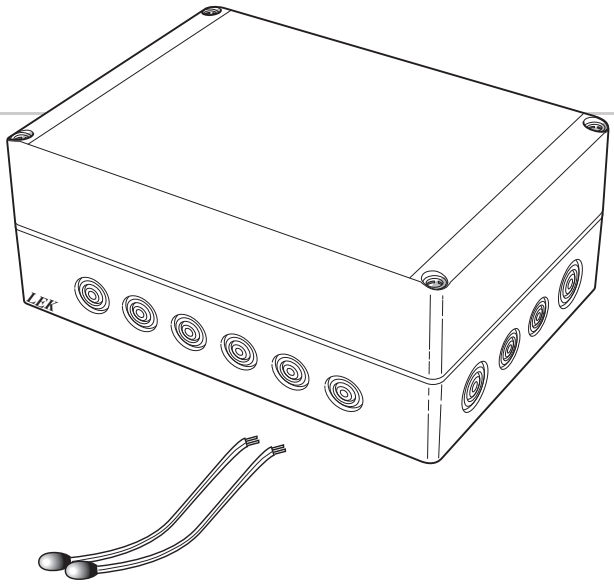


Installer manual

AXC 50

Accessories

IHB GB 1522-5
231158

Table of Contents

1 General

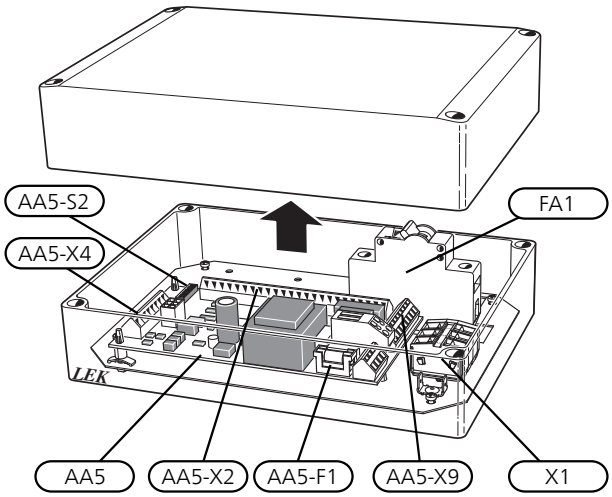
This accessory is used to enable connection and control of (a AXC 50 is required for each of the following accessory functions that is used):

- Shunt controlled additional heat
- Step controlled additional heat
- Passive cooling (4-pipe)
- Passive cooling (2-pipe)
- Passive/active cooling (2-pipe)
- Extra climate system
- Hot water comfort
- Groundwater pump

Contents

4 x	Cable ties
2 x	Heating pipe paste
1 x	Insulation tape
1 x	Unit box with accessory card
2 x	Aluminium tape
2 x	Temperature sensor

Component locations unit box (AA25)



Electrical components

FA1	Miniature circuit breaker, 10 A
X1	Terminal block, power supply
AA5	Accessory card
AA5-X2	Terminal block, sensors and external blocking
AA5-X4	Terminal block, communication
AA5-X9	Terminal block, circulation pump, mixing valve and auxiliary relay
AA5-S2	DIP switch
AA5-F1	Fine wire fuse, T4AH250V

Designations in component locations according to standard IEC 81346.

2 Common electrical connection

NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

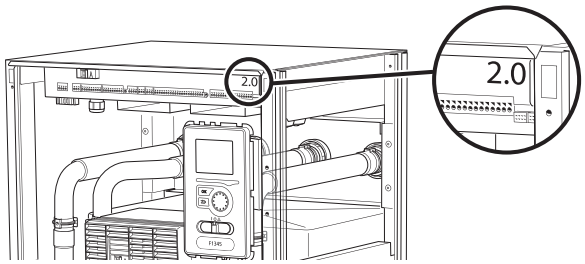
The climate unit must not be powered when installing AXC 50.

Electrical circuit diagrams are at the end of the chapter for each connection option.

Connecting communication

Electrical connection versions F1345

F1345 has different electrical connection versions depending on when the heat pump was manufactured. To check which electrical connection applies to your F1345, check the designation "2.0" visible above the right hand side of the terminal block as illustrated.

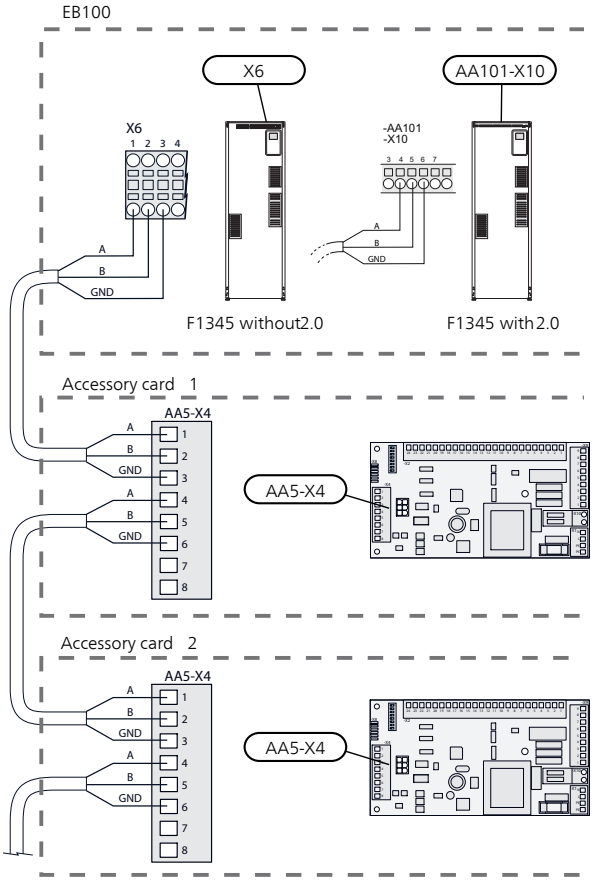


This accessory contains an accessory board (AA5) that must be connected directly to the heat pump on terminal block X6 in F1345 or on terminal block AA101-X10 in F1345 2.0.

If several accessories are to be connected or are already installed, the following instructions must be followed.

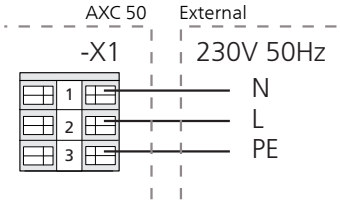
The first accessory board must be connected directly to the terminal block in the heat pump and the following boards must be connected in series with the previous board.

Use cable type LiYY, EKKX or similar.



Connecting the supply

Connect the power supply to terminal block X1 as illustrated.



3 Shunt controlled additional heat

General

This function enables an external additional heater, e.g. an oil boiler, gas boiler or district heating exchanger to aid with heating.

The heat pump controls a shunt valve (QN11) and a circulation pump (GP10) via AXC 50. If the heat pump does not manage to keep the correct supply temperature, the additional heat starts. When the boiler temperature has been increased to about 55° C, the heat pump sends a signal to the shunt to open from the additional heat. The shunt is adjusted so the true supply temperature corresponds with the control system's theoretical calculated set point value. When the heating requirement drops sufficiently that the additional heat is no longer required the shunt closes completely. Factory set minimum run time for the boiler is 12 hours (can be set in menu 5.3.2).

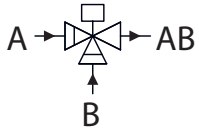
Pipe connections

The external circulation pump (GP10) is positioned according to the outline diagram.

Shunt valve

The shunt valve (QN11) is located on the flow line to the climate system after the heat pump according to the outline diagram.

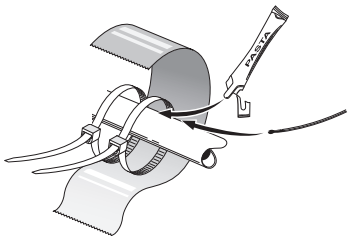
- Connect the supply line from the heat pump to the external heat source via the T-pipe to port B on the shunt valve (closes at reduced signal).



- Connect the flow line to the climate system from the shunt valve to the common port AB (always open)
- Connect the supply line from the external additional heat to the shunt valve to port A (opens at increased signal).

Temperature sensor

- Install the boiler sensor (BT52) in a suitable location in the external addition.
- External supply temperature sensor (BT25, connected in F1345) must be installed on the supply line to the radiators, after the shunt valve (QN11).



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

> **NOTE**
>
> Sensor and communication cables must not be placed near power cables.

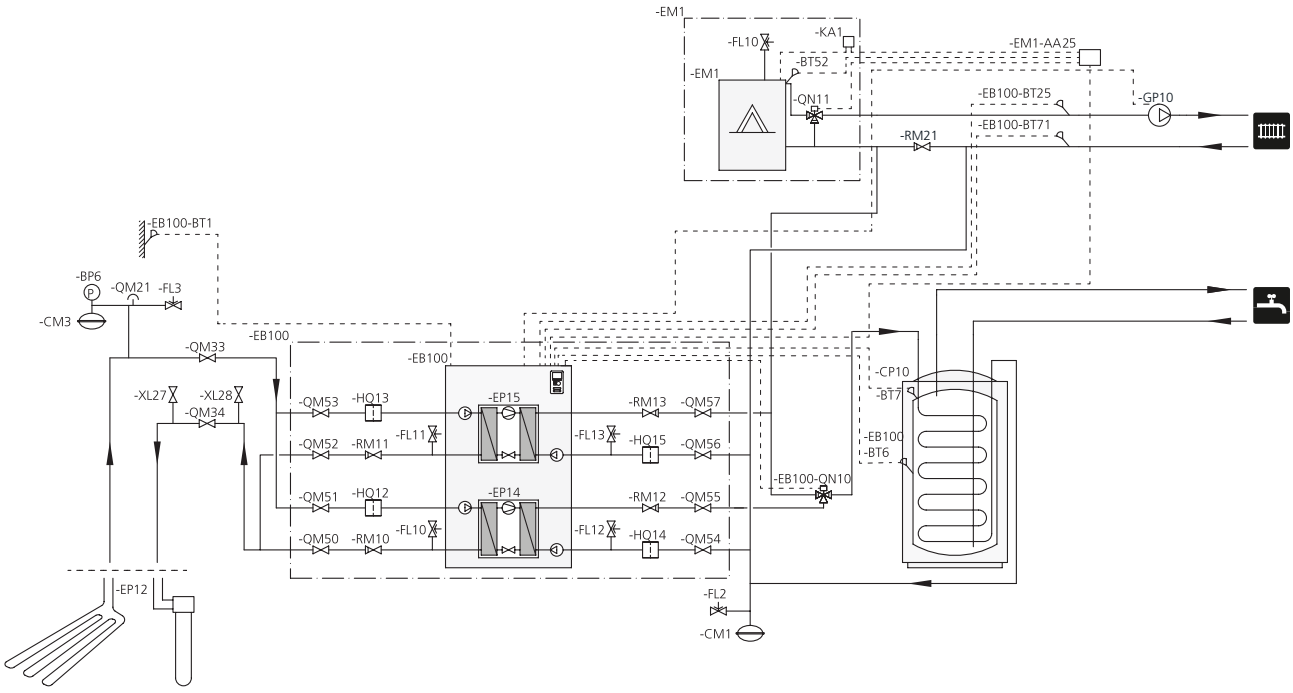
Outline diagram

Explanation

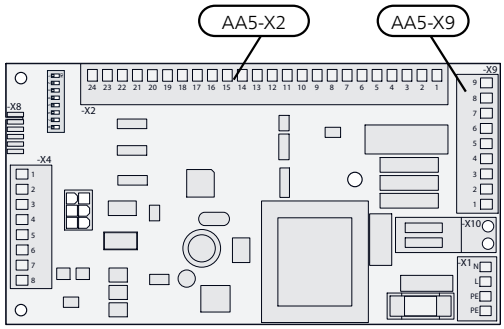
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
EM1	**External additional heat**
AA25	Unit box with AXC 50
BT52	Temperature sensor, boiler
EM1	Oil/gas boiler
FL10	Safety valve, heating medium side
KA1	Auxiliary relay, external additional heat
QN11	Mixing valve, addition
Miscel-laneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CP10	Accumulator tank with hot water coil
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
EP12	Collector, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and external addition



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

F1345 must not be powered when installing AXC 50.

Connection of sensors and external blocking

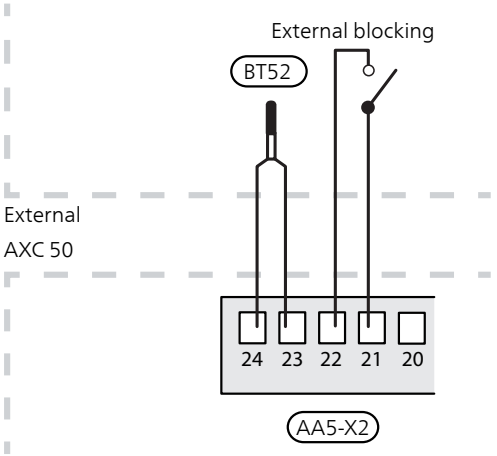
Use cable type LiYY, EKKX or similar.

Boiler sensor (BT52)

Connect the boiler sensor to AA5-X2:23-24.

External blocking (optional)

A contact (NO) can be connected to AA5-X2:21-22 to block the addition. When the contact closes, the addition is blocked.

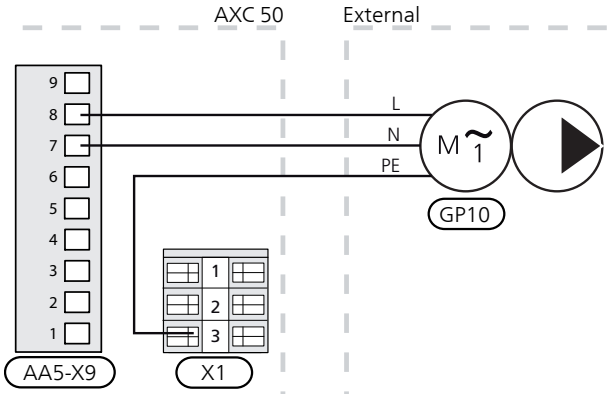


Caution

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

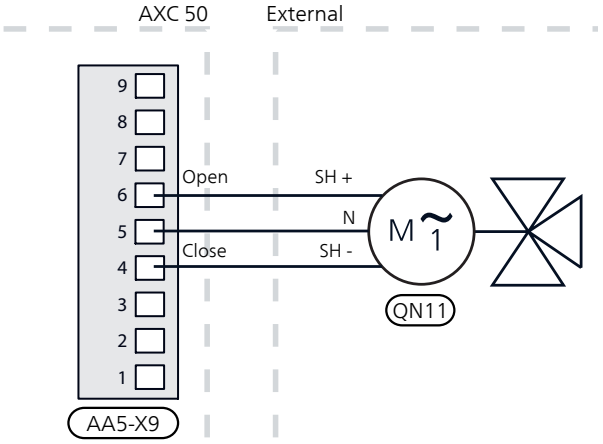
Connection of the circulation pump (GP10)

Connect the circulation pump (GP10) to AA5-X9:8 (230 V), AA5-X9:7 (N) and X1:3 (PE)



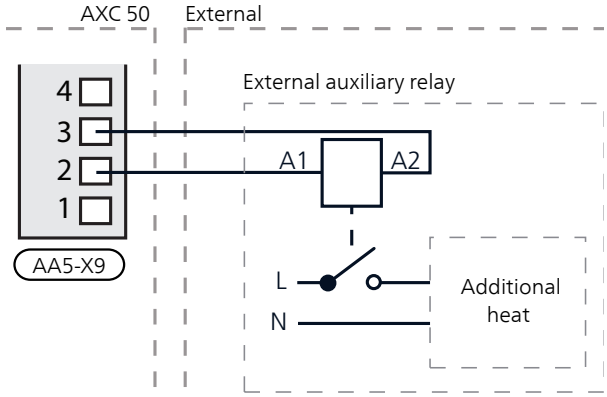
Connection of the mixing valve motor (QN11)

Connect the mixing valve motor (QN11) to AA5-X9:6 (230 V, open), AA5-X9:5 (N) and AA5-X9:4 (230 V, close).



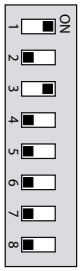
Connection of the auxiliary relay for additional heating

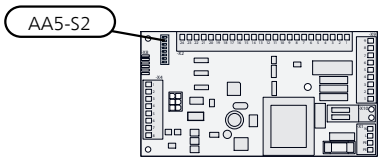
Connect the auxiliary relay for switching the addition on and off to AA5-X9:2 (230 V) and AA5-X9:3 (N).



DIP switch

The DIP switch on the accessory card must be set as follows.





Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "shunt controlled add. heat".

Menu 5.3.2 - shunt controlled add. heat

Here you can perform the following settings:

- Select when the addition is to start.
- Minimum running time.
- Minimum boiler temperature at which the shunt can start control.
- Misc. shunt settings.

Menu 5.6 - forced control

Forced control of the different components in heat pump

EM1-AA5-K1: Activating the relay for extra heating

EM1-AA5-K2: Signal (close) to mixing valve (QN11).

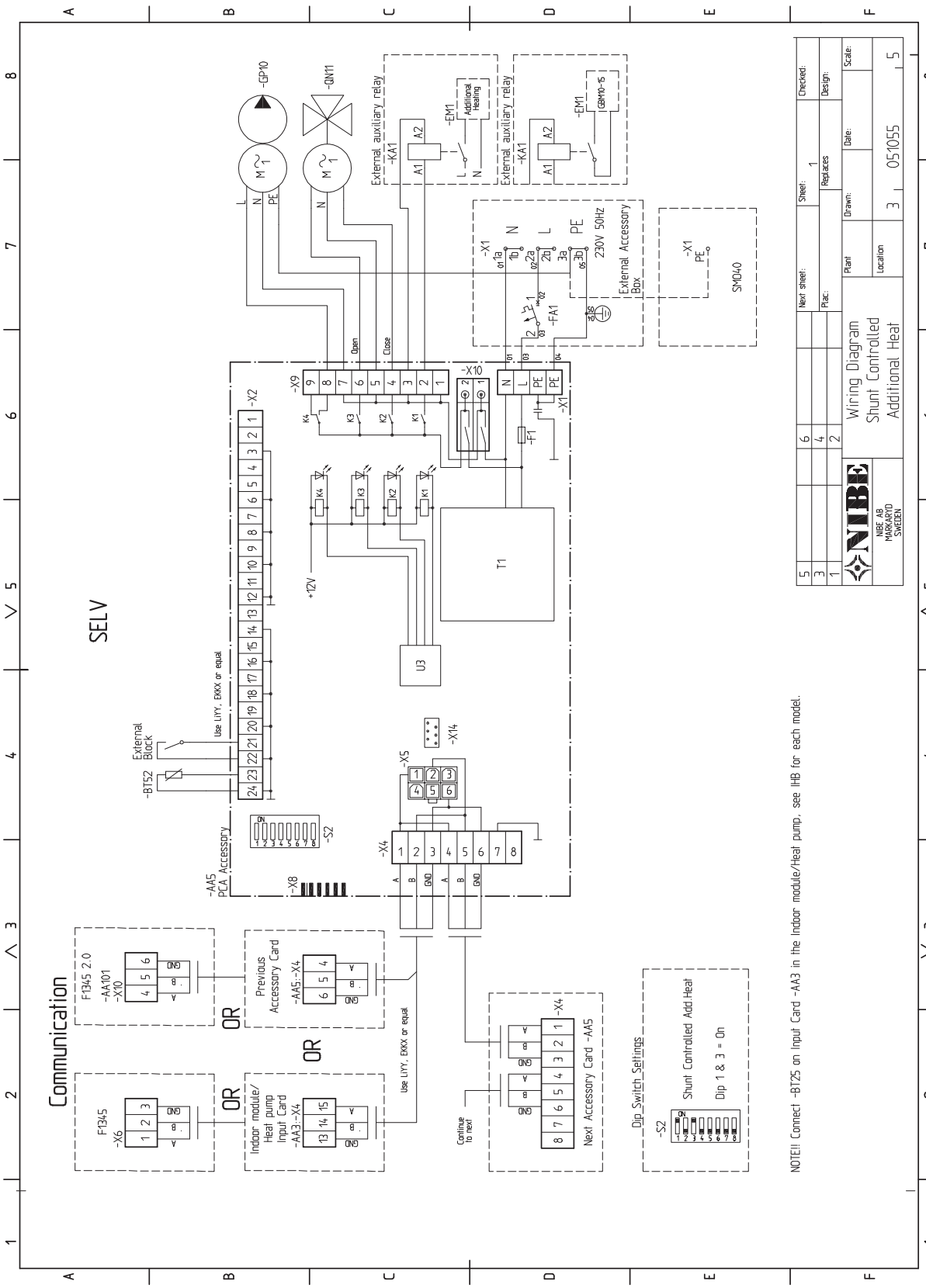
EM1-AA5-K3: Signal (open) to mixing valve (QN11).

EM1-AA5-K4: Activating the circulation pump (GP10).

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



4 Step controlled additional heat

General

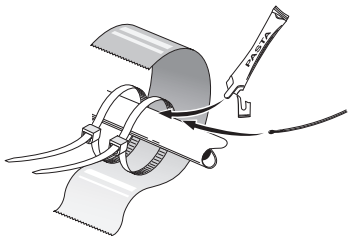
With AXC 50, three additional potential-free relays can be used for additional heat control, which then provides max 3+3 linear or 7+7 binary steps.

Pipe connections

The extra circulation pump (GP10) is positioned according to the outline diagram.

Temperature sensor

- External supply temperature sensor (BT25, connected in F1345) must be installed on the supply line to the radiators, after the additional heat.



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

> **NOTE**
>
> Sensor and communication cables must not be placed near power cables.

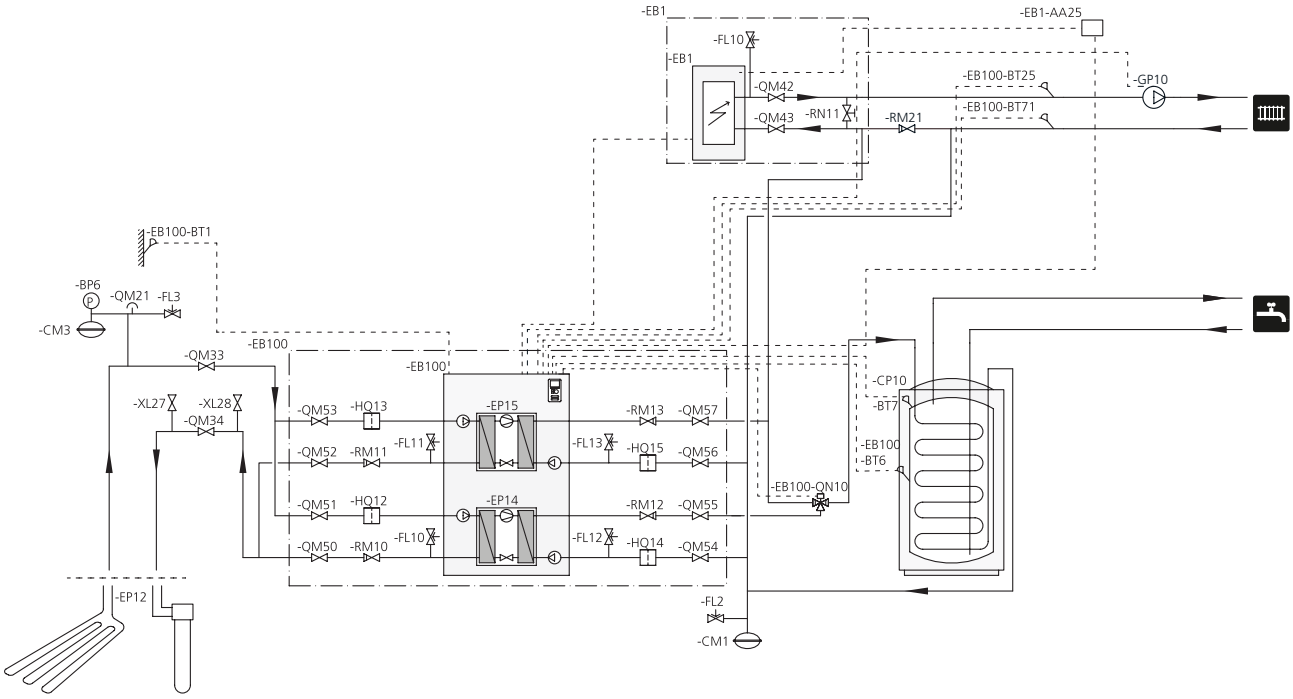
Outline diagram

Explanation

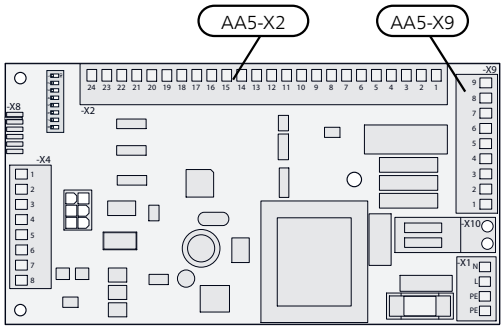
EB1	**External additional heat**
AA25	Unit box with AXC 50
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
Miscel-laneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CP10	Accumulator tank with hot water coil
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
EP12	Collector, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and external addition



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

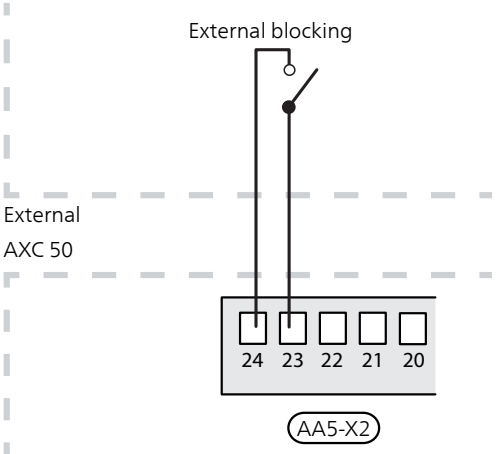
F1345 must not be powered when installing AXC 50.

Connecting external blocking

Use cable type LiYY, EKKX or similar.

External blocking (optional)

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

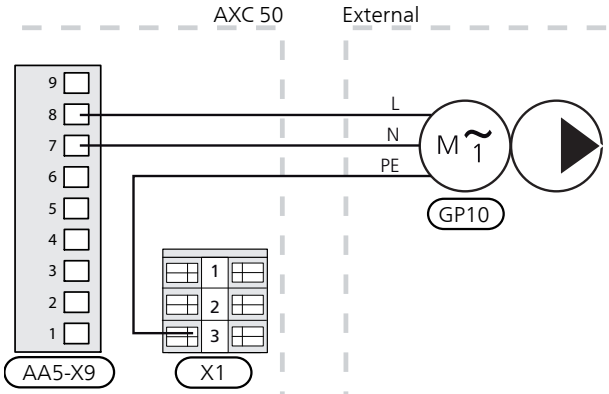


Caution

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

Connection of the circulation pump (GP10)

Connect the circulation pump (GP10) to AA5-X9:8 (230 V), AA5-X9:7 (N) and X1:3 (PE)

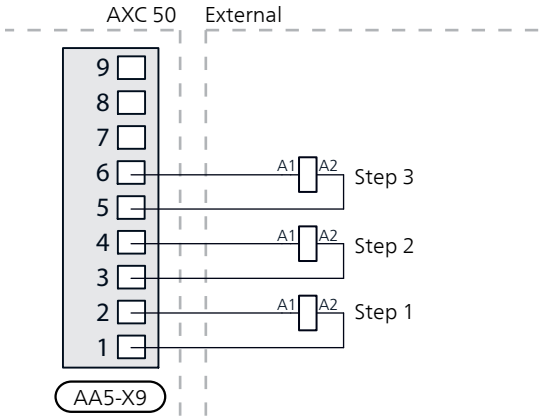


Connecting additional step

Connect step 1 to AA5-X9:1 and 2.

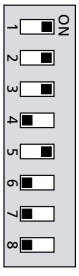
Connect step 2 to AA5-X9:3 and 4.

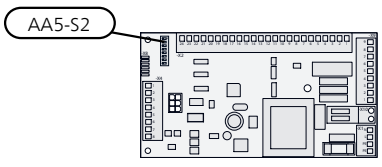
Connect step 3 to AA5-X9:5 and 6.



DIP switch

The DIP switch on the accessory card must be set as follows.





Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "step controlled add. heat AXC 50".

Menu 5.3.6 - step controlled add. heat AXC 50

Here you can perform the following settings:

- Select when the addition is to start.
- Set max permitted number of additional steps.
- If binary stepping is to be used.

Caution

"start diff additional heat" in the menus 5.3.6 (connected to AXC 50) and 4.9.3 (connected internally in F1345) are factory set to 400GM. If both the connection possibilities are used and one wishes to have more steps the start difference must be changed in one of the menus.

Menu 5.6 - forced control

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

EB1-AA5-K1: Activating additional step 1.

EB1-AA5-K2: Activating additional step 2.

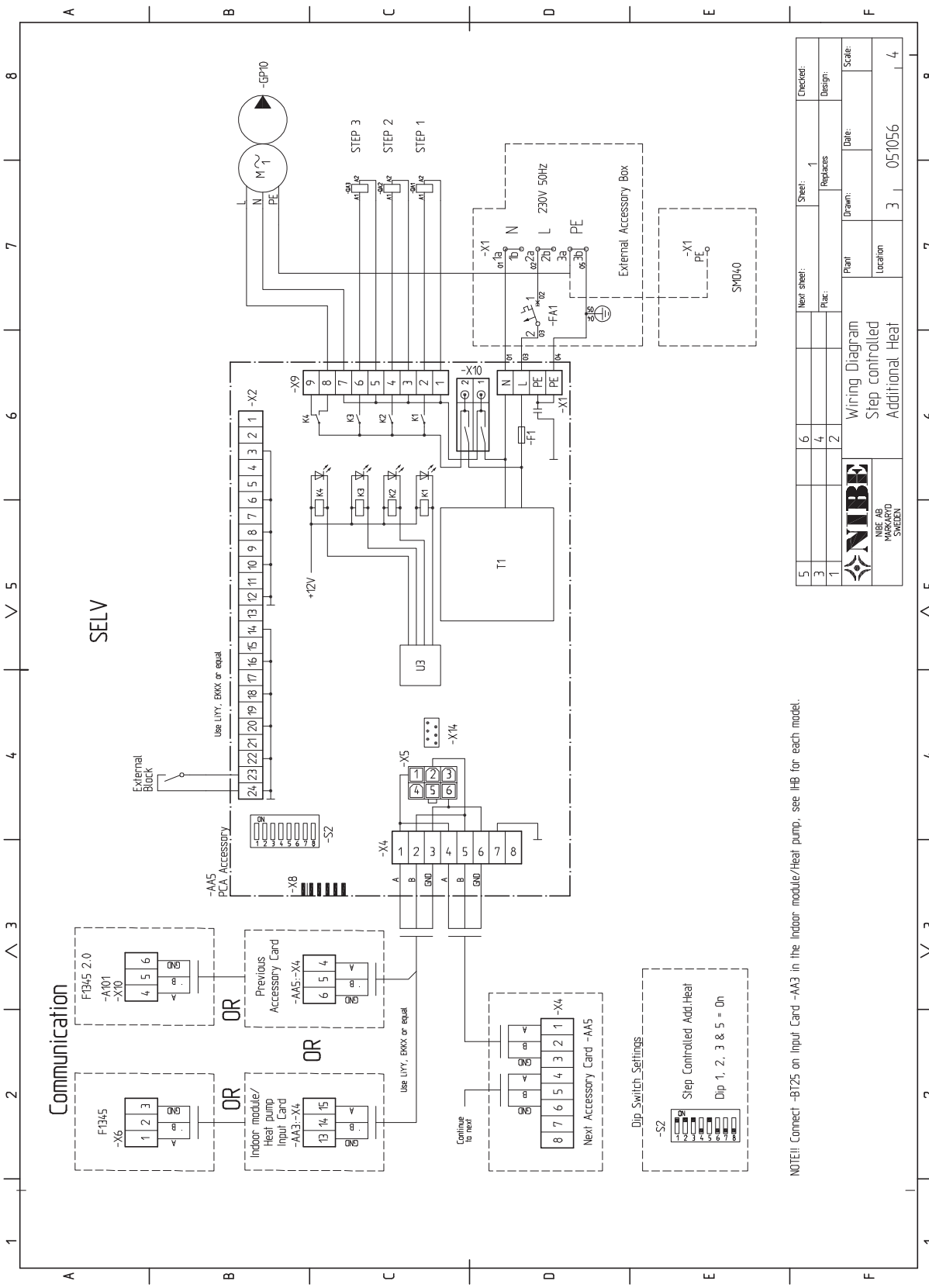
EB1-AA5-K3: Activating additional step 3.

EB1-AA5-K4: Activating the circulation pump (GP10).

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



5 Extra climate system

General

This accessory function is used when F1345 is installed in houses with up to eight different climate systems that require different supply line temperatures, for example, in cases where the house has both a radiator system and an under floor heating system.

Caution

Underfloor heating systems are normally max flow line temperature set between 35 and 45 °C.

Check the max temperature for your floor with your floor supplier.

Caution

If the room sensor is used in a room with underfloor heating, it should only have an indicatory function, not control of the room temperature.

Pipe connections

General

When connecting extra climate systems, they must be connected so that they have a lower working temperature than the climate system 1.

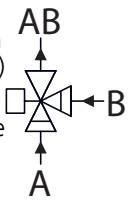
Circulation pump

The extra circulation pump (GP20) is positioned in the extra climate system according to the outline diagram.

Shunt valve

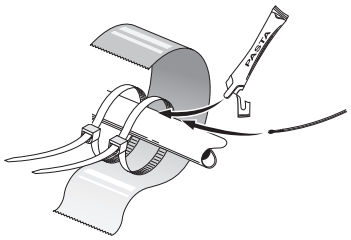
The mixing valve (QN25) is located on the flow line after the heat pump/indoor module, before the first radiator in the climate system 1. The return line from the additional climate system must be connected to the shunt valve and to the return line from the heating system 1, see image and outline diagram.

- Connect the supply line to the climate system from the heat pump to port A on the shunt valve (opens at increased signal)
- Connect the return line from the climate system to port B on the shunt valve via the T-pipe to (closes at reduced signal).
- Connect the flow line to the climate system to the common port AB on the shunt valve (always open).



Temperature sensor

- The flow temperature sensor (BT2) is installed on the pipe between the circulation pump (GP20) and mixing valve (QN25).
- The return line sensor (BT3) is installed on the pipe from the extra climate system.



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

NOTE

Sensor and communication cables must not be placed near power cables.

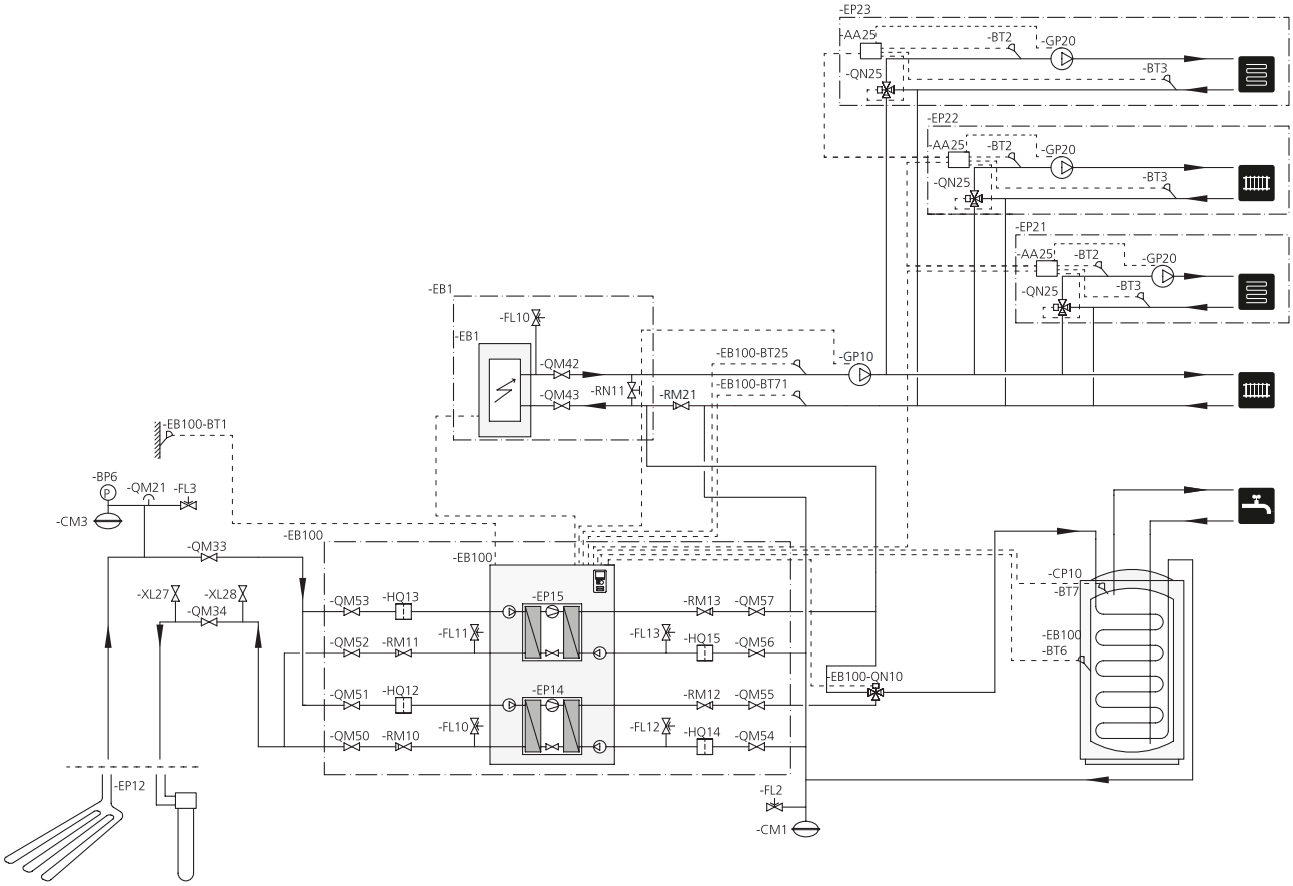
Outline diagram

Explanation

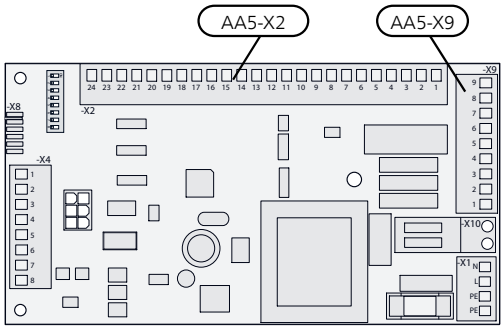
EB1	**External additional heat**
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB100	**Heat pump system**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water
BT25	Temperature sensor, external flow line
BT71	Temperature sensor, external return line
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
EP21	**Climate system 2**
AA25	Unit box with AXC 50
BT2	Flow temperature sensor, extra climate system
BT3	Return line sensor, extra climate system
GP20	Circulation pump, extra climate system
QN25	Shunt valve
EP22	**Climate system 3**
EP23	**Climate system 4**
Miscellaneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, brine side
CP10	Accumulator tank with solar coil
EP12	Ground-source heating/Ground collector
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine return
QM34	Shut off valve, brine flow
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations in component locations according to standard IEC 81346-1 and 81346-2.

Outline diagram F1345 med AXC 50 and up to three extra climate systems



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

F1345 must not be powered when installing AXC 50.

Connection of sensors and external adjustment

Use cable type LiYY, EKKX or similar.

Flow temperature sensor, extra climate system (BT2)

Connect the flow temperature sensor to AA5-X2:23-24.

Return line sensor, extra climate system (BT3)

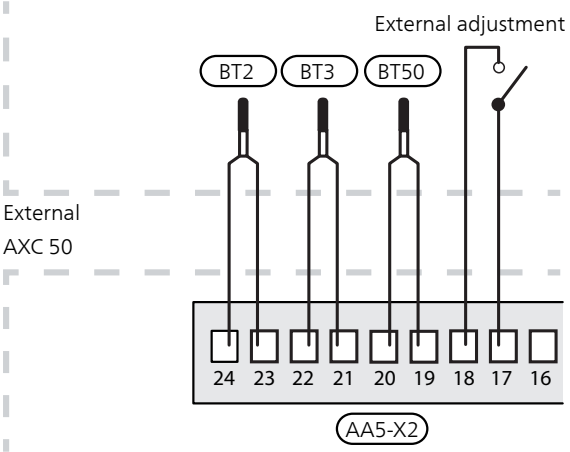
Connect the return line sensor to AA5-X2:21-22.

Room temperature sensor, extra climate system (BT50) (optional)

Connect the room temperature sensor to AA5-X2:19-20.

External adjustment (optional)

A potential free switch can be connected to AA5-X2:17-18 for external adjustment of the climate system.

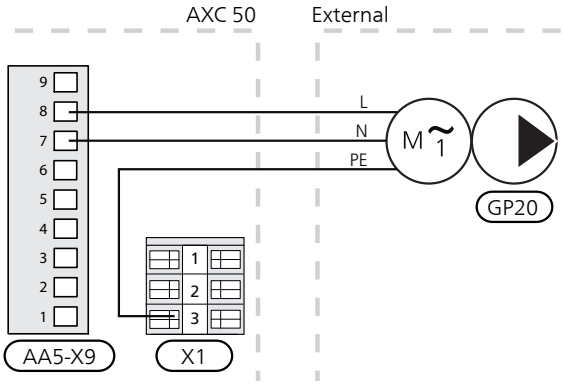


Caution

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

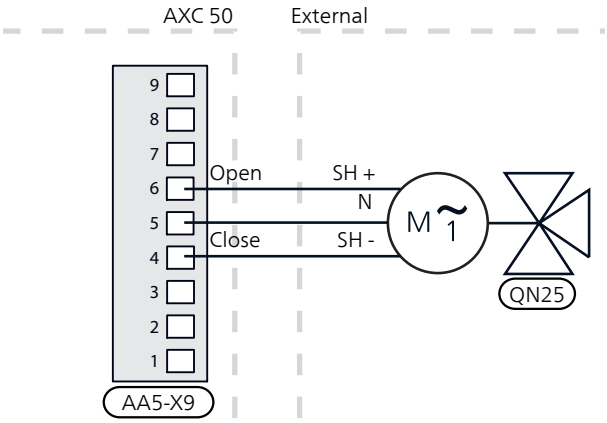
Connection of the circulation pump (GP20)

Connect the circulation pump (GP20) to AA5-X9:8 (230 V), AA5-X9:7 (N) and X1:3(PE).



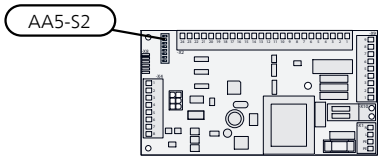
Connection of the mixing valve motor (QN25)

Connect the mixing valve motor (QN25) to AA5-X9:6 (230 V, open), AA5-X9:5 (N) and AA5-X9:4 (230 V, close).

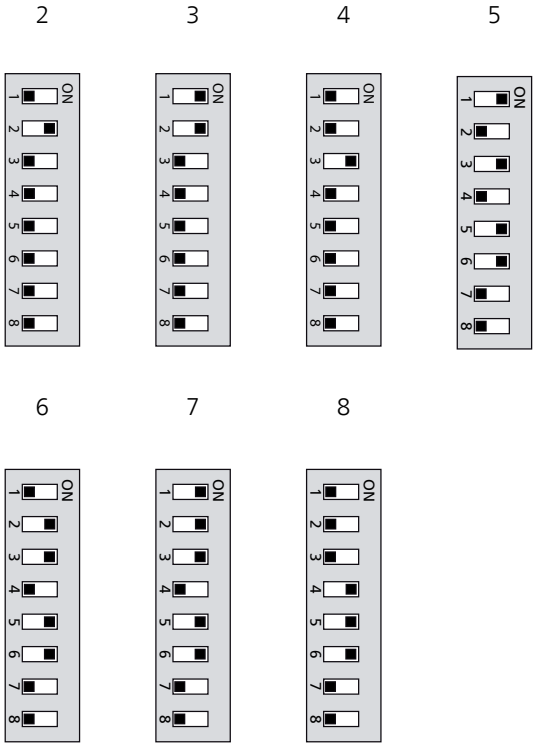


DIP switch

The DIP switch on the accessory card must be set as follows.



Climate system



Program settings

Program setting of AXC 50 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/indoor module 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "climate system 2", "climate system 3" and/or "climate system 4" depending on how many climate systems are installed.

Menu 5.1.2 - max flow line temperature

Setting the maximum flow temperature for each climate system.

Menu 5.3.3 - extra climate system

Mixing valve settings for extra installed climate system.

use in heating mode

Setting range: on/off

Factory setting: on

use in cooling mode

Setting range: on/off

Factory setting: off

Menu 1.1 - temperature

Setting the indoor temperature.

Menu 1.9.1.1 -heating curve

Setting the heat curve.

Menu 1.9.1.2 -cooling curve

Setting the cooling curve.

Menu 1.9.2 - external adjustment

Setting external adjustment.

Menu 1.9.3 - min. flow line temp.

Setting the minimum flow temperature for each climate system.

Menu 1.9.4 - room sensor settings

Activating and setting the room temperature sensor.

Menu 5.6 - forced control

Forced control of the different components in the heat pump as well as in the different accessories that may be connected. 2 is climate system, EP22, 3 is climate system EP23, 4 is climate system EP21.

EP2#-AA5-K1: No function.

EP2#-AA5-K2: Signal (close) to mixing valve (QN25).

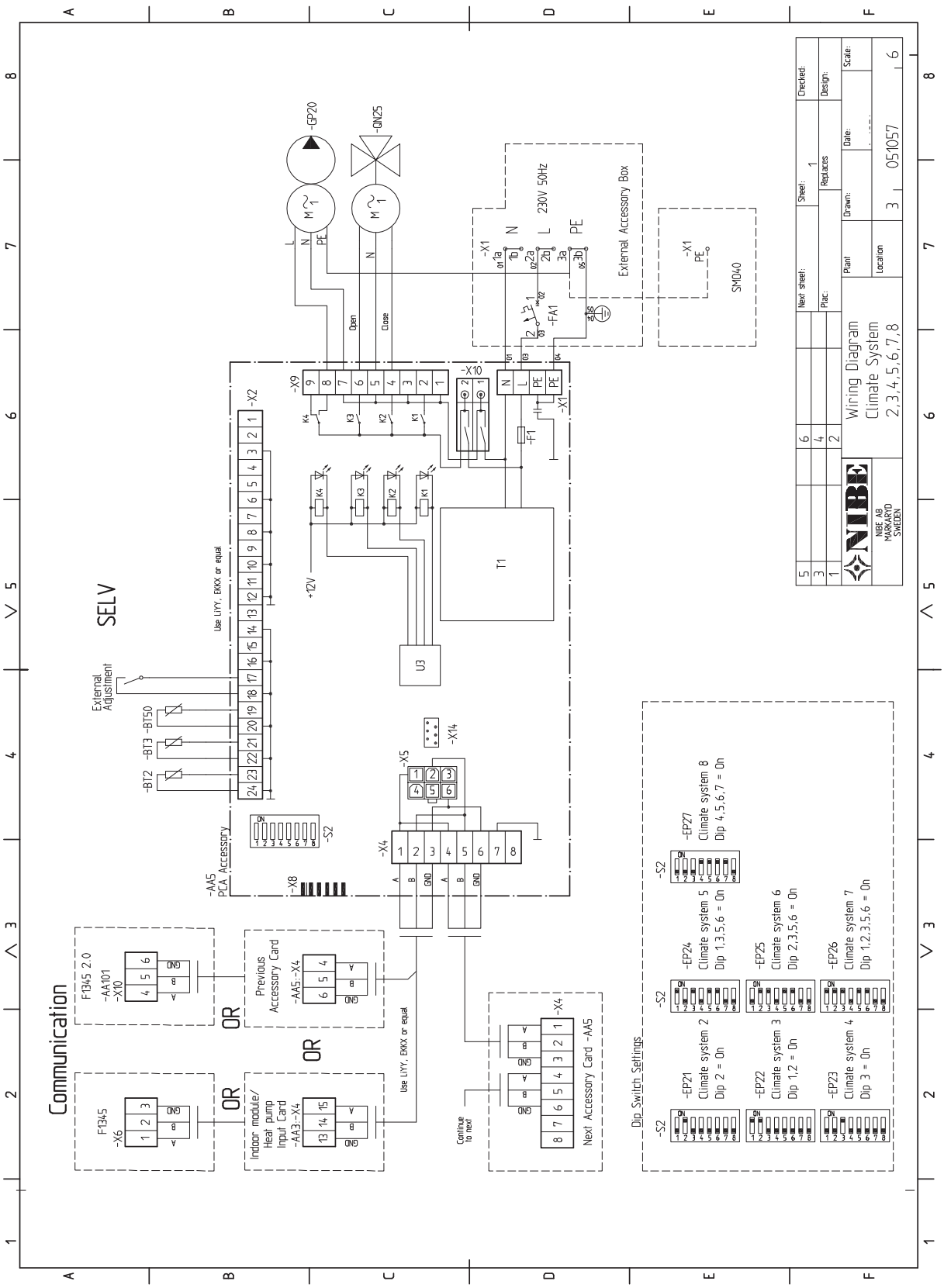
EP2#-AA5-K3: Signal (open) to mixing valve (QN25).

EP2#-AA5-K4: Activating the circulation pump (GP20).

Caution

Also see the Installer manual for relevant heat pump/indoor module.

Electrical circuit diagram



6 Hot water comfort

General

This function allows temporary lux, mixing valve and hot water circulation.

Temporary lux (extra hot water)

If an immersion heater is installed in the tank it can be permitted to produce hot water, at the same time as the heat pump prioritises heating.

Mixing valve

A temperature sensor reads the temperature of the outgoing hot water to the domestic hot water and adjusts the mixing valve from the water heater until the set temperature has been reached.

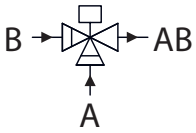
Hot water circulation (VVC)

One pump can be controlled for the circulation of the hot water during selectable periods.

Pipe connections

Mixing valve

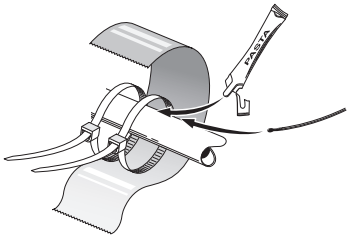
The mixing valve (FQ1) is located on the outgoing hot water line from the water heater according to the outline diagram.



- Connect the incoming cold water via the T-pipe to the port B on the mixing valve (closes at signal).
- Connect the mixed water to the domestic hot water taps from the mixing valve to the common port AB (always open).
- Connect the outgoing hot water from the water heater to the mixing valve to port A (opens on signal)

Temperature sensor

- Temperature sensor, outgoing hot water, (BT70) installed in a suitable place after the mixing valve (FQ1).



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

NOTE

Sensor and communication cables must not be placed near power cables.

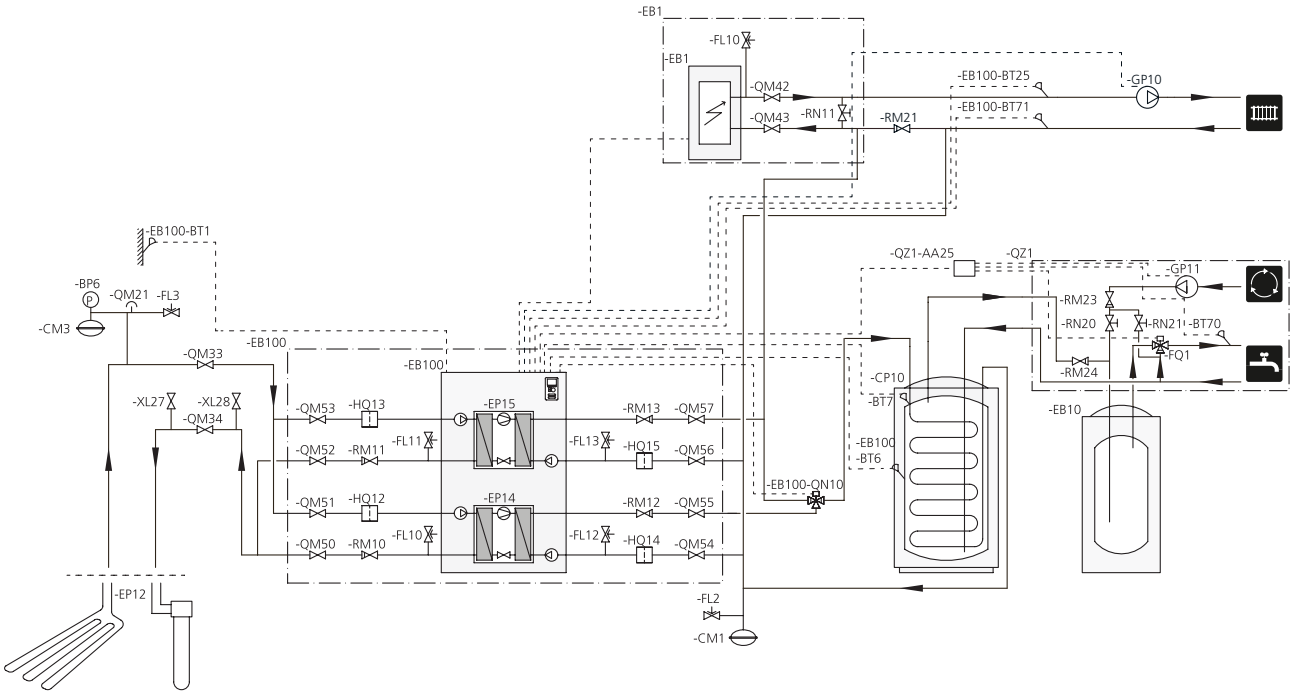
Outline diagram

Explanation

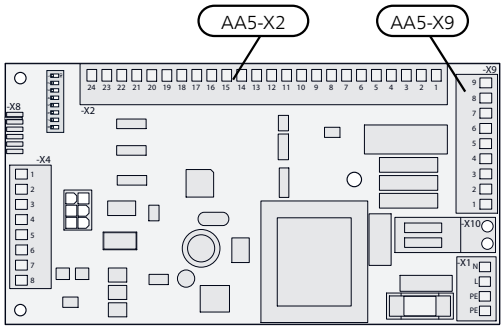
EB1	**External additional heat**
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water
BT25	Temperature sensor, external flow line
BT71	Temperature sensor, external return line
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
QZ1	**Hot water comfort**
AA25	Unit box with AXC 50
BT70	Temperature sensor, outgoing hot water
EB10	Water heater
FQ1	Mixer valve, hot water
GP11	Circulation pump, domestic hot water circulation
RM23 - RM24	Non-return valve
RN20 - RN21	Trim valve
Miscel-laneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, brine side
EP12	Collector, brine side
CP10	Accumulator tank with solar coil
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine return
QM34	Shut off valve, brine flow
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and hot water comfort



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

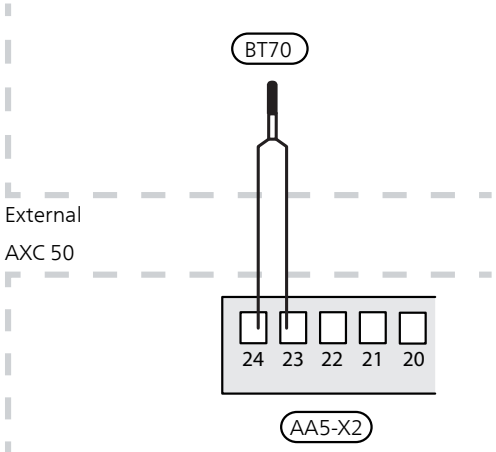
F1345 must not be powered when installing AXC 50.

Connecting sensors

Use cable type LiYY, EKKX or similar.

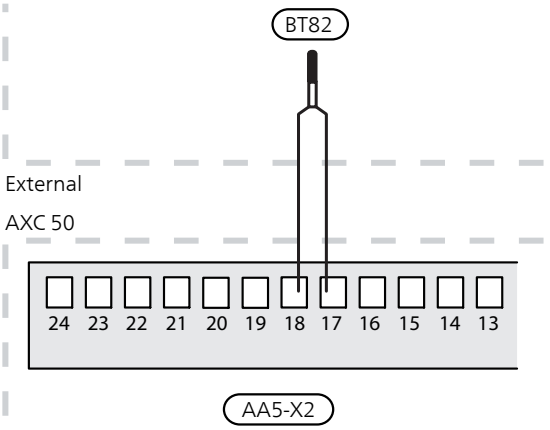
Hot water sensor, supply line (BT70)

Connect the hot water sensor to AA5-X2:23-24.



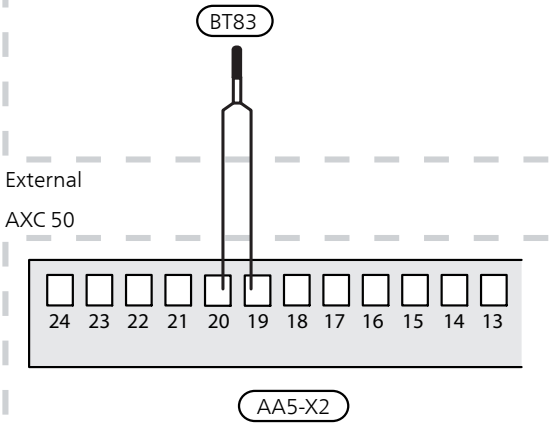
Temperature sensor, hot water comfort, return line (BT82)

Connect the temperature sensor to AA5-X2:17-18.



Temperature sensor, hot water heater (BT83)

Connect the temperature sensor to AA5-X2:19-20.

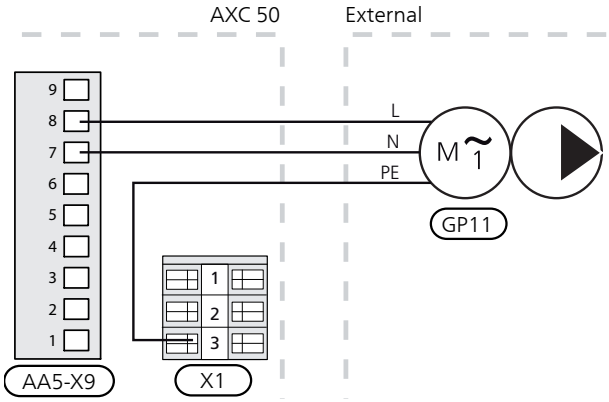


Caution

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

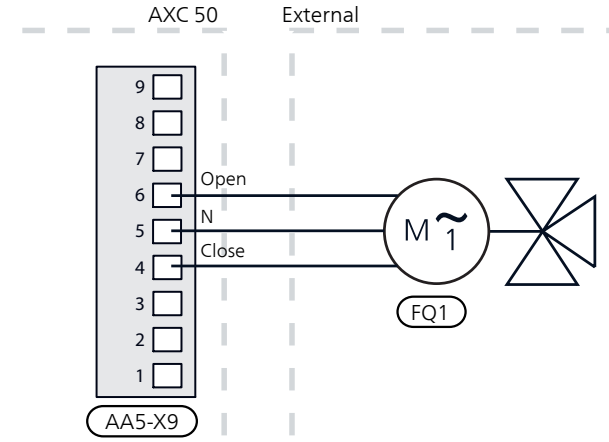
Connection of the hot water circulation pump (GP11)

Connect the circulation pump (GP11) to AA5-X9:8 (230 V), AA5-X9:7 (N) and X1:3 (PE)



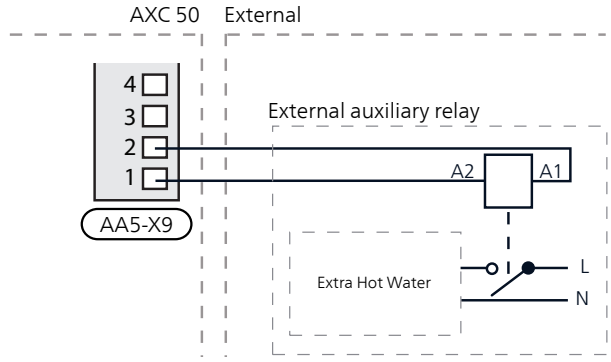
Connection of the mixing valve (FQ1)

Connect the mixing valve motor (FQ1) to AA5-X9:6 (230 V, open), AA5-X9:5 (N) and AA5-X9:4 (230 V, close).



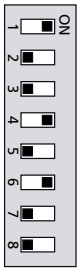
Connecting auxiliary relay for temporary lux (extra hot water)

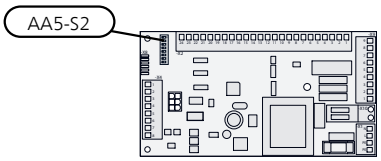
Connect the auxiliary relay for switching the addition on and off to AA5-X9:1 (N) and AA5-X9:2 (230 V).



DIP switch

The DIP switch on the accessory card must be set as follows.





Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "hot water comfort".

Menu 2.9.2 - hot water recirc.

Here you can make the following settings for hot water circulation for up to three periods per day:

- How long the hot water circulation pump must run per operating instance
- How long the hot water circulation pump must be stationary between operating instances.

Menu 5.3.8 - hot water comfort

Here you can perform the following settings:

- If an immersion heater is installed in the tank and whether it can be permitted to charge hot water if the compressors in the heat pump prioritise heating.
- Whether a mixing valve for limiting the temperature of hot water from the water heater is installed.
- Various shunt settings and outgoing hot water temperature from the tank for the mixing valve.

Menu 5.6 - forced control

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

QZ1-AA5-K1: Activating the relay for extra hot water.

QZ1-AA5-K2: Signal (close) to the mixing valve (FQ1).

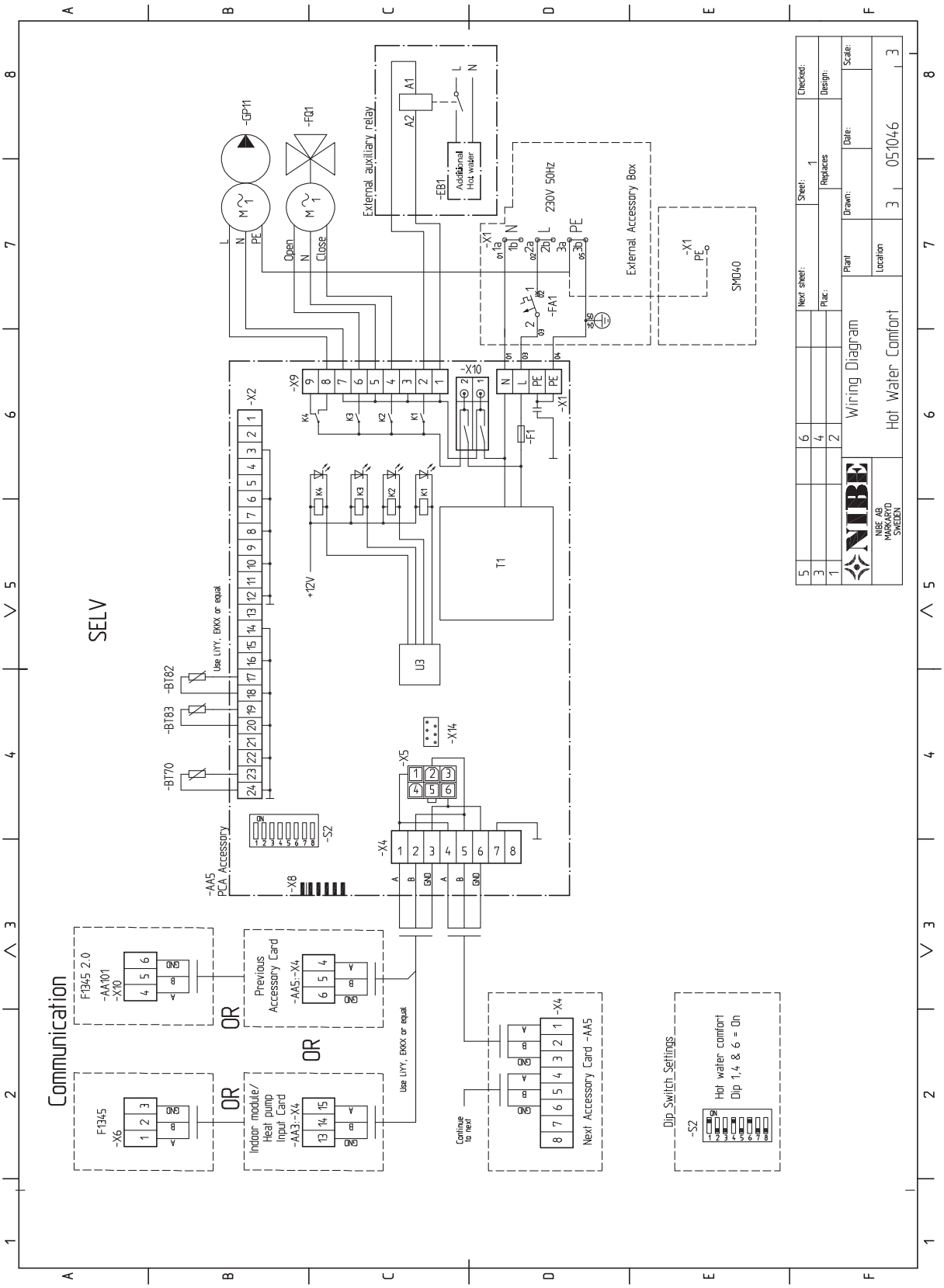
QZ1-AA5-K3: Signal (open) to the mixing valve (FQ1).

QZ1-AA5-K4: Activating the circulation pump (GP11).

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



7 Groundwater pump

General

With AXC 50 a ground water pump can be connected to the heat pump if the software controlled output (AUX output) is used for something else.

This connection enables the use of ground water as heat source. The ground water is pumped up to an intermediate heat exchanger. An intermediate heat exchanger is used to protect the heat pump's exchanger from dirt and freezing. The water is released into a buried filtration unit or a drilled well.

The ground water pump runs at the same time as the brine pump.

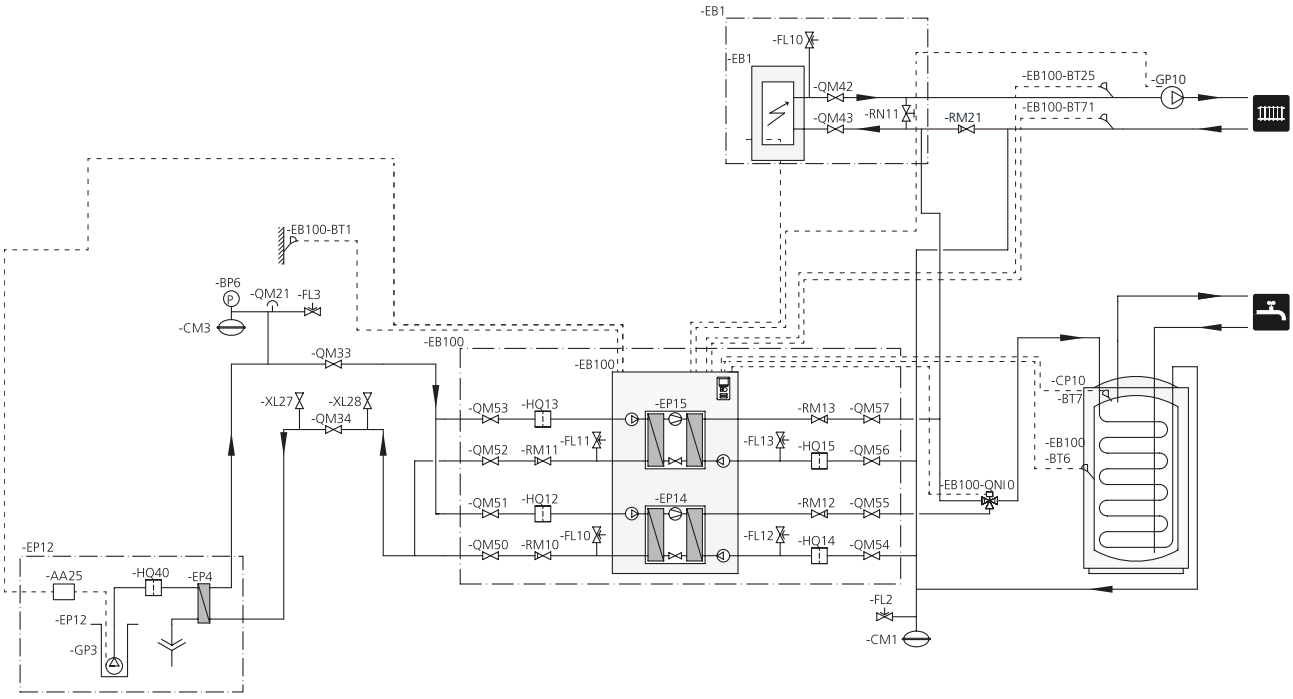
Outline diagram

Explanation

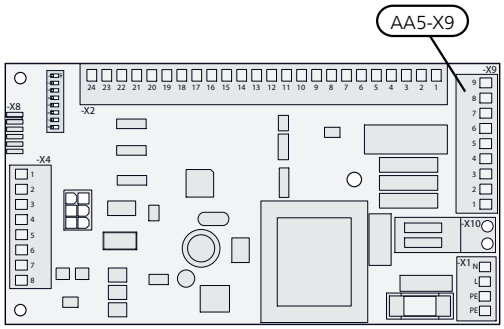
EB1	**External additional heat**
AA25	Unit box with AXC 50
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
EP12	**Collector, brine side, ground water**
AA25	Unit box with AXC 50
EP12	Collector, brine side
EP4	Heat exchanger, groundwater
GP3	Circulation pump, groundwater
HQ40	Particle filter
Miscellaneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CP10	Accumulator tank with hot water coil
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations in component locations according to standard IEC 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and ground water pump



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

The heat pump must not be powered when installing AXC 50.

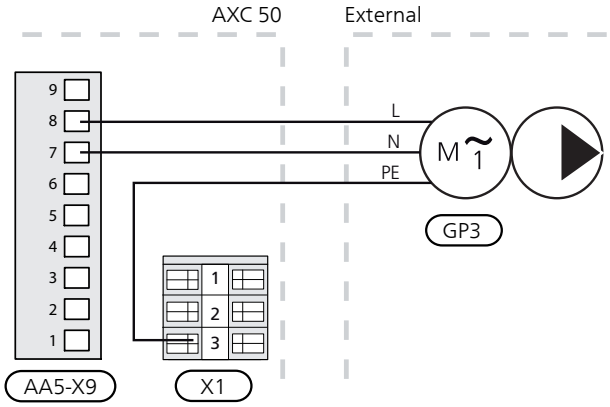
Caution

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

The auxiliary relay (HR10) requires a greater load than 2 A (230 V).

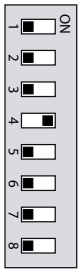
Connecting ground water pump (GP3)

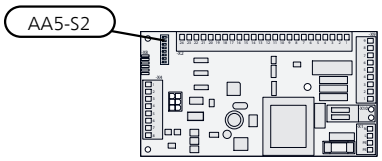
Connect ground water pump (GP3) to AA5-X9:8 (230 V), AA5-X9:7 (N) and X1:3 (PE).



DIP switch

The DIP switch on the accessory card must be set as follows.





Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "ground water pump".

Menu 5.6 - forced control

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

EP12-AA5-K1: No function.

EP12-AA5-K2: No function.

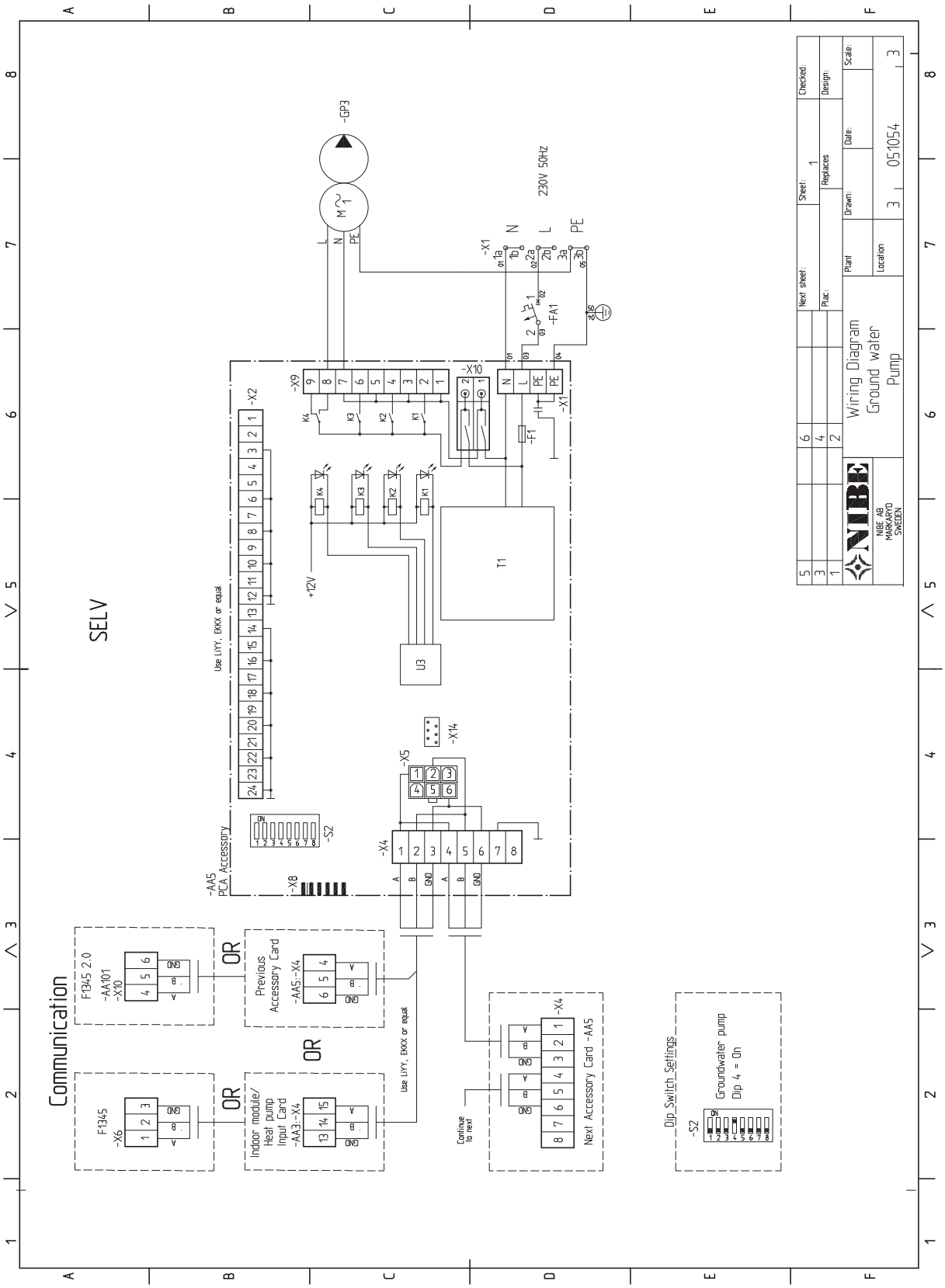
EP12-AA5-K3: No function.

EP12-AA5-K4: Activating the circulation pump (GP3).

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



8 Passive cooling (4-pipe)

General

The cooling system is connected to the heat pump collector circuit, through which cooling is supplied from the collector via the circulation pump and the shunt valve.

When cooling is required (activated from the outdoor sensor and any room sensor) the circulation pump is activated. The shunt valve regulates so that the cooling sensor reaches the current set point value that is equal to the outdoor temperature and the set min. value for the cooling temperature (to prevent condensation).

Caution

This accessory may require a program software update in your F1345.

2755 or higher is the minimum software version for the heat pump.

Pipe connections

General

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.

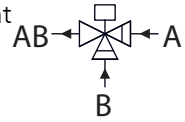
The brine circuit must be supplied with a pressure expansion vessel. If there is already a level vessel installed this should be replaced.

Non-return valve

Install a check valve between two T-pipe connections to passive cooling on brine out (see the outline diagram).

Shunt valve

The shunt valve (QN18) is located in the brine system on the flow line from the heat pump via the T-pipe connections according to the outline diagram.



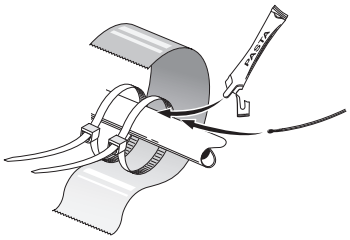
- Connect the brine out from the heat pump via T-pipes to port A on the shunt valve (opens at increased signal).
- Connect the flow line to the convector fan from the shunt valve to the common port AB (always open)
- Connect the return line from the fan convector to the shunt valve and brine out to the collector to port B via T-pipe (closes at reduced signal).

Circulation pump

Install the extra circulation pump (GP13) after the shunt valve (QN18) on the flow line to the fan convector.

Temperature sensor

- Install the flow temperature sensor for the cooling system (BT64) on the pipe after the circulation pump (GP13) in the direction of flow.
- Install the return line sensor for the cooling system (BT65) on the pipe from the cooling system.



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

NOTE

Sensor and communication cables must not be placed near power cables.

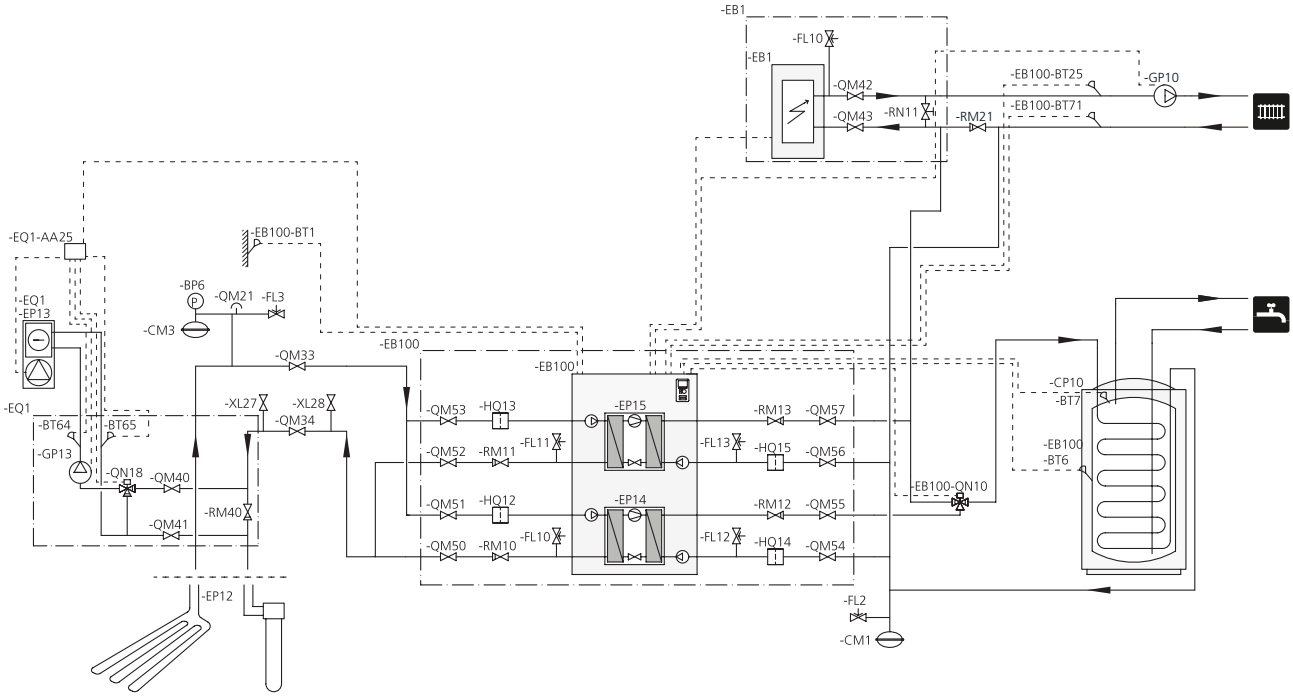
Outline diagram

Explanation

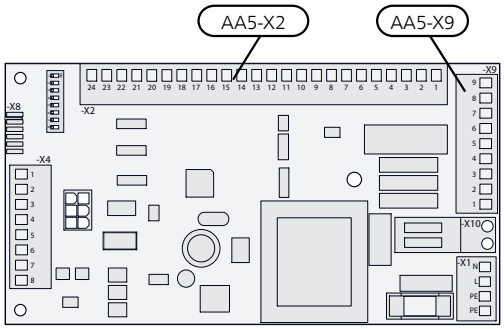
EB1	**External additional heat**
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
EQ1	**Passive cooling 4-pipe**
AA25	Unit box with AXC 50
BT64	Temperature sensor, cooling flow line
BT65	Temperature sensor, cooling return line
EP13	Fan convectors
GP13	Circulation pump, cooling
QM40 - QM41	Shut-off valve
QN18	Mixing valve, cooling
RM40	Non-return valve
Miscel-laneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CP10	Accumulator tank with hot water coil
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
EP12	Collector, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and passive cooling (4 pipe)



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

F1345 must not be powered when installing AXC 50.

Connection of sensors and external blocking

Use cable type LiYY, EKKX or similar.

Flow temperature sensor, cooling (BT64)

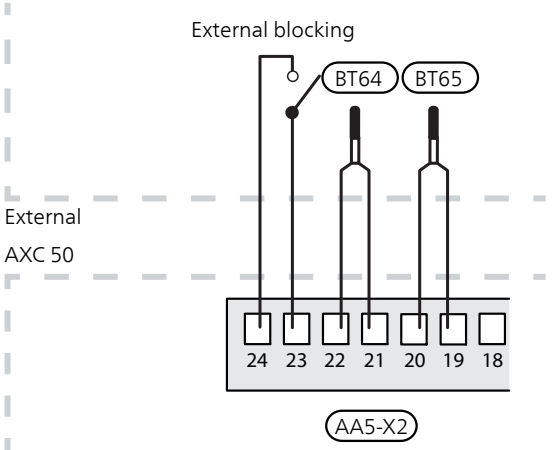
Connect the flow temperature sensor to AA5-X2:21-22.

Return line sensor, cooling (BT65)

Connect the return line sensor to AA5-X2:19-20.

External blocking

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

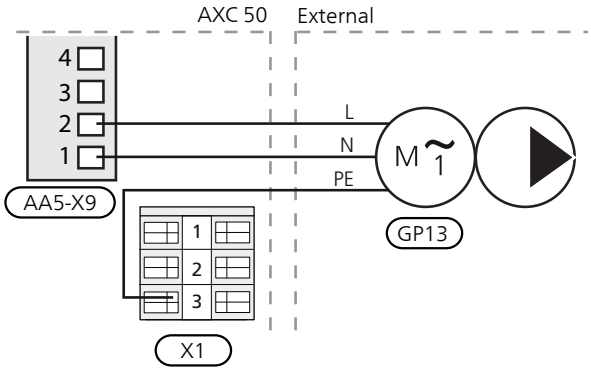


Caution

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

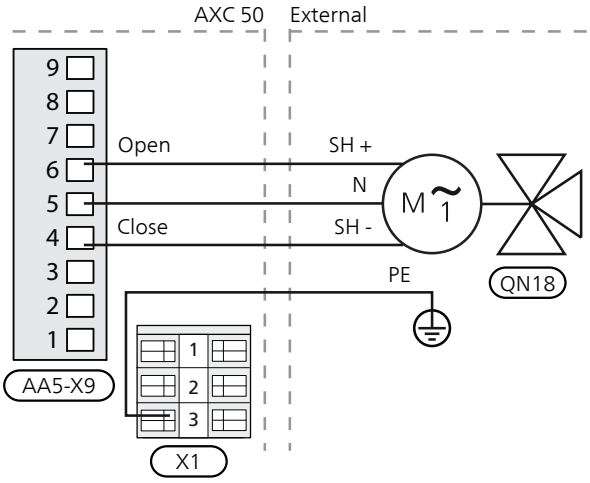
Connection of the circulation pump (GP13)

Connect the circulation pump (GP13) to AA5-X9:2 (230 V), AA5-X9:1 (N) and X1:3 (PE).



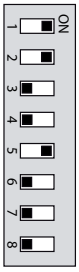
Connection of the mixing valve motor (QN18)

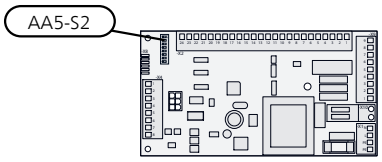
Connect the mixing valve motor (QN18) to AA5-X9:6 (230 V, open), AA5-X9:5 (N) and AA5-X9:4 (230 V, close).



DIP switch

The DIP switch on the accessory card must be set as follows.





Relay output for cooling mode indication

It is possible to have an external indication of cooling mode through the relay function via a potential free variable relay (max 2 A) on terminal block X5.

If cooling mode indication is connected to terminal block X5 it must be selected in menu 5.4.

Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "passive cooling 4-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 can control 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 4.9.2 - auto mode setting

When heat pump operating mode is set to "auto" it selects when start and stop of additional heat, heat production and cooling is permitted, dependent on the average outdoor temperature.

Select the average outdoor temperatures in this menu.

You can also set the time over which (filtering time) the average temperature is calculated. If you select 0, the present outdoor temperature is used.

Menu 5.6 - forced control

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

EQ1-AA5-K1: Activating the circulation pump (GP13).

EQ1-AA5-K2: Signal (close) to mixing valve (QN18).

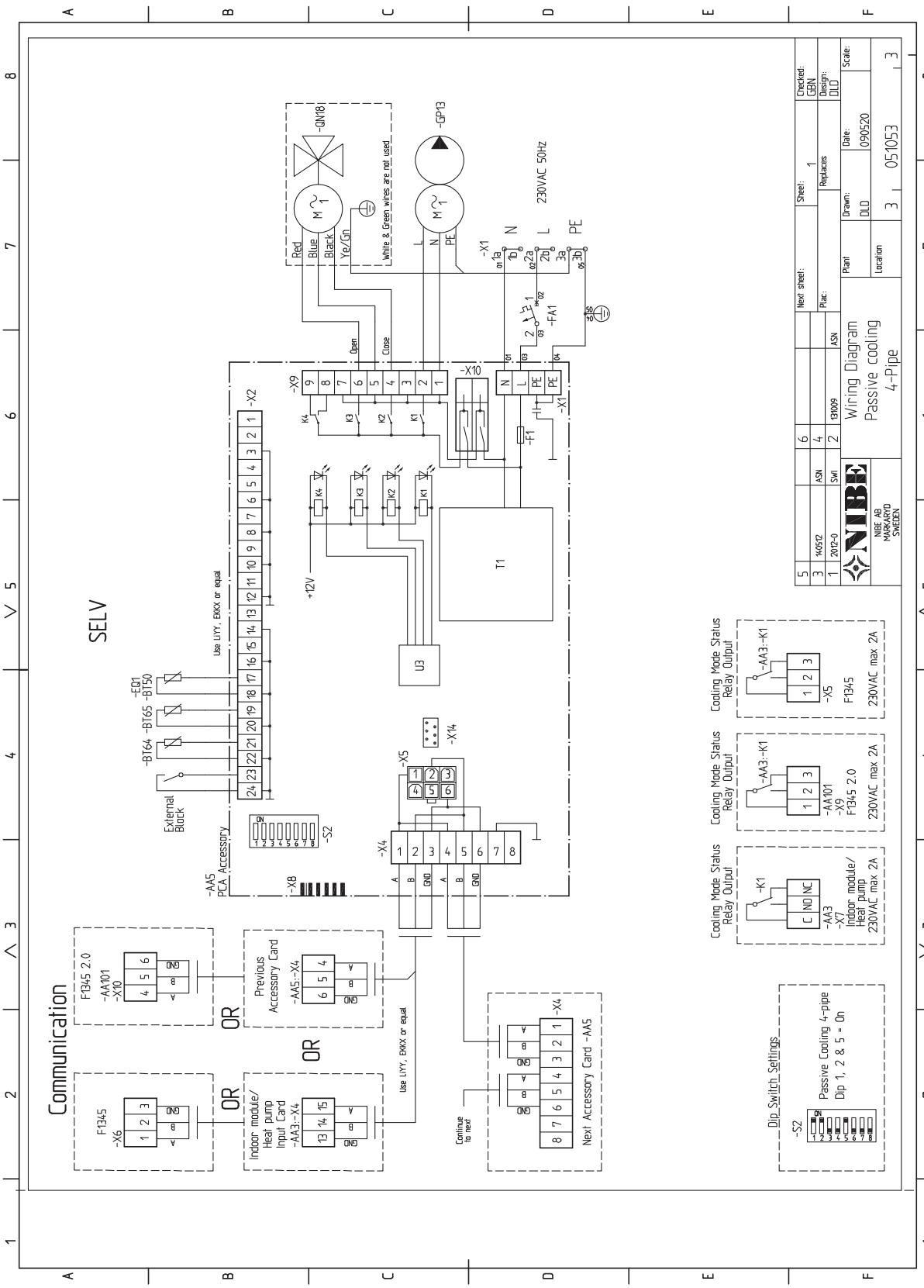
EQ1-AA5-K3: Signal (open) to mixing valve (QN18).

EQ1-AA5-K4: No function.

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



9 Passive cooling (2-pipe)

General

The collector circuit is connected to a heat exchanger via a three way valve. The other side of the exchanger is connected to the heating medium circuit via a shunt valve and a circulation pump.

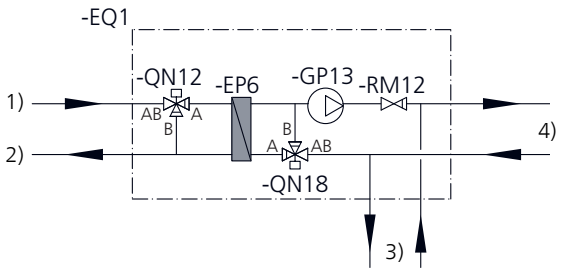
When cooling is required (activated from the outdoor sensor and any room sensor or room unit) the three way valve and the circulation pump are activated. The shunt valve regulates so that the cooling sensor reaches the current set point value that is equal to the outdoor temperature and the set min. value for the cooling temperature (to prevent condensation).

Caution

This accessory may require a program software update in your F1345.

2755 or higher is the minimum software version for the heat pump.

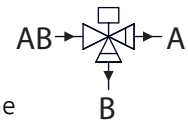
Pipe connections



1) Brine from heat pump
2) Brine to brine system
3) Heating medium to and from the heat pump
4) Heating medium to and from the climate system

Shuttle valve

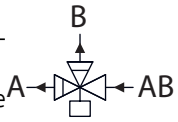
The three way valve (QN12) is located in the brine system on the flow line from the heat pump according to the outline diagram.



- Connect port A on the three- way valve (open at signal) to the exchanger (EP6).
- Connect the common port AB on the three-way valve (always open) to the flow line (brine) from the heat pump.
- Connect port B on the three-way valve (normally open, motor in stand-by mode) via T-pipe to brine out to the collector from the exchanger (EP6).

Shunt valve

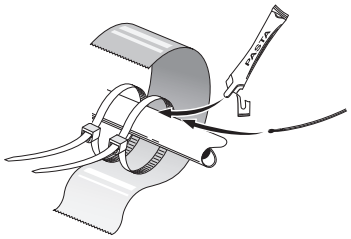
The shunt valve (QN18) is located on the return to the heat pump from the climate system according to the outline diagram.



- Connect port A on the shunt valve (opens at increased signal) to the exchanger (EP6).
- Connect the common port AB on the shunt valve (always open) to the return line from the climate system.
- Connect port B on the shunt valve (closes at reduced signal) via T-pipe to the flow line to the climate system from the exchanger.

Temperature sensor

- External flow temperature sensor (BT25, connected in F1345) must be installed on the flow line to the radiators, after the shunt valve ((QN18)).



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

NOTE

Sensor and communication cables must not be placed near power cables.

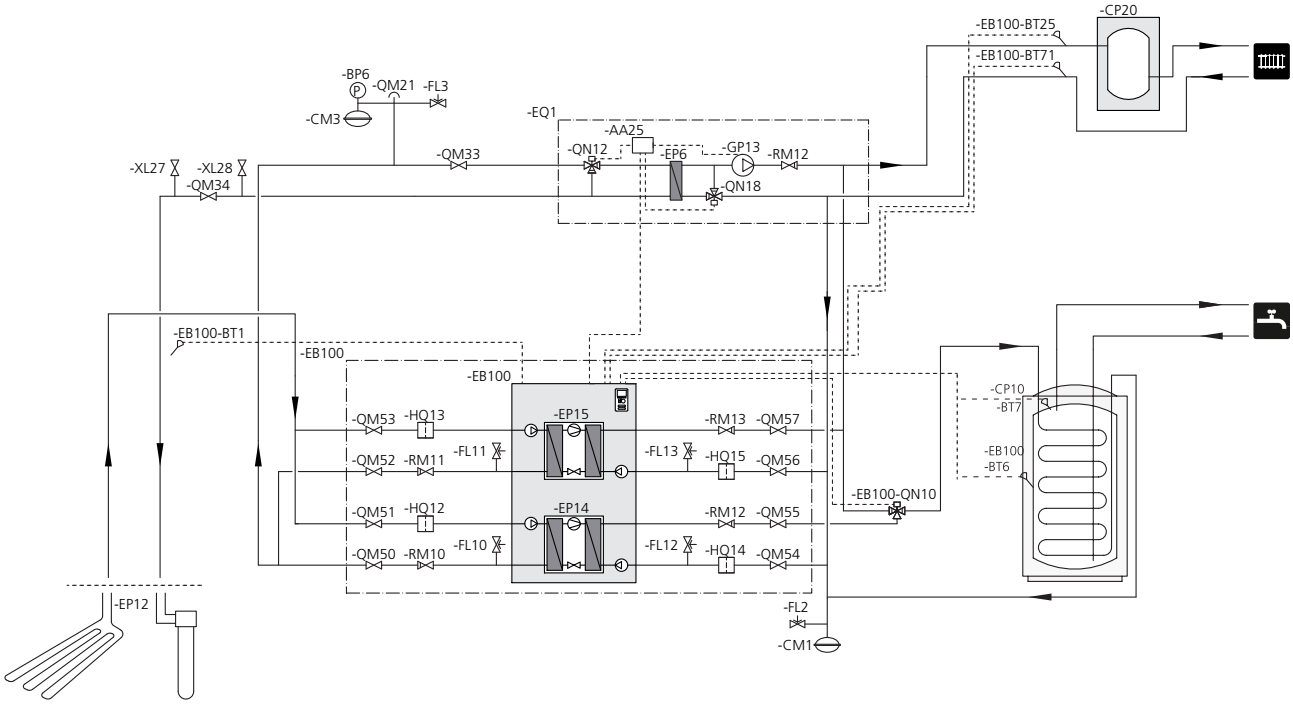
Outline diagram

Explanation

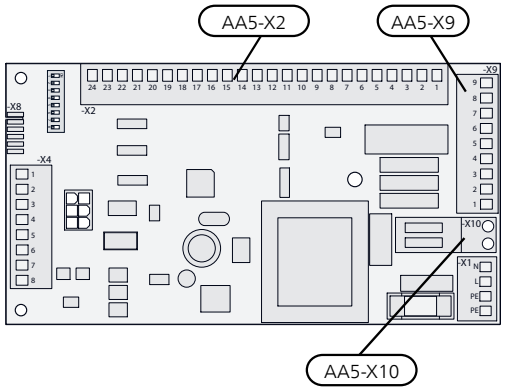
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
EQ1	**Passive cooling 2-pipe**
AA25	Unit box with AXC 50
EP6	Heat exchanger, cooling
GP13	Circulation pump, cooling
QN12	Reversing valve, cooling/heating
QN18	Mixing valve, cooling
RM12	Non-return valve
Miscel-laneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CP10	Accumulator tank with hot water coil
CP20	Buffer vessel (UKV)
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
EP12	Collector, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and passive cooling (2 pipe)



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

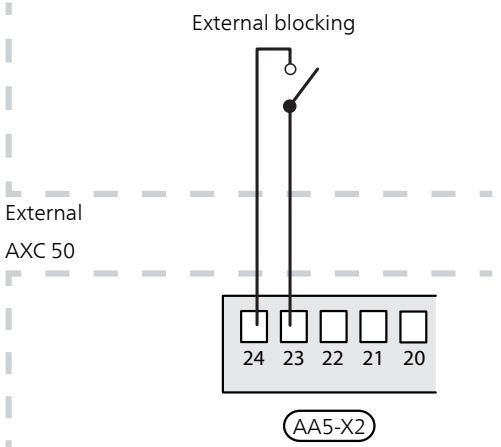
F1345 must not be powered when installing AXC 50.

Connection of sensors and external blocking

Use cable type LiYY, EKKX or similar.

External blocking

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

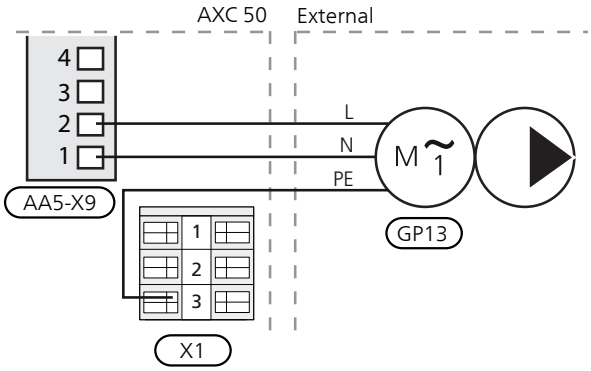


Caution

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

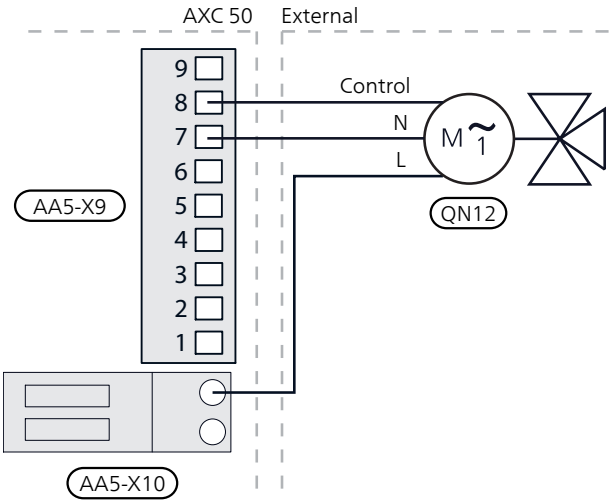
Connection of the circulation pump (GP13)

Connect the circulation pump (GP13) to AA5-X9:2 (230 V), AA5-X9:1 (N) and X1:3 (PE).



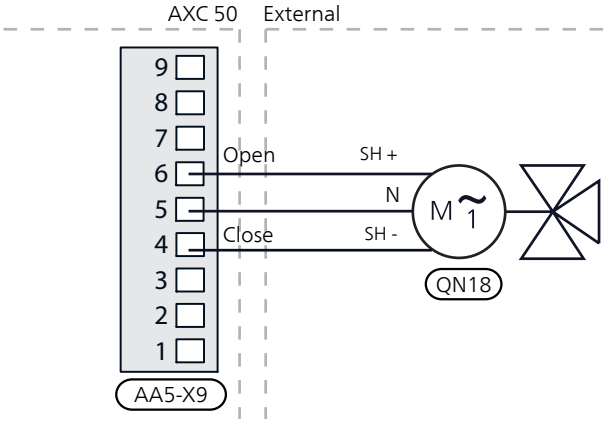
Connection of three-way valve motor (QN12)

Connect the three-way valve motor (QN12) to AA5-X9:8 (operating), AA5-X9:7 (N) and AA5-X10:2 (L).



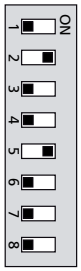
Connection of the mixing valve motor (QN18)

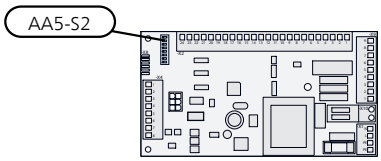
Connect the mixing valve motor (QN18) to AA5-X9:6 (230 V, open), AA5-X9:5 (N) and AA5-X9:4 (230 V, close).



DIP switch

The DIP switch on the accessory card must be set as follows.





Relay output for cooling mode indication

It is possible to have an external indication of cooling mode through the relay function via a potential free variable relay (max 2 A) on terminal block X5.

If cooling mode indication is connected to terminal block X5 it must be selected in menu 5.4.

Program settings

Program setting of AXC 50 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 5.2.4 - accessories

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 can control 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 4.9.2 - auto mode setting

When heat pump operating mode is set to "auto" it selects when start and stop of additional heat, heat production and cooling is permitted, dependent on the average outdoor temperature.

Select the average outdoor temperatures in this menu.

You can also set the time over which (filtering time) the average temperature is calculated. If you select 0, the present outdoor temperature is used.

Menu 5.6 - forced control

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

EQ1-AA5-K1: Activating the circulation pump (GP13).

EQ1-AA5-K2: Signal (close) to mixing valve (QN18).

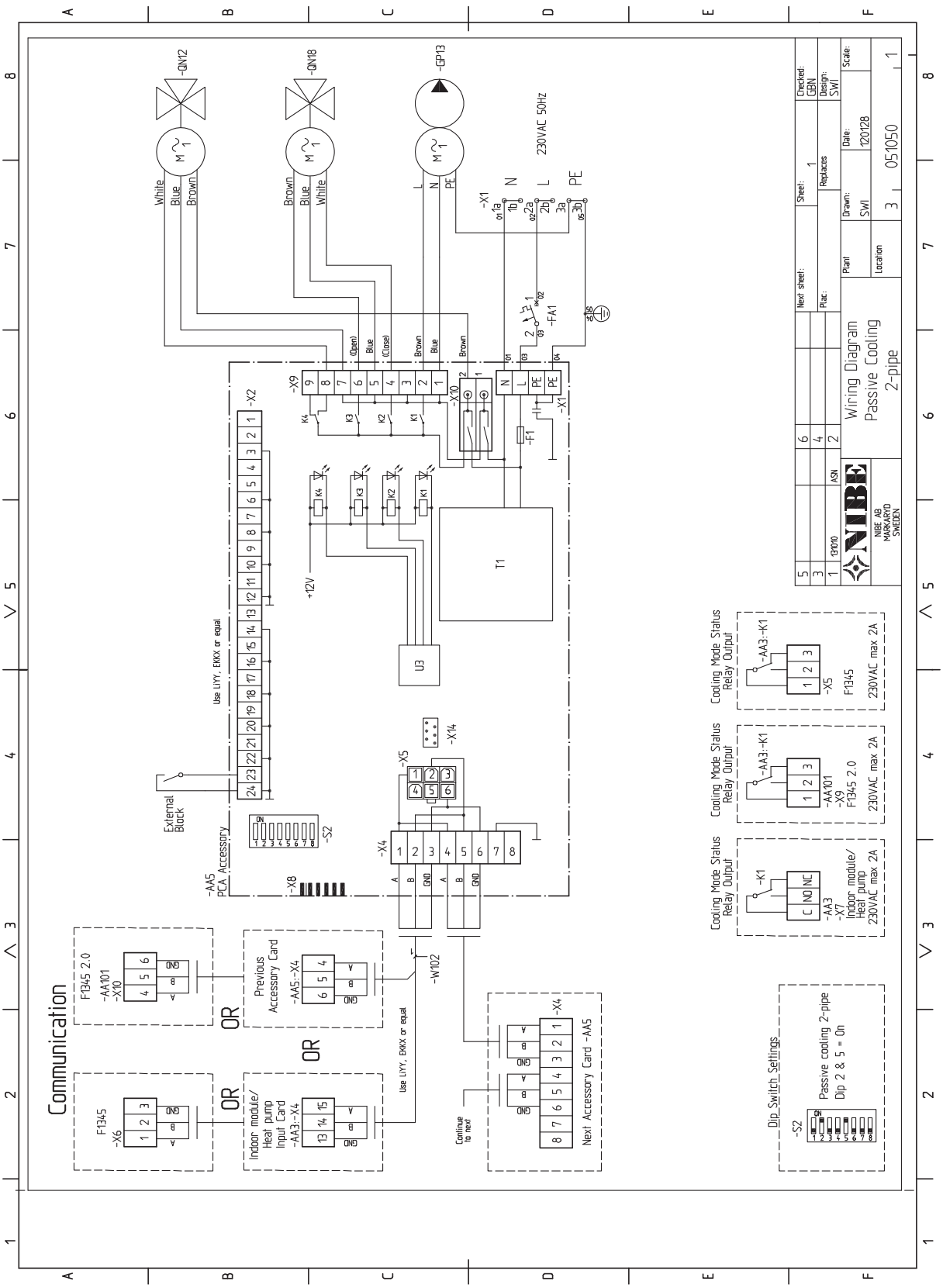
EQ1-AA5-K3: Signal (open) to mixing valve (QN18).

EQ1-AA5-K4: Signal to three way valve (QN12).

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



10 Passive/active cooling (2-pipe)

General

The heating/cooling modes are controlled by 4 three-way valves, which, depending on the outdoor temperature and/or room temperature, switch between the different modes.

The cooling supply to the building is controlled by the set curve in the control system. After adjustment the correct amount of cooling for the current outdoor temperature is supplied. The flow temperature from the three-way valves will hover around the theoretical required value (settable in the control system). In the event of excess temperature F1345 calculates a surplus in the form of degrees-minutes, which means that the greater the excess temperature that temporarily prevails the more the connection of cooling production is accelerated.

F1345 automatically switches to cooling mode when the outdoor temperature exceeds the set value.

Passive cooling means that F1345 with the aid of the circulation pumps, circulates fluid from the ground/rock collector through the building's distribution system and cools the building.

When the cooling requirement is large and passive cooling is not sufficient, active cooling is engaged at the preset limit value. A compressor then starts and the resulting cold medium circulates to the building's climate system and the heat circulates out to the ground/rock collector. If several compressors are available these will start with a difference of the set degree minutes.

NOTE

This system solution means that the brine will also circulate through the heating system.

Check that all component parts are designed for the brine in question.

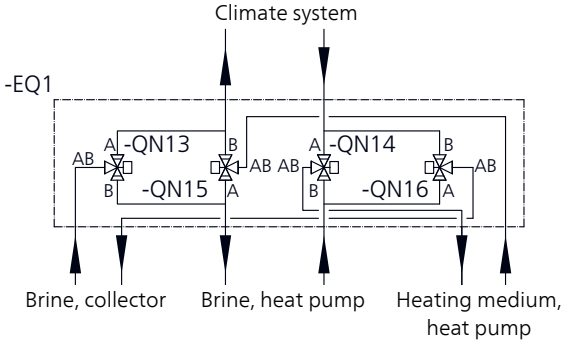
Caution

This accessory may require a program software update in your F1345.

2755 or higher is the minimum software version for the heat pump.

Pipe connections

Reversing valves



Install the three-way valves according to the outline diagram above.

A: Open at signal.

B: Normally open (motor in standby mode).

AB: Always open.

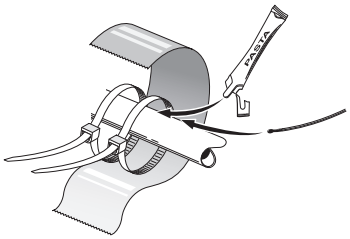
Condensation insulation

Pipes and other cold surfaces must be insulated with diffusion-proof material to prevent condensation.

Where the system may be operated at low temperatures, any convection fan used must be fitted with a drip tray and drain connection.

Temperature sensor

- External flow temperature sensor (BT25, connected in F1345) must be installed on the flow line to the climate system, after the three way valves (QN13) - (QN16).



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

NOTE

Sensor and communication cables must not be placed near power cables.

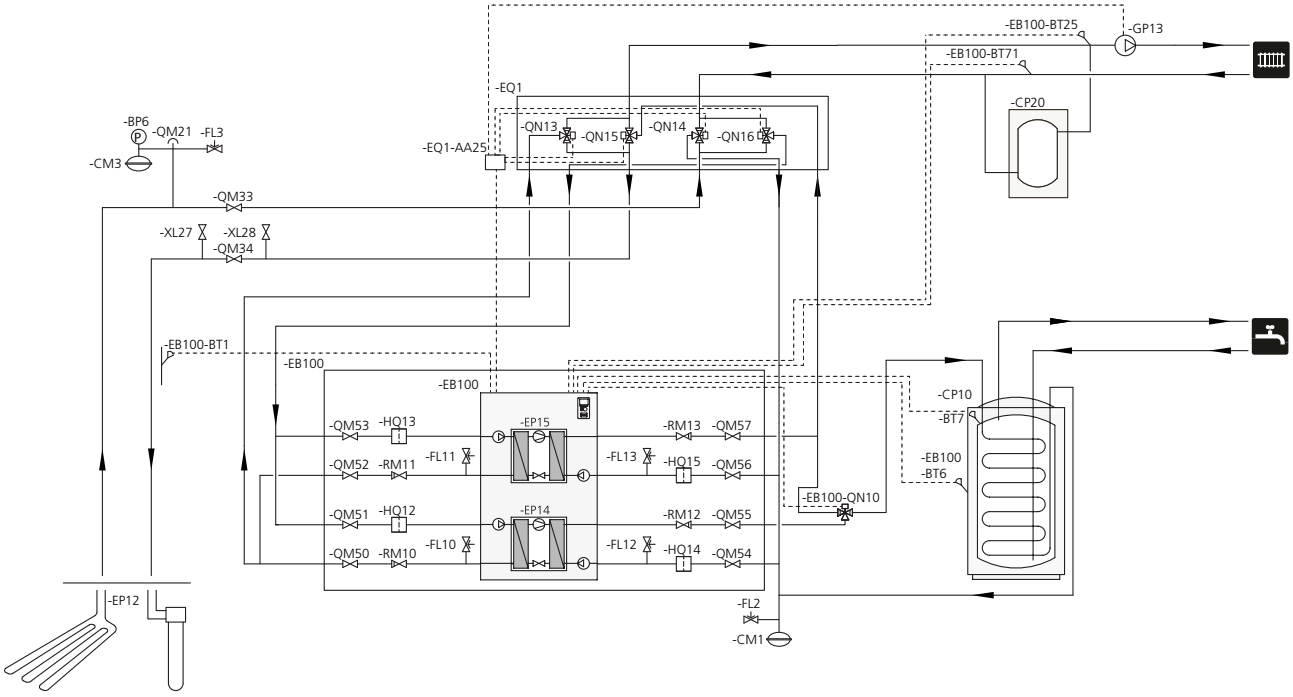
Outline diagram

Explanation

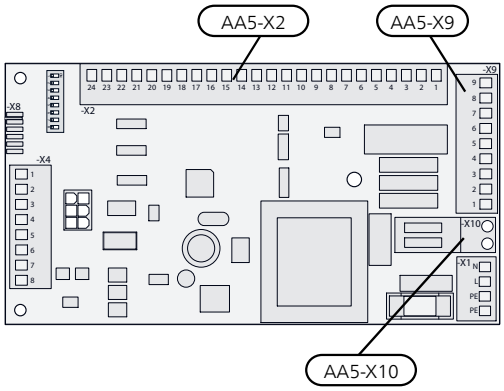
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
EQ1	**Passive/active cooling 2-pipe**
AA25	Unit box with AXC 50
QN13 - QN16	Reversing valve, cooling/heating
Miscellaneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
CP10	Accumulator tank with hot water coil
CP20	Buffer vessel (UKV)
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
EP12	Collector, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP13	Circulation pump, cooling
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and passive/active cooling (2 pipe)



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

F1345 must not be powered when installing AXC 50.

Connecting external blocking

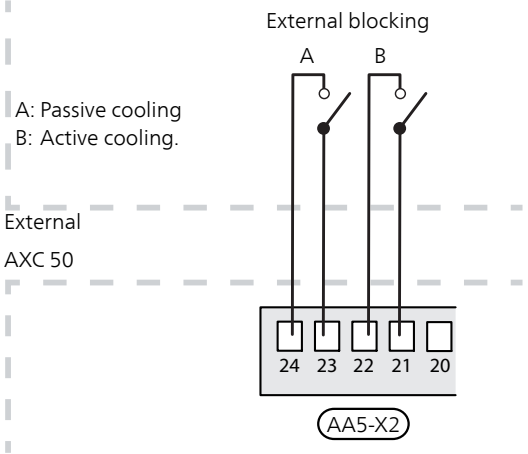
Use cable type LiYY, EKKX or similar.

External blocking, passive cooling (optional)

A contact (NO) can be connected to AA5-X2:23-24 to block passive cooling operation. When the contact closes, passive cooling is blocked.

External blocking, active cooling (optional)

A contact (NO) can be connected to AA5-X2:21-22 to block active cooling operation. When the contact closes, active cooling is blocked.



Caution

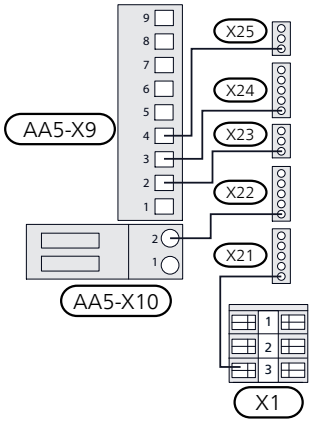
The relay outputs on the accessory card can have a max load of 2 A (230 V) in total.

Connecting top clips

NOTE

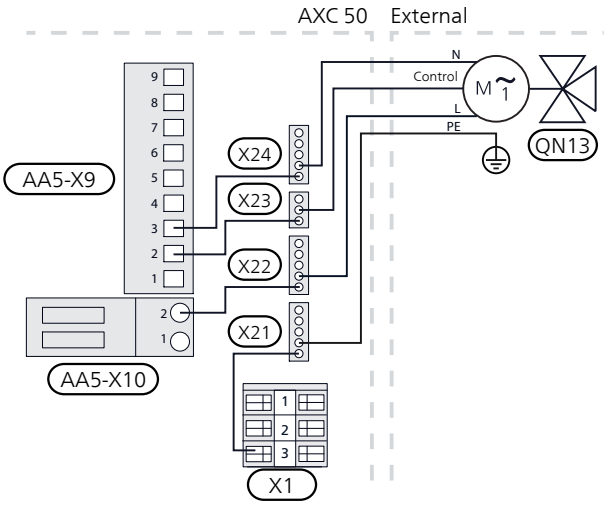
To connect the three-way valves to the accessory card, top clips are required (3x 5-pin and 2x 3-pin).

Connect top clip X21:1 to X1:3 (PE), top clip X22:1 to AA5-X10:2 (L), top clip X23:1 to AA5-X9:2 (operating), top clip X24:1 to AA5-X9:3 (N) and top clip X25:1 to AA5-X9:4 (operation).



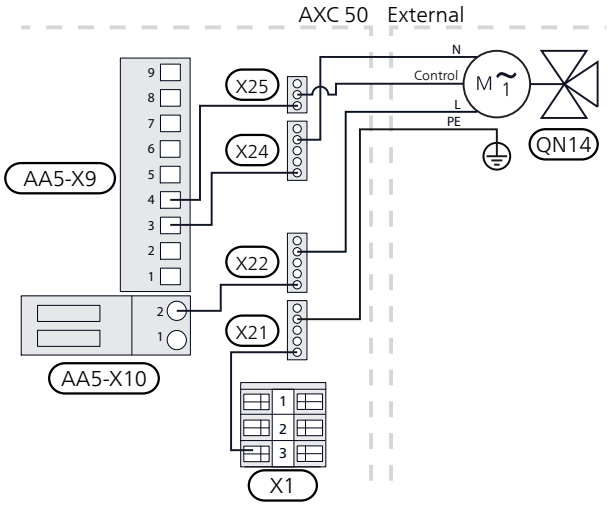
Connection of three-way valve motor (QN13)

Connect the three way valve motor (QN13) to top clip X21:2 (PE), top clip X22:2 (L), top clip X23:2 (operation) and top clip X24:2 (N).



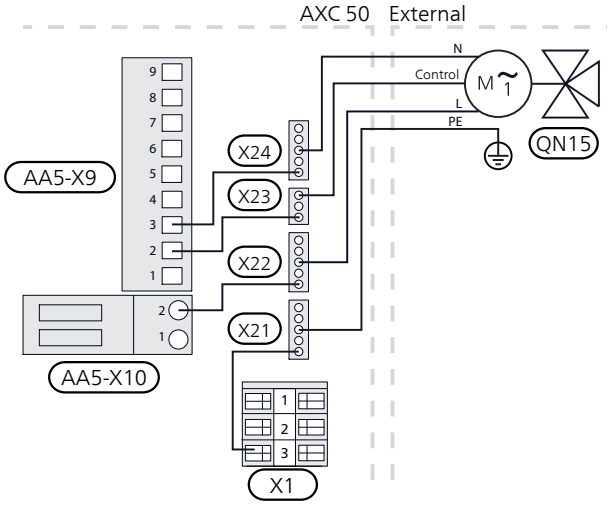
Connection of three-way valve motor (QN14)

Connect the three way valve motor (QN14) to top clip X21:4 (PE), top clip X22:4 (L), top clip X25:2 (operation) and top clip X24:4 (N).



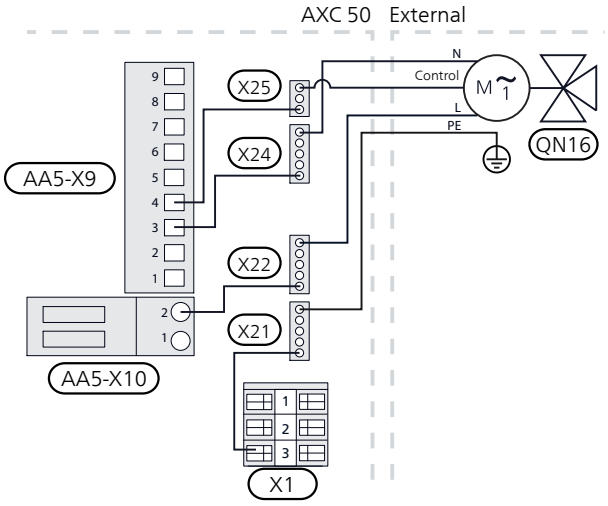
Connection of three-way valve motor (QN15)

Connect the three way valve motor (QN15) to top clip X21:3 (PE), top clip X22:3 (L), top clip X23:3 (operation) and top clip X24:3 (N).



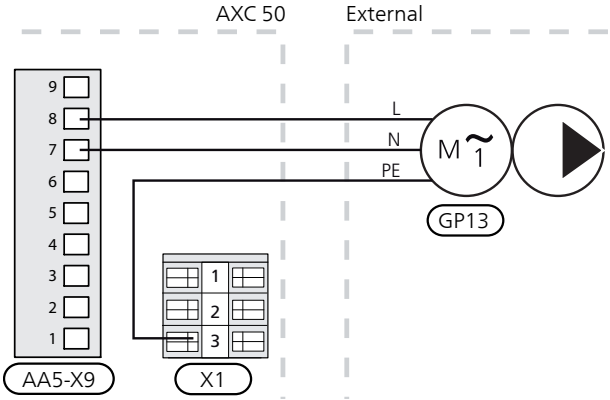
Connection of three-way valve motor (QN16)

Connect the three way valve motor (QN16) to top clip X21:5 (PE), top clip X22:5 (L), top clip X25:3 (operation) and top clip X24:5 (N).



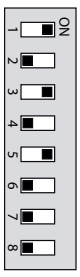
Connection circulation pump (GP13), if any

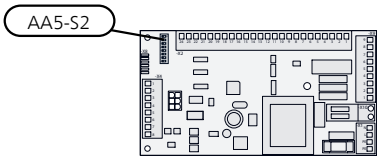
Connect the circulation pump (GP13) to AA5-X9:8 (230 V), AA5-X9:7 (N) and X1:3 (PE).



DIP switch

The DIP switch on the accessory card must be set as follows.





Relay output for cooling mode indication

It is possible to have an external indication of cooling mode through the relay function via a potential free variable relay (max 2 A) on terminal block X5.

If cooling mode indication is connected to terminal block X5 it must be selected in menu 5.4.

Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "passive/active 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 can control cooling.
- How much the room temperature may decrease or increase compared to the desired temperature before switching to heating respectively cooling (requires room sensor).
- Degree minute levels for cooling.
- Misc. shunt settings.

Menu 4.9.2 - auto mode setting

When heat pump operating mode is set to "auto" it selects when start and stop of additional heat, heat production and cooling is permitted, dependent on the average outdoor temperature.

Select the average outdoor temperatures in this menu.

You can also set the time over which (filtering time) the average temperature is calculated. If you select 0, the present outdoor temperature is used.

Menu 5.6 - forced control

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

EQ1-AA5-K1: Signal to reversing valves (QN13) and (QN15).

EQ1-AA5-K2: Signal to reversing valves (QN14) and (QN16).

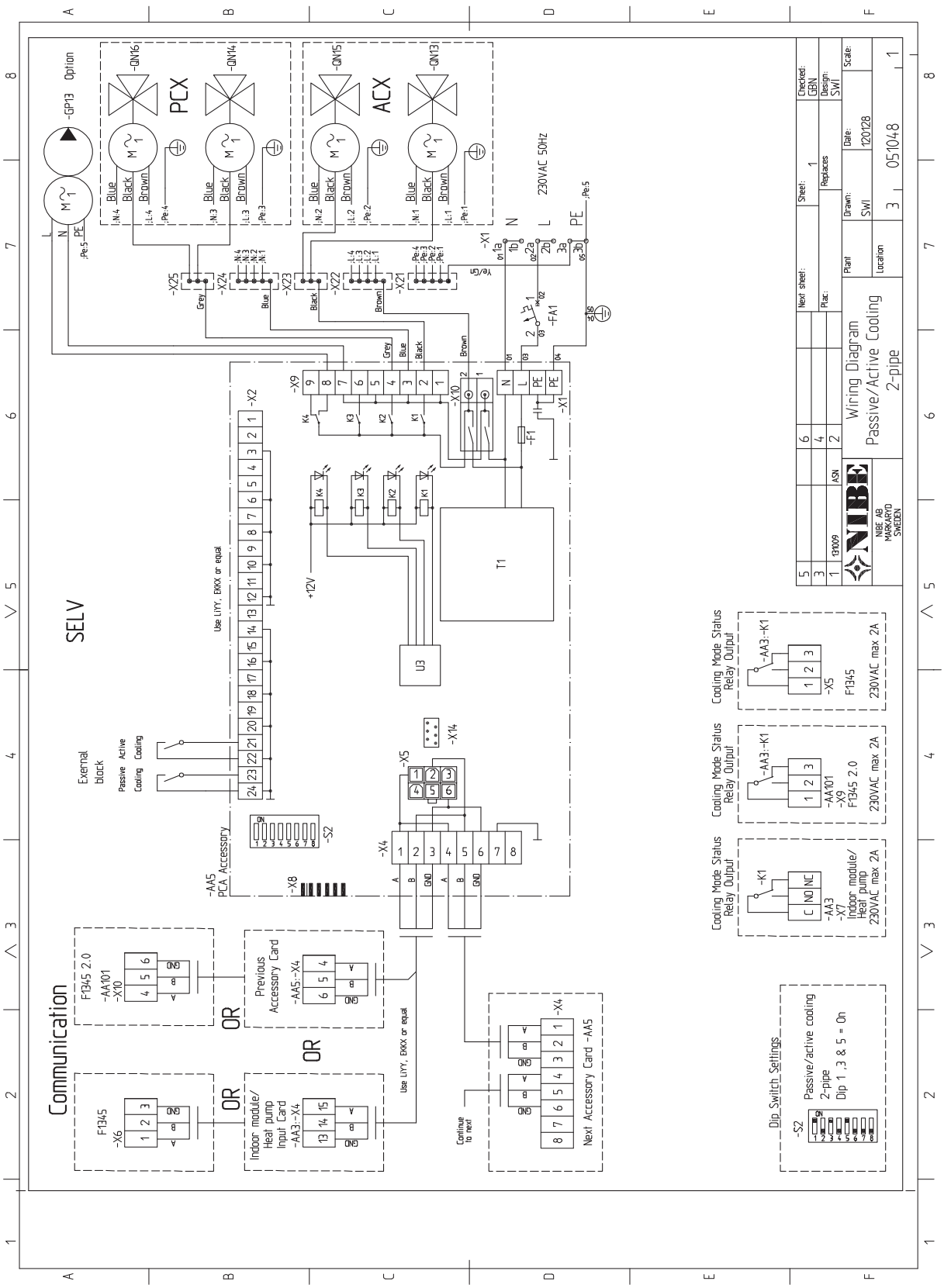
EQ1-AA5-K3: No function.

EQ1-AA5-K4: Activating the circulation pump (GP13).

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



11 Shunt controlled brine

General

This connection makes it possible to control a shunt valve that regulates the incoming brine temperature.

The heat pump controls a shunt valve (QN41) to limit the maximum incoming brine temperature via temperature sensor (BT26). If the sensor registers a valve above the maximum set temperature, the shunt valve closes to reduce the mix of incoming brine.

Caution

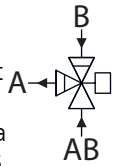
The function is only active when a compressor in the system is running.

Pipe connections

Shunt valve

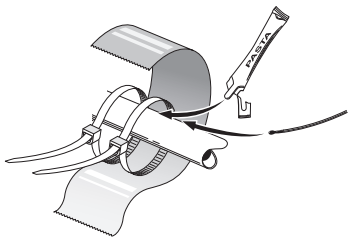
The shunt valve (QN41) must be placed in the brine system on the supply line from the heat pump via the T-pipe connections according to the outline diagram.

- Connect the brine out to the shunt valve on common port AB (always open).
- Connect the brine to the collector via port A (closes at reduce signal).
- Connect the brine in from the collector via T-pipe to port B on the shunt valve (opens at increase signal).



Temperature sensor

Install the temperature sensor (BT26) after shunt valve (QN41) and T-pipe.



Install the temperature sensors with cable ties with the heat conducting paste and aluminium tape. Then insulate with supplied insulation tape.

NOTE

Sensor and communication cables must not be placed near power cables.

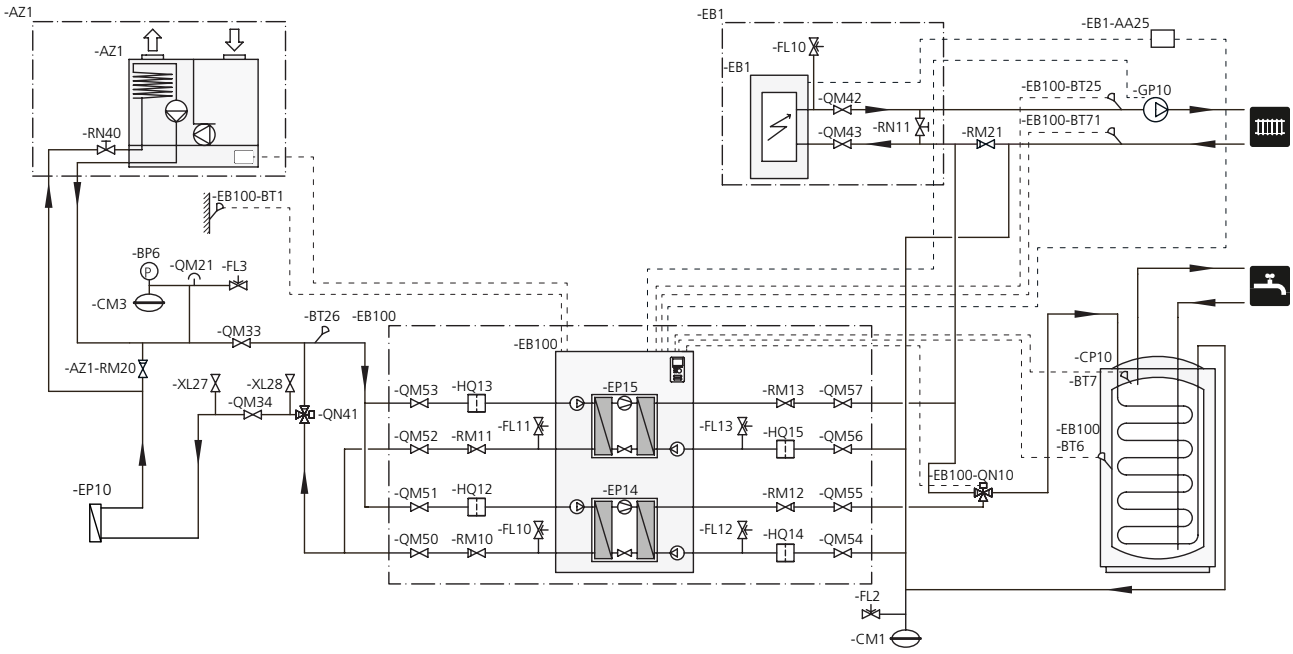
Outline diagram

Explanation

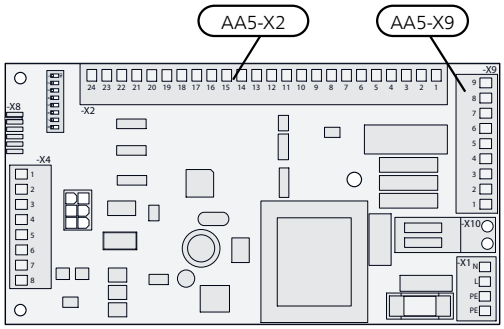
AZ1	**Exhaust air system**
AZ1	Exhaust air module
RM20	Non-return valve
RN40	Trim valve
EB1	**External additional heat**
AA25	Unit box with AXC 50
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB100	**Heat pump system (Master)**
BT1	Temperature sensor, outdoor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
EB100	Heat pump, F1345
EP14	Cooling module A
EP15	Cooling module B
FL10 - FL11	Safety valve, collector side
FL12 - FL13	Safety valve, heating medium side
HQ12 - HQ15	Particle filter
QM50 - QM53	Shut-off valve, brine side
QM54 - QM57	Shut-off valve, heating medium side
QN10	Reversing valve, heating/hot water
RM10 - RM13	Non-return valve
Miscel-laneous	
BP6	Manometer, brine side
BT7	Temperature sensor, hot water flow
BT26	Temperature sensor, brine in
CP10	Accumulator tank with hot water coil
CM1	Expansion vessel, closed, heating medium side
CM3	Expansion vessel, closed, brine side
EP10	Collector, brine side
FL2	Safety valve, heating medium side
FL3	Safety valve, brine
GP10	Circulation pump, heating medium external
QM21	Venting valve, brine side
QM33	Shut off valve, brine flow
QM34	Shut off valve, brine return
QN41	Shunt valve, brine temperature
RM21	Non-return valve
XL27 - XL28	Connection, filling brine

Designations according to standards 81346-1 and 81346-2.

Outline diagram F1345 with AXC 50 and shunt controlled brine



Electrical connection



NOTE

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

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

F1345 must not be powered when installing AXC 50.

Connection of sensors and external blocking

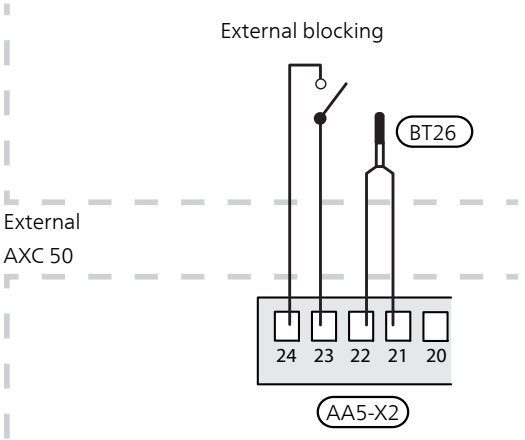
Use cable type LiYY, EKKX or similar.

Temperature sensor, brine (BT26)

Connect sensor for incoming collector to AA5-X2:21-22.

External blocking (optional)

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

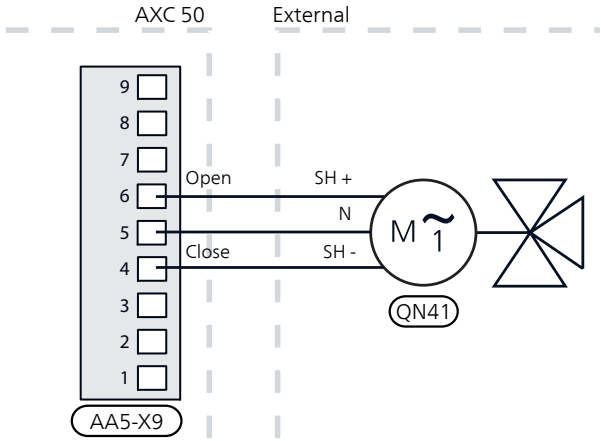


Caution

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

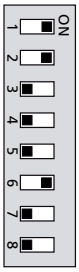
Connecting the shunt valve motor (QN41)

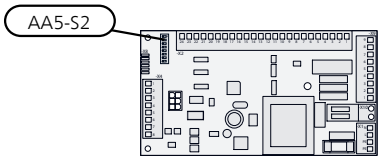
Connect the shunt valve motor (QN41) to AA5-X9:6 (230 V, open), AA5-X9:5 (N) and AA5-X9:4 (230 V, close).



DIP switch

The DIP switch on the accessory card must be set as follows.





Program settings

Program setting of AXC 50 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 5.2.4 - accessories

Activating/deactivating of accessories.

Select: "shunt controlled brine".

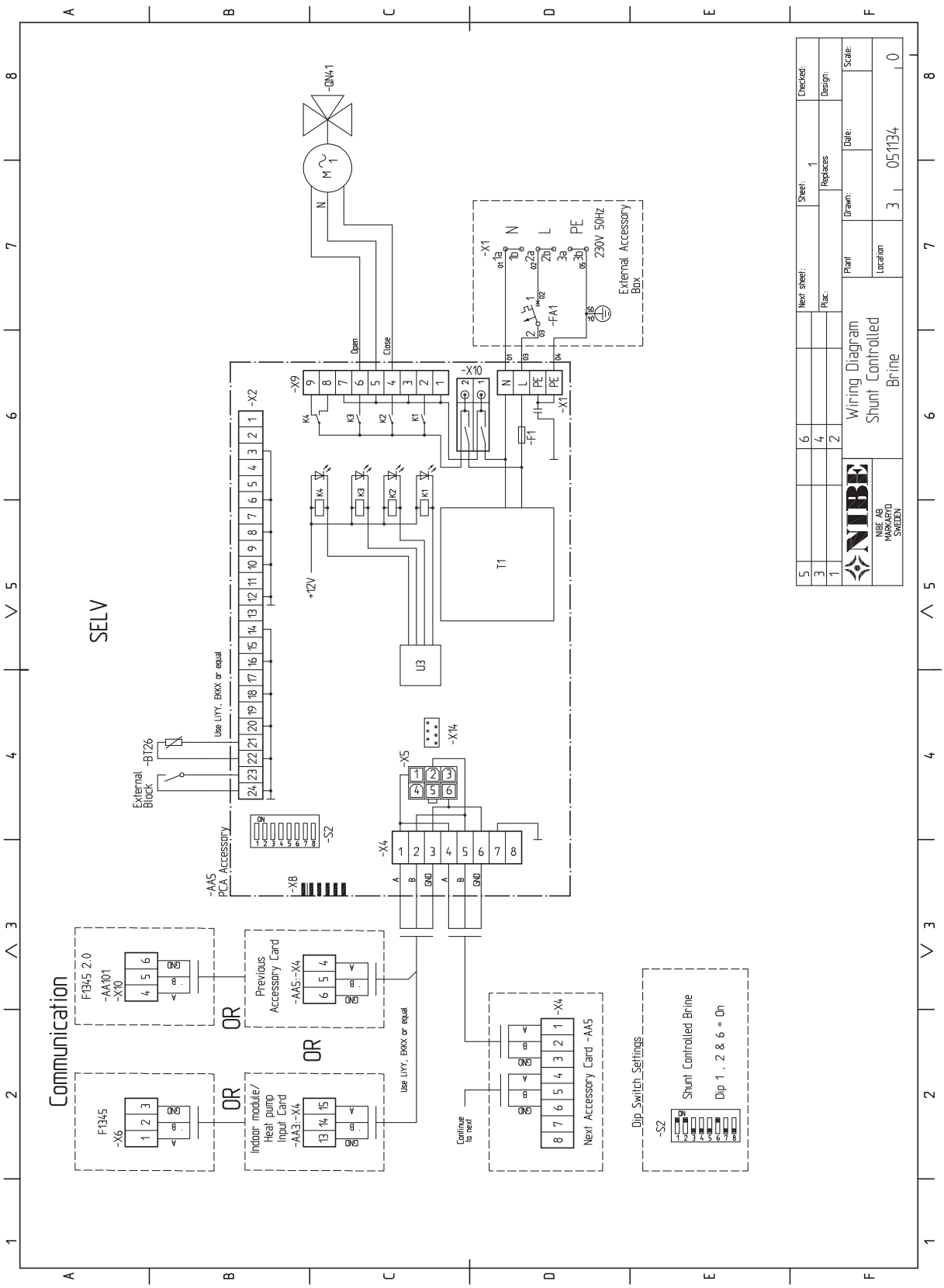
Menu 5.3.10 -shunt controlled brine

Here you can perform various shunt settings:

Caution

Also see the Operating manual for F1345.

Electrical circuit diagram



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