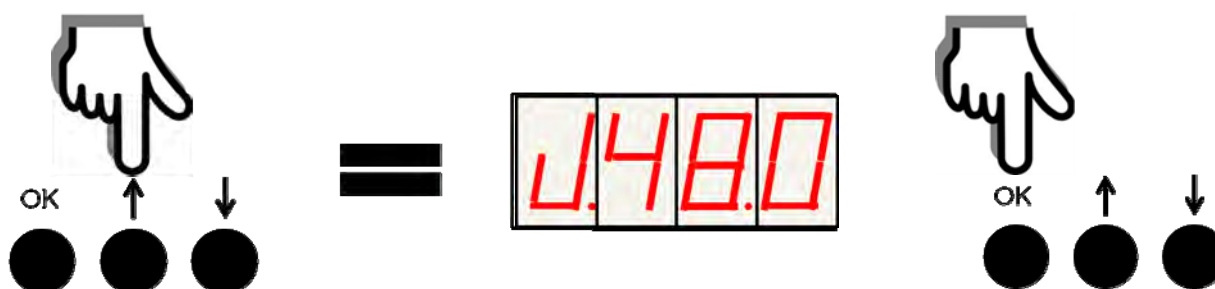
1. Choose SoloBasiC control mode by setting “b” to 0. Confirm with “OK”



2. Chose set condensation by setting “d” to 0. (This is factory preset value.)

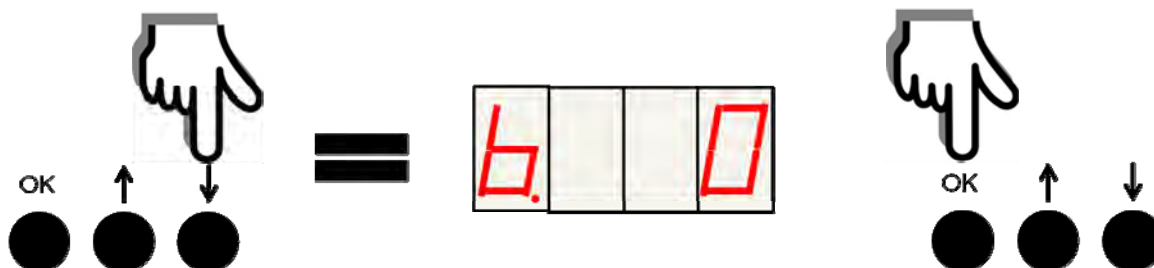


3. Set desired tank (return) temperature by setting the parameter “J”

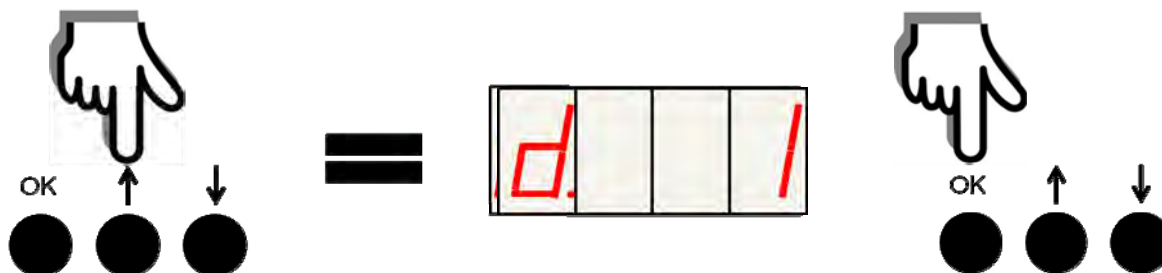


## SOLOBASIC – FLOATING CONDENSATION

1. Choose SoloBasiC control mode by setting “b” to 0. Confirm with “OK”



Chose floating condensation by setting “d” to 1.

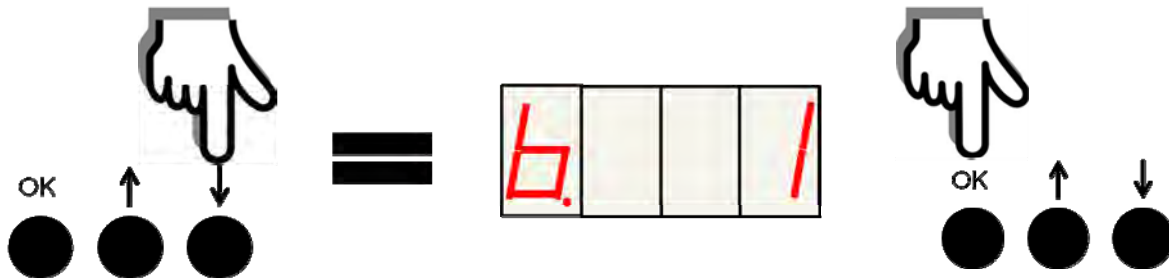


It's possible to also change the slope and settings of heating curve. See chapter “Set or floating condensation”.



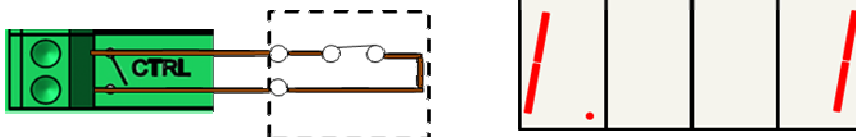
# SOLODIGITAL

1. Chose SoloDigital control mode by setting “b” to 1

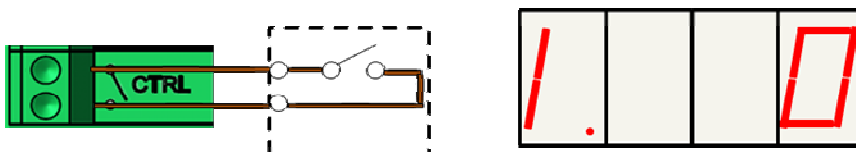


2. Go to actual values by holding OK button for 2 seconds and find the view “1”
3. Make sure that the view “1” is showing a 1 and not a 0 when the CTRL-switch is closed.

Switch closed -> “1.”=1



Switch open -> “1.”=0



# SERVICE AND MAINTAINANCE

## EXOAIR & POLARIS

- Ice can form under the heat pump during the winter months. This is normal and does not have to be rectified.
- When defrosting occurs, the evaporator/cooling battery heats up, and when defrosting is shut down and the pump returns to normal heating operations, hot moist air is, at first, blown out leading to the formation of a cloud of white steam. This is a normal reaction.
- Check that air can freely flow around the heat pump and remove any obstacles such as leaves and likewise.
- The outside of the heat pump should be washed and cleaned 1 to 2 times per year in order to maintain the look.
- In rare cases, a thin coating may form on the stainless steel. If this occurs, there are special cleaning agents available for stainless steel, such as Avesta OriginalFinish, a rust remover. This agent can be ordered from Euronom.



- Check once a year that the inspection glass in the heat pump is clean and not filled with bubbles when in use. Any bubbles may indicate low refrigerant level and a service technician should be contacted.
- The excess condensation normally runs off into the ground and into the house's draining system. Check for any moisture stains.

# MANUAL DEFROST

*Only of interest for ExoAir and Polaris*

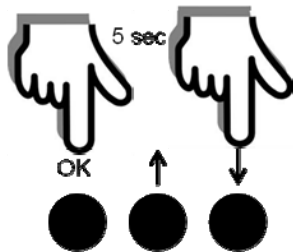
At extreme conditions it might sometimes be necessary to perform a manual defrost of an air/water heat pump. In order to achieve this first of make sure that the circulation pump (charge pump) is running. (If a pwm controlled charge pump is installed the heat pump will handle the flow itself.)



**NOTE! If manual defrost is performed without the circulation pump running the heat pump will cause severe damaged!**

In order to initiate a manual defrost make the following:

1. Make sure the compressor is enabled.
2. Make sure you are in the actual values menu. (First decimal point shall not flash)
3. Hold the buttons “OK” and down arrow (↓) for 5 seconds.



4. A new menu will appear and will show current temperature on the defrost sensor



5. Manual defrost will continue until something of the following occur:
  - The defrost sensor reaches +20°C
  - 10 minutes have elapsed
  - Up button (↑) is touched

# EXOTIC

- Check once a year that the inspection glass in the heat pump is clean and not filled with bubbles when in use. Any bubbles may indicate low freezing medium levels and a service technician should be contacted.
- Wipe off the heat pump when required, for instance of any coatings e.g. water leakage, which can be easily removed using the cleaning agent described above.

## R/T TABLES SENSORS

Water / Brine / Defrost sensor				Hot gas sensor			
Temp (°C)	R (kΩ)		Temp (°C)	R (kΩ)		Temp (°C)	R (kΩ)
-15	11,50		21	2,34		72	8,2
-14	10,94		22	2,25		74	7,6
-13	10,42		23	2,16		76	7,1
-12	9,92		24	2,08		78	6,7
-11	9,45		25	2,00		80	6,2
-10	9,00		26	1,93		82	5,8
-9	8,58		27	1,85		84	5,5
-8	8,18		28	1,79		86	5,1
-7	7,80		29	1,72		88	4,8
-6	7,44		30	1,66		90	4,5
-5	7,10		31	1,60		92	4,2
-4	6,78		32	1,54		94	4,0
-3	6,48		33	1,48		96	3,7
-2	6,19		34	1,43		98	3,5
-1	5,91		35	1,38		100	3,3
0	5,65		36	1,33		102	3,1
1	5,40		37	1,28		104	2,9
2	5,17		38	1,24		106	2,8
3	4,95		39	1,19		108	2,6
4	4,73		40	1,15		110	2,5
5	4,53		41	1,11		112	2,3
6	4,34		42	1,07		114	2,2
7	4,16		43	1,04		116	2,1
8	3,98		44	1,00		118	2,0
9	3,82		45	0,97		120	1,9
10	3,66		46	0,94		122	1,8
11	3,51		47	0,90		124	1,7
12	3,37		48	0,87		126	1,6
13	3,23		49	0,85		128	1,5
14	3,10		50	0,82		130	1,4
15	2,98		51	0,79		132	1,3
16	2,86		52	0,77		134	1,3
17	2,74		53	0,74		136	1,2
18	2,64		54	0,72		138	1,1
19	2,53		55	0,70		140	1,1
20	2,43		56	0,67		142	1,0

# TECHNICAL DATA

## EXOAIR C

Technical data	ExoAir 7,5C	ExoAir 10,5C	ExoAir 16C
Product number	9774704201	9774704301	9774704401
Measures (w x h x d)	1205 x (950-1040) x 605 mm		1205 x (1280-1570) x 605 mm
Weight	135kg	140kg	180kg
Insulation	Compressor insulation + asphalt/foam		
Power supply	400V N PE		
Fusing	10A		16A
Soft starter	Standard		
Connector heat carrier	Ø28		
Pressure drop condensor	1,5kPa	3,5kPa	5,1kPa
Min ambient temperature	-15°C		
Max flow temperature	62°C		
Refrigerant	R407C		
Charge	2300g	2300g	2400g
Performance*	ExoAir 7,5C	ExoAir 10,5C	ExoAir 16C
Heat power +7/35	7,57 kW	11,05 kW	16,20 kW
COP +7/35	4,2	4,2	4,2
Heat power +7/45	7,16 kW	10,40 kW	15,30 kW
COP +7/45	3,3	3,3	3,4
Heat power +2/35	6,25 kW	9,12 kW	13,50 kW
COP +2/35	3,6	3,6	3,6
Heat power +2/45	6,28 kW	9,12 kW	13,45 kW
COP +2/45	3,0	3,0	3,0
Heat power -7/45	4,91 kW	7,15 kW	10,30 kW
COP -7/45	2,4	2,5	2,4
Heat power -15/45	3,82 kW	5,60 kW	7,90 kW
COP -15/45	2,0	2,0	2,0

\*Performance according to EN14511, including defrosting cycles and circulation pumps. Not comparable with EN255

# POLARIS C

Technical data	Polaris 10C	Polaris 14C	Polaris 20C
Product number	9774704501	9774704601	9774704701
Measures (w x h x d)	1205 x (950-1040) x 605 mm	1205 x (1280-1570) x 605 mm	
Weight	145kg	150kg	190kg
Insulation	Compressor insulation + asphalt/foam		
Power supply	400V N PE		
Fusing	10A	16A	
Soft starter	Standard		
Connector heat carrier	Ø28		
Presure drop condensor	3,5kPa	4,7kPa	5,9kPa
Min ambient temperature	-25°C		
Max flow temperature	60°C		
Refrigerant	R404A		
Charge	2400g	3800g	4000g
Performance*	Polaris 10C	Polaris 14C	Polaris 20C
Heat power +7/35	9,85 kW	12,85 kW	20,20 kW
COP +7/35	3,9	3,8	3,9
Heat power +7/45	9,70 kW	12,98 kW	19,90 kW
COP +7/45	3,0	2,9	3,1
Heat power +2/35	8,40 kW	11,50 kW	17,80 kW
COP +2/35	3,4	3,4	3,5
Värmeeffekt +2/45	8,86 kW	11,70 kW	17,60 kW
COP +2/45	2,8	2,7	2,8
Heat power -7/45	7,20 kW	10,20 kW	15,50 kW
COP -7/45	2,4	2,5	2,6
Heat power -25/45	5,10 kW	7,30kW	10,90kW
COP -25/45	1,9	1,8	1,9

\*Performance according to EN14511, including defrosting cycles and circulation pumps. Not comparable with EN255

# EXOTIC C

Technical data	Exotic 5C	Exotic 8C	Exotic 10C	Exotic 12C	Exotic 17C
Product number	9774704801	9774700601	9774704901	9774700701	9774700801
Measures (w x h x d)	598 x 900 x 650 mm				
Weight	115kg	120kg	127kg	137kg	142kg
Sound insulation	Compressor insulation + asphalt/foam				
Power supply	400V N PE				
Fusing	10A				16A
Softstarter	Standard				
Connector heat carrier	Ø22				
Connector brine carrier	Ø28				
Pressure drop condensor	1,3kPa	2,2kPa	3,2kPa	4,3kPa	6,2kPa
Pressure drop evaporator	2,1kPa	4,5kPa	3,2kPa	6,1kPa	8,2kPa
Max flow temperature	62°C				
Refrigerant	R407C				
Charge	2200g	2200g	2400g	2400g	2600g
Performance*	Exotic 5C	Exotic 8C	Exotic 10C	Exotic 12C	Exotic 17C
Heat power 0/35	5,60 kW	7,69 kW	9,77 kW	11,25 kW	16,45 kW
COP 0/35	4,0	4,4	4,3	4,4	4,5
Heat power 0/45	5,38 kW	7,33 kW	9,28	10,70 kW	15,75 kW
COP 0/45	3,2	3,5	3,4	3,4	3,6
Heat power +5/35	6,64 kW	9,17 kW	11,55 kW	13,35 kW	19,35 kW
COP +5/35	4,6	5,1	5,0	5,0	5,2
Heat power +5/45	6,30 kW	8,65 kW	10,95 kW	12,60 kW	18,40 kW
COP +5/45	3,7	4,0	4,0	4,0	4,1

\*Performance according to EN14511, including circulation pumps. Not comparable with EN255



# SPARE PART LIST

## EXOAir C AND POLARIS C

	Article number					
Component	ExoAir 7,5	ExoAir 10,5	ExoAir 16	Polaris 10	Polaris 14	Polaris 20
Compressor	520933800	520879800	520964700	520606300	520990000	521019500
Receiver drier	520837800	520837800	520837800	520740900	520990400	520990400
Evaporator	520930300	520930300	520972500	520930300	520972500	520972500
Low pressure pressostat	521103900	521103900	521103900	521103900	521103900	521103900
High pressure pressostat	520930400	520930400	520930400	520994200	520994200	520994200
Check valve	521127300	521127300	521127300	521127300	521127300	521127300
Sight glass	520930800	520930800	520930800	520930800	520930800	520930800
Expansion valve (main circuit)	521083000	521083100	521083200	520994400	520994100	521089200
Expansion valve (EVI circuit)	-	-	-	520994000	521089100	521089300
Condensor	521201200	521201200	521201200	521201200	521201200	521201200
Economizer	-	-	-	521241600	521241600	521241600
Solenoid valve	-	-	-	520996200	520996200	520996200
Coil solenoid valve	-	-	-	521257300	521257300	521257300
4-way reversing valve	520931500	520931500	520972400	520931500	520972400	520972400
Coil 4-way valve	521257200	521257200	521257200	521257200	521257200	521257200
Fan	521087900	521087900	521087900	521087900	521087900	521087900
Roof plate	520999000	520999000	520999000	520999000	520999000	520999000
Compressor room plate	521209200	521209200	521211500	521209200	521211500	521211500
Air grid plate	520998800	520998800	521095100	520998800	521095100	521095100
Condensor room plate	521209300	521209300	521211600	521209300	521211600	521211600
Contacteur	521079900	521079900	521079900	521079900	521079900	521079900
Power supply unit, 15VA	521233200	521233200	521233200	521233200	521233200	521233200
Circuit board	521142500	521142500	521142500	521142500	521142500	521142500
Hot gas sensor	521137800	521137800	521137800	521137800	521137800	521137800
Outdoor sensor	521137600	521137600	521137600	521137600	521137600	521137600
Standard sensor	521138000	521138000	521138000	521138000	521138000	521138000

## EXOTIC C

	Article number				
Komponent	Exotic 5	Exotic 8	Exotic 10	Exotic 12	Exotic 17
Compressor	521240500	520933800	520969100	520879800	520964700
Receiver drier	520837800	520837800	520837800	520837800	520837800
Evaporator	521204700	521204700	521241000	521241000	521241000
Condensor	521204800	521204800	521204800	521204800	521240900
Low pressure pressostat	521103900	521103900	521103900	521103900	521103900
High pressure pressostat	520930400	520930400	520930400	520930400	520930400
Sight glass	520930800	520930800	520930800	520930800	520930800
Expansion valve	521240600	521236700	521237100	521237100	521237200
Circulation pump heat carrier	521237900	521237900	521237900	521237900	521237900
Circulation pump brine carrier	521237900	521237900	521237900	521110300	521110300
Contacteur	521079900	521079900	521079900	521079900	521079900
Power supply unit, 15VA	521233200	521233200	521233200	521233200	521233200
Circuit board	521142500	521142500	521142500	521142500	521142500
Hot gas sensor	521137800	521137800	521137800	521137800	521137800
Outdoor sensor	521137600	521137600	521137600	521137600	521137600
Standard sensor	521138000	521138000	521138000	521138000	521138000

# COMMISSIONING REPORT

## DATA

Model: ExoAir C <input type="checkbox"/> Polaris C <input type="checkbox"/> Exotic C <input type="checkbox"/>	Order number:
Heat pump serial number:	Date:
Electricity metre reading:	

## INSTALLATION CHECK

The system is filled with water and has been aerated	<input type="checkbox"/> <b>OK</b>
Flow direction, heat pump, correct	<input type="checkbox"/> <b>OK</b>
Outdoor piping insulated	<input type="checkbox"/> <b>OK</b>
Heat pump correctly positioned	<input type="checkbox"/> <b>OK</b>
Control box correctly fused	<input type="checkbox"/> <b>OK</b>
Pipe size to/from heat pump	_____ mm
Pipe length, boiler to heat pump	_____ m
Charge pump speed (if not pwm)	1    2    3

## OPERATIONAL DATA

Outdoor temperature:	_____ °C
Temperature, water to heat pump:	_____ °C
Temperature, water from heat pump:	_____ °C
Hot gas temperature (reading in control box)	_____ °C
Any adjustments from factory settings:	

## INSTALLER

Company:
Address:
Postal address:
Signature:
Name in Block Letters:

## CUSTOMER

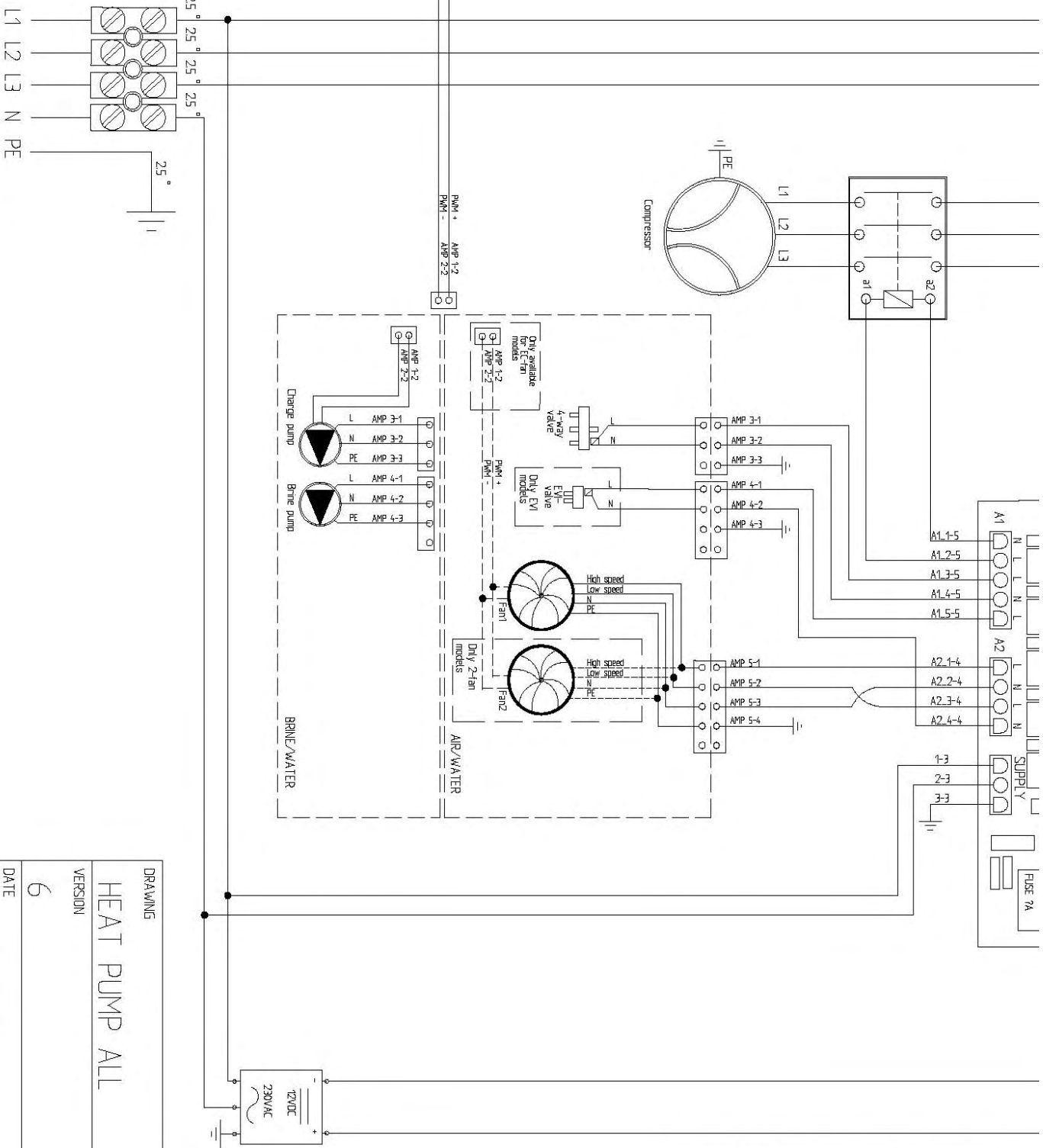
Name:
Address:
Postal address:
Telephone:

## COMMENTS

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# ELECTRICAL DIAGRAM

Main power supply  
400V N PE  
See manual for fuse sizing



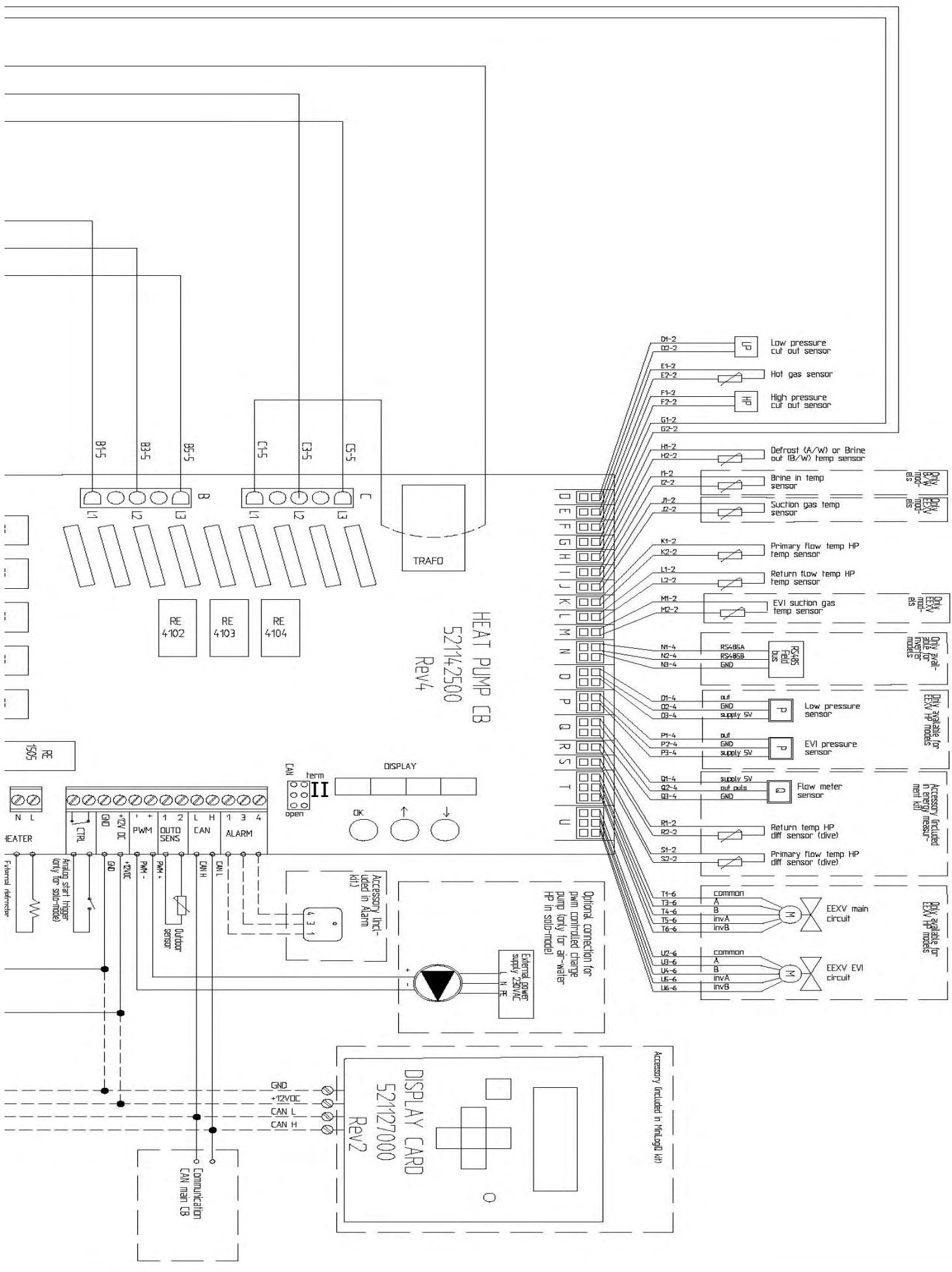
Accessory (included in GSH and main control module system)

CAN

EXP. CARD  
521220000  
Rev1

RS485  
RS232  
RELAYS  
DIG IN

DRAWING	HEAT PUMP ALL
VERSION	6
DATE	2012-04-04
OWNER	1HH



TRAFO

HEAT PUMP CB  
521142500  
Rev4

RE 4102  
RE 4103  
RE 4104

RE 1505

HEATER  
N L  
External reference  
Analog start trigger  
(only for sub-model)  
CTRL  
GND  
+24V DC  
PWM-  
PWM+  
OUTO SENS  
CAN L  
CAN H  
ALARM  
1 2 3 4  
L H

term  
CAN  
open  
DISPLAY  
BK  
↑  
↓

Accessory (inclu-  
ded in Alarm  
kit)

External power  
supply 24VDC  
L N PE

Optional connection for  
pump controlled change  
pump only for air-water  
HP in sub-model

DISPLAY CARD  
521127000  
Rev2  
GND  
+12VDC  
CAN L  
CAN H

Communication  
CAN main CB

D1-2  
D2-2  
LP  
Low pressure  
cut out sensor  
E1-2  
E2-2  
HG  
Hot gas sensor  
F1-2  
F2-2  
HP  
High pressure  
cut out sensor  
G1-2  
G2-2

H1-2  
H2-2  
Defrost (A/W) or Brine  
out (B/W) temp sensor  
I1-2  
I2-2  
Brine in temp  
sensor  
J1-2  
J2-2  
Suction gas temp  
sensor

K1-2  
K2-2  
Primary flow temp HP  
temp sensor  
L1-2  
L2-2  
Return flow temp HP  
temp sensor  
M1-2  
M2-2  
EVI suction gas  
temp sensor

N1-4  
N2-4  
N3-4  
RS485A  
RS485B  
GND  
RS485  
bus

O1-4  
O2-4  
O3-4  
out  
GND  
supply 5V  
P  
Low pressure  
sensor  
P1-4  
P2-4  
P3-4  
out  
GND  
supply 5V  
P  
EVI pressure  
sensor

Q1-4  
Q2-4  
Q3-4  
supply 5V  
out pulse  
GND  
R  
Flow meter  
sensor  
R1-2  
R2-2  
Return temp HP  
diff sensor (dive)

S1-2  
S2-2  
Primary flow temp HP  
diff sensor (dive)

T1-6  
T2-6  
T3-6  
T4-6  
T5-6  
T6-6  
common  
A  
B  
invA  
invB  
EEXV main  
circuit

U1-6  
U2-6  
U3-6  
U4-6  
U5-6  
U6-6  
common  
A  
B  
invA  
invB  
EEXV EVI  
circuit

Only  
EEXV  
main  
circuit  
for  
main  
circuit

Only  
EEXV  
main  
circuit  
for  
main  
circuit

Only  
EEXV  
main  
circuit  
for  
main  
circuit

Accessory  
included  
in  
main  
circuit

Only  
operable  
for  
EEXV  
main  
circuit

Only  
operable  
for  
EEXV  
EVI  
circuit



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