



Installation and
user guide for
VPX C 200/300



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Introduction

This manual is written for Euronom's boiler series VPX C 200/300. The boilers are connected preferably to Euronom's air/water or brine/water heat pumps.

The manual contains chapters that are intended for both end users and installers. The chapter "Handling" is directly specifically at users of the system.

VPX C

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.

VPX is manufactured in Sweden, which has extensive experience in manufacturing heat pumps and boilers. Before leaving the factory all boilers are tested for functionality and technical performance. All stages of manufacturing, from the plated chassis to the finished boiler, are monitored to ensure quality is always maintained.

The chassis of the boiler and all the screws and rivets are manufactured from stainless steel, which requires minimum maintenance and offers a long-lasting, durable structure. The components used in the heat pump are from renowned suppliers and are chosen on the basis of functionality and quality, which means that a minimum of servicing is required.

Delivery & Safety

Important!



Check the following points during delivery and installation:

- 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.
- Make sure that the bag accompanying the unit includes the following accessories for the product:
 - Manual
 - Outdoor sensor & room sensor

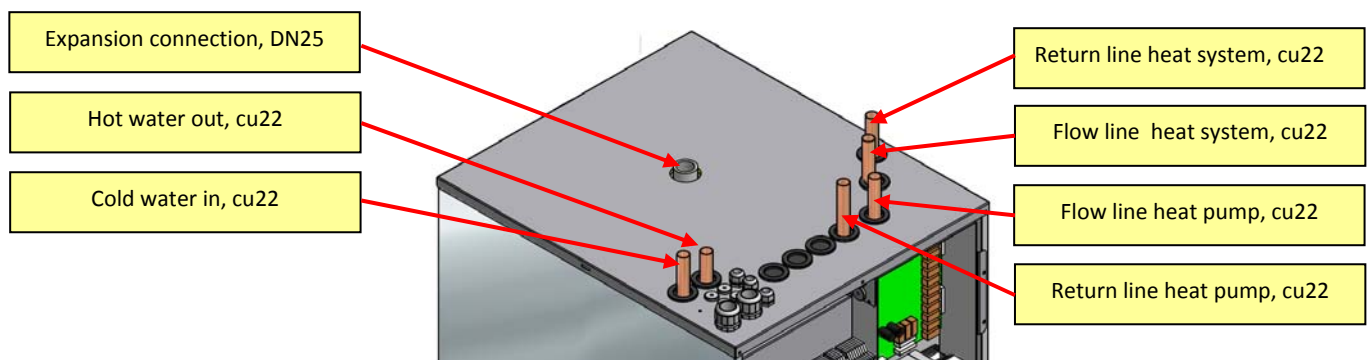
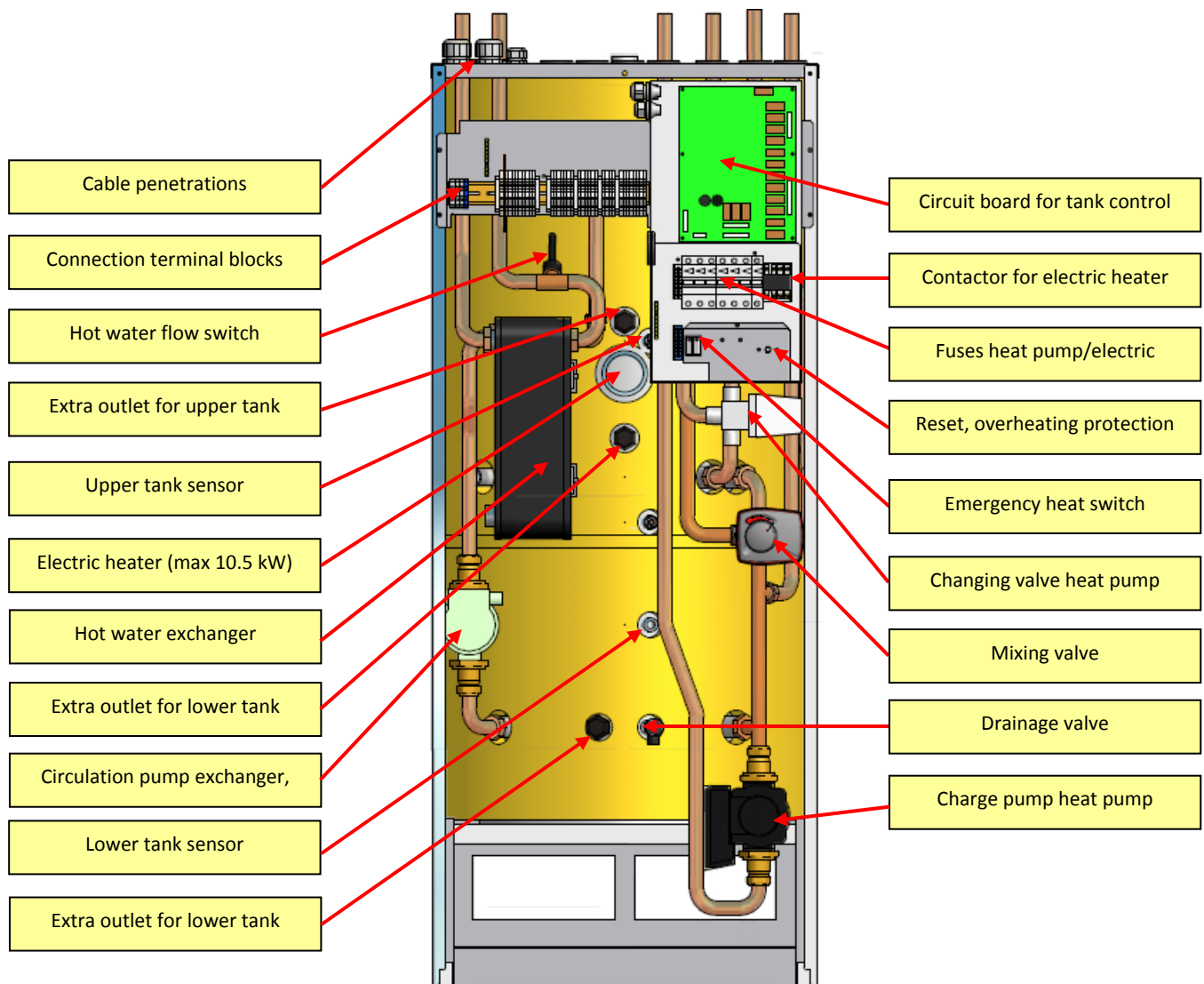
Safety regulations



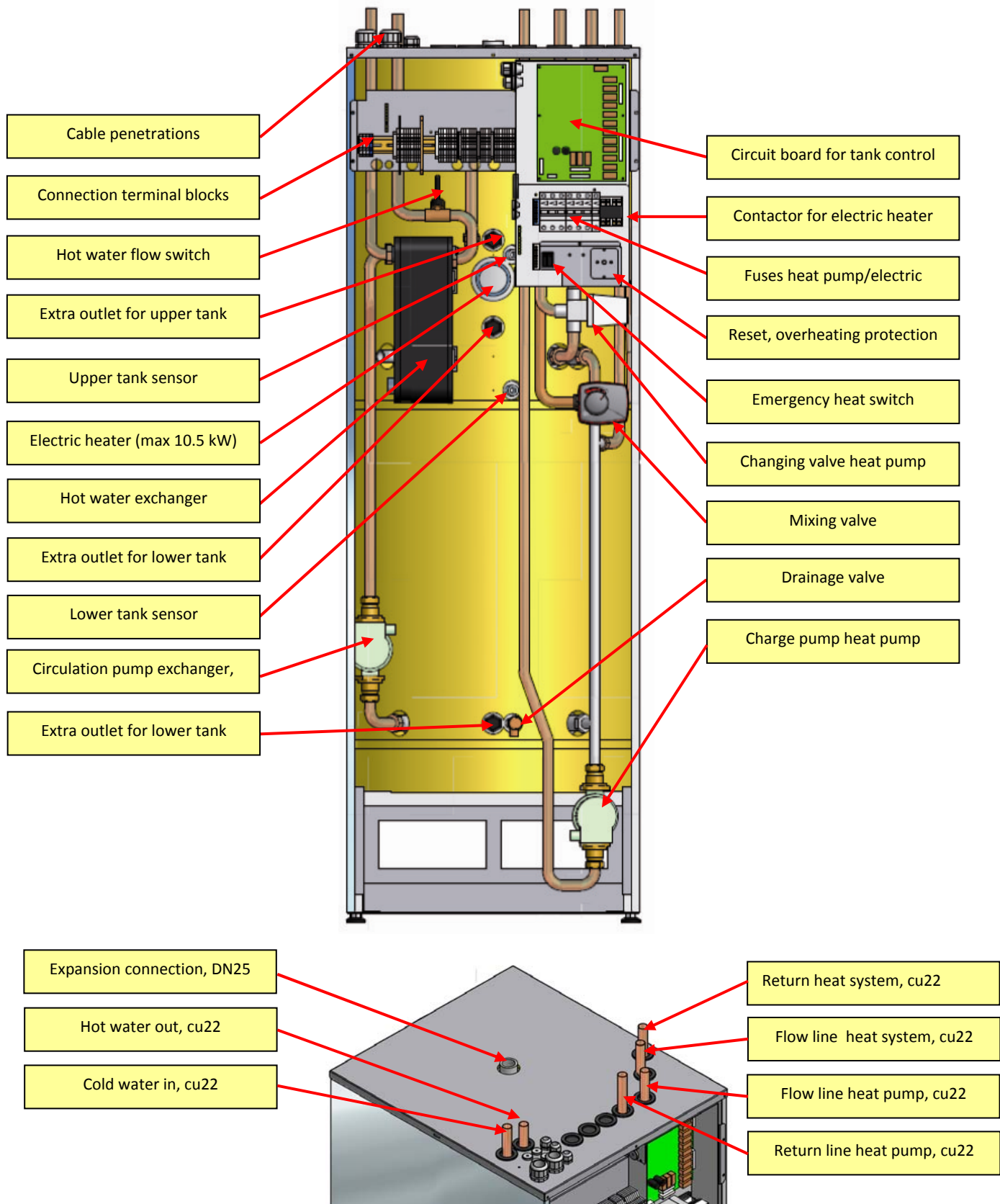
The following safety regulations must be observed when handling, installing and using the product:

- An omnipolar maintenance switch should be installed on the power supply cables prior to the product
- Disconnect the power supply to the maintenance switch prior to carrying out any kind of maintenance or service work on the product.
- Make sure that all lifting equipment, eye bolts and other components are undamaged when handling a boiler 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 items which are screwed in place.
- Never compromise on safety by disconnecting safety equipment.
- Only authorized personnel are allowed to modify or service the product.

Overview VPX 200



Overview VPX 300



Handling

This chapter is intended for you, the end user of the product, and describes how your new heating system functions and your options for adjusting the settings in order to make your house as comfortable as possible with the best cost-efficiency.

Ask your installer to go through the system with you, and ask for the registration form to fill in after the installation is completed.

How the VPX C works

Inside VPX is the water which is used to heat your house and to supply hot water for showering, etc. Since the water to heat your house (radiators/underfloor heating) does not need to be equally hot all the time, the tank is divided into two sections, a lower section and an upper section. There is a plate between these two sections, which ensures that the tank can maintain two different temperatures.

Lower tank section

The lower tank section is used primarily to heat the house, but also to preheat the cold water that will become hot water in the VPX. Depending on your heating system, different water temperatures are necessary at different outdoor temperatures. If it is warm outside, the system does not need very hot water. Conversely, if it is very cold outside, higher temperatures are needed to heat the inside of the house. The temperature of the water that is sent to your radiators / underfloor heating is determined by the so-called heating curve. You can set this curve yourself. It is important to make sure that the heating curve is set properly - for your own comfort, but also to ensure the overall efficiency of the heating system.

Upper tank section

The upper part of the tank is used primarily to heat your hot water. Because you always want to have hot water available, the heat pump keeps this section warm regardless of the outdoor temperature. You can set the temperature in this part of tank yourself. The higher the temperature, the warmer the hot water, but hotter water needs more energy and is therefore more expensive.

Hot water

VPX uses a special technique for heating the hot water through a special exchanger. When you start to lose hot water, e.g. during showering, water is drawn from both the lower and the upper tank sections through the exchanger, where the cold water comes in and is heated into hot water. There is no risk of legionnaires' disease because the hot water is not stored, rather it is produced directly as needed.

Heat pump

VPX can function as a pure electric boiler without any connected heat pump. The best savings are of course obtained if a Euronorm heat pump is connected. The heat pump may be an air/water heat pump, which is installed outdoors or a fluid/water heat pump installed indoors.

Electric heater

VPX has an integrated electric heater in the upper section of the tank. This is used if the energy from the heat pump is not sufficient or if there is a fault in the heat pump.

Heating curve

This chapter describes how the heating for the house works and how you can adjust the so-called heating curve to achieve maximum savings without sacrificing comfort.

Heating requirements for the house

How your house is built, the climate in your area, and what type of heating system you have all influence how much energy is needed to heat it.

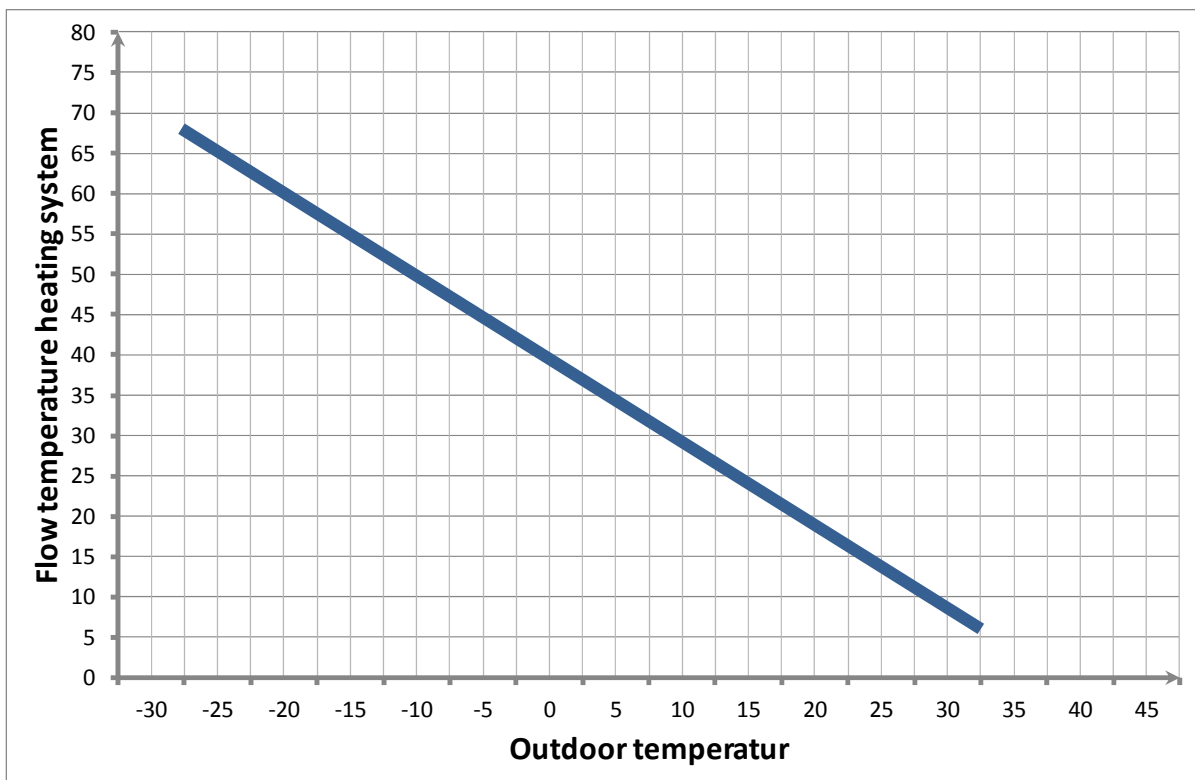
There are many factors that affect the temperature required for your heating system. For example, if it is cold outside, the house will need more energy/heating. If you have an old radiator system, the radiators will require warmer water than modern radiators to generate enough heat. If you have an underfloor heating system, the water will not need to be as hot to achieve sufficient heating. Based on all of these parameters, which vary from house to house, the settings will be unique in each case. We call this the heating curve.

In simple terms, the heating curve can be described as the relationship between the outdoor temperature and the temperature (flow line) that your heating system requires - see the diagram below. You can adjust the heating curve in many different ways so that it is suited precisely for your house, and we will review these in this chapter.



Remember! A house heating curve that is set properly can save a lot of money over the year.

Example of a heating curve. (This is the factory default heating curve)



Setting the curve

There are 3 basic settings for the heating curve, points A, B and C. With these 3 points, you can adjust the gradient and vertical position.

The aim is always to set the curve as low as possible.

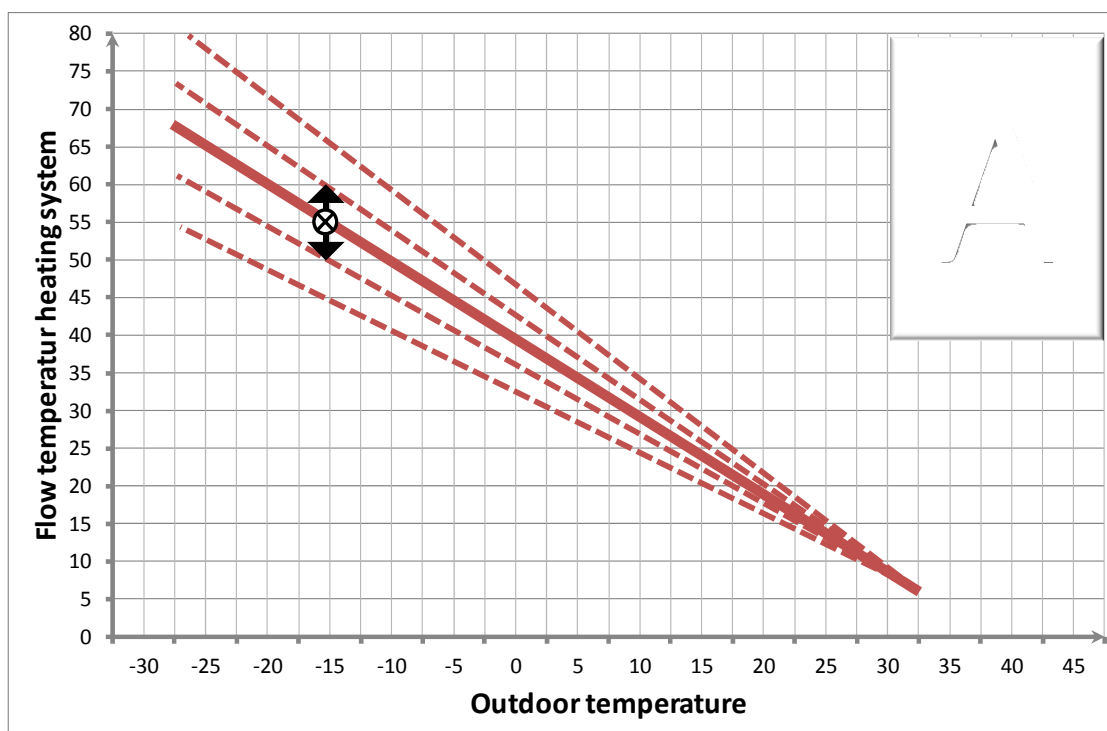
Point A

Point A describes the temperature of the water to be sent to the radiators if the outdoor temperature is -15°C . The factory default setting for this item is 55°C . In other words, when it is -15°C outside, the VPX unit sends 55°C water to the radiators.

When you adjust this point, you change the angle of the entire heating curve. The biggest changes occur when outdoor temperatures are cold - see the graph below.

If you feel that there isn't enough heat when it is below -5°C outside, but there are no problems when it is warmer, you can adjust this point upwards.

Adjusting point A on the heating curve. (The factory default setting 55°C is marked with a cross)



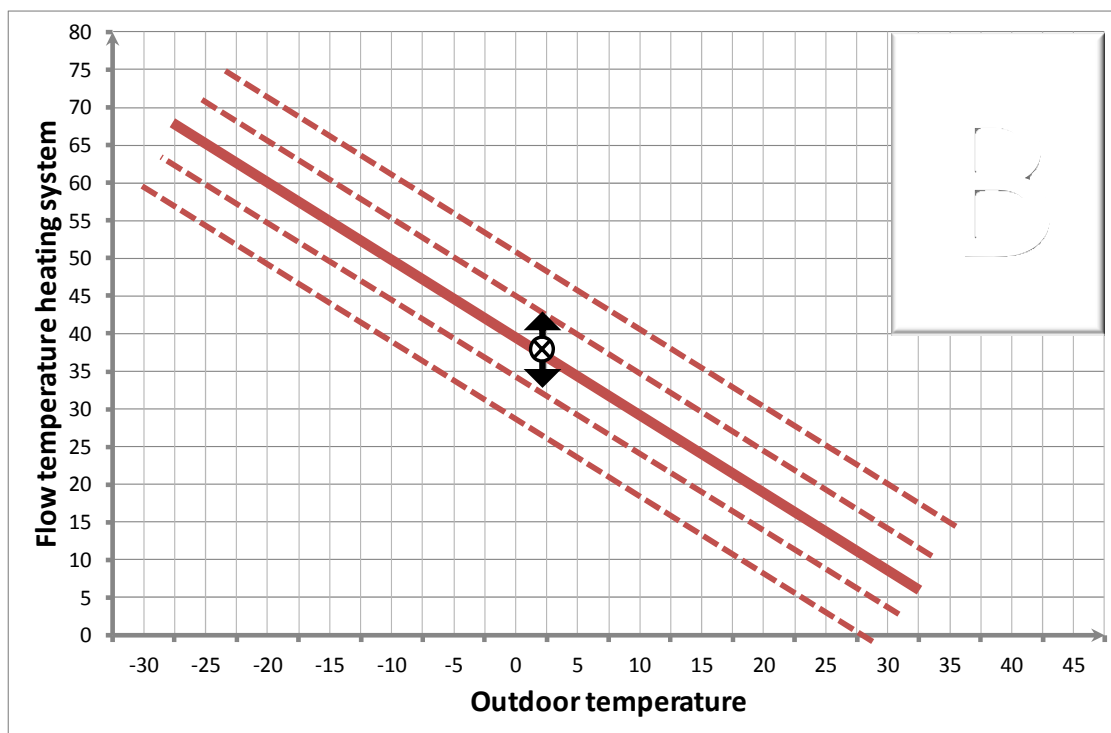
Point B

Adjusting point B means that the entire heating curve moves upwards or downwards (parallel movement). In other words, you don't adjust the gradient for any particular outdoor temperature, rather you adjust the curve for the entire outdoor temperature range. The factory default setting is 0°C, i.e. no movement at all. If you increase this value, the curve moves upwards, i.e. becomes warmer, and if you reduce this value, the temperature drops.

This setting is primarily used when you feel that it is too cold (or warm) regardless of the outdoor temperature.

(This is also the setting that should be used when first adjusting the heating curve).

Adjusting point B on the heating curve.



Point C

Point C has 2 meanings.

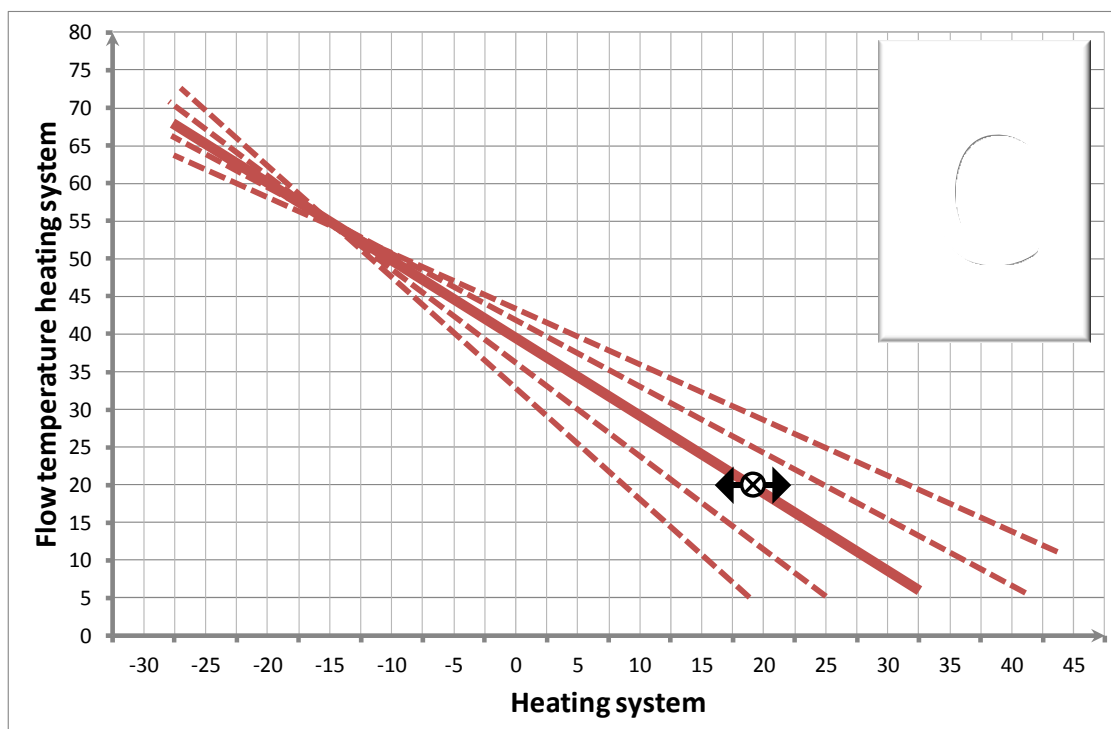
On the one hand, it is used to adjust the gradient of the heating curve during warmer outdoor temperatures, but it is also used as a "shutoff temperature" for the heat to the house.

When the outdoor temperature reaches this temperature and stays there for at least 8 hours, the VPX stops sending water/energy to the heating system and thereby shut off heating to the house.

During summer time when heat is in off-mode both circulation pump and mixing valve, which determines the temperature to the heating system, will be run periodically in order to prevent sticking

If you feel that there isn't sufficient heating when the temperature is above +5°C outside, but there aren't any problems when it gets colder, you can adjust this point upwards.

Adjusting point C on the heating curve. (The factory default value of +17°C is marked with a cross).

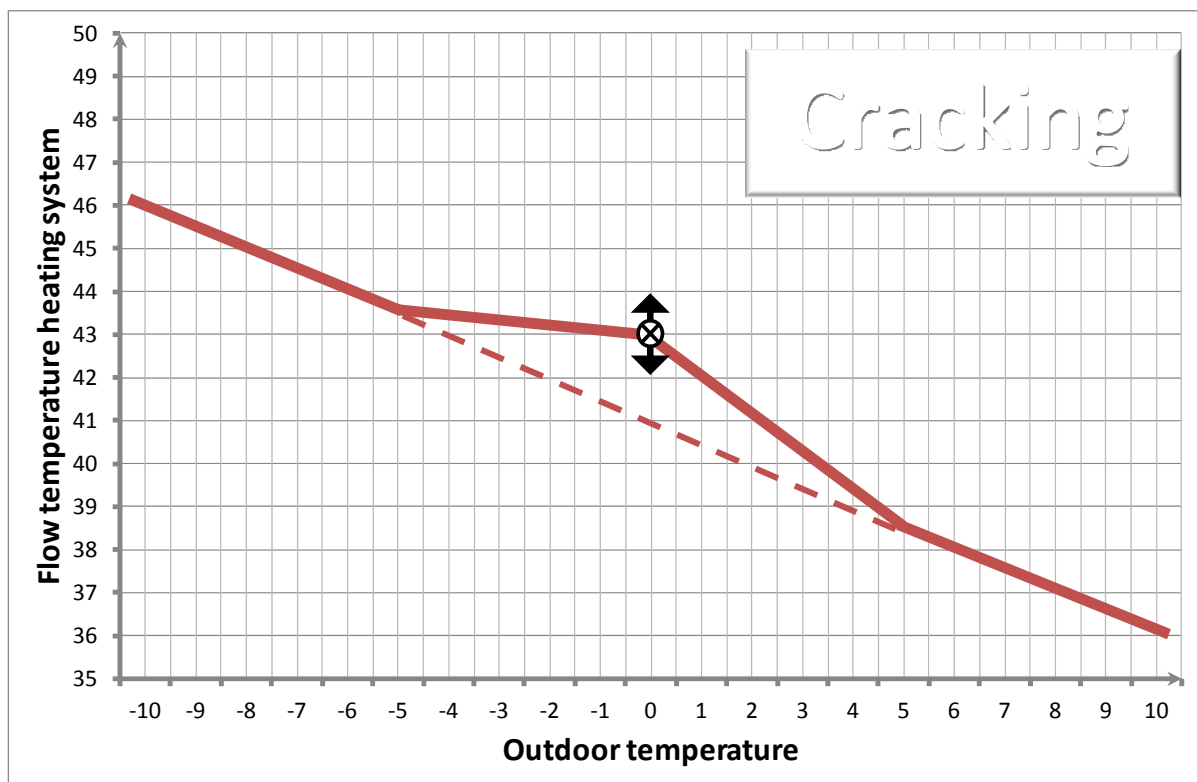


Cracking

When the outdoor temperature is around 0°C and it is very windy, slightly warmer water may sometimes need to be sent to the heating system. We call this adjustment, when the outdoor temperature is 0°C, cracking the curve.

If you feel that there isn't enough heating when it is around 0°C outside, but it is otherwise sufficient, you can increase this setting somewhat.

Adjusting the cracking point. (The factory default value is 0)



Limiting the heating curve

Points A, B and C are all used to set the curve in different positions. There are also 3 other ways for adjusting the curve. Basement heating, underfloor heating and room sensors. These 3 settings do not affect the gradient or the position of the heating curve. Instead, they restrict the curve and allow you to set a minimum and maximum temperature that is sent to the heating system.

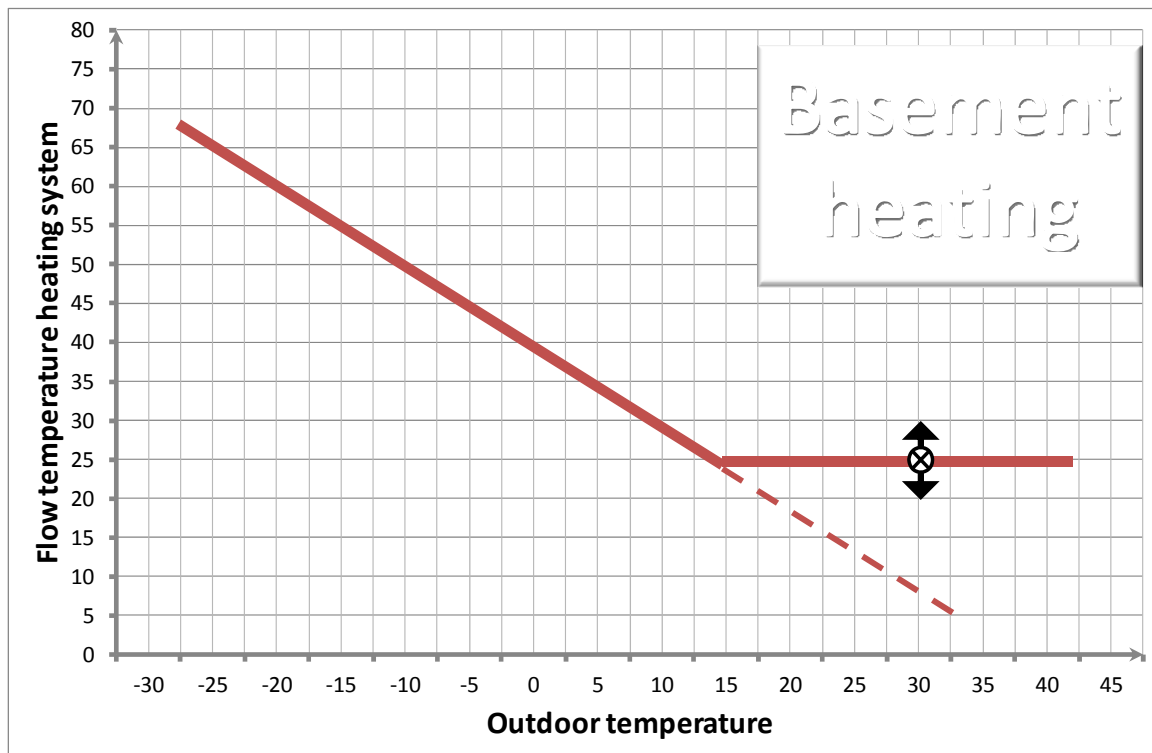
Basement heating

Basement heating allows you to cancel the function described in point C, "heat off", which means that the VPX unit stops sending water to your heating system. If you activate basement heating, VPX will continue to send water at the temperature you set, even if the outdoor temperature is high.

Activate basement heating if you don't want the heating to be turned off even if it is warm outside. This applies primarily when you have a basement that needs a certain amount of heating even in the summertime, or a bathroom with underfloor heating coils that you want to keep warm in the summertime as well.

(In the example below, basement heating is set to 25°C)

Adjusting "basement heating" on the heating curve.

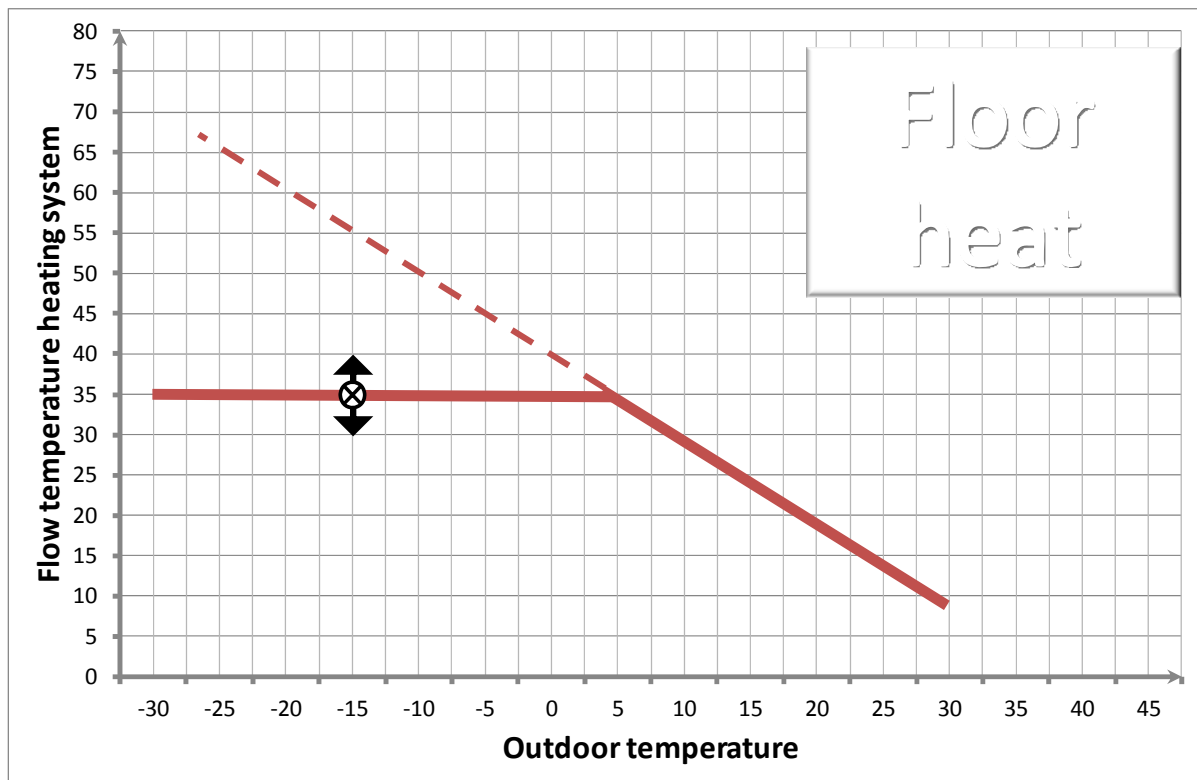


Underfloor heating

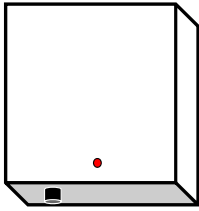
Underfloor heating is the opposite of basement heating. Underfloor heating limits the heating curve and sets the maximum temperature at which water can be sent to your heating system, regardless of how cold it is outside. Note that your installer must unlock this function in the installer's menu in order for you to be able to view it.

Setting a maximum temperature also allows you to protect your underfloor heating system against excessively high temperatures. This setting is only used if you only have underfloor heating.

Adjusting "underfloor heating" on the heating curve.



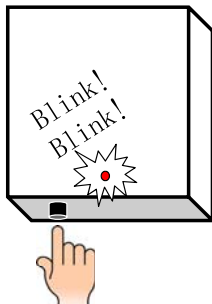
Room sensor



A room sensor is a sensor placed in a central location in your house, which provides information to the VPX unit regarding the ambient temperature. Depending on how your house is designed, a room sensor may work more or less effectively. If you have a large house with many small rooms, it can be difficult to use room sensors because it may be too cold or hot in the rooms that are far away from the sensor. If you have an open plan house, room sensors are recommended, both for the sake of comfort and from an energy efficiency standpoint.

If you have a room sensor installed, you can decide whether it should be used to compensate the heating, i.e. be allowed to affect the heating curve. If it becomes warmer than your original setting, the VPX will reduce the heat to your radiators/underfloor heating system. The greater the difference, the cooler the water that is sent out. This adjustment will take place continuously, which means that the appearance of the heating curve will be constantly changing. For each 1/10 of a degree (0.1°C) that the current room temperature deviates from the set temperature, the temperature in your heating system drops by approximately 4°C .

Block temporarily

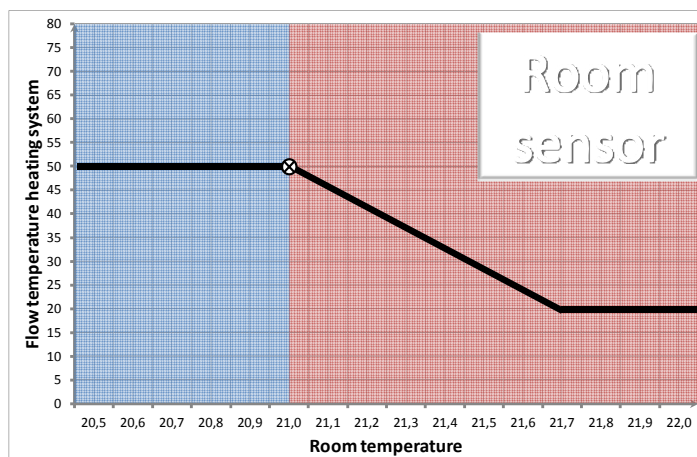


The button placed on the room sensor can be used for different functions of your own choice. One of these functions is to temporarily block the sensors impact on the heating curve. This function is of interest if you for example have an open fireplace placed in the same room as the sensor. When you add heat to the room with the fire place the sensor will stop the heat to the complete heating system, i.e. all rooms will be affected. However, if you use this function you can set a time delay in hours for blocking of the sensor when you want to use the fire place. When you press the button the activation will be confirmed by 2 blinks from the red diode. Observe that you have to have set this function first in the menu: "Settings" -> "For customer" -> "Function button". Further information in the chapter "Menu function button"



Remember! The room sensor cannot increase the heating curve if it becomes too cold inside the house. If it becomes too cold, you need to increase the heating curve manually according to the previous instructions in this chapter.

Example of the room sensor function. The set value for room temperature is 21.0°C . If the temperature in the house rises, the temperature in the heating system will gradually decrease.



Why is the heating curve important?

Now we have gone through the settings for the heating curve, and the importance of properly setting the heating curve has been highlighted. Why is this so important?

Well, the heat pump doesn't act like a oil-based furnace, wood stove or electric boiler, where the temperature does not have as great an impact on efficiency.

The effectiveness/efficiency of the heat pump is called the COP and is a measure of how much energy you get back in relation to how much you put in. $COP = 3$ means that if you put in 1 kWh of energy, you get 3 kWh of energy back out.

The efficiency, COP, of the heat pump depends on many different parameters, but there is a clear connection between the water temperature in the heat pump and COP. The hotter the water that the heat pump must produce, the lower the degree of efficiency, COP, and the lower the cost savings.

This means that in order to optimise your savings, the heating curve needs to be set as low as possible. If the heating curve is set too high, the heat pump generates water that is warmer than necessary and therefore has a lower degree of efficiency.



The best savings for your heating system come from setting the water temperatures as low as possible!

In practice

It can take a long time to set up the perfect house heating curve for your house, and you may need to adjust it a number of times. Above all, it will need to be adjusted when the outdoor temperature drops.

There are a few basic tips that should be followed.

Radiator thermostats

All radiator thermostats should be completely open when you set your heating curve. Otherwise, the risk is that the VPX unit will send out water that is warmer than necessary.

Adjustment

With the thermostats completely open, try reducing the heating curve using the settings in this chapter, e.g. heating curve point B. Wait a few days and see whether the comfort level is satisfactory. When you find a setting where it is sufficiently warm in the coolest room in the house, you can fine-tune the thermostats on the radiators in the other rooms.

Room sensors

Room sensors make adjustment easier, because the system itself decreases the heating curve when necessary.

Remember that raising the room temperature by one degree means that approximately 3-5 °C warmer water needs to be produced.

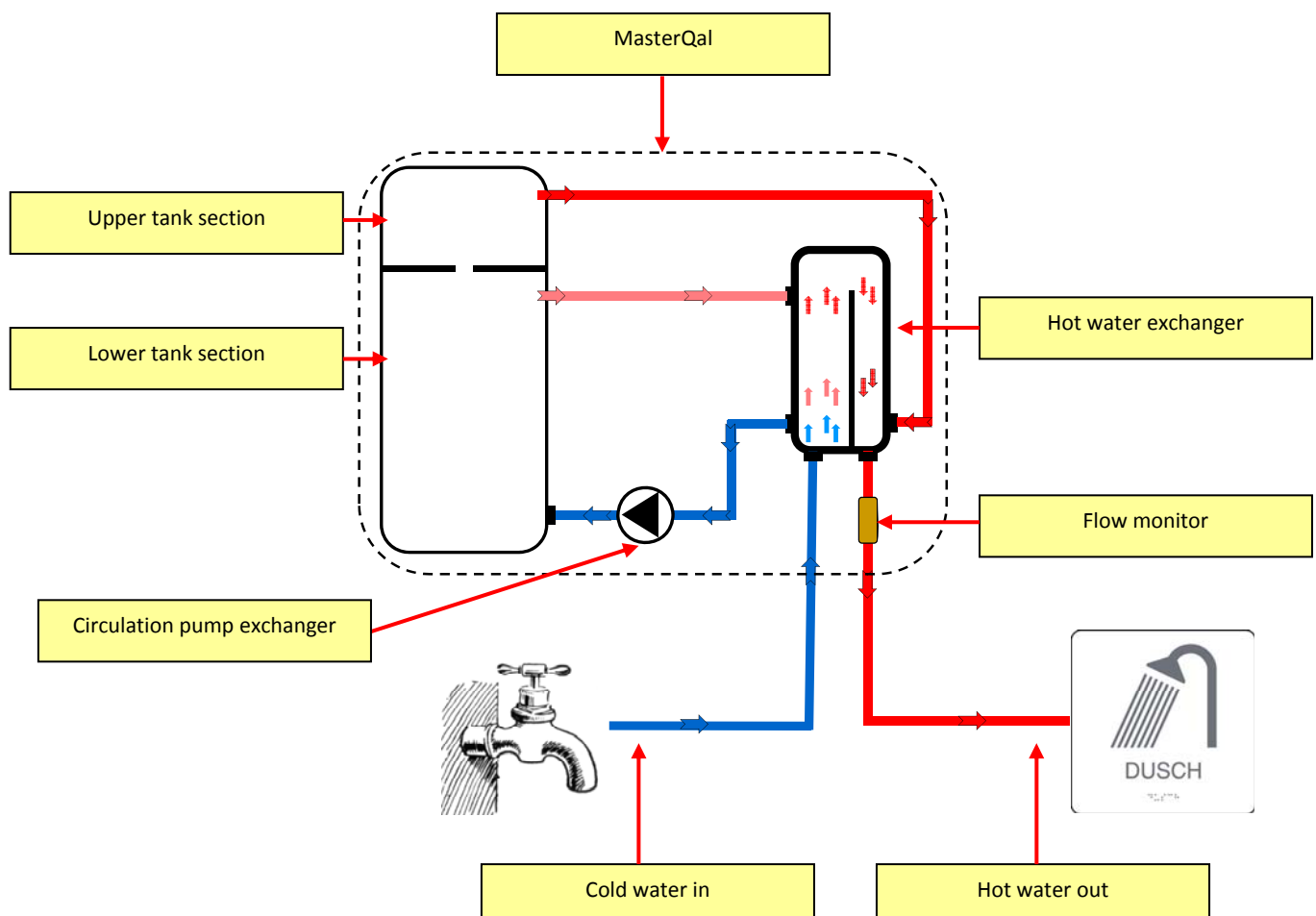
Hot water

In addition to heating in your home, having domestic hot water available is obviously also important. The VPX primarily uses the heat pump with its special exchange valve technology to produce hot water. You can influence how your hot water is produced, and your choice will affect both the amount of hot water and the efficiency of the heating system.

Just as with heat for your house, which you can read about in the previous chapter, there is a connection between the temperature of the hot water and the savings you can achieve. High temperatures always mean lower savings. Using VPX's unique hot water exchanger, you can have a good level of domestic hot water with optimal savings.

How hot water is produced

The VPX does not have any container or coils with hot water inside the tank, but fresh hot water is produced continuously using a special hot water exchanger. This exchanger uses water both from the lower tank section, which is often somewhat cooler, and from the upper tank section, which always has hot water. The lower tank section preheats the incoming cold water, and the upper tank section is used to top up the temperature so that the water is really hot. The VPX only heats hot water when you are using it. A flow monitor senses when the hot water is being used and starts a pump that sends water from the lower tank section through the exchanger that heats the warm water. See the diagram below.



Hot water - settings

You can use a number of settings to influence hot water production in your VPX.

Economy or priority

One basic decision to be made is whether you want to have extra domestic hot water or whether you want to prioritise saving as much money as possible. In most cases, the economy setting provides enough hot water, but if you have large bath tubs, a jacuzzi, etc. you may want to select the priority hot water setting.



Remember! Always start with the economy setting and see whether this provides enough hot water for your needs.

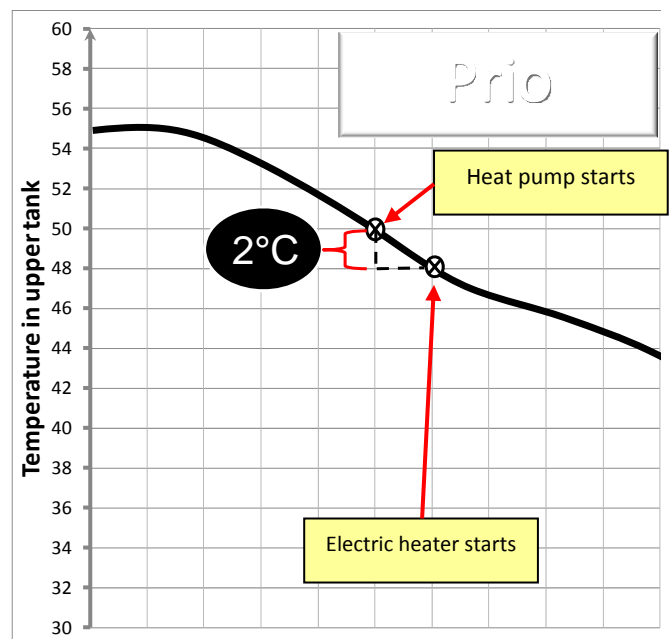
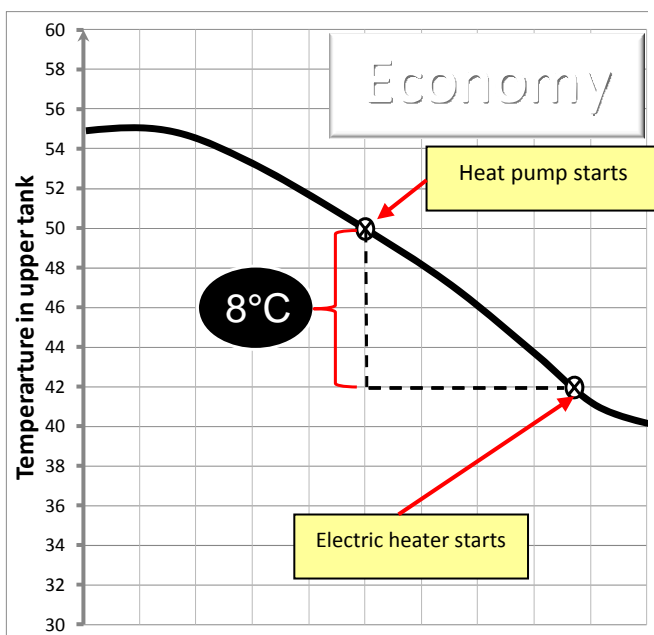
Economy

The economy setting means that the hot water pump in the VPX unit has more time to try to heat the water in the upper tank. When you use hot water from the VPX unit, primarily when showering or filling the bathtub, the temperature in the upper (and lower) section will drop. The heat pump will start when the temperature has dropped a few degrees. If the temperature continues to drop, the electric heater may also need to start. If you use the economy setting, the temperature is allowed to drop further before the electric heater is allowed to start. This gives the heat pump the option of heating up the water instead, which is the most economical solution.

Priority

The priority setting means that the electric heater starts sooner if the temperature in the upper section of the tank drops. This provides better hot water performance, but it also costs more to heat the water.

The figures below show what happens in the economy and priority mode when the temperature in the upper tank section drops.



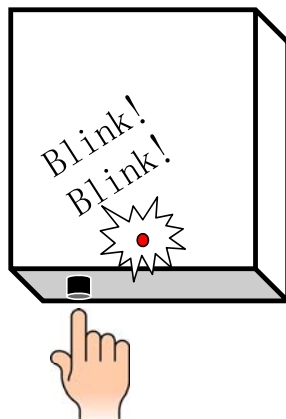
Extra hot water

The button placed on the room sensor can be used for different functions of your own choice. One of these functions is the function “Extra hot water”. The function gives the possibility to temporarily increase the hot water performance of the VPX. This function can be used if for example many people need to shower quickly after each other, many showers used at the same time or if a bigger bath tub/Jacuzzi should be filled.

When you press the button the activation will be confirmed by 2 blinks from the red diode. Observe that you have to have set this function first in the menu: “Settings”->“For customer”->Function button”. Further information in the chapter “Menu function button”

Observe that it will take at least 15-30min for the heat pump to increase the tank temperature.

No electric heater is used for this function which implies lower costs.



Upper tank temperature

You can set the temperature that you want to be maintained in the upper tank yourself. As mentioned previously in this chapter, a higher temperature setting costs more, but the level of comfort is somewhat better. If you set the temperature to a very high level, above 60°, this may mean that the heat pump cannot manage to heat the upper tank by itself but needs the electric heater to help out.

The factory default setting for the upper tank temperature is 55°C. Try reducing this temperature setting a few degrees and see whether the hot water temperature is satisfactory for your requirements. This allows you to save even more money.

If your house (heating system) needs water that is warmer than the temperature that you set on the upper tank section, the heating curve for the upper tank will be applied.

Base heat

Base heat is the lowest temperature to which the VPX unit allows the temperature to drop in the lower tank section, even if the heating system doesn't need very hot water.

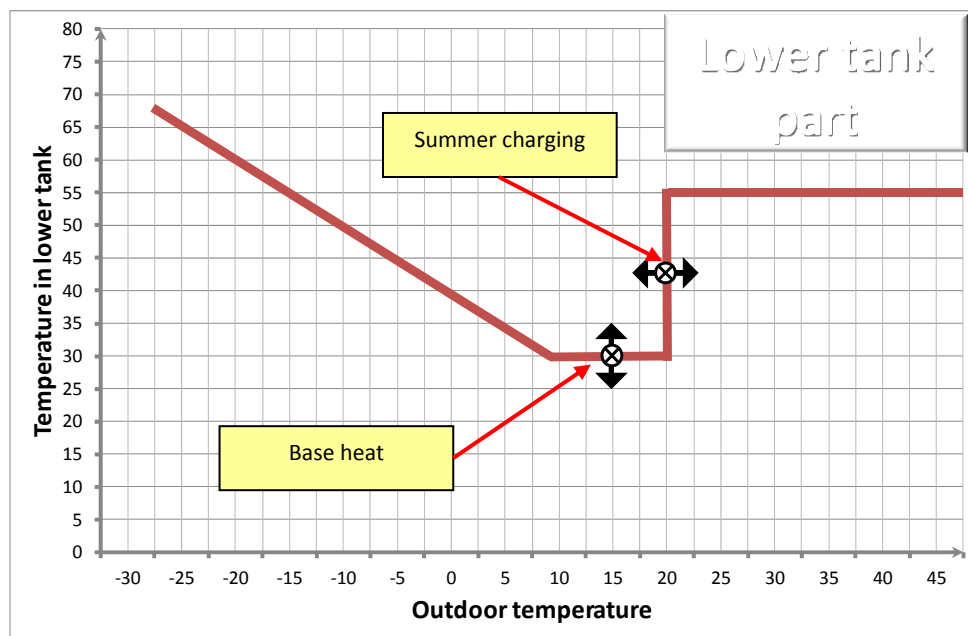
The reason for this setting is so that you can have a good amount of hot water even when your house doesn't need so much heat. This is because the water in the lower tank section is used to preheat your hot water. If you want to increase the amount/volume of hot water, you can raise this value somewhat.

Summer charging

During the summertime, your house needs very little heating, or none at all. In order to increase the running time for the heat pump and increase the amount of domestic hot water in the summertime, you can set a temperature where the heat pump charges the entire lower section of the tank, so-called summer charging.

VPX goes into summertime mode if the outdoor temperature has been above the set value for at least 8 hours. The system remains in summertime mode for at least 12 hours, or for as long as the outdoor temperature is above the set temperature. This is to prevent the VPX unit from switching between summer charging and heating according to the heating curve during summer nights.

Settings that affect the lower tank section temperature. The figure shows "base heat" set at 30 °C and summer charging at 20 °C



Why is the heating curve important?

Now we have gone through the settings for the heating curve, and the importance of properly setting the heating curve has been highlighted. Why is this so important?

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The efficiency, COP, of the heat pump depends on many different parameters, but there is a clear connection between the water temperature in the heat pump and COP. The hotter the water that the heat pump must produce, the lower the degree of efficiency, COP, and the lower the cost savings.

This means that in order to optimise your savings, the heating curve needs to be set as low as possible. If the heating curve is set too high, the heat pump generates water that is warmer than necessary and therefore has a lower degree of efficiency.



The best savings for your heating system come from setting the water temperatures as low as possible!

In practice

It can take a long time to set up the perfect house heating curve for your house, and you may need to adjust it a number of times. Above all, it will need to be adjusted when the outdoor temperature drops.

There are a few basic tips that should be followed.

Radiator thermostats

All radiator thermostats should be completely open when you set your heating curve. Otherwise, the risk is that the VPX unit will send out water that is warmer than necessary.

Adjustment

With the thermostats completely open, try reducing the heating curve using the settings in this chapter, e.g. heating curve point B. Wait a few days and see whether the comfort level is satisfactory. When you find a setting where it is sufficiently warm in the coolest room in the house, you can fine-tune the thermostats on the radiators in the other rooms.

Room sensors

Room sensors make adjustment easier, because the system itself decreases the heating curve when necessary.

Remember that raising the room temperature by one degree means that approximately 3-5 °C warmer water needs to be produced.

Display

All of the adjustable settings can be adjusted via the display and the 6 buttons. The display allows you to see current system information as well as any activated alarms.

Overview

Operating indicator

A solid green light on the right-hand side during normal operations indicates that everything is running fine. If a fault occurs, the light will turn red. If the light flashes red, this means that the error is active and cannot be reset by pushing buttons. If the light is solid red, this means that an alarm has been triggered, but it is no longer active and can be reset.

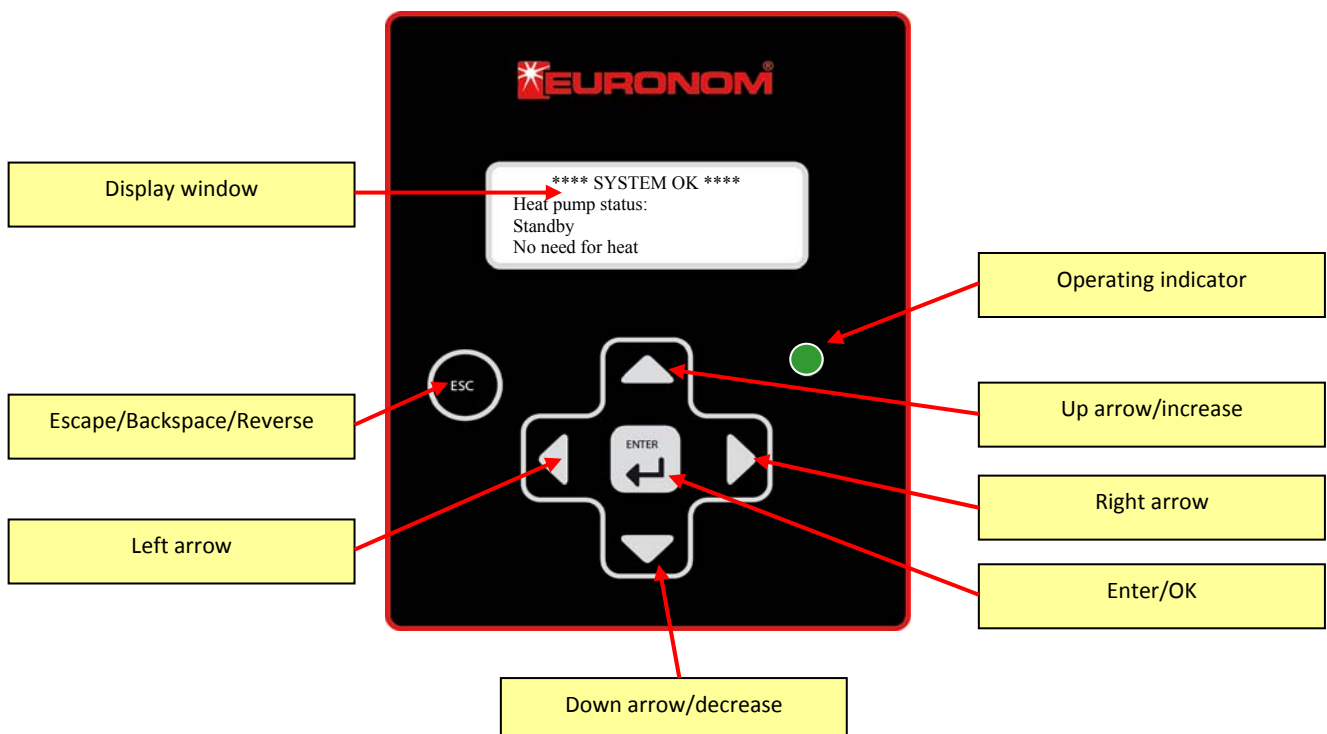
Buttons

Up/down arrow: Up/down arrow is used to browse up and down through the different menu trees but also to increase or decrease a value for the various settings.

Left/right arrow: Use the right arrow to move up one step in the menu tree when there are submenus and to activate a change in any of the settings. (Right arrow is used to move backwards when entering codes)

ENTER: Enter is used to confirm a setting, i.e. when you are inside a setting, you can confirm any changed values by pushing the Enter button.

ESC: Escape is used to move upwards in the menu system, i.e. if you are at level 4 in the menu and hit the escape button, you will go up to menu level 3. Escape is also used to reverse a setting.



Menu modes

There are 2 main groups of displays:

- Automatic mode/Alarm
- Menu system

You cannot browse in automatic mode, rather it displays the most current information in the system, e.g. current values for tank temperatures or the status of the heat pump. If one or more alarms are triggered, this is displayed in this mode.

The menu system is the mode where you can browse through the different displays and see the current values and/or adjust settings for the system.

Use "ESC" to switch between the 2 modes. If you have been in menu mode and not touched any of the buttons for at least 15 minutes, the display will return to the automatic mode/alarm.

Adjust a setting

In order to adjust a setting, you must be in a display that contains something that can be adjusted. All of the setting displays are in the "Settings" submenu.

When you are in a settings display, there is either a number or a yes/no option. All of the adjustable parameters have an arrow in front of them (→). To activate the setting, press the right arrow. This will make the arrow change shape and will start to flash. Now you can use the up/down arrows to adjust the value.

Example 1

Press the right arrow to activate the setting

Heat curve point B:
Parallell adjustment
of heating curve
(+/-) : →0C



The arrow starts to flash. Use up/down to change the value.

Heat curve point B:
Parallell adjustment
of heating curve
(+/-) : >4C



Confirm the change with ENTER or reverse the setting with ESC.

Heat curve point B:
Parallell adjustment
of heating curve
(+/-) : →4C

Example 2

Press the right arrow to activate the setting

Room sensor used for
compensation of
heat curve: →No



The arrow starts to flash. Use up/down to change the value.

Room sensor used for
compensation of
heat curve: >Yes



Confirm the change with ENTER or reverse the setting with ESC.

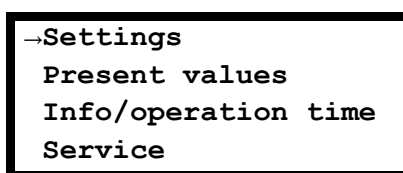
Room sensor used for
compensation of
heat curve: →Yes

Menu tree

The menu tree has several branches. Some of them can be accessed directly, and some need to be unlocked with a code. The code-locked menus are intended for the installer/service technician and should not be used without thorough knowledge of the system or when contacting a service agent/installer. This section of the manual will describe the menus that are not code-locked.

Main menu

The main menu appears as below and has 4 options.



Settings:

This is where you can adjust the settings for the heating curve, among other things, and set the room temperature and the domestic hot water temperature, etc.

Present values:

This branch allows you to see the current values in the system, e.g. tank temperatures, room temperature, electric heater operation, etc.

Info&Run times:

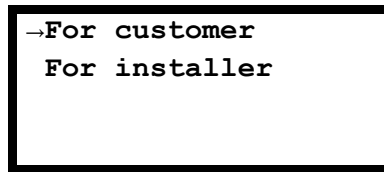
Info&Run times contains operating information that the system saves as well as information about serial numbers and the program version. This is where you can see how much the heat pump has been working in the past 24 hours, for example.

Service:

This menu contains advanced settings and should only be used by a service technician/installer.

Menu - Settings

The menu settings have 3 submenus as below.



For customer:

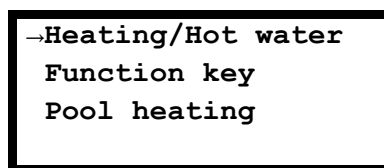
This is where you can adjust the settings for the heating curve, among other things, and set the room temperature and the domestic hot water temperature, etc.

For installer:

This menu contains the settings for the entire system and should only be used by the installer.

Menu - For customer

The "For the customer" menu contains 3 submenus as below.



Heating/Hot water:

Menu for setting of house heating and domestic hot water.

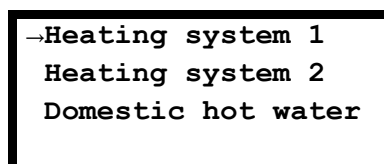
Function key:

Menu for setting of functions for the button on the room sensor.

Pool heating:

If the accessory "Pool heating" is installed this menu will be activated. Please read the instructions supplied with the accessory..

Menu – Heating/Hot water



House heating (1):

This is where you adjust the settings for controlling the heating system, including manually adjusting the heating curve.

House heating (2):

Is only relevant if an extra mixing system is installed (accessories). The menu contains the same settings as for system 1.

Hot water:

This is where you decide how to manage the hot water, e.g. the temperature and whether hot water should be prioritized, etc.

Menu – House heating system 1(2)

Before adjusting the settings in this menu, read through the "Heating curve" chapter.

Display		Description	Comments
Room sensor used for compensation of heat curve: →Yes	▶	The display allows you to set whether the room sensor will be used to adjust the set heating curve. If the set temperature on the room sensor exceeds the set nominal value (set point) for room temperature, the system automatically reduces the temperature to the heating system. Note that the room sensor can only decrease the heating curve, i.e. reduce the temperature to the heating system, not raise it.	Room sensors must be installed in order for this function to be used.
↓			
Room temperature Actual: 20.2C Nominal: →20.8C Diff: +0.6C	▶	Setting room temperature (if room sensor is installed). The box shows the actual value, the adjustable nominal value and the difference between the actual/nominal value.	Only displayed if room sensors are used to compensate the heating curve.
↓			
Heat curve point A: Flow temperature to heating system at outdoor -15C: →55C	▶	The heating curve (point A) indicates the temperature to be set for the heating system when the outdoor temperature is -15°C.	
↓			
Heat curve point B: Parallell adjustment of heating curve (+/-): →0C	▶	Heating curve (point B) allows you to move the entire heating curve up and down in parallel. Moves the curve up (+), sends warmer water to the heating system at all outdoor temperatures, and the reverse if the curve is moved down (-).	
↓			
Heat curve point C: Close heating when outdoor temperature is above: →17C	▶	Heating curve (point C) indicates the outdoor temperature at which the heat should stop being sent (mixed) to the heating system. Above this temperature, the mixingvalve closes completely, and the radiator pump shuts down. Note that the outdoor temperature must have been above the set temperature for at least 8 hours in order for the heat to be turned off. The same applies (8 hour delay) if the heat is shut off, and the outdoor temperature drops below the set temperature.	
↓			
Increase house heat At 0C outdoor temp (Crack heat curve) Adjust: →0.0C	▶	At outdoor temperatures around 0°C, somewhat warmer water is sometimes needed for the heating system. This setting allows you to increase the heat in the flow line locally at an outdoor temperature of 0°C, so-called cracking. Please read the "Heating curve" chapter.	
↓			
Floor heating only: Max temperature to floor heating system: →35C	▶	If only underfloor heating is installed in the heating system, the water sent (mixed) to the system must not be too hot, which can damage the floor. This selection indicates the maximum temperature that is mixed to the heating system, regardless of the outdoor temperature and the heating curve setting.	Only displayed if underfloor heating is selected in the installer menu
↓			
Cellar heating: Off Min temperature to heating system: →10C	▶	In certain cases, you may even want to have heat in the system during the summertime, especially in basement areas. This setting provides the option of providing heat for the heating system even if the outdoor temperature is above the set temperature for the heating curve in point C. In order to close off this function, reduce the temperature to 10° C, whereafter "Basement heating: On" is changed to "Basement heating: Off"	

Menu – Hot water

Before you adjust the setting in this menu, be sure to read the chapter "Hot Water".

Display		Description	Comments
<div>Hot water comfort Choice: →Economy (Prio may increase electric heater op.)</div>	▶	<p>VPX has a special technology that allows the heat pump to heat the hot water first. An electric heater is available for backup. With this setting, you can decide whether the electric heater should come on immediately after the temperature drops in the upper tank section or if the system should wait until the temperature falls even further.</p> <p>Economy This means that the temperature is allowed to drop further before the electric heater starts.</p> <p>Priority Means that the electric heater can start at an earlier temperature. Note that the priority setting means that the electric heater runs longer.</p>	Only displayed if a heat pump is installed.
↓			
<div>Temperature for upper tank part: →53.5C (Higher values may increase el.h op.)</div>	▶	Setting for the nominal value in the upper tank section, i.e. the section used to top up the temperature of the hot water before sending it out. Note that the heat pump operation will be limited if the heat settings for the tank are high, as this will mean that the electric heater must be used. Before increasing the values in this menu, read the chapter "Hot water".	
↓			
<div>Min allowed temperature in lower tank part. (Basic heat): →35C</div>	▶	<p>Normally, the heat pump works with a preset heating curve +5°C in the lower tank section, so-called floating condensation. Since the lower section of the tank is used to preheat the hot water, the temperature should not be too low. Base heat is the lowest temperature to which the heat pump allows the lower tank section to drop, even if the heating curve doesn't require such a high temperature.</p> <p>To increase hot water performance, this temperature may be raised.</p>	
↓			
<div>Charge tank to maximum temperature when outdoor temperature above: →20C</div>	▶	<p>During the summertime, when the house doesn't need a lot of heating, you can allow the heat pump to work on creating a higher temperature in the entire tank. This extends the running times of the heat pump and provides plenty of domestic hot water.</p> <p>In practice, this means that above this outdoor temperature, the system ignores the heating curve and heats the lower and upper sections of the tank up to the value in the display below.</p> <p>There are time delay options to prevent the system from switching between summer charging and charging according to the heating curve when the outdoor temperature exceeds/drops below the set value.</p> <p>The system goes into summer charging mode if the outdoor temperature has remained above the preset value for at least eight hours. The system remains in summertime mode for at least 12 hours, or as long as the outdoor temperature is above the preset temperature.</p>	Only displayed if a heat pump is installed.
<div>Tank temperature During summertime (upper+lower tank) →53C</div>	▶	Setting for desired tank temperature when the heat pump is in summer charging mode according to the display above. (Note that the entire tank will be charged with hot water, which is why this setting should not be set - and should not need to be set - too high).	

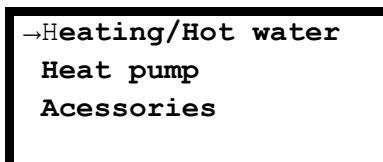
Meny – Function button

This menu gives possibility to set a function for the button placed on the room sensor unit.

Visning	Beskrivning	Kommentarer
<div>Choice of function for button on room sensor: →"TEXT"</div> <div>↓</div>	<p>Here you choose what type of function you want the room sensor button to have when you press the button.</p> <p>Not used This is the default setting. Room sensor button is inactivated and nothing will happen if the button is pressed.</p> <p>Reset errors If the system generates some kind of error the button on the room sensor can be used to reset the error. (Observe that if the error is still active it cannot be reset with the button.)</p> <p>Extra hot water The button placed on the room sensor can be used for different functions of your own choice. One of these functions is the function "Extra hot water". The function gives the possibility to temporarily increase the hot water performance of the VPX. This function can be used if for example many people need to shower quickly after each other, many showers used at the same time or if a bigger bath tub/Jacuzzi should be filled.</p> <p>Deactivate room sensor This function is of interest if you for example have an open fireplace placed in the same room as the sensor. When you add heat to the room with the fire place the sensor will stop the heat to the complete heating system, i.e. all rooms will be affected. However, if you use this function you can set a time delay in hours for blocking of the sensor when you want to use the fire place. When you press the button the activation will be confirmed by 2 blinks from the red diode</p>	
<div>Funktion: Extra domestic hot water. Extra heat valid During: →30min</div> <div>↓</div>	<p>If the function extra hot water is chosen also this display will be available. Here you can set for how long time you want the function to be active. (Observe! It can take least 15-30min for the heat pump to increase the tank temperature enough)</p>	Only displayed if extra hot water is chosen.
<div>Function: Deactivate room sensor Room sensor is deactivated during: →4h</div>	<p>If you have chosen the function deactivate room sensor this display will be available. Here you can choose for how long time you want to deactivate the room sensor when the button is pressed. After the set time delay the room sensor will return to normal mode again and start to adjust the heating curve.</p>	Only displayed if deactivate room sensor is chosen.

Menu – Present values

The present values menu has 3 sub menus as shown below.



Heating / Hot water: Here you see the current values for the tank temperatures, the temperature of the water in the radiators / underfloor heating, room temperature, etc.

Heat pump: Here you see the heat pump's different temperatures and operating status.

Accessories: The accessories menu is only accessible if any accessories are installed, e.g. solar panels, pool heating, etc.

Menu – Heating/Hot water

Display	Description	Comments
<div> Room temperature (1) Actual: 20.2C Nominal: 20.8C Diff: +0.6C </div>	<p>Actual room temperature, set nominal value and the difference between the current value and the nominal value.</p>	<p>Only displayed if room sensors are installed.</p>
<div> Heating system (1) Heat: <input checked="" type="checkbox"/>ON <input type="checkbox"/>OFF Act:36.2C Nom: 35.7C Outdoor temp: 11.1C </div>	<p>Current information for your heating system, i.e. radiators / underfloor heating.</p> <p>Heat On/Off shows whether any water from the VPX unit is being sent (mixed) to your heating system. If the heat is set to "Off", this means that there is no need to heat the house and no water is circulating in the heating system.</p> <p>Actual value is the temperature of the water being sent to the heating system.</p> <p>Nominal value is the temperature that the system has calculated is needed to heat the house. This temperature varies depending on the outdoor temperature, the room temperature and how the heating curve is set up. Please also read the chapter "Heating curve".</p> <p>Outdoor temp displays the current outdoor temperature</p>	

Menu – Heating/Hot water

Display		Description	Comments
<div>Chosen function room sensor button: Extra hot water Time:50min Act:Yes</div>	▶	When using the function button on the room sensor for extra hot water this display will be available. Here you can see the set time for extra hot water and also if the function is activated or not.	Only displayed if extra hot water function is chosen.
↓			
<div>Chosen function room sensor button: Block room sensor Time:4h Act:Yes</div>	▶	When using the function button on the room sensor for the function deactivate room sensor this display will be available. Here you can see the set time for blocking of the sensor and also if the function is activated or not.	Only displayed if deactivate room sensor function is chosen.
↓			
<div>Chosen function room sensor button: Reset errors Active: No</div>	▶	When using the function button on the room sensor for resetting errors this display will be available. To test the function push the button and make sure the "Active" changes from "No" to "Yes"	Only displayed if reset error function is chosen.
↓			
<div>Mixing valve motor 1 ■Opens □Closing □Waiting □Off Difference: -0.6C</div>	▶	Current status of the mixing valve motor (which ensures that the right temperature is sent to your heating system). The mixing motor opens and closes continuously so that the difference between the current value and the nominal value is 0. In the "Waiting" mode, the system waits to see what kind of effect the previous adjustment (opening or closing) has had. If the status is "Closed", the mixing is completely closed and no heat is needed.	
↓			
<div>Hot water tapping ongoing: □Yes ■No Length of last tapping: 6min 27sec</div>	▶	Information about when hot water is used and how long since the last tapping.	
↓			
<div>Temp lower tank part Actual: 38.2C Nominal: 40.0C Startdiff HP: 5.0C</div>	▶	<p>Information about status of lower tank section.</p> <p>Actual value is the current temperature in the lower section of the tank.</p> <p>Nominal value is the temperature that the system has calculated that the heat pump must maintain in the lower tank section in order to supply the required heating for the house. This temperature varies depending on the outdoor temperature, room temperature and how the heating curve is set.</p> <p>Startdiff HP is the so-called hysteresis, or the difference from the nominal value required for the heat pump to start heating the tank section. In the current display, the temperature must drop by at least 5°C from the nominal value, i.e. a restart occurs when the lower tank section reaches 35.0° C.</p>	
↓			

Display		Description	Comments
<div>Temp upper tank part</div> <div>Actual: 52.2C</div> <div>Nominal: 55.0C</div> <div>Startdiff HP: 5.0C</div> <div>↓</div>	▶	<p>Information about status of upper tank section.</p> <p>Actual value is the current temperature in the upper section of the tank.</p> <p>Nominal value is the temperature set in the settings menu for the heat pump to maintain. (If the house requires higher temperatures than the one set, this value will become the nominal value).</p> <p>Start diff HP Same explanation as in previous display but applies to the upper tank section.</p>	
<div>El.heat: 7.5 kW (10.5)</div> <div>Power distribution</div> <div>1.5 kW -- -- L3 </div> <div>2.0 kW L1 L2 L3 </div> <div>↓</div>	▶	<p>Information about electric heater operation</p> <p>The top row shows how much power is currently connected to the system. The value in parentheses is the maximum permissible power for the electric heater. The installer will have set this maximum power.</p> <p>The display example on the right shows a 7.5 kW connection and the maximum power of 10.5 kW.</p> <p>The bottom 2 rows show which of the 3 phases are being charged by the electric heater and with how much power. During charging, a signal will flash alternately between "on" and "L1(2)(3)"</p> <p>In the display example on the right, phase L1 is charged with 2.0 kW, phase L2 with 2.0 kW and phase L3 with 1.5 + 2.0 = 3.5 kW</p>	
<div>Main fuse size: 20A</div> <div>Ph. L1 L2 L3 </div> <div>Act 13.9 9.2 14.0 </div> <div>Diff 6.1 10.8 6.0 </div> <div>↓</div>	▶	<p>Current information for the load on your distribution panel, and the size set for the main fuse.</p> <p>The "Actual" column shows how much current is presently being consumed on each phase, L1, L2 and L3.</p> <p>The "Diff" column shows how much capacity remains before the maximum limit on the main fuse is exceeded.</p>	Only displayed if current transformers are installed
<div>Electric heater</div> <div>Power limited: Yes</div> <div>Need: 9.0 kW</div> <div>Connected: 7.5 kW</div> <div>↓</div>	▶	<p>The display shows if the power on the electric heater is restricted because the current is too high, which risks tripping the main fuses.</p> <p>Need is the power that the heating system currently needs from the electrical heater.</p> <p>Connected is the power that is presently connected to the electrical heater.</p> <p>(If the power is not restricted, "Need" and "Connected" will display the same value.)</p>	Only displayed if current transformers are installed

Display	Description	Comments
<div style="border: 2px solid black; padding: 5px; display: inline-block;"> Upper tank part is needed for heating system (1): No Active delay: 180min </div>	<p>The water sent out to the radiators/underfloor heating can come from 2 places in the VPX unit; from the lower tank section or from the upper tank section.</p> <p>In normal cases, water is only sent (mixed) from the lower part of the tank because this is the "cheapest" water in the tank (lower temperature).</p> <p>If the energy in the lower tank section is not sufficient, e.g. the house requires more power than the heat pump can provide, energy can be sourced from the upper tank section with the electric heater in it.</p> <p>Before the heating system can take water / energy from the upper tank section, a certain length of time must have passed from when the need arose (the standard is 3 hours). This gives the heat pump the chance to work and see if it can "catch up" to meet the heating needed before opening the upper (more expensive) section.</p> <p>If the display shows that the upper tank section is needed to heat the house, the "Delay" time will start to count down. If the need to get water from the upper tank section disappears, the time delay will revert to the set value if the need for extra heating reappears.</p> <p>If the need for extra heating has been active for 20 minutes, the heat pump will make heating the lower tank section a priority.</p>	<p>Only displayed if a heat pump module is installed.</p>

Menu – Heat pump

This menu is only displayed if a heat pump is installed. Depending on the heat pump installed, different views are displayed. (See the right column to see which views are possible)

Display		Description	Comments
<div> Water temperature In: 32.4C Out: 54.9C Diff: 22.5C Max temp: 58.0C </div> <div>↓</div>	▶	<p>Displays the temperature of the water to the heat pump, the temperature of the heated water from the heat pump to the tank, and the difference between the two. Depending on whether the heat pump is working on the lower or upper tank section, the difference may vary. Most often, the largest difference is when the heat pump is working on the upper tank section.</p> <p>Max water temp indicates the maximum temperature that the heat pump can send to the tank sections.</p>	
<div> Brine temperature In: 2.4C Out: -1.3C Diff: 3.1C Freeze alarm: -10.0C </div> <div>↓</div>	▶	<p>Displays the temperature of the liquid (brine in) to the heat pump from the bedrock/ground/lake, and the temperature from the heat pump back to the bedrock/ground/lake.</p> <p>The temperature of the brine can vary depending on the time of year, the type of bedrock/ground, etc.</p> <p>Freeze alarm indicates the lowest temperature that the brine can have before the system stops and an alarm is triggered. (Your installer sets this parameter, which depends on how much anti-freeze liquid there is in the system).</p>	Displayed only if an Exotic heat pump is installed
<div> Hot gas temp: 95C Max allowed tmp: 140C Ch pump speed: 34% Est. flow: 683l/h </div> <div>↓</div>	▶	<p>Hot gas temperature (compressor temperature) is the highest temperature in the heat pump and indicates how the heat pump is functioning. The hot gas temperature varies depending on how hot the water needs to be and how cold the brine from the bedrock/ground/lake is.</p> <p>Max hot gas temp is the max temperature allowed. An alarm trips if this temperature is exceeded.</p> <p>Charge pump speed is the current speed of the pump that is moving water through the heat pump (between 0-100%).</p> <p>Estimated flow is the estimated flow in litres per hour that the charge pump provides.</p>	
<div> Evaporat. temp: -2.7C Start defrost: -4.0C Stop defrost: 16C 60min to pos. defr </div>	▶	<p>Frost/ice forms on an air/water heat pump if the outdoor temperature is below about 5°C. To get rid of this ice the heat pump is defrosted at different times. The information in this display is that which is essential for defrosting.</p> <p>The evaporation temperature is the prevailing temperature of the refrigerant in the evaporator (where the energy from the air is absorbed).</p> <p>Start defr. indicates the temperature at which a defrost is initiated. When the "evaporator temp" is below this value, the defrost will be started after a specific time.</p> <p>Stop defr. indicates the temperature that the "evaporator temp" has to reach for a defrost to be terminated.</p> <p>A defrost of XX min is the time that must elapse before a defrost can start. (Applies only if the "evaporator temp" is less than "start temp defr.")</p>	Displayed only if an ExoAir or Polaris heat pump is installed.

Display		Description	Comments
<div>Compressor currents</div> <div>Current L1: 5.6A</div> <div>Motor protect: 7,3A</div> <div>Difference: +1.7A</div> <div>↓</div>	▶	<p>Information about the compressor's current power consumption (on phase L1) and what the electronic motor protector is set at. Compressor current should never exceed the current set for the motor protector, otherwise an alarm will be triggered.</p> <p>Difference shows the difference between how much power the compressor is drawing and the set motor protector.</p>	
<div>Fan status</div> <div>"See explanation"</div> <div>Low speed above outdoor temp: 10°C</div>	▶	<p>The display provides information about the status of the fan fitted outside on the heat pump. The fan has two speeds and it is possible to set the outdoor temperature at which the fan will switch to low speed.</p> <p>"See explanation" can display the following information:</p> <ul style="list-style-type: none"> - Off (The fan is not operating) - High (The fan runs at high speed) - Low (The fan runs at low speed) 	Displayed only if an ExoAir or Polaris heat pump is installed.

Menu – Info & Run times

This menu does not contain any submenus and has information about your system's operation and other important information.

Display		Description	Comments
<div> Total operation time boiler: 3284h S/N: 6465842456 ProgramID: 2.01 </div>	▶	<p>Information about the tank section in VPX.</p> <p>Total boiler running time is the length of time the unit has been in operation since the first startup, i.e. from when the boiler was installed.</p> <p>Serial number is the unique ID for the boiler. Always provide this for any servicing or maintenance.</p> <p>ProgramID is the current program version for the tank section's circuit board.</p>	
↓			
<div> Installed heat pump: Polaris 10 S/N: 206845128 PrgID: 1.4 CanId: 0 </div>	▶	<p>Information about the installed heat pump in VPX.</p> <p>Serial number is the unique ID for the heat pump . Always provide this for any servicing or maintenance.</p> <p>ProgramID is the current program version for the circuit board in the heat pump .</p> <p>CANid is an identification code for the heat pump in order for it to communicate correctly with the tank section.</p>	Only displayed if the heat pump is installed
↓			
<div> Heat pump total operation: 23547h Compressor total operation: 1674h </div>	▶	<p>Time history for heat pump .</p> <p>Total running time is the length of time the has been running since the first startup, i.e. from when the heat pump was installed.</p> <p>Compressor operation is the length of time the heat pump has been running and heating the tank water.</p>	Only displayed if the heat pump is installed
↓			
<div> Heat pump operation last 24 hours Starts: 5 Op.time: 8h 42min </div>	▶	<p>Information about the heat pump operation over the past 24 hours, the number of starts and the total running time in hours and minutes.</p>	Only displayed if the heat pump is installed
↓			
<div> Electric heater Total: 152kWh Last 24h: 3.4kWh Av power 24h: 10.4kW </div>	▶	<p>Operating information for the integrated electric heater.</p> <p>Total kWh is the total electricity consumption for the electric heater since the VPX unit was installed.</p> <p>Last 24h indicates how many kWh the electric heater has used over the past 24 hours</p> <p>Av power 24h is the average power used by the electric heater in the past 24 hours.</p>	

Automatic mode / Alarm

When you are not in the menu tree and you are adjusting the settings or looking at the operating values, the screen shows an autogenerated display of what is happening in the VPX. If an alarm is tripped, this is displayed instead of the normal displays.

Normal operation

During normal operation (no alarms), the screen switches continuously between different displays, depending what is happening in the heat pump.

(Any necessary setting adjustments are can also be seen here. Normally, your installer has already adjusted these settings.)

Display		Description	Comments
<div>Settings for heat pump/electric heater neccessary! Go to installer menu</div>	▶	This display is only relevant before the installer has adjusted the settings in the installer menu.	
↓			
<div>Electric boiler operation activated Actual power electric heater: 6.0 kW</div>	▶	If your VPX is not equipped with a heat pump , it runs automatically as an electric boiler. This display provides information about the electrical power that the electric heater is currently using.	Only displayed if heat pump is not installed.
↓			
<div>**** SYSTEM OK **** Heat pump status: Standby Compressor blocked</div>	▶	This screen is only shown if the compressor is blocked for some reason. Your installer should have "unlocked" this block during installation.	Only displayed if heat pump is installed
↓			
<div>**** SYSTEM OK **** Heat pump status: Standby No need for heat</div>	▶	If the VPX has enough hot water in both the upper and lower tank sections, there is no need for the heat pump to run, which this display shows.	
↓			
<div>**** SYSTEM OK **** Heat pump status: Standby Establish contact...</div>	▶	This screen only appears during startup / voltage setting for the VPX and indicates that circuit boards for the tank and the heat pump have started to communicate.	
↓			
<div>**** SYSTEM OK **** Heat pump status: Standby Waiting for signal..</div>	▶	This screen is displayed just before the heat pump starts. The heat pump waits for confirmation from the tank section's circuit board before starting.	

Display		Description	Comments
<pre> **** SYSTEM OK **** Heat pump status: Standby Outdoor temp low </pre>	▶	ExoAir can operate to -15°C outdoor temperature and Polaris down to -25°C. If the outdoor temperature drops below these temperatures the heat pump will stop and this text box will appear. The heat pump will start automatically when the outdoor temperature rises to -14°C and 24°C.	Only displayed if ExoAir or Polaris are installed
↓			
<pre> **** SYSTEM OK **** Heat pump status: Standby Tank temp too high </pre>	▶	The heat pump cannot run if the water is too hot, and always checks just before starting to make sure the water in the tank sections is not too hot. The heat pump will automatically start again when the tank temperature has dropped.	Only displayed if heat pump is installed
↓			
<pre> **** SYSTEM OK **** Heat pump status: Start delay Time left: 4min 38sec </pre>	▶	Each time the heat pump (the compressor) stops, at least 10 minutes must pass before it can be restarted. This screen is displayed each time the compressor has stopped, and shows how much of the time delay remains.	
↓			
<pre> **** SYSTEM OK **** Heat pump status: Prerun charge pump.. Time left: 16 sec </pre>	▶	Sixty seconds before the heat pump starts, the pump that is moving the water between the tank section and the heat pump (charge pump) will start to check the temperatures in order to optimise operations during startup. This information appears in the display during that time.	
↓			
<pre> **** SYSTEM OK **** Heat pump status: Charging lower tank In: 31.8C Out: 37.5C </pre>	▶	When the heat pump is running, it is charging either the upper or the lower tank section. The screen shows which tank section is being charged, as well as the temperature of the water going in/out of the heat pump .	Only displayed if heat pump is installed
↓			
<pre> **** SYSTEM OK **** Heat pump status: Charging upper tank In: 31.8C Out: 37.5C </pre>	▶	Same as above but for the upper tank section	
↓			
<pre> **** SYSTEM OK **** Upper tank: 52.3C Lower tank: 37.8C Heat system: 34.5C </pre>	▶	This display is shown continuously during normal operation and provides information about the temperature of the VPX's two tank sections. It also displays the temperature of the water to be sent to your heating system, the so-called flow line.	

Errors

If an VPX unit receives an ERROR, none of the autogenerated screens discussed in the previous section are displayed, but the active alarms are displayed instead.

Error management

For all alarms, one or more, an overview display appears, providing information about how many alarms have been activated and information about the ones that are still active.

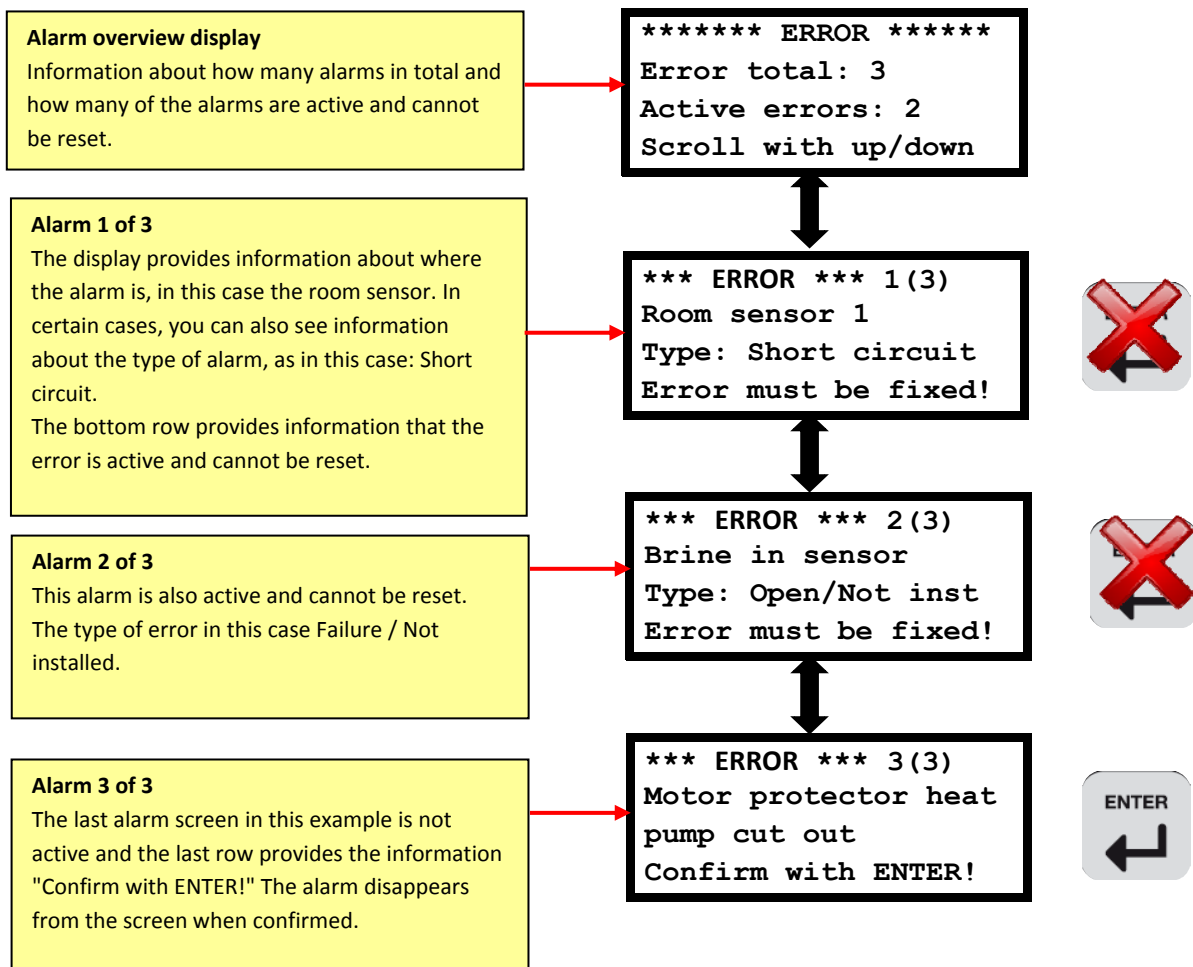
An alarm can be either active or inactive.

Active alarms cannot be reset before the cause of the error has been found and corrected. Inactive alarms can be reset by confirming them with the Enter button.

You can easily browse through the alarms with the up/down arrows.

(Note that if there are several inactive alarms, all of them are reset if you reset one of them.)

Example of alarm display where 3 alarms have been activated and 2 of the alarms are still active.



Alarm displays

The table below shows all the alarms that can be tripped in an VPX

Display		Description	Comments
<div>----- ERROR -----</div> <div>No communication</div> <div>↓</div>	▶	<p>This error is not like any of the regular alarms, rather it is a self-generated alarm from the display. All the text will flash. The alarm is displayed if there is a communication failure between VPX's circuit board in the tank section and the circuit board for the display.</p> <p>Check the cabling between the tank's circuit board and the display.</p>	
<div>*** ERROR *** 1(1)</div> <div>Brine in sensor</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error with the brine in the sensor located on a pipe in the heat pump - see the overview diagram at the beginning of this manual. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	Only displayed if heat pump is installed
<div>*** ERROR *** 1(1)</div> <div>Diff sensor radiator</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error on one of the differential sensors used to measure the amount of energy in your heating system. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	Only displayed if the energy meter accessory is installed
<div>*** ERROR *** 1(1)</div> <div>Diff sensor tap water</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error in one of the differential sensors used for measuring the amount of energy in your heating system. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	Only displayed if the energy meter accessory is installed
<div>*** ERROR *** 1(1)</div> <div>Brine out sensor</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error in brine out sensor located on a pipe in the heat pump - see overview display at the beginning of this manual. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	Only displayed if heat pump is installed
<div>*** ERROR *** 1(1)</div> <div>Pool temp sensor</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error in pool temperature sensor that ensures that the pool maintains the correct temperature. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	Only displayed if a pool heater accessory is installed
<div>*** ERROR *** 1(1)</div> <div>HWC water sensor</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error in hot water recirculation sensor that ensures that the hot water circulation is functioning as it should. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	Only displayed if the hot water circulation sensor is installed
<div>*** ERROR *** 1(1)</div> <div>FlowtempSEN system 1</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div> <div>↓</div>	▶	<p>Error in the hot water system's flow line temperature sensor, which ensures that the correct temperature is sent to the heating system. This type of error can be either a short circuit or a failure in the sensor or cable.</p>	

Display		Description	Comments
*** ERROR *** 1(1) Flowtempsen system 2 Type: (See explanation) Error must be fixed!	▶	Error in the secondary heating system's flow line temperature sensor, which ensures that the correct temperature is sent to the other heating system. This type of error can be either a short circuit or a failure in the sensor or cable.	Only displayed if the extra heating system accessory is installed
↓			
*** ERROR *** 1(1) Flowtmp sensor HP Type: (See explanation) Error must be fixed!	▶	Error in the heat pump's flow line temperature sensor located on a pipe in the heat pump - see the overview diagram at the beginning of the manual. This type of error can be either a short circuit or a failure in the sensor or cable.	Only displayed if heat pump is installed
↓			
*** ERROR *** 1(1) Hot gas sensor Type: (See explanation) Error must be fixed!	▶	Error in the heat pump's hot gas sensor located on a pipe in the heat pump - see overview diagram at the beginning of this manual. This type of error can be either a short circuit or a failure in the sensor or cable.	
↓			
*** ERROR *** 1(1) Outdoor sensor Type: (See explanation) Error must be fixed!	▶	Error in the outdoor sensor used to calculate the heating curve. In the event of an error in the outdoor sensor, VPX sets the default value on the outdoor sensor to -5° C so that the heating curve does not "bolt". This type of error can be either a short circuit or a failure in the sensor or cable.	
↓			
*** ERROR *** 1(1) Returnsen heat pump Type: (See explanation) Error must be fixed!	▶	Error in the heat pump's return sensor located on a pipe in the heat pump - see the overview diagram at the beginning of this manual. This type of error can be either a short circuit or a failure in the sensor or cable.	Only displayed if heat pump is installed
↓			
*** ERROR *** 1(1) Room sensor 1 Type: (See explanation) Error must be fixed!	▶	Error in the room sensor used to adjust the heating curve, among other things. In the event of an error in the room sensor, VPX shuts off the ability of the room sensor to affect the heating curve. This type of error can be either a short circuit or a failure in the sensor or cable.	Only displayed if room sensors are installed and used to compensate the heating curve.
↓			
*** ERROR *** 1(1) Room sensor 2 Type: (See explanation) Error must be fixed!	▶	Error in the room sensor for the secondary heating system that is used to adjust the heating curve, among other things. In the event of an error in the room sensor, VPX shuts off the ability of the room sensor to affect the heating curve. This type of error can be either a short circuit or a failure in the sensor or cable.	Only displayed if the extra heating system accessory is installed and room sensors are used to compensate the heating curve.
↓			
*** ERROR *** 1(1) Sun sensor Type: (See explanation) Error must be fixed!	▶	Error in the sensor located in your solar panel system and used to control when energy should be sent from the panels to the VPX. This type of error can be either a short circuit or a failure in the sensor or cable.	Only displayed if the solar panel control accessory is installed
↓			
*** ERROR *** 1(1) Tank sensor lower Type: (See explanation) Error must be fixed!	▶	Error in the sensor in the lower section of the tank. This type of error can be either a short circuit or a failure in the sensor or cable.	

Display		Description	Comments
<div>*** ERROR *** 1(1)</div> <div>Tank sensor upper</div> <div>Type: (See explanation)</div> <div>Error must be fixed!</div>	▶	<p>Error in the sensor in the lower section of the tank.</p> <p>This type of error can be either a short circuit or a failure in the sensor or cable.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>No communication with heat pump.</div> <div>Error must be fixed!</div>	▶	<p>Communication error between the circuit board in the heat pump and the tank section's circuit board.</p> <p>Check the cabling between the and the tank section.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>Motor protector heat pump cut out</div> <div>Error must be fixed!</div>	▶	<p>Power to the heat pump has become higher than normal. This can have various causes. Check that no main fuse has tripped.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>Wrong direction of Water pipes to HP</div> <div>Error must be fixed!</div>	▶	<p>This alarm may be due to the hoses from the heat pump to the tank section being improperly connected or due to one of the water sensors on the heat pump showing an error.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>Phase L1 missing in heat pump</div> <div>Error must be fixed!</div>	▶	<p>This error occurs because one phase (L1) is missing for the heat pump .</p> <p>Check the main fuses.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>High pressure switch Heat pump tripped</div> <div>Error must be fixed!</div>	▶	<p>Error occurs because the pressure in the heat pump 's compressor has become too high.</p> <p>Contact the service department in the event of repeated alarms.</p>	Only displayed if heat pump is installed
↓			
<div>*** ERROR *** 1(1)</div> <div>Hot gas temperature Heat pump too high</div> <div>Error must be fixed!</div>	▶	<p>This error occurs because the temperature in the heat pump's compressor has become too high.</p> <p>Contact the service department in the event of repeated alarms.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>Hot gas temperature heat pump too low</div> <div>Error must be fixed!</div>	▶	<p>This error occurs because the temperature in the heat pump's compressor is too low.</p> <p>Contact the service department in the event of repeated alarms.</p>	
↓			
<div>*** ERROR *** 1(1)</div> <div>Tempdiff above heat pump low</div> <div>Error must be fixed!</div>	▶	<p>The alarm indicates that the temperature increase in the heat pump is low in relation to the flow that is running through the heat pump .</p> <p>Contact the service department in the event of repeated alarms.</p>	

Display		Description	Comments
*** ERROR *** 1(1) Low pressure switch heat pump cut out. Error must be fixed!	▶	This error occurs if the pressure in the heat pump's compressor becomes too low. This can be caused by problems with air in the brine system or a defective circulation pump on the brine side, etc. Contact the service department in the event of repeated alarms.	Only displayed if heat pump is installed
↓			
*** ERROR *** 1(1) 12VDC supply to heat pump low/high Error must be fixed!	▶	This error occurs because the low-voltage supply to the heat pump's circuit board is outside the range. Contact the service department in the event of repeated alarms.	
↓			
*** ERROR *** 1(1) 5VDC supply to heat pump low/high Error must be fixed!	▶	This error occurs because the low-voltage supply for the heat pump is outside the range. Contact the service department in the event of repeated alarms.	
↓			
*** ERROR *** 1(1) Temp of brine fluid too low. Error must be fixed!	▶	This error occurs because the temperature of the brine fluid has become too low. Your installer has set the lowest allowable temperature depending on how much anti-freeze was used. Contact the service department in the event of repeated alarms.	Only displayed if heat pump Exotic is installed
↓			
*** ERROR *** 1(1) Low flow brine- circuit. Error must be fixed!	▶	This alarm is tripped if the difference between the brine going into the heat pump and out of it is too large, which suggests that the flow is too weak. This can occur after installation if all the air has not been removed from the brine system. Contact the service department in the event of repeated alarms.	
↓			
*** ERROR *** 1(1) Low charge flow heat pump Error must be fixed!	▶	This alarm may be caused by something blocking the flow through the heat pump . If any type of dirt filter is mounted, this should be cleaned.	Only displayed if heat pump is installed
↓			
*** ERROR *** 1(1) Repeated stops on max tmp heat pump Error must be fixed!	▶	The alarm is shown if the heat pump has stopped at its maximum temperature at least 5 times within one hour. The parameters may need to be adjusted. Contact your installer.	
↓			
*** ERROR *** 1(1) Phase L2 missing in heat pump Error must be fixed!	▶	This error occurs because a phase (L2) is missing from the heat pump . Check the main fuses.	
↓			
*** ALARM *** 1(1) 4-way valve locked in heating mode Error must be fixed!	▶	The error is due to a heat pump sensor indicating that the defrost (operated by 4-way valve) is not initialized properly.	Displayed only if an ExoAir or Polaris heat pump is installed.
↓			

Display	Description	Comments
<div> <div> *** ALARM *** 1(1) Evaporator temp heat pump high Error must be fixed! </div> <div></div> </div>	The error may be due to an internal refrigeration problem (leaking return valve) or failure of the defrost sensor. Contact the service department in the event of repeated alarms.	Displayed only if an ExoAir or Polaris heat pump is installed.

Installation

This chapter is intended for installers of the heating system. For information regarding the installation of a heat pump refer to the manual supplied with the heat pump.

► **Note that a commissioning report must be filled in after completing the installation**

Placement / Moving

- Place the VPX indoors in a location with a solid foundation, preferably on a concrete floor. In order to prevent unnecessary noise, if possible, position the heat pump with its back against an exterior wall.
- If possible, avoid placing the unit close to bedrooms or other areas that are sensitive to noise.
- VPX has 4 adjustable legs that can be used to balance the tank unit.

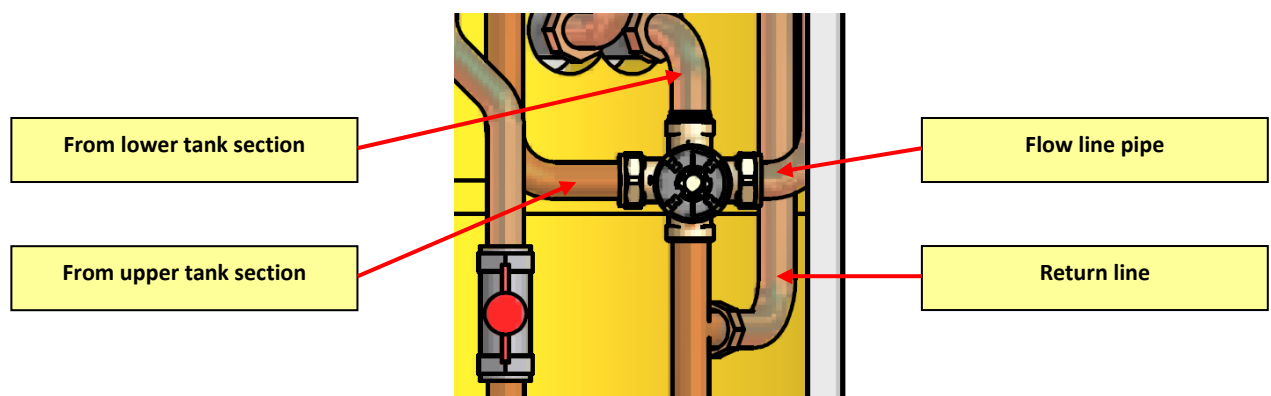
Pipes to heating system

In the basic design, heating pipes are mounted for a top connection. However, both pipes can be easily reversed to allow for a bottom connection.

The flow line for the heating system is mounted directly on the shunt valve using the clamp coupling. Before removing this pipe, be sure that the flow line sensor has not been knocked loose. Remove the sensor that is attached with a bulb strap before removing the pipe.

The return line for the heating system is mounted on a T connector piece below the shunt valve with gasket-equipped cap nuts. Remove the pipe by removing the coupling. Be careful to install the gasket before reinstalling the pipe.

The radiator pump should ideally be installed on the flow line pipe for the heating system.



Tap water pipe

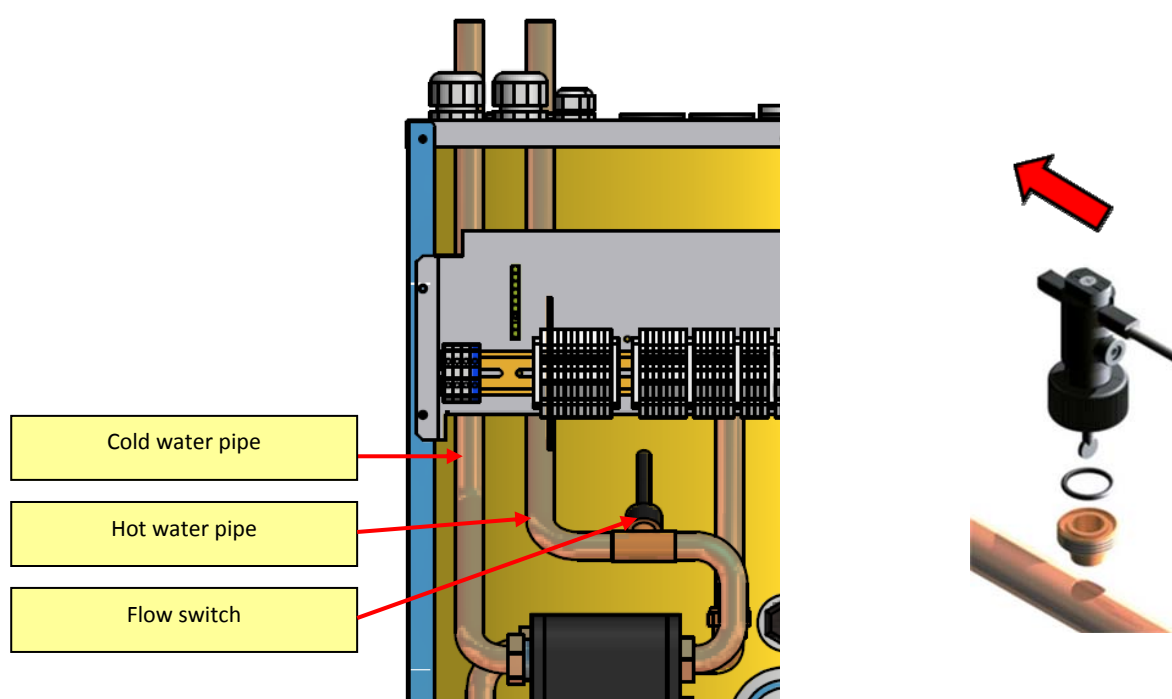
In the basic design, the tap water pipes cannot be angled for bottom assembly without a complete rebuild. As an alternative, customised drain water pipes for a bottom connection can be ordered.

Connection pipe bottom installation tap pipe, item no. 97774707001

The flow switch must be removed for a bottom installation. It is very important to check the direction of flow when reinstalling the switch. An arrow shows the correct flow direction - see diagram below.

The connection pipes for tap water are designed with a cc measurement of 55 mm in order to make installing a combination of valves easy.

Note that the safety valve does not need to be installed if the exchanger volume is below 1 litre.



Hot water recirculation

VPX has controls that can be easily connected to a hot water recirculation system. This system requires an accessory package that can be ordered from Euronom and includes a hot water circulation sensor and footings. Connecting a hot water circulation system directly to the boiler is not recommended without this accessory kit.

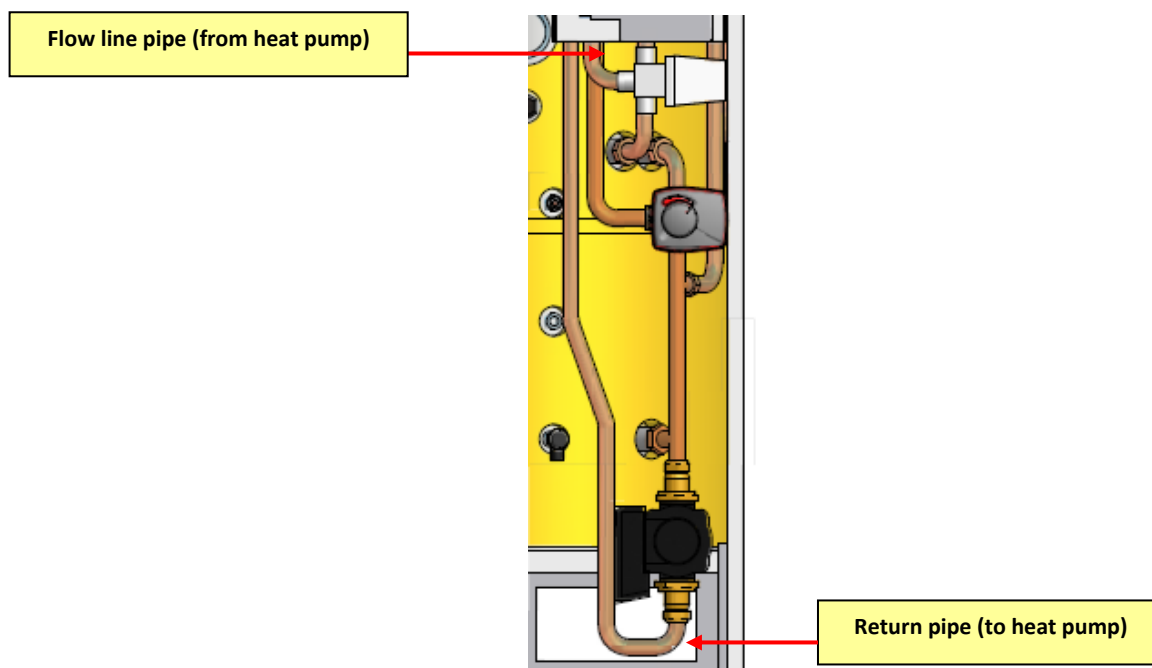
Alternatively, a smaller, external hot water heater can be used for connecting a hot water circulation system.

Heat pump

For all assembly regarding the heat pump refer to the manual supplied with the heat pump.

The pipe connection on VPX for the heat pump is fitted as standard for a top connection. However, the pipe may be easily modified to fit it to the bottom of the VPX.

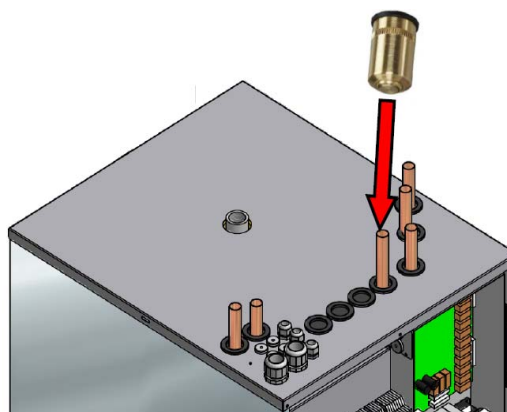
The return pipe to the heat pump is fitted directly to the charge pump with clamp couplings and can easily be cut for bottom mounting. The flow line pipe to the heat pump is fitted directly to the exchange valve with clamp couplings and can be disassembled easily; it faces down in the case of bottom assembly.



Flow reduce valve

Supplied with the VPX you'll find a special designed check valve named "flow reduce valve". This valve should be mounted for the following heat pump models: ExoAir7,5; ExoAir 10,5; Polaris 10; Exotic 5; Exotic 8; Exotic 10; Exotic 12. The valve should be mounted in the boiler on the pipe which will be connected to the heat pumps return flow pipe. After mounting it's important that the supplied sticker is paste on the pipe for future knowledge. After starting the system below display view is present in the installers menu. If the valve is mounted this setting should be set to "Yes". Otherwise the setting must be set to "No".

Flow reduce valve is mounted: →Yes
(Don't mount for HP ExA16/Pol14/Extc17)



Electrical installation

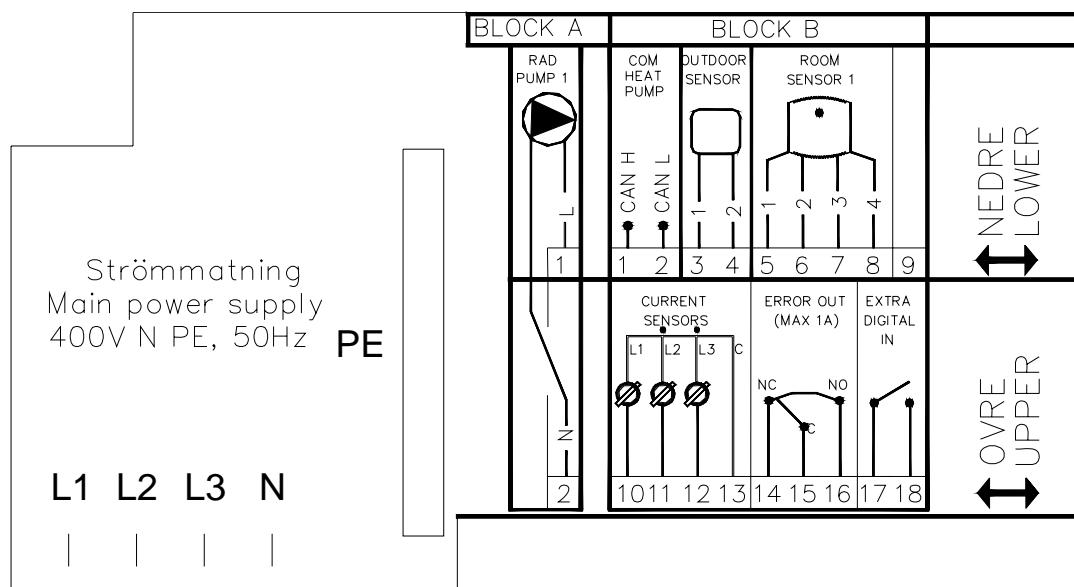
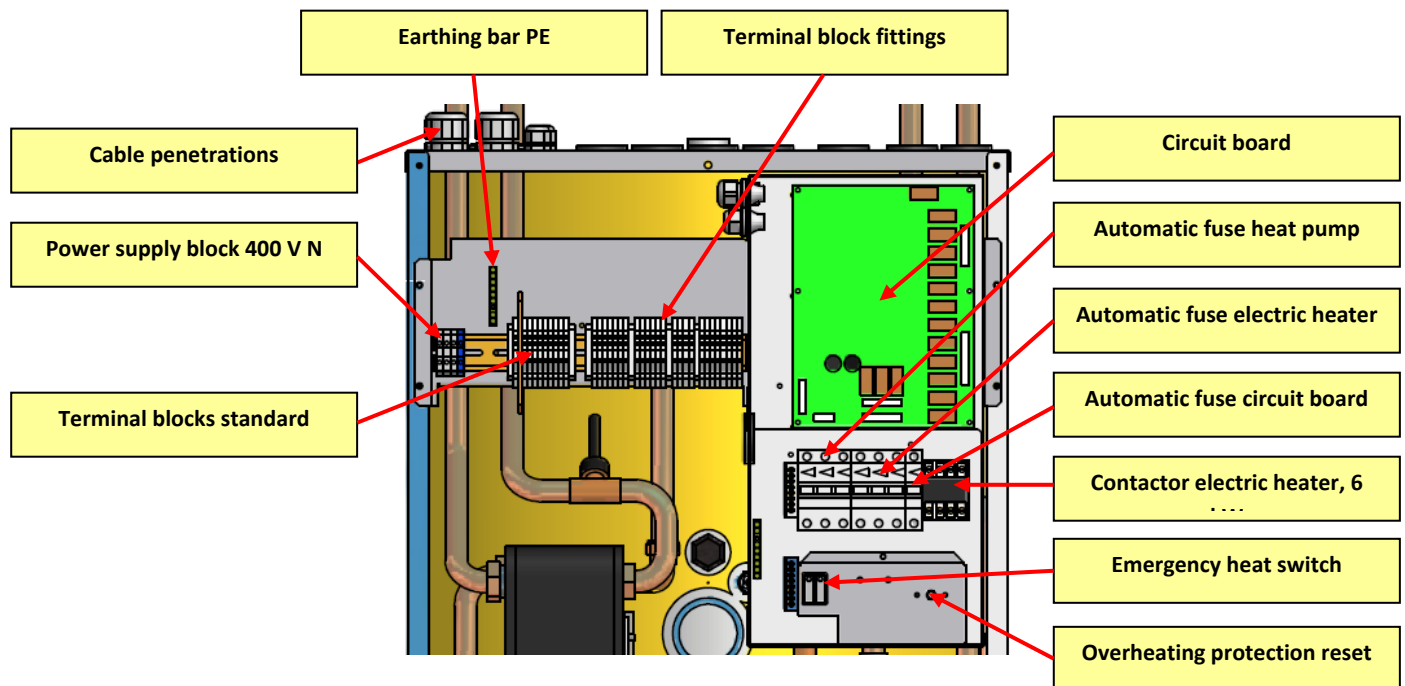
Electrical installation should be performed by an authorised electrician, in accordance with local regulations.

Overview

The control unit consists of a connection list of all possible connections and a box for circuit boards and electromechanical components - see the schematic diagram below. An adhesive sticker describes the function of the terminal blocks and how the connection should be set up.

The terminal blocks are divided into blocks called A, B, C, D, E and F.

Note that this manual only describes how to connect standard components, i.e. blocks A and B. A separate manual will be supplied if you are installing any accessories.



Power supply

The power supply to the VPX is connected on the power supply terminals in the upper left of the connecting plate. Check the phase sequence before connecting.

Based on the maximum power requirements for the system, select the correct fuse and cable dimensions.

Max fuse for the product is 32A.

The electric heater can be blocked in stages of 1.5 kW in order to limit the maximum connected power. Installing the accompanying current transformers is recommended, which provides automatic control of the maximum power based on a main fuse in the system.

The table below provides a rough guide to power usage at different electric heater stages connected to the heat pump.

For ExoAir and Polaris the compressor's power consumption is affected by both the water temperature and the outdoor temperature. In the table, the values are taken at the operating point - 5°C outside temperature and 55°C water temperature.

Note that the element in the electric heater is 230 V, and if current transformers are installed the least loaded phase will be selected.

Table 1. Power usage by heat pump at different power settings for the electric heater.

Power electric heater	6.0 kW			7.5 kW			9.0 kW			10.5 kW		
Phase	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Without a heat pump	9.2A			15.7A	9.2A		15.7A	9.2A		15.7A		
ExoAir 7.5	13.6A			20.1A	13.6A		20.1A	13.6A		20.1A		
ExoAir 10.5	15.8A			22.3A	15.8A		22.3A	15.8A		22.3A		
ExoAir 16	19.1A			25.6A	19.1A		25.6A	19.1A		25.6A		
Polaris 10	14.6A			21.1A	14.6A		21.1A	14.6A		21.1A		
Polaris 14	17.4A			23.9A	17.4A		23.9A	17.4A		23.9A		
Exotic 5	13.5A			20.0A	13.5A		20.0A	13.5A		20.0A		
Exotic 8	14.4A			20.9A	14.4A		20.9A	14.4A		20.9A		
Exotic 10	15.9A			22.4A	15.9A		22.4A	15.9A		22.4A		
Exotic 12	16.9A			23.4A	16.9A		23.4A	16.9A		23.4A		
Exotic 17	20.7A			27.2A	20.7A		27.2A	20.7A		27.2A		

Heat pump

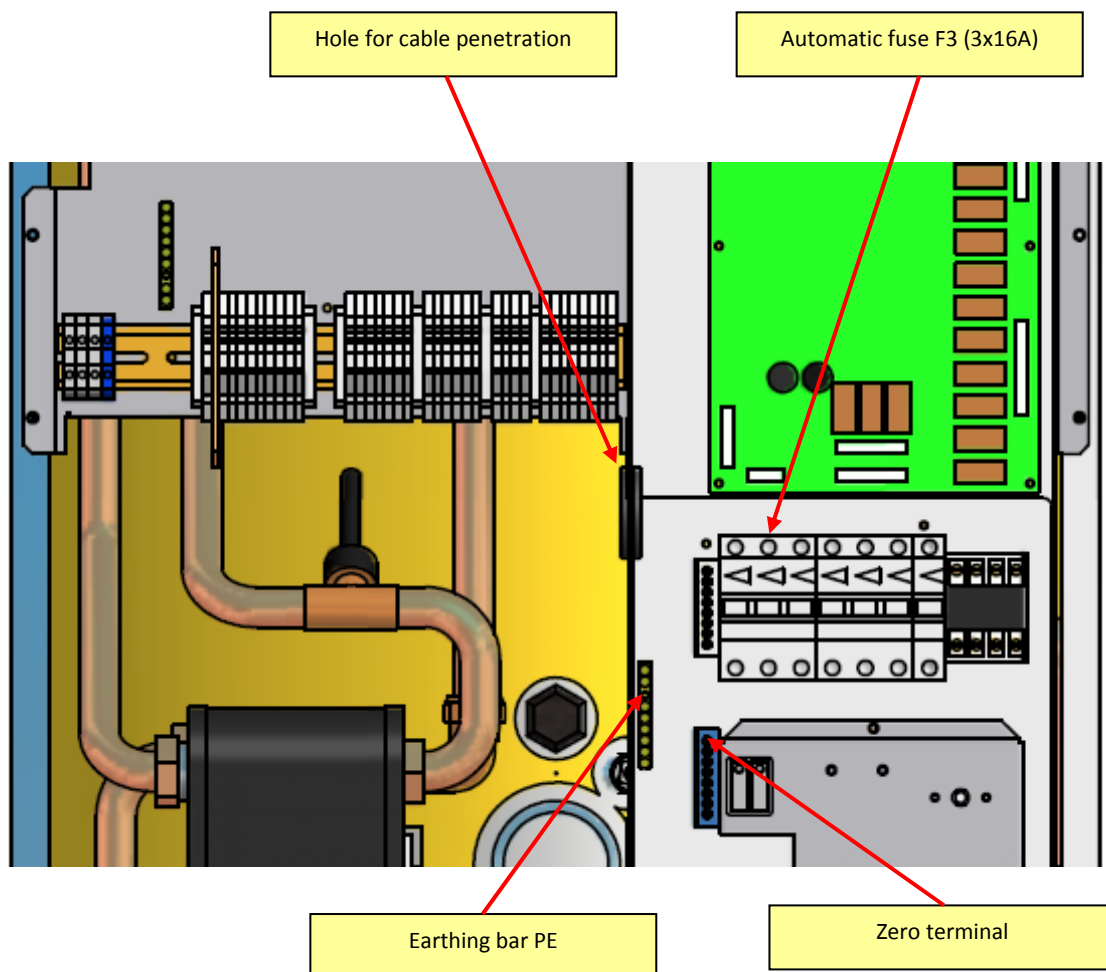
Power supply to all heat pump models is 400 V, N, PE. For correct fuse and wire size see the heat pump manual.

The power supply can be made from a separate distribution unit or directly from VPX

Power supply from VPX

In VPX there are two 3-pole 16A group fuses labeled F2 and F3. See figure below. F3 can be used for power supply.

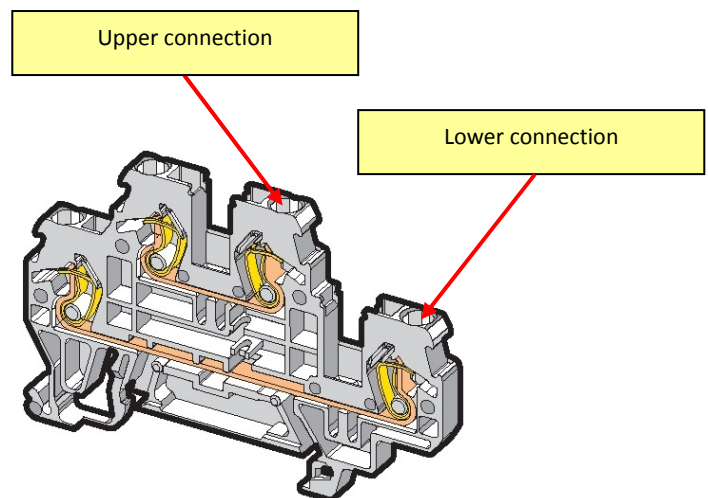
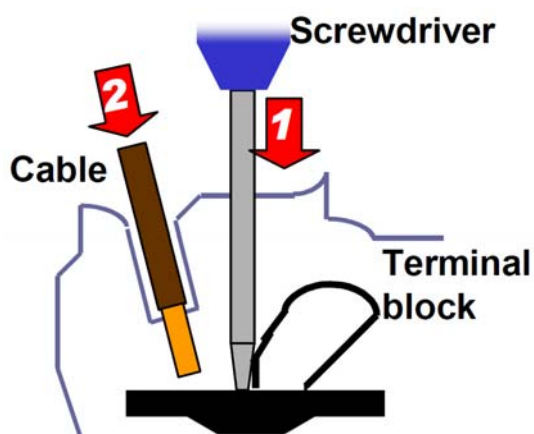
- In the side of the control box there is a hole fitted with a plastic plug. Remove the plastic plug and fit a cable penetration with strain relief.
- Detach the cables already installed on the underside of the F3 fuse.
NOTE: Detached cable ends must be fitted with end caps.
- Install the power cable's phase conductors in the automatic fuse (follow the phase sequence). Neutral and earth can be connected to the neutral terminal and earthing bar inside the control box or on the wiring rail.



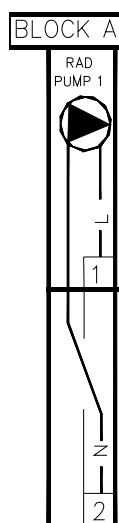
Terminal blocks

The terminal blocks are divided between 2 levels with a spring-loaded connection. Installation is easy by unloading the spring with a small screwdriver (about 3mm wide), pushing in the stripped cable and pulling out the screwdriver again. Check that the installation is correct by pulling hard on the cable. See also the diagrams below.

Also note the marking on the adhesive sticker regarding the upper and lower connection.

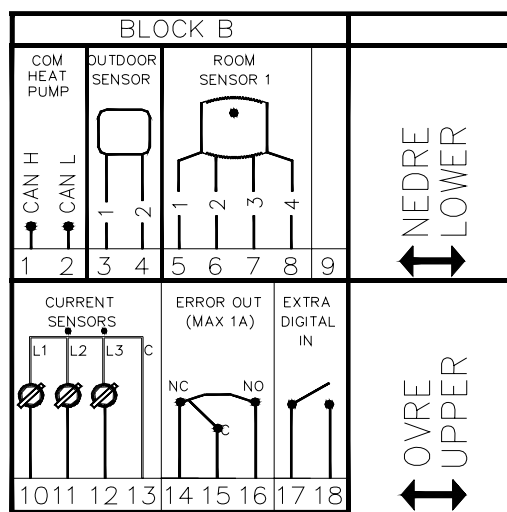


Block A – 230V



The only high voltage connection to be made apart from the power supply is connecting the radiator pump on block A. Use one of the cable fittings at the top for cable penetration. The earth wire is connected directly to the earth block.

Block B – extra-low voltage



Block B contains all of the low-voltage connections that are included as standard with the VPX. Some of the connections do not need to be connected for the product to work.

Communication 1-2

The connection is named "COM HEAT PUMP" on the adhesive sticker.

This connection is used for the communication cable between VPX and the heat pump. The cable must be approved for CAN communication and can be purchased in running meters from Euronom or from arbitrary electrical wholesalers.

CAN cable Euronom

Part No.: M 2170260

The CAN cable consists of two conductors and shielding. The cable colors are brown and white and should be connected to CAN H and CAN L respectively. The shield must be connected to earth.

The same type of connection (CAN H, CAN L and shield) are found in the heat pump control box and are connected in the same way as in VPX.

Outdoor sensors 3-4

The connection is named "OUTDOOR SENSOR" on the adhesive sticker.



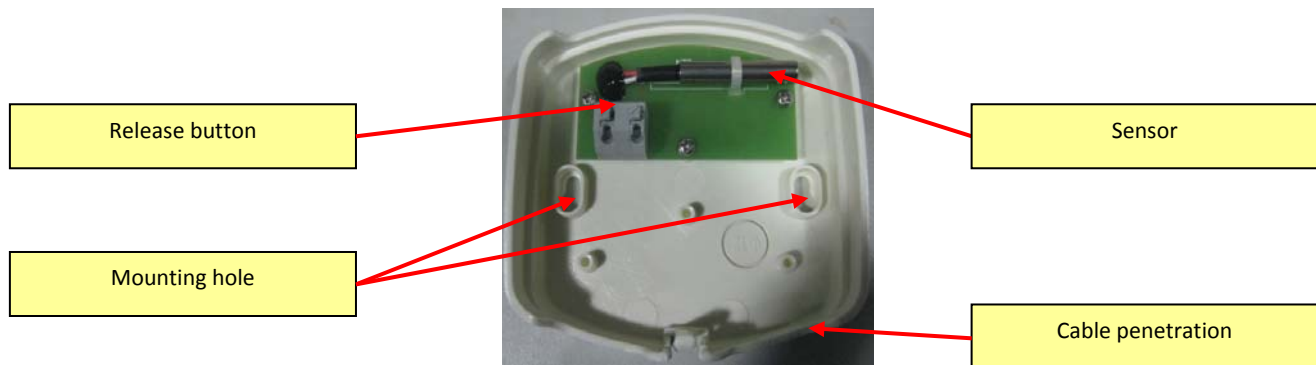
The outdoor sensor can be connected either to the VPX or directly to the heat pump.

The outdoor sensor has a catch to be opened; tools are not needed. Two spring-loaded terminal blocks are located inside the sensor. Press the release button and insert the stripped cable to make the connection.

Cable to the outdoor sensor should be drawn with a minimum cable area of 0.5 mm² and is best mounted on the north or south side of the house so that it is not exposed to the morning sun.

The sensor should be placed at about 2/3 of the height of the house's facade and should be mounted to avoid direct sunlight.

Make sure that the external sensor is not affected by ventilation ducts, doors, windows or similar fixtures which can affect the temperature measurements.



Room sensors 5-8

The connection is named "ROOM SENSOR 1" on the adhesive sticker.

The primary job of the room sensor is to transmit information about the room temperature in order to adjust the set house heating curve. This brings overall cost savings because the temperature of the water in the heating system never gets too high.

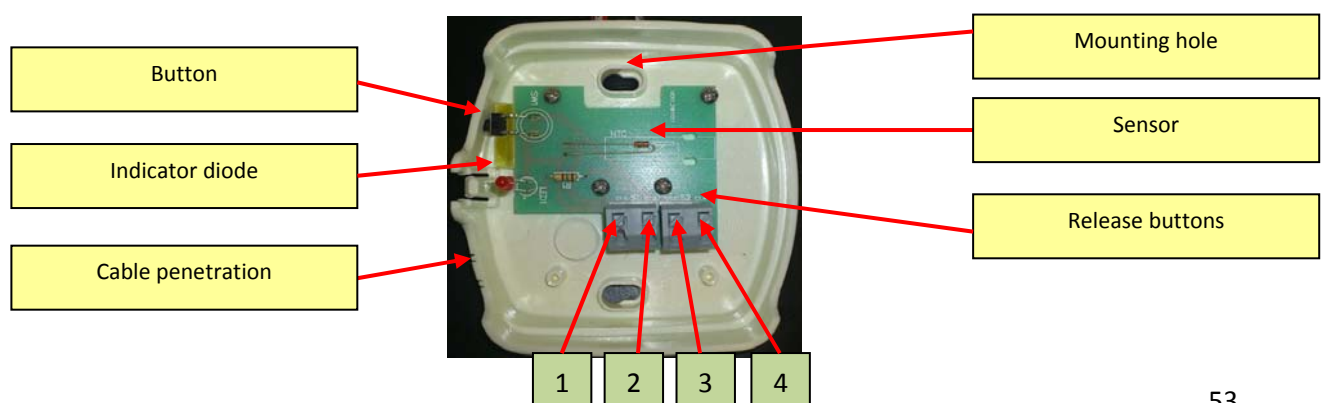
You do not need to use the room sensor function. (It can be turned off in the installer's menu in the display.) However, it is always recommended to install the room sensor because it also includes an alarm diode that flashes if something is wrong. In addition, there is a button on the room sensor that can be used for different functions, e.g. extra hot water, which can be set in the display.

In order for the room sensor to work well, the sensor should be placed in as central and open a location as possible in the house.

Do not place it by windows, radiators or similar fixtures.

Mount the sensor about 2/3 of the way up the wall, and it is best installed in such a way that it is possible to reposition it.

The room sensor terminals are marked (1-4) and should be connected according to the figure below. The tank section's adhesive sticker is also marked with connection numbers 1-4. Connect the same numbers for the room sensors as for the boiler.



Current transformers 10-13 (accessories)

The connection is named "CURRENT SENSORS" on the adhesive sticker.

Current transformers are not included as standard. The job of the current transformers is to continuously measure the current on the incoming phases in the house/system. This measuring helps the program ensure that the power never exceeds the rating for the main fuse by releasing any power-stage in the electric heater.

The current transformers are phase selective, i.e. they measure each phase separately. This allows the system to decide itself which phase to load. This also ensures that the 3 phases are distributed as evenly as possible.

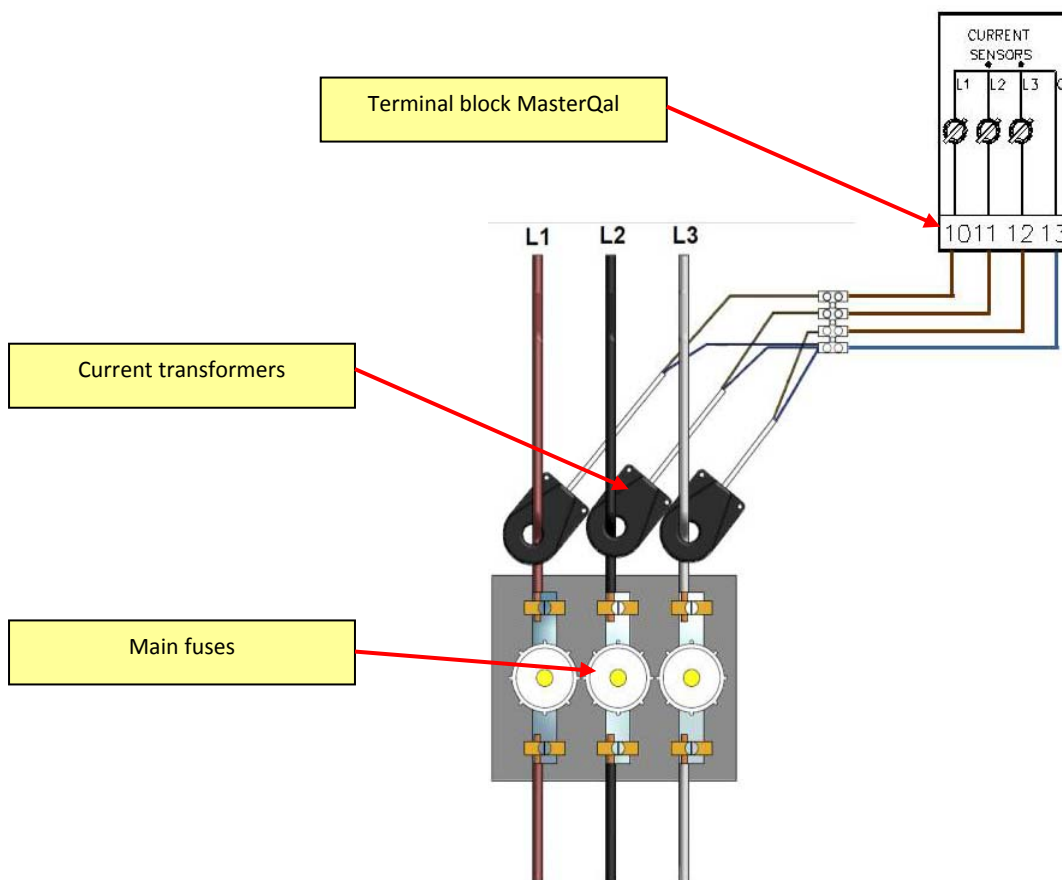
Installing the current transformers is recommended but not required. It is possible to limit the maximum electrical power for the electric heater in the display.

The current transformers should be installed on the incoming feed to the central control unit, which must be protected against overloads. This should only be performed by an authorised electrician.

The minimum cable area for the connection is 0.5 mm². At least 4-lines must be used.

Mount the transformers by threading the incoming phases through the transformer. The blue cables from the transformers should be joined together and connected to the common terminal block 13

Current transformers item no. 4663003



Error out 14-16

The connection is named "ERROR OUT (MAX 1A)" on the adhesive sticker.

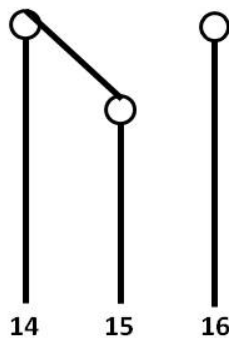
The output is potential-free and has both an NC and an NO connection. It can be used to get a signal to an external unit or to a GSM unit.

The output can be loaded with max 1A

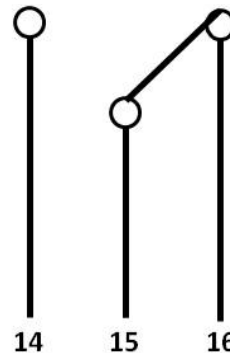
During normal operations with no alarm, there is contact between terminals 15 and 16.

In the event of an alarm or power failure there is contact between 14 and 15

Error or power failure (NC)



Normal operations (NO)



Digital input 17-18

Connection named "EXTRA DIGITAL IN" on the adhesive sticker.

The input should be potential-free and has different functions depending on what settings are chosen in the display. From program version 1,4 the set function is standby. If the input is closed the heat pump and electric heater will be blocked until the input is opened again. When closing the input below display text will be activated.

```
*****SYSTEM OK*****  
Standby mode active  
Heatpump/El.heater  
blocked. Time 26min
```

First commissioning

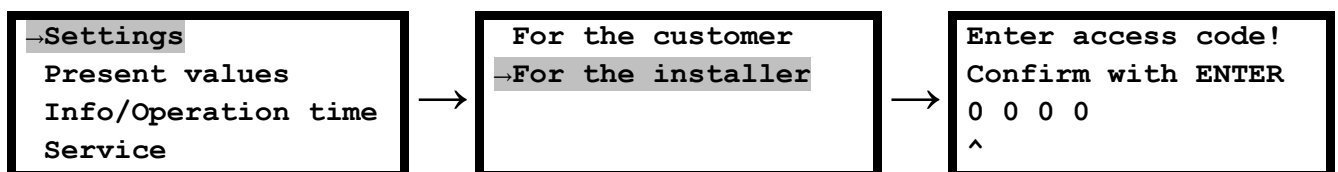
During the initial commissioning, a number of selections must be made in order for the system to start. The first thing that appears during commissioning is the following display. (If you want to learn more about how to use the buttons to navigate, see the chapter "Handling".

```
Choose language...  
Confirm with ENTER  
>>>ENGLISH<<<
```

You can change the language using the up/down arrows. Confirm the selected language with the ENTER button.

After selecting the language, you will come to menu where you can adjust the settings.

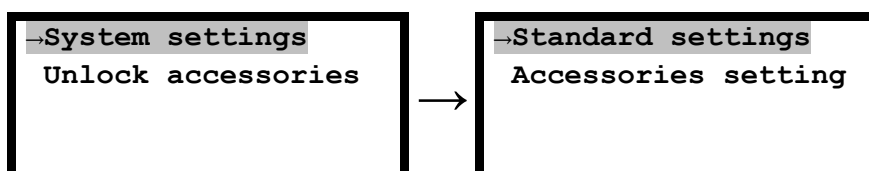
Use the arrow buttons to move to the following location:



Enter access code: **3550**

You are now in the installer menu.

Proceed to the standard settings by selecting the following:



The subsequent pages describe the settings that must be entered so that the system can start.

System settings

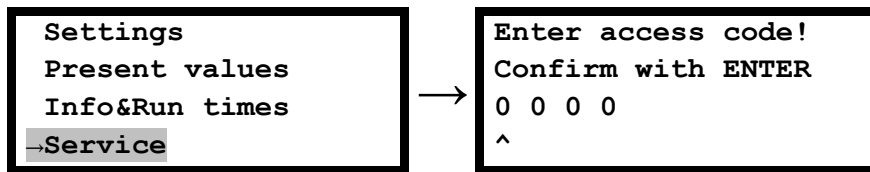
Display		Description	Comments
Heat pump found... Model: ExoAir 16 S/N: 2535645495 Installed: →No	▶	<p>The display provides information on which heat pump is installed and its serial number.</p> <p>VPX can be run without a heating pump as purely and electrical boiler with an integrated electric heater. In order to activate the heat pump, select installed: yes</p>	Only displayed if heat pump is found
↓			
Compressor blocking Compressor is: →Blocked	▶	<p>The compressor is blocked by default in order to prevent the system from unintentionally starting before the installation is finished. Do not remove the blocking before the installation is completely finished and there are no problems prior to starting.</p>	Only displayed if heat pump is installed
↓			
Electric heater is: Blocked Max allowed power →0.0 kW	▶	<p>Electric heater is blocked by default. When activating the power stage, the blocking is automatically removed. Max power can be set in 6 steps from 1.5 kW to 10.5 kW. (If current transformers are installed, the max power is controlled automatically and the allowable power can be set to 10.5 kW.)</p>	
↓			
Delayed start of electric heater Delay: →0 min	▶	<p>This setting makes it possible to delay starting the electric heater even if the base conditions (temperature hysteresis) for startup are fulfilled. A delay gives the heat pump a longer time to try to meet the need. In the event of an alarm, excessive temperature on the heat pump, or when the compressor is blocked, the time delay is lifted automatically.</p>	Only displayed if heat pump is installed
↓			
Current sensors are installed: →No	▶	<p>Select if current transformers are installed or not. Installing the current transformers is recommended.</p>	
↓			
Main fuze size (Fuse that should be protected by current sensors) →16A	▶	<p>Setting for main fuse or protector so that the central control unit is protected from overcurrent.</p>	Only displayed if the current sensor is installed.
↓			
Only floor heating used in standard heating system (1): →No	▶	<p>Option to set the system for running underfloor heat only. If this option is set to Yes, several settings in the "House heating curve" menu are activated and allow you to set the max flow to the underfloor system.</p>	
↓			
Delay mixing valve to open for upper tank part (system 1) Delay time: →180 min	▶	<p>The bivalent mixing valve can collect energy from both the upper and lower sections of the tank. The cheapest energy is in lower temperature water in the lower tank section and is prioritised in order to achieve the most cost efficient operations. When the mixing is in the middle position between the upper and lower tank sections, a limit position is activated. Based on the time that is set in this menu, the mixing is not allowed to open until this time has passed, and the heat pump is then allowed to go up to the temperature in the lower tank section.</p> <p>If the heat pump is not installed, the mixing opening is not delayed.</p>	Only displayed if heat pump is installed

Display		Description	Comments
<div> Flow reduce valve is mounted: →Yes (Don't mount for HP ArQ16/EVI14/Exotic17) </div>	▶	From 2013-06 all VPX tanks will have a special flow reduce valve supplied with the accessory bag. Together with the valve there are instructions for mounting and also this setting. If an older tank is updated and don't have this valve mounted this setting must be set to "No".	Only displayed if heat pump is installed
<div> ↓ </div> <div> Language →ENGLISH </div>	▶	Setting the language for the display screen	
<div> ↓ </div> <div> ** Factory reset ** WARNING! ALL SETTINGS WILL BE LOST Reset: →No </div>	▶	This menu is used to reset all of the settings to the factory default settings. Note that you cannot reverse the reset. If the selection is activated, the text "Factory default setting completed!" appears.	
<div> ↓ </div> <div> Reset operation time WARNING! ALL LOGGED OP TIMES WILL VANISH Reset: →No </div>	▶	This menu is used to zero set all of the run times in the system. Note that you cannot reverse the zero setting. If the selection is activated, the text "Run times zero set!" will appear.	

Service

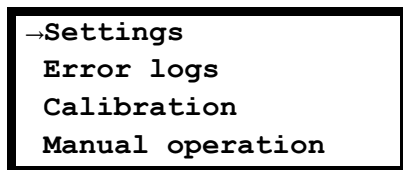
The last item in the main menu is the "Service" option. This menu includes more advanced settings as well as options for test runs and calibrating the sensors. This menu is used primarily by service technicians and should not be used unless you have a thorough knowledge of the system.

Use the arrow buttons to move to the following location:



Enter access code: **7902**

You are now in the service menu.



Settings

This menu is only accessible if the heat pump is installed.

Display		Description	Comments
<div>Fan speed(s) Low speed active at Outdoor temp above →10°C</div>	▶	Setting for changeover when the fan(s) run/runs at low speed.	Displayed only if an ExoAir or Polaris heat pump is installed.
↓			
<div>Restart diff for heat pump in lower tank part: →5.0C</div>	▶	Setting for restarting hysteresis for the lower tank section.	
↓			
<div>Restart diff for heat pump in upper tank part: →5.0C</div>	▶	Setting for restarting hysteresis for upper tank section.	
↓			
<div>Defrost cycle activ- ates when defrost sensor below: →-4.0C</div>	▶	Setting for starting temperature for the defrost cycle. (Start of defrosting is also time dependent)	Displayed only if an ExoAir or Polaris heat pump is installed.
↓			
<div>Defrost cycle ends when defrost sensor reaches: →+14.0C</div>	▶	Setting for stop temperature for defrost cycle. (Maximum time for defrosting is 10 min.)	
↓			
<div>Low charge flow al- arm if temp diff above: →35C</div>	▶	Setting for the alarm that the charging flow through the heat pump condensor is too low, i.e. the temperature differential is too large. (The setting applies when the charge pump is running at maximum speed, i.e. 100%.)	
↓			
<div>Freeze alarm activa- tes if brine out temp below: →-10C</div>	▶	Setting for brine medium freezing risk. If the brine medium from the heat pump (brine out) reaches the set value, the heat pump will stop and an error code will appear.	Only displayed if the Exotic heat pump is installed
↓			
<div>Low brine flow al- arm when temp diff above: →8C</div>	▶	Alarm setting for low brine flow through the heat pump, i.e. the temperature differential is too large.	
↓			

Display		Description	Comments
<div>Max flow temperature from heat pump: -58C</div>	▶	Setting for maximum temperature of the heat pump's front supply pipe (water out). If the temperature exceeds this value for 60 seconds, a VPX alarm for high temperature occurs.	
<div>Max tempdiff between max set flow temp and return temp for start: Diff:-8C</div>	▶	Before start of the heat pump module the charge pump will run at a low flow during 1min in order to measure the water temperature. If the temperature on the return water is warmer then the max set flow temperature – this difference the heat pump module will not start. Example: Max set flow temperature=60C. Max tempdiff=8C Max return temp for start=60C-8C=52C	
<div>Charge difference between heat pump and nominal value in upper tank: -2,5C</div>	▶	When charging upper tank part the target temperature for the heat pump will be the nominal value + the set value in this menu. I.e. if nominal value for upper tank is 53C and the charge difference is set to 2,5C the target temperature for the heat pump will be 55,5C	
<div>PI regulator charge pump PGain: 3000</div>	▶	<p>Note that the settings in the remaining displays should not be adjusted before contacting Euronom.</p> <p>(The charge pump that moves the water through the heat pump is controlled with a PI regulator to achieve the correct temperature under different conditions. The regulator control can be adjusted by changing a number of settings.)</p>	
<div>PI regulator charge pump IGain: 400</div>	▶		
<div>PI regulator charge pump Integral time: 15 sec</div>	▶		
<div>PI regulator charge pump Integral max: 5000</div>	▶		
<div>PI regulator charge pump Integral min: -5000</div>	▶		
<div>PI regulator charge pump Min flow: 190 l/h</div>	▶		

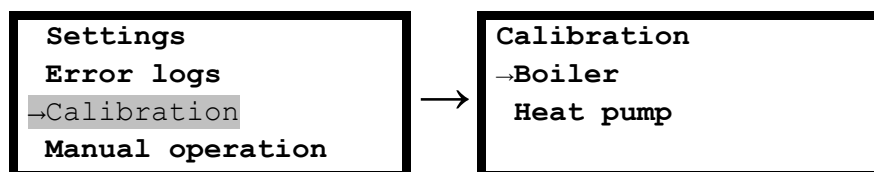
Error log

The error log selection displays the past 5 alarms with information about the cause of the alarm and the existing operating data when the alarm was tripped. This allows service technicians to draw conclusions about the cause of the alarm.

Display	Description	Comments
<div> <div>1 (5) High pressure</div> <div>A: 62C B: 53C C: 15.2A</div> <div>D: -12C E: -14C F: 115C</div> <div>G: -16C H: 99% I: 12501</div> <div>↓</div> </div>	<div> <div> <p>The number 1 in "1(5)" indicates which display is shown. 1(5) is the last alarm that was logged.</p> <p>The letters A-I have the following meanings according to the table below.</p> <p>A: Flow temperature from the heat pump</p> <p>B: Return temperature to heat pump</p> <p>C: Power consumption compressor</p> <p>D: Brine temperature to heat pump</p> <p>E: Brine temperature from heat pump</p> <p>F: Hot gas temperature</p> <p>G: Outdoor temperature</p> <p>H: Charge pump speed</p> <p>I: Estimated flow charge pump</p> </div> </div>	

Calibration

The calibration menu is used to adjust the value on the sensor up or down. Note that calibration should only be performed with a calibrated temperature instrument. When you enter the calibration menu, a submenu appears where you can choose to calibrate the boiler or the heat pump sensor. All of the calibration displays show the sensor's current values as well as the current offset, i.e. how much the sensor is adjusted and in which direction. The default offset value is always 0.0°C



Calibration - Boiler

Display		Description	Comments
<div>Tank sensor lower Actual: 34.6°C Offset:→+0.0°C</div>	▶	Calibrating the lower tank sensor	
↓			
<div>Tank sensor upper Actual: 54.6°C Offset:→+0.0°C</div>	▶	Calibrating the upper tank sensor	
↓			
<div>Flow temp sensor heat system (1) Actual: 40.3 Offset:→+0.0°C</div>	▶	Calibrating flow line temperature sensor (to heating system 1)	
↓			
<div>Room sensor (1) Actual: 20.1°C Offset:→+0.0°C</div>	▶	Calibrating room sensor (to heating system 1)	
↓			
<div>Outdoor sensor Actual: -10.1°C Offset:→+0.0°C</div>	▶	Calibrating outdoor sensor	Only displayed if sensors are installed in VPX.
↓			
<div>Current sensor L1 Actual: 12.2A Offset:→+0.0A</div>		Calibrating current sensor L1	

Display		Description	Comments
Current sensor L2 Actual: 12.4A Offset:→+0.0A	▶	Calibrating current sensor L2	
↓			
Current sensor L3 Actual: 12.4A Offset:→+0.0A	▶	Calibrating current sensor L3	

Calibrating - Heat pump

Display		Description	Comments
Flow temp sensor Actual: 44.6°C Offset:→+0.0°C	▶	Calibrating primary flow temp sensor	
↓			
Return temp sensor Actual: 30.6°C Offset:→+0.0°C	▶	Calibrating flow temp sensor	
↓			
Hot gas sensor Actual: 94.3°C Offset:→+0.0°C	▶	Calibrating hot gas sensor	
↓			
Outdoor sensor Actual: -10.1°C Offset:→+0.0°C	▶	Calibrating outdoor sensor	Displayed only if outdoor sensor is installed in the heat pump.
↓			
Sensor brine in Actual: -2.1°C Offset:→+0.0°C	▶	Calibrating brine in sensor	Only displayed if the Exotic heat pump is installed
↓			
Brine out sensor Actual: -4.4°C Offset:→+0.0°C	▶	Calibrating brine out sensor	
↓			

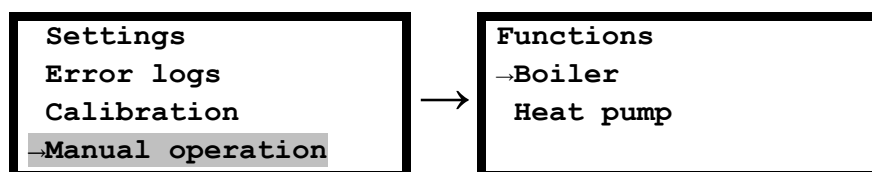
Display		Description	Comments
<div>Defrost sensor</div> <div>Actual: 1.1°C</div> <div>Offset:→+0.0°C</div>	▶	Calibration of the defrost sensor	Displayed only if an ExoAir or Polaris heat pump is installed.
<div>Current sensor L1</div> <div>Actual: 6.6A</div> <div>Offset:→+0.0A</div>	▶	Calibrating current sensor for compressor power	

Manual operation

The manual operation menu is used to manually run all of the components separately. This menu can be used to check that the installation is correct and for troubleshooting.

When you enter this menu, a submenu appears where you can test the heat pump functions as well as the boiler.

Note that when you enter this menu, all of the components are shut off, and the status light starts to flash red and green.



Manual operation - Boiler

Display		Description	Comments
Radiator pump (Heating system 1) →Off On	▶	Manual operation of radiator pump (for heating system 1)	
↓			
Circulation pump hot water exchanger →Off On	▶	Manual operation of the circulation pump that moves the hot water through the hot water exchanger.	
↓			
Mixing valve motor (Heating system 1) →Off Open Close	▶	Manually opening/closing shut motor (for heat system 1) (Note that the motor run time is 120 sec, which it why is can be difficult to see the motor open/close)	
↓			
Changing valve bet- ween upper/lower tank part →Lower Upper	▶	Manual operation of the exchange valve that decides if the heat pump will charge the upper or lower tank section.	
↓			
Electric heater L1 (1,5kW) →Off On Curr sens L1: 10,1A	▶	Manual operation of the electric heater stages 1.5 kW on phase L1 and current value on current sensor L1. When turning the system on, the power will increase by about 6.5A if current sensors are installed.	

Display		Description	Comments
Electric heater L2 (1,5kW) →Off On Curr sens L1: 10,1A	▶	Manual operation of the electric heater stages 1.5 kW on phase L2 and current value on current sensor L2. When turning the system on, the power will increase by about 6.5A if current sensors are installed.	
↓			
Electric heater L3 (1,5kW) →Off On Curr sens L1: 10,1A	▶	Manual operation of the electric heater stages 1.5 kW on phase L3 and current value on current sensor L3. When turning the system on, the power will increase by about 6.5A if current sensors are installed.	
↓			
El.h L1/L2/L3 (6kW) →Off On Curr sens: L1: 12.1A L2: 13.2A L3: 10.2A	▶	Manual operation of the electric heater stages 6 kW (2 kW/phase) and current value on current sensors L1, L2 and L3. When turning on the system, the current will increase by about 8.7A per phase is current sensors are installed.	
↓			
External error out- put signal →Off On	▶	Manual operation of external alarm outlet	
↓			
Room sensor error →Off On (Heating system 1) →Off On	▶	Testing alarm diode on the room sensor	

Manual operation - Heat pump

Display		Description	Comments
Run heat pump (Autostop if error or after 8 min) →Off On	▶	Manual operation of heat pump. ExoAir (Compressor, charge pump 100%, fan high) Polaris Compressor, charge pump 100%, fan high (EVI valve can be enabled during operation by scrolling further down the menus.) Exotic (Compressor, charge pump 100%, brine pump) Operations run until the display is put in the "Off" position, an alarm on the heat pump sounds or after max. 8 minutes.	
↓			
Defrost heat pump (Autostop at +18°C or after 12 min) →Off On	▶	Possibility of manual defrosting of the heat pump evaporator. Defrost continues until the defrost sensor reaches 18°C or after 12 minutes.	Displayed only if an ExoAir or Polaris heat pump is installed.
↓			

Display		Description	Comments
Fan →Off High Low	▶	Manual operation of fan(s).	Displayed only if an ExoAir or Polaris heat pump is installed.
↓			
EVI valve →Off On	▶	Manual operation of the heat pump EVI valve. (Can also be activated during Autorun)	Only displayed if Polaris heat pump is installed
↓			
Brine pump →Off On	▶	Manual operation of brine pump	Only displayed if the Exotic heat pump is installed
↓			
Charge pump speed <-Low 0% High->	▶	Manual operation of charge pump. Adjust the speed in stages of 5% from 0-100.	
↓			
4-way valve →Off On	▶	Manual operation of the heat pump 4-way valve that controls the defrost.	Displayed only if an ExoAir or Polaris heat pump is installed.
↓			
Heating cable defrost tray →Off On	▶	Manual activation of the output that controls the heating cable to the heat pump's defrost tray. (Only relevant if a defrosting tray is installed.	

R/T tables sensors

Temperature sensor				Hot gas sensor (only for heat pump)			
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

Technical data		VPX 200	VPX 300
Item No.		9774705801	9774699501
Dimensions (w x h x d)		600 x 1,460 x 730	600 x 1830 x 730 mm
Weight		200 kg	250 kg
Total volume			281 l
Compatibility	Model ExoAir	7.5; 10.5	7.5; 10.5; 16
	Model Polaris	10	10; 14
	Model Exotic	5, 8, 10, 12	5, 8, 10, 12, 17
Insulation		35 mm polyurethane	
Electrical connection		400V N PE	
Fusing		10-32 A (depending on electric power heater and heat pump used)	
Electric heater		7 stages, 1.5 kW/stage. Total 10.5 kW	
Hot water		2-stroke plate heat exchanger (safety valve not necessary)	
Heat control		Bivalent shunt valve	
Extra connections		3 pc. DN20 out.	
Run as electric boiler		Yes	

Commissioning report

DATA

Model: VPX <input type="checkbox"/> 200 <input type="checkbox"/> 300	Order number:
Heat pump: <input type="checkbox"/> Not installed	
ExoAir <input type="checkbox"/> 7.5 <input type="checkbox"/> 10.5 <input type="checkbox"/> 16	
Polaris <input type="checkbox"/> 10 <input type="checkbox"/> 14	
Exotic <input type="checkbox"/> 5 <input type="checkbox"/> 8 <input type="checkbox"/> 10 <input type="checkbox"/> 12 <input type="checkbox"/> 17	
VPX serial number:	Date:
Electricity metre reading:	

INSTALLER

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

CUSTOMER

Name:
Address:
Postal address:
Telephone:

INSTALLATION CHECK

The system is filled with water and has been aerated	<input type="checkbox"/> OK
System pressure on installation	_____bar
Maintenance switch installed	<input type="checkbox"/> OK
Fusing	_____A
Speed radiator pump (if not variable)	_____
Current sensor installed	<input type="checkbox"/> YES <input type="checkbox"/> NO
Heat pump power fed from VPX	<input type="checkbox"/> YES <input type="checkbox"/> NO
Room sensor installed	<input type="checkbox"/> YES <input type="checkbox"/> NO

POSSIBLE SETTINGS IN CONTROL UNIT

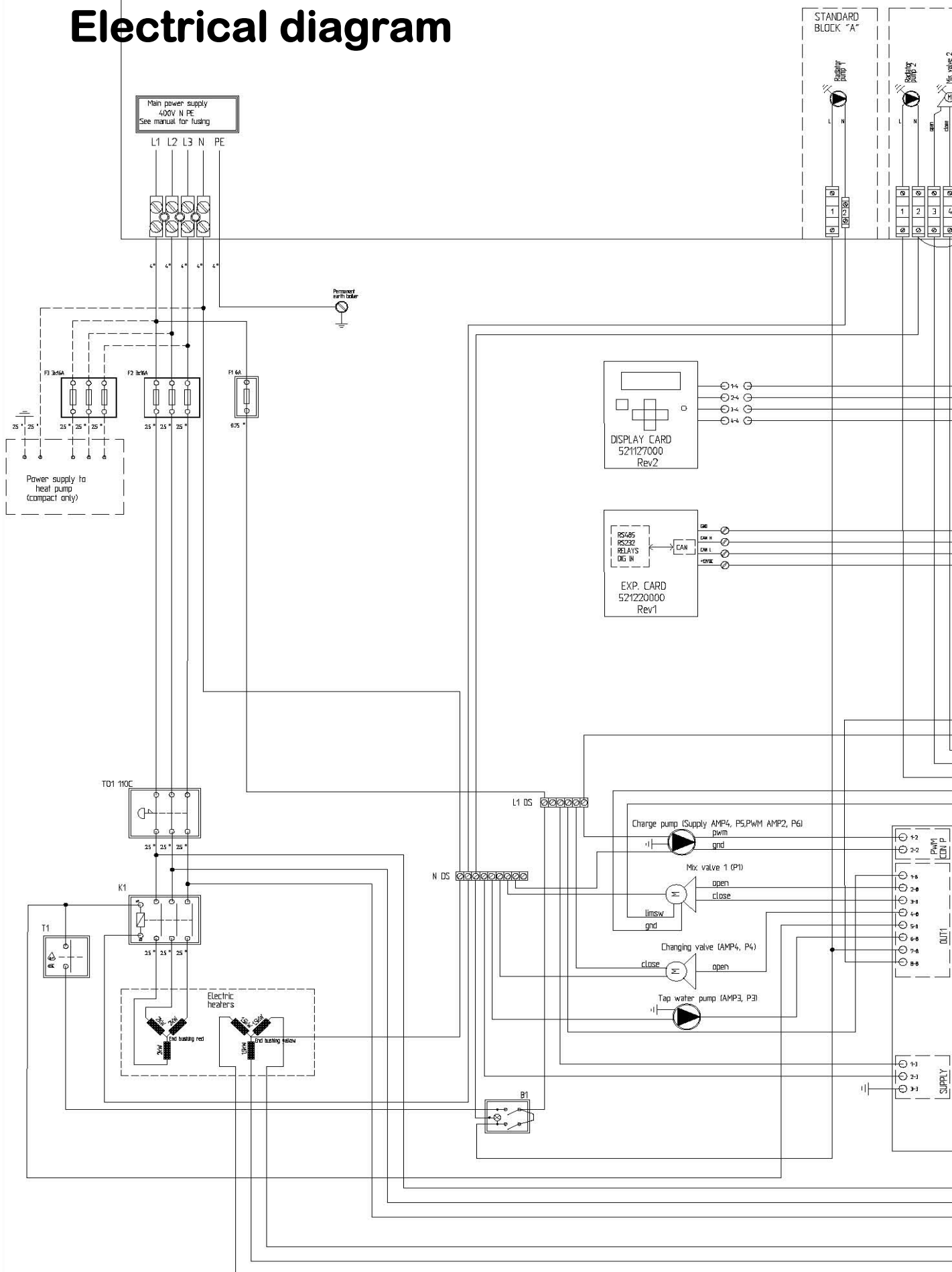
Heating curve adjusted	<input type="checkbox"/> YES <input type="checkbox"/> NO
Point A: _____ °C	
Point B: _____ °C	
Point C: _____ °C	
Other possible settings	

COMMENTS

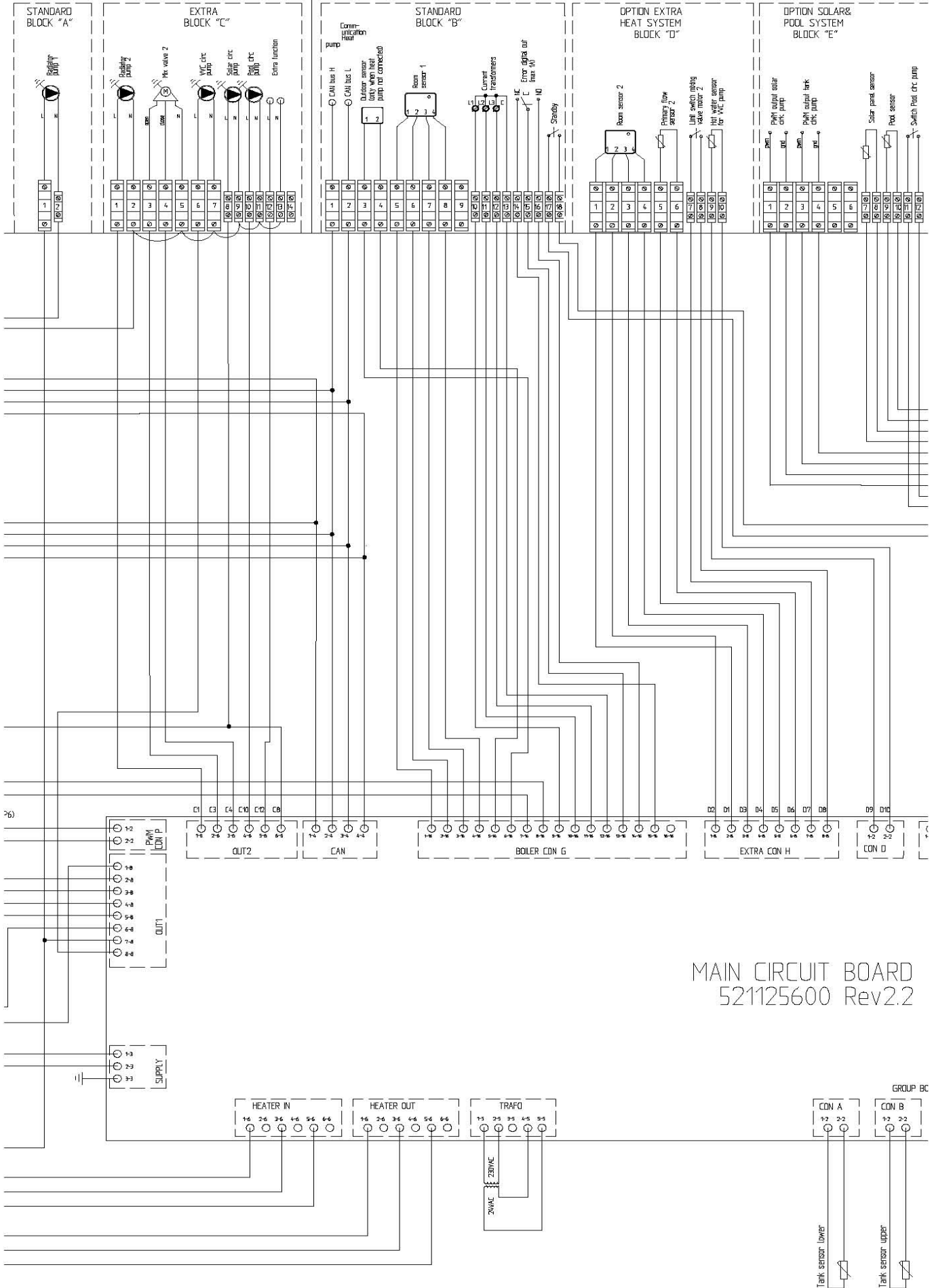
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Electrical diagram

HIGH VOLTAGE CONNECTIONS



LOW VOLTAGE CONNECTIONS



Spare parts list

	Order number		
	VPX 200C	VPX 300C	VPX 500C
Charge pump PWM	521237900	521237900	521237900
C-pump HW	521110400	521110400	521110400
Outdoor sensor	521137600	521137600	521137600
Room sensor	521137500	521137500	521137500
Sensors Tank, Brine, etc.	521138000	521138000	521138000
Flow switch	521115700	521115700	521115700
Hot water exchanger	521028600	521028600	521028600
Changing valve	521213000	521213000	521213000
Mixing valve BIV	521003400	521003400	521003401
Motor mixing valve	3347308	3347308	3347308
Electric heater (10.5 kW)	521029500	521029500	521029500
PCB tank unit	521125600	521125600	521125600
Display tank unit	521127000	521127000	521127000
Fuses heat (heater 16A)	521080500	521080500	521080500
Contactor electric heater	521079700	521079700	521079700
overheating protection 110gr	521029600	521029600	521029600
Termostat 1pol electric heater	521232300	521232300	521232300
current transformer 30VA	4663003	4663003	4663003



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