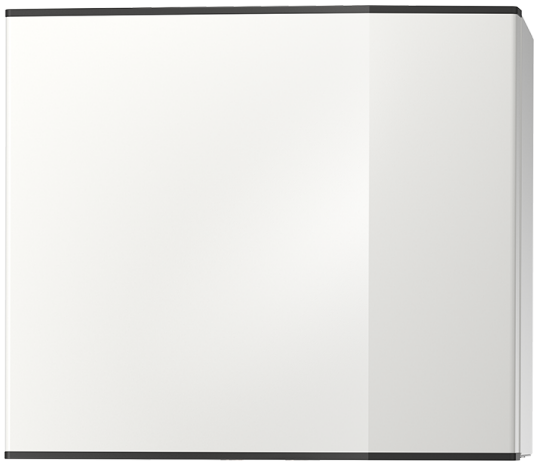
Installer manual

NIBE

Accessories
PCM S40/S42



IHB EN 2445-1
831780

S-series

F-series

S-series

Table of Contents

Important information

S

Safety information

This manual describes installation and service procedures for implementation by specialists.

The manual must be left with the customer.

For the latest version of the product's documentation, see nibe.eu.

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.

This is an original manual. It may not be translated without the approval of NIBE.

Rights to make any design or technical modifications are reserved.

System pressure		
Max. system pressure, heating medium	MPa	Defined by main product
Max flow	l/s	Defined by main product
Max. permitted ambient temperature	°C	35

PCM S40/S42 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.

If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

Symbols

Explanation of symbols that may be present in this manual.

CAUTION!

This symbol indicates danger to person or machine.

NOTE!

This symbol indicates important information about what you should consider when installing or servicing the installation.

TIP!

This symbol indicates tips on how to facilitate using the product.

Marking

Explanation of symbols that may be present on the product's label(s).

Danger to person or machine.

Read the User Manual.

Recovery

Leave the disposal of the packaging to the installer who installed the product or to special waste stations.

Do not dispose of used products with normal household waste. It must be disposed of at a special waste station or dealer who provides this type of service.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

General

PCM S40/S42 makes it possible to obtain passive cooling from rock, groundwater or surface soil collectors. When using a surface soil collector the quality of the ground may limit the possibility of utilising passive cooling.

The ideal climate system is a floor system, which then becomes both a cooling and a heating system. Cooling starts when the outdoor temperature exceeds a preset temperature and is then regulated via the selected cooling curve. Room sensors can be used for optimum comfort. To prevent condensation, the lowest permitted supply temperature has to be selected in menu 1.30.5 - "Lowest supply cooling".

TIP!

Choice of PCM S40 or PCM S42 depends on the heat pump's capacity.

Compatible products

- S1155
- S1156
- S1255
- S1256

Contents

1 x	Hanging bracket
2 x	Screw
1 x	Securing plate
1 x	T-coupling ø22 (only PCM S40)
1 x	T-coupling ø28 (only PCM S42)

Transport and storage

PCM S40/S42 must be transported and stored horizontally and dry.

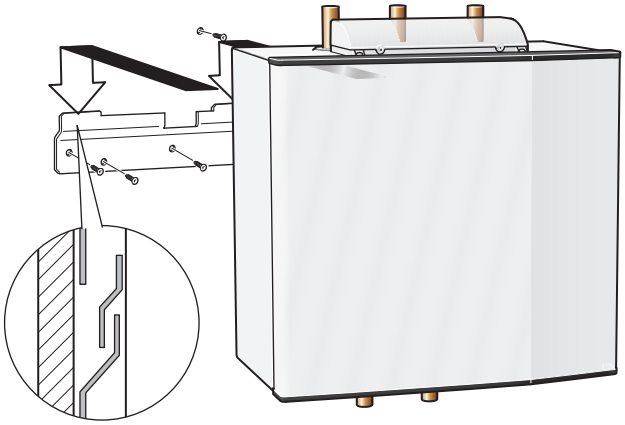
CAUTION!

Do not use the pipes as a handle.

Mounting

PCM S40/S42 is installed on the wall.

First screw the enclosed suspension bracket into place on the wall. Then hang PCM S40/S42 on the bracket.
PCM S40/S42 can now be slid sideways to some extent, which facilitates the fitting of the pipes.

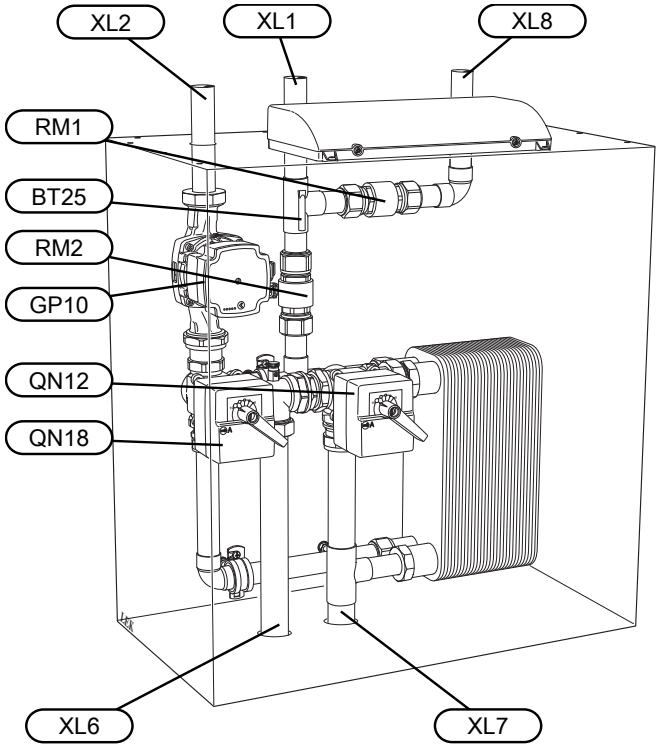


TIP!

Install the accompanying securing plate anywhere at the bottom rear of the cooling module for further fastening.

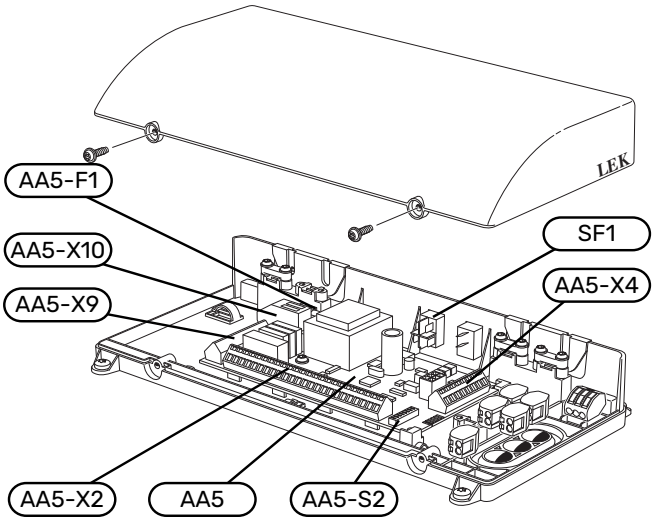
S

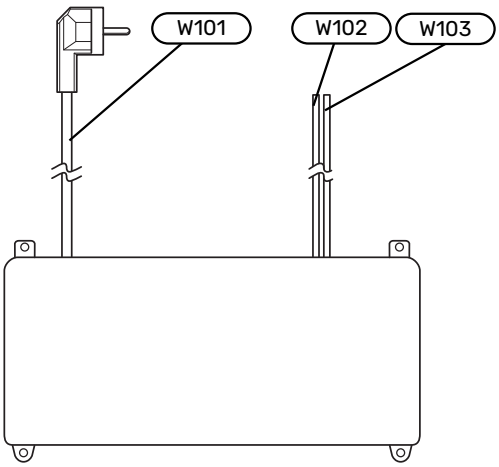
The cooling module's design



BT25	PCM S40/S42 flow temperature sensor (external flow temperature sensor)
QN12	Reversing valve, cooling/heating
QN18	Mixing valve, cooling
GP10	Circulation pump
RM1	Non-return valve
RM2	Non-return valve
XL2	Heating medium return
XL1	Heating medium flow (from PCM S40/S42)
XL6	Brine in (to PCM S40/S42 from heat pump)
XL7	Brine out (from PCM S40/S42)
XL8	Docking in (from heat pump)

Electrical connection





SF1	Switch
AA5	Accessory card
AA5-X2	Terminal block, sensors and external blocking
AA5-X4	Terminal block, communication
AA5-X9	Terminal block, circulation pump and reversing valves
AA5-X10	Terminal block, reversing valves
AA5-S2	DIP switch
AA5-F1	Fine wire fuse (T4A, 250V)
W101	Cable with connection plug, supply
W102	Cable, communication with heat pump or previous accessory card
W103	Cable, external flow temperature sensor (BT25)

Pipe connections

General

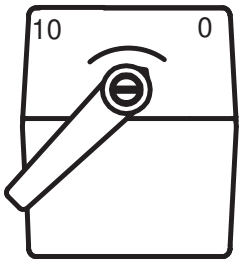
Pipe installation must be carried out in accordance with current norms and directives.

Pipes and other cold surfaces must be insulated with diffusion-proof material to prevent condensation. Where the cooling demand is high, fan convectors with drip trays and drain connection are needed.

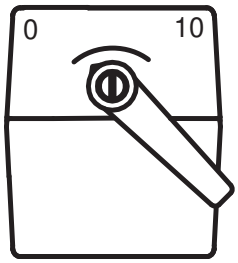
Heating/cooling operation

The circulation pump (EQ1-GP10) only runs in cooling operation. The factory setting for the circulation pump speed is 100%.

During heating operation (default) the mixing and reversing valves are closed as illustrated.

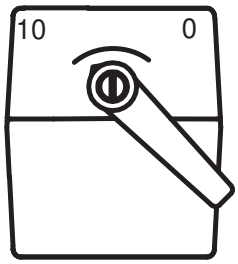


Mixing valve (QN18)

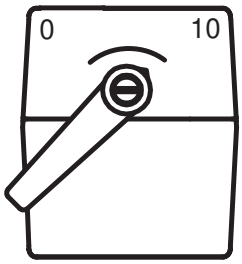


Reversing valve (QN12)

When the reversing valve is open as illustrated below cooling is activated. The shunt opens and closes depending on temperature.



Mixing valve (QN18)



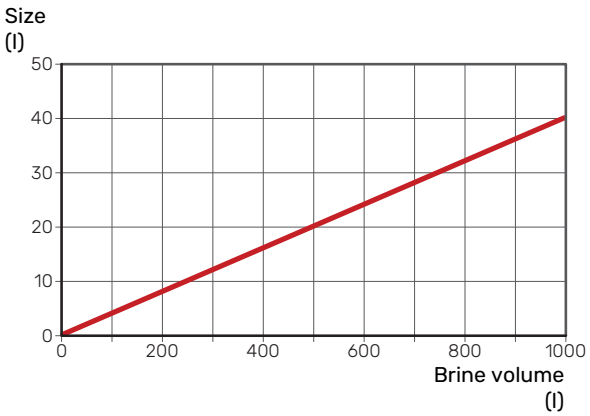
Reversing valve (QN12)

Once cooling has been activated, heating operation is blocked for two hours (factory setting) to prevent self-oscillation between cooling and heating. If necessary, the setting can be changed in menu 7.1.10.2 - "Time betw. cooling and heating".

Expansion vessel

The brine circuit must be supplied with a pressure expansion vessel (membrane type). If there is already a level vessel installed this should be replaced.

To prevent malfunctions, the pressure expansion vessel should be dimensioned as set out in the diagram. The pressure expansion vessel covers the temperature range from -10 °C to +20 °C, at a pre-pressure of 0.5 bar, and the safety valve's opening pressure of 3 bar. The brine side must normally be pressurised to between 1.0 and 1.5 bar.



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System diagram

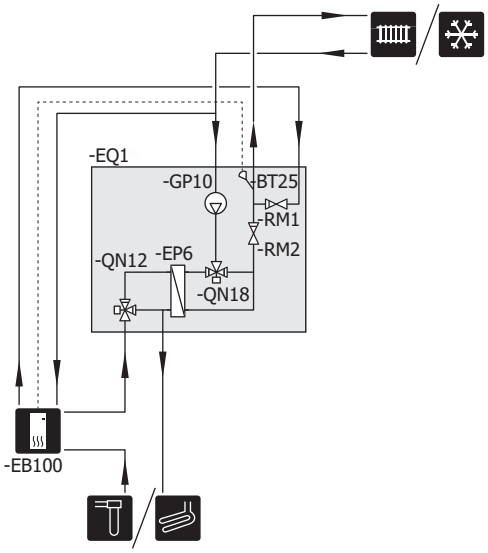
NOTE!
This is a system diagram. The actual installation must be planned according to applicable standards.

EXPLANATION

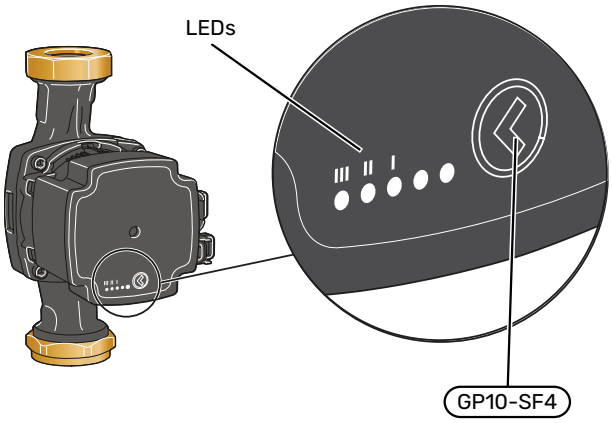
EB100	**Heat pump**
BT25	External supply temperature sensor
EQ1	**PCM S40/S42**
EP6	Heat exchanger, cooling
GP10	Circulation pump, cooling
QN12	Reversing valve, cooling/heating
QN18	Mixing valve, cooling
RM1, RM2	Non-return valve

Designations according to standard EN 81346-2.

Outline diagram PCM S40/S42



Setting the pump speed



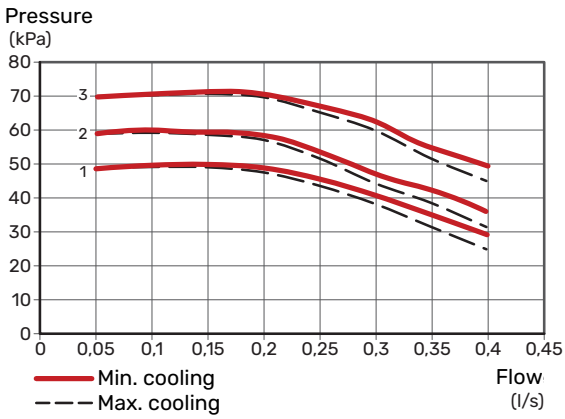
The circulation pump (GP10) is equipped with five LEDs. In normal mode, the LEDs show the pump's setting by lighting up in green and/or yellow. The LEDs can also indicate an alarm, in which case they light up in red and yellow.

The circulation pump's (EQ1-GP10) various settings are selected by pressing the switch (GP10-SF4).

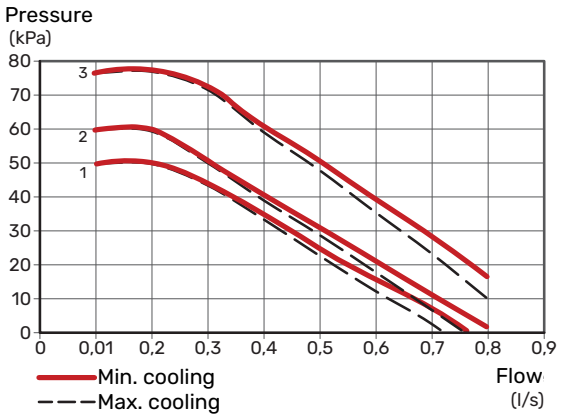
Choose between 3 different speeds for the circulation pump.

The circulation pump's factory setting is speed 2.

PCM S40



PCM S42



Pump speed	LED indication
1	
2[1]	
3	

[1] The circulation pump's factory setting

ALARM

If an alarm occurs, LED 5 shines red.

When one or more alarms are active, this is indicated according to the following table. If more than one alarm is active, the one with the highest priority is displayed.

Cause / Action	LED indication
The rotor is blocked. Wait or release the rotor shaft.	
Supply voltage too low. Check the supply voltage.	
Electrical fault. Check the supply voltage or replace the circulation pump.	

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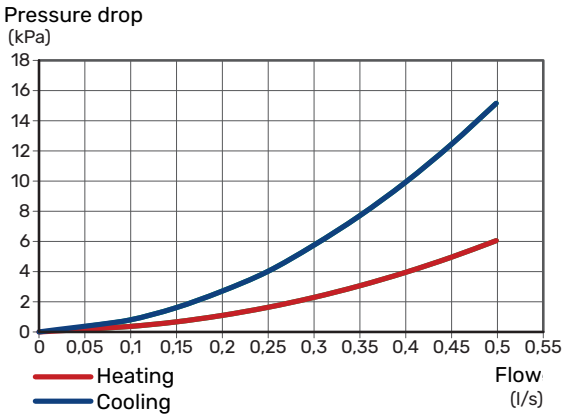
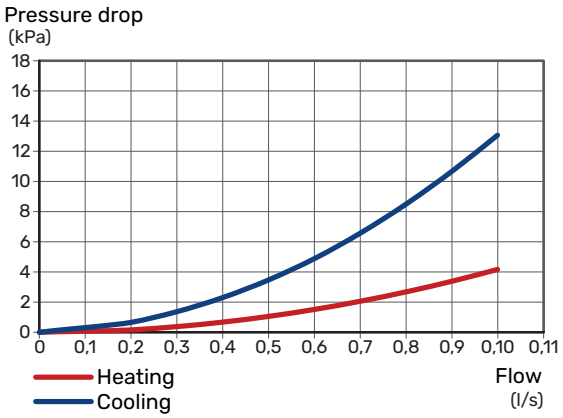
Pressure drop diagram

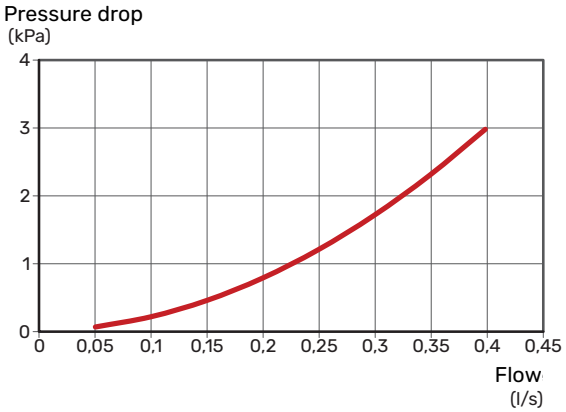
PCM S40 brine side



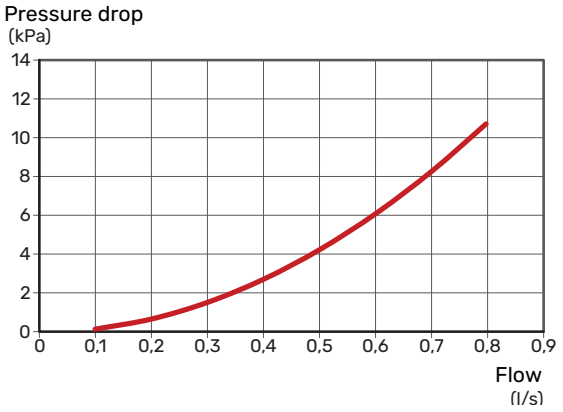
PCM S42 brine side



PCM S40 heating medium side



PCM S42 heating medium side



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Electrical connection

CAUTION!

All electrical connections must be carried out by an authorised electrician.

Electrical installation and wiring must be carried out in accordance with national provisions.

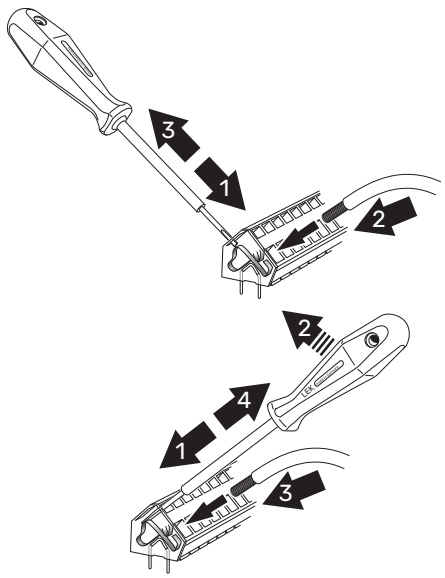
The heat pump must not be powered when installing PCM S40/S42.

- To prevent interference, communication cables to external connections must not be laid in the vicinity of high voltage cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.
- PCM S40/S42 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.
- Mark the relevant electrical cabinet with a warning about external voltage, in those cases where a component in the cabinet has a separate supply.
- PCM S40/S42 restarts after a power failure.

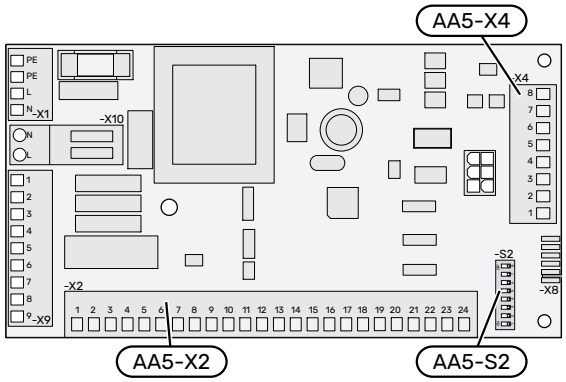
The electrical circuit diagrams are at the end of this Installer Manual.

Cable lock

Use a suitable tool to release/lock cables in terminal blocks.



Overview accessory board (AA5)



Connecting communication

PCM S40/S42 contains an accessory board (AA5) that connects directly to the main product's PCB (terminal block AA2-X30).

The communication cable (W102, length 2,5 metres) is factory fitted and connected according to the table below.

Colour	Heat pump (AA2-X30)	Another accessory board (AA5-X4)
White (A)	4	4
Brown (B)	3	5
Green (GND)	1	6

If several accessories are to be connected, or are already installed, the boards are connected in series.

Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.

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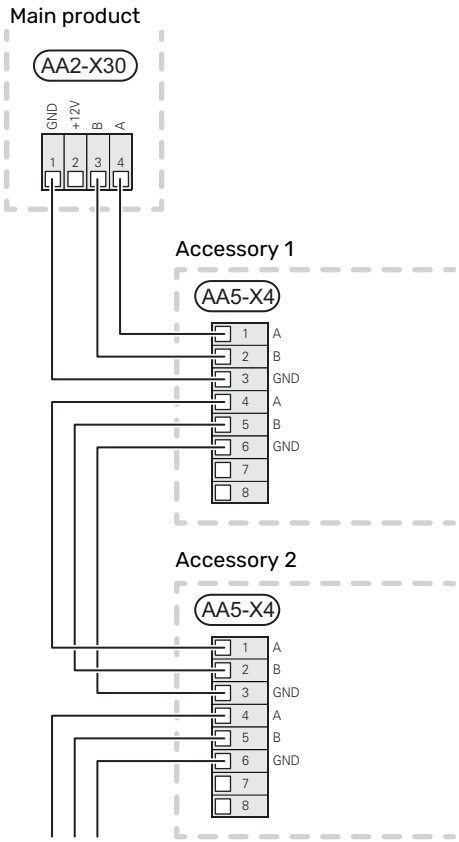


Power connection

PCM S40/S42 is connected to a earthed single-phase wall socket or a permanent installation. For permanent installations, PCM S40/S42 must be preceded by a circuit breaker with at least a 3 mm breaking gap.

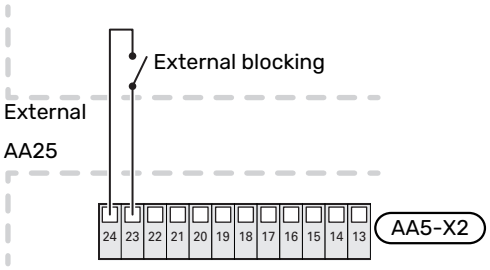
Connection of sensors and external blocking

EXTERNAL SUPPLY TEMPERATURE SENSOR (EB100-BT25)

To connect the external supply temperature sensor (BT25), see the relevant product's Installer Manual.

EXTERNAL BLOCKING (OPTIONAL)

A contact (NO) can be connected to AA5-X2:23-24 to allow the function to be blocked. When the contact closes, the function is blocked.

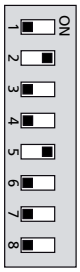


NOTE!

The relay outputs on the accessory board can have a max load of 2 A (230 V) in total.

DIP switch

The DIP switch (S2) on the accessory board (AA5) must be set as follows.



Activating PCM S40/S42

Activating PCM S40/S42 can be performed via the start guide or directly in the menu system.

The main product's software must be the latest version.

Start guide

The start guide appears upon first start-up after heat pump installation, but is also found in menu 7.7.

Menu system

If you do not make all settings via the start guide or need to change any of the settings, this can be done in the menu system.

MENU 7.2.1 - ADD/REMOVE ACCESSORIES

Here, you state which accessories are installed for the compatible product.

To identify connected accessories automatically, select "Search for accessories". It is also possible to select accessories manually from the list.

MENU 1.1 - TEMPERATURE

Here, you make temperature settings for your installation's climate system.

MENU 1.1.2 - COOLING

Set the temperature (with room sensor installed and activated):

Setting range: 5 – 35°C

The value in the display appears as a temperature in °C, if the zone is controlled by a room sensor.

NOTE!

A slow climate system, such as underfloor heating, may be unsuitable for controlling with room sensors.

Setting the temperature (without room sensors activated):

Setting range: -10 – 10

The display shows the set value for heating/cooling (curve offset). To increase or reduce the indoor temperature, increase or reduce the value in the display.

The number of steps the value has to be changed in order to achieve a one degree change to the indoor temperature depends on the climate system. One step is usually enough, but in some cases several steps may be required.

If multiple zones in a climate system do not have activated room sensors, these will have the same curve offset.

Setting the desired value. The new value is shown on the right-hand side of the symbol on home screen cooling.

TIP!

If the room temperature is constantly too low/high, you increase/decrease the value by one step in menu 1.1.1.

If the room temperature changes when the outdoor temperature changes, you increase/decrease the curve slope by one step in menu 1.30.1.

Wait 24 hours before making a new setting, so that the room temperature has time to stabilise.

MENU 1.3 - ROOM SENSOR SETTINGS

Menu 1.3 - Room sensor settings

Here, you make your settings for room sensors and zones. The room sensors are grouped by zone.

Here, you select the zone to which a sensor will belong. It is possible to connect multiple room sensors to each zone. Each room sensor can be given a unique name.

The control of heating and cooling is activated by ticking the relevant option. Which options are shown depends on which type of sensor is installed. If control is not activated, the sensor will be the displaying sensor.

NOTE!

A slow heating system such as underfloor heating may be inappropriate for controlling with room sensors.

Here, you select the zone to which a sensor will belong. It is possible to connect multiple room sensors to each zone. Each room sensor can be given a unique name.

The control of heating and cooling is activated by ticking the relevant option. Which options are shown depends on which type of sensor is installed. If control is not activated, the sensor will be the displaying sensor.

NOTE!

A slow heating system such as underfloor heating may be inappropriate for controlling with room sensors.

MENU 1.30.2 - CURVE, COOLING (ACCESSORY IS REQUIRED)

Curve, cooling
Setting range: 0 – 9

S

The cooling curve can be found in this menu. The task of the cooling curve is, together with the heating curve, to provide a uniform indoor temperature, regardless of the outdoor temperature, and thereby energy-efficient operation. Based on these curves, the system determines the temperature of the water to the climate system, the supply temperature and, thus, the indoor temperature.

For houses with fan coils, a higher curve (e.g. curve 9) is appropriate, for houses with under floor cooling, a lower curve (e.g. curve 5) is appropriate.

When you have selected the cooling curve, you can read off how the supply temperature will change at different outdoor temperatures.

S

NOTE!

With underfloor cooling, "Min. supply temp. cooling" must be restricted to prevent condensation.

Cooling in 2-pipe system

For operating mode “cooling” to be permitted, the average temperature must be above the set value for “start cooling” in menu 7.1.10.2 "Auto mode setting". There is the option to activate cooling by selecting "manual" operating mode in menu 4.1 "Operating mode".

The cooling settings for the climate system are adjusted in the indoor climate menu, menu 1.

MENU 1.30.7 - OWN CURVE

Own curve, cooling

Supply temp
Setting range: 7 – 40 °C

NOTE!

Curve 0 must be selected for own curve to apply.

You can create your own cooling curve here, if there are special requirements, by setting the desired supply temperatures for different outdoor temperatures.

Depending on which accessory is used the setting range can vary.

MENU 7.1.2.7 - PUMP SPEED BRINE

Make settings for the brine pump's speed here.

Speed in passive cooling
Setting range: 1 - 100 %

Speed in passive cooling: Here you set the speed at which the brine pump will operate during passive cooling.

MENU 7.1.7 - COOLING

This menu contains sub-menus where you can make advanced settings for cooling operation.

MENU 7.1.7.2 - HUMIDITY CONTROL

Prevent condensation in cooling
Alternative: on/off

Limit RH in cold
Alternative: on/off

Prevent condensation in cooling: With the function activated, condensation in the pipes and components is prevented.

Limit RH in cold: With the function activated, the temperature is regulated to achieve the desired relative humidity (RH) in cooling operation.

MENU 7.1.7.3 - SYSTEM SETTINGS COOLING

Shunt amplification
Setting range: 0.1 - 1.0

Shunt waiting time
Setting range: 10 - 300 seconds

MENU 7.1.10.2 - AUTO MODE SETTING

Start cooling
Setting range: 15 – 40 °C

Stop heating
Setting range: -20 – 40 °C

Stop additional heat
Setting range: -25 – 40 °C

Filtering time heating
Setting range: 0 – 48 h

Filtering time, cooling
Setting range: 0 – 48 h

Time betw. cooling and heating
Setting range: 0 – 48 h

Cooling/heat sensor
Setting range: None, BT74, Zone 1 - x

Set point value cool/heat sensor
Setting range: 5 – 40 °C

Heating at subnormal room temp
Setting range: 0.5 – 10.0 °C

Cooling at excess room temp
Setting range: 0.5 – 10.0 °C

Start cooling, Stop heating, Stop additional heat: In this menu, you set the temperatures that the system will use for control in auto mode.

NOTE!

It cannot be set "Stop additional heat" higher than "Stop heating".

Filtering time heating: You can set the time over which the average outdoor temperature is calculated. If you select 0, the current outdoor temperature is used.

Time betw. cooling and heating: Here, you set how long the installation will wait before it returns to heating operation when the cooling demand has ceased or vice versa.

Cooling/heat sensor

Here, you select the sensor that will be used for cooling/heating. If BT74 is installed, it will be preselected and no other option is possible.

Set point value cool/heat sensor: Here, you can set the indoor temperature at which the installation will change between heating and cooling operation.

Heating at subnormal room temp: Here, you can set how much the room temperature can drop below the desired temperature before the installation switches to heating operation.

Cooling at excess room temp: Here, you can set how much the room temperature can rise above the desired temperature before the installation switches to cooling operation.

MENU 1.30.5 - LOWEST SUPPLY COOLING

Cooling

Depending on which cooling accessory is used, the setting range can vary.

Setting range: 7 – 30 °C

Alarm, room sensor during cooling operation

Alternative: on/off

Set the minimum temperature on the supply temperature to the climate system. This means that PCM S40/S42 never calculates a temperature lower than that set here.

If there is more than one climate system the setting can be made separately for each system.

Here, you can receive alarms during cooling operation, for example if a room sensor malfunctions.

> **CAUTION!**
>
> The cooling supply line must be set with regard to which climate system is connected. For example, under floor cooling with too low supply temperature can cause condensation to precipitate, which in the worst instance could lead to moisture damage.

MENU 7.5.3 - FORCED CONTROL

Here you can force control the various components in the installation. The most important safety functions remain active however.

> **CAUTION!**
>
> Forced control is only intended to be used for troubleshooting purposes. Using the function in any other way may cause damage to the components in your installation.

> **NOTE!**
>
> Also see the Installer Manual for the main product.

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Technical data

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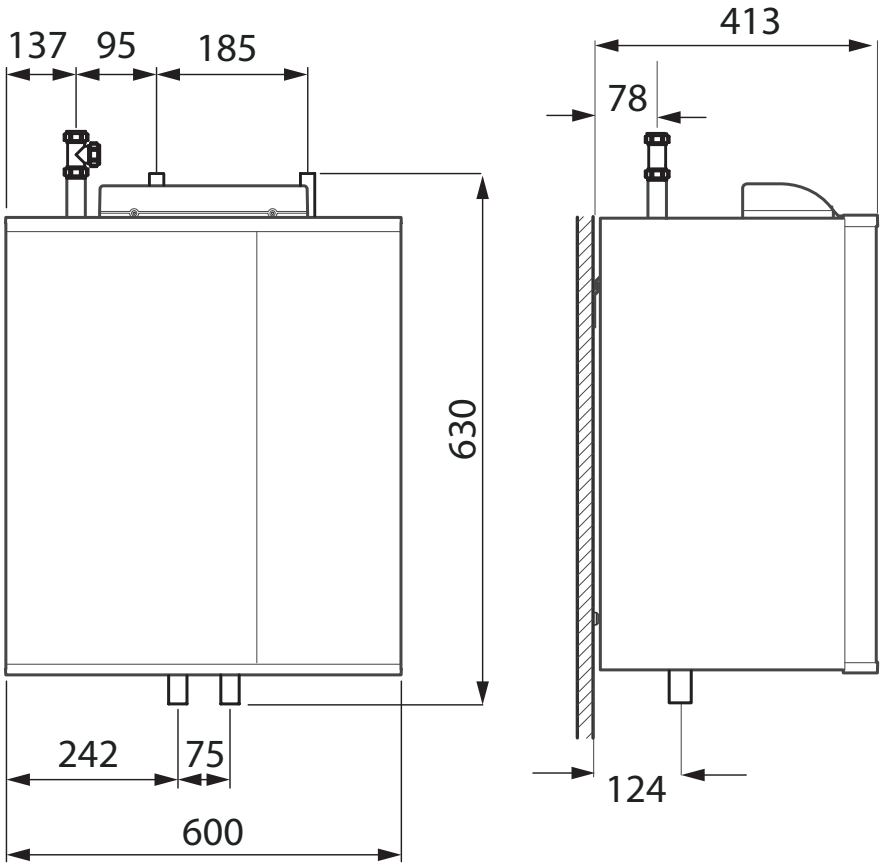
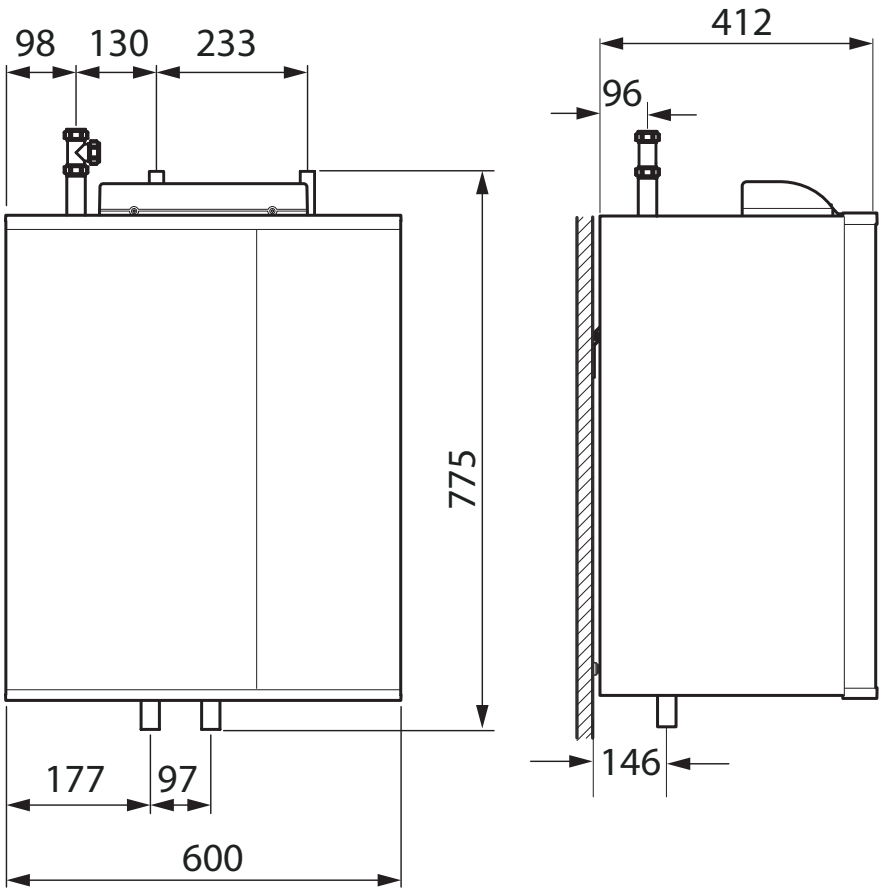
Dimensions

PCM S40



PCM S42



S

Technical specifications

AXC module		
Electrical data		
Rated voltage		230 V ~ 50 Hz
Enclosure class		IP21
Rated value for impulse voltage	kV	4
Pollution degree		2
Min fuse rating	A	10
Miscellaneous		
Operation mode according to EN 60 730-1		Type 1
Area of operation	°C	-25 – 70
Ambient temperature	°C	5 – 35
Program cycles, hours		1, 24
Program cycles, days		1, 2, 5, 7
Resolution, program	min.	1
Temperature during ball pressure test according to EN 60 730-1	°C	75
Dimensions LxWxH	mm	175x250x100
Weight	kg	1.47

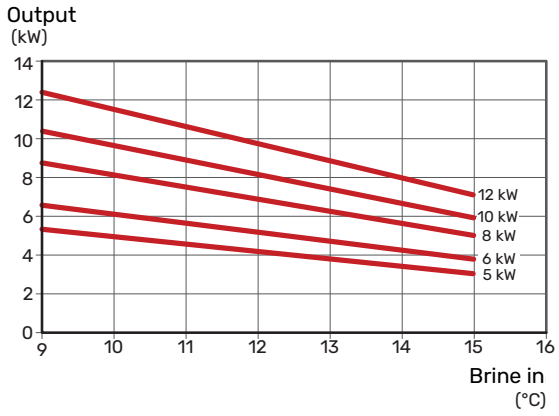
S

		PCM S40	PCM S42
Connection, hot side	mm	22	28
Connection, cold side	mm	28	35
Height (excl. pipes)	mm	515	635
Width	mm	600	600
Depth	mm	415	415
Weight	kg	42	56
Output, circulation pump	W	25 – 52	25 – 60
Intended for heat pumps	kW at 0/35 °C	5 – 8	10 – 18
Part No.		067 625	067 626

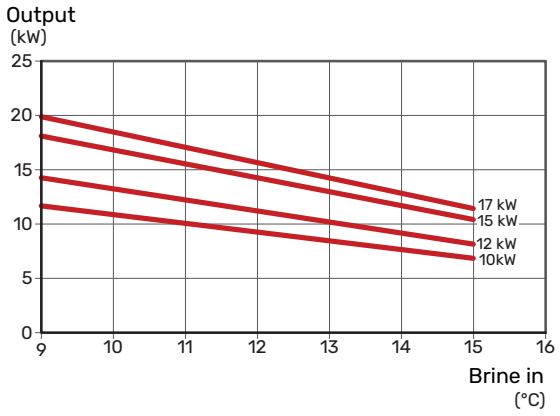
CAPACITY DIAGRAM

Nominal heating medium and brine flow for relevant heat pump size and 23°C incoming temperature to PCM S40/S42.

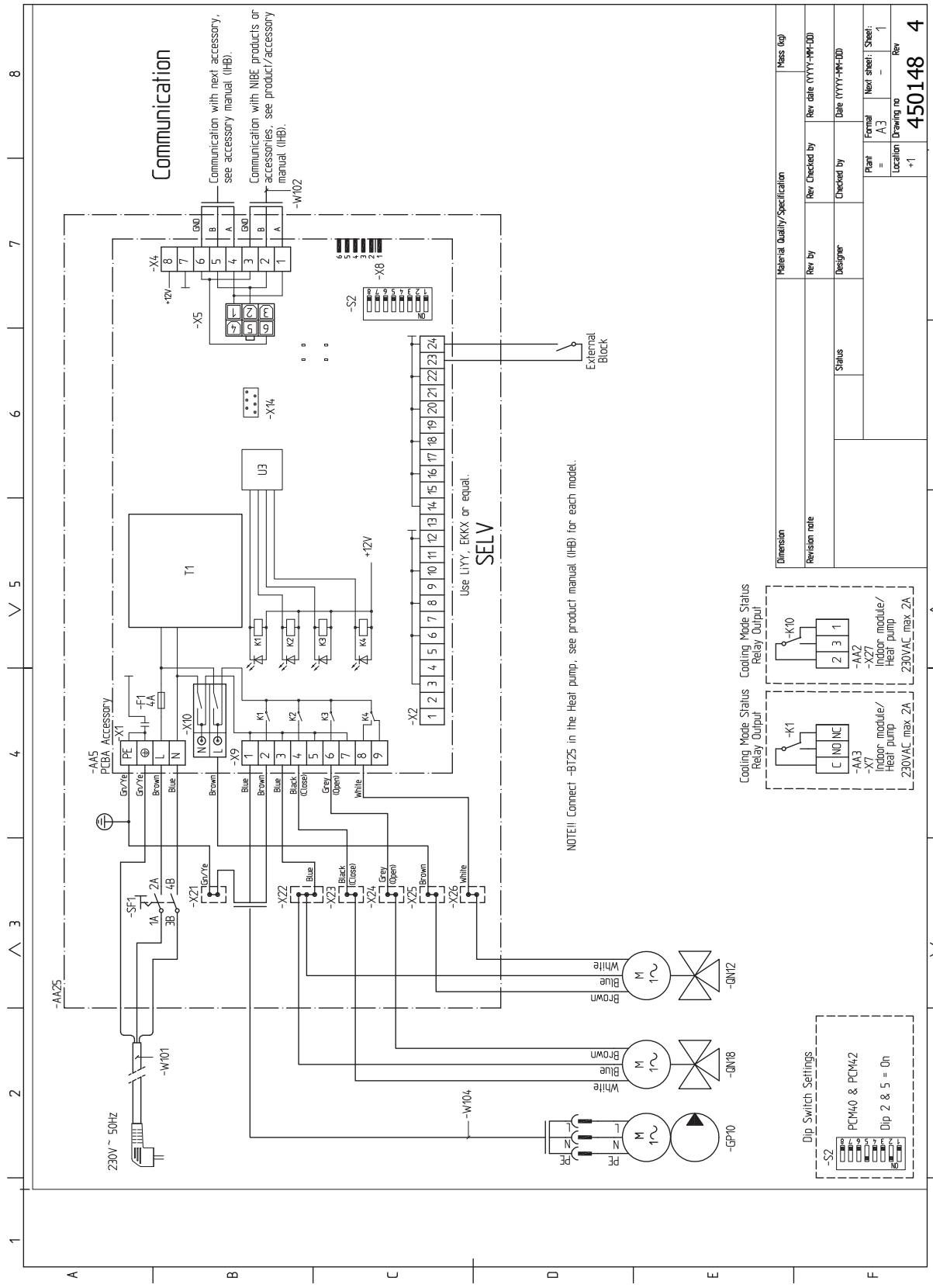
PCM S40



PCM S42



Electrical circuit diagram



S

F-series

Table of Contents

Important information

Safety information

This manual describes installation and service procedures for implementation by specialists.

The manual must be left with the customer.

For the latest version of the product's documentation, see nibe.eu.

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.

This is an original manual. It may not be translated without the approval of NIBE.

Rights to make any design or technical modifications are reserved.

System pressure		
Max. system pressure, heating medium	MPa	Defined by main product
Max flow	l/s	Defined by main product
Max. permitted ambient temperature	°C	35

PCM S40/S42 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.

If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

Symbols

Explanation of symbols that may be present in this manual.

CAUTION!

This symbol indicates danger to person or machine.

NOTE!

This symbol indicates important information about what you should consider when installing or servicing the installation.

TIP!

This symbol indicates tips on how to facilitate using the product.

Marking

Explanation of symbols that may be present on the product's label(s).

Danger to person or machine.

Read the User Manual.

Recovery

Leave the disposal of the packaging to the installer who installed the product or to special waste stations.

Do not dispose of used products with normal household waste. It must be disposed of at a special waste station or dealer who provides this type of service.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

F

General

PCM S40/S42 makes it possible to obtain passive cooling from rock, groundwater or surface soil collectors. When using a surface soil collector the quality of the ground may limit the possibility of utilising passive cooling.

The ideal climate system is a floor system, which then becomes both a cooling and a heating system. Cooling starts when the outdoor temperature exceeds a preset temperature and is then regulated via the selected cooling curve. Room sensors can be used for optimum comfort. To prevent condensation, the lowest permitted supply temperature has to be selected in menu 1.9.3 - "min. flow line temp."

TIP!

Choice of PCM S40 or PCM S42 depends on the heat pump's capacity.

F

Compatible products

- F1145
- F1155
- F1245
- F1255

Contents

1 x	Hanging bracket
2 x	Screw
1 x	Securing plate
1 x	T-coupling ø22 (only PCM S40)
1 x	T-coupling ø28 (only PCM S42)

Transport and storage

PCM S40/S42 must be transported and stored horizontally and dry.

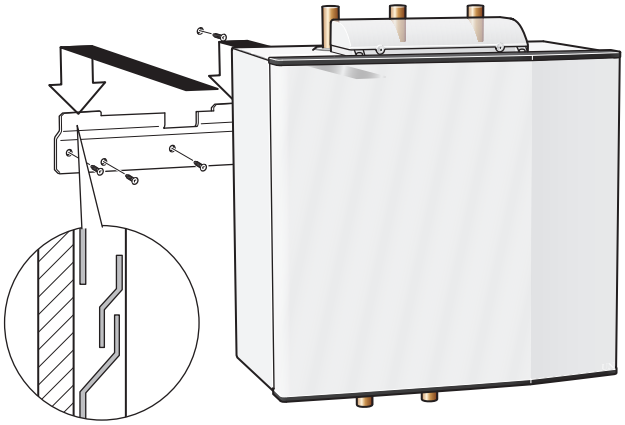
CAUTION!

Do not use the pipes as a handle.

Mounting

PCM S40/S42 is installed on the wall.

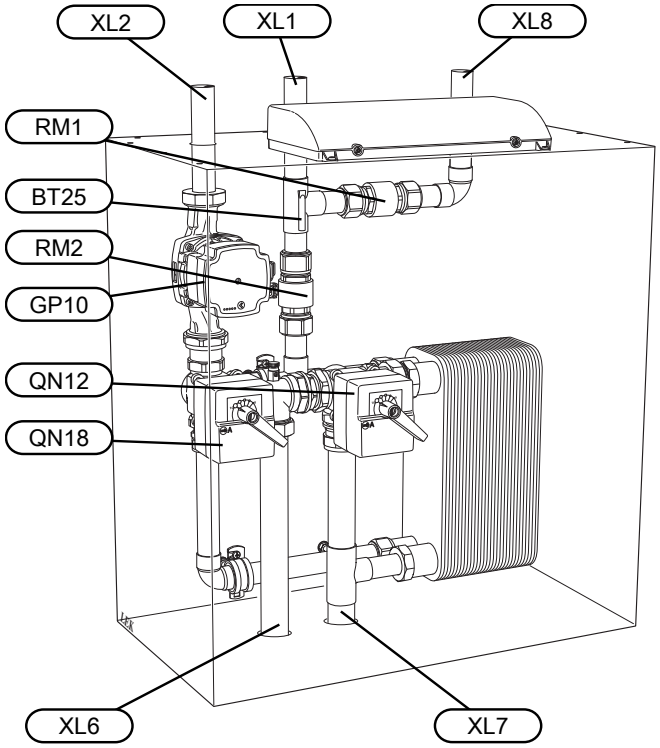
First screw the enclosed suspension bracket into place on the wall. Then hang PCM S40/S42 on the bracket.
PCM S40/S42 can now be slid sideways to some extent, which facilitates the fitting of the pipes.



TIP!

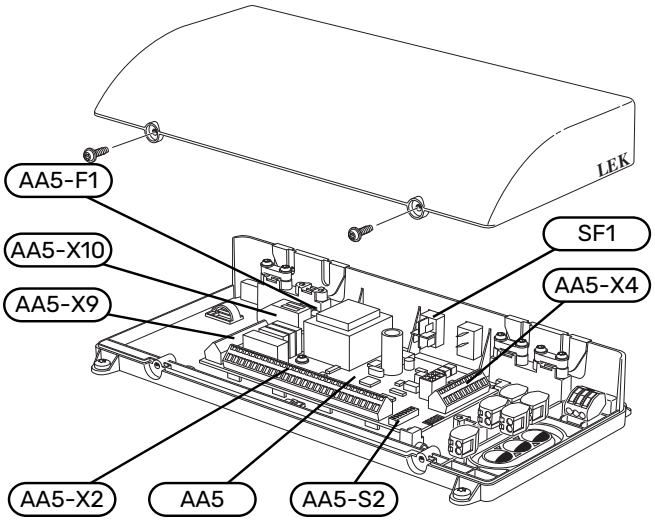
Install the accompanying securing plate anywhere at the bottom rear of the cooling module for further fastening.

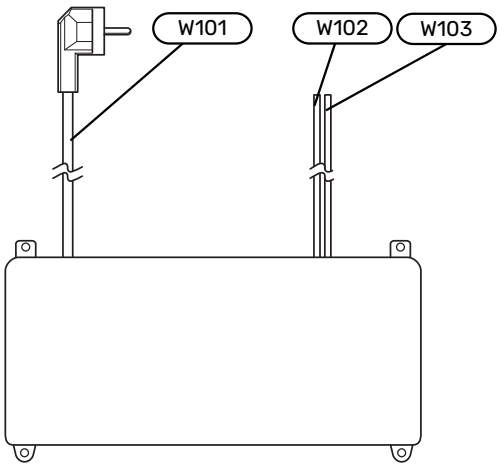
The cooling module's design



BT25	PCM S40/S42 flow temperature sensor (external flow temperature sensor)
QN12	Reversing valve, cooling/heating
QN18	Mixing valve, cooling
GP10	Circulation pump
RM1	Non-return valve
RM2	Non-return valve
XL2	Heating medium return
XL1	Heating medium flow (from PCM S40/S42)
XL6	Brine in (to PCM S40/S42 from heat pump)
XL7	Brine out (from PCM S40/S42)
XL8	Docking in (from heat pump)

Electrical connection





SF1	Switch
AA5	Accessory card
AA5-X2	Terminal block, sensors and external blocking
AA5-X4	Terminal block, communication
AA5-X9	Terminal block, circulation pump and reversing valves
AA5-X10	Terminal block, reversing valves
AA5-S2	DIP switch
AA5-F1	Fine wire fuse (T4A, 250V)
W101	Cable with connection plug, supply
W102	Cable, communication with heat pump or previous accessory card
W103	Cable, external flow temperature sensor (BT25)

F

Pipe connections

General

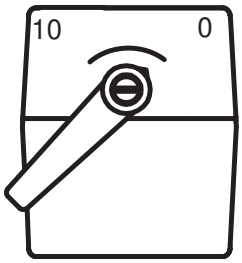
Pipe installation must be carried out in accordance with current norms and directives.

Pipes and other cold surfaces must be insulated with diffusion-proof material to prevent condensation. Where the cooling demand is high, fan convectors with drip trays and drain connection are needed.

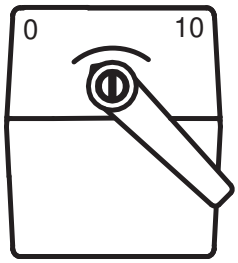
Heating/cooling operation

The circulation pump (EQ1-GP10) only runs in cooling operation. The factory setting for the circulation pump speed is 100%.

During heating operation (default) the mixing and reversing valves are closed as illustrated.

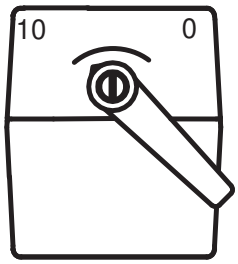


Mixing valve (QN18)

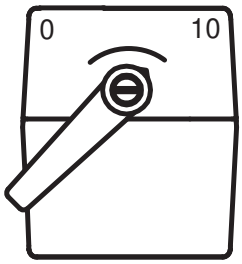


Reversing valve (QN12)

When the reversing valve is open as illustrated below cooling is activated. The shunt opens and closes depending on temperature.



Mixing valve (QN18)



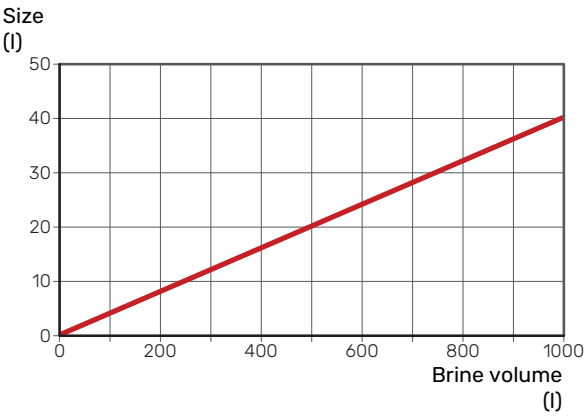
Reversing valve (QN12)

Once cooling has been activated, heating operation is blocked for two hours (factory setting) to prevent self-oscillation between cooling and heating. If necessary, the setting can be changed in menu 1.9.5 - "cooling settings".

Expansion vessel

The brine circuit must be supplied with a pressure expansion vessel (membrane type). If there is already a level vessel installed this should be replaced.

To prevent malfunctions, the pressure expansion vessel should be dimensioned as set out in the diagram. The pressure expansion vessel covers the temperature range from -10 °C to +20 °C, at a pre-pressure of 0.5 bar, and the safety valve's opening pressure of 3 bar. The brine side must normally be pressurised to between 1.0 and 1.5 bar.



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System diagram

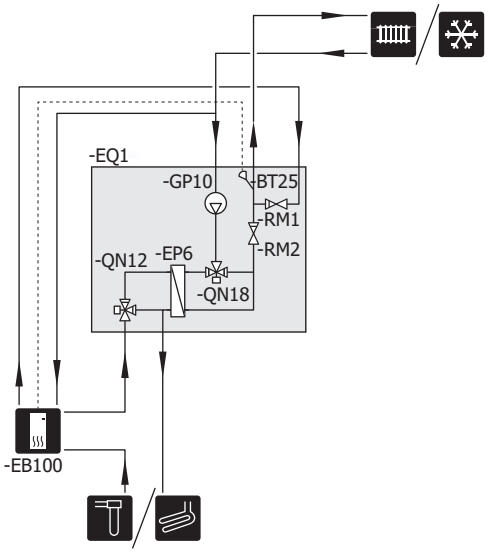
NOTE!
This is a system diagram. The actual installation must be planned according to applicable standards.

EXPLANATION

EB100	**Heat pump**
BT25	External supply temperature sensor
EQ1	**PCM S40/S42**
EP6	Heat exchanger, cooling
GP10	Circulation pump, cooling
QN12	Reversing valve, cooling/heating
QN18	Mixing valve, cooling
RM1, RM2	Non-return valve

Designations according to standard EN 81346-2.

Outline diagram PCM S40/S42



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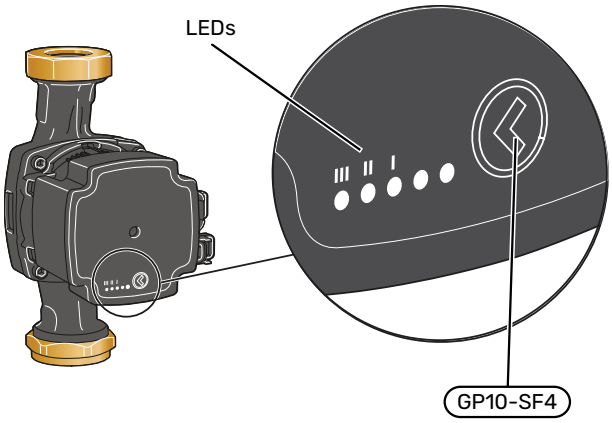
Setting the pump speed



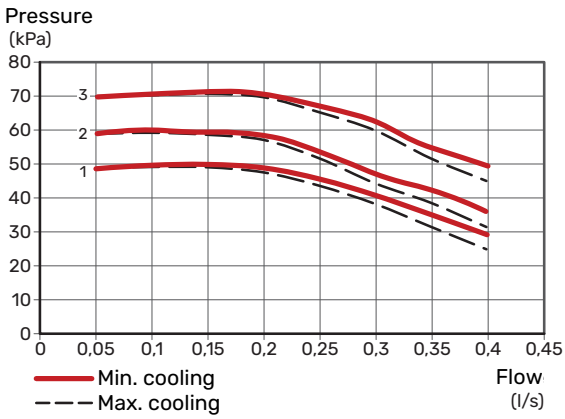
The circulation pump (GP10) is equipped with five LEDs. In normal mode, the LEDs show the pump's setting by lighting up in green and/or yellow. The LEDs can also indicate an alarm, in which case they light up in red and yellow.

The circulation pump's (EQ1-GP10) various settings are selected by pressing the switch (GP10-SF4).

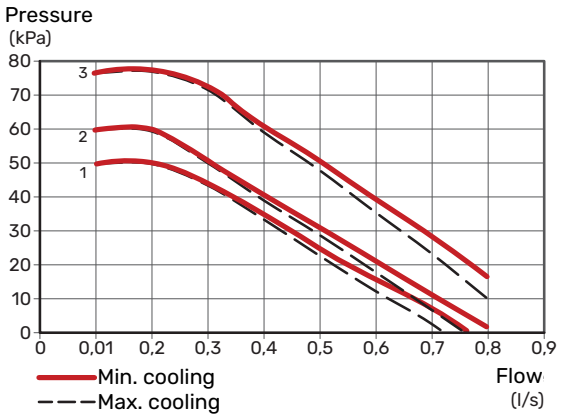
Choose between 3 different speeds for the circulation pump.

The circulation pump's factory setting is speed 2.

PCM S40



PCM S42



Pump speed	LED indication
1	
2[1]	
3	

[1] The circulation pump's factory setting

ALARM

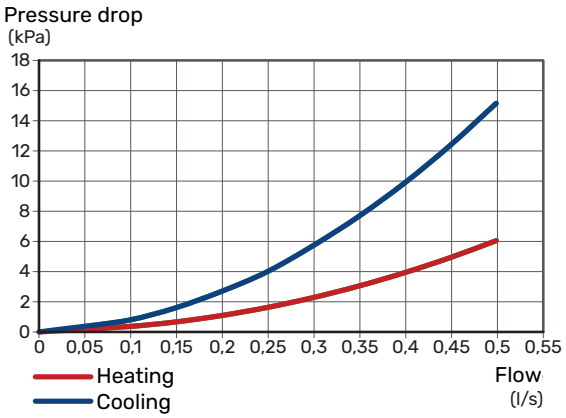
If an alarm occurs, LED 5 shines red.

When one or more alarms are active, this is indicated according to the following table. If more than one alarm is active, the one with the highest priority is displayed.

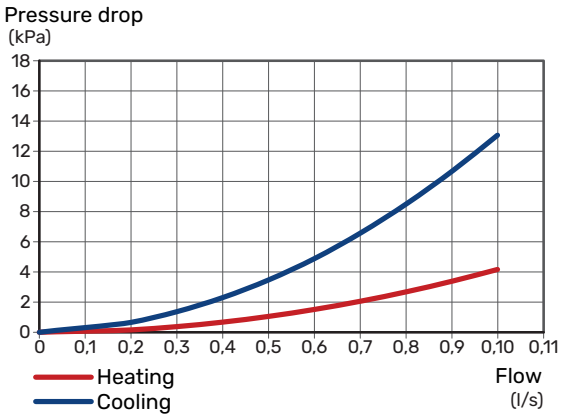
Cause / Action	LED indication
The rotor is blocked. Wait or release the rotor shaft.	
Supply voltage too low. Check the supply voltage.	
Electrical fault. Check the supply voltage or replace the circulation pump.	

Pressure drop diagram

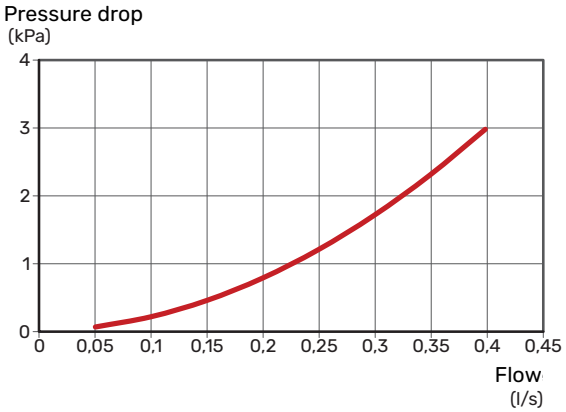
PCM S40 brine side



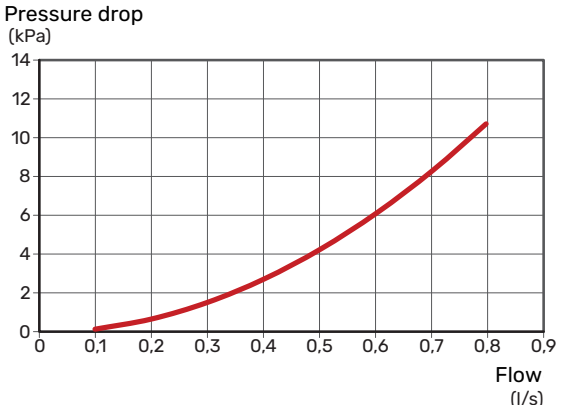
PCM S42 brine side



PCM S40 heating medium side



PCM S42 heating medium side



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Electrical connection

CAUTION!

All electrical connections must be carried out by an authorised electrician.

Electrical installation and wiring must be carried out in accordance with national provisions.

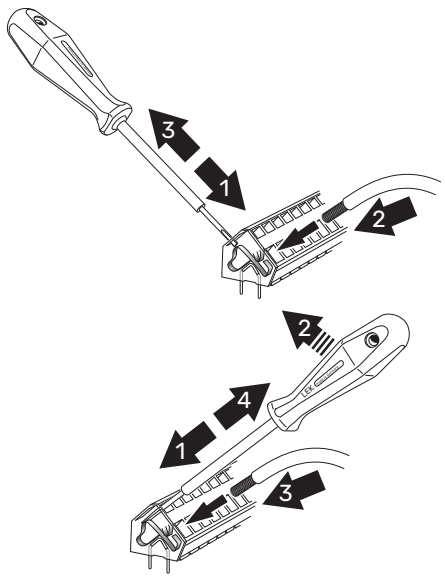
The heat pump must not be powered when installing PCM S40/S42.

- To prevent interference, communication cables to external connections must not be laid in the vicinity of high voltage cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.
- PCM S40/S42 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.
- Mark the relevant electrical cabinet with a warning about external voltage, in those cases where a component in the cabinet has a separate supply.
- PCM S40/S42 restarts after a power failure.

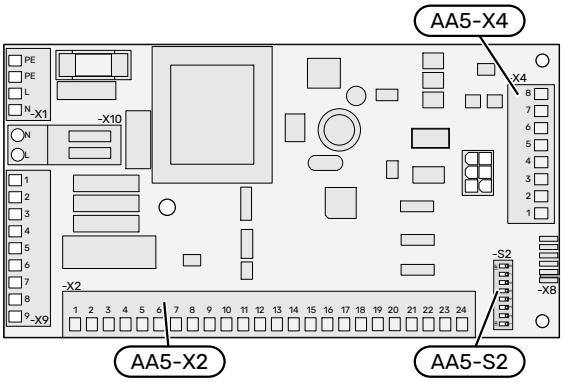
The electrical circuit diagrams are at the end of this Installer Manual.

Cable lock

Use a suitable tool to release/lock cables in terminal blocks.



Overview accessory board (AA5)



Connecting communication

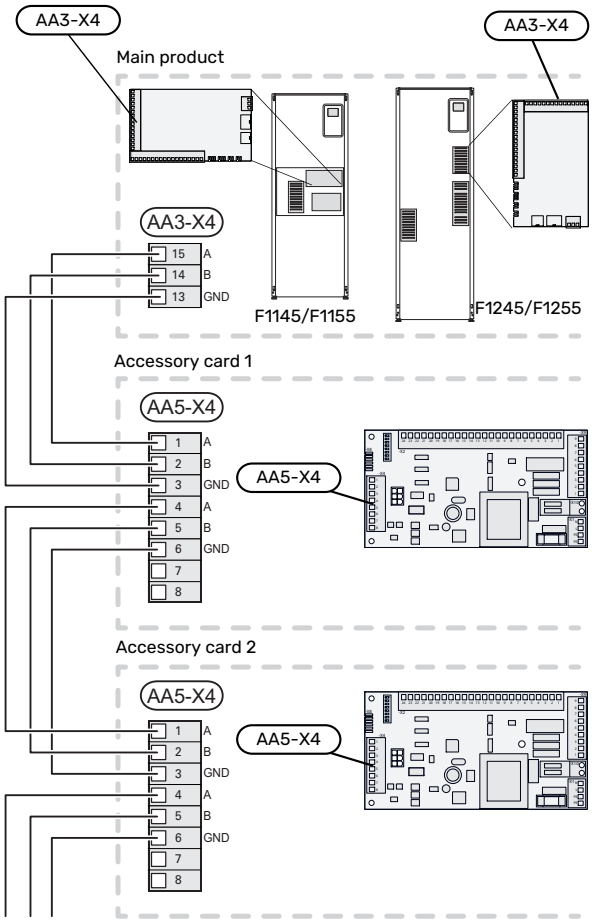
PCM S40/S42 contains an accessory board (AA5) that connects directly to the main product's input board (terminal block AA3-X4).

The communication cable (W102, length 2.5 metres) is factory fitted and connected according to the table below.

Colour	Heat pump (AA3-X4)	Another accessory board (AA5-X4)
White (A)	15	4
Brown (B)	14	5
Green (GND)	13	6

If several accessories are to be connected, or are already installed, the boards are connected in series.

Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.



Power connection

PCM S40/S42 is connected to a earthed single-phase wall socket or a permanent installation. For permanent installations, PCM S40/S42 must be preceded by a circuit breaker with at least a 3 mm breaking gap.

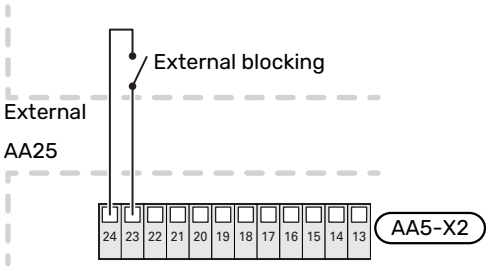
Connection of sensors and external blocking

EXTERNAL SUPPLY TEMPERATURE SENSOR (EB100-BT25)

To connect the external supply temperature sensor (BT25), see the relevant product's Installer Manual.

EXTERNAL BLOCKING (OPTIONAL)

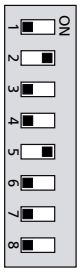
A contact (NO) can be connected to AA5-X2:23-24 to allow the function to be blocked. When the contact closes, the function is blocked.



> **NOTE!**
>
> The relay outputs on the accessory board can have a max load of 2 A (230 V) in total.

DIP switch

The DIP switch (S2) on the accessory board (AA5) must be set as follows.



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Activating PCM S40/S42

Activating PCM S40/S42 can be performed via the start guide or directly in the menu system.

Start guide

The start guide appears upon first start-up after heat pump installation, but is also found in menu 5.7.

Menu system

If you do not make all settings via the start guide or need to change any of the settings, this can be done in the menu system.

MENU 5.2 -SYSTEM SETTINGS

Activating/deactivating of accessories.

Select: "passive cooling 2-pipe"

MENU 1.1 -TEMPERATURE

Setting of indoor temperature (room temperature sensor is required).

MENU 1.9.5 - COOLING SETTINGS

Here you can perform the following settings:

- Lowest flow line temperature when cooling.
- Desired flow temperature at an outdoor air temperature of +20 and +40 °C.
- Time between cooling and heating or vice versa.
- Selection of room sensor will control the start of cooling.
- How much the room temperature may decrease or increase compared to the desired temperature before switching to heating respectively cooling (requires room sensor).
- Misc. shunt settings.

MENU 1.9.3 -MIN. FLOW LINE TEMP.

heating

Setting range: 5-70 °C

Default value: 20 °C

cooling

Depending on which accessory is used the setting range can vary.

Factory setting: 18 °C

In menu 1.9.3 you select heating or cooling, in the next menu (min. supply temp.heating/cooling) set the minimum temperature on the supply temperature to the climate system. This means that PCM S40/S42 never calculates a temperature lower than that set here.

MENU 5.4 -SOFT IN/OUTPUTS

Setting software-controlled inputs and outputs on the terminal blocks (X6).

Activation of sensor.

Select: “EQ1-BT25”.

MENU 5.6 -FORCED CONTROL

Forced control of the various components in the heat pump as well as of the various accessories that may be connected.

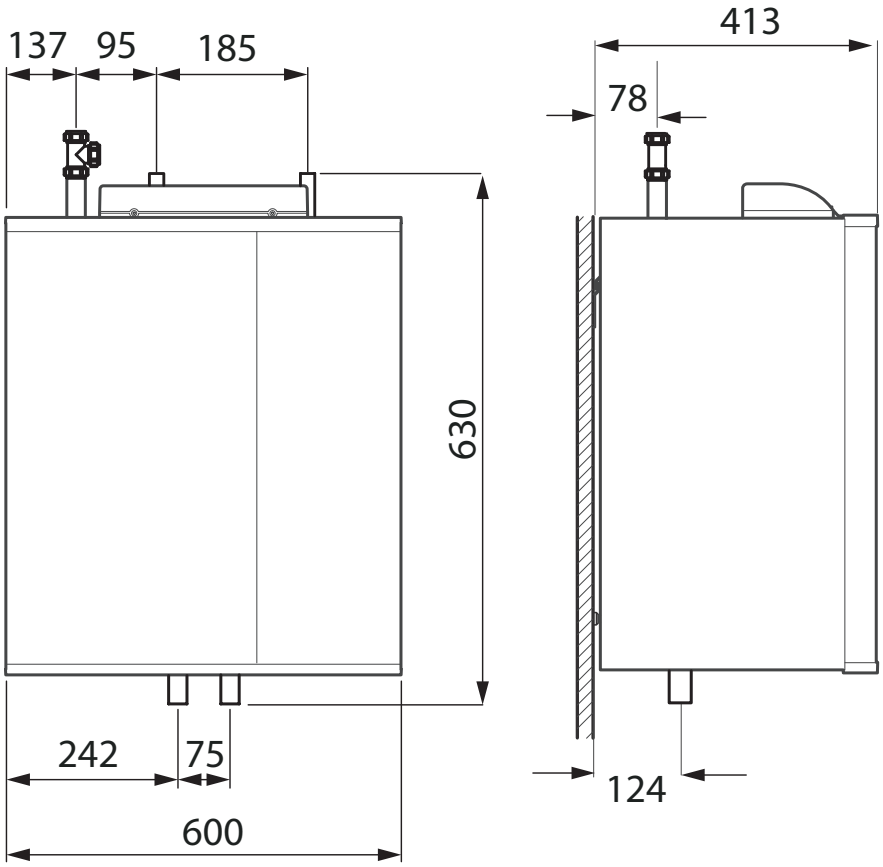
NOTE!

Also see the Installer Manual for the main product.

Technical data

Dimensions

PCM S40



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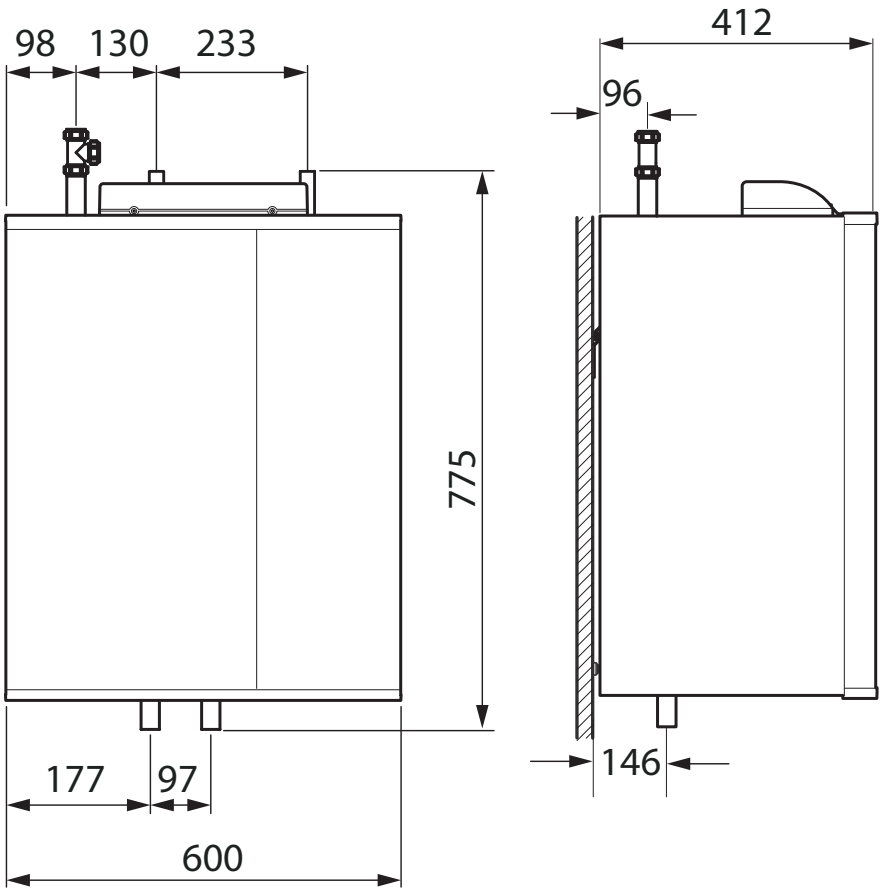
PCM S42



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Technical specifications

AXC module		
Electrical data		
Rated voltage		230 V ~ 50 Hz
Enclosure class		IP21
Rated value for impulse voltage	kV	4
Pollution degree		2
Min fuse rating	A	10
Miscellaneous		
Operation mode according to EN 60 730-1		Type 1
Area of operation	°C	-25 – 70
Ambient temperature	°C	5 – 35
Program cycles, hours		1, 24
Program cycles, days		1, 2, 5, 7
Resolution, program	min.	1
Temperature during ball pressure test according to EN 60 730-1	°C	75
Dimensions LxWxH	mm	175x250x100
Weight	kg	1.47

		PCM S40	PCM S42
Connection, hot side	mm	22	28
Connection, cold side	mm	28	35
Height (excl. pipes)	mm	515	635
Width	mm	600	600
Depth	mm	415	415
Weight	kg	42	56
Output, circulation pump	W	25 – 52	25 – 60
Intended for heat pumps	kW at 0/35 °C	5 – 8	10 – 18
Part No.		067 625	067 626

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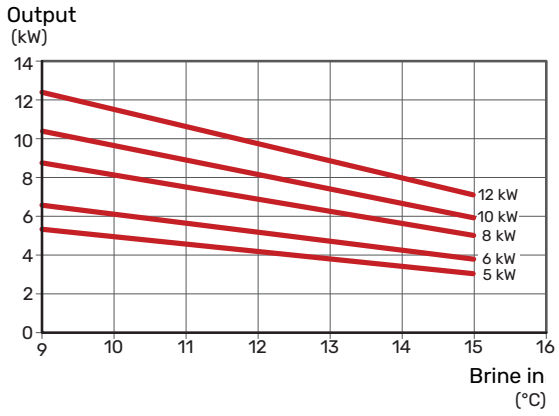
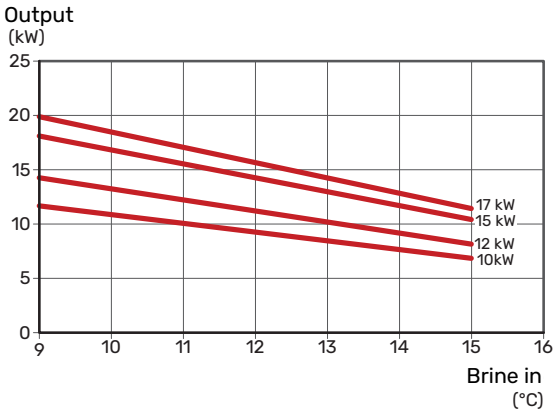
CAPACITY DIAGRAM

Nominal heating medium and brine flow for relevant heat pump size and 23°C incoming temperature to PCM S40/S42.

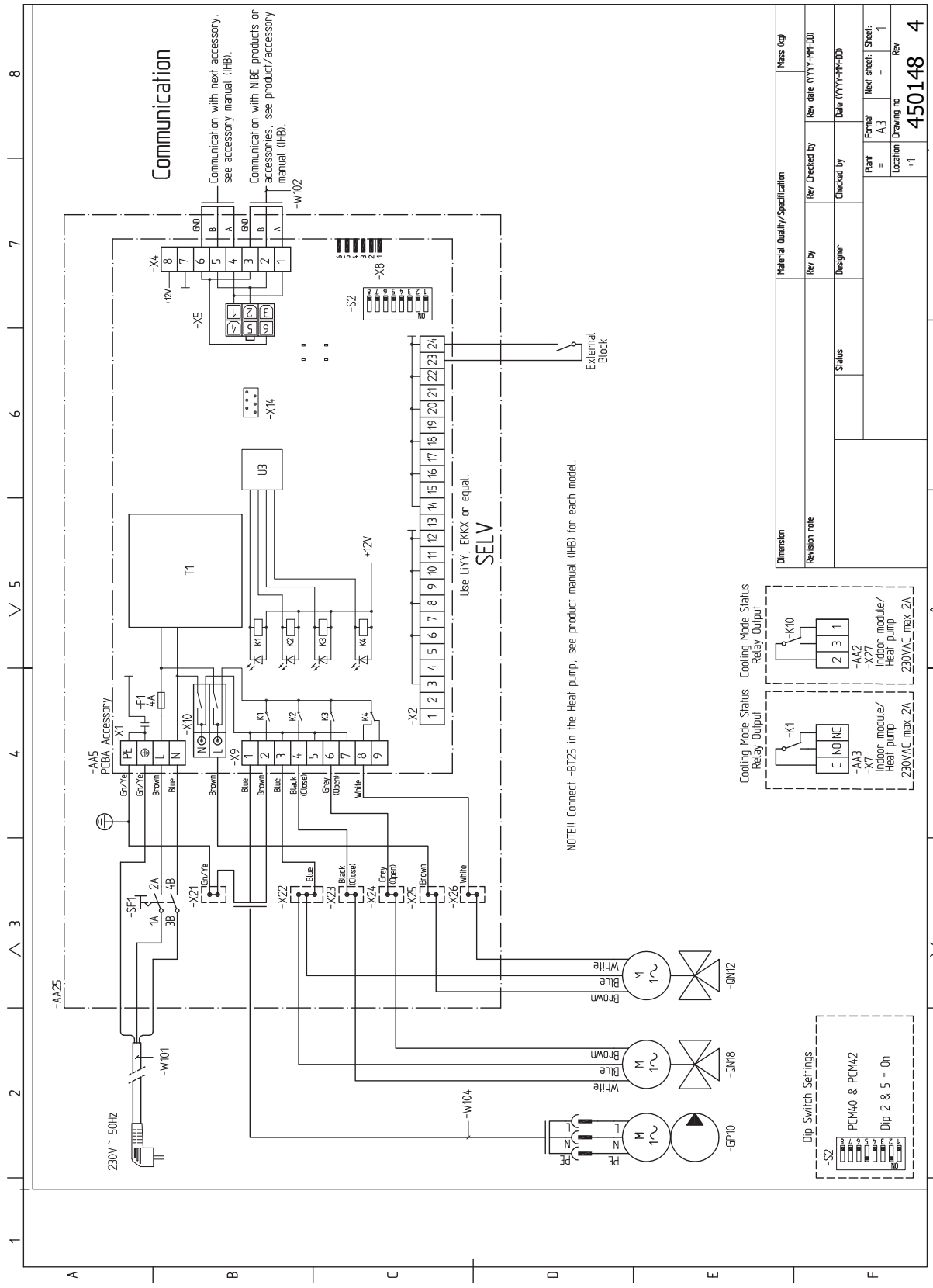
PCM S40



PCM S42



Electrical circuit diagram



Contact information

AUSTRIA
KNV Energietechnik GmbH
Gahberggasse 11, 4861 Schörfling
Tel: +43 (0)7662 8963-0
mail@knv.at
knv.at

CZECH REPUBLIC
Družstevní závody Dražice - strojírna s.r.o.
Dražice 69, 29471 Benátky n. Jiz.
Tel: +420 326 373 801
nibe@nibe.cz
nibe.cz

DENMARK
Vølund Varmeteknik A/S
Industrivej Nord 7B, 7400 Herning
Tel: +45 97 17 20 33
info@volundvt.dk
volundvt.dk

FINLAND
NIBE Energy Systems Oy
Juurakkotie 3, 01510 Vantaa
Tel: +358 (0)9 274 6970
info@nibe.fi
nibe.fi

FRANCE
NIBE Energy Systems France SAS
Zone industrielle RD 28
Rue du Pou du Ciel, 01600 Reyrieux
Tél: 04 74 00 92 92
info@nibe.fr
nibe.fr

GERMANY
NIBE Systemtechnik GmbH
Am Reiherpfahl 3, 29223 Celle
Tel: +49 (0)5141 75 46 -0
info@nibe.de
nibe.de

GREAT BRITAIN
NIBE Energy Systems Ltd
3C Broom Business Park,
Bridge Way, S41 9QG Chesterfield
Tel: +44 (0)330 311 2201
info@nibe.co.uk
nibe.co.uk

NETHERLANDS
NIBE Energietechniek B.V.
Energieweg 31, 4906 CG Oosterhout
Tel: +31 (0)168 47 77 22
info@nibenl.nl
nibenl.nl

NORWAY
ABK-Qviller AS
Brobekkveien 80, 0582 Oslo
Tel: (+47) 23 17 05 20
post@abkqviller.no
nibe.no

POLAND
NIBE-BIAWAR Sp. z o.o.
Al. Jana Pawla II 57, 15-703 Bialystok
Tel: +48 (0)85 66 28 490
biawar.com.pl

SWEDEN
NIBE Energy Systems
Box 14
Hannabadsvägen 5, 285 21 Markaryd
Tel: +46 (0)433-27 30 00
info@nibe.se
nibe.se

SWITZERLAND
NIBE Wärmetechnik c/o ait Schweiz AG
Industriepark, CH-6246 Altishofen
Tel. +41 (0)58 252 21 00
info@nibe.ch
nibe.ch

For countries not mentioned in this list, contact NIBE Sweden or check nibe.eu for more information.

NIBE Energy Systems
Hannabadsvägen 5
Box 14
SE-285 21 Markaryd
info@nibe.se
nibe.eu

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