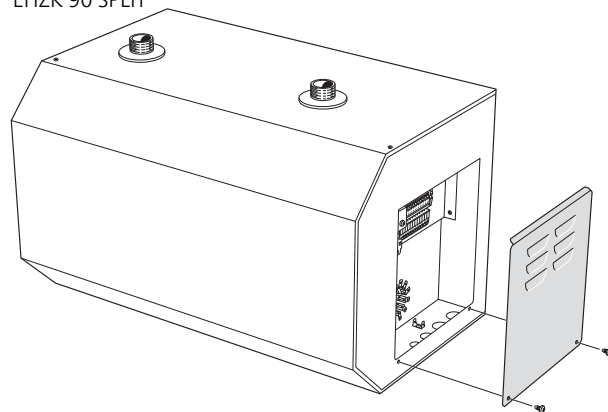


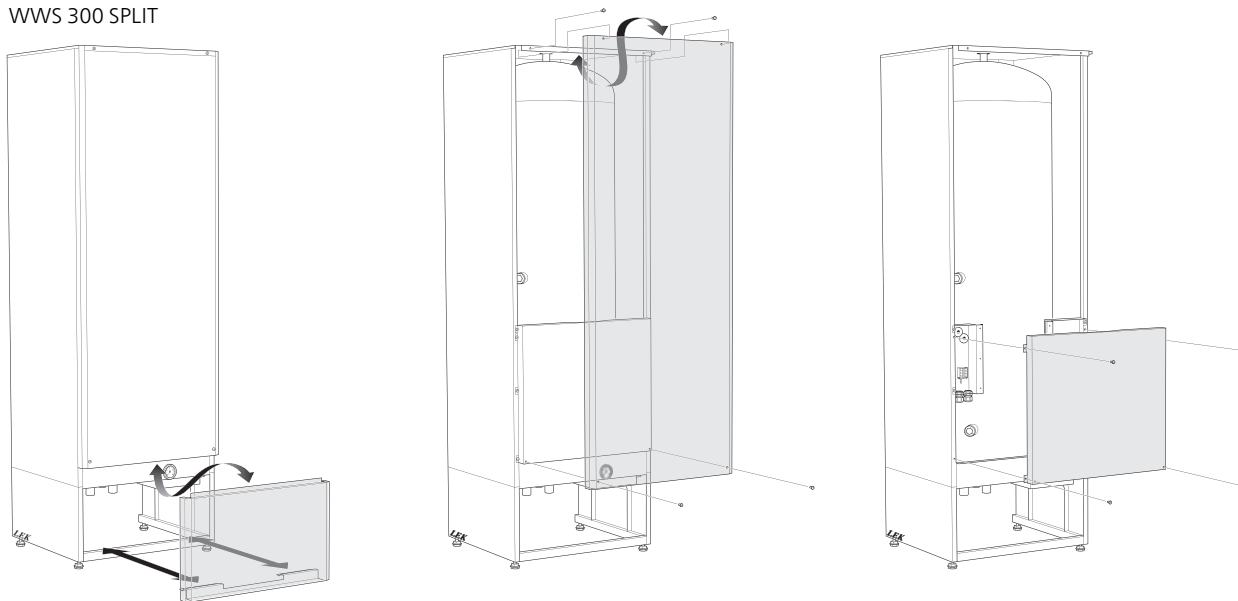
INSTALLATION AND MAINTENANCE INSTRUCTIONS

SPLIT**L8 SPLIT/L12 SPLIT, HM 8-12 SPLIT, EHZK 90 SPLIT/WWS 300 SPLIT/WWS 500 SPLIT**

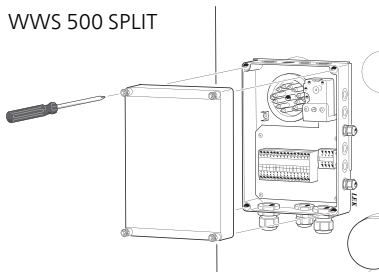
EHZK 90 SPLIT



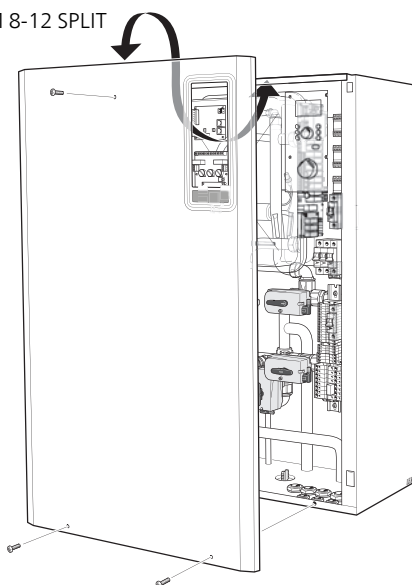
WWS 300 SPLIT



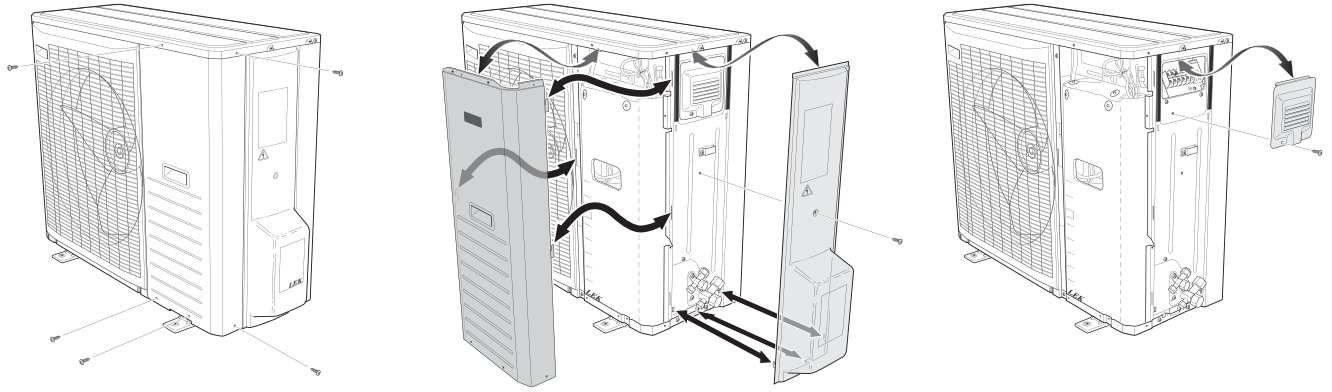
WWS 500 SPLIT



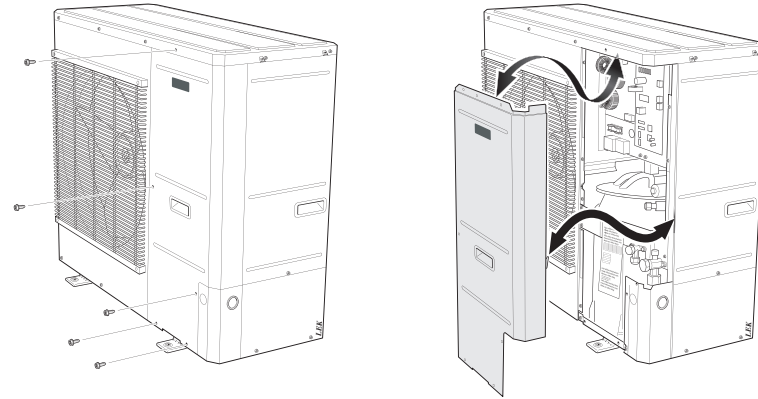
HM 8-12 SPLIT



L8 SPLIT



L12 SPLIT



For Home Owners

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General

SPLIT is a system for heating, cooling and producing hot water for small houses. The system consists of an outdoor module (L8 SPLIT/L12 SPLIT), which utilises the energy in the outdoor air and sends it to the indoor module (HM 8-12 SPLIT), which takes care of the regulation and heat distribution in the house.

In order to gain the greatest benefit from the SPLIT system, please refer to the 'For Home Owners' chapter within this Installation and Maintenance Manual.

SPLIT is a quality system offering a long service life and reliable operation.

Installation data

Installation data and installation check list on page 42 must be filled in by the installer in order for the warranty to apply.

Completed by the installation engineer when the system is installed

Serial number , must always be stated in all correspondence with us.			
Indoor unit:		Outdoor unit:	
Installation date:			
Check list, page 42, filled in <input type="checkbox"/>			
Installation engineers:			
Heating <input type="checkbox"/> Radiator <input type="checkbox"/> Floor <input type="checkbox"/> Fan convector			
External heat source <input type="checkbox"/> Solar <input type="checkbox"/> Gas <input type="checkbox"/> Oil <input type="checkbox"/> Wood <input type="checkbox"/> Pellets <input type="checkbox"/> Electricity			
Accessories <input type="checkbox"/> KWS <input type="checkbox"/> RBE SPLIT <input type="checkbox"/> RFV SPLIT <input type="checkbox"/> MG 2 SPLIT <input type="checkbox"/> VK 2 SPLIT <input type="checkbox"/> EP 2 SPLIT <input type="checkbox"/> Other.....			
Settings			
Enter deviations from default settings.			
Menu	Setting	Menu	Setting
.....
.....
.....
.....
Date _____ Signed _____			

General

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Rights to make any design or technical modifications are reserved.

Information about the installation

Product information

SPLIT is a complete modern heat pump system that offers effective energy saving and reduced carbon dioxide emissions.

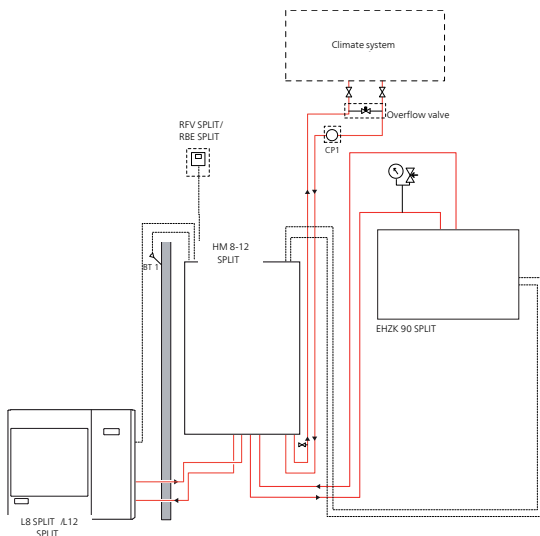
The heat is retrieved from the outdoor air by an outdoor module (L8 SPLIT/L12 SPLIT), where the refrigerant, which circulates in a closed system, transfers the heat from the heat source (outdoor air) to the indoor module (HM 8-12 SPLIT). This eliminates the need for boreholes and coils in the ground.

Features of SPLIT

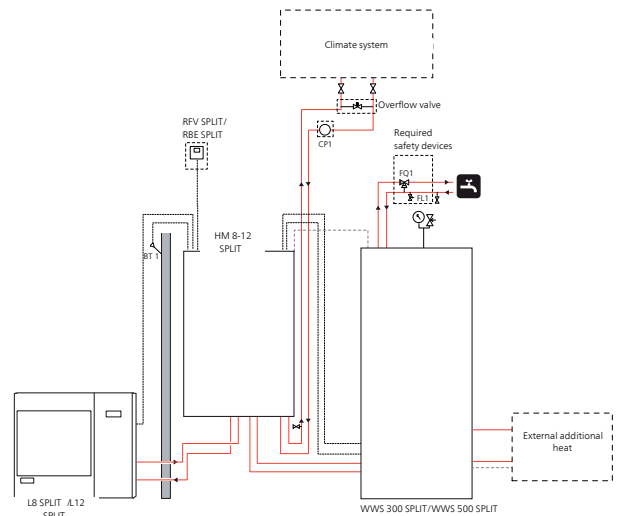
- Optimal annual heating factor thanks to the inverter controlled compressor.
- Outdoor unit with compact dimensions.
- Speed controlled circulation pump.
- Optimized operating costs. The speed of the compressor is adjusted according to the demand.
- Supplemented with the tanks EH2K 90 SPLIT, WWS 300 SPLIT or WWS 500 SPLIT for the indoor module HM 8-12 SPLIT and outdoor module, L8 SPLIT or L12 SPLIT.
- Integrated clock for scheduling extra hot water and temperature lowering/increasing the flow line temperature.
- Prepared for control of two climate systems.
- Integrated active cooling function.
- Possible to connect external heat sources.

Principle of operation SPLIT

System without hot water, only heating (cooling)



System heating (cooling) and hot water



Function

SPLIT is a system that can produce heating, hot water and cooling.

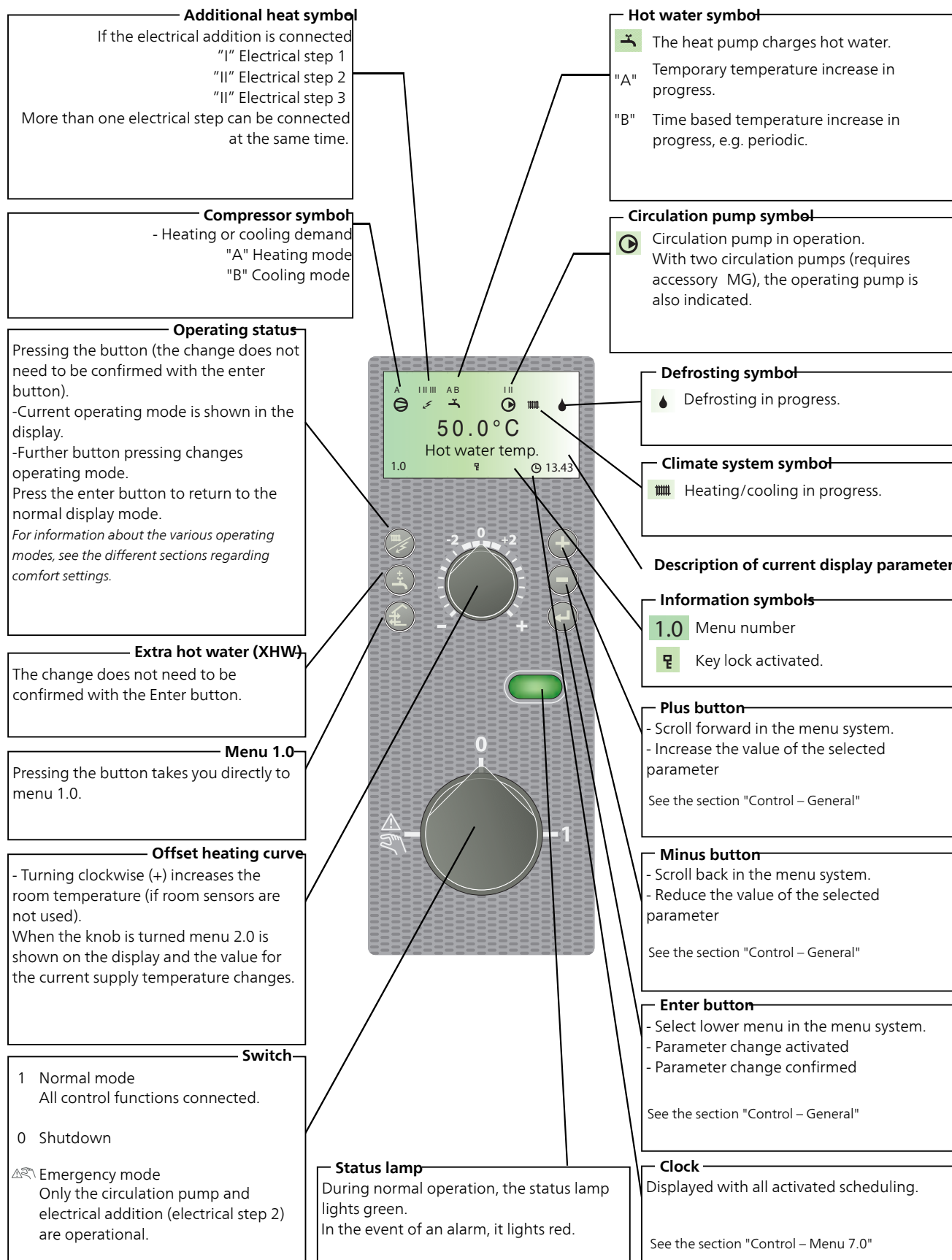
The principle during heating can be simplified as follows:

1. The refrigerant in L8 SPLIT/L12 SPLIT retrieves heat from the outdoor air then compresses it, which increases the temperature further.
2. The hot refrigerant (now in gas state) is routed into HM 8-12 SPLIT.
3. The refrigerant releases the heat for further distribution in the system.
4. The refrigerant (now in liquid state) is routed back to L8 SPLIT/L12 SPLIT and the process is repeated.

By reversing the process, thereby allowing the refrigerant in L8 SPLIT/L12 SPLIT to retrieve the heat from the water and release it into the outdoor air, the heat pump can, if necessary, cool instead.

HM 8-12 SPLIT determines when L8 SPLIT/L12 SPLIT is to work and not to work, using the collated data from the temperature sensor. In the event of extra heat demands, HM 8-12 SPLIT can connect additional heat in the form of the internal immersion heater, or any connected external addition.

Front panel, indoor module



How to use the front panel

All the most common settings are made from the panel as well as control computer instructions such as comfort etc. that you require the heat pump system to fulfil.

In order for the installation to be used optimally, certain basic settings must have been made (see page 9). In addition the installation in general must be carried out according to the instructions and manufacturer's recommendations.

Menu 1.0 (temperature in the water heater) is normally shown on the display.



The plus and minus buttons and the enter button are used to scroll through the menu system as well as to change the set value in some menus.



Menu types

Control is divided into different menu types depending on how "deep" into the controls you need to go.

- Normal [N]: The settings you as a customer often need.
- Extended [U]: Shows all detailed menus except the service menus.
- Service [S]: Shows all menus.


The menu type is changed from menu 8.1.1

Quick movement

To quickly return to the main menu from a sub menu, press one of the following buttons:



Key lock

A key lock can be activated in the main menus by simultaneously pressing the plus and the minus buttons. The key symbol will then be shown on the display. 

The same procedure is used to deactivate the key lock.

Comfort setting heating

General

The indoor temperature depends on several factors.

- Sunlight and heat emissions from people and household machines are normally sufficient to keep the house warm during the warmer parts of the year.
- When it gets colder outside, the climate system must be started. The colder it is outside, the warmer radiators and under floor heating systems must be.

Controlling heat production

Normally, the heat pump heats the water (heating medium) to the temperature required at a certain outdoor temperature. This occurs automatically on the basis of the collected temperature values from the outdoor temperature sensor and sensors on the lines to the climate system (flow line sensors). Extra accessories such as room temperature sensors, can influence the temperature.

However, the correct default settings must be made on the heat pump first, see the section "Default settings".

The temperature information that the outdoor sensor (mounted on an exterior wall of the house) sends to the heat pump's control computer senses variations in the outdoor temperature early on. It does not have to be cold inside the house before the control system is activated, as soon as the average outdoor temperature drops outside, the temperature of the water to the climate system (supply temp.) inside the house is increased automatically.

The heat pump's supply temperature (menu 2.0) will hover around the theoretical required value, which is in brackets on the display.

Temperature of the climate system

The temperature of the climate system in relation to the outdoor temperature can be modified by using the "Offset heating curve" knob on the heat pump's front panel.

Operating status



The "Operating mode" button is used to set the required operating mode with regard to permitting/blocking the circulation pump and additional energy.

The change does not need to be confirmed with the enter button.

The current operating mode is shown on the front panel display when the button is pressed and the mode changes when you continue to press the button.

The display returns to the normal display mode once the enter button is pressed.

The addition is only used for anti-freeze mode, if it is deactivated in the menu system. This applies to all operating modes.

The different operating modes are:

1. "Auto"
 - HM 8-12 SPLIT automatically selects the operating mode by taking the outdoor temperature into account. This means that the operating mode switches between "Heating" and "Hot water". Current operating mode is shown within brackets.
 - The circulation pump is permitted to operate when there is a need.
2. "AutoK"*
 - HM 8-12 SPLIT selects operating mode automatic (cooling can also be selected now) with regard to the outdoor temperature. This means that the operating mode switches between "Heating", "Cooling" and "Hot water".
 - The circulation pump is permitted to operate when there is a need.

3. "Heat" / "Heat addition"
 - Only heating and cooling produced.
 - The circulation pump is in operation the entire time.
 - If "Heat addition" is shown the addition is permitted to operate if necessary.
4. "Cooling"* / "Super cooling"
 - If addition is permitted, "Super cooling" is displayed. The compressor then only runs in cooling mode. Otherwise, the mode switches to cooling or producing hot water.
 - The circulation pump is in operation the entire time.
 - Hot water is only produced by the immersion heater.
5. "Hot water"
 - Only hot water is produced.
 - Only the compressor is operational.
6. "Add. heat only"
 - Compressor blocked. The function is activated by pressing in the "operating mode button" for 7 seconds.
7. Deactivate the function by pressing the "Operating mode" button for 7 seconds once again.

* To use the cooling functions, the system must be constructed to withstand low temperatures and "Cooling" must be activated in menu 9.3.3.

Changing the room temperature manually

If you want to temporarily or permanently increase or lower the indoor temperature turn the "Offset heating curve" knob clockwise or anticlockwise. One line approximately represents a 1 degree change in room temperature.

NOTE

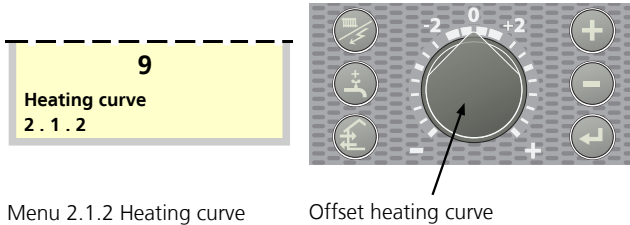
An increase in the room temperature may be inhibited by the radiator or underfloor heating thermostats, if so these must be turned up.

Default setting

The basic heating is set using menu 2.1.2 and with the "Offset, heating curve" knob.

If the required room temperature is not obtained, readjustment may be necessary.

If you do not know the correct settings use the basic data from the automatic heating control system diagram opposite.



Menu 2.1.2 Heating curve

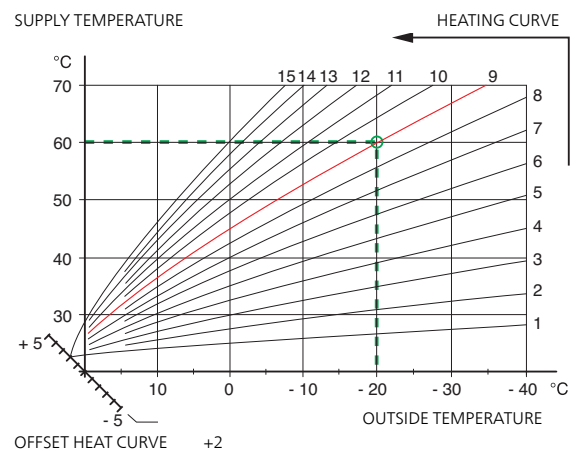
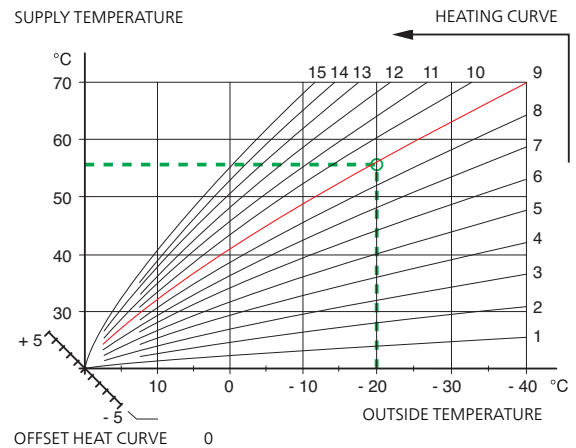
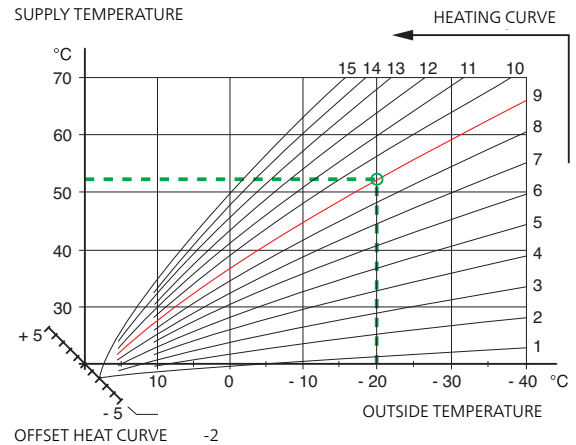
Offset heating curve

NOTE

Wait one day between settings so that the temperatures have time to stabilise.

Setting with diagrams

The diagram is based on the dimensioned outdoor temperature in the area and the dimensioned supply temperature of the climate system. When these two values "meet", the heating control's curve coefficient can be read. This is set under menu 2.1.2, "Heating curve". Limitations, which are not in the diagrams, are included in the control system's permitted min and max temperatures.



Readjusting the default settings

If the required room temperature is not obtained, readjustment may be necessary.

Cold weather conditions

- When the room temperature is too low, the "Heating curve" value is increased in menu 2.1.2 by one increment.
- When the room temperature is too high, the "Heating curve" value is decreased in menu 2.1.2 by one increment.

Warm weather conditions

- If the room temperature is low, increase the "Heating curve offset" setting by one step clockwise.
- If the room temperature is high, reduce the "Heating curve offset" setting by one step anti-clockwise.

Comfort setting cooling

General

The condition in order for cooling to be activated is that "On" is selected in menu 9.3.3 Cooling system.

NOTE

The climate system must manage cooling operation. Settings must be made by the installer when commissioning the system.

If a room sensor is connected, it starts and stops cooling together with the outdoor temperature. The lowest current supply temperature is set in menu 2.2.4.

Cooling operated from the outdoor sensor in operating mode AutoK

If the cooling system is set to "On" in menu 9.3.3 and the outdoor temperature is greater or equivalent to the set start temperature for cooling in menu 8.2.4, cooling starts.

Cooling stops when the outdoor temperature drops below the set value minus the set value in menu 8.2.5.

The current supply line temperature is determined from the selected cooling curve in menu 2.2.2 and the offset for cooling curve, menu 2.2.1. Limitations, which are not in the diagram, are included in the control system's permitted min temperature.

NOTE

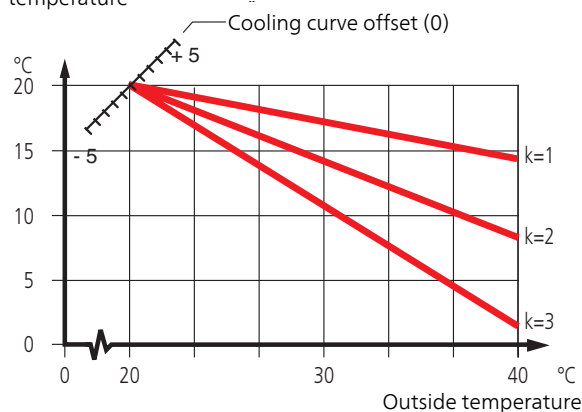
HM 8-12 SPLIT is condensation insulated for cooling operation down to a supply temperature of +7 °C.

Controlling cooling mode using the room sensor

If RFV SPLIT is present, the condition for cooling is that the room temperature has exceeded the set room temperature (menu 6.3) by the set value in menu 8.2.5 and that the outdoor temperature is equal to or exceeds the set outdoor temperature value (menu 8.2.4).

When the room temperature has dropped below the set room temperature in menu 6.3 by the set value in menu 8.2.5 or the outdoor temperature falls below the set value in menu 8.2.4 by the set value in menu 8.2.5, cooling switches off.

Calculated flow temperature



Comfort setting hot water

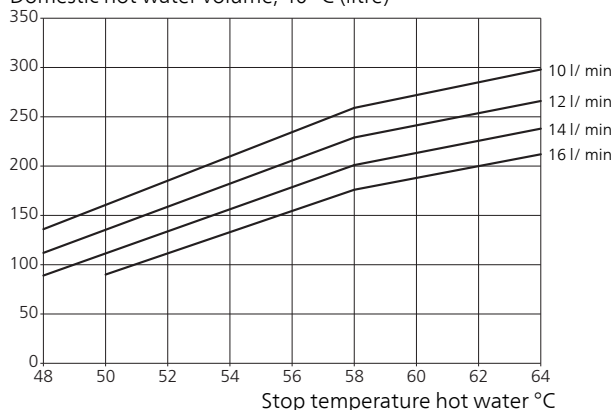
The water heaters are coil models and are heated by circulating water, which is heated by the heat pump.

During "normal" consumption it is enough to run the heat pump's compressor to supply the different tapping points of the house with hot water. The temperature of the hot water in the water heater then varies between the set values.

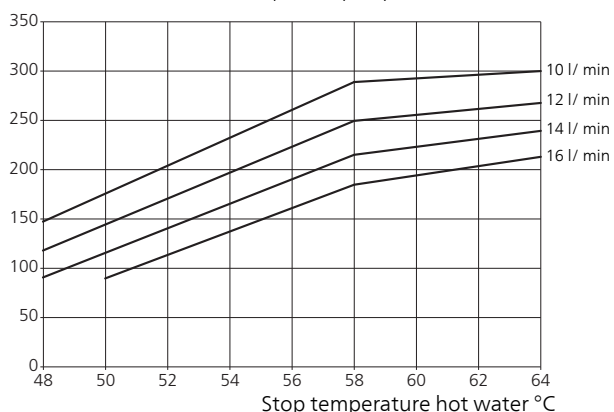
Under section 1.0 [N] Hot water temp. on page 53 there is a complete description of menu settings for hot water temperatures.

Available volume

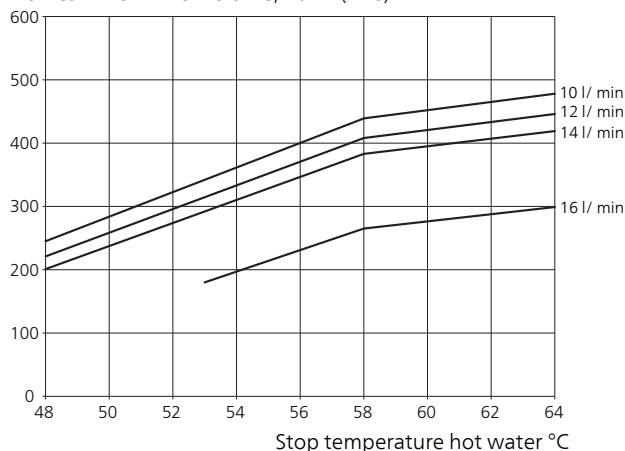
Domestic hot water volume, 40 °C (litre)



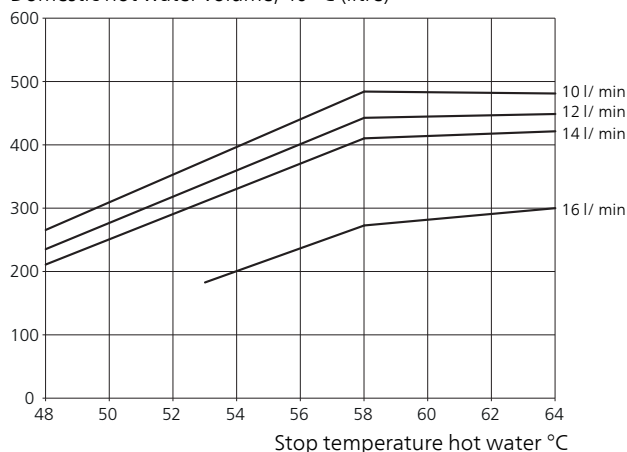
Domestic hot water volume, 40 °C (litre)



Domestic hot water volume, 40 °C (litre)



Domestic hot water volume, 40 °C (litre)



Prioritizing

If the water within the water heater requires heating, the heat pump prioritises this and shifts to hot water mode with the entire heat pump output.

In this mode, there is no heating or cooling.

Prioritizing can be affected via settings in the front panel.



See "1.0 [N] Hot water temp." on page 53.

Extra Hot Water

In all "Extra hot water" functions, the temperature of the hot water increases temporarily. The temperature is first increased to an adjustable level by the compressor (menu 1.5) and then the electric additional heat increases until the stop temperature is reached (menu 1.4).

Temporary "Extra hot water" is activated manually, whilst time based extra hot water is activated using the settings made in the control computer.

When:

- "A" appears above the  icon, temporary extra hot water is active.
- ""B" appears above the  icon, when time based extra hot water is active.

NOTE

"Extra hot water" usually means that the electrical addition has been activated and therefore increases the electrical consumption.

"Extra hot water" can be activated in three different ways:

1. **Periodic time based extra hot water**
 - Interval between increases is selected in menu 1.7. Menu 1.8 shows when the next increase is due.
 - The increased temperature is maintained by the electrical addition for one hour.
2. **Schedule time based extra hot water**
 - The start and stop times for the day of the week that the increase is required are set in the sub menus for menu 7.4.0.
 - The increased temperature is maintained by the electrical addition for the selected period.
3. **Temporary extra hot water**
 - The current "extra hot water" mode is shown on the display (A) when the button is pressed and by pressing the button again the mode changes between 3 hours and standby mode.
 - The increased temperature is maintained by the electrical addition until the period of time has expired.

Maintenance

HM 8-12 SPLIT and L8 SPLIT/L12 SPLIT require minimal maintenance after commissioning.

SPLIT contains many components and is why monitoring functions are integrated to help you.

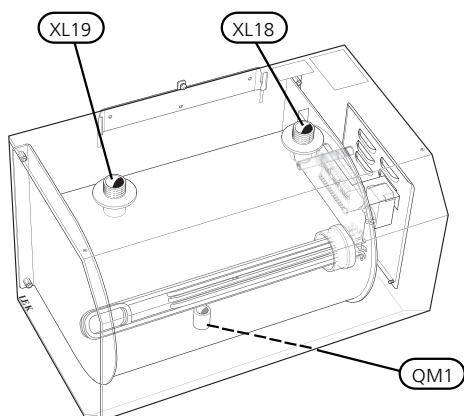
If something abnormal occurs, a message appears about malfunctions in the form of different "alarm" texts in display.

Checking the safety valves

The installation has been equipped with a safety valve for the water heater as well as a safety valve for the climate system by the installer.

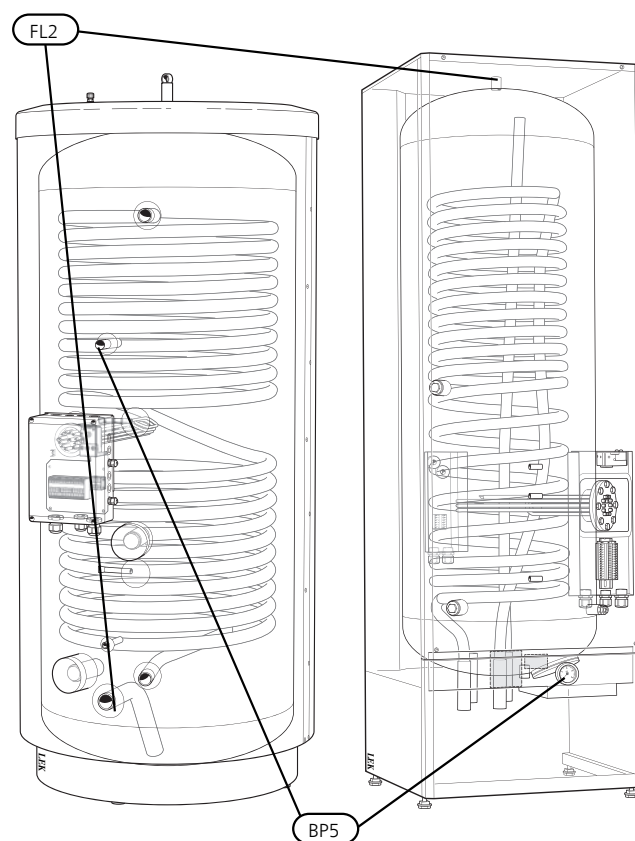
The climate system's safety valve

EHZK 90 SPLIT



The climate system's safety valve (FL2) is close to EHZK 90 SPLIT or by the hot water tank. See illustration.

VVS 300 SPLIT/VVS 500 SPLIT



The climate system's safety valve (FL2) must be completely sealed. Checks must be carried out regularly as follows:

- Open the valve.
- Check that water flows through the valve. If this does not happen, replace the safety valve.
- Close the valve again.
- The climate system may need to be refilled after checking the safety valve, see the section "Filling the climate system". Contact your installer for refilling the climate system.

Safety valve domestic water

The safety valve for domestic water sometimes releases a little water after hot water has been tapped. This is because the cold water, which enters the heater to replace the hot water, expands when heated causing the pressure to rise and the safety valve to open.

Also check the safety valve for domestic water regularly. The appearance and location of the safety valve differs between different installations. Follow the cold water pipe to locate the safety valve. Contact your installer for information.

Pressure gauge in EHZK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT

The working range of the climate system is normally 0.5 – 1.5 bar when the system is closed, depending on the height of the system. Check this on the pressure gauge (BP5).

Emptying the coil in the water heater

The water heater is of the coil type and the pressure in the domestic coil can be released by closing off the incoming water and opening the hot water tap. However, some water may remain in the domestic coil. Drain by removing the cold water connection XL3 on the water heater.

Emptying the vessel

Contact your installer if the vessel in EH2K 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT needs emptying.

Maintenance of L8 SPLIT/L12 SPLIT

L8 SPLIT/L12 SPLIT is equipped with control and monitoring equipment, however some exterior maintenance is still necessary.

Make regular checks throughout the year that the inlet grille is not clogged by leaves, snow or anything else. During the cold months of the year, check to make sure that there isn't a build up of ice or frost under L8 SPLIT/L12 SPLIT. Strong wind combined with heavy snowfall can block the intake and exhaust air grilles. Make sure that there is no snow on the grilles.

Also check that the condensation water drain under L8 SPLIT/L12 SPLIT is not blocked.

If necessary the outer casing can be cleaned using a damp cloth. Care must be exercised so that the heat pump is not scratched when cleaning. Avoid spraying water into the grilles or the sides so that water penetrates into L8 SPLIT/L12 SPLIT. Prevent L8 SPLIT/L12 SPLIT coming into contact with alkaline cleaning agents.



WARNING!

Rotating fan in L8 SPLIT/L12 SPLIT.

Saving tips

Your SPLIT installation produces heat and hot water according to your needs. It also attempts to carry out all requirements with all available "aids" from the control settings made.

The indoor temperature is naturally affected by the energy consumption. Therefore, take care not to set a temperature higher than necessary.

Other known factors that affect the energy consumption are, for example, hot water consumption and the insulation level of the house, as well as the level of comfort you require.

Also remember:

- Open the thermostat valves completely (except in the rooms that are to be kept cooler for various reasons, e.g. bedrooms).

Thermostat valves in the radiators and floor loops can negatively affect the energy consumption. They slow the flow in the climate system, which the heat pump wants to compensate with increased temperatures. It then works harder and consumes more electrical energy.

Dealing with comfort disruption

Use the following list to find and remedy any heating or hot water problems.

Symptom	Cause	Action
Low hot water temperature or a lack of hot water.	Circuit or main MCB tripped.	Check and replace blown fuses.
	Heat pump and immersion heater do not heat.	Check and replace any blown circuit and main fuses.
	Possible earth circuit-breaker tripped.	Reset the earth circuit-breaker, if the earth circuit-breaker trips repeatedly, call an electrician.
	Switch(SF1) set in 0 mode.	Set the switch to 1.
	Large hot water demand.	Wait a few hours and check if the hot water temperature rises.
	Too low start temperature setting on the control system.	Adjust the start temperature setting in menu 1.2.
Low room temperature.	Possible earth circuit-breaker tripped.	Reset the earth circuit-breaker, if the earth circuit-breaker trips repeatedly, call an electrician.
	Heat pump and immersion heater do not heat.	Check and replace any blown circuit and main fuses.
	Incorrect setting of "Curve slope", "Heating curve, offset" and/or "Cooling curve, offset".	Adjust the setting.
	Circuit or main MCB tripped.	Check and replace blown fuses.
	Heat pump in incorrect operating mode "Hot water" or "Cooling".	Change operating mode to "Auto" or "AutoK".
	The current limiter has restricted the current because many power consumers are being used in the property.	Switch off one/several of the power consumers.
High room temperature.	Incorrect setting of "Curve slope", "Heating curve, offset" and/or "Cooling curve, offset".	Adjust the setting.
	Heat pump in incorrect operating mode.	Change operating mode to "AutoK".
	Incorrect settings for cooling.	Adjust the settings. Check menu 2.2.1, 2.2.2 and 8.2.4.
The compressor does not start.	Minimum time between compressor starts, alternatively time after power switch on not achieved.	Wait 30 minutes and check if the compressor starts.
	Alarm tripped.	See section "Alarms".
	Alarm cannot be reset.	Activate operating mode "Only additional heat".
Display not lit.		Check and replace any blown circuit and main fuses.
		Check that the circuit breaker to the indoor unit is not off.
		Check that the switch (SF1) is in normal position (1).

Operating mode "Add. heat only"

In the event of malfunctions that cause a low indoor temperature, you can normally activate "Add. heat only" in HM 8-12 SPLIT, which means that heating only occurs with the immersion heater.



Activate the mode by holding in the operating mode

button  for 7 seconds.

Note that this is only a temporary solution, as heating with the immersion heater does not make any savings.

Deactivate the function by pressing the "Operating mode" button for 7 seconds once again.

Emergency mode

Emergency mode is activated by setting the switch to "". It is used when the control system and, thereby, operating mode "Add. heat only" does not function as it should. Emergency mode is activated by setting switch (SF1) to "".

The following applies in emergency mode:

- The front panel is not lit and the control computer in HM 8-12 SPLIT is not connected.
- A power step of 4 kW is connected. The immersion heater is controlled by a separate thermostat (BT30).
- The automatic heating control system is not operational, so manual shunt operation is required. Call installer.

Alarm indications

There are many monitoring functions integrated in SPLIT to alert you to any malfunctions, the control computer transmits alarm signals that can be read from the front panel display.

What happens when an alarm appears on my system?

- The background lighting in the display starts flashing and the status lamp lights red.
- Compressor alarms and outdoor sensor errors change the operating mode to "Anti freeze" and reduce the supply temperature to the minimum permitted temperature to notify you that something is wrong.

Different types of alarms

- Alarms with automatic reset (do not need to be acknowledged when the cause has disappeared).
- Existing alarms that require corrective action by you or the installer.
- A complete list of alarms is on page 65.

Recommended actions

1. Read off which alarm has occurred from the heat pump's display.
2. As a customer you can rectify certain alarms. See the table below for relevant actions. If the alarm is not rectified, or is not included in the table, contact your installer.

Alarm text on the display	Alarm description	Check/remedy before installers/service technicians are called
LP-LARM	Tripped low pressure pressostat.	Check that the thermostats for the radiators/under-floor heating systems are not closed (only during cooling operation).
HP-LARM	Tripped high pressure pressostat.	Check that the thermostats for the radiators/under-floor systems are not closed. If cooling is in progress: Check that the air flow to L8 SPLIT/L12 SPLIT is not obstructed.
OU power failure / OU Com. error	Outdoor unit not powered / Communication cut	Check that any circuit breakers to the outdoor unit are not off.
Display not lit.		Check and replace any blown circuit and main fuses. Check that the circuit breaker to the indoor unit is not off. Check that the switch (SF1) is in normal position (1).

Acknowledging alarms

No harm in acknowledging an alarm. If the cause of the alarm remains, the alarm recurs.

- When an alarm has been triggered, it can be acknowledged by switching HM 8-12 SPLIT off and on using the switch (SF1). Note that when the power is switched on there is a 30 minute delay before the heat pump restarts. Alternatively, the alarm can be acknowledged in menu 9.7 (service menu).
- When the alarm cannot be reset using the switch (SF1), the operating mode, "Add. heat only", can be activated to return to a normal temperature level in the house. This is most easily carried out by holding the "Operating mode" button pressed in for 7 seconds.
- Deactivate the function by pressing the "Operating mode" button for 7 seconds once again.

NOTE

Recurring alarms mean that there is a fault in the installation.

Contact your installer!

General information for the installer

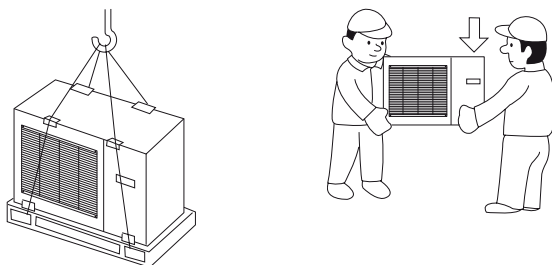
Transport and storage

Outdoor module L8 SPLIT/L12 SPLIT

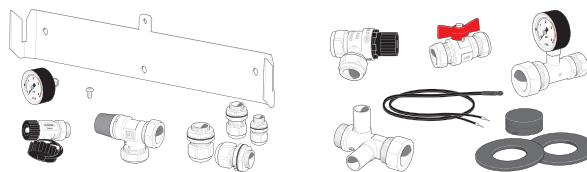
L8 SPLIT/L12 SPLIT should be transported and stored vertically.

If the heat pump is to be lifted using lifting straps without packaging, protect as illustrated.

The right-hand side of the heat pump (seen from the front) is heavier.

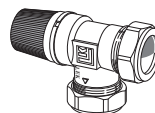


EHZK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT



Enclosed kit EHZK 90 SPLIT

Enclosed kit WWS 500 SPLIT



Safety valve WWS 300 SPLIT

The enclosed kits are located behind the front service cover in HM 8-12 SPLIT, in the cardboard box on EHZK 90 SPLIT and taped under the tank on WWS 300 SPLIT and on the pallet by WWS 500 SPLIT.

HM 8-12 SPLIT

HM 8-12 SPLIT can be transported horizontally on its back and must be stored horizontally and in dry conditions.

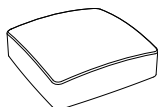
EHZK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT tanks

WWS 300 SPLIT and WWS 500 SPLIT must be transported and stored vertically in a dry place.

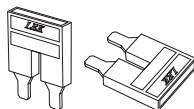
EHZK 90 SPLIT must be transported and stored in a horizontal position in a dry place.

Supplied components

HM 8-12 SPLIT



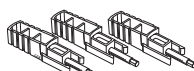
Outside sensor



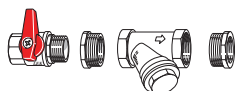
Straps for single phase connection



Current sensor, 3-phase



Keys for the actuator motors



Particle filter and shut-off valve

Assembly

Outdoor module L8 SPLIT/L12 SPLIT

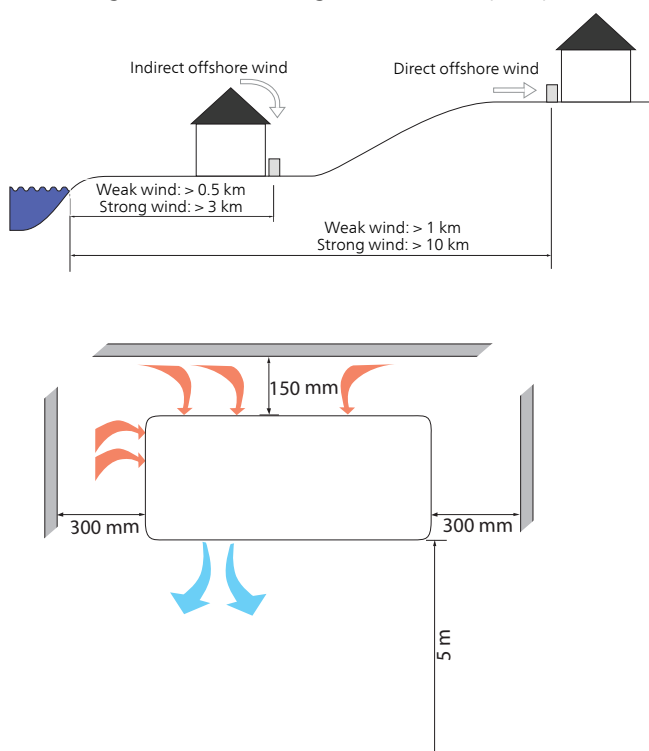
Position L8 SPLIT/L12 SPLIT outdoors secured to a firm surface, preferably a concrete foundation on a ground stand near walls, or on a wall mounting.

It must be positioned so that the lower edge of the evaporator is at the level of the average local snow depth, however a minimum of 200 mm. L8 SPLIT/L12 SPLIT should not be positioned next to noise-sensitive walls, for example, next to a bedroom. Also ensure that the location does not inconvenience the neighbours. Care must be exercised so that the heat pump is not scratched during installation.

Large amounts of condensation water as well as melt water from defrosting can be produced. Provide good drainage at the installation area and make sure water cannot run out onto paths or the like during periods that ice can form.

The distance between L8 SPLIT/L12 SPLIT and the house wall must be at least 150 mm. Ensure that there is at least one metre of free space above L8 SPLIT/L12 SPLIT. **L8 SPLIT/L12 SPLIT must not be placed so that recirculation of the outdoor air is possible. L8 SPLIT/L12 SPLIT must not be placed in a windy location where it is exposed to direct strong winds. This reduces output and impairs efficiency and also has a negative effect on the defrosting function.**

For wall installation, ensure that vibrations do not affect the inside of the house. Also ensure that the wall and mounting can take the weight of the heat pump.



- It is recommended that HM 8-12 SPLIT is installed in a room with existing floor drainage, most suitably in a utility room or boiler room.
- Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.
- Ensure that there is approx. 500 mm free space in front of and 220 mm above the product for any future service.

EHZK 90 SPLIT

- It is recommended that tank EHZK 90 SPLIT is installed in a room with existing floor drainage, most suitably in a utility room or boiler room.
- Hang the tank with its back to an outside wall, ideally in a room where noise does not matter. If this is not possible, avoid placing it against a wall behind a bedroom or other room where noise may be a problem.
- Secure the wall bracket (enclosed) to a wall of a suitable material. Hook the tank onto the wall bracket. Install the enclosed screw in the upper hole on the wall bracket to hold the tank in place.
- Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.
- Ensure that there is approx. 500 mm free space in front of, 600 mm to the right and 220 mm above the product for pipework and any future service. Ensure that there is sufficient space for the drain valve under the tank.
- EHZK 90 SPLIT is provided with a manometer, a drainage valve and a safety valve. The safety valve (FL2) should be installed as close to the tank as possible. The drainage valve should be positioned at the lowest point. The location of the manometer (BP5) is less sensitive.

WWS 300 SPLIT, WWS 500 SPLIT

- It is recommended that the water heater is installed in a room with existing floor drainage, most suitably in a utility room or boiler room.
- The surface must be firm, preferably a concrete floor or foundation.
- The unit can be aligned using the adjustable feet.
- Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.
- Ensure that there is approx. 500 mm free space in front of and 220 mm above the water heater for any future service.

Dimensioning expansion vessel

HM 8-12 SPLIT is equipped with a membrane expansion vessel on 18 l. A larger expansion vessel may be required depending on installation. The expansion vessel must be dimensioned for every installation. If a larger expansion vessel is required, the existing expansion vessel can be shut off.

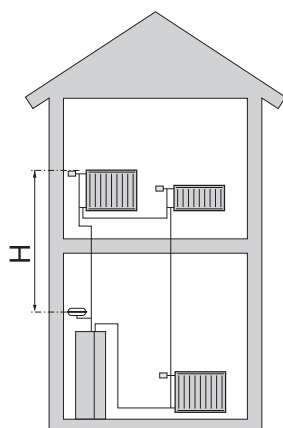
Volume per component	
HM 8-12 SPLIT	4 l
EHZK 90 SPLIT	30 l
WWS 300 SPLIT	300 l
WWS 500 SPLIT	500 l

Initial pressure and max height difference

The pre-pressure of the pressure expansion vessel must be dimensioned according to the maximum height (H) between the vessel and the highest positioned radiator, see figure. A pre-pressure of 0.5 bar (5 mvp) means a maximum permitted height difference of 5 m.

If the standard initial pressure in the pressure vessel is not high enough it can be increased by filling via the valve in the expansion vessel. The expansion vessel's standard initial pressure must be entered in the check list on page 42.

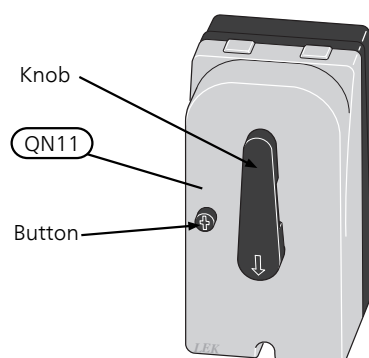
Any change in the initial pressure affects the ability of the expansion vessel to handle the expansion of the water.



Manual shunting

When HM 8-12 SPLIT is set to emergency mode, the heating control system is not in operation, and manual shunt operation is required.

1. Press and lock the button on (QN11).
2. Turn the mixing valve to the desired position by hand.



Emptying the vessel

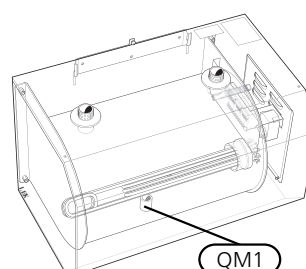
The vessel in EHZK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT is emptied by opening the valve (QM1) and safety valve (FL2).

NOTE

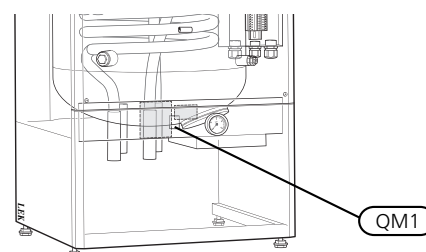
When WWS 300 SPLIT/WWS 500 SPLIT is emptied via the valve (QM1), some water will remain in the coil and in HM 8-12 SPLIT.

This means that there is a risk of the heat exchanger, pipes and valves freezing at low temperatures as well as a hygienic risk for the coil in the hot water section.

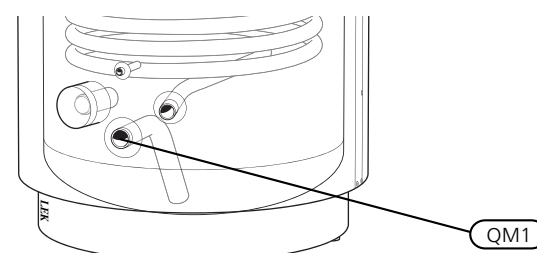
EHZK 90 SPLIT



WWS 300 SPLIT



WWS 500 SPLIT



Recommended installation order

1. Connect HM 8-12 SPLIT to the climate system and to the tank. Connect cold and hot water lines as well as any external heat sources to the tank. See page 24. Also see docking descriptions on page 29 and further on.
2. Install the refrigerant pipes according to the description on page 25.
3. Connect the load monitor, outdoor temperature sensor, any centralised load control and external contacts as well as the cable between HM 8-12 SPLIT, the water heater and L8 SPLIT/L12 SPLIT. See page 35.
4. Connect supply to HM 8-12 SPLIT. See page 33.
5. Follow the commissioning instructions on page 40.

Pipe installation

General

Pipe installation must be carried out in accordance with current norms and directives. HM 8-12 SPLIT can work at a temperature up to 65 C. For best savings, we recommend that the climate system be dimensioned for max 55 C.

HM 8-12 SPLIT is not equipped with shut-off valves. These must be installed outside the indoor module to facilitate any future servicing.

HM 8-12 SPLIT can be connected to the radiator system, floor heating system and/or fan convectors.

Overflow valve

NOTE

A free flow is required for all docking options, which means that an overflow valve must be installed.

System requirements

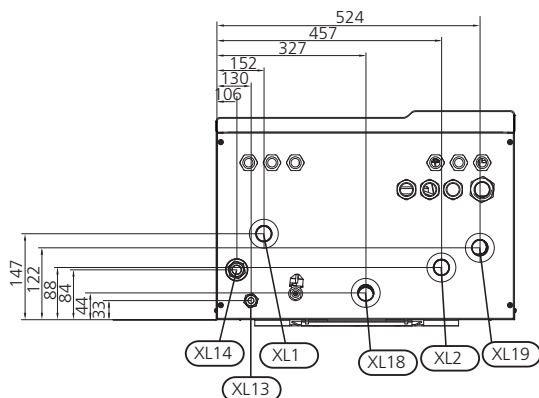
This is required for minimum configuration:

For correct function the volume of the climate system must comply with the installation requirements, see page 29. If this is not fulfilled a volume vessel needs to be installed. WPSK 40SPLIT/WTPSK 100SPLIT.

For more options, see the docking description on page 29.

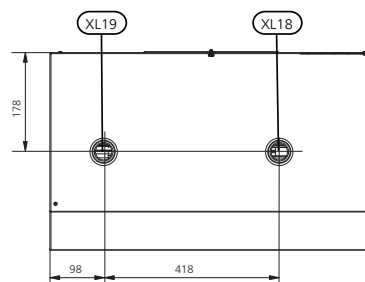
Dimensions and pipe connections

HM 8-12 SPLIT



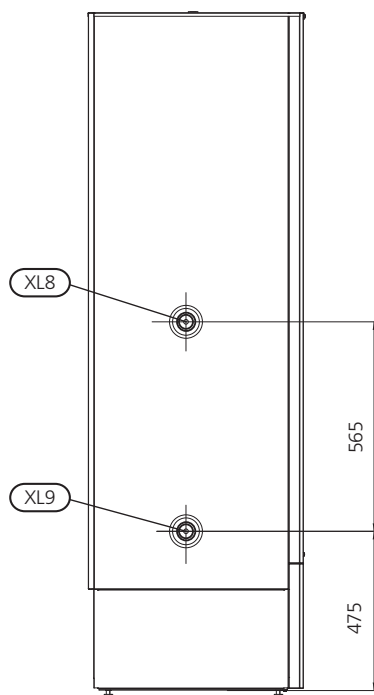
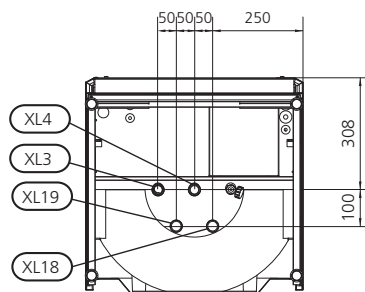
- XL1 Climate system, flow Ø 28 mm
- XL2 Climate system, return Ø 28 mm
- XL13 Liquid line refrigerant, flare 3/8"
- XL14 Gas line refrigerant, flare 5/8"
- XL18 Connection, Circulation
- XL19 Connection, Circulation

EHZK 90 SPLIT



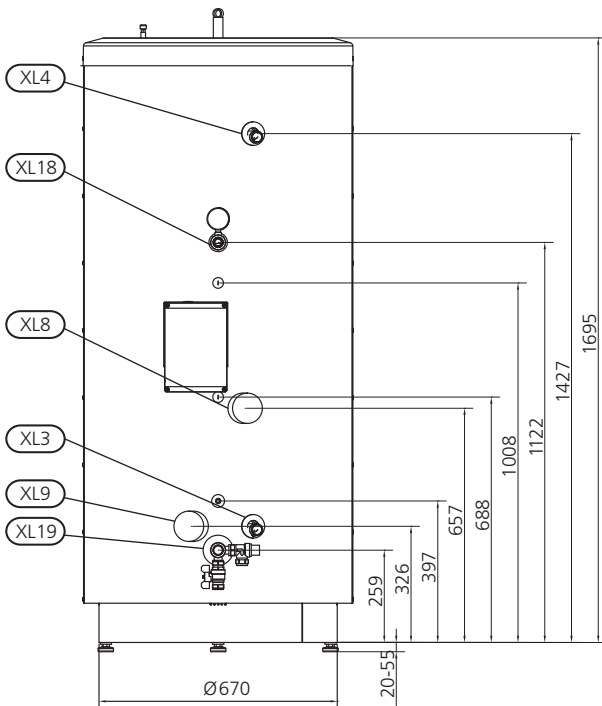
- XL18 Connection, Circulation
- XL19 Connection, Circulation

WWS 300 SPLIT



- XL3 Connection, Cold water
- XL4 Connection, Hot water
- XL8 Connection, Docking, in heating medium
- XL9 Connection, Docking, out heating medium
- XL18 Connection, Circulation
- XL19 Connection, Circulation

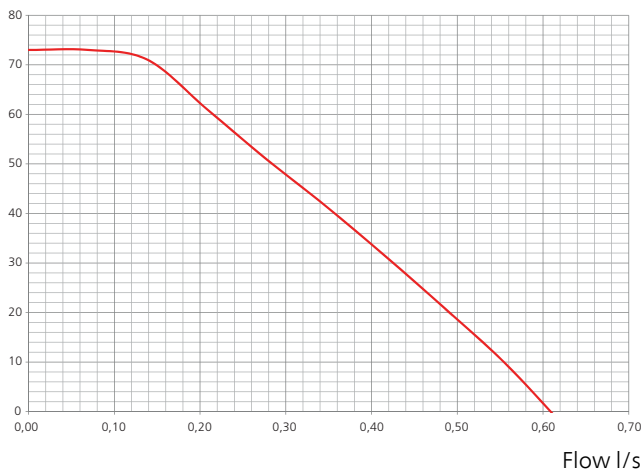
WWS 500 SPLIT



- XL3 Connection, Cold water
- XL4 Connection, Hot water
- XL8 Connection, Docking, in heating medium
- XL9 Connection, Docking, out heating medium
- XL18 Connection, Circulation
- XL19 Connection, Circulation

Pump capacity diagram

Available pressure (kPa)



The diagram shows max. performance. This can be restricted in menu 2.0.

Connection of extra circulation pump

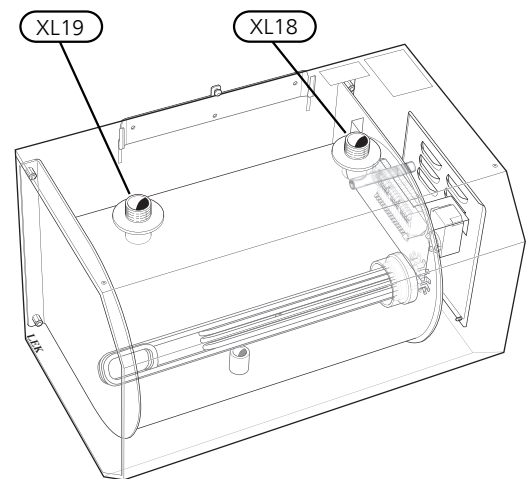
When connecting additional circulation pump GP10, to achieve a higher flow capacity, see alternative "Underfloor heating systems" on page 31. Respective maximum flows must not be exceeded.

Connecting HM 8-12 SPLIT to tank

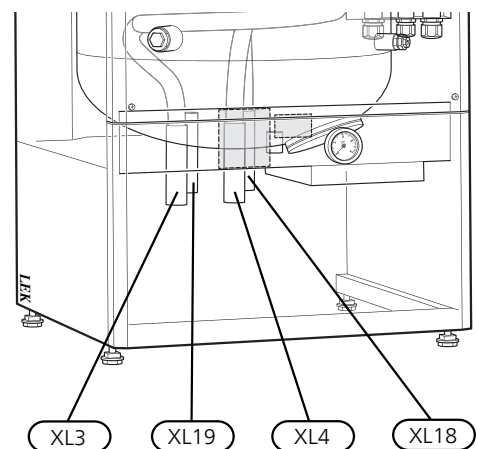
It is necessary to connect a water heater or a tank to HM 8-12 SPLIT. Pipe connections for the climate system are made at the bottom of HM 8-12 SPLIT.

- The tank EHJK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT and pipework for HM 8-12 SPLIT must be installed indoors where the temperature does not fall below 15 °C.
- Maximum pipe length between HM 8-12 SPLIT and EHJK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT is 10 m.
- Connection (XL 18) on HM 8-12 SPLIT connected to the tank's terminal block connection (XL 18).
- Connection (XL 19) on HM 8-12 SPLIT connected to the tank's terminal block connection (XL 19).
- EHJK 90 SPLIT is hung on the wall. WWS 300 SPLIT/WWS 500 SPLIT must be placed on a firm surface, preferably a concrete floor.
- WWS 300 SPLIT/WWS 500 SPLIT level can be adjusted with the help of the adjustable feet.
- Ensure that there is approx. 500 mm free space in front of and 220 mm above EHJK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT for any future service.

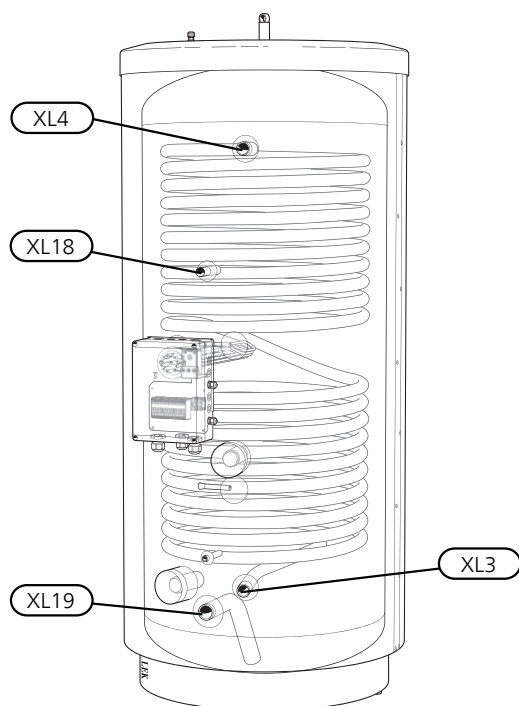
EHJK 90 SPLIT



WWS 300 SPLIT



WWS 500 SPLIT



Connecting the climate system

- Connect HM 8-12 SPLIT pipe connections (XL1) and (XL2) to the climate system.

NOTE

The term "Climate system" which is used in these installation and maintenance instructions regards heating or cooling systems from HM 8-12 SPLIT for heating or cooling.

Connecting the hot water heater

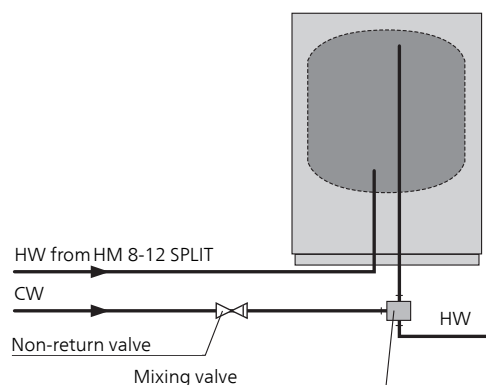
The water heater (WWS 300 SPLIT/WWS 500 SPLIT) must be supplied with the necessary set of valves.

- There must be a mixer valve if the temperature exceeds 60 °C.
- The safety valve must have a maximum 10.0 bar opening pressure and be installed on the incoming domestic water line according to outline diagram. The entire length of the overflow water pipe from the safety valves must be inclined to prevent water pockets and must also be frost proof.
- See section Dockings on page 29 for outline diagram.

Extra water heater with immersion heater

The heat pump should be supplemented with an electric water heater, if a hot tub or other significant consumer of hot water is installed.

If the water heater is equipped with a valve connector Ø 15 mm this should be replaced with a corresponding Ø 22 mm.



Connection of external heat source

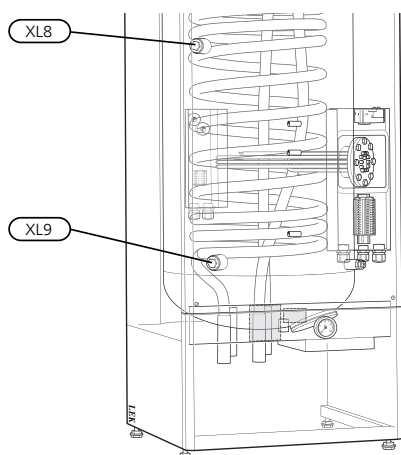
Connect an external heat source such as gas or oil boiler to (XL8) (in) and (XL9) (out) on WWS 300 SPLIT/WWS 500 SPLIT (dimension G1 internal). Remove any insulation covering the connections to release them.

Also see Installation requirements on page 29.

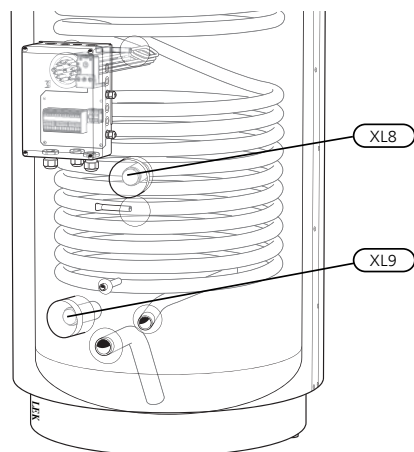
NOTE

Make connections at a 45° angle.

WWS 300 SPLIT

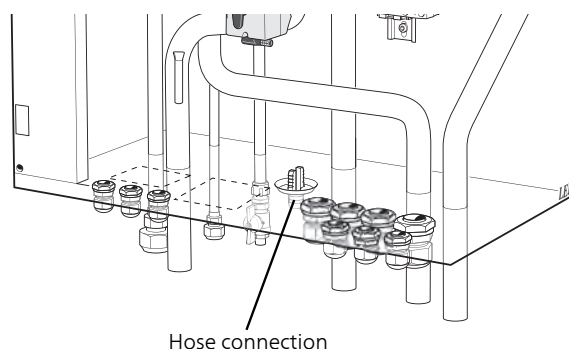


WWS 500 SPLIT



Waste exchanger part

HM 8-12 SPLIT is equipped with a hose connection at the bottom. A hose can be connected if required.



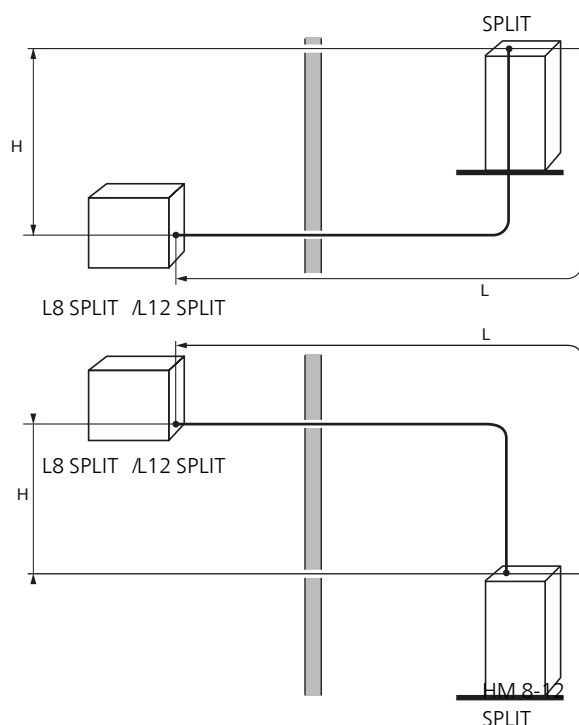
Connecting refrigerant pipes (not supplied)

Install the refrigerant pipes between the outdoor module L8 SPLIT/L12 SPLIT and HM 8-12 SPLIT.

Installation must be carried out in accordance with current norms and directives.

L8 SPLIT/L12 SPLIT limitations

- Maximum pipe length, L8 SPLIT and L12 SPLIT (L): 30m.
- Maximum height difference (H): ± 7 m.



Pipe installation

Pipe dimensions and materials

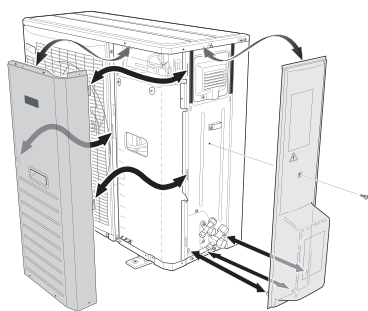
	Gas pipe	Liquid pipe
Pipe dimension	Ø15.88 mm (5/8")	Ø9.52 mm (3/8")
Connection	Flare - (5/8")	Flare - (3/8")
Material	Copper quality SS-EN 12735-1 or C1220T, JIS H3300	
Minimum material thickness	1.0 mm	0.8 mm

Pipe connection

- Perform pipe installation with the service valves (QM35, QM36) closed.

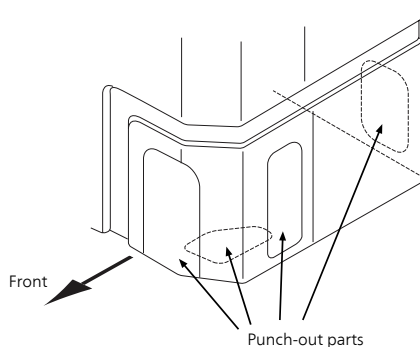
L8 SPLIT

Remove the side panel on L8 SPLIT/L12 SPLIT during installation to facilitate access.



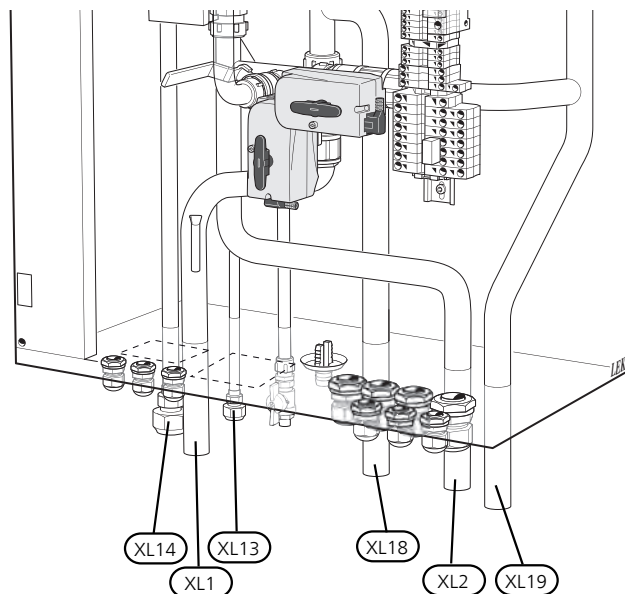
L12 SPLIT

Remove a "punch-out" part from the outer panel on L8 SPLIT/L12 SPLIT, where the pipes are to be routed. The image below, shows possible pipe outlets.



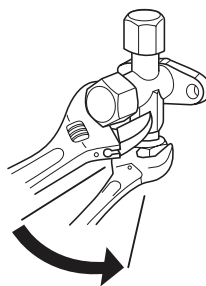
HM 8-12 SPLIT

The image below, shows possible pipe outlets.



- Ensure that water or dirt does not enter the pipes.
- Bend the pipes with as large a radius as possible (at least R100~R150). Do not bend a pipe repeatedly. Use a bending tool.
- Connect the flare connector and tighten to the following torque. Use the "Tightening angle" if a torque wrench is not available.

Outer diameter, copper pipe (mm)	Tightening torque (Nm)	Tightening angle (°)	Recommended tool length (mm)
Ø9.52	34~42	30~45	200
Ø15.88	68~82	15~20	300

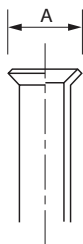


NOTE

Gas shielding must be used when soldering.

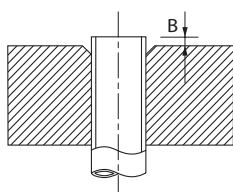
Flare connections

Expansion:



Outer diameter, copper pipe (mm)	A (mm)
Ø9.52	13.2
Ø15.88	19.7

Ejection:



Outer diameter, copper pipe (mm)	B, with an R410A tool (mm)	B, with a conventional tool (mm)
Ø9.52	0.0~0.5	0.7~1.3
Ø15.88		

(Follow instructions for the tool used.)

Pressure test and leak test

Both HM 8-12 SPLIT and L8 SPLIT/L12 SPLIT are pressure tested and leak tested at the factory, but the pipe connections between the products must be checked after installation.

NOTE

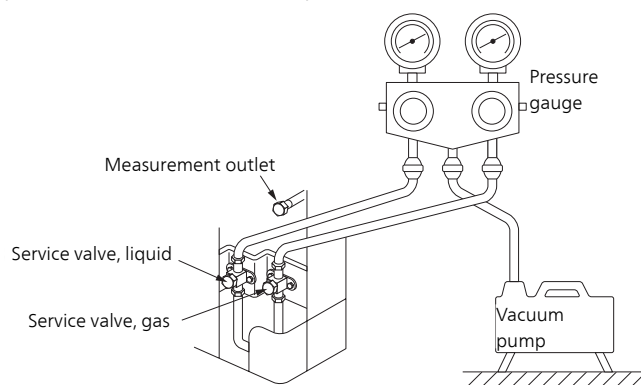
The pipe connection between the products must be pressure tested and leak tested according to the applicable regulations after installation.

Under no circumstances must a type of medium other than nitrogen be used when pressurising or flushing the system.

Vacuum pump

Use a vacuum pump to evacuate all air. Apply suction for at least one hour and end pressure after evacuation must be 1 mbar (100 Pa, 0.75 Torr or 750 micron) absolute pressure.

If the system has remaining moisture or a leak, the vacuum pressure will rise after completed evacuation.



TIP

For a better end result and to quicken the evacuation, the following points must be followed.

- *The connection lines must be as large and short as possible.*
- *Evacuate the system down to 4 mbar and fill the system with dry nitrogen to atmospheric pressure to the finish the evacuation.*

Filling refrigerant

NOTE

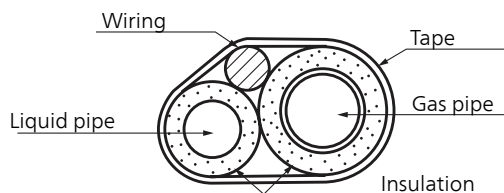
For installations with refrigerant pipes up to 15 m in length, no extra refrigerant in addition to the provided amount needs to be added.

When carrying out pipe connections, pressure tests, leak tests and vacuuming, the service valves (QM35, QM36) can be opened, to fill the pipes and HM 8-12 SPLIT with refrigerant.

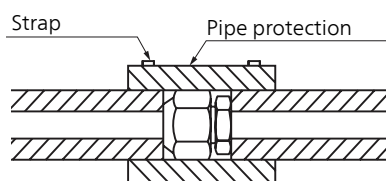
Insulating refrigerant pipes

- Insulate refrigerant pipes (both gas and liquid pipes) for heat insulation and to prevent condensation.
- Use insulation that can withstand at least 120 °C. Poorly insulated pipes can cause insulation related problems and unnecessary cable wear.

Principle:



Connections:



Dockings

General

SPLIT can be connected in several different ways, some of which are shown on the following pages.

Installation requirements

	L8 SPLIT	L12 SPLIT
Max pressure, climate system	0.25 MPa (2.5 Bar)	
Highest recommended supply/return temperature at dimensioned outdoor temperature	55/45 °C	
Max temperature in HM 8-12 SPLIT	+65 °C	
Max flow line temperature with compressor	+58 °C	
Min supply temperature cooling, HM 8-12 SPLIT	+7 °C/+18 °C	
Max supply temp. cooling	+25 °C	
Min volume, climate system during heating, cooling*	50 l	80 l
Min volume, climate system during under floor cooling*	80 l	100 l
Max flow, climate system	0.38 l/s	0.57 l/s
Min flow, climate system, 100 % circulation pump speed (defrosting flow)	0.19 l/s	0.29 l/s
Min flow, heating system	0.12 l/s	0.15 l/s
Min flow, cooling system	0.16 l/s	0.20 l/s












Docking external addition	WWS 300 SPLIT	WWS 500 SPLIT
Output external addition	9–27 kW	
Recommended docking flow	0.17–0.33 l/s	

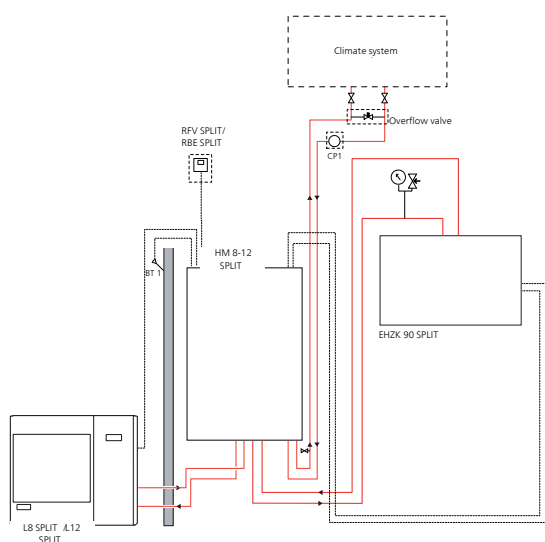
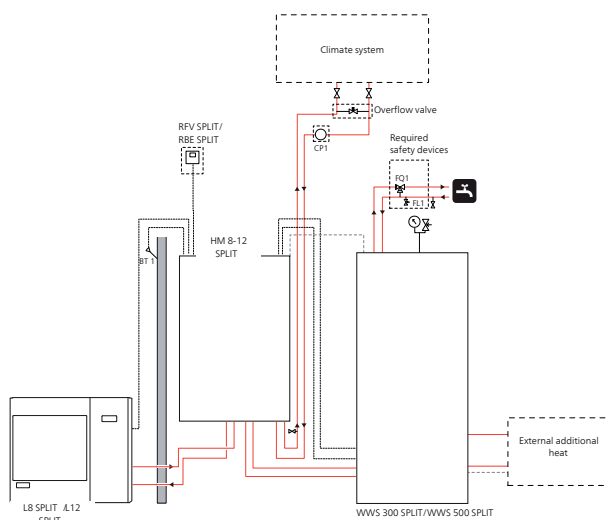
* Regards circulating volume.

External circulation pump must be used when the pressure drop in the system is greater than the available external pressure. In such cases, a bypass line with non-return valve must be installed.

Overflow valve must be used if min. system flow cannot be guaranteed.

Symbol key

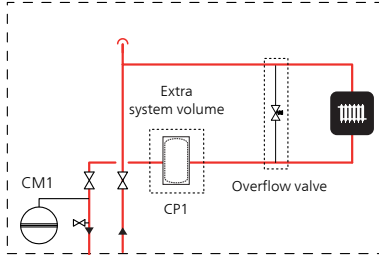
Symbol	Meaning
	Venting valve
	Shut-off valve
	Non-return valve
	Control valve
	Safety valve
	Temperature sensor
	Expansion vessel
	Pressure gauge
	Circulation pump
	Shunt / shuttle valve
	Fan

SPLIT with climate system and any addition**NOTE**

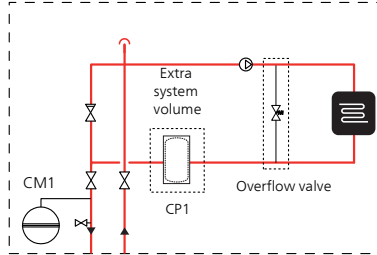
These are outline diagrams. Actual installations must be planned according to applicable standards.

Climate system

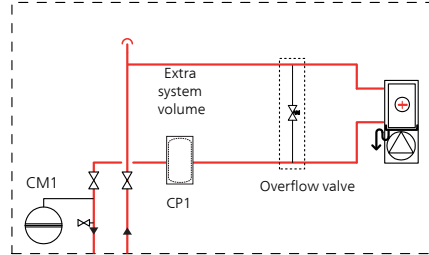
Radiator system



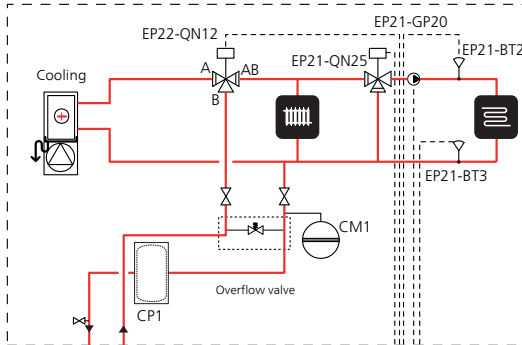
Under floor heating systems



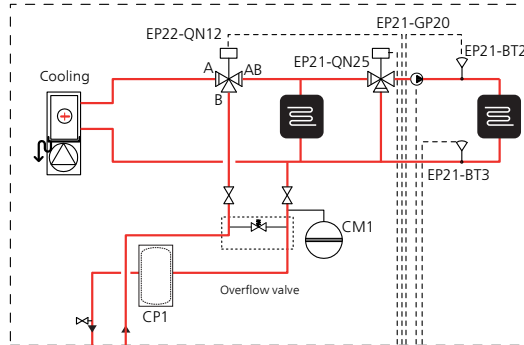
Fan convector system



Radiator and under floor heating for heating as well as fan convector system for cooling



Double under floor heating system for heating and fan convector for cooling



Explanation

EP21 Climate system 2

- BT2 Temperature sensor, flow pipe
- BT3 Temperature sensor, return
- GP20 Circulation pump
- QN25 Shunt valve

EP22 Climate system 3

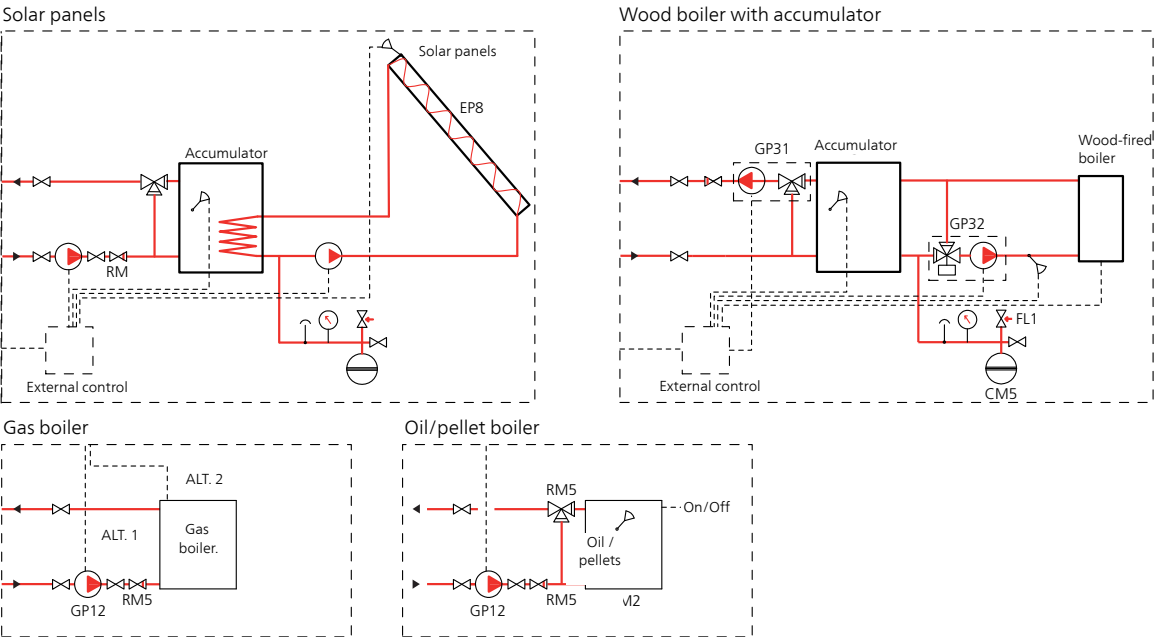
- QN12 Reversing valve, cooling/heating
- Miscellaneous**
- BT1 Temperature sensor, outdoor
- CM1 Expansion vessel

CP1 Buffer vessel WPSK

GP12 Charge pump

RM Non-return valve

External additional heat



Explanation

- | | | | | | |
|-----|-------------------|------|---------------------------------------|------|--------------------------------------|
| CM5 | Expansion vessel | EM2 | Oil/Pellet boiler | GP32 | Pump station, limits low temperature |
| CP1 | Accumulator tank | FL1 | Safety valve | HQ | Particle filter |
| EB1 | Immersion heater | GP12 | Charge pump | RM5 | Non-return valve |
| EM1 | Wood-fired boiler | GP31 | Pump station, limits high temperature | | |

Electrical installation

General

HM 8-12 SPLIT must be installed via a circuit breaker with a minimum breaking gap of 3mm.

Other electrical equipment, except the outdoor sensors, current sensors and outdoor module L8 SPLIT/L12 SPLIT is already connected at the factory.

- Disconnect the indoor module HM 8-12 SPLIT and outdoor module L8 SPLIT/L12 SPLIT before insulation testing the house wiring.
- For fuse ratings, see technical data, "Fuse protection".
- If the building is equipped with an earth-fault breaker, HM 8-12 SPLIT should be equipped with a separate one.
- Connection must not be carried out without the permission of the electricity supplier and under the supervision of a qualified electrician.
- 5.G2.5 mm² cable must be used for the connection between HM 8-12 SPLIT and L8 SPLIT/L12 SPLIT.
- Cables must be routed so that they are not damaged by metal edges or trapped by panels.
- L8 SPLIT/L12 SPLIT is equipped with a single phase compressor. This means that phase L3 is loaded with up to 15 A during compressor operation.

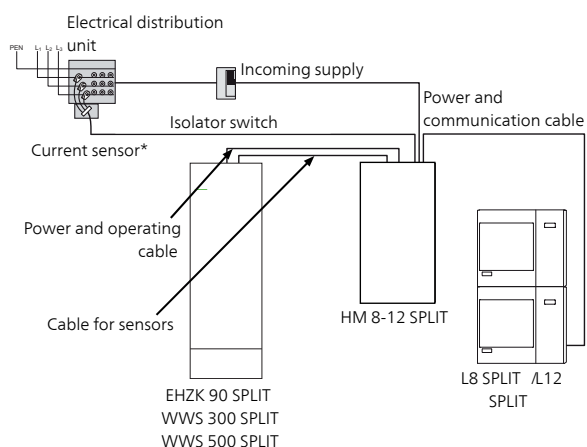
NOTE

Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

NOTE

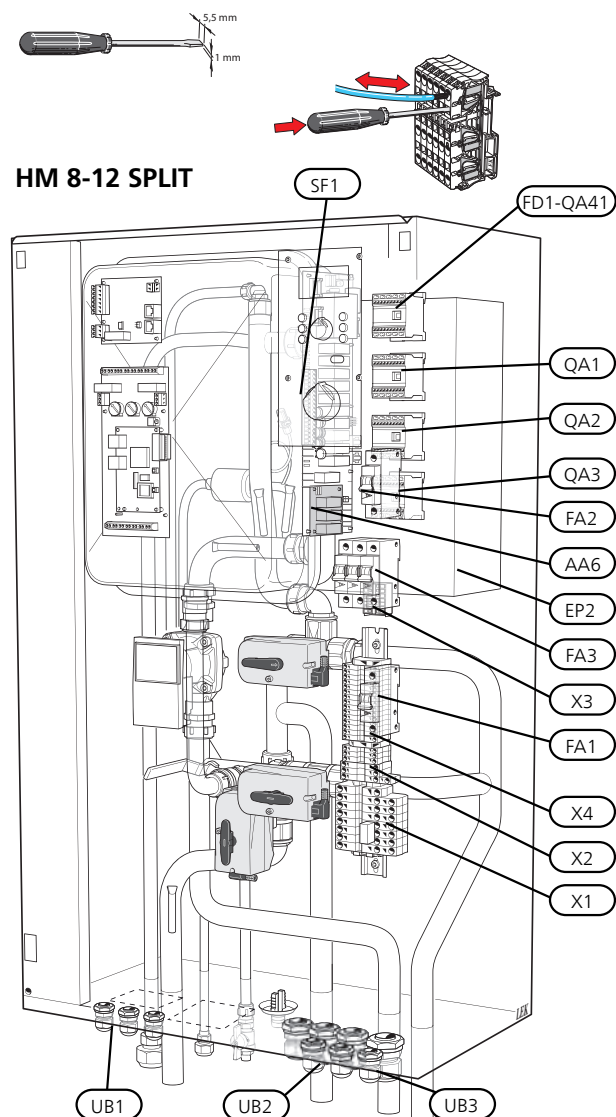
The switch (SF1) must not be moved to "1" or "Δ" until the boiler has been filled with water. The circulation pump and immersion heater may be damaged.

Principle diagram, electrical installation

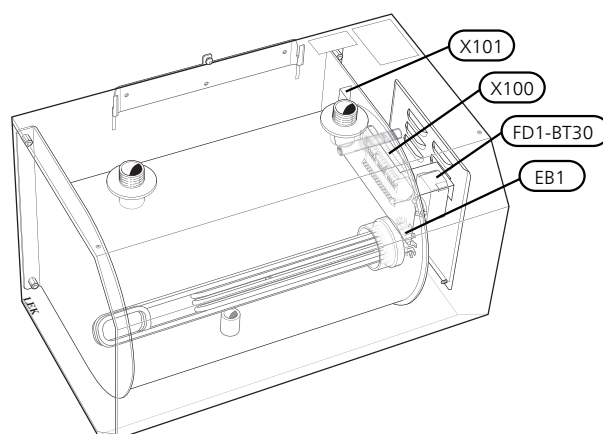


* Only in a 3-phase installation.

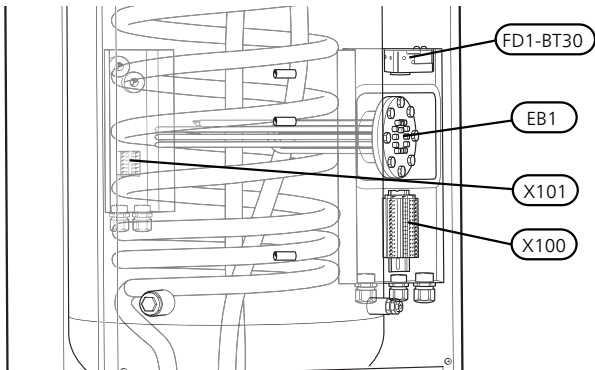
Electrical components



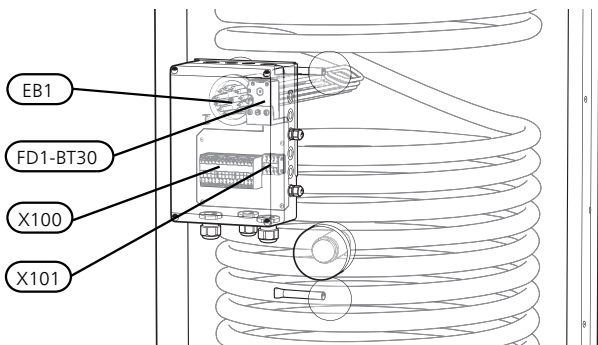
EHZK 90 SPLIT



WWS 300 SPLIT



WWS 500 SPLIT



Explanation

Designation	Type	Scale length of conductor (mm)
UB1,2,3	Cable gland	-
X1	Terminal block, incoming mains supply	18
X2	Terminal block, L8 SPLIT/L12 SPLIT	14
	Terminal block, communication, L8 SPLIT/L12 SPLIT	12
X3	Terminal block, external addition	9
X4	Terminal block, external immersion heater and temperature limiter/thermostat emergency mode FD1-BT30.	12
X100	Terminal block	12
X101	Terminal block	9
SF1	Switch	-
FA1	Miniature circuit breaker, control system	-
FA2	Miniature circuit breaker, outdoor unit	-
FA3	Miniature circuit breaker, external immersion heater	-

Connecting the supply

Incoming electricity supply must be connected to terminal block (X1) in HM 8-12 SPLIT via cable gland (UB1). The cable must be dimensioned according to the applicable norms.

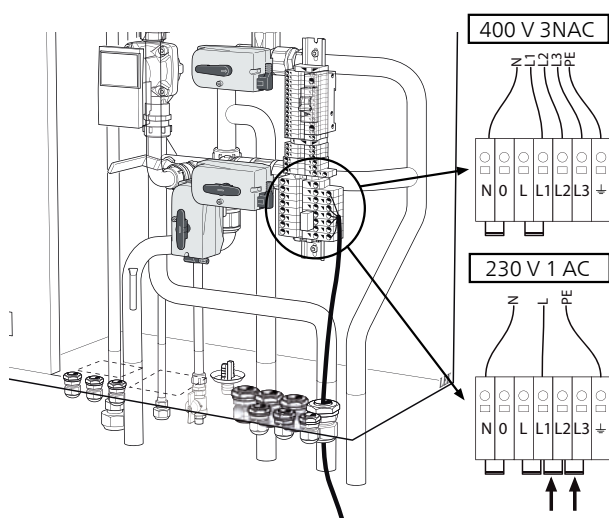
HM 8-12 SPLIT can be connected with either 400 V 3NAC or 230 V 1AC.

400 V 3NAC: Connect incoming supply according to the markings on terminal block (X1).

NOTE

Depending on the house's main fuse and to avoid the load monitor slowing down the compressor, other loads in the house should be moved from L3 to L1 and L2.

230 V 1AC: Install the enclosed straps between terminal blocks L1 and L2 as well as between L2 and L3 on incoming terminal block (X1). Connect supply according to the terminal block markings.



Miniature circuit-breaker

The automatic heating control system, circulation pumps and their wiring in HM 8-12 SPLIT, are internally fuse protected with a miniature circuit breaker (FA1).

Outdoor module L8 SPLIT/L12 SPLIT and equipment are internally fuse protected in HM 8-12 SPLIT, by a miniature circuit breaker (FA2).

Temperature limiter

The temperature limiter (FD1) cuts the current supply to the electrical addition if the temperature rises between 90 and 100 °C and can be manually reset.

Resetting

The temperature limiter/emergency mode thermostat (FD1-BT30) is located in the tanks' electrical connections. The temperature limiter is reset by firmly pressing in its button.

NOTE

Reset the temperature limiter, it may have tripped during transport.

Connection between HM 8-12 SPLIT and L8 SPLIT/L12 SPLIT

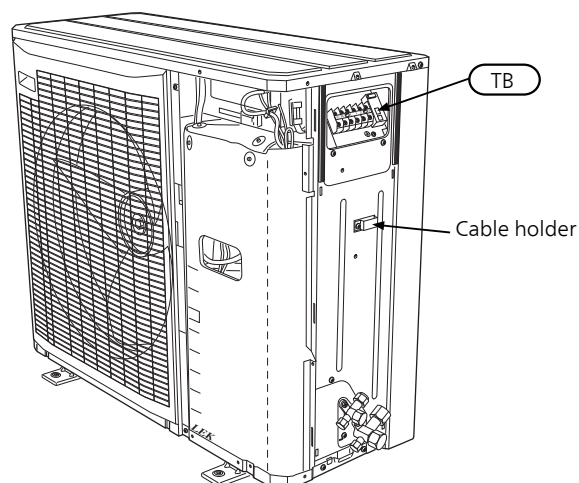
NOTE

L8 SPLIT/L12 SPLIT must be earthed before the wiring between the units is connected.

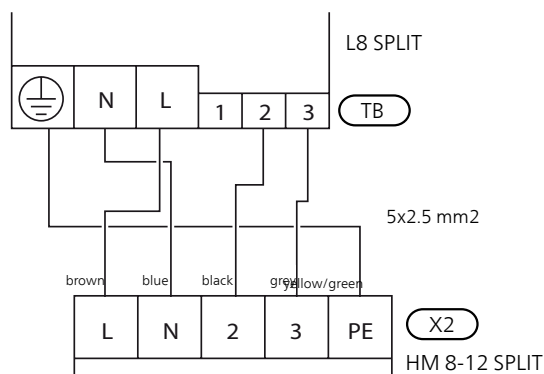
The wiring must be attached so that the terminal block is not put under stress.

Stripped length of conductor is 8 mm.

L8 SPLIT

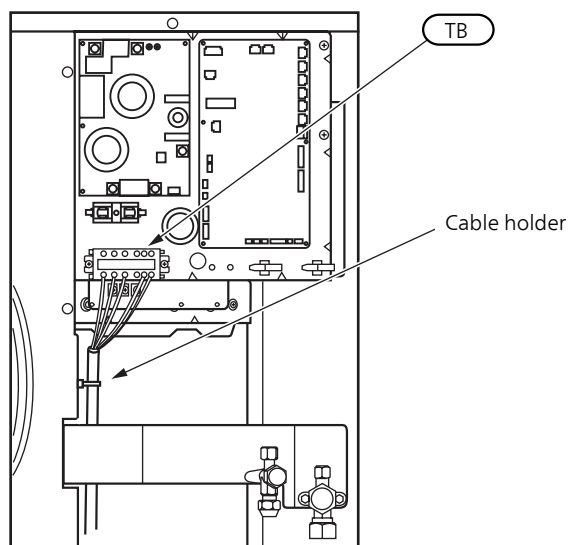


Connect phase (brown), neutral (blue), communication (black and grey) as well as earth (yellow/green) as illustrated:

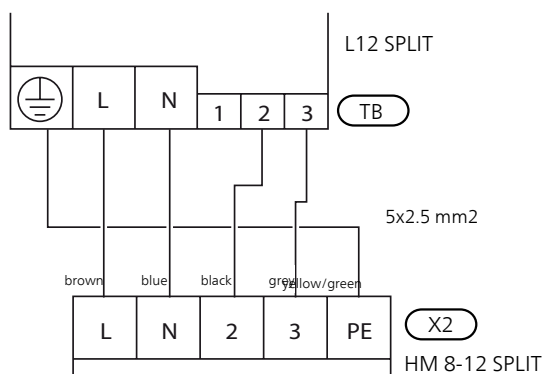


Electrical installation

L12 SPLIT



Connect phase (brown), neutral (blue), communication (black and grey) as well as earth (yellow/green) as illustrated:

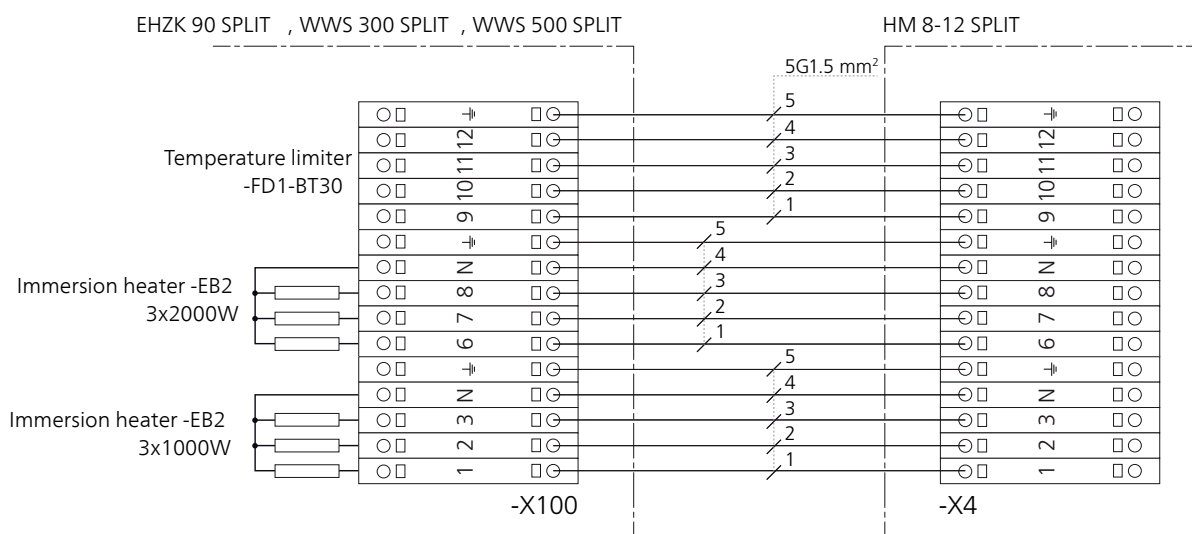


Connection between HM 8-12 SPLIT and EHZK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT

The cable between the units must be connected between terminal block for outgoing electricity (X4) in HM 8-12 SPLIT and terminal block X100 in EHZK 90 SPLIT, WWS 300 SPLIT, WWS 500 SPLIT.

Stripped length of conductor is 12 mm.

Connection between HM 8-12 SPLIT and



Setting max power, electrical addition

Setting the different maximum immersion heater outputs is performed using the knob (R25) on the load monitor board (AA22). Set value displayed in menu 8.3.2. The following table only applies when menu 9.2.8 Add. heat type is set to "Internal power 1" (factory setting).

Immersion heater, output (kW)	Knob position	Max. electric power	L1 (A)	L2 (A)	L3 (A)	
					Compressor on	Compressor off
0.0	-	0	0	0	15	0
2.0	-	1	5.3	4.3	15	0
4.0	A	2	9.7	8.7	15	0
6.0	B	3	14	13	15	0
9.0	C	4	14	13	-	13

Setting max boiler temperature

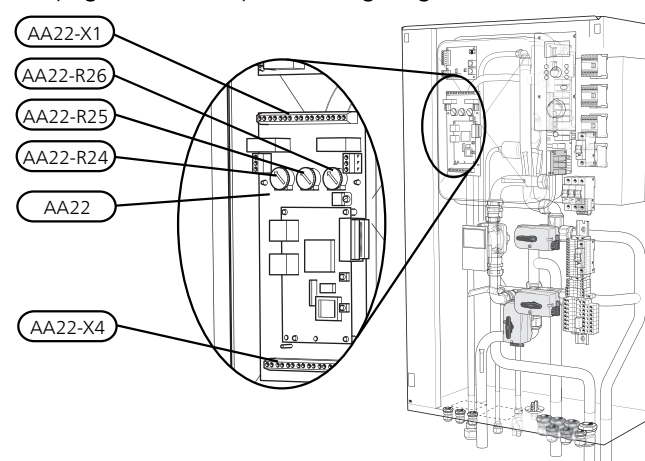
The setting of the different maximum boiler temperatures is made on the knob (R26) on the load monitor board (AA22). Set value is displayed in menu 9.3.1.

Boiler temperature	Knob position
55	A
60	B
65	C
65	D
65	E
65	F

EBV board, terminal and wiring diagram

The following connections are made on the EBV board (AA22).

See page 70 for complete wiring diagram of board.



Connecting the outside sensor

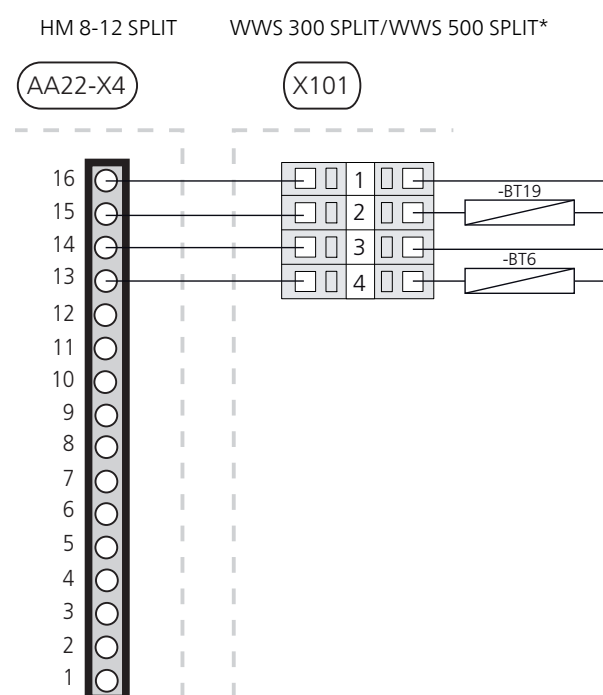
Install the outdoor temperature sensor (BT1) in the shade on a wall facing north or north-west, so it is unaffected by the morning sun for example. Connect the sensor to terminal block X1:1 and X1:2 on the load monitor board (AA22) via cable grommet UB4. Use a 2 core cable of at least 0.5 mm².

If the outside sensor cable runs close to power cables, shielded cable must be used.

If a conduit is used it must be sealed to prevent condensation in the sensor capsule.

Connecting the temperature sensor hot water charging

The water sensor (BT6) and immersion heater sensor (BT19) are located on EHZK 90 SPLIT/WWS 300 SPLIT/WWS 500 SPLIT and are connected using a cable between HM 8-12 SPLIT (terminal block AA22-X4) and E (terminal block X101). Use a 4-core cable of at least 0.5 mm² cable area.



*The hot water sensor (BT6) is not used in EHZK 90 SPLIT.

Connecting the current limiter

NOTE

Only applies to 3X400V.

When many power consumers are connected in the property at the same time as the electric addition is operating, there is a risk of the property's main fuse tripping. HM 8-12 SPLIT is equipped with an integrated current limiter that controls the electrical steps and the compressor. If necessary, the electrical steps are disengaged and/or the compressor frequency is reduced.

A current sensor should be installed on each incoming phase conductor in to the distribution box to measure the current. The distribution box is an appropriate installation point.

Connect the current sensors to a multi-core cable in an enclosure next to the distribution box. Use unscreened multi-core cable of at least 0.50 mm², from the enclosure to HM 8-12 SPLIT.

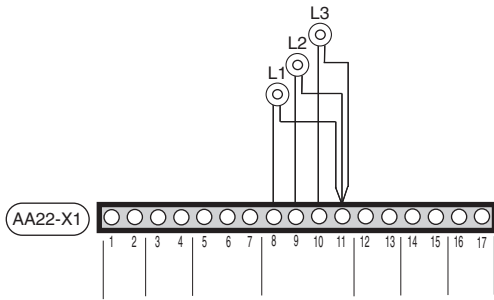
In HM 8-12 SPLIT connect the cable to the load monitor board (AA22) on terminal block X1:8–11.

L1 connects to X1:8 and X1:11.

L2 connects to X1:9 and X1:11.

L3 connects to X1:10 and X1:11.

X1:11 is the common terminal block for the three current sensors.



The size of the property's main fuse is set using the knob (R24) on the circuit limiter board, (AA22). The setting can be read in menu 8.3.1.

Connection of centralised load control/tariff

In those cases centralised load control or tariff control is used this can be connected to the terminal block (X1) on the EBV board (AA22), which is positioned behind the front cover.

Tariff A, the electric additional heat is disconnected. Connect a potential-free contact function to terminal block X1:5 and X1:7.

Tariff B, the compressor in L8 SPLIT/L12 SPLIT has to be disconnected. Connect a potential-free contact function to terminal block X1:6 and X1:7.

Tariff A and Tariff B can be combined.

A closed contact results in the electrical output being disconnected.

Connecting external contacts

RFV SPLIT, sensor for changing the room temperature

An external sensor (BT50) can be connected to HM 8-12 SPLIT to change the supply temperature and in this way change the room temperature, for example, a room sensor (RFV SPLIT, accessory). Connect the sensor to the terminal block from X4:1 to X4:3 on the load monitor board (AA22).

Activated in menu 9.3.6.

The difference between the room temperature and the set room temperature affects the supply temperature. The desired room temperature is set using the knob on RFV SPLIT and is shown in menu 6.3.

Contact for changing the room temperature

Climate system 1:

An external contact function can be connected to HM 8-12 SPLIT to change the supply temperature and, in this way, change the room temperature, for example, a room thermostat or a timer. The contact must be potential-free and non-locking and must be connected to terminal block X1:3 and X1:4 on the load monitor board (AA22).

When the contact is closed, the offset heating curve is changed by the number of steps selected. The value is adjustable between -10 and +10. The value for the change is set in menu 2.4, "External adjustment".

Climate system 2:

An external contact function can be connected to HM 8-12 SPLIT to change the supply temperature and, in this way, change the room temperature, for example, a room thermostat or a timer. The contact must be potential-free and non-locking and must be connected to terminal block X1:14 and X1:15 on the load monitor board (AA22).

When the contact is closed, the offset heating curve is changed by the number of steps selected. The value is adjustable between -10 and +10. The value for the change is set in menu 3.5, "External adjust. 2".

Contact for activation of "Extra hot water"

An external contact function can be connected to HM 8-12 SPLIT to activate "Temporary extra hot water" function. The contact must be potential-free and non-locking and connected to terminal block X6:1 and X6:2 on the load monitor board (AA22).

When the contact is closed for at least one second, the "Temporary Extra hot water" function is activated. An automatic return to the previously set function occurs after 3 hours.

Alarm outputs

External indication of common alarms is possible by means of the relay function on the load monitor board (AA22), terminal block X2:1–2.

Electrical circuit diagram on page 70 shows the relay in the alarm position.

When switch (SF1) is in the "0" or "Δ" position the relay is in the alarm position.

Docking specific connection

HM 8-12 SPLIT is prepared to control an external circulation pump (GP10), external shunt (QN11), exchange valve for cooling (QN12), as well as external additional heat e.g. oil, gas or pellets.

External circulation pump (max 50W)

External circulation pump (GP10) is connected to terminal block X3:1 (230 V), X3:4 (N) and X3:5 (PE).

The circulation pump (GP10) is active when the circulation pump (GP1) in HM 8-12 SPLIT is active.

The accessory HS SPLIT can be used if the connection output exceeds 50W. See section Component positions on page 78.

External shunt (accessory)

Connection and function are described in the Installation instructions for accessory MG2 SPLIT.

Shuttle valve, cooling (accessory)

Connection and function are described in the Installation instructions for accessory VK2 SPLIT.

External additional heat

HM 8-12 SPLIT can control an external addition.

Sensor BT19 must be moved to sensor output BT24 between the docking connections XL8 and XL9 on the tank (does not apply to solar power or wood fired docking). See section Component positions on page 78.

Ext. 1 step

1. Remove the strap on terminal block X3:2 and X3:3.
See section Component positions on page 78 and section Electrical circuit diagram on page 70.
2. Connect the additional heat's phase to terminal block X3:2 (230 V) and X3:4 (N) (max 0.2 A).
3. Use the accessory HS SPLIT when the need for potential for signal and/or when controlling external charge pumps.
4. Set "Ext. 1 step" in menu 9.2.8.

Start-up and inspection

Preparations

Connect L8 SPLIT/L12 SPLIT to HM 8-12 SPLIT (refrigerant pipe and wiring) and connect HM 8-12 SPLIT to the climate system.

Filling the climate system

1. Ensure that the pressure gauge (BP5) is visible.
2. Connect a hose to the filling valve (QM1) and open the valve to fill the
3. After a while note that the pressure on the
4. When the pressure has reached about 0.25 MPa (2.5 bar) the safety valve (FL2) starts to release air mixed with water. Close the filling valve (QM1).

Venting the climate system

Bleed HM 8-12 SPLIT via the vent valve (QM20), and the rest of the climate system via the relevant vent valves.

Keep topping up and venting until all air has been removed and the correct pressure has been obtained.

Filling the hot water coil

The hot water coil is filled by opening a hot water tap.

Commissioning

NOTE

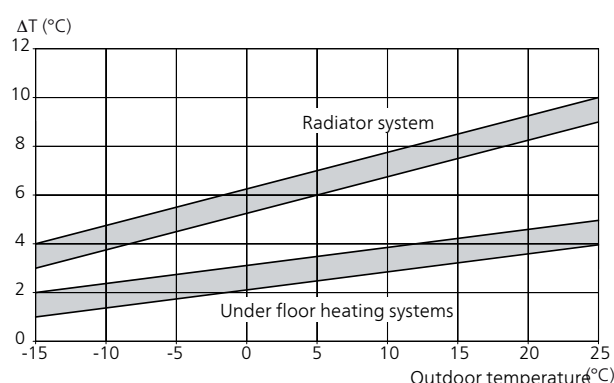
Do not start L8 SPLIT/L12 SPLIT at outdoor air temperatures of -20 °C or less.

1. Check that the miniature circuit breaker (FA2) in HM 8-12 SPLIT is on.
2. Check that the temperature limiter (FD1) has not tripped.
3. Switch on the circuit breaker and check that the miniature circuit breaker (FA1) in HM 8-12 SPLIT is on.
4. Set switch (SF1) to "1" (the switch should be switched on 6 hours before the compressor can be started).
When switch (SF1) is set to "0" - wait at least 1 minute before setting it back to "1".
5. Select operating mode "Add. heat only" by holding in the operating mode button for 7 seconds).
6. Set the date and time in menu 7.1 and 7.2.
7. Select "Service" in menu 8.1.1.
8. Select additional heat type in menu 9.2.8.
9. Set the fuse size on knob (R24). Check the value in menu 8.3.1.
10. Set the max immersion heater output on knob (R25). Check the value in menu 8.3.2.
11. Select the desired curve slope in menu 2.1.2 and set the parallel offset using the knob. Also see section Default setting on page 9.
12. Check that the hot water temperature in menu 1.0 exceeds 25 °C.
13. When point 11 has been carried out, select operating mode "Auto".

The heat pump starts after 30 minutes.

Setting system flow heating

1. Ensure that the heat pump produces heating for the climate system.
2. Select "On" in menu 9.6.2.
3. Select "40"
4. Check the supply and return temperatures in menu 2.5. Adjust the circulation pump speed in menu 2.1.5 so that the difference between these temperatures is according to the diagram below.
5. Select "Off" in menu 9.6.2.



Setting system flow cooling

A temperature difference of $\Delta t=7$ K is recommended in most cases. To achieve this, the following setting can be selected:

Dimensioned cooling output Q _c	kW	3	5	7	9
Menu 2.2.5	%	60	60	70	90

The table shows the recommended output position, depending on the dimensioned cooling output. Go to menu 2.2.5 for further adjustment of pump speed.

The result should be checked and adjusted further, if necessary.

Commissioning HM 8-12 SPLIT without L8 SPLIT/L12 SPLIT connected

1. Check that the temperature limiter (FD1) has not tripped.
2. Switch on the circuit breaker and check that the miniature circuit breaker (FA1) in HM 8-12 SPLIT is on.
3. Set switch (SF1) to "1".
4. Select operating mode "Add. heat only" by holding in the operating mode button for 7 seconds.
5. Set the date and time in menu 7.1 and 7.2.
6. Select "Service" in menu 8.1.1.
7. Select additional heat type in menu 9.2.8.
8. Set the fuse size on knob (R24). Check the value in menu 8.3.1.
9. Set the max immersion heater output on knob (R25). Check the value in menu 8.3.2.
10. Select the desired curve slope in menu 2.1.2 and set the parallel offset using the knob. Also see section Default setting on page 9.

Checking external addition with internal immersion heater blocked

1. Select "Ext. 1 step" in menu 9.2.8.
2. Select operating mode "Add. heat only" by holding in the operating mode button for 7 seconds.
3. Ensure that the max temperature from the external additional heat does not exceed 65 °C.
4. Select operating mode "Auto" by pressing the operating mode button.

Checking external addition (not controlled by HM 8-12 SPLIT) with internal immersion heater as backup

1. Adjust the start temperature of the additional heat so that it starts at a higher temperature than the internal electric additional heat (see set value in menu 1.2).
2. Adjust the additional heat's stop temperature so that the temperature in HM 8-12 SPLIT does not exceed 65 °C.

Inspection of the installation

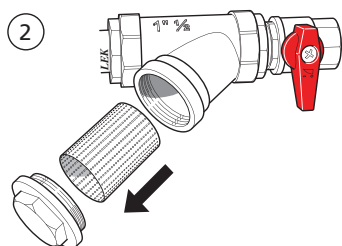
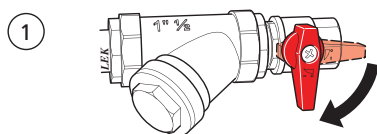
Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person and should be documented. Use the check list on the following page. The above applies to closed climate systems.

Do not replace any part of the split-system without carrying out new checks.

Cleaning the particle filter

Clean the particle filter (HQ1) after installation.

1. Close valve QM31 and the valve by the particle filter (HQ1).
2. Open the vent valve (QM20) to ensure that the pressure in HM 8-12 SPLIT falls.
3. Clean the particle filter (HQ1) as illustrated.



Secondary adjustment

Air is initially released from the hot water and venting may be necessary. If gurgling sounds can be heard from HM 8-12 SPLIT or from the climate system, the entire system will require additional venting.

NOTE

Use vent valve (QM20), any external vent valves as well as safety valve (FL2). The latter must be operated carefully as it opens quickly. When the system is stable (correct pressure and all air eliminated) the automatic heating control system can be set as required.

See Default setting on page 9.

Start-up and inspection**Checklist: Checks before commissioning**

Hot water	Notes	Checked
Non-return valve		<input type="checkbox"/>
Safety valve		<input type="checkbox"/>
Mixing valve		<input type="checkbox"/>
Shut off valves		<input type="checkbox"/>

Heating	Notes	Checked
System volume		<input type="checkbox"/>
Expansion vessel		<input type="checkbox"/>
Safety valve		<input type="checkbox"/>
Internal addition		<input type="checkbox"/>
External additional heat		<input type="checkbox"/>
		<input type="checkbox"/>

Cooling	Notes	Checked
Pipe system, condensation insulation		<input type="checkbox"/>
Reversing valve (QN12) cooling/heating		<input type="checkbox"/>
		<input type="checkbox"/>

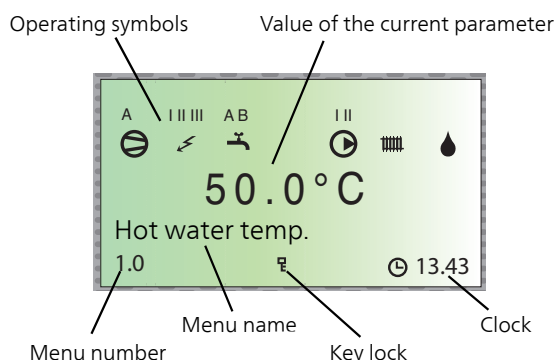
Refrigerant system	Notes	Checked
Pipe length		<input type="checkbox"/>
Height difference		<input type="checkbox"/>
Pressurization test		<input type="checkbox"/>
Leak testing		<input type="checkbox"/>
End pressure vacuum		<input type="checkbox"/>
		<input type="checkbox"/>

Electrical installation	Notes	Checked
Property's main fuse		<input type="checkbox"/>
Group fuse		<input type="checkbox"/>
Current limiter/current sensor		<input type="checkbox"/>
KWS		<input type="checkbox"/>

Accessories	Notes	Checked
External circulation pump		<input type="checkbox"/>
WPSK		<input type="checkbox"/>
Overflow valve		<input type="checkbox"/>
Room sensor		<input type="checkbox"/>
Solar control		<input type="checkbox"/>
KWS		<input type="checkbox"/>

Control

Display



Menu types

Control is divided into different menu types depending on how "deep" into the controls you need to go.

- Normal [N]: The settings you as a customer often need.
- Extended [U]: Shows all detailed menus except the service menus.
- Service [S]: Shows all menus.

The menu type is changed from menu 8.1.1

Menu management



The Plus button is used to move forward to the next menu on the current menu level and to increase the value of the parameter in menus where this is possible.



The Minus button is used to move back to the previous menu on the current menu level and to decrease the value of the parameter in menus where this is possible.



The Enter button is used to select submenus of the current menu, to permit parameters to be changed and to confirm any changes to parameters. When the menu number ends with a zero this indicates that there is a submenu.

Changing parameters

- Changing a parameter (value):
- Access the required menu.
- Press the enter button, the numerical value starts to flash.
- Increase or decrease using the Plus/Minus buttons.
- Confirm by pressing the enter button.
- Menu 1.0 is automatically displayed again 30 minutes after the last button press.

Example

Changing the curve slope, menu 2.1.


- The starting point is menu 1.0.
- Press the plus button to move to menu 2.0.
- Press the enter button to move to menu 2.1.
- Press the enter button to change the value.
- Change the value by pressing the plus or minus buttons.
- Confirm the selected value by pressing the enter button.
- Press the quick movement button to access menu 1.0.

Quick movement

To quickly return to the main menu from a sub menu, press one of the following buttons:



Key lock

A key lock can be activated in the main menus by simultaneously pressing the plus and the minus buttons. The key symbol will then be shown on the display. 

The same procedure is used to deactivate the key lock.

Menu tree

1.0 [N] Hot water temp.		
1.1 [N] Max HW/Period time		
1.2 [N] Start temperature HW		
1.3 [N] Stop temperature HW		
1.4 [U] Stop temperature XHW		
1.5 [U] Heat pump stop XHW		
1.6 [U] Max heat p. time XHW		
1.7 [U] Interval XHW		
1.8 [U] Next XHW action		
1.9 [U] HW run time		
1.10.0 [S] HW charge act/set	1.10.1 [S] HW charge set temp	
	1.10.2 [S] Circ-pump speed HW	
	1.10.3 [S] Circ-pump manual	
	1.10.10 [S] Return	
1.11.0 [S] CompFreq HW settings	1.11.1 [S] CompFreq HW set	
	1.11.2 [S] CompFreq manual	
	1.11.3 [S] CompFreq at +20	
	1.11.4 [S] CompFreq at -5	
	1.11.5 [S] Return	
1.12 [N] Return		

2.0 [N] Supply temp.

2.1.0 [N] Heating settings

2.1.1 [N] Offset heating/Total

2.1.2 [N] Heating curve

2.1.3.0 [U] Own heating curve

2.1.3.1 [U] Supply temp.at +20

2.1.3.2 [U] Supply temp.at -20

2.1.3.3 [U] Buckling temperature

2.1.3.4 [U] Supply t. at buckl.

2.1.3.5 [U] Return

2.1.4 [U] Min supply heating

2.1.5 [U] Circ-pump speed heat

2.1.6 [N] Return

2.2.0 [N] Cooling settings

2.2.1 [N] Offset cooling/Total

2.2.2 [N] Cooling curve

2.2.3.0 [U] Own cooling curve

2.2.3.1 [U] Supply temp.at +20

2.2.3.2 [U] Supply temp.at +40

2.2.3.3 [U] Return

2.2.4 [U] Min supply cooling

2.2.5 [U] Circ-pump speed cool

2.2.6 [N] Return

2.3 [U] Max supply temp.

2.4 [U] External adjustment

2.5 [U] Supply/Return temp.

2.6 [U] Degree minutes

2.7 [N] Return

Control**3.0 [N] Supply temp. 2**

3.1 [N] Offset heating/Tot 2

3.2 [N] Heating curve 2

3.3 [U] Min supply temp. 2

3.4 [U] Max supply temp. 2

3.5 [U] External adjust. 2

3.6.0 [U] Own heating curve 2 3.6.1 [U] Supply temp.at +20

3.6.2 [U] Supply temp.at -20

3.6.3 [U] Buckling temperature

3.6.4 [U] Supply t. at buckl

3.6.5 [U] Return

3.7 [U] Supply/Return temp 2

3.8 [N] Return

4.0 [N] Outdoor temp.

4.1 [N] Outdoor avg. temp.

4.2 [U] Outdoor filter time

4.3 [U] Outdoor avg. 1 min.

4.4 [N] Return

5.0 [N] Heat pump

5.1 [N] Number of starts
5.2 [N] Run time compressor
5.3 [U] Time to start
5.4 [U] Outdoor temp. Tho-A
5.5 [U] Heat Ex Tho-R1
5.6 [U] Heat Ex Tho-R2
5.7 [U] Suction temp. Tho-S
5.8 [U] Hot gas Tho-D
5.9 [U] Liquid line temp.
5.10 [U] Condensor out / max
5.11 [U] HP
5.12 [U] LP LPT
5.13 [U] Fan speed
5.14.0 [U] CompFreq act/set
5.14.1 [U] OU current CT
5.14.2 [U] Inverter temp Tho-IP
5.14.3 [U] Return
5.15.0 [S] OU communication
5.15.1 [S] Com. error rate
5.15.2 [S] Com. errors
5.15.3 [S] Reset com. errors
5.15.4 [S] Return
5.16 [N] Return

6.0 [N] Room temperature*

6.1 [U] Room compensation
6.2 [U] Heating system
6.3 [N] Room temp. setpoint
6.4 [U] Room temp avg. 1min
6.5 [U] Room integrator time
6.6 [N] Return

*Requires accessory and activation in menu 9.3.6.

Control**7.0 [N] Clock**

7.1 [N] Date	
7.2 [N] Time	
7.3.0 [U] Temp set back	7.3.1 [U] Set back time
	7.3.2 [U] Set back temp +/-
	7.3.3 [U] Heating system
	7.3.4 [U] Return
7.4.0 [U] Extra hot water	7.4.1 [U] XHW Monday
	7.4.2 [U] XHW Tuesday
	7.4.3 [U] XHW Wednesday
	7.4.4 [U] XHW Thursday
	7.4.5 [U] XHW Friday
	7.4.6 [U] XHW Saturday
	7.4.7 [U] XHW Sunday
	7.4.8 [U] Return
7.5.0 [U] Vacation set back	7.5.1 [U] Vacation begins
	7.5.2 [U] Vacation ends
	7.5.3 [U] Heating system
	7.5.4 [U] Offset heating curve
	7.5.5 [U] HW off
	7.5.6 [U] Return
7.6.0 [N] Silent mode	7.6.1 [N] Silent mode time
	7.6.2 [N] Return
7.7 [N] Return	

8.0 [N] Other adjustments

8.1.0 [N] Display settings	8.1.1 [N] Menu type
	8.1.2 [N] Language
	8.1.3 [N] Display contrast
	8.1.4 [N] Light intensity
	8.1.5 [N] Return
8.2.0 [N] Op. mode settings	8.2.1 [N] Allow add. heat
	8.2.2 [N] Add. heat mode
	8.2.3 [U] Stop temp. heating
	8.2.4 [U] Start temp. cooling
	8.2.5 [U] Hysteresis
	8.2.6 [N] Return
8.3.0 [U] Current limiter	8.3.1 [U] Fuse size
	8.3.2 [U] Max. electric power
	8.3.3 [U] Current phase 1
	8.3.4 [U] Current phase 2
	8.3.5 [U] Current phase 3
	8.3.6 [U] Transform. ratio EBV
	8.3.7 [U] Return
8.5.0 [U] Period settings	8.5.1 [U] Period time
	8.5.2 [U] Max time for HW
	8.5.3 [U] Return
8.6 [N] Return	

9.0 [S] Service menus

9.1.0 [S] Heat pump settings	9.1.1 [S] DM start heating	
	9.1.2 [S] DM start cooling	
	9.1.3 [S] Stop temp. heat low	
	9.1.4 [S] Stop temp. heat high	
	9.1.5 [S] Stop temp. cool low	
	9.1.6 [S] Stop temp. cool high	
	9.1.7 [S] Time bet. starts	
	9.1.8 [S] Min CompFreq act/set	
	9.1.9 [S] Max CompFreq act/set	
	9.1.10 [S] OU current heat act/max	
	9.1.11 [S] OU cur. cool act/max	
	9.1.12 [S] Tank defrost Temp.	
	9.1.13 [S] Return	
9.2.0 [S] Add. heat settings	9.2.1 [S] DM start add. heat	
	9.2.2 [S] Time factor	
	9.2.6 [S] Shunt amplification	
	9.2.7 [S] Shunt amplification2	
	9.2.8 [S] Add. heat type	
	9.2.9 [S] Return	
9.3.0 [S] Operating settings	9.3.1 [S] Max. boiler temp.	
	9.3.2 [S] Logger	
	9.3.3 [S] Cooling system	
	9.3.4 [S] Heating system 2	
	9.3.5 [S] Room unit	
	9.3.6 [S] Room sensor type	
	9.3.7.0 [S] Forced control	9.3.7.1 [S] Forced control
		9.3.7.2 [S] K1
		9.3.7.3 [S] K2
		9.3.7.4 [S] K3
		9.3.7.5 [S] K4
		9.3.7.6 [S] K5
		9.3.7.7 [S] K6
		9.3.7.8 [S] K7
		9.3.7.9 [S] K8
		9.3.7.10 [S] K9
		9.3.7.11 [S] K10
		9.3.7.12 [S] K11
		9.3.7.13 [S] K12
		9.3.7.14 [S] K13
		9.3.7.15 [S] K14
		9.3.7.16 [S] Alarm 1
		9.3.7.17 [S] Alarm 2
		9.3.7.18 [S] Return
	9.3.8 [S] Factory setting	
	9.3.9 [S] Operating state	
	9.3.10.0 [S] Floor drying setting	9.3.10.1 [S] Floor drying

9.0 [S] Service menus

		9.3.10.2 [S] Period time 1
		9.3.10.3 [S] Temp. period 1
		9.3.10.4 [S] Period time 2
		9.3.10.5 [S] Temp. period 2
		9.3.10.6 [S] Return
	9.3.11 [S] Supply pump exer.	
	9.3.12 [S] Supply diff HP	
	9.3.13 [S] Diff HP add. heat	
	9.3.14 [S] Block HW/Heating	
	9.3.15 [S] Heat drop at alarm	
	9.3.16 [S] Type of HW sensor	
	9.3.17 [S] Freeze protection HX	
	9.3.18 [S] Return	
9.4 [S] Quick start		
9.5.0 [S] System info	9.5.1 [S] Heat pump type	
	9.5.2 [S] Cpu usage percent	
	9.5.3 [S] Com rate/1000	
	9.5.4 [S] Unit w. com. problem	
	9.5.5 [S] Run time add. heat	
	9.5.6 [S] Run time hot water	
	9.5.7 [S] Program version	
	9.5.8 [S] 106-card version	
	9.5.9 [S] Display version	
	9.5.10 [S] Relay card version	
	9.5.11 [S] Lowest supply temp.	
	9.5.12 [S] Percent runtime	
	9.5.13 [S] Period	
	9.5.14 [S] Run status	
	9.5.15 [S] Run status last	
	9.5.16 [S] Run status time	
	9.5.17 [S] Return	
9.6.0 [S] Heat reg. settings	9.6.1 [S] CompFreq	
	9.6.2 [S] Manual CompFreq	
	9.6.3 [S] Max deltaF act/set	
	9.6.4 [S] CompFreq regP	
	9.6.5 [S] Time min freq start	
	9.6.6 [S] Time min freq heat	
	9.6.7 [S] Max diff flow-cFlow	
	9.6.8 [S] CompFreq GMz	
	9.6.9 [S] Return	
9.7 [S] Reset alarm		
9.8.0 [S] Alarm log	9.8.1.0 [S] Log 1	9.8.x.1 [S] Time
		9.8.x.2 [S] Alarm type
		9.8.x.3 [S] Run status
		9.8.x.4 [S] Run status last
		9.8.x.5 [S] Run status time
		9.8.x.6 [S] Run time compressor
		9.8.x.7 [S] Outdoor avg. 1min.

9.0 [S] Service menus

		9.8.x.8 [S] Outdoor temp Tho-A
		9.8.x.9 [S] Supply/Return temp
		9.8.x.10 [S] Condensor out
		9.8.x.11 [S] Hot water temp.
		9.8.x.12 [S] CompFreq act/set
		9.8.x.13 [S] Heat Ex Tho-R1
		9.8.x.14 [S] Heat Ex Tho-R2
		9.8.x.15 [S] Suction temp. Tho-S
		9.8.x.16 [S] Hot gas Tho-D
		9.8.x.17 [S] Liquid line temp.
		9.8.x.18 [S] HP
		9.8.x.19 [S] LP LPT
		9.8.x.20 [S] OU current CT
		9.8.x.21 [S] Inverter temp Tho-IP
		9.8.x.22 [S] Circ-pump speed
		9.8.x.23 [S] Relay status 1-8
		9.8.x.24 [S] Relay status 9-14
		9.8.x.25 [S] Program status 1-8
		9.8.x.26 [S] Program status 9-16
		9.8.x.27 [S] Return
	9.8.2.0 [S] Log 2	
	9.8.3.0 [S] Log 3	
	9.8.4.0 [S] Log 4	
	9.8.5 [S] Clear alarm log	
	9.8.6 [S] Return	
9.9 [S] Return		

Control

Main menus

Menu 1.0 [N] Hot water temp.

The current hot water temperature in the hot water heater is shown here.

Menu 2.0 [N] Supply temp.

The current supply temperature for the climate system is shown here with the calculated supply temperature in brackets.

Menu 3.0 [N] Supply temp. 2

The current supply temperature for climate system 2 is shown here with the calculated supply temperature in brackets.

Menu 4.0 [N] Outdoor temp.

The current outdoor air temperature is displayed here.

Menu 5.0 [N] Heat pump

Readings regarding the status of the outdoor unit are shown in the sub-menus to this menu.

The following text appears in the display.

Text	Means
Off	Shown when there is no compressor demand and none of the following apply.
On	Shown during normal operation with the compressor.
Initiates	Shown while the compressor is running.
Com. problem	Shown in the event of temporary communication problems.
Defrosting	Shown during defrost.
Oil return	Shown when the compressor is rotated to be lubricated.
Protection	Shown when the compressor is in some form of protection or during a start delay of 30 minutes.
Shutdown	Shown in the event of an alarm, tariff B or Operating mode Addition only.
Stopped	Shown when the outdoor temperature is outside the compressor's working range (too high or too low temperature).

Menu 6.0 [N] Room temperature

The room temperature is shown here and the set room temperature in brackets. Settings concerning the factor for the room sensor and which climate system the sensor should control are made in the sub-menus for this menu.

Menu 7.0 [N] Clock

Settings regarding the date and time are made in the sub-menus of this menu. Different temperature reductions and increases at selected times are also set from this menu.

Menu 8.0 [N] Other adjustments

Settings regarding the menu type, language, operating mode settings and load monitor reading are made in the sub-menus to this menu.

Menu 9.0 [S] Service menus

This menu and its sub-menus are only shown on the display screen when access has been selected in menu 8.1.1.

Values can be read and various settings can be made from these sub-menus.

NOTE

These settings should only be made by persons with the necessary expertise.

[N] Normal, covers the normal user's needs.

[U] Extended, shows all menus except the service menus.

[S] Service, shows all menus, returns to normal menu level 30 minutes after the last button was pressed.

1.0 [N] Hot water temp.

Menu 1.1 [N] Max HW/Period time

The time of the hot water period and the time for the whole period are shown here. Shown for both hot water charging and heating when necessary:

Time Heating/Max. when heating is in progress.

Time Hot water/Max. if hot water charging is in progress.

Menu 1.2 [N] Start temperature HW

The temperature when the heat pump starts hot water charging is set here.

Setting range: 25 – 55 °C

Factory setting: 47 °C

Menu 1.3 [N] Stop temperature HW

The temperature when the heat pump stops hot water charging is set here.

Setting range: 30 – 60 °C

Factory setting: 53 °C

Menu 1.4 [U] Stop temperature XHW

The desired temperature during extra hot water is set here.

Setting range: 40 – 65 °C

Factory setting: 65 °C

Menu 1.5 [U] Heat pump stop XHW

The desired stop temperature during extra hot water for the heat pump is set here.

Setting range: 40 – 60 °C

Factory setting: 60 °C

Menu 1.7 [U] Interval XHW

Periodic time based extra hot water is selected here.

Extra hot water is shut off at the value "Off". Extra hot water is started when the value is confirmed.

Setting range: 0 – 90 days

Default value: Off

Menu 1.8 [U] Next XHW action

Next periodic increase to the "Extra hot water" level shown here.

Menu 1.9 [U] HW run time

Shows how long hot water charging with the compressor has been in progress (accumulated).

Menu 1.10.0 [S] HW charge act/set

Shows the actual and desired values for the hot water charging temperature.

Hot water charging settings are made in the sub-menus for this menu.

Menu 1.10.1 [S] HW charge set temp

Shows the actual set point value for the hot water charging temperature.

The set point value for temperatures above the stop value for hot water charging is selected within brackets.

Setting range: 0 – 10 °C

Default value: 2.0 °C

Menu 1.10.2 [S] Circ-pump speed HW

The speed of the heating medium pump during hot water charging is shown here.

Menu 1.10.3 [S] Circ-pump manual

Select "On" to manually control the HW pump.

Setting range: Off, On

Default value: Off

Menu 1.10.10 [S] Return

Return to menu 1.10.0.

Menu 1.11.0 [S] CompFreq HW settings

The compressor frequency that is used during hot water charging is shown here.

Settings can be made regarding the compressor frequency during hot water charging in the submenus to this menu.

Menu 1.11.1 [S] CompFreq HW set

The compressor frequency for hot water charging is shown here.

Here you select the compressor frequency for hot water charging during manual control.

These setting initially apply when "On" is selected in menu 1.11.2.

	L8 SPLIT	L12 SPLIT
Setting range	20 – 81 Hz	25 – 85 Hz
Factory setting	-	-

Menu 1.11.2 [S] CompFreq manual

Select "On" to control the compressor frequency for hot water charging manually.

Setting range: Off, On

Default value: Off

Menu 1.11.3 [S] CompFreq at +20

The compressor frequency for hot water charging at an outdoor air temperature of 20 °C is selected here.

	L8 SPLIT	L12 SPLIT
Setting range	20 – 81 Hz	25 – 85 Hz
Factory setting	40Hz	

Menu 1.11.4 [S] CompFreq at -5

The compressor frequency for hot water charging at an outdoor air temperature of -5 °C is selected here.

	L8 SPLIT	L12 SPLIT
Setting range	20 – 81 Hz	25 – 85 Hz
Factory setting	80Hz	

Menu 1.11.5 [S] Return

Return to menu 1.11.0.

Menu 1.12 [N] Return

Return to menu 1.0.

2.0 [N] Supply temp.

Menu 2.1.0 [N] Heating settings

Heating settings are made in the sub-menus for this menu.

Menu 2.1.1 [N] Offset heating/Total

The selected heating curve offset is shown here.

The total offset of the heat curve is also shown here. It includes schedule, outer compensation and any room control.

NOTE

The value is changed using the "Heating curve offset" knob.

Setting range: -10 – 10

Menu 2.1.2 [N] Heating curve

The selected curve slope (heating curve) is shown here. At value 0, the function "Own curve" is activated, see menu 2.1.3.0.

Setting range: 0 – 20

Factory setting: 9

Menu 2.1.3.0 [U] Own heating curve

Here you can select your own curve definition. This is an individual linear curve with one break point. You select a break point and the associated temperatures.

NOTE

The "Curve slope" in menu 2.1.2 must be set to 0 to activate this function.

Menu 2.1.3.1 [U] Supply temp.at +20

The supply temperature at an outdoor air temperature of +20 °C is selected here.

Setting range: 0 – 80* -C

Factory setting: 20 °C

Menu 2.1.3.2 [U] Supply temp.at -20

The supply temperature at an outdoor air temperature of -20 °C is selected here.

Setting range: 0 – 80* -C

Factory setting: 35 °C

Menu 2.1.3.3 [U] Buckling temperature

Here you select at what outside air temperature the break point shall occur.

Setting range: -15 – 15 °C

Factory setting: 0 °C

Menu 2.1.3.4 [U] Supply t. at buckl.

You set the required flow temperature for the break point here.

Setting range: 0 – 80* -C

Factory setting: 30 °C

Menu 2.1.3.5 [U] Return

Return to menu 2.1.3.0.

Menu 2.1.4 [U] Min supply heating

The set minimum level for the supply temperature to the climate system is shown here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

Setting range: 20 – 65 °C

Factory setting: 25 °C

Menu 2.1.5 [U] Circ-pump speed heat

The speed of the heating medium pump during house heating is selected here.

Setting range: 1 – 100

Factory setting: 60

Menu 2.1.6 [N] Return

Return to menu 2.1.0.

Menu 2.2.0 [N] Cooling settings

Cooling settings are made in the sub-menus for this menu.

Menu 2.2.1 [N] Offset cooling/Total

The selected cooling curve offset is changed here.

The total offset of the cooling curve is also shown here. It includes schedule, outer compensation and any room control.

Setting range: -10 – 10

Factory setting: -1

Menu 2.2.2 [N] Cooling curve

The selected curve slope (cooling curve) is shown here. At value 0, the function "Own curve" is activated, see menu 2.2.3.0.

Setting range: 0 – 3

Factory setting: 1

Menu 2.2.3.0 [U] Own cooling curve

Here you can select your own curve definition.

NOTE

The "Curve slope" in menu 2.2.2 must be set to 0 to activate this function.

Menu 2.2.3.1 [U] Supply temp.at +20

The supply temperature at an outdoor air temperature of +20 °C is selected here.

Setting range: 0 – 25* -C

Factory setting: 20 °C

Menu 2.2.3.2 [U] Supply temp.at +40

The supply temperature at an outdoor air temperature of +40 °C is selected here.

Setting range: 0 – 25* -C

Factory setting: 10 °C

Menu 2.2.3.3 [U] Return

Return to menu 2.2.3.0.

* Limited by menu 2.3 Max supply temp.

Menu 2.2.4 [N] Min supply cooling

The set minimum level for the supply temperature to the climate system during cooling is shown here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

Setting range: 7 – 25 °C

Factory setting: 18 °C

NOTE

HM 8-12 SPLIT is condensation insulated for cooling operation down to a supply temperature of + 7 °C.

Menu 2.2.5 [N] Circ-pump speed cool

The speed of the heating medium pump during house cooling is selected here.

Setting range: 1 – 100

Factory setting: 60

Menu 2.2.6 [N] Return

Return to menu 2.2.0.

Menu 2.3 [U] Max supply temp.

The set maximum level for the supply temperature to the climate system is shown here.

The calculated flow temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

Setting range: 25 – 65 °C

Factory setting: 55 °C

Menu 2.4 [U] External adjustment

Connecting an external contact, for example, a room thermostat (accessory) or a timer allows you to temporarily or periodically raise or lower the room temperature. When the external contact is closed, the heating curve offset is changed by the number of steps shown here.

If room control is active there is a degree change to the set room temperature.

Setting range: -10 – 10

Factory setting: 0

Menu 2.5 [U] Supply/Return temp.

The current actual flow and return line temperatures are shown here.

Menu 2.6 [U] Degree minutes

Current value for number of degree-minutes. For example, this value can be changed to accelerate the start of heating production or cooling.

Setting range: -32000 – 32000

Menu 2.7 [N] Return

Return to menu 2.0.

3.0 [N] Supply temp. 2**Menu 3.1 [N] Offset heating/Tot 2**

The selected heating curve offset 2 is selected here.

The total offset of heat curve 2 is also shown here. It includes schedule, outer compensation and any room control.

Setting range: -10 – 10

Factory setting: -1

Menu 3.2 [N] Heating curve 2

The selected curve slope (heating curve) is shown here. At value 0, the function "Own curve" is activated, see menu 3.6.0.

Setting range: 0 – 20

Factory setting: 6

Menu 3.3 [U] Min supply temp. 2

The set minimum level for the supply temperature for climate system 2 is shown here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

Setting range: 10 – 65 °C

Factory setting: 15 °C

Menu 3.4 [U] Max supply temp. 2

The set maximum level for the supply temperature for climate system 2 is shown here.

The calculated flow temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

Setting range: 10 – 65 °C

Factory setting: 45 °C

Menu 3.5 [U] External adjust. 2

Connecting an external contact, for example, a room thermostat (accessory) or a timer allows you to temporarily or periodically raise or lower the room temperature. When the external contact is closed, the heating curve offset is changed by the number of steps shown here.

If room control is active there is a degree change to the set room temperature.

Setting range: -10 – 10

Factory setting: 0

Menu 3.6.0 [U] Own heating curve 2

Here you can select your own curve definition. This is an individual linear curve with one break point. You select a break point and the associated temperatures.

NOTE

The "Curve slope" in menu 3.2 must be set to 0 to activate this function.

* Limited by menu 3.4 Max supply temp. 2.

Menu 3.6.1 [U] Supply temp.at +20

The supply temperature at an outdoor air temperature of +20 °C is selected here.

Setting range: 0 – 80* -C

Factory setting: 20 °C

Menu 3.6.2 [U] Supply temp.at -20

The supply temperature at an outdoor air temperature of -20 °C is selected here.

Setting range: 0 – 80* -C

Factory setting: 35 °C

Menu 3.6.3 [U] Buckling temperature

Here you select at what outside air temperature the break point shall occur.

Setting range: -15 – 15 °C

Factory setting: 0

Menu 3.6.4 [U] Supply t. at buckl

You set the required flow temperature for the break point here.

Setting range: 0 – 80* -C

Factory setting: 30 °C

Menu 3.6.5 [U] Return

Return to menu 3.6.0.

Menu 3.7 [U] Supply/Return temp 2

The present actual flow and return line temperatures for climate system 2 are shown here.

Menu 3.8 [N] Return

Return to menu 3.0.

4.0 [N] Outdoor temp.**Menu 4.1 [N] Outdoor avg. temp.**

This menu shows the average outdoor temperature according to the set value in menu 4.2 (factory setting: 24h).

Menu 4.2 [U] Outdoor filter time

Here you select how long the average temperature in menu 4.1 is to be calculated.

Setting range: 1 min, 10 min, 1h, 2h, 4h, 6h, 12h, 24h

Factory setting: 24 h

Menu 4.3 [U] Outdoor avg. 1min.

Shows the average outdoor temperature over the last minute.

Menu 4.4 [N] Return

Return to menu 4.0.

5.0 [N] Heat pump**Menu 5.1 [N] Number of starts**

The accumulated number of starts with the compressor in L8 SPLIT/L12 SPLIT is shown here.

Menu 5.2 [N] Run time compressor

The accumulated time that the compressor has been used in L8 SPLIT/L12 SPLIT is shown here.

* Limited by menu 2.3 Max supply temp.

Menu 5.3 [U] Time to start

Time until the compressor start in the L8 SPLIT/L12 SPLIT is shown in this menu.

Menu 5.4 [U] Outdoor temp. Tho-A

This menu shows the outdoor air temperature that the heat pump measures.

Menu 5.5 [U] Heat Ex Tho-R1

This menu shows the evaporator temperature in the heat pump at sensor Tho-R1.

Menu 5.6 [U] Heat Ex Tho-R2

This menu shows the evaporator temperature in the heat pump at sensor Tho-R2.

Menu 5.7 [U] Suction temp. Tho-S

This menu shows the suction gas temperature in the heat pump.

Menu 5.8 [U] Hot gas Tho-D

This menu shows the hotgas temperature in the heat pump.

Menu 5.9 [U] Liquid line temp.

This menu shows the liquid line temperature in the heat pump.

Menu 5.10 [U] Condensor out / max

Shows the current and max. allowed temperature after the condenser.

Menu 5.11 [U] HP

The current high pressure and corresponding temperature during heating are shown here. During cooling, the actual low pressure and corresponding temperature are shown.

Menu 5.12 [U] LP LPT

The current low pressure is shown here.

Menu 5.13 [U] Fan speed

No function.

Menu 5.14.0 [U] CompFreq act/set

The actual and set point value for the compressor frequency are shown here.

Menu 5.14.1 [U] OU current CT

The present phase current to L8 SPLIT/L12 SPLIT is shown here.

Menu 5.14.2 [U] Inverter temp Tho-IP

The current inverter temperature is shown here.

Menu 5.14.3 [U] Return

Return to menu 5.14.0.

Menu 5.15.0 [S] OU communication

Readings regarding any communication errors can be made in the sub-menus to this menu.

Menu 5.15.1 [S] Com. error rate

Shows the percentage of incorrect communications with L8 SPLIT/L12 SPLIT since start-up.

Menu 5.15.2 [S] Com. errors

Shows the total number of incorrect communications with L8 SPLIT/L12 SPLIT since start-up.

Menu 5.15.3 [S] Reset com. errors

Select "Yes" here to reset the counters in menu 5.15.1 and 5.15.2. The settings returns to "No" once the action has been carried out.

Setting range: Yes, No

Menu 5.15.4 [S] Return

Return to menu 5.15.0.

Menu 5.16 [N] Return

Return to menu 5.0.

6.0 [N] Room temperature***Menu 6.1 [U] Room compensation**

A factor is selected here that determines how much the flow temperature is affected by the difference between the room temperature and the set room temperature. A higher value gives a greater change.

Setting range: 0 – 10.0

Default value: 2.0

Menu 6.2 [U] Heating system

Select here whether the room sensor should activate climate system 1 (menu 2.0) and/or climate system 2 (menu 3.0).

Setting range: Off, System 1, System 2, System 1+2

Default value: Off

Menu 6.3 [N] Room temp. setpoint

The desired room temperature is shown here.

Setting range: 10 – 30 °C

Menu 6.4 [U] Room temp avg. 1min

Shows the average room temperature over the last minute.

Menu 6.5 [U] Room integrator time

Select the integration time for room control here.

Setting range: 0 – 120

Factory setting: 0

Menu 6.6 [N] Return

Return to menu 6.0.

7.0 [N] Clock**Menu 7.1 [N] Date**

The current date is set here.

Menu 7.2 [N] Time

Here the current time is set.

Menu 7.3.0 [U] Temp set back

Settings, e.g. for night reduction can be selected in the sub-menus to this menu.

Menu 7.3.1 [U] Set back time

The time for the day change, e.g. night reduction is chosen here.

*Requires accessory and activation in menu 9.3.6.

Menu 7.3.2 [U] Set back temp +/-

Changes to the heat curve with a day change, e.g. the night reduction is set here.

Setting range: -10 – 10

Factory setting: 0

Menu 7.3.3 [U] Heating system

The climate system that the day change is to affect is selected here. If shunt group 2 is present the menu can be set to "Off", "System 1", "System 2" or "System 1+2". In other cases only "Off" and "System 1" can be selected.

Setting range: Off, System 1, System 2, System 1+2

Default value: Off

Menu 7.3.4 [U] Return

Return to menu 7.3.0.

Menu 7.4.0 [U] Extra hot water

Settings are made in the sub-menus of this menu when extra hot water is required on a specific day.

Menu 7.4.1 – 7.4.7 [U] XHW Monday – XHW Sunday

Here you select the period for respective days when extra hot water should be activated. Hours and minutes for both start and stop are shown. Equal values mean that extra hot water is not activated. Time can be set past midnight.

Setting range: 00:00 – 23:45

Factory setting: 00:00 – 00:00

Menu 7.4.8 [U] Return

Return to menu 7.4.0.

Menu 7.5.0 [U] Vacation set back

Holiday settings are made in the sub-menus to this menu.

When the holiday function is active, the flow line temperature is reduced according to the setting and hot water charging can be switched off.

When the holiday function is deactivated, the heat pump heats the water for an hour, before periodic extra hot water is activated (if periodic extra hot water is activated in menu 1.7).

NOTE

The holiday setting does not deactivate cooling.

Menu 7.5.1 [U] Vacation begins

The start date for holiday change is set here. The date is changed by pressing the enter button. The holiday change starts to apply at 00:00 on the selected date.

Same date in menu 7.5.1 and 7.5.2 deactivates the holiday function.

Menu 7.5.2 [U] Vacation ends

The end date for holiday change is set here. The date is changed by pressing the enter button. The holiday change ceases to apply at 23:59 on the selected date.

Same date in menu 7.5.1 and 7.5.2 deactivates the holiday function.

Menu 7.5.3 [U] Heating system

The climate system that the vacation set back is to affect is selected here. If shunt group 2 is present the menu can be set to "Off", "System 1", "System 2" or "System 1+2". In other cases only "Off" and "System 1" can be selected.

Setting range: Off, System 1, System 2, System 1+2

Default value: Off

Menu 7.5.4 [U] Offset heating curve

How much the heating curve is to be offset during the holiday period is set here.

If the relevant climate system has a room temperature sensor, the change is given in degrees.

Setting range: -10 – 10

Factory setting: -5

Menu 7.5.5 [U] HW off

If the hot water charge is to be shut off during the holiday period this is set here.

Setting range: No, Yes

Default value: Yes

Menu 7.5.6 [U] Return

Return to menu 7.5.0.

Menu 7.6.0 [N] Silent mode

The period for silent mode, where the heat pump operates at a lower noise level by limiting the compressor and fan speeds, is selected in the sub-menu.

Menu 7.6.1 [N] Silent mode time

The time interval for silent mode is set here. The period is selectable for a maximum of 23:45 (hh:mm) with increments of 15 min. If the same time is selected for stop and start the function is off.

Default values: off

Menu 7.6.2 [N] Return

Return to menu 7.6.0.

Menu 7.7 [N] Return

Return to menu 7.0.

8.0 [N] Other adjustments**Menu 8.1.0 [N] Display settings**

Settings concerning language and menu type are set in the sub-menus to this menu.

Menu 8.1.1 [N] Menu type

The menu type is chosen here.

[N] Normal, covers the normal user's needs.

[U] Extended, shows all menus except the service menus.

[S] Service, shows all menus, returns to normal menu level 30 minutes after the last button was pressed.

NOTE

Incorrect settings in the service menus can damage the property and/or heat pump.

Setting range: N, U, S

Default value: N

Menu 8.1.2 [N] Language

Language settings are made here.

Menu 8.1.3 [U] Display contrast

The display's contrast is set here.

Setting range: 0 – 31

Factory setting: 20

Menu 8.1.4 [U] Light intensity

The display's light intensity in standby mode is set here. Standby mode starts 30 minutes after the last button was pushed.

Setting range: 0=off, 1=low, 2=average.

Factory setting: 1

Menu 8.1.5 [N] Return

Return to menu 8.1.0.

Menu 8.2.0 [N] Op. mode settings

Settings regarding auto mode can be made in the sub-menus to this menu.

Menu 8.2.1 [N] Allow add. heat

At which operating mode the electric addition is to be permitted to produce hot water and heat when needed is selected here.

Setting range: Off, Heating, Heating + Cooling, Cooling

Default values: Heating

Menu 8.2.2 [N] Add. heat mode

Selected if electric addition is to be used to produce hot water and heat.

Setting range: Off, On

Default value: Off

Menu 8.2.3 [U] Stop temp. heating

The average outdoor air temperature at which the heat pump (in auto mode) is to stop heat production.

When the average outdoor temperature falls below Stop temp. heating – Hysteresis (menu 8.2.5) heating starts again.

Setting range: 1 – 43 °C

Factory setting: 17 °C

Menu 8.2.4 [U] Start temp. cooling

The average outdoor air temperature at which the heat pump (in auto mode) is to start cooling.

When the average outdoor temperature switches over, Start temp. cooling (menu 8.2.5) cooling starts.

When the average outdoor temperature falls below Start temp. cooling – Hysteresis (menu 8.2.5) cooling stops.

Setting range: 10 – 43 °C

Factory setting: 25 °C

Menu 8.2.5 [U] Hysteresis

See menu 8.2.3 and menu 8.2.4. Also affects control with room sensor.

Setting range: 1.0 – 10.0

Default value: 1.0

Menu 8.2.6 [N] Return

Return to menu 8.2.0.

Menu 8.3.0 [U] Current limiter

Settings and readings regarding the load monitor are set in the sub-menus to this menu.

Menu 8.3.1 [U] Fuse size

The setting selected on the EBV board (AA22) knob (R24) is shown here.

Menu 8.3.2 [U] Max. electric power

The setting selected on the EBV board (AA22) knob (R25) is shown here.

Menu 8.3.3 [U] Current phase 1

Measured current from phase 1 is shown here. If the value falls below 2.8 A "low" is shown.

Menu 8.3.4 [U] Current phase 2

Measured current from phase 2 shown here. If the value falls below 2.8 A "low" is displayed.

Menu 8.3.5 [U] Current phase 3

Measured current from phase 3 shown here. If the value falls below 2.8 A "low" is displayed.

Menu 8.3.6 [U] Transform. ratio EBV

The transfer value must be defined depending on the current sensors used for the EBV card.

Setting range: 100 – 1250

Factory setting: 300

Menu 8.3.7 [U] Return

Return to menu 8.3.0.

Menu 8.5.0 [U] Period settings

Time periods for heating and hot water production are set in the sub-menus for this menu.

Menu 8.5.1 [U] Period time

The length of time for production of hot water and heating is set here.

Setting range: 5 – 60 min

Factory setting: 60 min

Menu 8.5.2 [U] Max time for HW

Here you select how much of the period time (menu 8.5.1) is to be used to heat the hot water when there is a need for both heating and hot water.

Setting range: 0 – 60 min

Factory setting: 40 min

Menu 8.5.3 [U] Return

Return to menu 8.5.0.

Menu 8.6 [N] Return

Return to menu 8.0.

9.0 [S] Service menus**Menu 9.1.0 [S] Heat pump settings**

Settings for L8 SPLIT/L12 SPLIT are made in the sub-menus to this menu.

Menu 9.1.1 [S] DM start heating

Degree minute setting for start of heat pump, heating.

Setting range: -120 – 0

Factory setting: -60

Menu 9.1.2 [S] DM start cooling

Degree minute setting for start of heat pump, cooling.

Setting range: 0 – 120

Factory setting: 60

Menu 9.1.3 [S] Stop temp. heat low

Lower parameter for the heat pump's working range during heating. It stops below this outdoor air temperature.

The heat pump is permitted to start again when the outdoor air temperature increases by two degrees over the set value.

Setting range: -25 – 43 °C

Factory setting: -25 °C

Menu 9.1.4 [S] Stop temp. heat high

Upper parameter for the heat pump's working range during heating. It stops above this outdoor air temperature.

The heat pump is permitted to start again when the outdoor air temperature decreases by two degrees below the set value.

Setting range: -25 – 43 °C

Factory setting: 43 °C

Menu 9.1.5 [S] Stop temp. cool low

Lower parameter for the heat pump's working range during cooling. It stops below this outdoor air temperature.

The heat pump is permitted to start again when the outdoor air temperature increases by two degrees over the set value.

Setting range: 10 – 43 °C

Factory setting: 10 °C

Control**Menu 9.1.6 [S] Stop temp. cool high**

Upper parameter for the heat pump's working range during cooling. It stops above this outdoor air temperature.

The heat pump is permitted to start again when the outdoor air temperature decreases by two degrees below the set value.

Setting range: 10 – 43 °C

Factory setting: 43 °C

Menu 9.1.7 [S] Time bet. starts

Minimum time interval in minutes between compressor starts in the heat pump.

Setting range: 0 – 60 min

Factory setting: 0 min

Menu 9.1.8 [S] Min CompFreq act/set

Select the min compressor frequency here. Display of both the current and the set.

	L8 SPLIT	L12 SPLIT
Setting range	20 – 81 Hz	20 – 80 Hz
Factory setting	20Hz	

Menu 9.1.9 [S] Max CompFreq act/set

Select here the max limit for the compressor. Display of the actual and set via the display.

	L8 SPLIT	L12 SPLIT
Setting range	20 – 86 Hz	25 – 85 Hz
Factory setting	86Hz	85Hz

Menu 9.1.10 [S] OU current heat act/max

The phase current to L8 SPLIT/L12 SPLIT and the highest permitted current that can be set during heating are shown here.

	L8 SPLIT	L12 SPLIT
Setting range	7 – 16	7 – 17
Factory setting	15	

Menu 9.1.11 [S] OU cur. cool act/max

The phase current to L8 SPLIT/L12 SPLIT and the highest permitted current that can be set during cooling are shown here.

Setting range: 7 – 17

Factory setting: 15

	L8 SPLIT	L12 SPLIT
Setting range	7 – 15	7 – 17
Factory setting	14	15

Menu 9.1.12 [S] Tank defrost Temp.

If the system is colder than the set value defrosting occurs connecting to HW. If HW is colder, the electrical addition starts.

Setting range: 20 – 30 °C

Factory setting: 20 °C

Menu 9.1.13 [S] Return

Return to menu 9.1.0.

Menu 9.2.0 [S] Add. heat settings

Settings regarding additional heat and shunt in HM 8-12 SPLIT and any extra shunt can be made in the sub-menus to this menu.

Menu 9.2.1 [S] DM start add. heat

The degree minute deficit that must be set before the additional heat supply is activated is set here.

Setting range: -1000 – -30

Factory setting: -400

Menu 9.2.2 [S] Time factor

The time factor of the immersion heater since first start up is shown here. The value is saved and is not reset even when the boiler is switched off using the main power switch.

Menu 9.2.6 [S] Shunt amplification

Applies to shunt 1 (QN11). E.g. 2 degrees difference and 2 in amplification gives 4 sec/min controlling the shunt.

Setting range: 0.1 – 5.0

Default value: 1.1

Menu 9.2.7 [S] Shunt amplification2

Applies to any shunt 2 (accessory required). E.g. 2 degrees difference and 2 in amplification gives 4 sec/min controlling the shunt. This function compensates for the speed variation found on different shunt motors that may be installed.

Setting range: 0.1 – 5.0

Default value: 1.0

Menu 9.2.8 [S] Add. heat type

Select the type of addition to be used.

Setting range: Internal power 1, Ext. 1 step, Ext. Lin 3, Ext. Bin 3

Default values: Internal power 1

Menu 9.2.9 [S] Return

Return to menu 9.2.0.

Menu 9.3.0 [S] Operating settings

Settings regarding accessories, additional heat operation, floor drying and a return to the factory settings can be made in the sub-menus to this menu.

Menu 9.3.1 [S] Max. boiler temp.

The setting selected on the EBV board (AA22) knob (R26) is shown here.

Menu 9.3.2 [S] Logger**NOTE**

Only for service work, special accessory required.

Select "On" here if logger is installed.

Setting range: Off, On

Default value: Off

Menu 9.3.3 [S] Cooling system

Select "On" if cooling system is installed (accessory required).

Setting range: Off, On

Default value: Off

Menu 9.3.4 [S] Heating system 2

Here you select how climate system 2 is installed and if "Off" is selected in menu 9.3.3 only "Off" or "Heat" can be selected (accessory required).

Setting range: Off, Heating, Heating + Cooling, Cooling

Default value: Off

Menu 9.3.5 [S] Room unit

Here you select whether the Room unit (RBE SPLIT) is to be activated or not (accessory required).

Setting range: Off, On

Default value: Off

Menu 9.3.6 [S] Room sensor type

Room sensor type is selected here. Menu 6.0 can be accessed.

Setting range: Off, RFV SPLIT, RBE SPLIT

Default value: Off

Menu 9.3.7.0 [S] Forced control

Settings regarding forced control of the relays in the heat pump are made from the sub-menus in this menu.

Menu 9.3.7.1 [S] Forced control

When "On" is selected in this menu, the user temporarily takes control of the relays in the heat pump. The setting automatically returns to "Off" 30 minutes after the last button was pushed or after a restart.

Setting range: Off, On

Default value: Off

Menu 9.3.7.2 – 9.3.7.15 [S] K1 – K14

Here you can select manual control of the relays.

Setting range: Off, On, Auto

Default value: Auto

Menu 9.3.7.16 [S] Alarm 1

Select manual test of alarm relay 1 here.

Setting range: Off, On, Auto

Default value: Auto

Menu 9.3.7.17 [S] Alarm 2

Select manual test of alarm relay 2 here.

Setting range: Off, On, Auto

Default value: Auto

Menu 9.3.7.18 [S] Return

Return to menu 9.3.7.0.

Menu 9.3.8 [S] Factory setting

Here you can select to restore factory settings in HM 8-12 SPLIT.

When returning to the factory settings the language switches to English.

Setting range: Yes, No

Default value: No

Menu 9.3.9 [S] Operating state

Describes the operating status of HM 8-12 SPLIT and L8 SPLIT/L12 SPLIT.

Shutdown: Additional heater and heat pump are shutdown due to an alarm.

Alternating: The heat pump produces heat and switches, when necessary, between hot water and climate system.

Combined Mode: Due to a great heating demand, the addition is used for hot water and the heat pump produces heat. The addition assists, when necessary, with heat production.

Cooling: The heat pump produces cooling and switches between hot water and cooling system, when necessary.

Super cooling: Only cooling. This is carried out by the heat pump. Hot water produced by addition.

Hot water: Only hot water is produced. This is carried out by the heat pump.

Addition: The heat pump is off and both hot water and heat is produced by the addition.

Menu 9.3.10.0 [S] Floor drying setting

Settings for the floor drying program are made in the sub-menus to this menu.

Menu 9.3.10.1 [S] Floor drying

"On" or "Off" is selected for the under floor drying program from this sub-menu. After time period 1 a switch is made to time period 2 followed by a return to the normal settings.

Setting range: Off, On

Default value: Off

Menu 9.3.10.2 [S] Period time 1

Selection of the number of days in period 1.

Setting range: 1 – 5 days

Factory setting: 3 days

Menu 9.3.10.3 [S] Temp. period 1

Selection of the supply temperature in period 1.

Setting range: 15 – 50 °C

Factory setting: 25 °C

Menu 9.3.10.4 [S] Period time 2

Selection of the number of days in period 2.

Setting range: 1 – 5 days

Factory setting: 1 days

Menu 9.3.10.5 [S] Temp. period 2

Selection of the supply temperature in period 2.

Setting range: 15 – 50 °C

Factory setting: 40 °C

Menu 9.3.10.6 [S] Return

Return to menu 9.3.10.0.

Menu 9.3.11 [S] Supply pump exer.

Pump operation can be deactivated here. Pump is in operation for 2 minutes, 12 hours after last operation.

Setting range: Off, On

Default value: On

Menu 9.3.12 [S] Supply diff HP

When the current flow temperature deviates from the set value compared to that calculated, the heat pump is forced to stop/start irrespective of the degree-minute figure.

Heating mode: If the current supply temperature exceeds the calculated supply line by a set value, the degree minute number is set to 1. The compressor stops when there is only a heating requirement.

If the calculated supply temperature drops below the calculated flow with set value, the degree minute number is set to the value in menu 9.1.1 minus 1. This means that the compressor will start.

Cooling mode: If the current supply temperature drops below the calculated supply line with set value, the degree minute number is set to -1. The compressor stops when there is only a cooling requirement.

Setting range: 3 – 25 °C

Factory setting: 10 °C

Menu 9.3.13 [S] Diff HP add. heat

If additional heat is permitted (menu 8.2.1) and the current supply line temperature falls below the calculated set value plus the value from menu 9.3.12, the degree minute value is set to the set value in menu 9.2.1 plus 1, until the compressor has reached full speed. When the compressor has reached full speed, the degree minute value is set to the set value in menu 9.2.1 and additional heat is permitted. This means that the additional heat can cut in immediately.

Setting range: 1 – 8 °C

Factory setting: 3 °C

Menu 9.3.14 [S] Block HW/Heating

If heating or hot water are not required, they can be deselected here.

Operating mode Hot water or Only addition must be selected if heating is deselected.

Setting range: No HW, No heating, HW+Heating

Default value: HW+Heating

Menu 9.3.15 [S] Heat drop at alarm

Here you select whether heat production is to be reduced in the event of an alarm.

Setting range: Yes, No

Default value: Yes

Menu 9.3.16 [S] Type of HW sensor

Here you can select whether to use hot water sensors that manage higher temperatures (above 90 °C) or not.

Standard: Standard setting

High temp: The calculation for the HW jacket sensor (BT6), Additional heat sensor (BT19) as well as supply temperature sensor (BT2) is replaced to suit a sensor that manages higher temperatures (up to 110 °C). Used if new sensor is installed in connection with installation of solar heating.

Setting range: Standard, High temp

Default value: Standard

Menu 9.3.17 [S] Freeze protection HX

Select here whether heat exchanger anti freeze is to be active or not.

Setting range: On, Off

Default value: On

Menu 9.3.18 [S] Return

Return to menu 9.3.0.

Menu 9.4 [S] Quick start

If "Yes" is selected, the compressor starts in the heat pump within 4 minutes if there is a demand. However, there is always a 30 minute compressor start delay if the current has been switched off.

Setting range: No, Yes

Default value: No

Menu 9.5.0 [S] System info

The sub menus to this menu contain information that is used when troubleshooting.

Only for service personnel.

Menu 9.5.1 [S] Heat pump type

The type of heat pump connected is shown here.

Menu 9.5.2 [S] Cpu usage percent

The CPU load is shown here.

Menu 9.5.3 [S] Com rate/1000

The number of communication retransmissions is shown here.

Menu 9.5.4 [S] Unit w. com. problem

Any communication problems that a unit may have are shown here as well as the relevant unit.

Menu 9.5.5 [S] Run time add. heat

The accumulated running time for the electric addition since the first start is shown.

Menu 9.5.6 [S] Run time hot water

The accumulated operating time in hours for hot water production with compressor since the first start-up is shown here.

Menu 9.5.7 [S] Program version

The current program software version in HM 8-12 SPLIT is shown here

Menu 9.5.8 [S] 106-card version

The communication board version number is shown here (AA23).

Menu 9.5.9 [S] Display version

The display version number is shown here.

Menu 9.5.10 [S] Relay card version

The relay card version number is shown here.

Menu 9.5.11 [S] Lowest supply temp.

The minimum flow line temperature since start-up is shown here.

Menu 9.5.12 [S] Percent runtime

The compressor's running time percentage.

Menu 9.5.13 [S] Period

Period counter for switching between hot water and heating/cooling.

Menu 9.5.14 [S] Run status

Shows the current operating status of L8 SPLIT/L12 SPLIT

The display can show: Off, Hot water, Heating, Cooling, Defrost, Oil return or XHW.

Menu 9.5.15 [S] Run status last

Shows the previous operating status for L8 SPLIT/L12 SPLIT

The display can show: Off, Hot water, Heating, Cooling, Defrost, Oil return or XHW.

Menu 9.5.16 [S] Run status time

The time since the last operating status change.

Menu 9.5.17 [S] Return

Return to menu 9.5.0.

Menu 9.6.0 [S] Heat reg. settings

Settings regarding the heating regulator can be made in the sub-menus to this menu.

Menu 9.6.1 [S] CompFreq

The current set point value frequency to the compressor is shown here.

Setting the set point value during manual control of the compressor frequency is activated in menu 9.6.2.

	L8 SPLIT	L12 SPLIT
Setting range	20 – 86 Hz	20 – 85 Hz

Menu 9.6.2 [S] Manual CompFreq

Select "On" to manually control the compressor frequency manually in menu 9.6.1.

Setting range: Off, On

Default value: Off

Menu 9.6.3 [S] Max deltaF act/set

The parameter for the heat regulator's max change of the set point is selected here.

Setting range: 1 – 10 Hz

Factory setting: 3 Hz

Menu 9.6.4 [S] CompFreq regP

Select P part for heat regulator.

Setting range: 1 – 60

Factory setting: 5

Menu 9.6.5 [S] Time min freq start

Select here the time that the compressor is to run at min speed, after start connecting to the climate system.

Setting range: 10 – 120 min

Factory setting: 70 min

Menu 9.6.6 [S] Time min freq heat

Select here the time that the compressor is to run at fixed frequency after shifting to heating. The compressor then runs at min frequency or at the frequency it had before hot water charging.

Setting range: 3 – 60 min

Factory setting: 3 min

Menu 9.6.7 [S] Max diff flow-cFlow

Select here limitation of flow when the degree minute regulator is way off the set point. Max difference between flow line front and calculated flow line.

Setting range: 2.0 – 10.0 °C

Default value: 4.0 °C

Menu 9.6.8 [S] CompFreq GMz

Here you select a value for the dynamic in the degree minute regulator.

Setting range: 95 – 127

Factory setting: 126

Menu 9.6.9 [S] Return

Return to menu 9.6.0.

Menu 9.7 [S] Reset alarm

Select "Yes" here to reset/acknowledge alarms in HM 8-12 SPLIT. The settings returns to "No" once the action has been carried out.

Setting range: Yes, No

Menu 9.8.0 [S] Alarm log

The alarm logs with the last 4 alarms are shown in the sub-menus for this menu.

Menu 9.8.1.0 – 9.8.4.0 [S] Log 1 – Log 4

The alarm logs are shown in the sub-menus for this menu. Log 1 is the last alarm, log 2 the next last, etc.

Control**Menu 9.8.x.1 [S] Time****Menu 9.8.x.2 [S] Alarm type**

See section Alarm list on page 65 for further alarm information.

Alarm number	Cause
1	HP alarm
2	LP alarm
3	TB alarm
4	OU power failure
5	Low condenser out
6	High KF
7	Anti freeze HX
8	High HW temp.
9	High AH temp.
10	High VBF1
11	High VBF2
12	High VBR1
13	High VBR2
15	OU not compatible
16	Defrosting interrupted
30	Sensor fault UG
31	S. fault HP
32	Sensor fault KF
33	S. fault Liquid line
34	S. fault HW
35	S. fault AH
36	Sensor fault VBF1
37	Sensor fault VBF2
38	Sensor fault VBR1
39	Sensor fault VBR2
E34	OU phase error
E35	High HX temp
E36	High hotgas
E37	Sensor fault OU
E38	Sensor fault OU
E39	Sensor fault OU
E40	HP alarm
E41	Inverter error
E42	Inverter error
E45	Inverter error
E47	Inverter error
E48	Fan alarm
E49	LP alarm
E51	Inverter error
E53	Sensor fault OU
E54	LP alarm
E57	Low refrigerant
E59	Inverter error

Menu 9.8.x.3 [S] Run status**Menu 9.8.x.4 [S] Run status last****Menu 9.8.x.5 [S] Run status time****Menu 9.8.x.6 [S] Run time compressor****Menu 9.8.x.7 [S] Outdoor avg. 1min.****Menu 9.8.x.8 [S] Outdoor temp Tho-A****Menu 9.8.x.9 [S] Supply/Return temp****Menu 9.8.x.10 [S] Condensor out****Menu 9.8.x.11 [S] Hot water temp.****Menu 9.8.x.12 [S] CompFreq act/set****Menu 9.8.x.13 [S] Heat Ex Tho-R1****Menu 9.8.x.14 [S] Heat Ex Tho-R2****Menu 9.8.x.15 [S] Suction temp. Tho-S****Menu 9.8.x.16 [S] Hot gas Tho-D****Menu 9.8.x.17 [S] Liquid line temp.****Menu 9.8.x.18 [S] HP****Menu 9.8.x.19 [S] LP LPT****Menu 9.8.x.20 [S] OU current CT****Menu 9.8.x.21 [S] Inverter temp Tho-IP****Menu 9.8.x.22 [S] Circ-pump speed****Menu 9.8.x.23 [S] Relay status 1-8****Menu 9.8.x.24 [S] Relay status 9-14****Menu 9.8.x.25 [S] Program status 1-8****Menu 9.8.x.26 [S] Program status 9-16****Menu 9.8.x.27 [S] Return**

Return to menu 9.8.x.0.

Menu 9.8.5 [S] Clear alarm log

Select "Yes" to erase the entire alarm log. The settings returns to "No" once the action has been carried out.

Setting range: Yes, No

Menu 9.8.6 [S] Return

Return to menu 9.8.0.

Menu 9.9 [S] Return

Return to menu 9.0.

Alarm list

Acknowledging alarms

No harm in acknowledging an alarm. If the cause of the alarm remains, the alarm recurs.

- When an alarm has been triggered, it is acknowledged in menu 9.7 (service menu) by switching HM 8-12 SPLIT off and on using the switch (SF1). Note that when the power is switched on there is a 30 minute delay before the heat pump restarts.

- When the alarm cannot be reset using the switch (SF1), the operating mode, "Add. heat only", can be activated to return to a normal temperature level in the house. This is most easily carried out by holding the "Operating mode" button pressed in for 7 seconds.

NOTE

Recurring alarms mean that there is a fault in the installation.

Alarm with automatic reset

Alarm no.	Alarm text on the display	Triggers alarm	Resets alarm
70	Low condenser out	When condenser supply (BT12) is less than 5 °C.	- When condenser supply is greater than 14 °C during cooling. - When defrosting has ended. If the defrosting caused the alarm (condenser supply during defrosting is approx. 10 °C).
71	High KF	When condenser supply is greater than 60 °C and more than 120 seconds have passed since shifting to the climate system.	- When condenser out is lower than 51 °C.
72	Anti freeze HX	When the low pressure is less than 0.65 MPa (6.5 bar) in cooling mode.	- When the low pressure is greater than 0.83 MPa (8.3 bar) and condenser out is greater than 14 degrees.
73	Freeze prot	When the outdoor temperature drops below 0 °C and the operating mode does not permit heating.	- When the outdoor temperature rises above 1 °C.
75	Current limit	Too high current output from the house.	- When the current output decreases.
76	Com. alarm	Failed communication to one or more boards.	- When the fault has been corrected.
77	Defrosting interrupted	When the temperature in the water heater is too low (low pressure is less than 0.5 MPa, 5.0 bar) during defrost.	- When defrost has ended.
78	Protection	Exceeded limit value	- When defrost has ended.

Temperature limiter alarm

The following alarm blocks both L8 SPLIT/L12 SPLIT and addition.

Alarm no.	Alarm text on the display	Description	May be due to
3	TB alarm	Temperature limiter in the tank has tripped.	- The temperature limiter has tripped during transportation - High temperature in the tank - Tripped circuit fuse (L2)

HM 8-12 SPLIT alarm

The following alarms block L8 SPLIT/L12 SPLIT. Addition runs at min permitted supply temperature.

Alarm no.	Alarm text on the display	Description	May be due to
4	OU power failure	No voltage to the outdoor unit from HM 8-12 SPLIT.	- Tripped circuit fuse (L3) - Tripped miniature circuit breaker (-FA2)
5	Low condenser out	Too low temperature out from the condenser. Occurs if alarm 70 occurs 3 times within an hour.	- Low temperature during cooling - Low flow during cooling

Alarm list

Alarm no.	Alarm text on the display	Description	May be due to
6	High KF	Too high temperature out from the condenser. Occurs if alarm 71 occurs 3 times within an hour.	- Low flow in heating operation - Too high set temperatures
7	Anti freeze HX	Anti-freeze of heat exchanger. Occurs if alarm 72 occurs 3 times within an hour.	- Low flow during defrost - Abnormally low temperature in the climate system
14	Defrosting interrupted	Occurs if the alarm 77 occurs 10 times in succession.	- Low flow during defrost - Abnormally low temperature in the climate system - Lack of refrigerant or leak
15	OU not compatible	Indoor unit and outdoor unit do not communicate with each other.	- Indoor unit and outdoor unit not compatible with each other.
16	Defrosting interrupted	Occurs if the alarm 78 occurs 10 times in succession.	- Low flow during defrost
31	S. fault HP	Sensor fault, high pressure (BP4).	- Open-circuit or short-circuit on sensor input - Sensor does not work
32	Sensor fault KF	Sensor fault, cond out (BT12).	- Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)
33	S. fault Liquid line	Sensor fault, liquid line (BT15).	- Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)

L8 SPLIT/L12 SPLIT alarm

The following alarms block L8 SPLIT/L12 SPLIT. Addition runs at min permitted supply temperature.

Alarm no.	Alarm text on the display	Description	May be due to
E5	OU Com. error	Communication between the outdoor unit and HM 8-12 SPLIT is broken. There must be 22 volt direct current (DC) at the switch CNW2 on the control board (PWB1).	- Any isolator switches for L8 SPLIT/L12 SPLIT off - Incorrect cable routing
E35	High HX temp	Temperature deviation on the heat exchanger sensor (Tho-R1/R2) five times within 60 minutes or for 60 minutes continuously.	- Sensor does not work (see "Temperature sensor" section) - Insufficient air circulation or blocked heat exchanger - Defective control board in L8 SPLIT/L12 SPLIT - Too much refrigerant
E36	Permanent Hotgas	Temperature deviation on the hot gas sensor (Tho-D) twice within 60 minutes or for 60 minutes continuously.	- Sensor does not work (see "Temperature sensor" section) - Insufficient air circulation or blocked heat exchanger - If the fault persists during cooling, there may be an insufficient amount of refrigerant. - Defective control board in L8 SPLIT/L12 SPLIT
E37	Sensor fault Tho-R	Sensor fault, heat exchanger in L8 SPLIT/L12 SPLIT (Tho-R).	- Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section) - Defective control board in L8 SPLIT/L12 SPLIT

Alarm no.	Alarm text on the display	Description	May be due to
E38	Sensor fault Tho-A	Sensor fault, outdoor temperature sensor in L8 SPLIT/L12 SPLIT (Tho-A).	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section) - Defective control board in L8 SPLIT/L12 SPLIT
E39	Sensor fault Tho-D	Sensor fault, hot gas in L8 SPLIT/L12 SPLIT (Tho-D).	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section) - Defective control board in L8 SPLIT/L12 SPLIT
E40	HP alarm	The high pressure switch (63H1) deployed 5 times within 60 minutes or for 60 minutes continuously.	<ul style="list-style-type: none"> - Insufficient air circulation or blocked heat exchanger - Open circuit or short circuit on input for high pressure switch (63H1) - Defective high pressure pressostat - Expansion valve not correctly connected - Service valve closed - Defective control board in L8 SPLIT/L12 SPLIT - Low or no flow during heating operation - Defective circulation pump - Defective fuse, F(4A)
E41	Power transistor too hot	When IPM (Intelligent power module) displays FO-signal (Fault Output) five times during a 60-minute period.	Could occur when 15V power supply to the inverter PCB is unstable.
E42	Inverter error	Voltage from the inverter outside the parameters four times within 30 minutes.	<ul style="list-style-type: none"> - Incoming power supply interference - Service valve closed - Insufficient amount of refrigerant - Compressor fault - Defective circuit board for inverter in L8 SPLIT/L12 SPLIT
E45	Inverter error	Communication between circuit board for inverter and control board broken.	<ul style="list-style-type: none"> - Open-circuit in connection between boards - Defective circuit board for inverter in L8 SPLIT/L12 SPLIT - Defective control board in L8 SPLIT/L12 SPLIT
E47	Inverter error	Overcurrent, Inverter A/F module	- Sudden power failure
E48	Fan alarm	Deviations in the fan speed in L8 SPLIT/L12 SPLIT.	<ul style="list-style-type: none"> - The fan cannot rotate freely - Defective control board in L8 SPLIT/L12 SPLIT - Defective fan motor - Control board in L8 SPLIT/L12 SPLIT dirty - Fuse (F2) tripped
E49	LP alarm	Too low value on the low pressure sensor 3 times within 60 minutes.	<ul style="list-style-type: none"> - Open circuit or short circuit on input for low pressure transmitter - Defective low pressure transmitter - Defective control board in L8 SPLIT/L12 SPLIT - Open circuit or short circuit on input for suction gas sensor (Tho-S) - Faulty suction gas sensor (Tho-S)

Alarm list

Alarm no.	Alarm text on the display	Description	May be due to
E51	Inverter error	Continuous deviation on power transistor for 15 minutes.	<ul style="list-style-type: none"> - Defective fan motor - Defective circuit board for inverter in L8 SPLIT/L12 SPLIT
E53	Sensor fault Tho-S	Sensor fault, suction gas in L8 SPLIT/L12 SPLIT (Tho-S).	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section) - Defective control board in L8 SPLIT/L12 SPLIT
E54	Sensor fault LPT	Sensor fault, low pressure transmitter in L8 SPLIT/L12 SPLIT.	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section) - Defective control board in L8 SPLIT/L12 SPLIT - Fault in the refrigerant circuit
E57	Insufficient refrigerant	Insufficient refrigerant is detected upon start-up in cooling mode.	<ul style="list-style-type: none"> - Service valve closed - Loose connection sensor (BT15, BT3) - Defective sensor (BT15, BT3) - Too little refrigerant
E59	Inverter error	Failed start for compressor	<ul style="list-style-type: none"> - Defective circuit board for inverter in L8 SPLIT/L12 SPLIT - Defective control board in L8 SPLIT/L12 SPLIT - Compressor fault

Hot water alarm

The following alarms block hot water production via L8 SPLIT/L12 SPLIT. The addition is blocked completely.

Alarm no.	Alarm text on the display	Description	May be due to
8	High HW temp.	Too high a temperature (>90 °C) on hot water sensor (BT6).	<ul style="list-style-type: none"> - Contactor to internal electricity defective - Incorrect external addition setting
9	High AH temp.	Too high a temperature (>90 °C) on immersion heater sensor (BT19).	<ul style="list-style-type: none"> - Contactor to internal electricity defective - Incorrect external addition setting
34	S. fault HW	Sensor fault, hot water (BT6).	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)
35	S. fault AH	Sensor fault, immersion heater (BT19).	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)

Supply alarm

The following alarms switch off heating/cooling. Only hot water production is permitted.

Alarm no.	Alarm text on the display	Description	May be due to
10	High VBF1	Too high a temperature (>90 °C) on supply line sensor, system 1 (BT2).	<ul style="list-style-type: none"> - Sensor does not work (see "Temperature sensor" section)
11	High VBF2	Too high a temperature (>90 °C) on supply line sensor, system 2.	<ul style="list-style-type: none"> - Sensor does not work (see "Temperature sensor" section)
36	Sensor fault VBF1	Sensor fault, supply, system 1 (BT2).	<ul style="list-style-type: none"> - Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)

Alarm no.	Alarm text on the display	Description	May be due to
37	Sensor fault VBF2	Sensor fault, supply, system 2.	- Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)

Outdoor sensor alarm

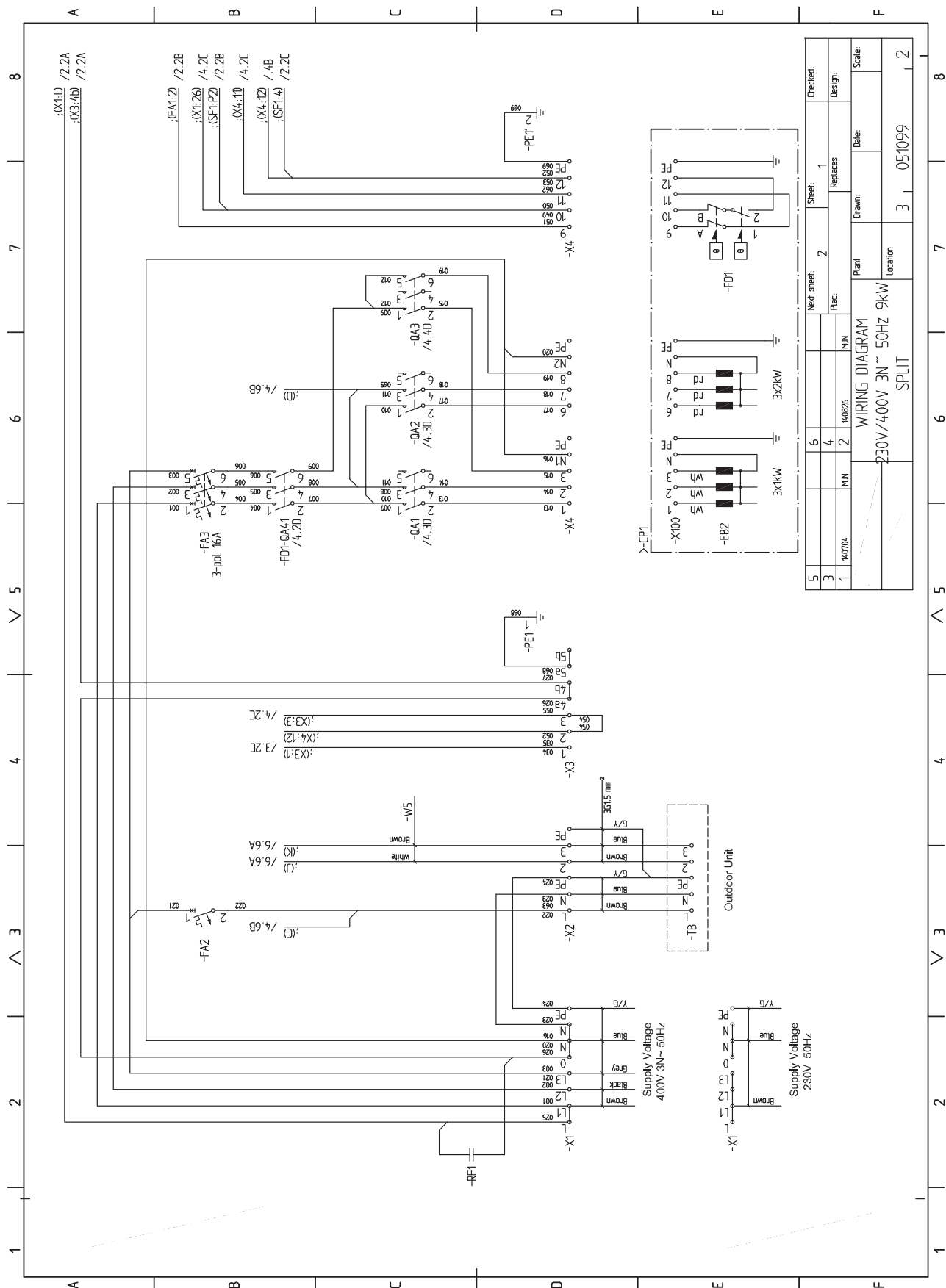
The following alarms set so that the system runs at minimum permitted supply temperature.

Alarm no.	Alarm text on the display	Description	May be due to
30	Sensor fault UG	Sensor fault, outdoor temperature (BT1).	- Open-circuit or short-circuit on sensor input - Sensor does not work (see "Temperature sensor" section)

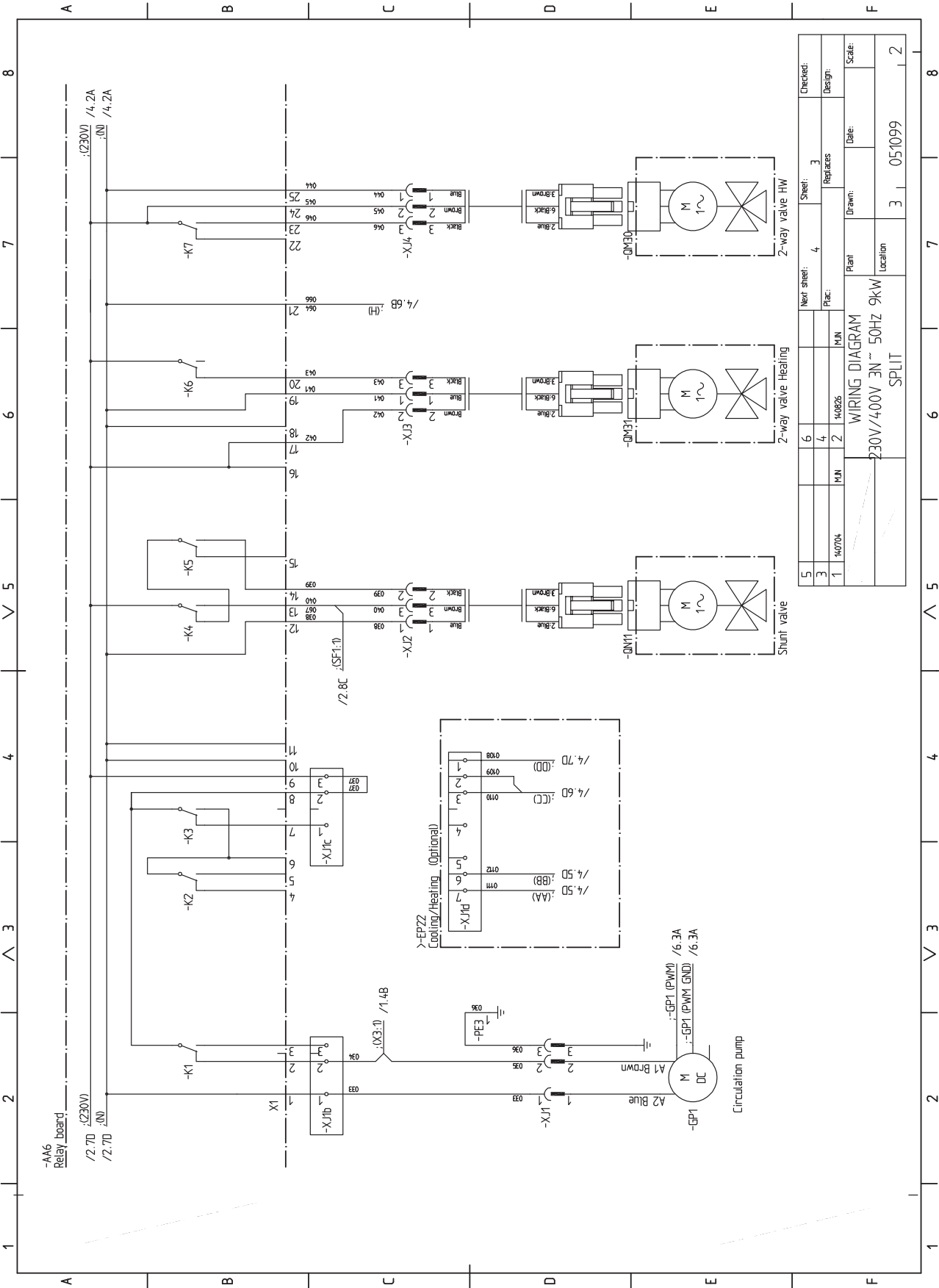
Circulation pump alarm

LED colour	Description	May be due to
Green, steady light	Normal operation.	
Green, flashing	Standby.	
Red/green, flashing	Abnormal situation.	Under voltage/over voltage. High ambient or water temperature.
Red, flashing	Pump fault. Reset and check again.	Persistent pump fault; replace pump.
No LED	The pump does not have power. LED damaged. The electronics do not work.	No power to the pump. Is the air pump working? Electronics damaged; replace pump.

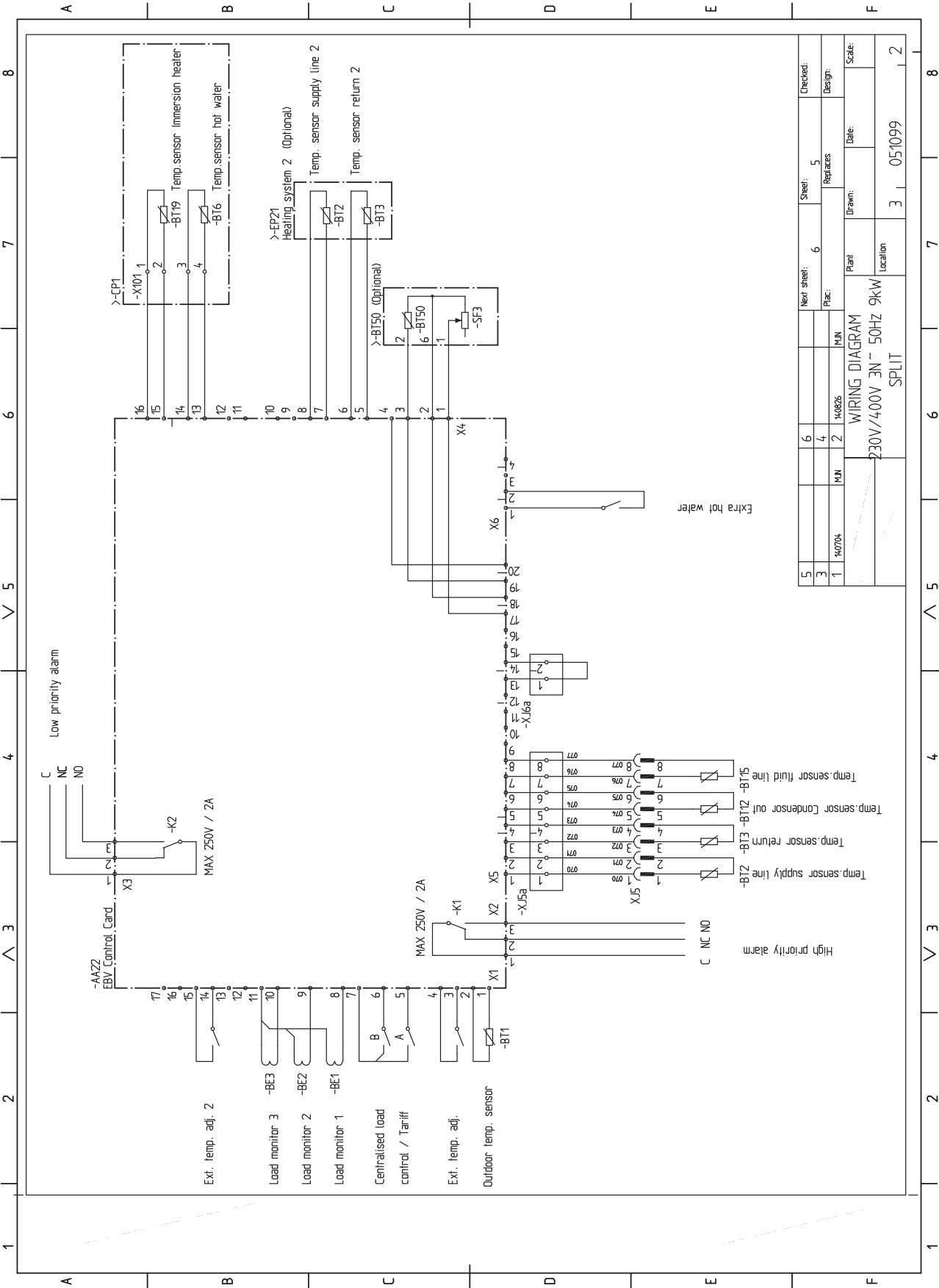
HM 8-12 SPLIT

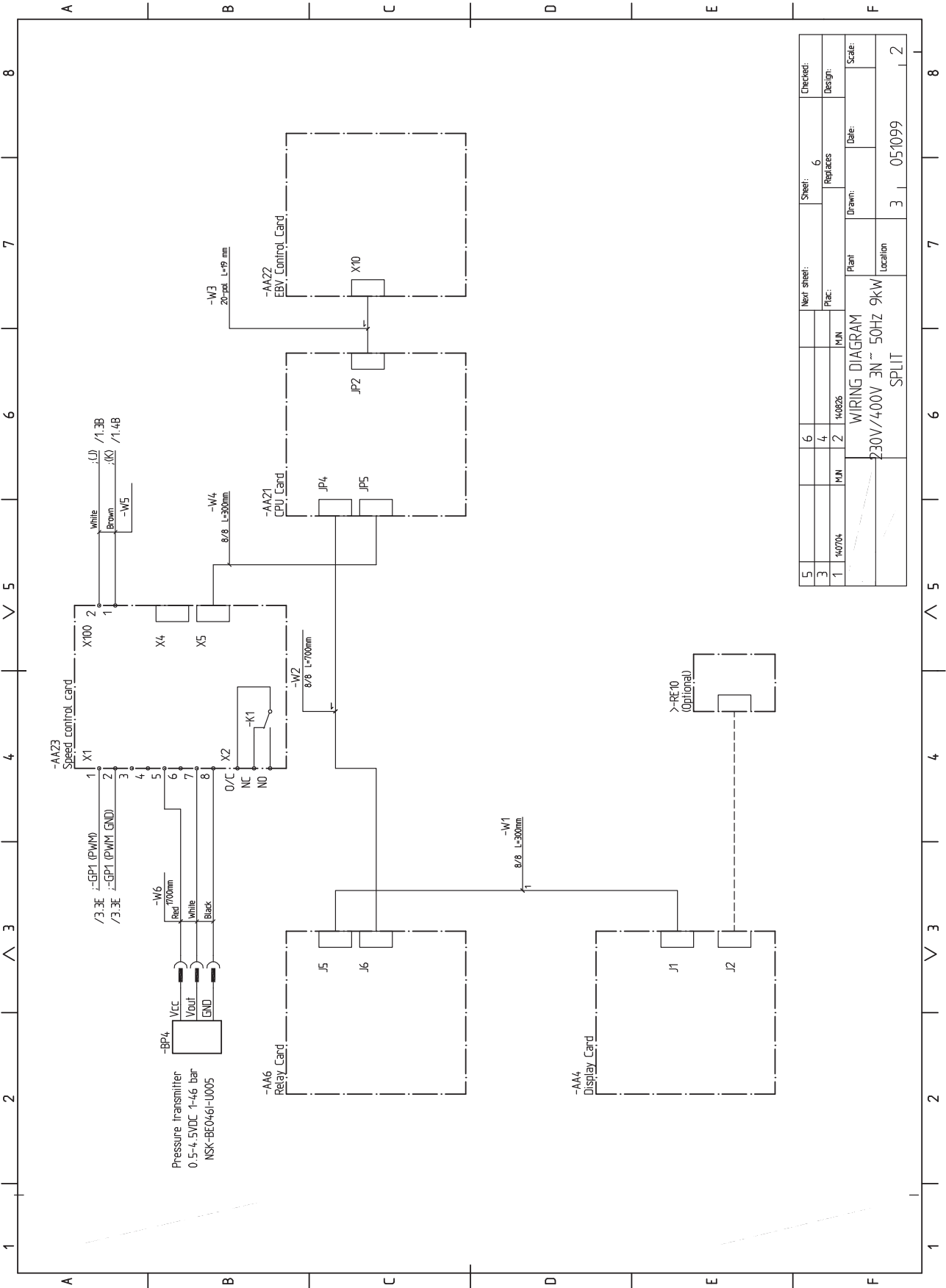










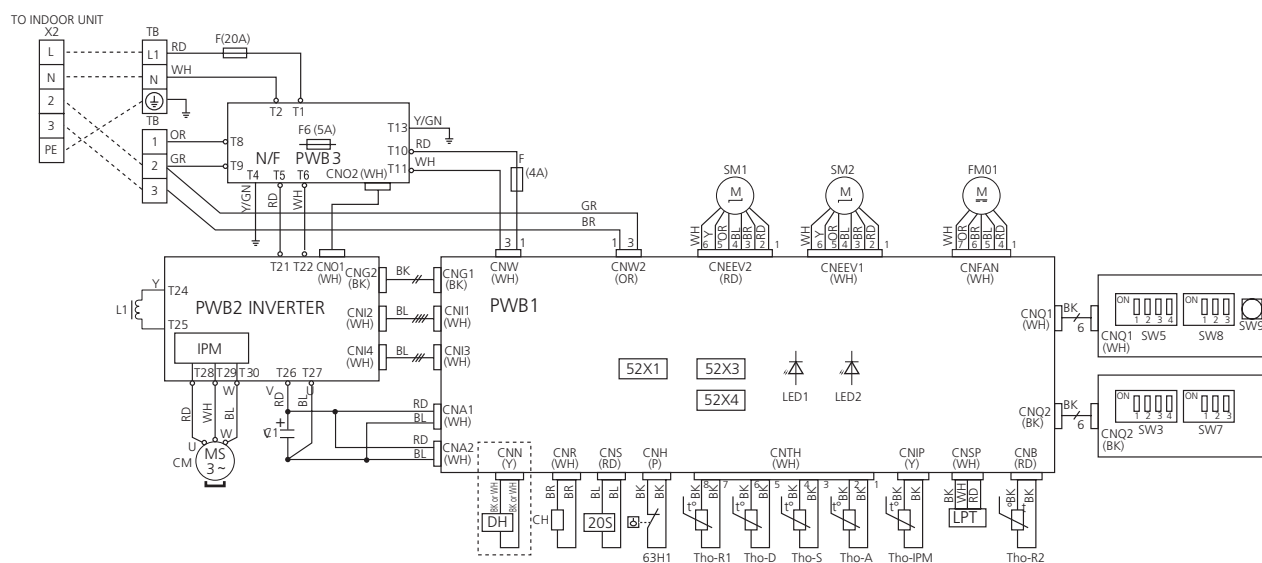


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									Replaces	Design:	
									Drawn:	Date:	Scale:
									Plant	Location	
									230V/400V 3N ~ 50Hz 9kW	3	05/099
									SPLIT	2	

Electrical circuit diagram

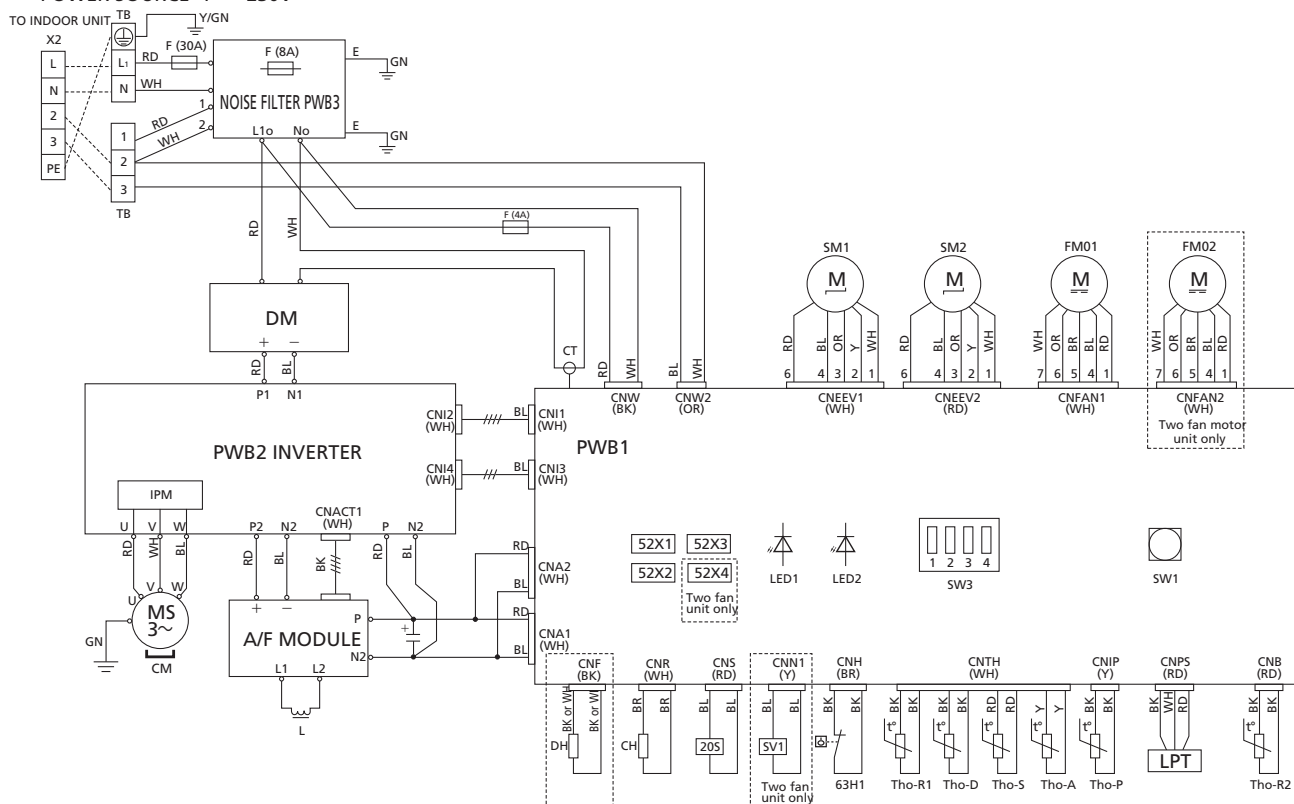
L8 SPLIT

POWER SOURCE
230V 50Hz



L12 SPLIT

POWER SOURCE 1 ~ 230V

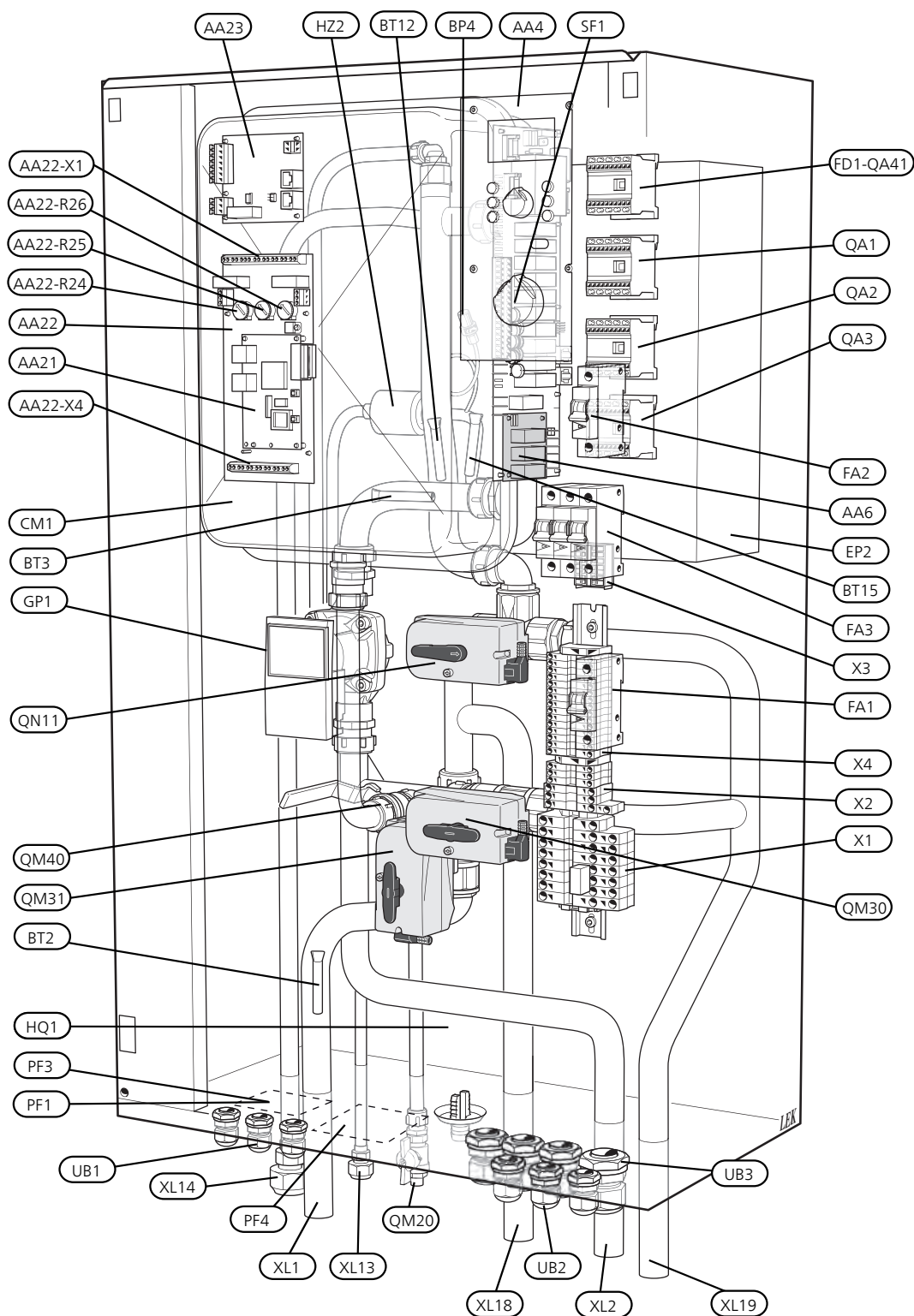


Designation	Description
20S	Solenoid for 4-way valve
52X1	Auxiliary relay (for CH)
52X3	Auxiliary relay (for 20S)
52X4	Auxiliary relay (for DH)
63H1	High pressure pressostat
C1	Capacitor
CH	Compressor heater
CM	Compressor motor
CnA~Z	Terminal block
CT	Current sensor
DH	Drain pan heater
DM	Diode module
F	Fuse
FM01	Fan motor
IPM	Intelligent power module
L/L1	Induction coil
LED1	Indicator lamp (green for L8 SPLIT, red for L12 SPLIT)
LED2	Indicator lamp (red for L8 SPLIT, green for L12 SPLIT)
LPT	Low pressure transmitter
SM1	Expansion valve for cooling
SM2	Expansion valve for heating
SW1, 9	Pump down
SW3, 5, 7, 8	Local settings
TB	Terminal block
Tho-A	Temperature sensor, outdoor air
Tho-D	Temperature sensor, hot gas
Tho-IPM	Temperature sensor, IPM
Tho-R1	Temperature sensor, heat exchanger out
Tho-R2	Temperature sensor, heat exchanger, in
Tho-S	Temperature sensor, suction gas

Component positions

HM 8-12 SPLIT

Component image



Component list**Pipe connections**

XL1	Climate system supply
XL2	Climate system return
XL13	Liquid line refrigerant
XL14	Gas line refrigerant
XL18	Connection, Circulation
XL19	Connection, Circulation

Valves etc.

EP2	Heat exchanger
GP1	Circulation pump, climate system
HQ1	Particle filter
HZ2	Drying filter
QM20	Venting valve
QM30	Actuator, reversing valve, hot water
QM31	Actuator shuttle valve, climate system
QM40	Valve, shut-off
QN11	Actuator, mixing valve

Electrical components

X1	Terminal block, incoming mains supply
X2	Terminal block, outgoing supply and communication
X3	Terminal block, external addition
X4	Terminal block, external immersion heater and temperature limiter/thermostat emergency mode FD1-BT30
SF1	Switch
FA1	Miniature circuit breaker, control system
FA2	Miniature circuit breaker, outdoor unit
FA3	Miniature circuit breaker, external immersion heater
AA4	Display unit
AA6	Relay card
AA21	CPU card
AA22	EBV card
R24	Setting, fuse size
R25	Setting, max power, electric additional heat
R26	Setting, max boiler temperature
X1	Terminal block
X4	Terminal block
AA23	Communication board
QA1	Contactactor
QA2	Contactactor
QA3	Contactactor

Sensor, thermostats

BP4	Pressure sensor, high pressure
BT1	Temperature sensor, outdoor
BT2	Temperature sensor, heating medium, flow
BT3	Temperature sensor, heating medium, return
BT12	Temperature sensor, condenser, supply
BT15	Temperature sensor, fluid pipe
FD1-	Contactactor, temperature limiter
QA41	

Miscellaneous

UB1	Cable gland
UB2	Cable gland
UB3	Cable gland
PF1	Rating plate
PF3	Serial number plate
PF4	Sign, pipe connections

Component image



List of components**Pipe connections**

XL3	Connection, Cold water
XL4	Connection, Hot water
XL8	Connection, Docking, in heating medium
XL9	Connection, Docking, out heating medium
XL18	Connection, Circulation
XL19	Connection, Circulation

Valves etc.

FL2	Safety valve, heating medium
QM1	Drain valve, heating medium
QM20	Venting valve

Electrical components

EB1	Immersion heater
X100	Terminal block
X101	Terminal block

Sensor, thermostats

BP5	Pressure gauge
BT6	Temperature sensor, hot water charging
BT19	Temperature sensor, immersion heater
BT24	Temperature sensor, docking
FD1-	Temperature limiter
BT30	/Emergency mode thermostat

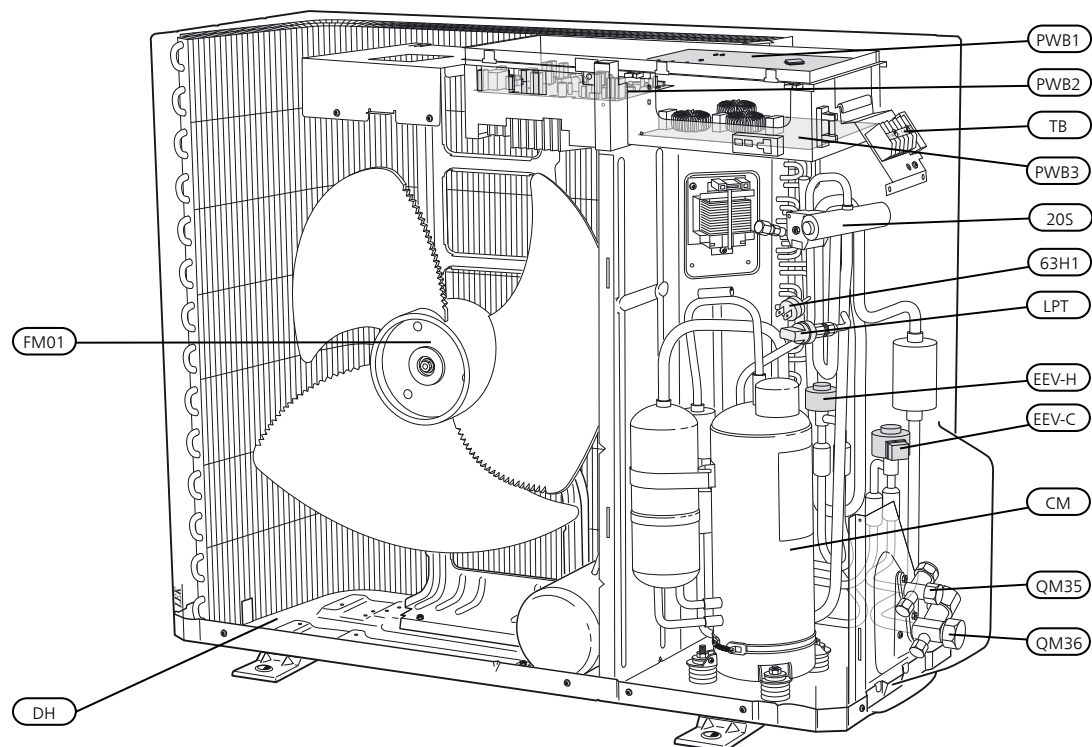
Miscellaneous

PF1	Rating plate
PF4	Sign, pipe connections

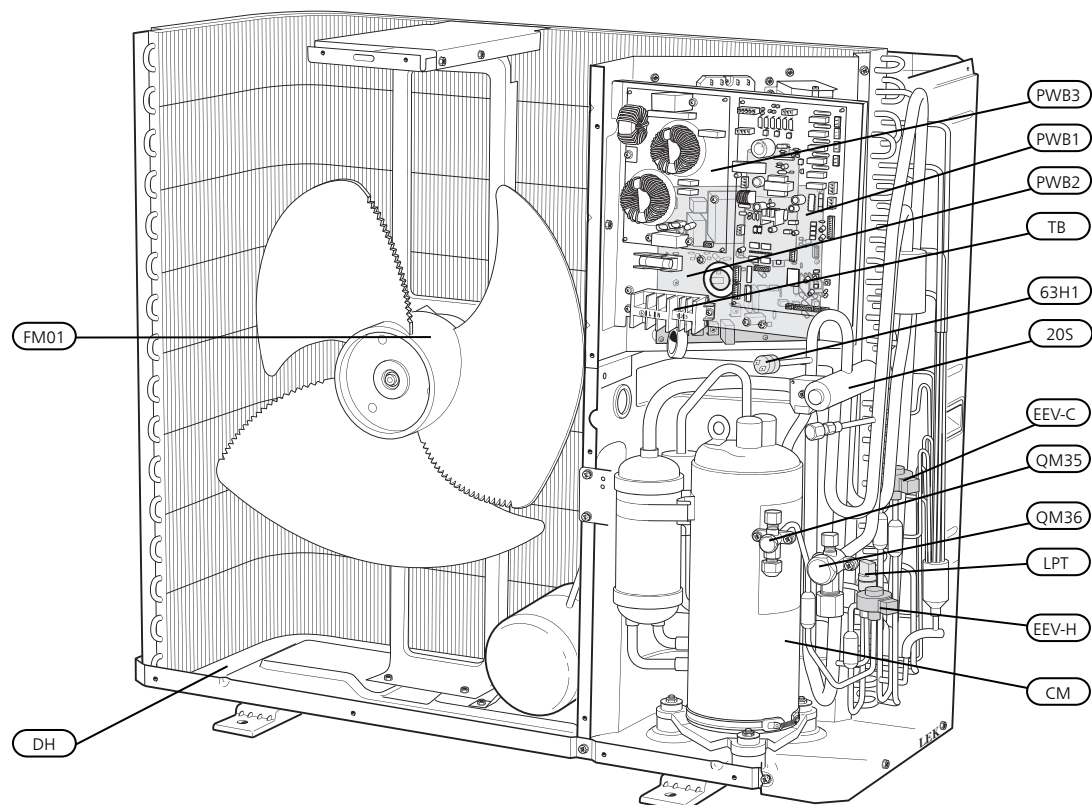
Component positions

Outdoor unit

Component image, L8 SPLIT

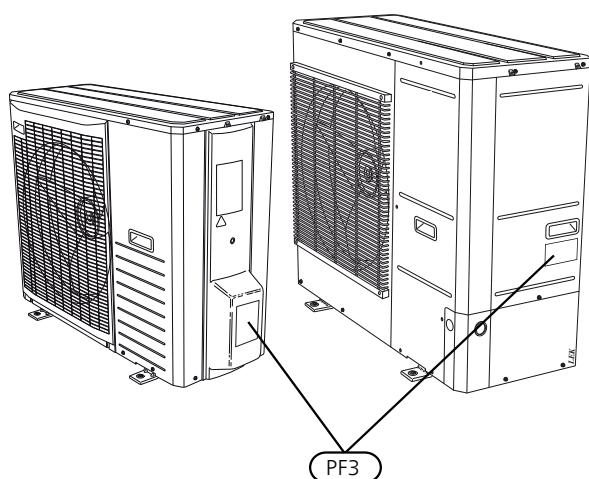


Component image, L12 SPLIT



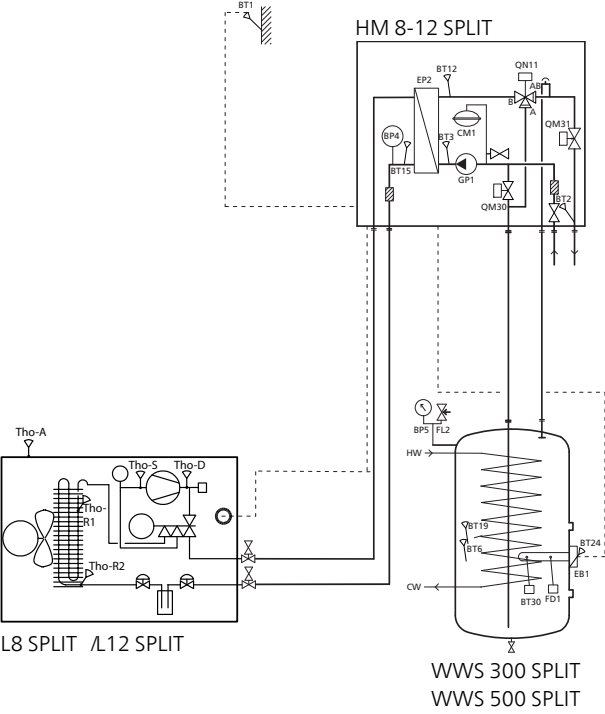
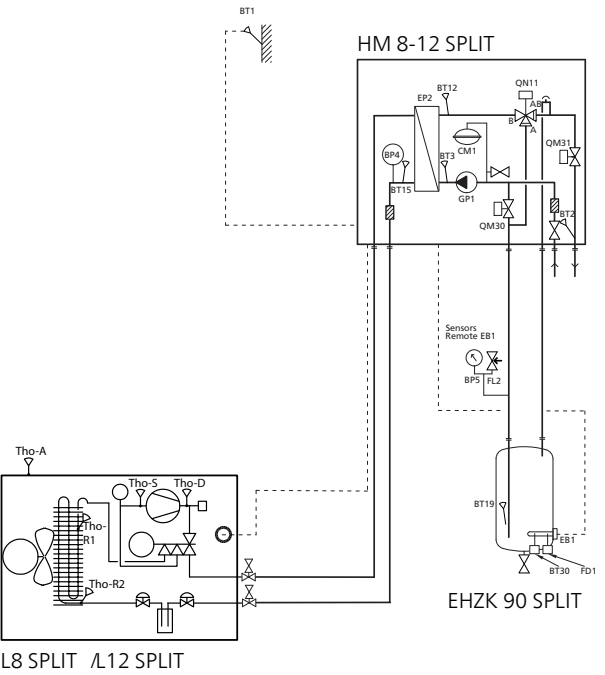
List of components

63H1	High pressure pressostat
LPT	Low pressure transmitter
FM01	Fan
20S	4-way valve
CM	Compressor
PWB1	Control board
PWB2	Inverter board
PWB3	Filter board
QM35	Service valve, liquid side
QM36	Service valve, gas side
EEV-H	Expansion valve, heating
EEV-C	Expansion valve, cooling
TB	Terminal block, incoming supply and communication
PF3	Serial number plate
DH	Drain pan heater



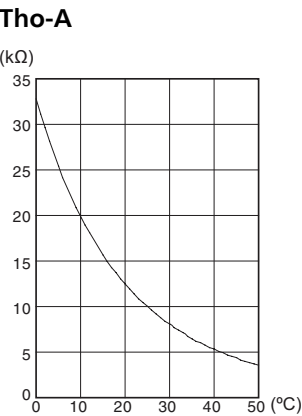
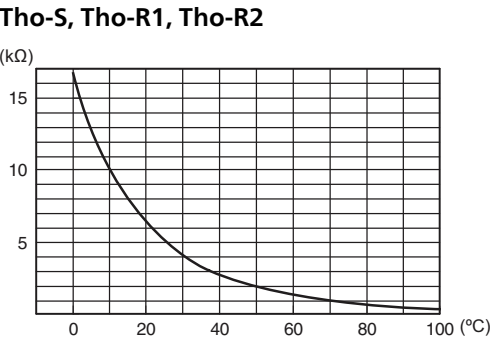
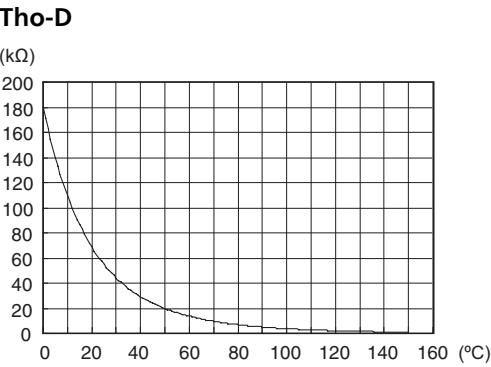
Temperature sensor

Sensor placement



- BT1 Temperature sensor, outdoor (external)
- BT2 Temperature sensor, flow pipe
- BT3 Temperature sensor, return
- BT6 Temperature sensor, hot water
- BT12 Temperature sensor, condenser out
- BT15 Temperature sensor, fluid pipe
- BT19 Temperature sensor, immersion heater
- Tho-A Temperature sensor, outdoor air
- Tho-D Temperature sensor, hot gas
- Tho-R1 Temperature sensor, heat exchanger out
- Tho-R2 Temperature sensor, heat exchanger, in
- Tho-S Temperature sensor, suction gas

Data for sensor in L8 SPLIT/L12 SPLIT

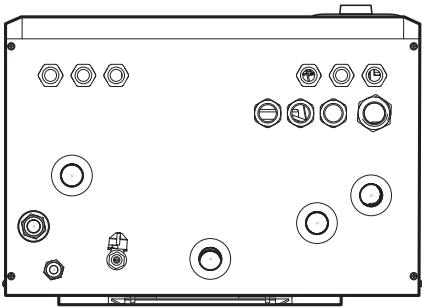


Data for sensor in HM 8-12 SPLIT

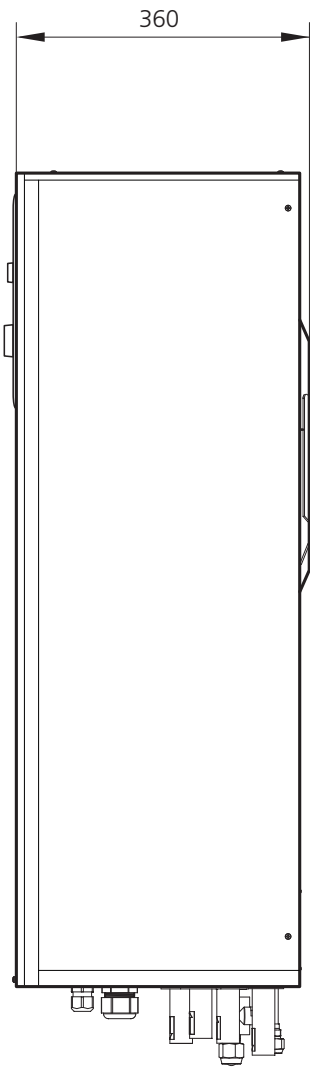
Temperature (°C)	Resistance (k Ω)	Voltage (V)
-40	102.35	4.78
-35	73.51	4.70
-30	53.44	4.60
-25	39.29	4.47
-20	29.20	4.31
-15	21.93	4.12
-10	16.62	3.90
-5	12.71	3.65
0	9.81	3.38
5	7.62	3.09
10	5.97	2.80
15	4.71	2.50
20	3.75	2.22
25	3.00	1.95
30	2.42	1.70
35	1.96	1.47
40	1.60	1.27
45	1.31	1.09
50	1.08	0.94
60	0.746	0.70
70	0.525	0.51

Dimensions

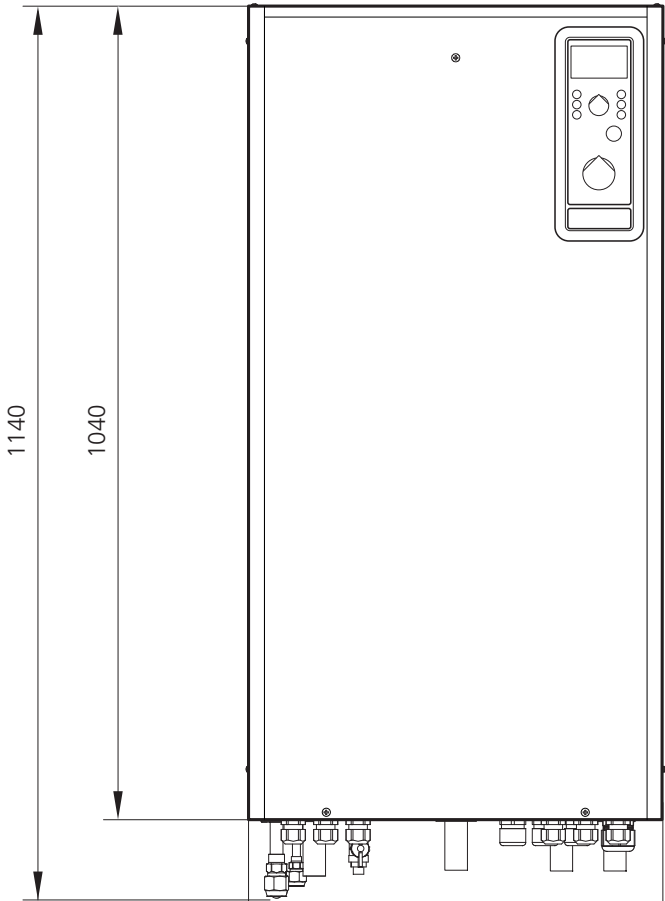
Indoor unit



Under

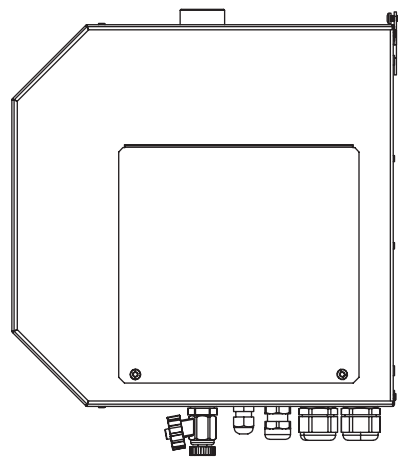


Right

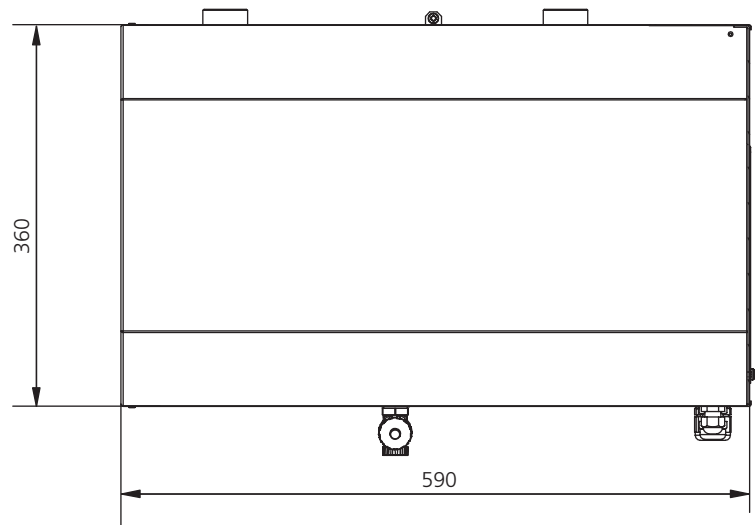


Front

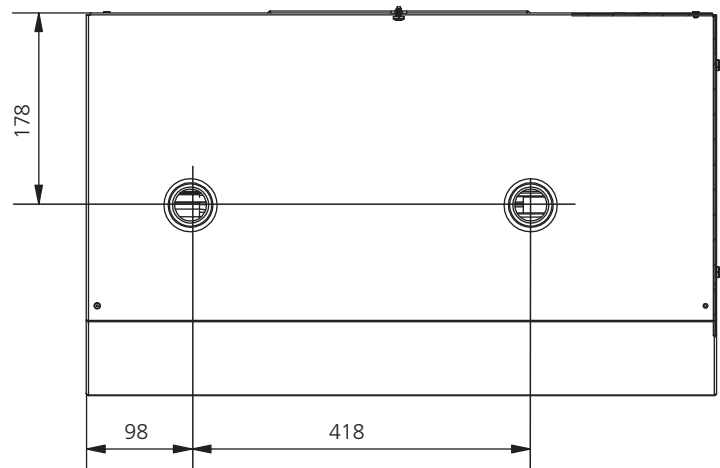
Hot water tank EHZK 90 SPLIT



Right

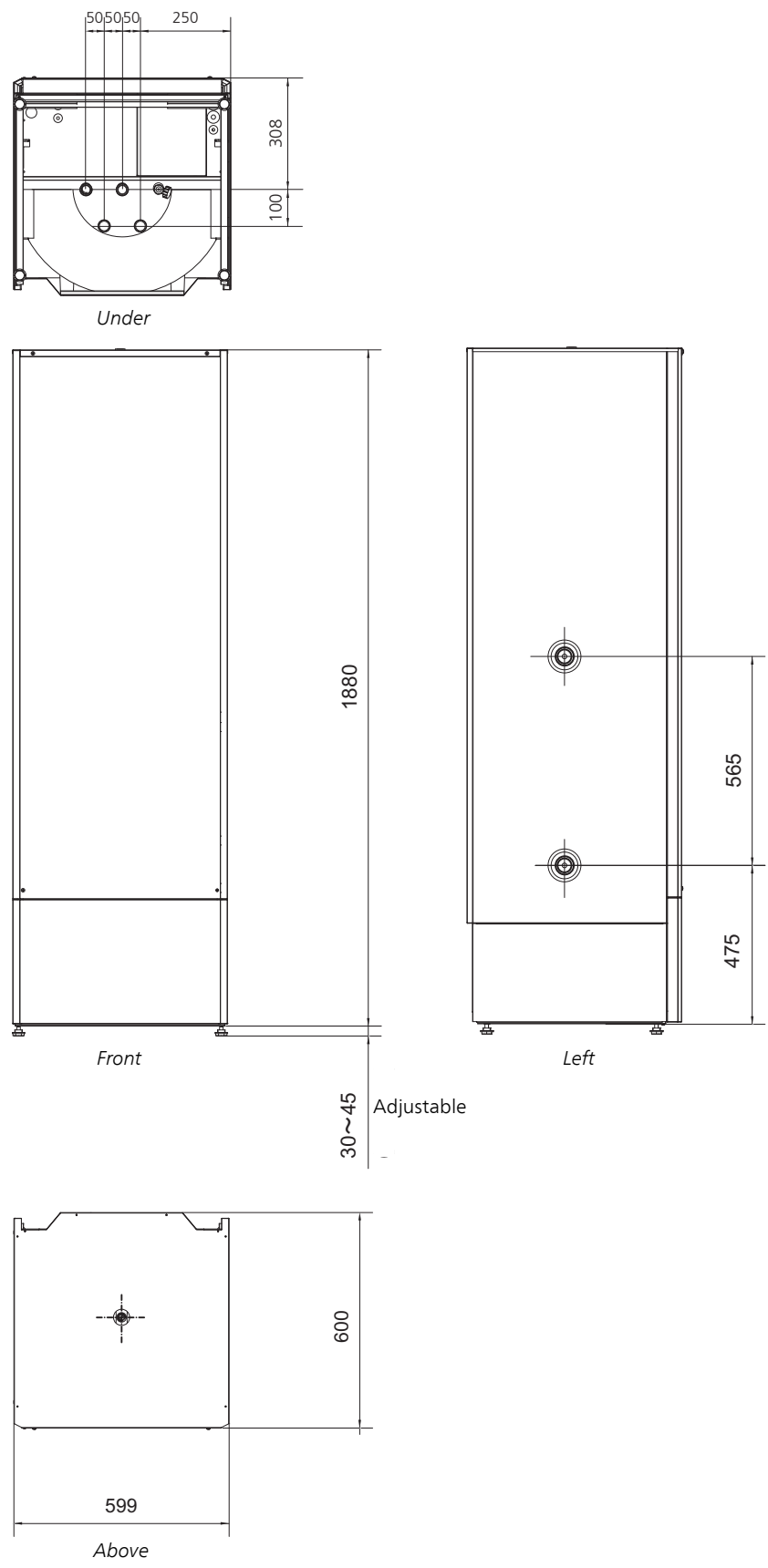


Front

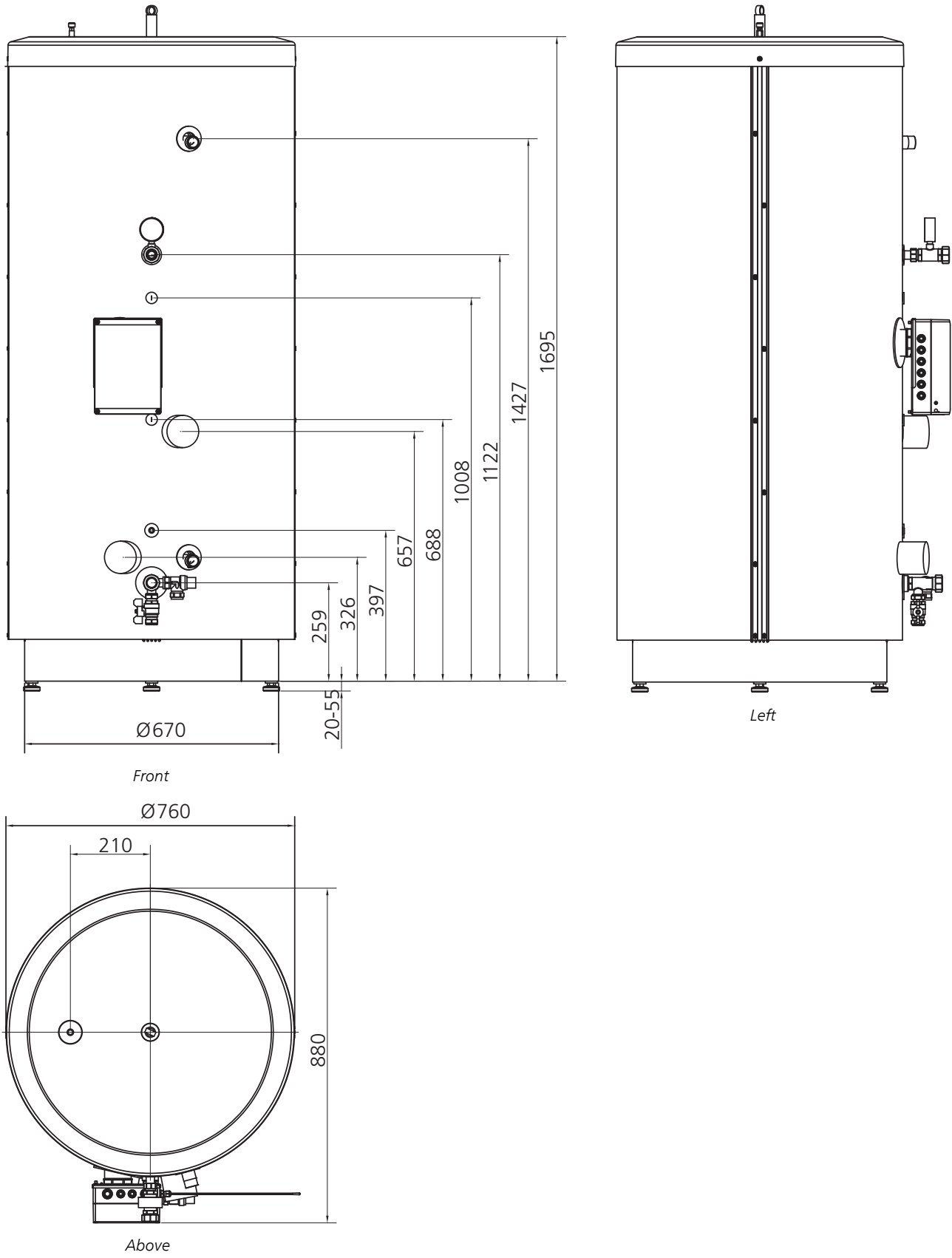


Above

Water heater WWS 300 SPLIT

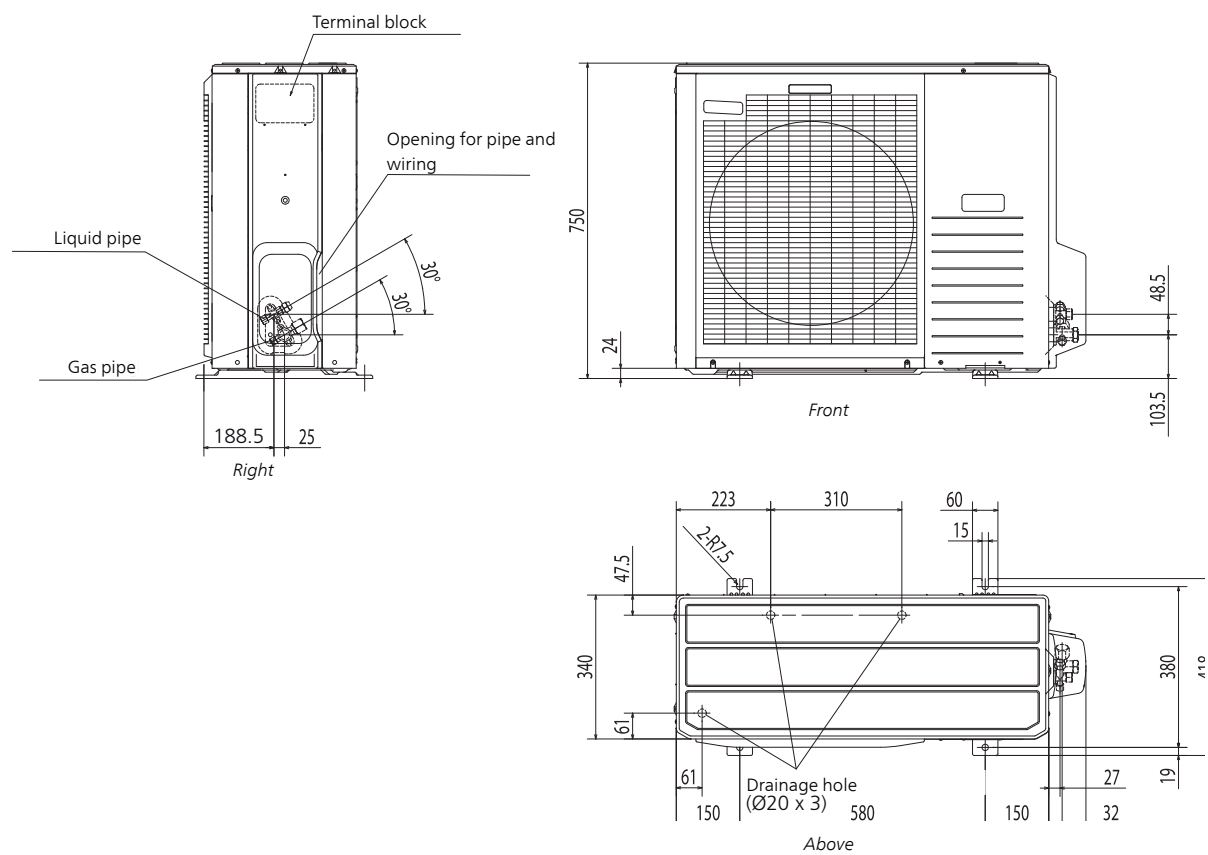


Water heater WWS 500 SPLIT

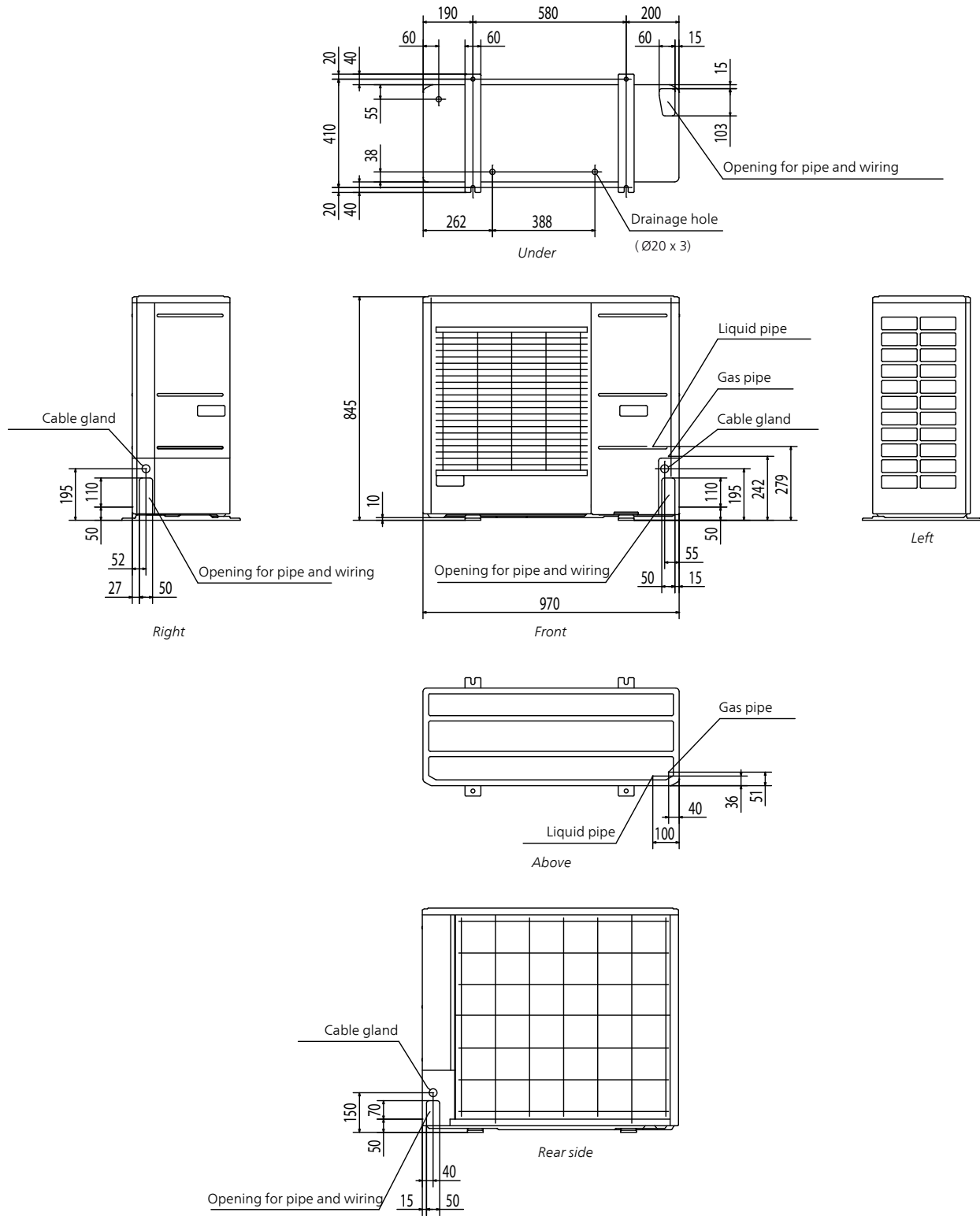


Outdoor unit

L8 SPLIT



L12 SPLIT



Technical specifications

SPLIT	1 x 230 V	3 x 400 V
Working range during heating with compressor (ambient temperature)	-20 – +43 °C	
Working range during cooling (ambient temperature)	+15 – +43 °C	
Max temperature flow line	65 °C	
Max temperature flow line, only compressor	58 °C	
Max temperature return line	65 °C	
Min temperature flow line during heating with compressor and continuous operation	25 °C	
Maximum temperature supply during cooling and continuous operation	25 °C	
Max. current	50 A	25 A
Recommended fuse rating	50 A	25 A
Starting current	5 A	
Incoming supply, deviation	-15 % – +10 %	
The water quality, domestic hot water and climate system	≤ EU directive no. 98/83/EF	

Indoor module	HM 8-12 SPLIT
Circulation pump, output	3–45 W (variable speed)
Circulation pump, max available pressure	73 kPa (external)
Circulation pump, max flow	0.61 l/s
Circulation pump, flow at 20 kPa external pressure drop	0.49 l/s
Min/max system flow, heating operation	L8 SPLIT: 0.12 / 0.38 l/s L12 SPLIT: 0.15 / 0.57 l/s
Min/max system flow, cooling operation	L8 SPLIT: 0.15 / 0.38 l/s L12 SPLIT: 0.20 / 0.57 l/s
Min flow, climate system, at 100% circulation pump speed (defrost flow)	L8 SPLIT: 0.19 l/s L12 SPLIT: 0.29 l/s
Enclosure class	IP 21
Volume, total	4 l ± 5 %
Max pressure, climate system	0.25 MPa (2.5 bar)
Expansion vessel	18 l
Max pressure, cooling system	4.5 MPa
Water quality, climate system	≤ EU directive no. 98/83/EF
Max operating temperature	65 °C
Ambient temperature	5–35 °C, max relative humidity 95 %
Connection, tank	Compression ring 28 mm
Height, without pipe/with pipe	1040/1140 mm
Width	510 mm
Depth	360 mm
Weight	68.5 kg
Electrical connections	230 V 1AC 50 Hz or 400 V 3NAC 50 Hz
Min temperature flow line during cooling	7 °C
Part no.	150 818 01

*Depending on display language.

Outdoor module	L8 SPLIT	L12 SPLIT
Compressor	Twin Rotary	
Speed, heating	20–81 Hz (rps)	25–85 Hz (rps)
Speed, cooling	20–86 Hz (rps)	20–80 Hz (rps)
Max fan flow (heating, nominal)	3000 m ³ /h	4380 m ³ /h
Fan rating	86 W	
Defrosting	Reversing	
Drain pan heater	Integrated 100 W	Integrated 120 W
Breaking value high pressure	4.15 MPa (41.5 bar)	
Cut-out value low pressure (15 s)	0.079 MPa (0.79 bar)	
Height	750 mm	845 mm
Width	780 mm (+67 mm valve protection)	970 mm
Depth	340 mm (+ 110 mm with foot rail)	370 mm (+ 80 mm with foot rail)
Weight	60 kg	74 kg
Colour (two coats powder coating)	Dark gray	
Power and communication connection from indoor module	5-core 2.5 mm ²	
Refrigerant volume (R410A)	2.55 kg	2.90 kg
Max. length, refrigerant pipe, one way	30 m*	
Pipe connection option	Right-hand side	Bottom / right-hand side / rear side
Part no.	100 626 01	100 627 01

Tank	EHZK 90 SPLIT	WWS 300 SPLIT	WWS 500 SPLIT
Immersion heater Max 9 kW	9 kW		
Number of power steps (power)	4 (2, 4, 6, 9 kW)		
Emergency mode thermostat	35–45 °C (factory setting 35 °C)		
Temperature limiter (resetting differential).	98 (-8) °C		
Safety valve, climate system	0.25 MPa (2.5 bar)		
Enclosure class	IP 21		
Volume, total	30 l	300 l	500 l
Volume, hot water coil	-	14 l	21 l
Material, hot water coil	-	Stainless steel (AISI316L/AISI316 DIN 1.4404/1.4401)	
Max pressure, vessel	0.25 MPa (2.5 bar)		
Max pressure, hot water coil		1.0 MPa (10 bar)	
The water quality, domestic hot water and climate system	≤ EU directive no. 98/83/EF		
Max operating temperature, tank	65 °C		
Ambient temperature, tank	5–35 °C, max relative humidity 95 %		
Idle loss according to EN255-3.	-	82 W	143 W
Connection, domestic water	-	1" ext. thread	
Connection, docking	-	1" int. thread	
Connection HM 8-12 SPLIT	1" ext. thread		28 mm compres- sion fitting
Height	385 mm	1900+(20-45) mm	1740+(20-55) mm
Required ceiling height	-	2080 mm	1900 mm
Width	596 mm	600 mm	760 mm

Technical specifications

Tank	EHZK 90 SPLIT	WWS 300 SPLIT	WWS 500 SPLIT
Depth	365 mm	600 mm	876 mm
Weight	24 kg	95 kg	130 kg
Electrical connections	230 V 1AC 50 Hz or 400 V 3NAC 50 Hz		
Part no.	150 796 01	150 805 01	150 806 01

Performance, HM 8-12 SPLIT and L8 SPLIT

Heating	Outd. temp: / Supply temp.	Min	Nominal	Max
EN14511 ΔT5K Output/input/COP	7/35 °C (floor)	1.75/0.50/3.50	6.19/1.41/4.40	8.12/1.93/4.22
	2/35 °C (floor)	1.49/0.48/3.12	5.48/1.51/3.63	5.68/1.70/3.34
	-7/35 °C (floor)	1.04/0.45/2.31	4.04/1.45/2.79	5.17/1.84/2.81
	-15/35 °C (floor)	1.25/0.59/2.10	2.74/1.18/2.32	3.92/1.69/2.32
	7/45 °C	2.64/0.81/3.27	6.00/1.72/3.50	7.72/2.30/3.35
	2/45 °C	2.14/0.79/2.71	4.80/1.77/2.72	6.64/2.54/2.61
	-7/45 °C	1.46/0.75/1.95	3.74/1.64/2.28	5.17/2.35/2.20
	-15/45 °C	0.92/0.69/1.33	2.68/1.40/1.91	3.83/2.08/1.84
	7/55 °C	3.08/1.26/2.45	6.09/2.22/2.75	7.10/2.73/2.60
	-7/55 °C	1.88/1.14/1.65	3.33/2.00/1.66	4.25/2.44/1.74
Cooling	Outd. temp: / Supply temp.	Min	Nominal	Max
EN14511 ΔT5K Output/input/EER	27/7 °C	2.06/0.38/5.38	5.48/1.69/3.24	7.52/2.37/3.17
	27/18 °C	2.71/0.34/7.88	8.16/2.28/3.57	11.20/3.20/3.50
	35/7 °C	2.10/0.55/3.82	5.17/1.89/2.73	7.10/2.65/2.68
	35/18 °C	2.67/0.71/3.76	7.79/2.28/3.42	10.7/3.19/3.35

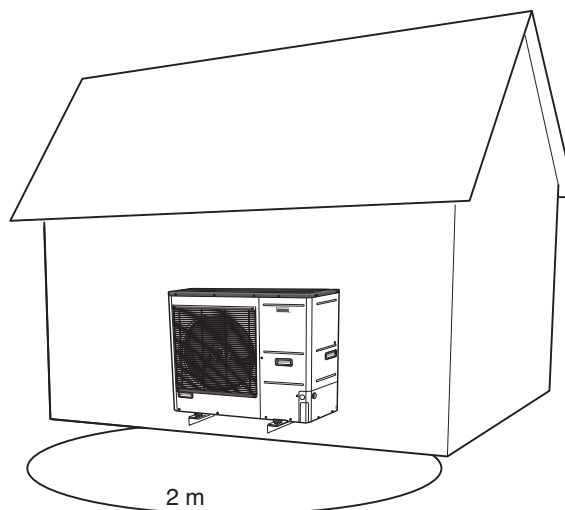
Performance, HM 8-12 SPLIT and L12 SPLIT

Heating	Outd. temp: / Supply temp.	Min	Nominal	Max
EN14511 ΔT5K Output/input/COP	7/35 °C (floor)	3.54/0.86/4.14	9.27/2.12/4.40	11.21/2.80/4.01
	2/35 °C (floor)	3.11/0.82/3.83	7.21/1.99/3.66	8.25/2.47/3.35
	-7/35 °C (floor)	3.29/1.07/3.09	6.24/2.07/3.05	7.46/2.58/2.90
	-15/35 °C (floor)	3.23/1.32/2.47	4.51/1.89/2.42	6.62/2.69/2.46
	7/45 °C	3.45/0.96/3.61	9.08/2.58/3.55	11.13/3.38/3.29
	2/45 °C	3.11/1.03/3.04	7.05/2.43/2.93	8.73/3.20/2.73
	-7/45 °C	3.14/1.40/2.25	5.84/2.42/2.44	7.22/3.26/2.21
	-15/45 °C	3.19/1.72/1.86	4.24/2.19/1.96	5.95/3.35/1.78
	7/55 °C	4.45/1.64/2.72	8.41/3.08/2.75	8.97/3.49/2.57
	-7/55 °C	3.50/1.99/1.77	4.93/2.80/1.78	5.64/3.52/1.60
Cooling	Outd. temp: / Supply temp.	Min	Nominal	Max
EN14511 ΔT5K Output/input/EER	27/7 °C	2.06/0.63/3.28	8.75/1.86/4.72	9.87/3.16/3.13
	27/18 °C	3.41/0.55/6.17	10.82/2.21/4.91	11.7/3.32/3.52
	35/7 °C	1.81/0.70/2.59	6.98/2.54/2.75	9.45/3.41/2.77
	35/18 °C	3.10/0.69/4.48	9.37/2.64/3.56	11.2/3.58/3.12

Sound pressure levels

L8 SPLIT/L12 SPLIT is usually placed next to a house wall, which gives a directed sound distribution that should be considered. Accordingly, you should always attempt to find a placement on the side that faces the least sound sensitive neighbouring area.

The sound pressure levels are further affected by walls, bricks, differences in ground level, etc and should therefore only be seen as guide values.



Noise, L8 SPLIT		
Sound power level, according to EN12102 at 7/35 °C (nominal)*	$L_W(A)$	55
Sound pressure level at 2 m free standing (nominal)*	$dB(A)$	41

Noise, L12 SPLIT		
Sound power level, according to EN12102 at 7/35 °C (nominal)*	$L_W(A)$	58
Sound pressure level at 2 m free standing (nominal)*	$dB(A)$	44

* Free space.

Technical specifications

Standard test, EN14511

1. Check that the heat pump only produces heat to the climate system by deselecting hot water production in menu 9.3.14.
2. Select "Off" in menu 8.2.1 to prevent the electrical additional heat.
3. Select heating curve 15 in menu 2.1.2.
4. Turn the "Offset, heating curve" knob clockwise to its limit position.
5. Set the current degree minute value in menu 2.6 to -200.

6. To set any compressor frequency, select "On" in menu 9.6.2.
7. Depending on the operating case, set the frequency in menu 9.6.1 according to the table.

Test values	Frequency (Hz)
A7/W35	35
A2/W35	60

8. Set the circulation pump speed in menu 2.1.5 to obtain 10 kPa external available pressure.

Standard test, L8 SPLIT

Air temperature (°C)	Flow temperature (°C)	COP	Heat capacity (kW)	Output in (kW)
7	35	4.66	3.85	0.83
2	35	3.77	5.11	1.36

Standard test, L12 SPLIT

Air temperature (°C)	Flow temperature (°C)	COP	Heat capacity (kW)	Output in (kW)
7	35	4.79	5.21	1.09
2	35	3.87	6.91	1.79

Energy labelling

Information sheet

Supplier		Alpha-InnoTec	
Model		L8 SPLIT	L12 SPLIT
Model hot water heater		HM 8-12 SPLIT + WWS 300 SPLIT	HM 8-12 SPLIT + WWS 300 SPLIT
Temperature application	°C	35 / 55	35 / 55
Declared load profile for water heating		XXL	XXL
Seasonal space heating energy efficiency class, average climate		A++ / A+	A++ / A++
Water heating energy efficiency class, average climate		A	A
Rated heat output (P _{designh}), average climate	kW	6.3 / 7.0	8.5 / 10.0
Annual energy consumption space heating, average climate	kWh	3,214 / 4,821	4,132 / 6,406
Annual energy consumption water heating, average climate	kWh	2,180	2,203
Seasonal space heating energy efficiency, average climate	%	159 / 117	167 / 126
Water heating energy efficiency, average climate	%	99	98
Sound power level L _{WA} indoors	dB	35	35
Rated heat output (P _{designh}), cold climate	kW	8.2 / 8.2	11.0 / 11.0
Rated heat output (P _{designh}), warm climate	kW	8.0 / 8.0	12.0 / 12.0
Annual energy consumption space heating, cold climate	kWh	6,069 / 7,454	7,975 / 9,771
Annual energy consumption water heating, cold climate	kWh	2,425	2,453
Annual energy consumption space heating, warm climate	kWh	1,875 / 2,336	2,764 / 3,429
Annual energy consumption water heating, warm climate	kWh	1,980	1,999
Seasonal space heating energy efficiency, cold climate	%	130 / 105	133 / 108
Water heating energy efficiency, cold climate	%	89	88
Seasonal space heating energy efficiency, warm climate	%	225 / 180	229 / 184
Water heating energy efficiency, warm climate	%	109	108
Sound power level L _{WA} outdoors	dB	55	58

Data for energy efficiency of the package

Model		L8 SPLIT	L12 SPLIT
Model hot water heater		HM 8-12 SPLIT + WWS 300 SPLIT	HM 8-12 SPLIT + WWS 300 SPLIT
Temperature application	°C	35 / 55	35 / 55
Controller, class		II	
Controller, contribution to efficiency	%	2.0	
Seasonal space heating energy efficiency of the package, average climate	%	161 / 119	169 / 128
Seasonal space heating energy efficiency class of the package, average climate		A++ / A+	A++ / A++
Seasonal space heating energy efficiency of the package, cold climate	%	132 / 107	135 / 110
Seasonal space heating energy efficiency of the package, warm climate	%	227 / 182	231 / 186

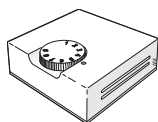
The reported efficiency of the package also takes the controller into account. If an external supplementary boiler or solar heating is added to the package, the overall efficiency of the package should be recalculated.

Technical documentation

Model				L8 SPLIT			
Model hot water heater				HM 8-12 SPLIT + WWS 300 SPLIT			
Type of heat pump	<input checked="" type="checkbox"/> Air-water <input type="checkbox"/> Exhaust-water <input type="checkbox"/> Brine-water <input type="checkbox"/> Water-water						
Low-temperature heat pump	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
Integrated immersion heater for additional heat	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
Heat pump combination heater	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
Climate	<input checked="" type="checkbox"/> Average <input type="checkbox"/> Cold <input type="checkbox"/> Warm						
Temperature application	<input checked="" type="checkbox"/> Average (55 °C) <input type="checkbox"/> Low (35 °C)						
Applied standards	EN14,825 / EN16,147						
Rated heat output	Prated	7.0	kW	Seasonal space heating energy efficiency	η_s	117	%
Declared capacity for space heating at part load and at outdoor temperature T_j				Declared coefficient of performance for space heating at part load and at outdoor temperature T_j			
$T_j = -7\text{ °C}$	Pdh	4.8	kW	$T_j = -7\text{ °C}$	COPd	1.92	kW
$T_j = +2\text{ °C}$	Pdh	3.8	kW	$T_j = +2\text{ °C}$	COPd	3.00	kW
$T_j = +7\text{ °C}$	Pdh	2.4	kW	$T_j = +7\text{ °C}$	COPd	4.09	kW
$T_j = +12\text{ °C}$	Pdh	2.3	kW	$T_j = +12\text{ °C}$	COPd	5.71	kW
$T_j = \text{biv}$	Pdh	5.1	kW	$T_j = \text{biv}$	COPd	2.23	kW
$T_j = \text{TOL}$	Pdh	4.8	kW	$T_j = \text{TOL}$	COPd	1.91	kW
$T_j = -15\text{ °C}$ (if TOL < -20 °C)	Pdh		kW	$T_j = -15\text{ °C}$ (if TOL < -20 °C)	COPd		kW
Bivalent temperature	T_{biv}	-4.5	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	Pcyc		kW	Cycling interval efficiency	COPcyc		-
Degradation coefficient	Cdh	0.97	-	Max supply temperature	WTOL	58	°C
Power consumption in modes other than active mode				Additional heat			
Off mode	P_{OFF}	0.002	kW	Rated heat output	P_{sup}	2.2	kW
Thermostat-off mode	P_{TO}	0.01	kW				
Standby mode	P_{SB}	0.015	kW	Type of energy input	Electric		
Crankcase heater mode	P_{CK}	0.03	kW				
Other items							
Capacity control	Variable			Rated airflow (air-water)		3,000	m³/h
Sound power level, indoors/outdoors	L_{WA}	35 / 55	dB	Nominal heating medium flow		0.57	m³/h
Annual energy consumption	Q_{HE}	4,821	kWh	Brine flow brine-water or water-water heat pumps			m³/h
For heat pump combination heater							
Declared load profile for water heating	XXL			Water heating energy efficiency	η_{wh}	99	%
Daily energy consumption	Q_{elec}	9.91	kWh	Daily fuel consumption	Q_{fuel}		kWh
Annual energy consumption	AEC	2,180	kWh	Annual fuel consumption	AFC		GJ

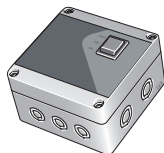
Model				L12 SPLIT			
Model hot water heater				HM 8-12 SPLIT + WWS 300 SPLIT			
Type of heat pump	<input checked="" type="checkbox"/> Air-water <input type="checkbox"/> Exhaust-water <input type="checkbox"/> Brine-water <input type="checkbox"/> Water-water						
Low-temperature heat pump	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
Integrated immersion heater for additional heat	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
Heat pump combination heater	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
Climate	<input checked="" type="checkbox"/> Average <input type="checkbox"/> Cold <input type="checkbox"/> Warm						
Temperature application	<input checked="" type="checkbox"/> Average (55 °C) <input type="checkbox"/> Low (35 °C)						
Applied standards	EN14,825 / EN16,147						
Rated heat output	Prated	10.0	kW	Seasonal space heating energy efficiency			
Declared capacity for space heating at part load and at outdoor temperature T_j				Declared coefficient of performance for space heating at part load and at outdoor temperature T_j			
$T_j = -7\text{ °C}$	Pdh	6.7	kW	$T_j = -7\text{ °C}$	COPd	1.96	kW
$T_j = +2\text{ °C}$	Pdh	5.4	kW	$T_j = +2\text{ °C}$	COPd	3.22	kW
$T_j = +7\text{ °C}$	Pdh	3.5	kW	$T_j = +7\text{ °C}$	COPd	4.47	kW
$T_j = +12\text{ °C}$	Pdh	3.5	kW	$T_j = +12\text{ °C}$	COPd	5.45	kW
$T_j = \text{biv}$	Pdh	7.7	kW	$T_j = \text{biv}$	COPd	2.31	kW
$T_j = \text{TOL}$	Pdh	6.7	kW	$T_j = \text{TOL}$	COPd	1.94	kW
$T_j = -15\text{ °C}$ (if $\text{TOL} < -20\text{ °C}$)	Pdh		kW	$T_j = -15\text{ °C}$ (if $\text{TOL} < -20\text{ °C}$)	COPd		kW
Bivalent temperature	T_{biv}	-3.9	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	P _{ych}		kW	Cycling interval efficiency	COP _{yc}		-
Degradation coefficient	Cdh	0.98	-	Max supply temperature	WTOL	58	°C
Power consumption in modes other than active mode				Additional heat			
Off mode	P_{OFF}	0.002	kW	Rated heat output	P _{sup}	3.3	kW
Thermostat-off mode	P_{TO}	0.014	kW	Type of energy input Electric			
Standby mode	P_{SB}	0.015	kW				
Crankcase heater mode	P_{CK}	0.035	kW				
Other items							
Capacity control	Variable			Rated airflow (air-water)		4,380	m³/h
Sound power level, indoors/outdoors	L_{WA}	35 / 58	dB	Nominal heating medium flow		0.86	m³/h
Annual energy consumption	Q_{HE}	6,406	kWh	Brine flow brine-water or water-water heat pumps			m³/h
For heat pump combination heater							
Declared load profile for water heating	XXL			Water heating energy efficiency	η_{wh}	98	%
Daily energy consumption	Q_{elec}	10.0	kWh	Daily fuel consumption	Q_{fuel}		kWh
Annual energy consumption	AEC	2,203	kWh	Annual fuel consumption	AFC		GJ

Accessories

**RFV SPLIT**

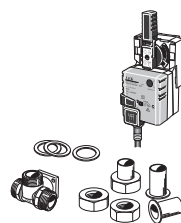
Room sensor

Part no. 150 799 01

**HS SPLIT**

Auxiliary relay

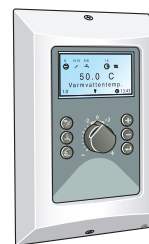
Part no. 150 801 01

**VK 2 SPLIT**

Reversing valve, cooling.

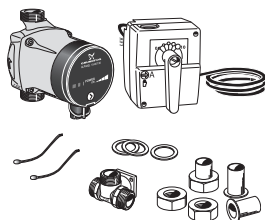
For separate cooling and heating systems.

Part no. 150 798 01

**RBE SPLIT**

Room unit

Part no. 150 800 01

**MG 1 SPLIT/MG 2 SPLIT**

Extra mixing valve group.

Part no. 150 793 01/150 794 01

**WPSK/WTPSK SPLIT**

Buffer vessel/operating tank in steel

WPSK 40 SPLIT

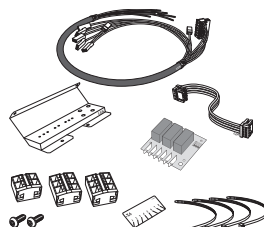
Heating/cooling

Part no. 150 791 01

WTPSK 100 SPLIT

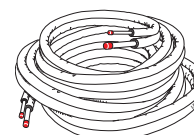
Heating/cooling

Part no. 150 792 01

**EP 2 SPLIT**

Cable kit if MG 1 SPLIT/MG 2 SPLIT or VK 1 SPLIT/VK 2 SPLIT is used.

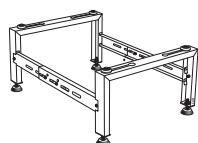
Part no. 150 803 01

**KVL SPLIT**

Refrigerant pipe kit 12 m

Insulated

Part no. 150 790 01

**BKS SPLIT**

For L8 SPLIT/L12 SPLIT

Part no. 150 788 01

**KWS 2**

Condensation water pipe, different lengths.

KWS 2/1 SPLIT, 1 m

Part no. 150 812 01

KWS 2/3 SPLIT, 3 m

Part no. 150 813 01

KWS 2/6 SPLIT, 6 m

Part no. 150 814 01

Safety precautions

Caution

The installation must be carried out by a qualified installer.

If you install the system yourself, serious problems may occur, for example water leaks, refrigerant leaks, electric shocks, fire and personal injury, as a result of a system malfunction.

Install the system in full accordance with this installation manual. Incorrect installation can cause bursts, personal injury, water leaks, refrigerant leaks, electric shocks and fire.

Observe the measurement values before working on the cooling system, especially when installing in small rooms, so that the limit for the refrigerant's density is not exceeded.

Consult an expert to interpret the measurement values. If the refrigerant density exceeds the limit, lack of oxygen can occur in the event of any leak, which can cause serious accidents.

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Use original accessories and the stated components for the installation.

If parts other than those stated by us are used, water leaks, electric shocks, fire and personal injury may occur as the unit may not work properly.

Ventilate the working area well – refrigerant leakage may occur during installation work.

If the refrigerant comes into contact with naked flames, poisonous gas is created.

Install the unit in a location with good support.

Unsuitable installation locations can cause the unit to fall and cause material damage and personal injury. Installation without sufficient support can also cause vibrations and noise.

Ensure that the unit is stable when installed, so that it can withstand earthquakes and strong winds.

Unsuitable installation locations can cause the unit to fall and cause material damage and personal injury.

Ensure that no air enters the process circuit when the heat pump is installed or removed.

If air enters the process circuit, the pressure becomes too high, which can cause bursts and personal injury.

The electrical installation must be carried out by a qualified electrician and the system must be connected as a separate circuit.

Power supply with insufficient capacity and incorrect function can cause electric shocks and fire.

Use the stated cables for the electrical connection, tighten the cables securely in the terminal blocks and relieve the wiring correctly to prevent overloading the terminal blocks.

Loose connections or cable mountings can cause abnormal heat production or fire.

Arrange the wiring in the control box so that it cannot be pushed up further into the box by mistake. Install the service panel's cover correctly.

Incorrect installation can result in overheating and fire.

Check, after completed installation, that no refrigerant leaks from the system in gas form.

If refrigerant gas leaks into the house and comes into contact with an aerotemp, an oven or other hot surface, poisonous gases are produced.

For R410A use the stated pipe type and cap nuts and for R410A use the stated tool.

Using existing parts (for R22) can cause breakdowns and serious accidents due to process circuit bursts.

Tighten the cap nut as stated using a torque wrench.

Tighten to the correct torque. Overtightening of the cap nut can lead to breaks and refrigerant leaks.

Connect the cooling circuit pipe and complete the pipe installation before running the compressor.

If the compressor is run when the service valve is not open and the pipe is not connected, the system may burst causing personal injury, due to abnormally high pressure in the system.

Switch off the compressor before disconnecting the pipe from the pump.

If the pipe is disconnected whilst the compressor is running and the service valve is open, air is mixed into the process circuit. This causes unusually high pressure in the process circuit, which can cause bursts and personal injury.

Only use original accessories. The installation must be carried out by a qualified installer.

If you install the system yourself, water leaks, electric shock and fire can occur.

Do not perform any repairs yourself. Consult the dealer if the system requires repair.

Incorrectly performed repairs can cause water leakage, refrigerant leakage, electric shocks or fire.

Consult the dealer or an expert regarding removal of the heat pump.

Incorrect installation can cause water leakage, refrigerant leaks, electric shocks or fire.

Switch off the power supply in the event of a service or inspection.

If the power supply is not shut off, there is a risk of electric shocks and damage due to the rotating fan.

Do not run the unit with removed panels or protection.

Touching rotating equipment, hot surfaces or high voltage parts can cause personal injury due to entrapment, burns or electric shocks.

Cut the power before starting electrical work.

Failure to cut the power can cause electric shocks, damage and incorrect function of the equipment.

Care

Carry out the electrical installation with care.

Do not connect the ground lead to the gas line, water line, lightning conductor or telephone line's ground lead. Incorrect grounding can cause unit faults such as electric shocks due to short-circuiting.

Use main switch with sufficient breaking capacity.

If the switch does not have sufficient breaking capacity, malfunctions and fire can occur.

Always use a fuse with the correct rating in the locations where fuses are to be used.

Connecting the unit with copper wire or other metal thread can cause unit breakdown and fire.

Cables must be routed so that they are not damaged by metal edges or trapped by panels.

Incorrect installation can cause electric shocks, heat generation and fire.

Do not install the indoor unit in close proximity to locations where leakage of combustible gases can occur.

If leaking gases collect around the unit, fire may occur.

Do not install the unit where corrosive gas (for example nitrous fumes) or combustible gas or steam (for example thinner and petroleum gases) can build up or collect, or where volatile combustible substances are handled.

Corrosive gas can cause corrosion to the heat exchanger, breaks in plastic parts etc. and combustible gas or steam can cause fire.

Do not use the indoor section where water splashes may occur, for example in laundries.

The indoor section is not waterproof and electric shocks and fire can therefore occur.

Do not use the indoor section for storing food, cooling precision instruments, freeze-conservation of animals, plants or art.

This can damage the items.

Do not install and use the system close to equipment that generates electromagnetic fields or high frequency harmonics.

Equipment such as inverters, standby sets, medical high frequency equipment and telecommunications equipment can affect the air conditioning unit and cause malfunctions and breakdowns. The air conditioning unit can also affect medical equipment and telecommunications equipment, so that it functions incorrectly or not at all.

Do not install the outdoor unit in the locations stated below.

- Locations where leakage of combustible gas can occur.
- Locations where carbon fibre, metal powder or other powder that can enter the air.

Safety precautions

- Locations where substances that can affect the air conditioning unit, for example, sulphide gas, chlorine, acid or alkaline substances can occur.
- Locations with direct exposure to oil mist or steam.
- Vehicles and ships.
- Locations where machines that generate high frequency harmonics are used.
- Locations where cosmetic or special sprays are often used.
- Locations that can be subjected to direct salty atmospheres. In this case, the outdoor unit must be protected against direct intakes of salty air.
- Locations where large amounts of snow occur.
- Locations where the system is exposed to chimney smoke.

If the bottom frame of the outdoor section is corroded, or in any other way damaged, due to long periods of operation, it must not be used.

Using an old and damaged frame can cause the unit to fall and cause personal injury.

If soldering near the unit, ensure that solder residue does not damage the drip tray.

If solder residue enters the unit during soldering, small holes can appear in the tray resulting in water leakage. To prevent damage, keep the indoor unit in its packing or cover it.

Do not allow the drainage pipe to exit into channels where poisonous gases, containing sulphides for example, can occur.

If the pipe exits into such a channel, any poisonous gases will flow into the room and seriously affect the user's health and safety.

Insulate the cooler unit's connection pipes so that the ambient air moisture does not condense on them.

Insufficient insulation can cause condensation, which can lead to moisture damage on the roof, floor, furniture and valuable personal property.

Do not install the outdoor unit in a location where insects and small animals can inhabit.

Insects and small animals can enter the electronic parts and cause damage and fire. Instruct the user to keep the surrounding equipment clean.

Take care when carrying the unit by hand.

If the unit weights more than 20 kg, it must be carried by two people. Do not carry by the plastic strap, always use the carry handle when carrying the unit by hand. Use gloves to minimize the risk of cuts from the aluminium flanges.

Dispose of any packaging material correctly.

Any remaining packaging material can cause personal injury as it contains nails and wood.

Do not touch any buttons with wet hands.

This can cause electric shocks.

Do not touch any refrigerant pipes with your hands when the system is in operation.

During operation the pipes become extremely hot or extremely cold, depending on the method of operation. This can cause burn injuries or frost injuries.

Do not shut off the power supply immediately after operation has start.

Wait at least 5 minutes, otherwise there is a risk of water leakage or breakdown.

Do not control the system with the main switch.

This can cause fire or water leakage. In addition, the fan can start unexpectedly, which can cause personal injury.

Especially for units intended for R410A

- Do not use other refrigerants than R410A. R410A means that the pressure is about 1.6 times as high as conventional refrigerants.

- The service valve's filling connection and control output on the indoor unit in the system for R410A are different sizes, to prevent the system being filled with the incorrect refrigerant by mistake. The machined dimension on the refrigerant pipe's collared part as well as the cap nut's parallel side dimension has been changed to increase the system's overpressure resistance.

- Therefore, installers and service technicians must ensure that only tools approved for working with R410A are used.

- Do not use charging bottles. These types of bottles change the composition of the refrigerant, which makes the performance of the system worse.

- When filling refrigerant, the refrigerant must always leave the bottle in liquid form.

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EC Declaration of Conformity in accordance with the EC Low Voltage Directive 2006/95/EC, Annex III



The undersigned
confirms that the following designated device(s) as designed and marketed by us fulfill the
standardized EC directives, the EC safety standards and the product-specific EC standards.
In the event of modification of the device(s) without our approval, this declaration shall become
invalid.

Designation of the device(s)

Heat Pump



Unit model	Number	Unit model	Number
L 8Split	100 626 01		
L 12Split	100 627 01		
L 16Split	100 628 01		
HT Split	150 780 01		
HT/E Split	150 782 01		
HM Split	150 786 01		
EHZK 90Split	150 796 01		
WWS 300Split	150 805 01		
WWS 500Split	150 806 01		

EC Directives

2006/95/EC

2004/108/EC

2002/95/EC

* Pressure equipment component

Category II

Module A1

Designated position:

TÜV-SÜD

Industrie Service GmbH (Nr.:0036)

Company:

ait-deutschland GmbH

Industrie Str. 3

95359 Kasendorf

Germany

Standardized EN

EN 55014-1, A1

EN 55014-2, A1/A2

EN 55014-2, A1/A2

EN 60335-2-40 A1/A2/A11/A12

EN 61000-3-2 A1/A2

EN 61000-3-3/3-11/3-12

EN 62233

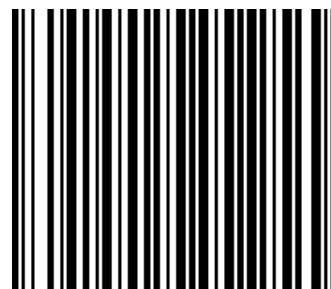
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Kasendorf, 01.08.2013

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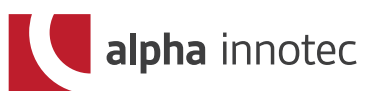
UK818167

Jesper Stannow
Head of Heating Development



331457

For technical support, please contact your authorised installer or the manufacturer's local service partner.
Contact details for your local service partner can be found at www.alpha-innotec.com.



ait-deutschland GmbH
Industriestrasse 3
D-95359 Kasendorf

E-mail: info@alpha-innotec.com
www.alpha-innotec.com