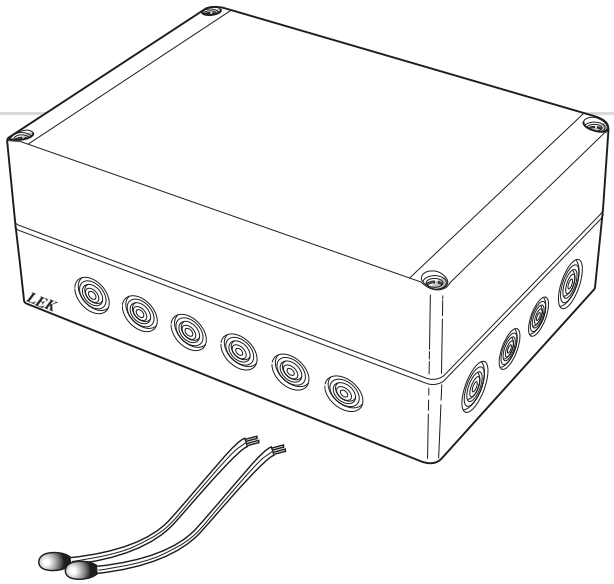


Installer manual

AXC 30

Accessories

IHB GB 1346-1
231464

Table of Contents

1 General

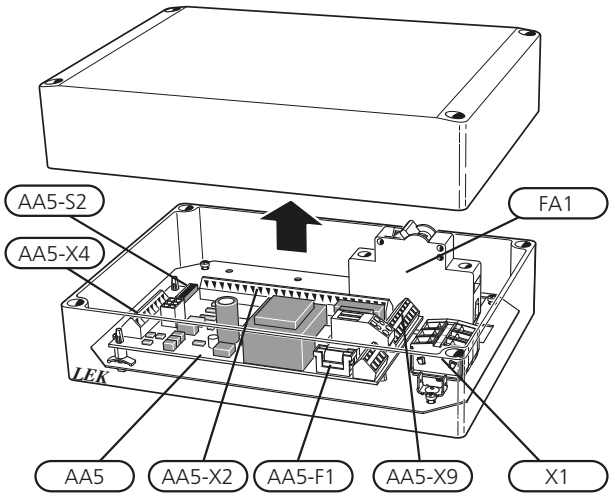
This accessory is used to enable connection and control of (a AXC 30 is required for each of the following accessory functions that is used):

- Shunt controlled additional heat
- Step controlled additional heat
- Extra climate system
- Hot water comfort
- Active cooling (4-pipe)
- Connection of several heat pumps

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 positions



Electrical components

FA1	Miniature circuit-breaker. 10A
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 81346-1 and 81346-2.

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 heat pump must not be powered when installing AXC 30.

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

Connecting communication

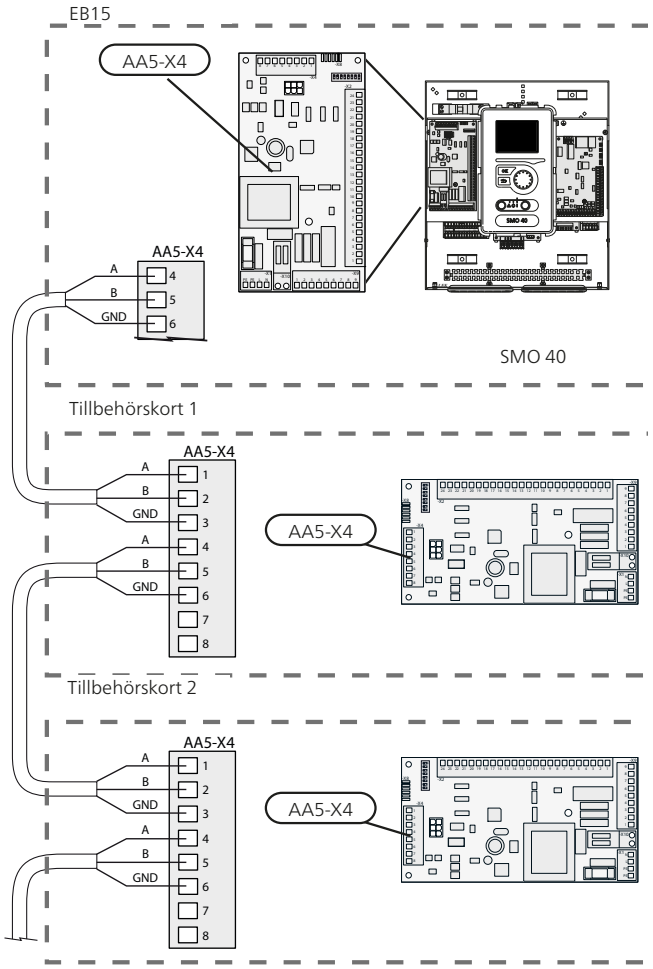
Control module

SMO 40 contains an accessory card (AA5) which is connected for communication.

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

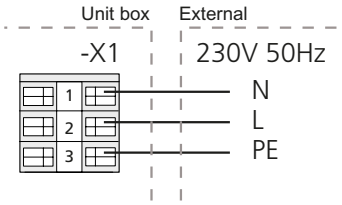
The first external accessory card must be connected directly to terminal block AA5-X4 in the control module. The following cards must be connected in series with the previous card.

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 indoor module controls a shunt valve and a circulation pump (GP10) via the accessory card in AXC 30. If the heat pump does not manage to keep the correct supply temperature (BT25), the addition starts. When the boiler temperature of (BT52) has been increased to about 55 °C, the indoor module transmits a signal to the shunt (QN11) to open from the addition. The shunt (QN11) adjusts so the true supply temperature corresponds with the indoor module's theoretical calculated set point value. When the heating demand drops sufficiently so the additional heat is no longer required the shunt (QN11) closes completely. Factory set minimum run time holding the boiler prepared is 12 hours (can be set in menu 5.3.2).

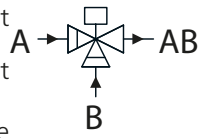
Pipe connections

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.

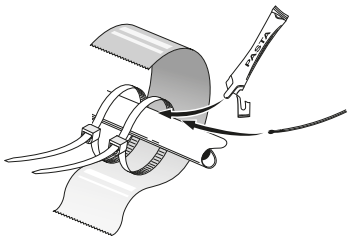
- Connect the flow line from the heat pump to the external heat source via the T-pipe to port B on the shunt valve (closes at reduced signal).



- Connect the flow line to the climate system from the shunt valve to the common port AB (always open)
- Connect the flow 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 the indoor module's control module) 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

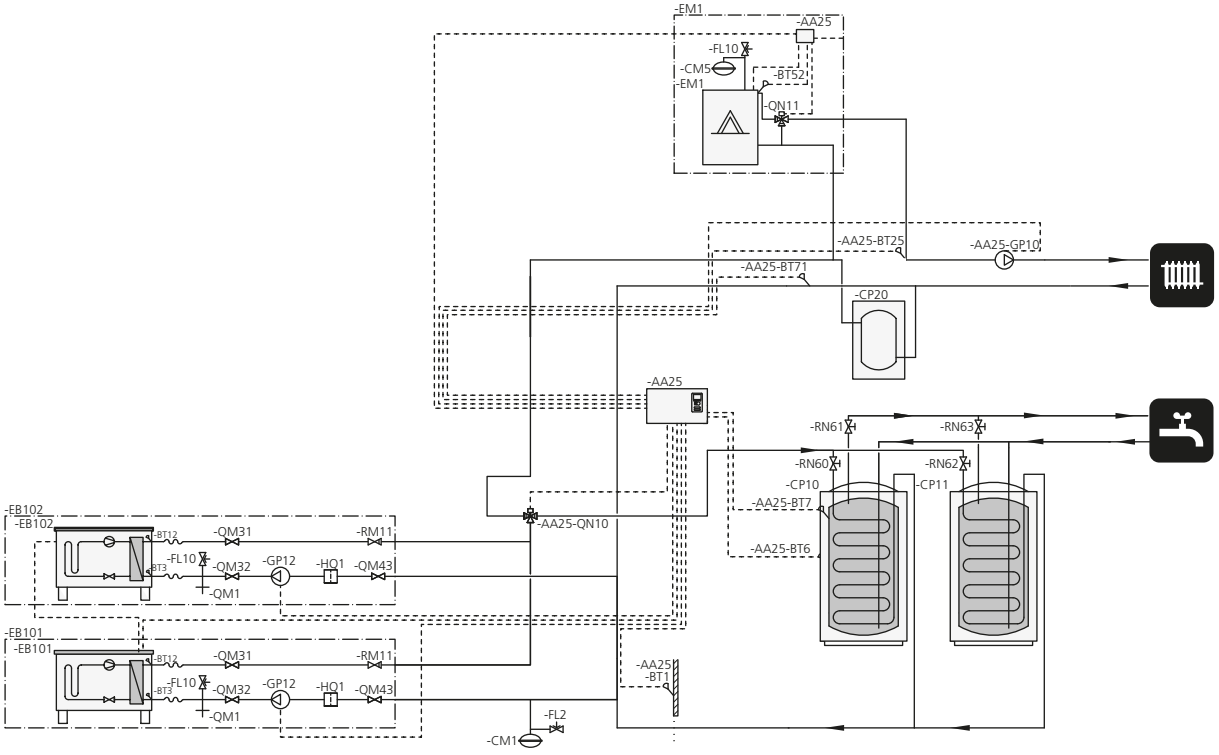
EM1	**Shunt controlled additional heat, boiler**
AA5	Accessory card (AXC 30)
BT52	Temperature sensor, boiler
CM5	Expansion vessel, closed
EM1	Oil/gas boiler
FL10	Safety valve, heating medium side
QN11	Mixing valve, addition
EB101, EB102	**Heat pump system**
BT3	Temperature sensor, return
BT12	Temperature sensor, condenser out
EB101, EB102	Heat pump
FL10	Safety valve
GP12	Charge pump
HQ1	Particle filter
QM1	Tapping valve
QM31 - QM32	Shut-off valve
QM43	Shut-off valve
RM11	Non-return valve

Miscellaneous

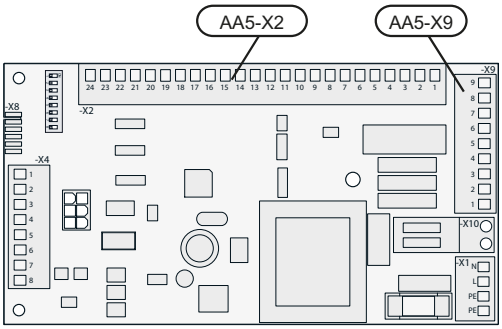
AA25	SMO 40
BT1	Outdoor sensor
BT6	Temperature sensor, hot water charging
BT7	Temperature sensor, hot water, top
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
CP10, CP11	Hot water heater
CP20	Buffer vessel, UKV
CM1	Expansion vessel, closed, brine side
FL2	Safety valve
GP10	Circulation pump, heating medium external
QN10	Reversing valve, hot water
RN60 - RN63	Trim valve

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

Outline diagram SMO 40 with AXC 30 and shunt controlled additional heat



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.

SMO 40 must not be powered when installing AXC 30.

Connection of sensors and external blocking

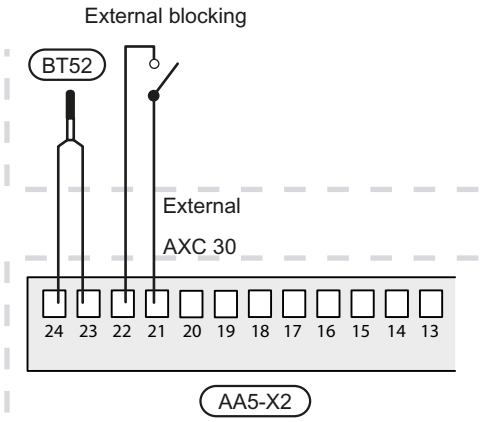
Use cable type LiYY, EKKX or similar.

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.

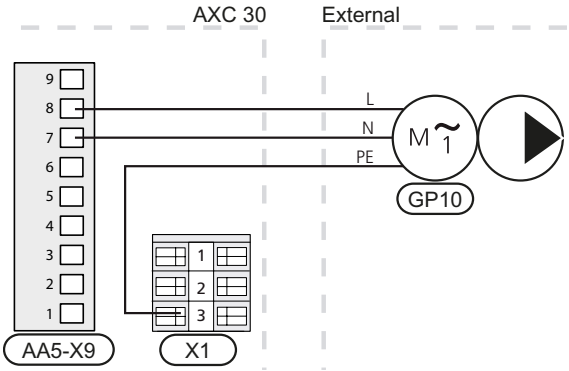


Caution

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

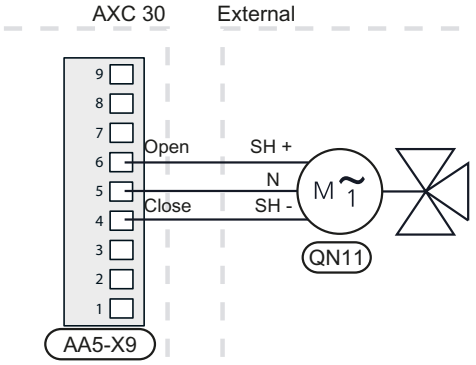
Connection of the circulation pump (GP10)

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



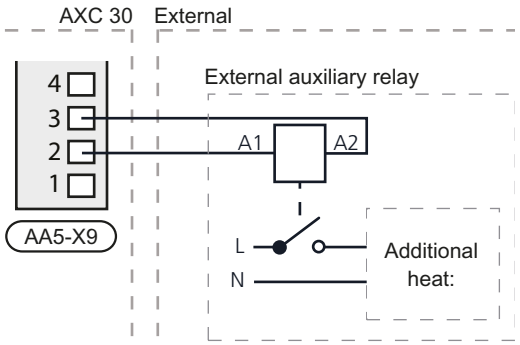
Connection of the mixing valve motor (QN11)

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



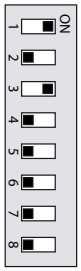
Connection of the auxiliary relay for additional heating

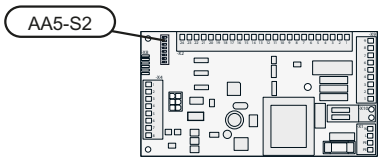
Connect the auxiliary relay for switching the addition on and off to AA5-X9:2 (230 V) and AA5-X9:3 (N).



DIP switch

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





Program settings

Program setting of AXC 30 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: "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 indoor module as well as in the different accessories that may be connected.

EM1-AA5-K1: Activating the relay for additional heating.

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

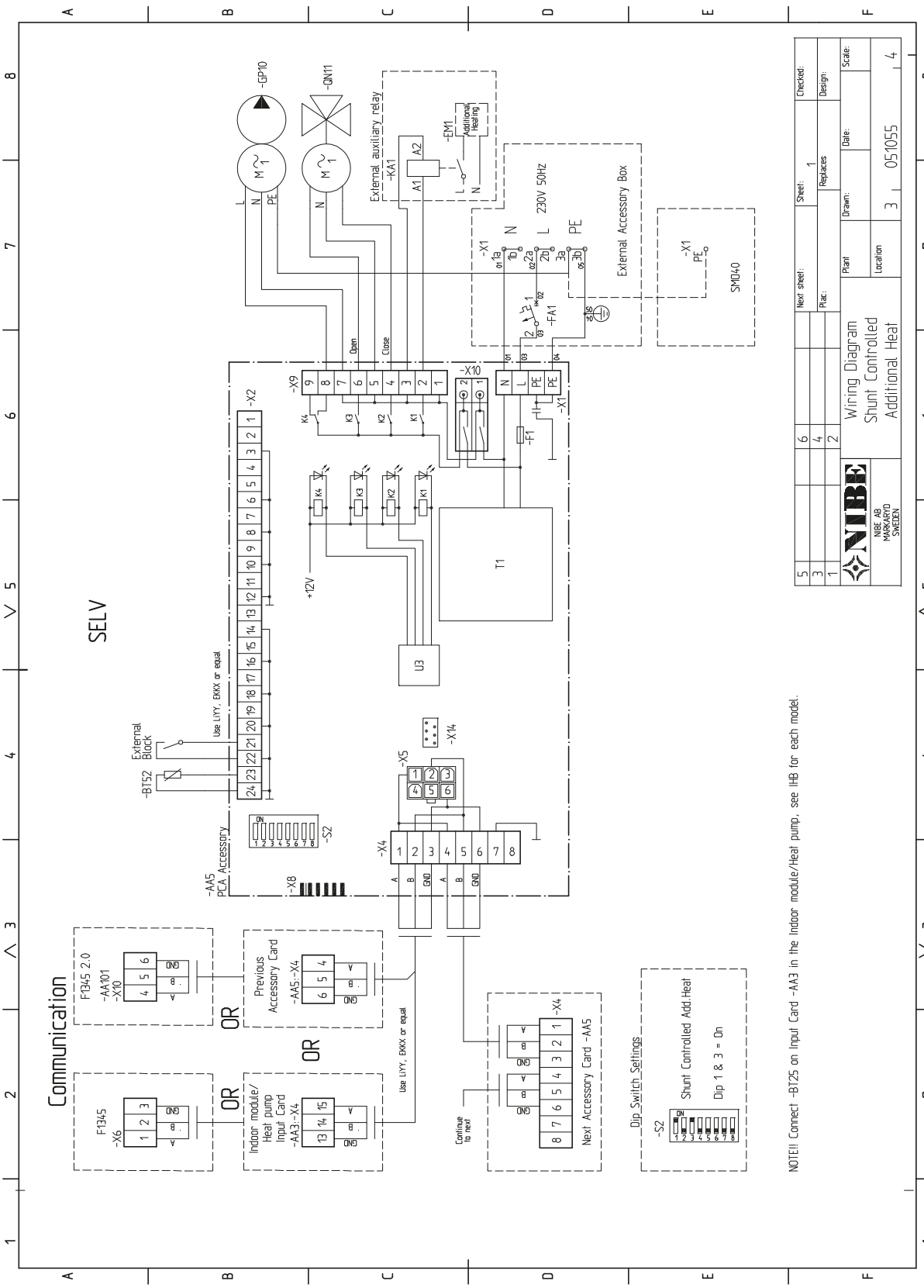
EM1-AA5-K3: Signal (open) to mixing valve (QN11).

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

Caution

Also see the Installer manual for SMO 40.

Electrical circuit diagram



4 Step controlled additional heat

General

This function enables an external additional heater, e.g. an electric boiler, to aid with heating.

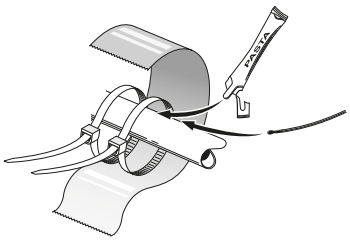
With the accessory card in AXC 30 a further three potential free relays can be used for addition control, which then gives max 3 linear or 7 binary steps.

The flow through the addition is ensured either by the charge pump (GP12) or the external circulation pump (GP10).

Pipe connections

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

Temperature sensor



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

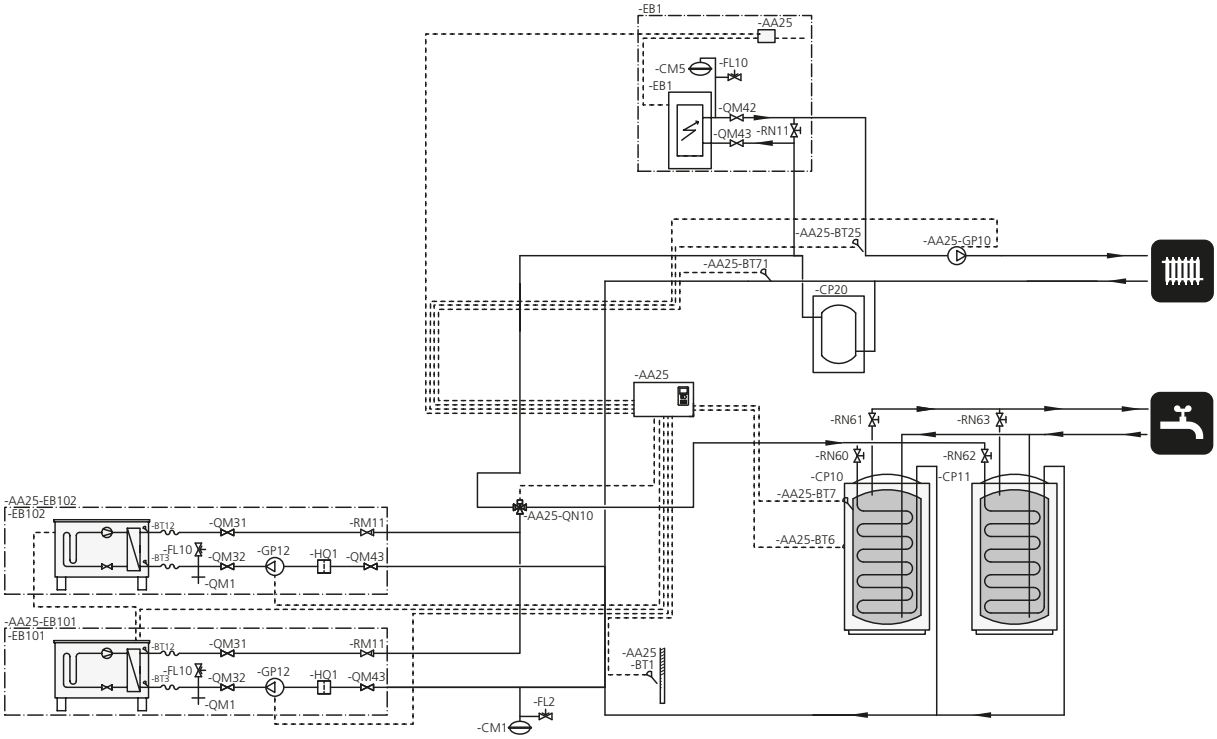
EB1	**Step controlled additional heat**
AA5	Accessory card in (AXC 30)
CM5	Expansion vessel, closed
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB101, EB102	**Heat pump system**
BT3	Temperature sensor, return
BT12	Temperature sensor, condenser out
EB101, EB102	Heat pump
FL10	Safety valve, heating medium side
GP12	Charge pump
HQ1	Particle filter
QM1	Tapping valve
QM31 - QM32	Shut-off valve
QM43	Shut-off valve
RM11	Non-return valve

Miscellaneous

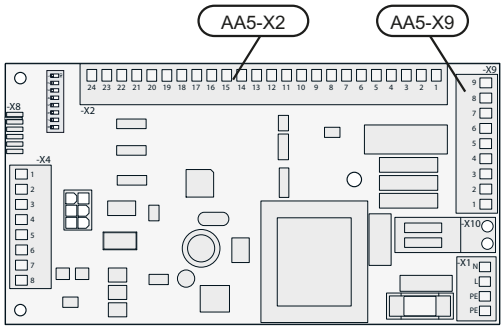
AA25	SMO 40
BT1	Outdoor sensor
BT6	Temperature sensor, hot water charging
BT7	Temperature, hot water top
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
CP10 - CP11	Hot water heater
CP20	Buffer vessel, UKV
CM1	Expansion vessel, closed
FL2	Safety valve
GP10	Circulation pump, heating medium external
QN10	Reversing valve, hot water
RN60 - RN61	Trim valve

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

Outline diagram SMO 40 with AXC 30 and step controlled additional heat



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.

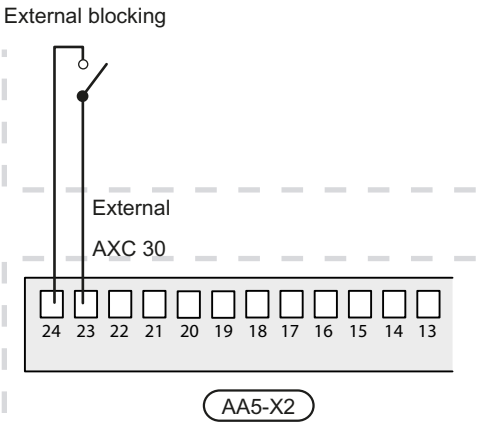
SMO 40 must not be powered when installing AXC 30.

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.

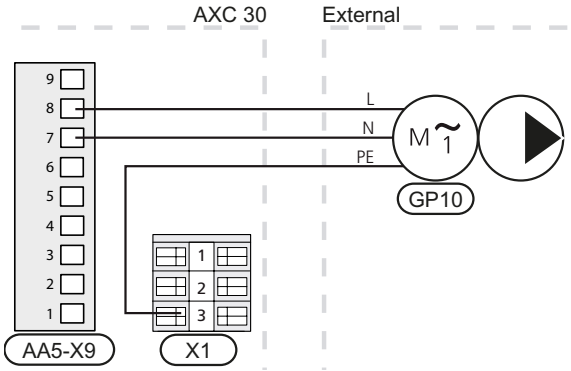


Caution

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)

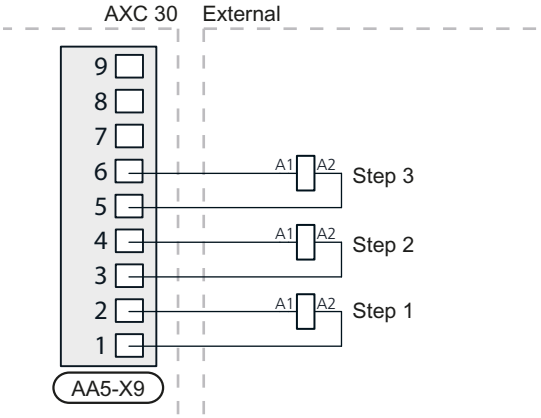


Connecting additional step

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

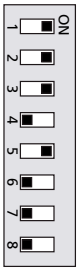
Connect step 2 to AA5-X9:3 and 4.

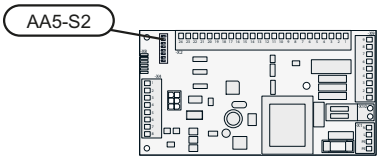
Connect step 3 to AA5-X9:5 and 6.



DIP switch

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





Program settings

Program setting of AXC 30 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: "step controlled add. heat".

Menu 5.3.6 - step controlled add. heatAXC30

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.

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.

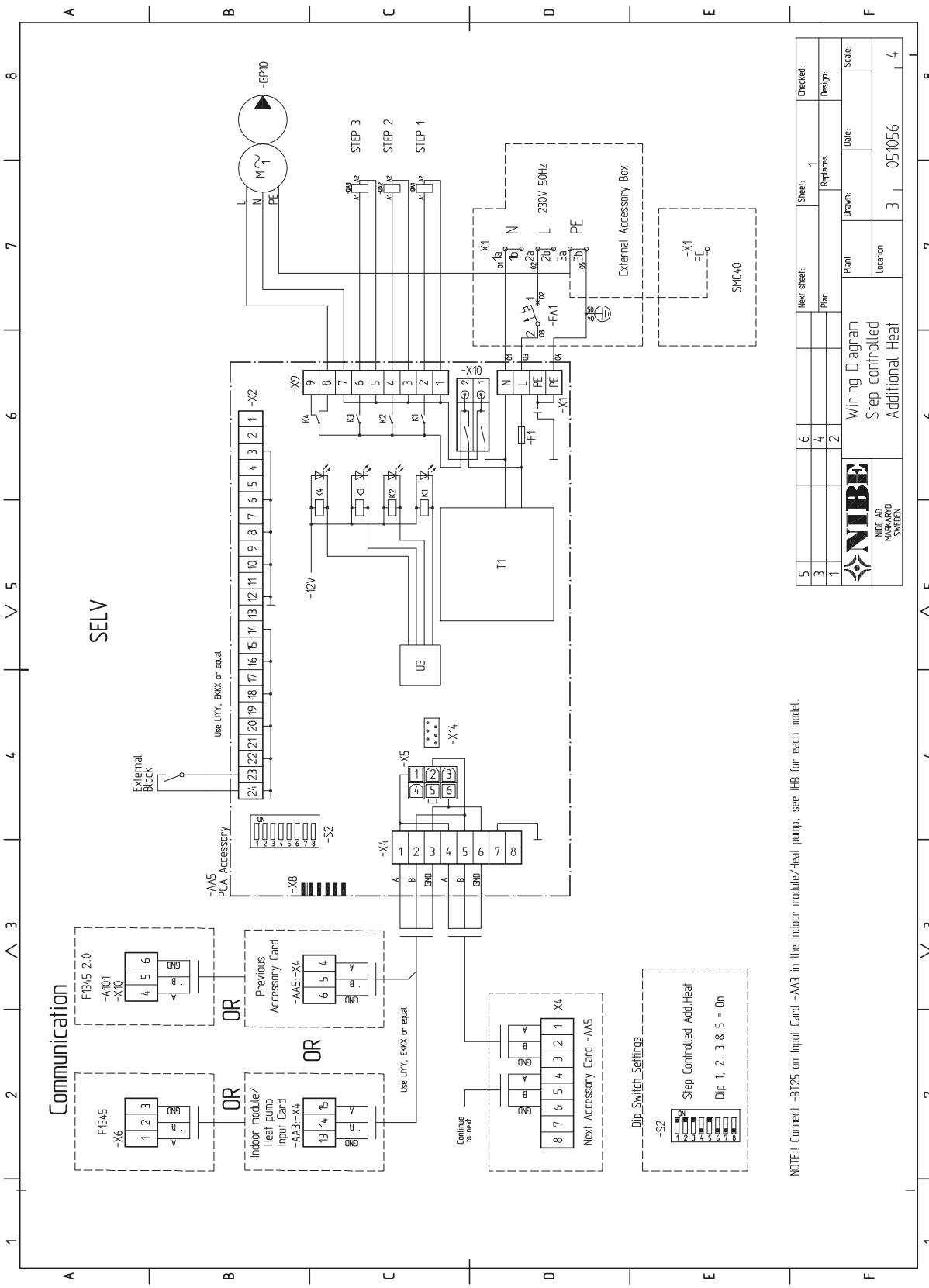
EB1-AA5-K3: Activating additional step 3.

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

Caution

Also see the Installer manual for SMO 40.

Electrical circuit diagram



5 Extra climate system

General

This accessory function is used when SMO 40 is installed in houses with up to four different climate systems that require different flow 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 under floor 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.

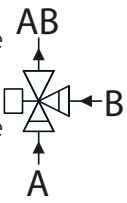
Circulation pump

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

Shunt valve

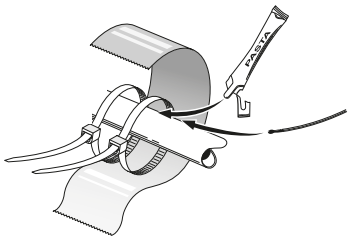
The mixing valve (QN25) is located on the flow line after the heat pump/indoor module, before the first radiator in the climate system 1. The return line from the additional climate system must be connected to the shunt valve and to the return line from the heating system 1, see image and outline diagram.

- Connect the flow 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.

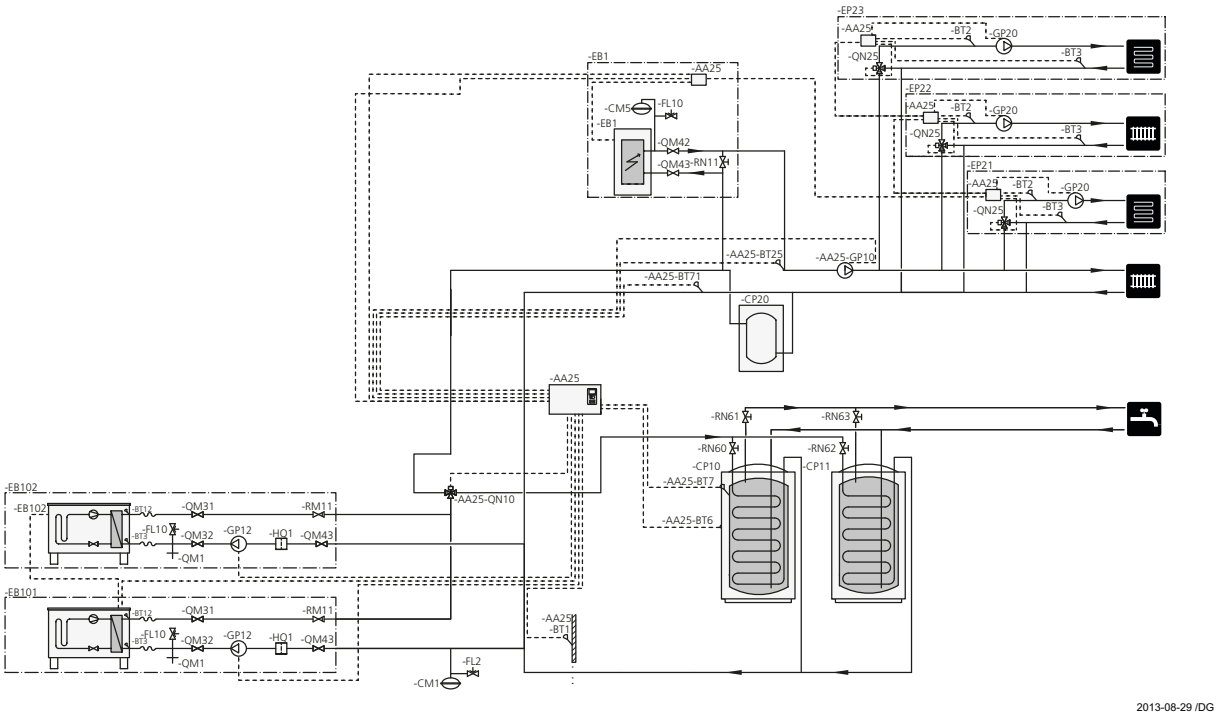
Outline diagram

Explanation

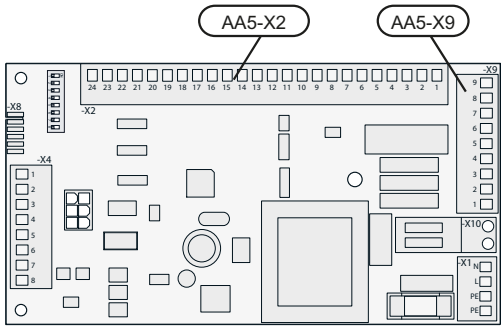
EB1	**External additional heat**
CM5	Expansion vessel, closed
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB101, EB102	**Heat pump system**
BT3	Temperature sensor, return
BT12	Temperature sensor, condenser out
EB101, EB102	Heat pump
FL10	Safety valve, heating medium side
GP12	Charge pump
HQ1	Particle filter
QM1	Tapping valve
QM31 - QM32	Shut-off valve
QM43	Shut-off valve
RM11	Non-return valve
EP21	**Climate system 2**
AA5	Accessory card SMO 40
BT2	Flow temperature sensor, extra climate system
BT3	Return line sensor, extra climate system
GP20	Circulation pump, extra climate system
QN25	Shunt valve
Miscel-laneous	
AA25	SMO 40
BT1	Outdoor sensor
BT6	Temperature sensor, hot water charging
BT7	Temperature sensor, hot water, top
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
CP10 - CP11	Hot water heater
CP20	Buffer vessel, UKV
CM1	Expansion vessel, closed
FL2	Safety valve
GP10	Circulation pump, heating medium external
QN10	Reversing valve, hot water
RN60 - RN61	Trim valve

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

Outline diagram SMO40 med AXC 30 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.

SMO 40 must not be powered when installing AXC 30.

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)

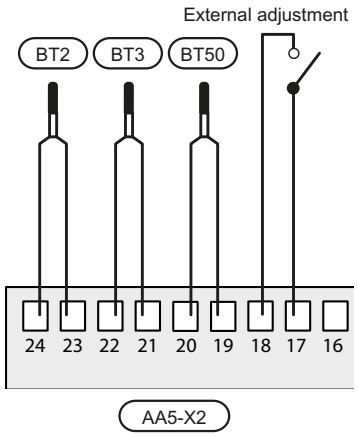
Connect the return line sensor to AA5-X2:21-22.

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.

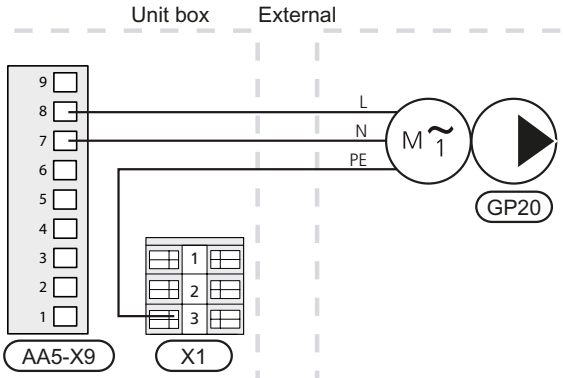


Caution

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

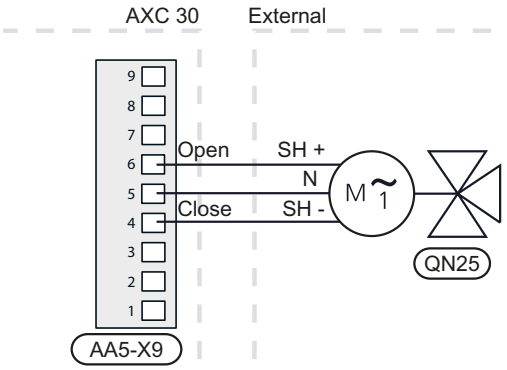
Connection of the circulation pump (GP20)

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



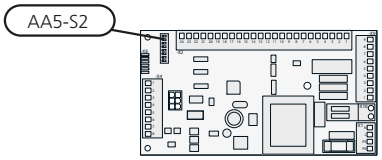
Connection of the mixing valve motor (QN25)

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

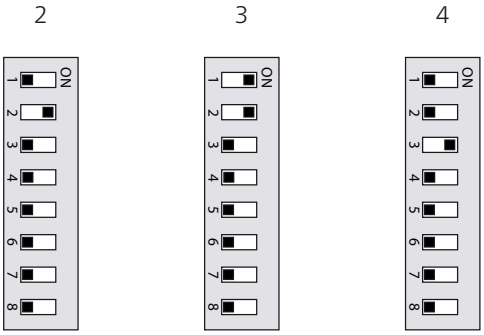


DIP switch

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



Climate system



Program settings

Program setting of AXC 30 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.

Menu 1.1 - temperature

Setting the indoor temperature.

Menu 1.9.1 - heating curve

Setting the heat 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).

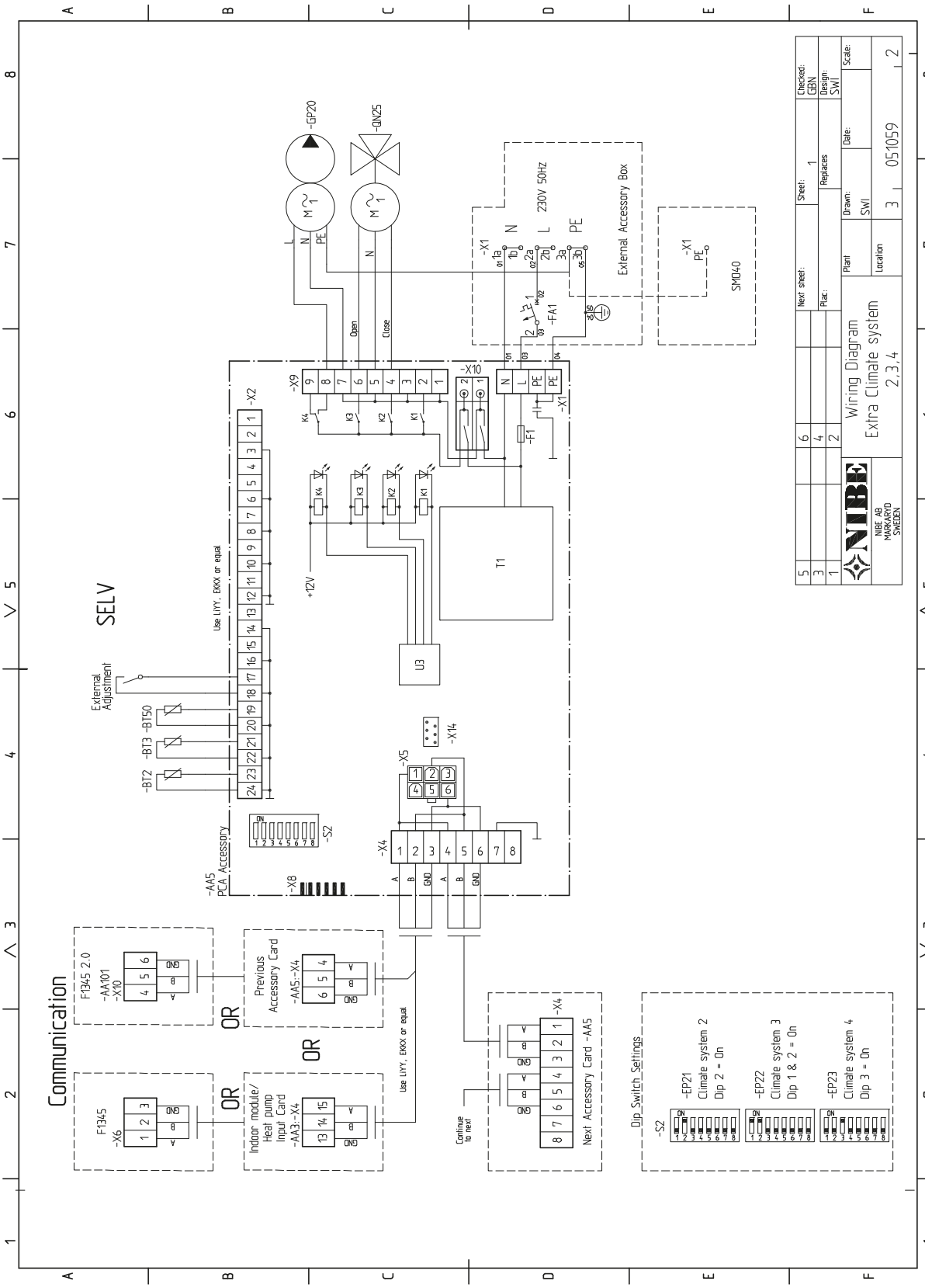
EP2#-AA5-K3: Signal (open) to mixing valve (QN25).

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.

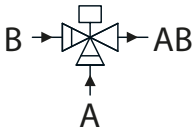
Hot water circulation (VVC)

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

Pipe connections

Mixing valve

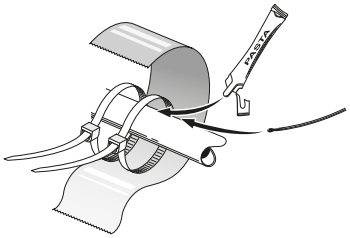
The mixing valve (FQ1) is located on the outgoing hot water line from the water heater according to the outline diagram.



- 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

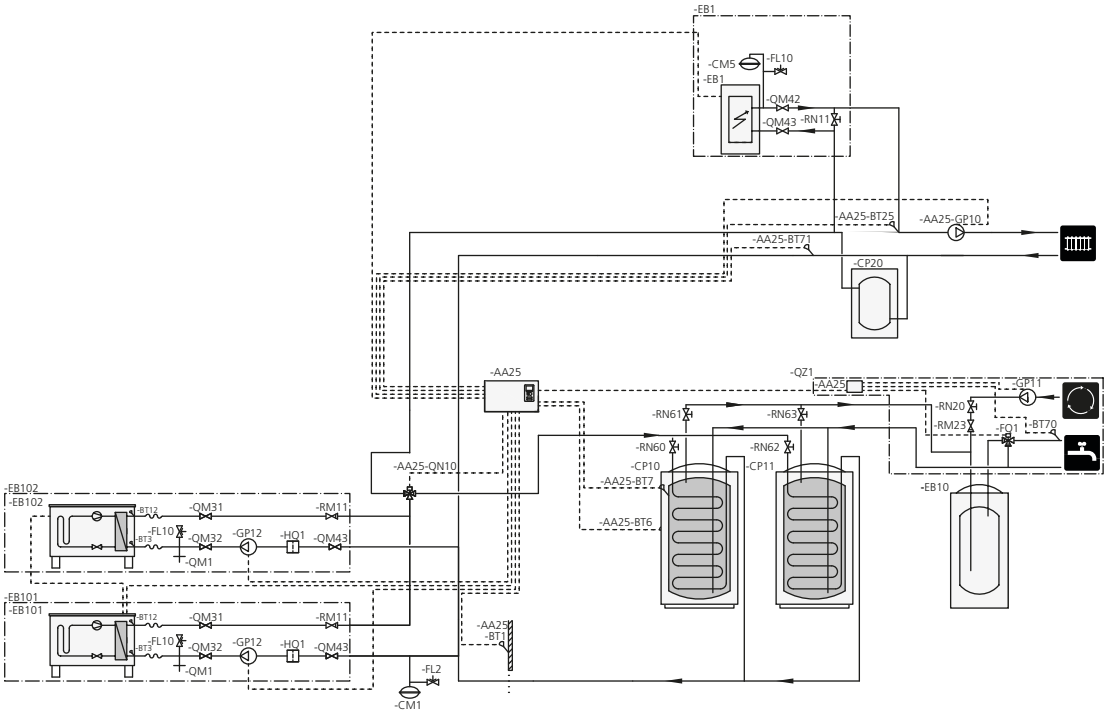
Sensor and communication cables must not be placed near power cables.

Outline diagram

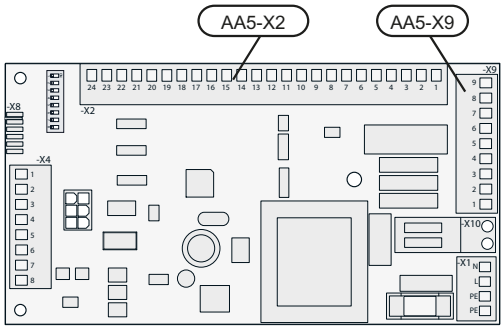
Explanation

EB1	**External additional heat**
CM5	Expansion vessel, closed
EB1	External electrical additional heat
FL10	Safety valve, heating medium side
QM42 - QM43	Shut-off valve, heating medium side
RN11	Trim valve
EB101, EB102	**Heat pump system**
BT3	Temperature sensor, return
BT12	Temperature sensor, condenser out
EB101, EB102	Heat pump
FL10	Safety valve, heating medium side
GP12	Charge pump
HQ1	Particle filter
QM1	Tapping valve
QM31 - QM32	Shut-off valve
QM43	Shut-off valve
RM11	Non-return valve
QZ1	**Hot water comfort**
AA5	Accessory card AXC 30
BT70	Temperature sensor, outgoing hot water
EB10	Additional water heater
GP11	Circulation pump, domestic hot water circulation
RM23	Non-return valve
RN20	Trim valve
Miscellaneous	
AA25	SMO 40
BT1	Outdoor sensor
BT6	Temperature sensor, hot water charging
BT7	Temperature sensor, hot water, top
BT25	Temperature sensor, heating medium flow, External
BT71	Temperature sensor, heating medium return, External
CP10 - CP11	Hot water heater
CP20	Buffer vessel, UKV
CM1	Expansion vessel, closed
FL2	Safety valve
GP10	Circulation pump, heating medium external
QN10	Reversing valve, hot water
RN60 - RN61	Trim valve

Outline diagram SMO40 with AXC 30 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.

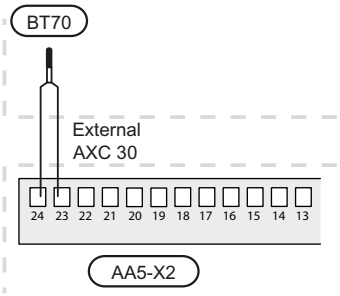
SMO 40 must not be powered when installing AXC 30.

Connecting sensors

Use cable type LiYY, EKKX or similar.

How water sensor, flow line (BT70)

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

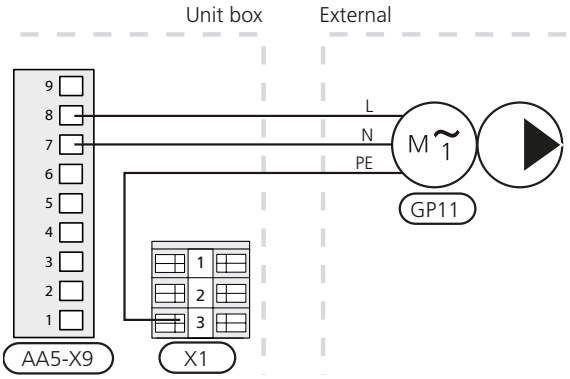


Caution

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

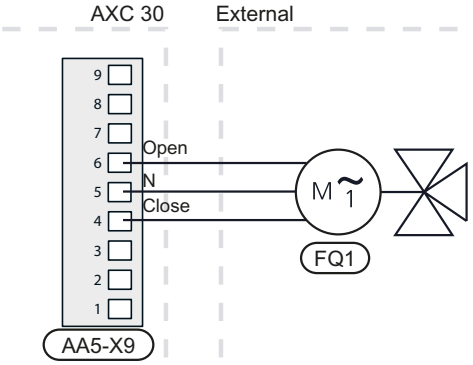
Connection of the hot water circulation pump (GP11)

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



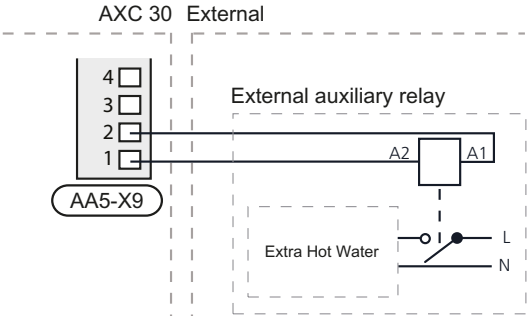
Connection of the mixing valve (FQ1)

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



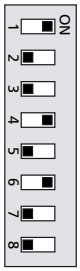
Connecting auxiliary relay for temporary lux (extra hot water)

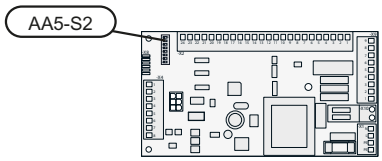
Connect the auxiliary relay for switching the addition on and off to AA5-X9:1 (N) and AA5-X9:2 (230 V).



DIP switch

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





Program settings

Program setting of AXC 30 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).

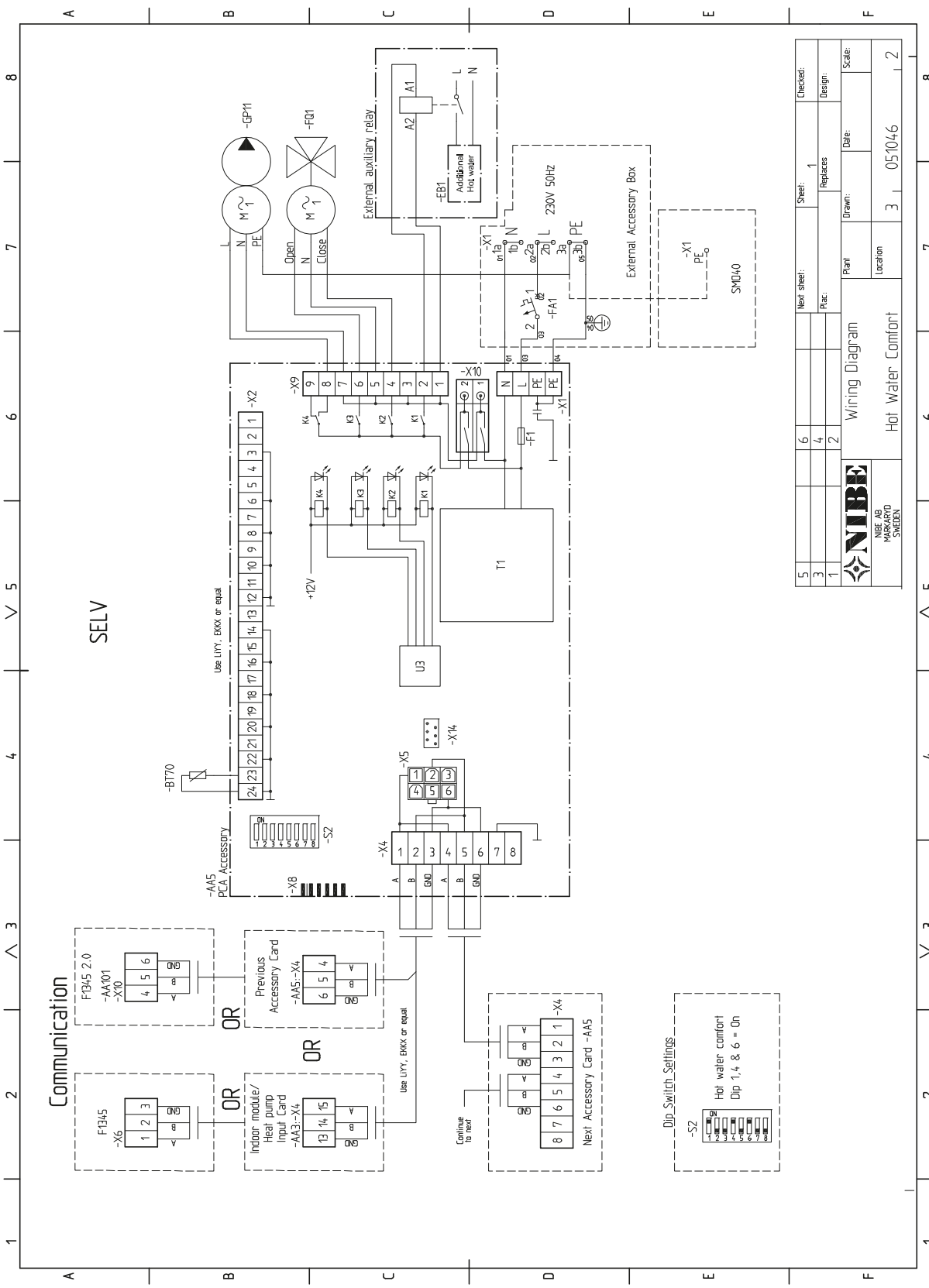
QZ1-AA5-K3: Signal (open) to the mixing valve (FQ1).

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

Caution

Also see the Installer manual for SMO 40.

Electrical circuit diagram



7 Active cooling (4-pipe)

General

Connecting this accessory makes it possible to control production of cooling.

The cooling system supplies cooling from the heat pump using a circulation pump (GP12) via a reversing valve (QN12).

For the installation to work the cooling system must flow freely permanently, for example using a volume vessel for cooling.

Operating mode cooling is activated by the temperature of the outdoor sensor (BT1) and any room temperature sensors (BT50), room units or separate room sensors for cooling (BT74) (if two different rooms are to be heated respectively cooled at the same time for example.)

When cooling is required, the cooling reversing valve (QN12) and the circulation pump (GP13) are activated.

Cooling production is regulated according to the cooling sensor (BT64) and a cooling set point value that is determined by the selected cooling curve.

Cooling degree minutes are calculated in response to the value on the external temperature sensor (BT64) for cooling out and the cooling set point value.

As an accessory, cooling reversing valve is required, e.g. VCC22/VCC28.

Pipe connections

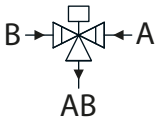
General

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.

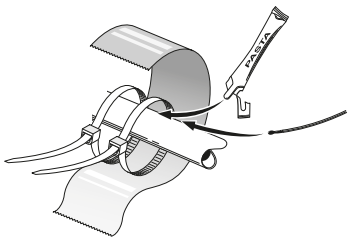
Reversing valve, cooling/heating

The reversing valve (QN12) is located in the system on the supply line from the heat pump



Temperature sensor

Temperature sensor (BT64) is mounted on the supply line to the cooling system at the T-pipe connection to the volume vessel (CP21).



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

EQ1 Cooling system

AA25-AA5 Accessory card in AXC 30

BT64 Temperature sensor, flow line cooling

CP6 Accumulator tank, cooling

GP13 Cooling circulation pump

EB101 Heat pump system

BT3 Temperature sensor, return

BT12 Temperature sensor, condenser supply

GP12 Charge pump

EB101 Heat pump

FL10 Safety valve, heating medium side

HQ1 Particle filter

QM1 Tapping valve

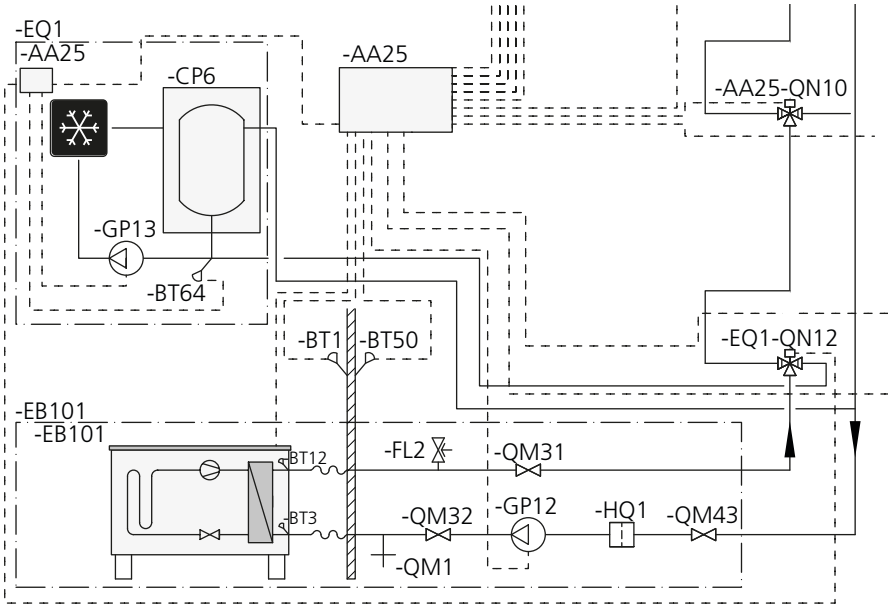
QM31-QM32 Shut-off valve

QM43 Shut-off valve

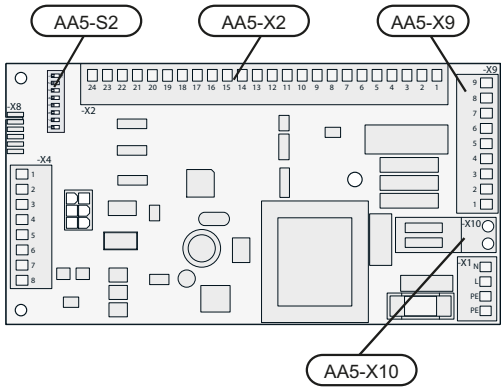
RM11 Trim valve

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

Outline diagram SMO40 with AXC 30 and active 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.

SMO 40 must not be powered when installing AXC 30.

Connection of sensors and external blocking

Use cable type LiYY, EKKX or similar.

Temperature sensor (BT64)

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

Temperature sensor (room sensor for cooling, BT74)

An extra temperature sensor (room sensor for cooling) can be connected to SMO 40 in order to better determine when it is time to switch between heating and cooling operation.

Connect the temperature sensor to one of the AUX inputs X6:7-19 on terminal block X6 which are behind the front hatch in SMO 40. The actual AUX input is selected in menu 5.4. Connect ground to terminal block X6:GND. Use a 2 core cable of at least 0.5 mm2 cable area.

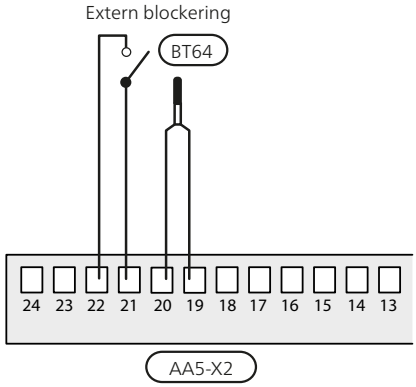
Place the temperature sensor in a neutral position in the room where the set temperature is required. It is important that the sensor is not obstructed from measuring the correct room temperature by being located, for example, in a recess, between shelves, behind a curtain, above or close to a heat source, in a draft from an external door or in direct sunlight. Closed radiator thermostats can also cause problems.

Room sensor (BT50)

To connect the room sensor (BT50), see the Installation manual for SMO 40.

External blocking (optional)

A contact can be connected to AA5-X2:21-22 to block cooling operation. When the contact closes, cooling operation is blocked.

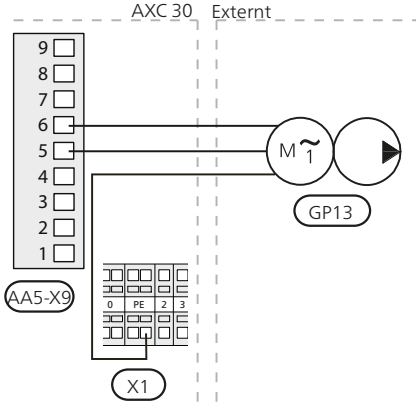


Caution

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

Connection of the cooling circulation pump (GP13)

Connect the circulation pump (GP13) to AA5-X9:6 (230 V), AA5-X9:5 (N) and X1:3 (PE)

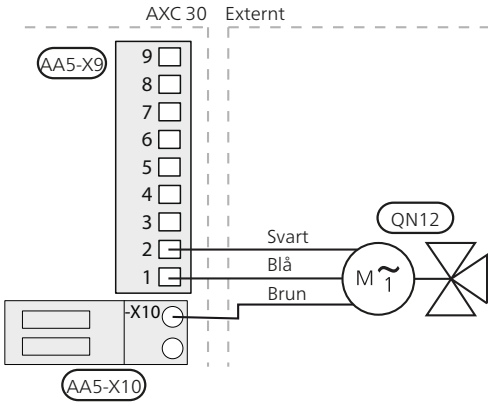


Connecting the charge pump (GP12)

Do not connect charge pump GP12 to the accessory card. See Installation manual to connect charge pump GP12.

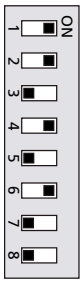
Connection of the reversing valve motor (QN12)

Connect the motor (QN12) to AA5-X9:2 (signal), AA5-X9:1 (N) and AA5-X10:2 (230 V).



DIP switch

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



AA5-S2

Program settings

Program setting of AXC 30 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: "active cooling 4 pipe".

Menu 1.1 - temperature

Setting 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 operation and 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.

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.

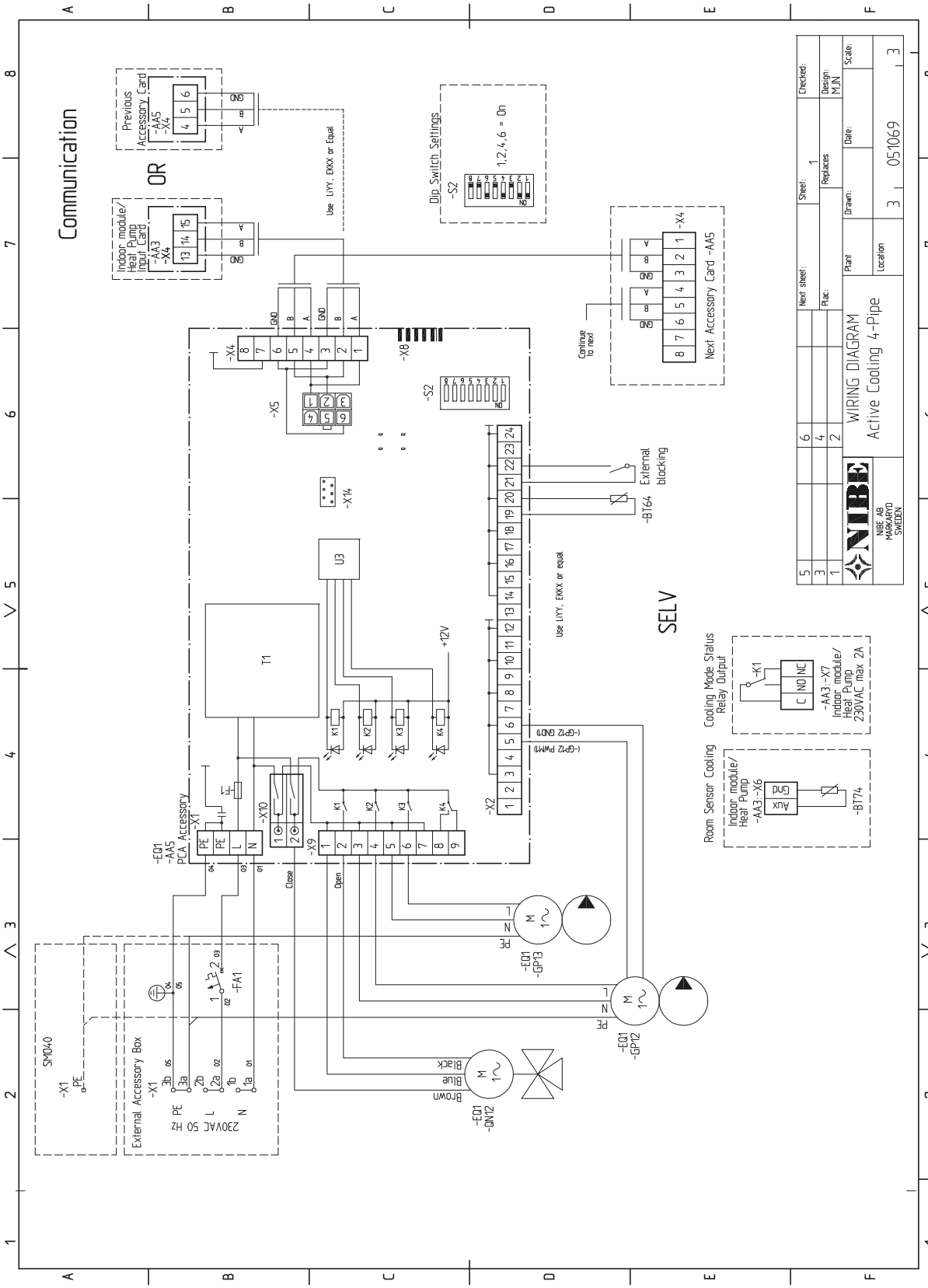
EQ1-AA5-K1: Signal to three way valve (QN12).

EQ1-AA5-K3: Signal cooling circulation pump (GP13).

Caution

Also see the Operating manual for SMO 40.

Wiring diagram



8 Connection of several heat pumps

General

This function allows control of up to two extra charge pumps GP12. The accessory is required for charge pump for slave - EB10X with address 3 or greater. Up to eight slaves can be combined in one system.

The control module controls the charge pumps together with the relevant slave during heating, hot water, or cooling operation via AXC30Type CPD charge pump is recommended to use speed control which ensures correct delta-t in the different operating modes during the year. The accessory also enables external blocking of each corresponding slave.

Pipe connections

The charge pump (GP12) is positioned in the relevant charge circuit before joining with other charge circuits or branching off different sub systems via reversing valve.

Outline diagram

Explanation

EB101- EB105 **Heat pump system**

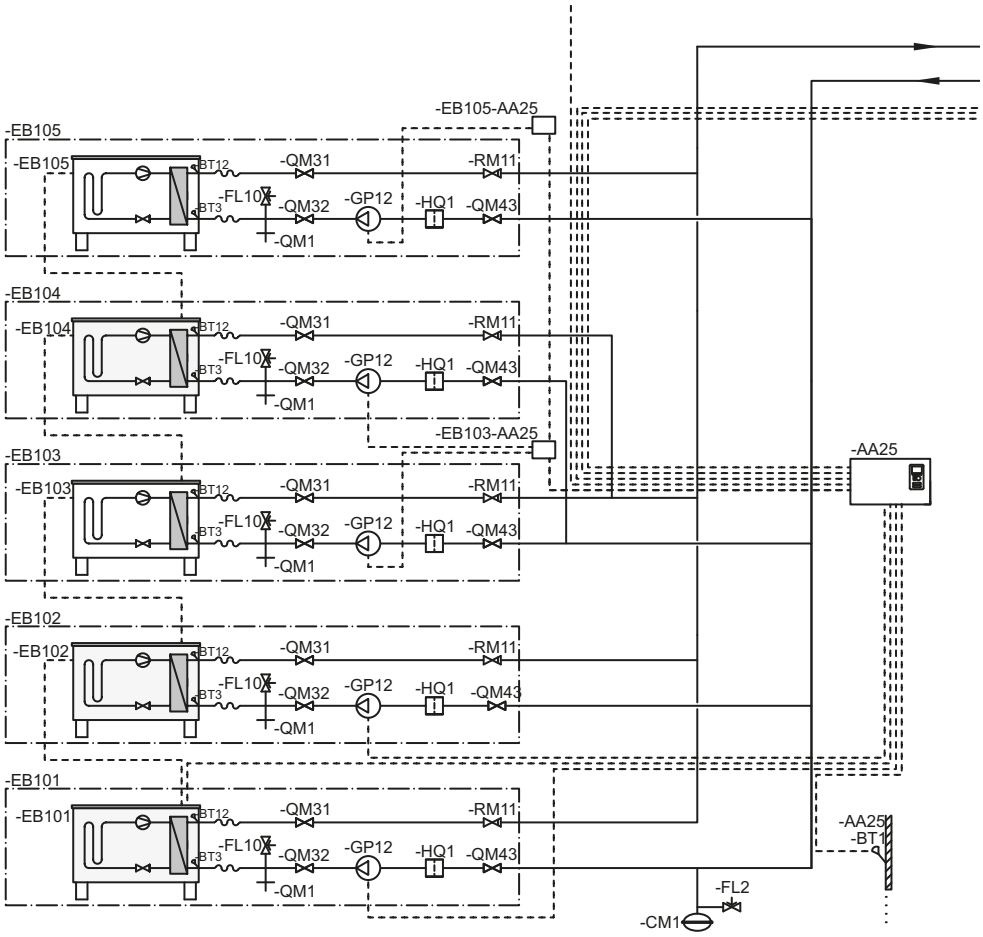
BT3 Temperature sensor
BT12 Temperature sensor
EB100-EB105 Heat pump
FL10 Safety valve
GP12 Charge pump
HQ1 Particle filter
QM31 - QM32 Shut-off valve
QM43 Shut-off valve
QN10 Reversing valve, heating/hot water
RM11 Non-return valve

Miscellaneous

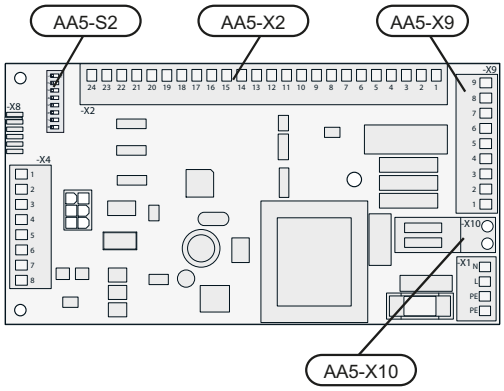
AA5 Accessory card (AXC 30)
BT1 Temperature sensor
CM1 Expansion vessel, closed
FL2 Safety valve

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

Outline diagram SMO40 with AXC 30and connecting several heat pumps



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.

SMO 40 must not be powered when installing AXC 30.

Connection of sensors and external blocking

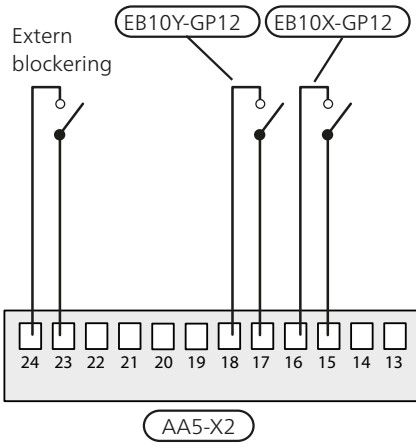
Use cable type LiYY, EKKX or similar.

External blocking (optional)

A contact can be connected to AA5-X2:23-24 to block cooling the accessory function. When the contact closes, the entire accessory function is blocked.

A further contact can be connected to AA5-X2:17-18 to block the accessory function. When the contact closes, the accessory function EB10Y is blocked.

A further contact can be connected to AA5-X2:15-16 to block the accessory function. When the contact closes, the accessory function EB10X is blocked.



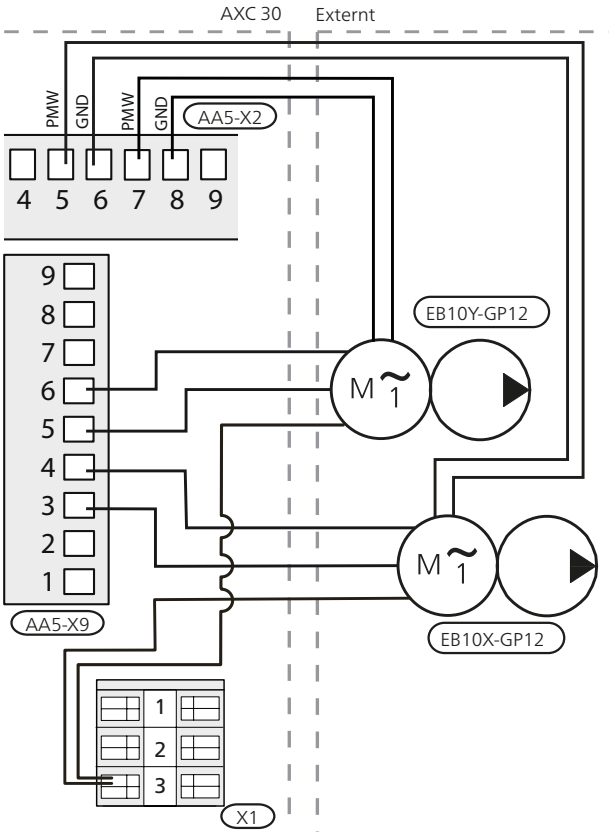
Caution

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

Connection of the circulation pump (GP12)

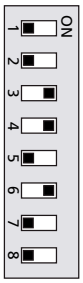
Connect the circulation pump (EB10X-GP12) to AA5-X9:4 (230 V), AA5-X9:3 (N) and X1:3 (PE).

Connect the circulation pump (EB10Y-GP12) to AA5-X9:6 (230 V), AA5-X9:5 (N) and X1:3 (PE).



DIP switch

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



AA5-S2

Program settings

Program setting of multi-installation during operation of several heat pumps 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 5.2.2 - installed slaves

Activating/deactivating slaves

Menu 5.2.3 - docking

Enter how your system is docked regarding pipes, for example to pool heating, hot water heating and heating the building.

TIP

Examples of docking alternatives can be found at www.nibe.eu.

This menu has a docking memory which means that the control system remembers how a particular reversing valve is docked and automatically enters the correct docking the next time you use the same reversing valve.

Master/slave: Select which heat pump the docking setting is to be made for (if the heat pump is alone in the system only master is displayed).

Compressor: Select if your compressor in the heat pump is blocked (factory setting), externally controlled via soft input or standard (docked for example to pool heating, hot water charging and heating the building).

Marking frame: Move around the marking frame using the control knob. Use the OK button to select what you want to change and to confirm setting in the options box that appears to the right.

Workspace for docking: The system docking is drawn here.

Symbol	Description
	Compressor (blocked)
	Compressor (externally controlled)
	Compressor (standard)
	Reversing valves for hot water control. The designations above the reversing valve indicate where it is electrically connected (EB101 = Slave 1, CL11 = Pool 1 etc.).
	Own hot water charging, only from selected heat pump compressor. Controlled by relevant heat pump.
	Pool 1
	Pool 2
	Heating (heating the building, includes any extra climate system)

Menu 5.11.1 - EB103

Make settings for the installed slaves here.

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.

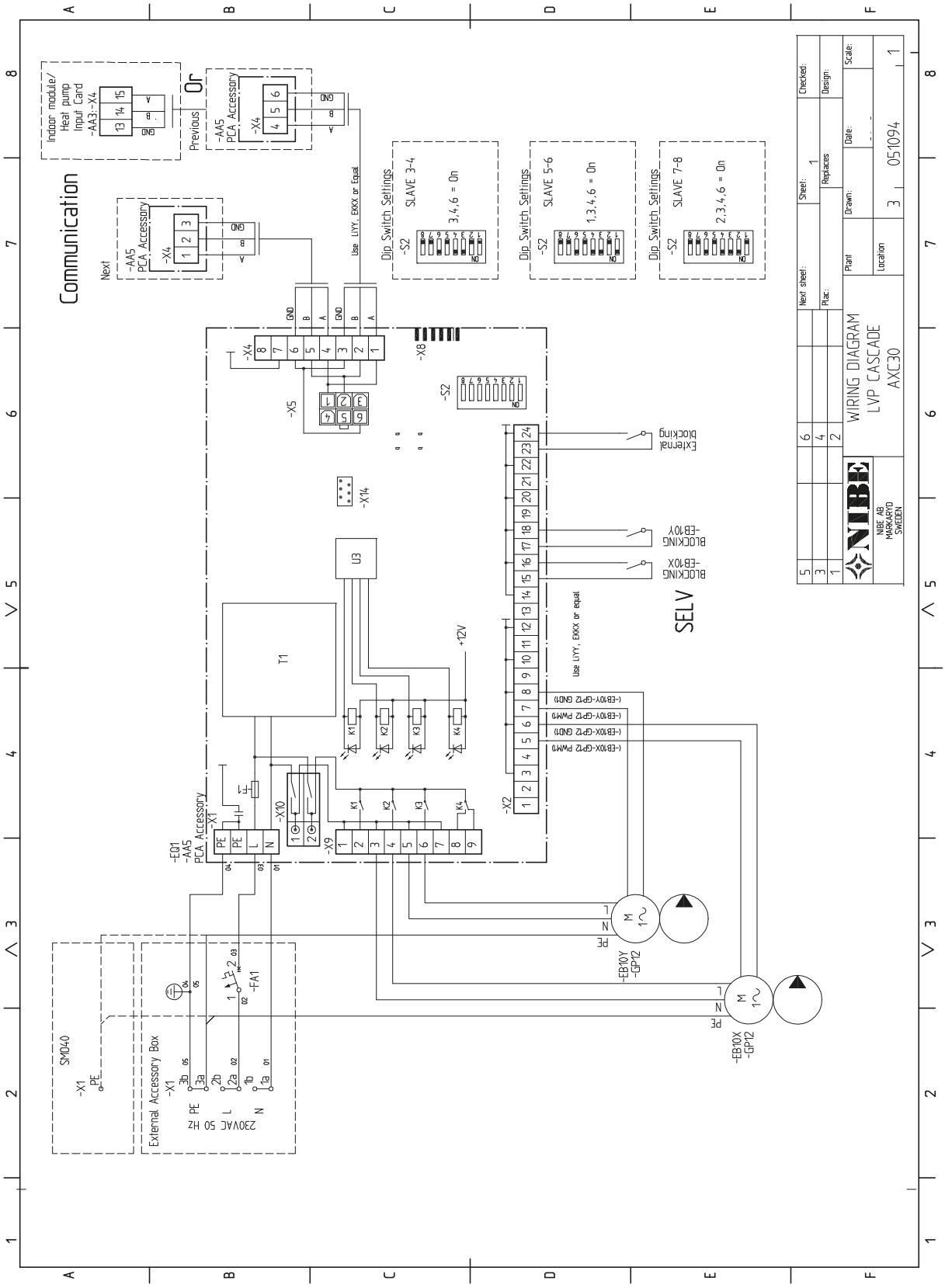
- Compressor speed 3
- EB103 - GP12 - AA5-K2
- Charge pump speed 3

- Compressor speed 4
- EB104 - GP12 - AA5-K3
- Charge pump speed 4

Caution

Also see the Installer manual for SMO 40.

Electrical circuit diagram



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