Nokia Siemens Networks

470318A
Nokia Flexi EDGE Base Station, Rel. EP1, Product Documentation, v.1

Installing Flexi Cabinet for Indoor (FCIA)

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Contents

1 Overview of installing FCIA

Purpose

This is an overview of how to install Nokia Flexi Cabinet for Indoor (FCIA).

Before you start

Check that you have the needed installation tools available. See *Appendix Installation tools and torque values.*

Warning

If performing installation or maintenance procedures on a BTS, make sure that all transmitters in the area are switched off.

Warning

Do not go any closer to a live antenna than the compliance boundary. The radio frequency energy generated by the antenna poses a serious health risk.

Steps

1. **Check that the site meets the installation requirements.**

   For more information, see *Requirements for Installation and Operation* document.

2. **Unpack and check the delivery.**

3. **Install the lifting handles, if needed.**

4. **Lift the cabinet to the installation location, if needed.**

5. **Anchor the cabinet on to the base.**

6. **Change the door opening direction, if needed.**

7. **Prepare the cabinet cable entries.**

8. **Route the grounding cable and ground the cabinet.**

9. **Install the Integrated Battery Backup, if needed.**

   See
   - *Installing batteries in FCIA*
   - *Installing the rectifier units (WPMB/WPMC)*
   - *Installing Power Distribution Unit in FCIA*
   - *Changing the alarm polarity of the WPUB unit*
   - *Changing the alarm polarity of the WPUC unit*

10. **Install the Flexi System External Alarm, FSEB, if needed.**

Further information

Next, install the modules inside the cabinet, and route and install the cables. For instructions, see the *Creating FCIA Configurations* document. documents.

2 Unpacking and checking FCIA delivery

Before you start

Warning

Base Transceiver Station (BTS) cabinets have sharp edges. Take care when working with or near the BTS.

The cabinet must be in a horizontal position when unpacking the delivery.

Summary

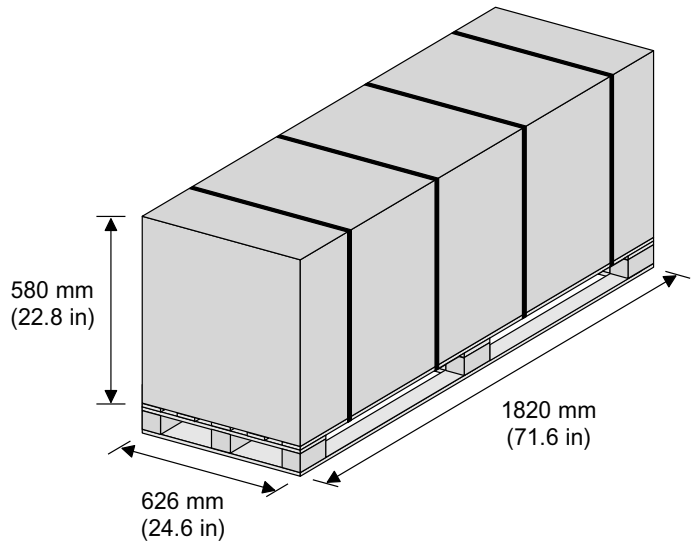


Figure 1. Flexi Cabinet for Indoor (FCIA) package dimensions

Steps

1. **Check the cardboard delivery packing for any damage before proceeding with the unpacking.**

2. **Remove the packing ribbons.**

3. **Lift the cardboard cover from around the cabinet.**

4. **Lift the cardboard lid away from the package.**

5. **Remove the installation template.**

   The installation template is needed when the cabinet is anchored to the base.

6. **Remove the cardboard sleeve from around the cabinet.**

7. **Remove the plastic cover from around the cabinet.**

8. **Remove the desiccant packs.**

9. **Check the cabinet for any damage.**

10. **Lift the cabinet to an upright position.**

11. **Check that the delivery is correct and complete by comparing the contents of the delivery to the packing list.**

    See *Contents of delivery* for more information.

12. **Place the packing list into the site folder.**

    Further information

    It is the responsibility of the customer to maintain and archive site-specific documents. The site folder should contain all the required site-specific information. It should include installation, commissioning, and integration check lists. Note, however, that the exact contents of a site folder is defined by the customer project.

13. **Recycle the packing material in accordance with your national recycling recommendations.**

3 Lifting the FCIA

Purpose

Follow these instructions when you need to lift Flexi Cabinet for Indoor (FCIA) to the desired installation location.

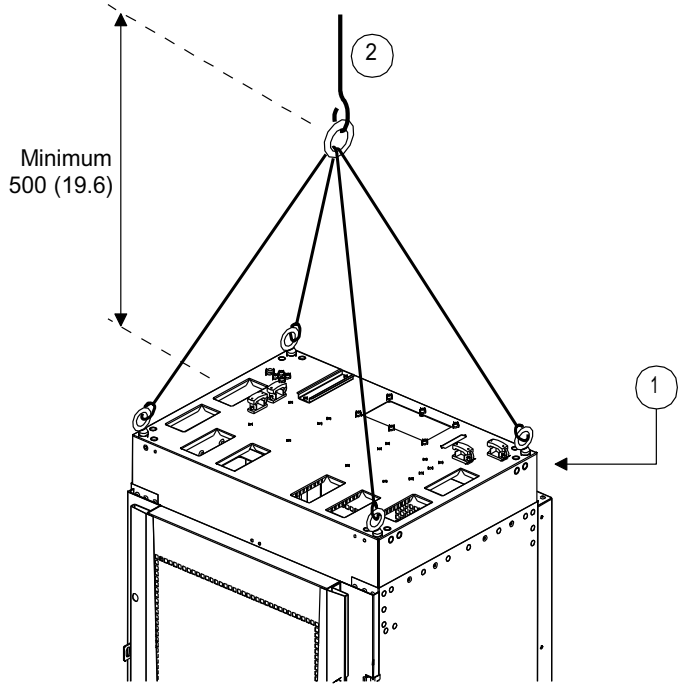
You can also install optional lifting handles (WLHA) to lift the cabinet. For instructions, see *Installing optional lifting handles in FCIA*.

Before you start

Warning

The cabinets are heavy. Additional personnel or lifting equipment may be needed when the cabinets are moved, unpacked, or lined up. In addition, follow any local regulations applicable to the installation.

Summary



NOTE: Dimensions: mm (in.)

Figure 2. Lifting the FCIA

Note that empty FCIA cabinet weighs 62 kilograms (136 lbs.).

Steps

1. Attach the 4 x M12 lifting eye bolts to the attachment points.

Lifting eye bolts are not included in the delivery. See figure *Lifting the FCIA* above, step 1.

2. Attach the hoisting belt or the rope to the lifting eye bolts.

Make sure that the hoisting belt or rope loop is high enough to avoid bending the equipment. See figure *Lifting the FCIA* above, step 1.

3. Lift the cabinet carefully to the desired installation height.

See figure *Lifting the FCIA* above, step 2.

4. **Mount the cabinet.**

5. **Remove the lifting equipment.**

4 Installing the cabinet

4.1 Anchoring the FCIA

Purpose

Nokia Flexi Cabinet for Indoor (FCIA) must be anchored to the base if there is any risk of it toppling for example in areas with an earthquake risk.

Allowed thread sizes for anchoring the cabinet are 10 mm (3/8") and 12 mm (1/2"). Bolts are made of steel, grade 8.8 (zink plated recommended). With 10 mm (3/8") bolts a 10 mm washer is added between the fixing nut and the spring washer (10 mm washer is not delivered with the cabinet).

Before you start

Check that the base is planned and prepared.

Steps

1. **Attach the cabinet to the base.**

   An anchor bolt should be protruding up through each bolting hole. Secure the nuts and washers to the bolts and tighten to the recommended torque.

   Attach the cabinet with four bolts, nuts and washers. Adjust the height of the nuts so that the cabinet is level.

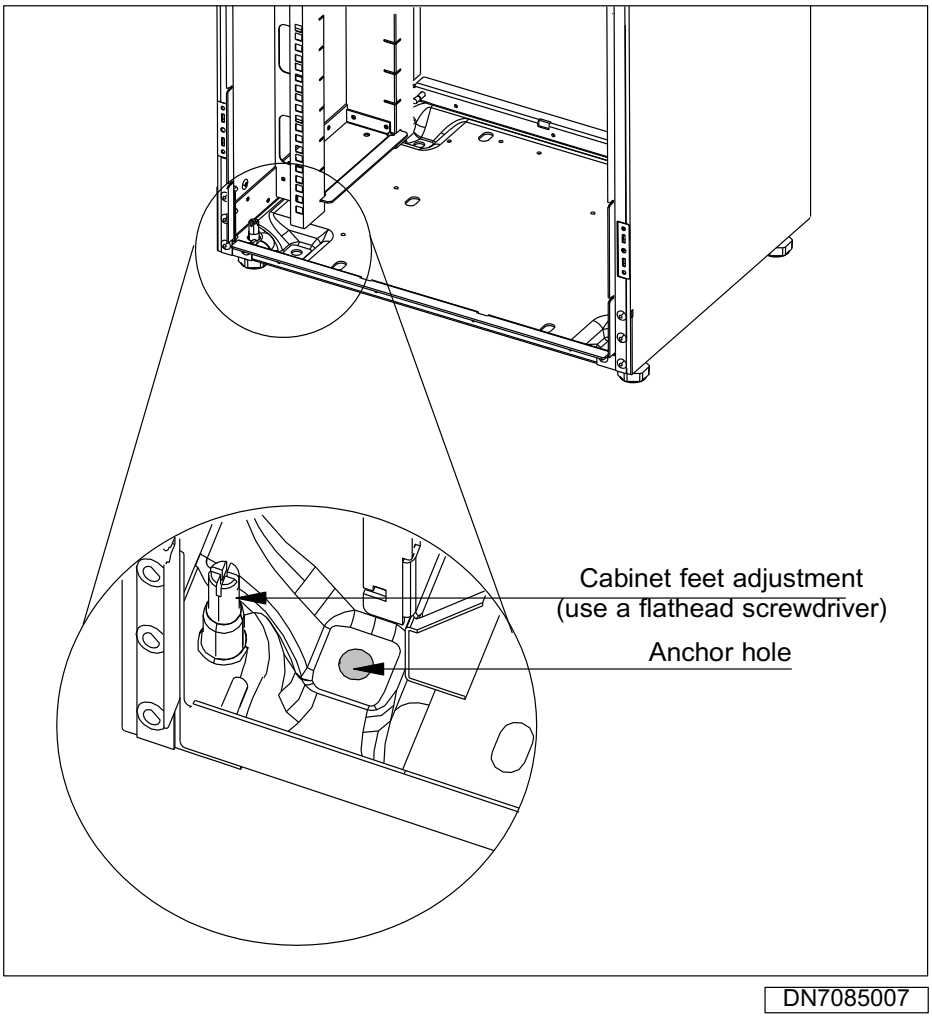


Figure 3. FCIA anchor holes

Tip

When considering if the cabinet is level or not, a useful test is to check that the door of the cabinet closes properly. If the door does not close properly, the cabinet is not level. Another way is to use cross-measure to verify that the cabinet is level.

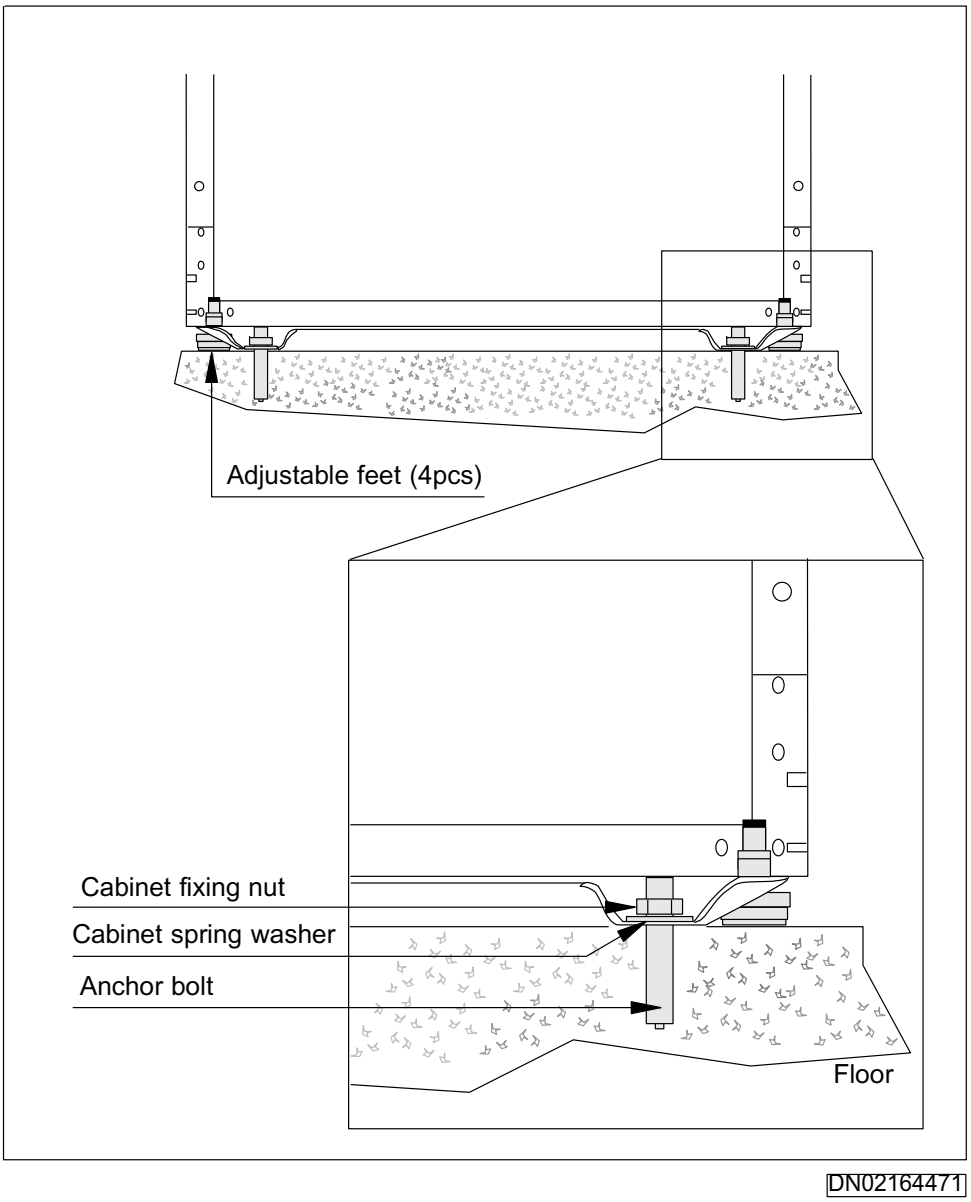


Figure 4. Bolting the indoor cabinet

Use the template in the package for drilling the screw holes and for defining the required clearances.

2. Adjust the cabinet feet firmly against the floor.

3. Check that the cabinet is still level.

Check that the cabinet is still level. If necessary, adjust the anchor bolts and cabinet feet (uneven bolting may damage the cabinet).

4.2 Changing the opening direction of the FCIA door

Purpose

Follow these instructions if you need to change the door opening direction of Nokia Flexi Cabinet for Indoor (FCIA).

If necessary, remove and install the door lock-plate on the opposite side of the cabinet.

Steps

1. **Remove the ground wire and hinge pins, and detach the door.**

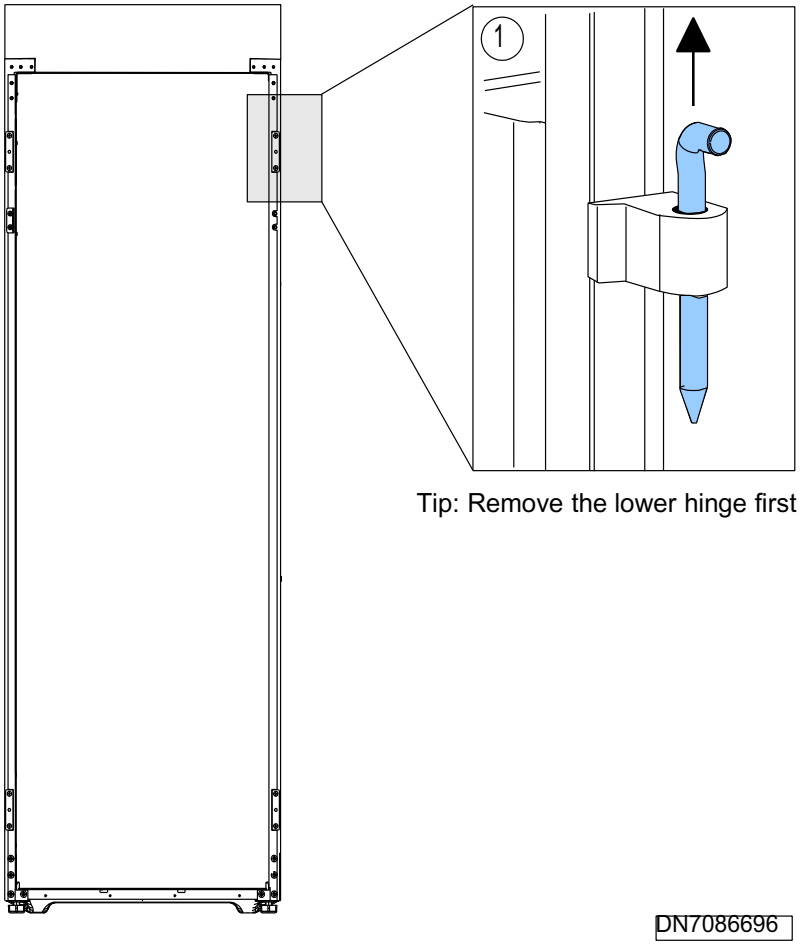


Figure 5. Remove the hinge pins and detach the door (1).

2. Loosen the hinge screws and remove the hinges.

See the figure below.

3. Install the hinges on the opposite side of the cabinet.

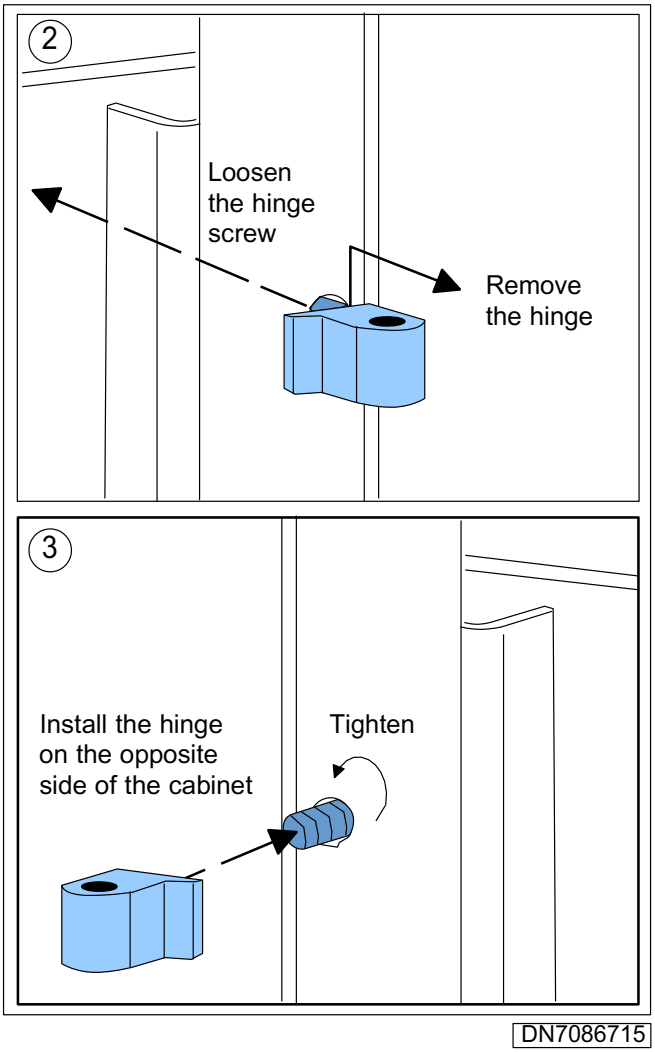


Figure 6. Loosen the hinge screws and remove the hinges (2). Install the hinges on the opposite side of the cabinet (3).

4. Remove the door lock-plate.

See the figure below.

5. Install the door lock-plate on the opposite side of the cabinet.

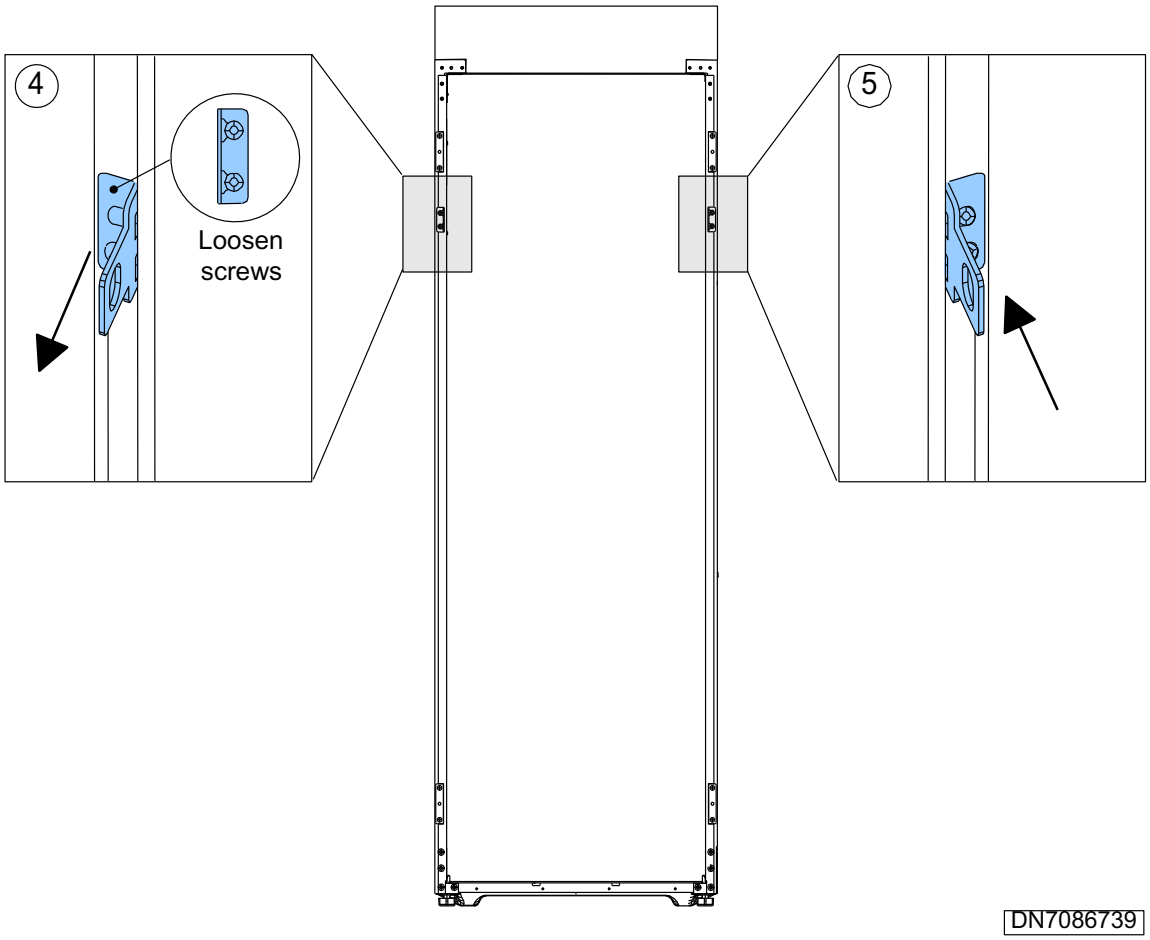


Figure 7. Remove the door lock-plate (4). Install the door lock-plate on the opposite side of the cabinet (5).

6. Flip the door end-to-end.

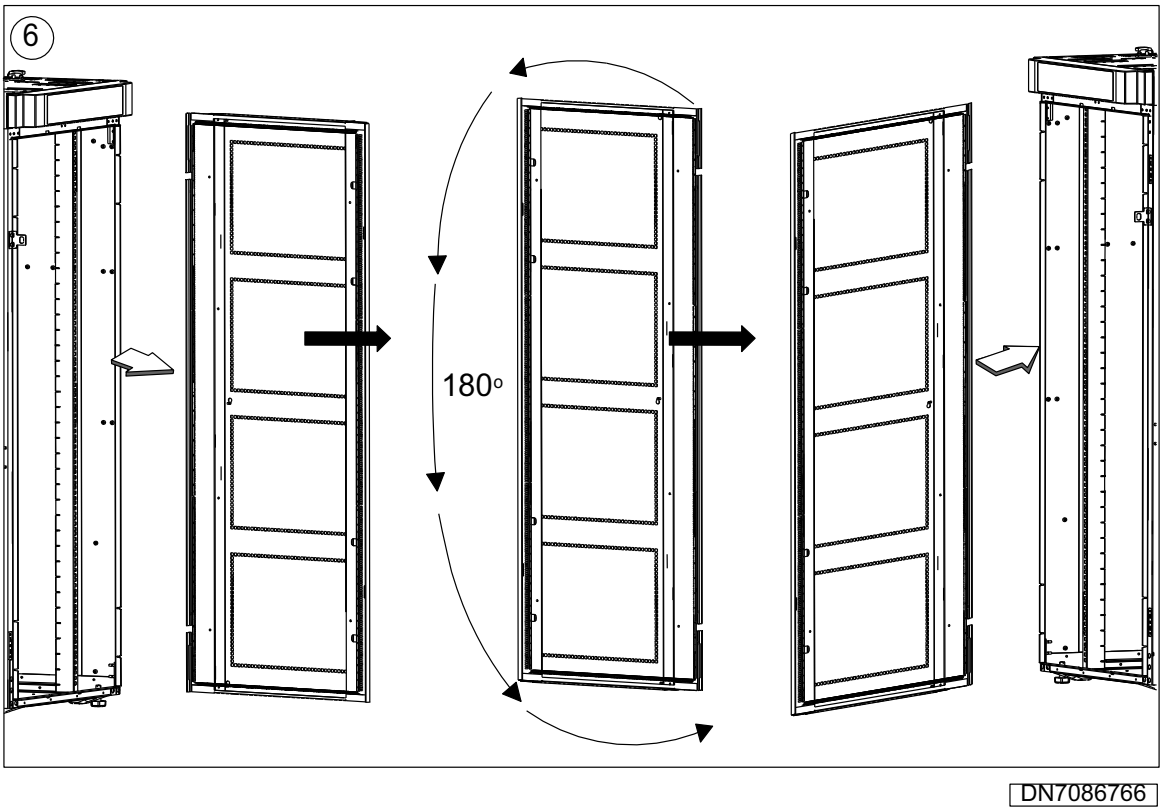


Figure 8. Flip the door end-to-end (6).

7. Mount the door on the opposite side, reinstall the ground wire and attach the hinge pins.

5 Grounding the FCIA

Summary

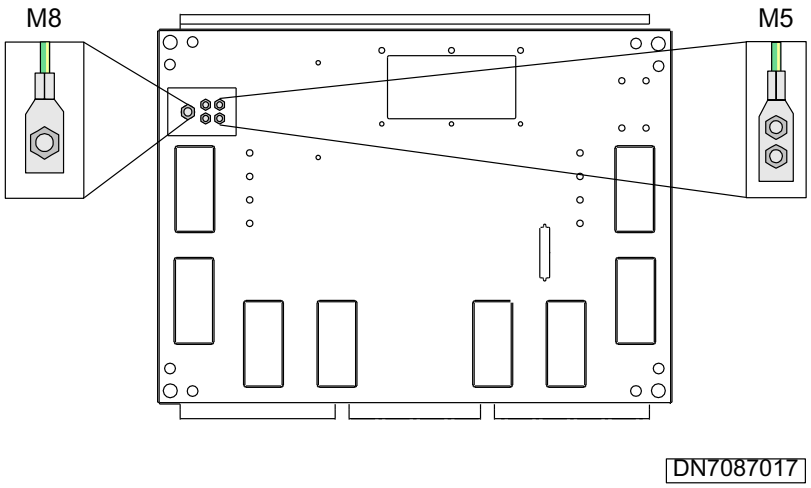


Figure 9. Grounding (earthing) points of Nokia Flexi Cabinet for Indoor (FCIA), top view

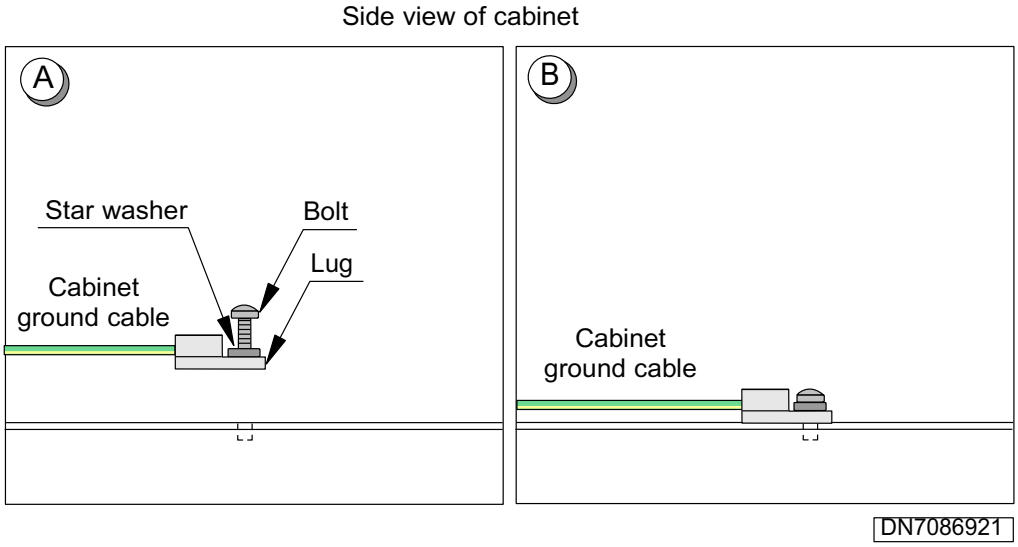


Figure 10. Grounding the FCIA, side view

For NEBS installations, use a two-hole compression lug to connect the ground cable to the cabinet with two M5 star washers and screws.

Steps

1. **Make sure the grounding cable is fixed to the grounding point.**
2. **At the top of the cabinet, remove the screw and star washer.**
3. **Strip approximately 2 cm (0.75 in.) off the main ground cable.**
4. **If this is a NEBS installation, bring the mating surfaces of all unplated ground connections to a bright finish, using emery cloth (or other suitable method). Then coat the exposed ground cable conductor with antioxidant.**
5. **Insert the stripped end of the cable into a cable shoe lug and crimp.**
6. **Fit the lug end of the grounding cable over the ground connection and fix with the star washer(s) and screw(s).**

   Tighten to 2.0 - 2.6 Nm (1.47 - 1.92 ft lb) for M5 or 8.0 - 10.0 Nm (5.9 -7.37 ft lb) for M8.

Further information

The modules are grounded to cabinet rack, and no separate grounding cables are required.

6 Installing optional items

6.1 Installing optional lifting handles in FCIA

Purpose

The Lifting Handle Kit (WLHA) can be installed on the sides of the cabinet.

Steps

1. **Align the handle screw holes with the four M5 screw holes on the side of the cabinet.**

2. **Fix the handle to the cabinet with four M5 screws provided with the kit.**

   See the figure *Attaching the lifting handles* below.

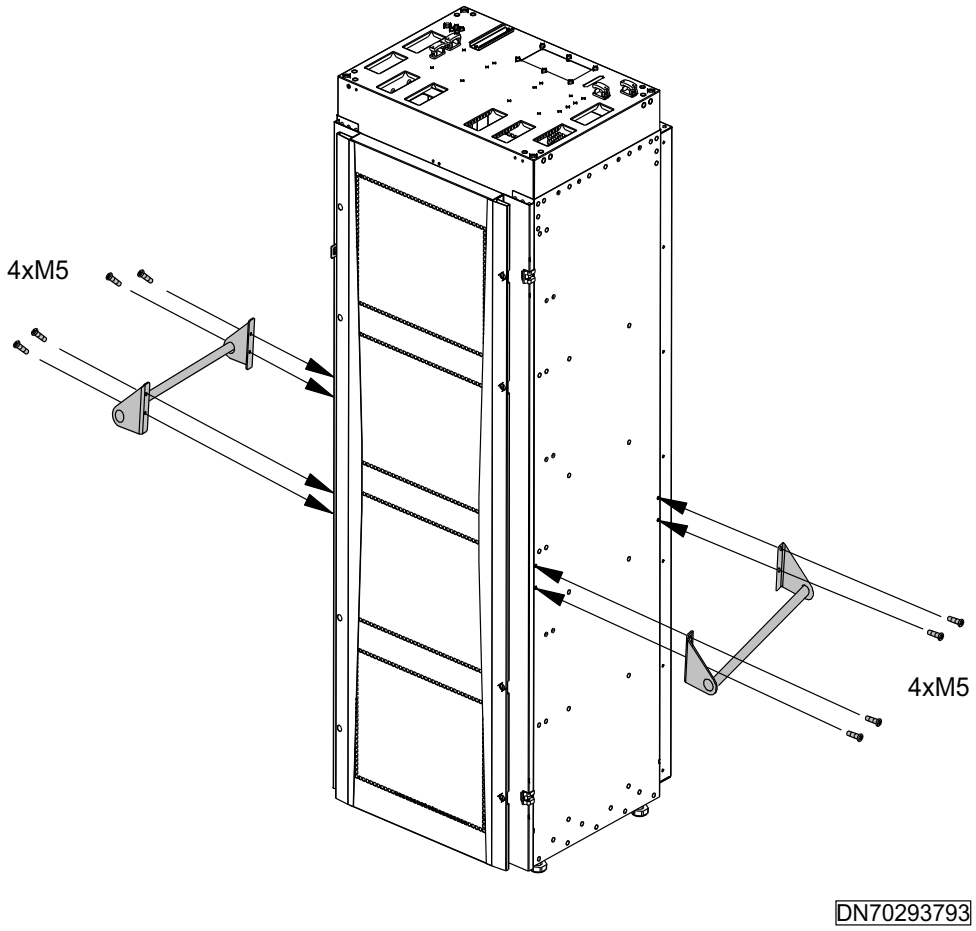


Figure 11. Attaching the lifting handles

3. Repeat for the other handle.

6.2 Installing Flexi System External Alarm (FSEB)

Purpose

The optional Flexi System External Alarm Module (FSEB) is used when up to 24 external alarm inputs and 6 control outputs need to be supported with Nokia Flexi EDGE BTS. The module also supports Flexi Cabinet Heat detector (FCDA).

The FSEB can be installed in the following ways:

- On a wall (vertical or horizontal position)
- On a pole using brackets (horizontal or vertical position)
- On casing in pole, wall, or stack installations using brackets (horizontal or vertical position)
- On the FCIA or FCOA roof (horizontal position only)
- In Citytalk cabinets, the FSEB can be installed on top of the stack (depending on working space) or outside of the cabinet. The box cannot be installed on the roof.

See also section *FSEB interface signals and connector pin assignments*.

Before you start

In pole or wall installation, locate the box in the proximity of the System Module. In wall installations, make sure that the mounting surface is flat.

In FCOA installations, use the fixing points on the cabinet roof.

! Caution

Electrostatic discharge (ESD) may damage the equipment. Wear an ESD wrist strap when handling the external alarm connection box.

Note that when connecting the cables, make sure that the cable lead-ins that are not used are blocked.

A module ground cable is not included in the FSEB delivery. The recommended cable size is 16 mm^2 (6 AWG).

Summary

The FSEB can be installed either horizontally (cable lead-ins on the side) or vertically (cable lead-ins facing downwards). See the following figures for the two installation options.

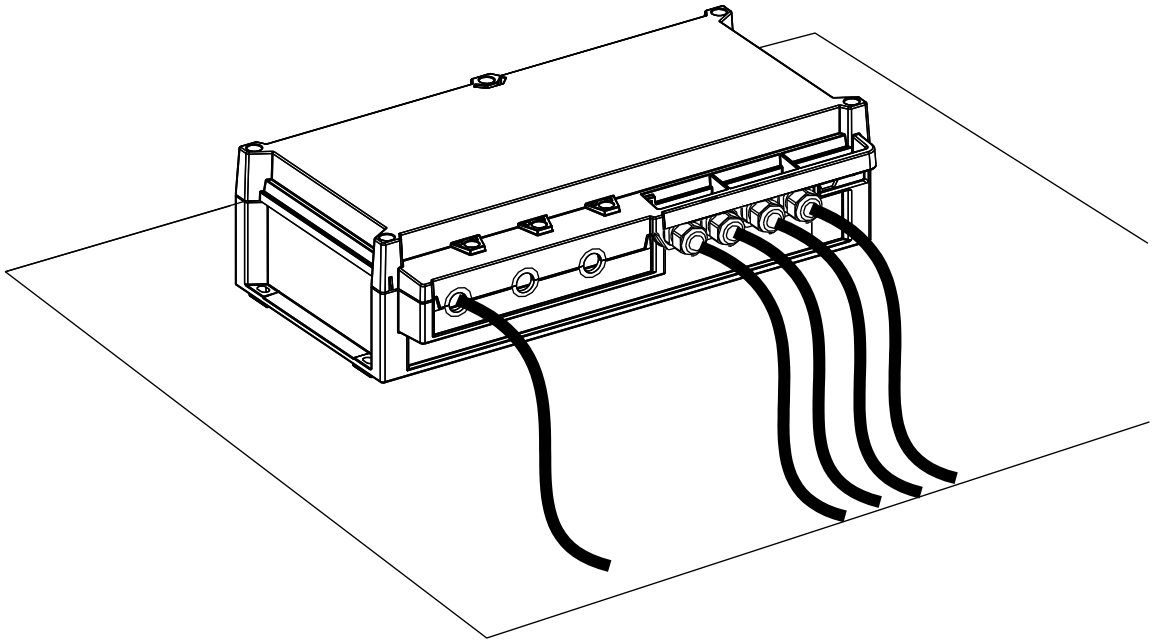


Figure 12. FSEB installed horizontally

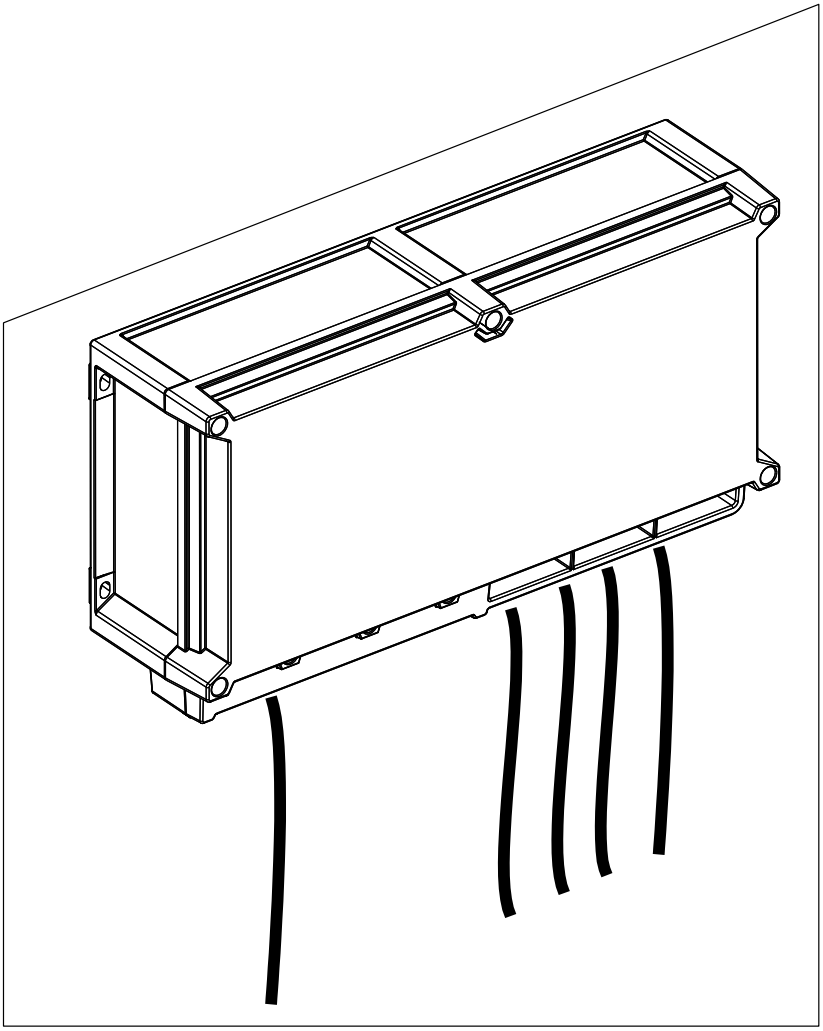


Figure 13. FSEB installed vertically

In outdoor installations, the cable lead-ins must be facing downwards to meet the IP55 standard.

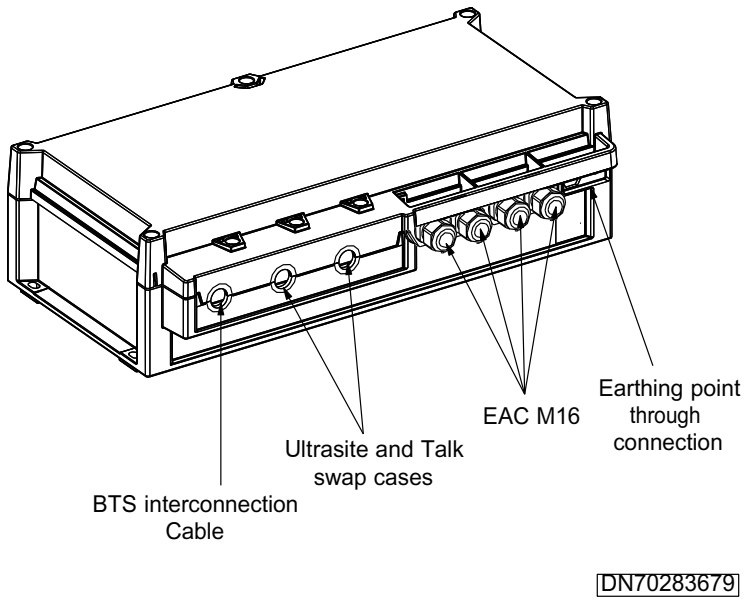


Figure 14. FSEB connectors

Steps

1. Install FSEB with four M5 screws using the fixing holes in the bottom of the box.

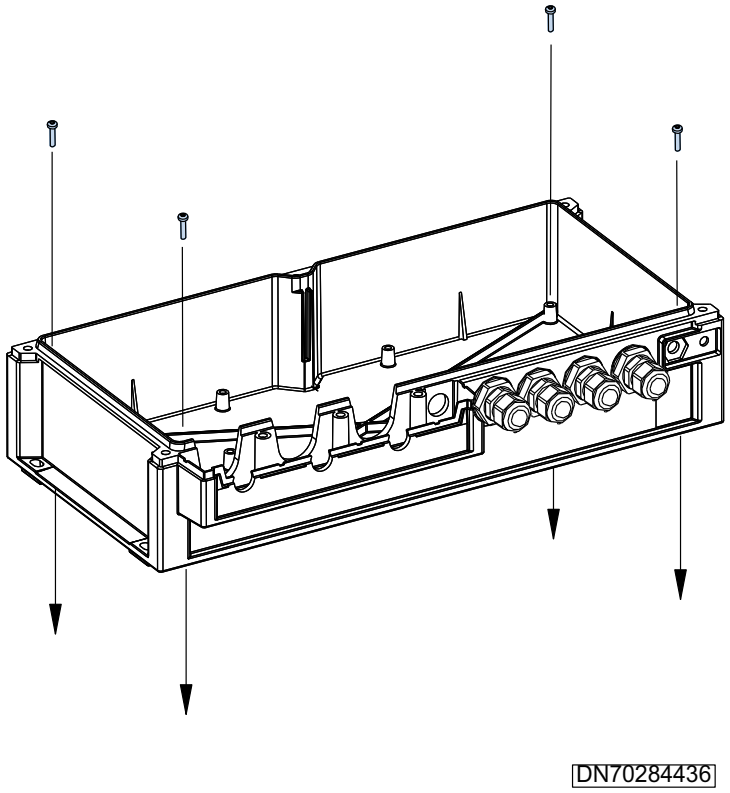


Figure 15. Install FSEB with four M5 screws

In stack, wall or pole installation, install the FSEB using the mounting brackets. See *Installing Flexi Mounting Auxiliary Brackets (FMAA)* for installation instructions.

2. Connect the grounding cable to the grounding screw on the right side of the FSEB front plate.

Screw the nut tightly.

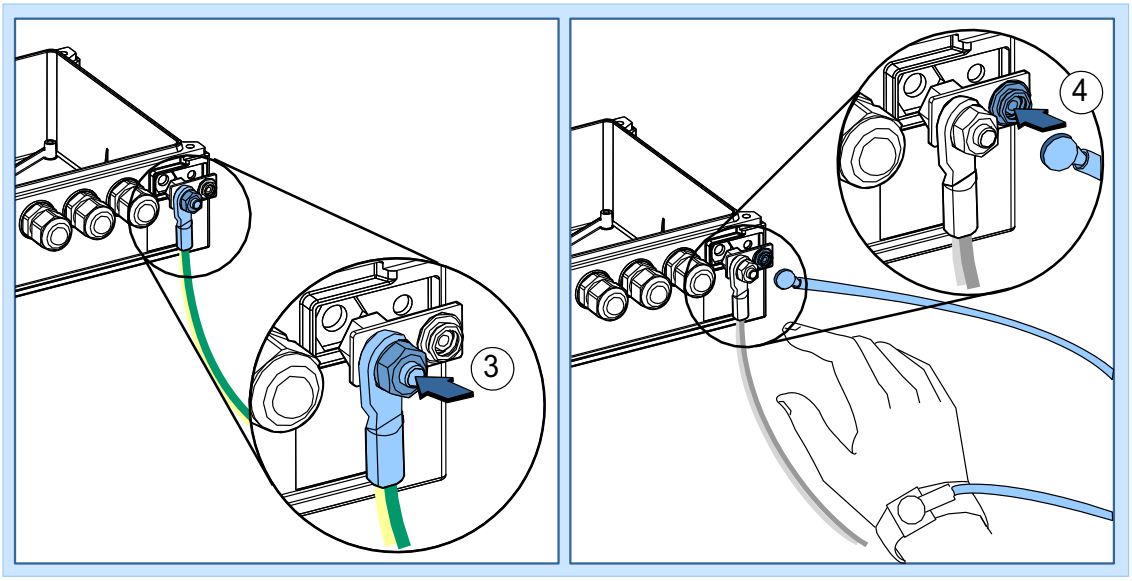


Figure 16. Connect the grounding cable

3. **Connect the ESD wrist strap first to your wrist and then to the grounding clip next to the grounding screw.**

   Make sure that jumper X1103 is set to GSM mode.

4. **Connect the external alarms cable (included in the FSEB delivery) from the FSEB to the System Module.**

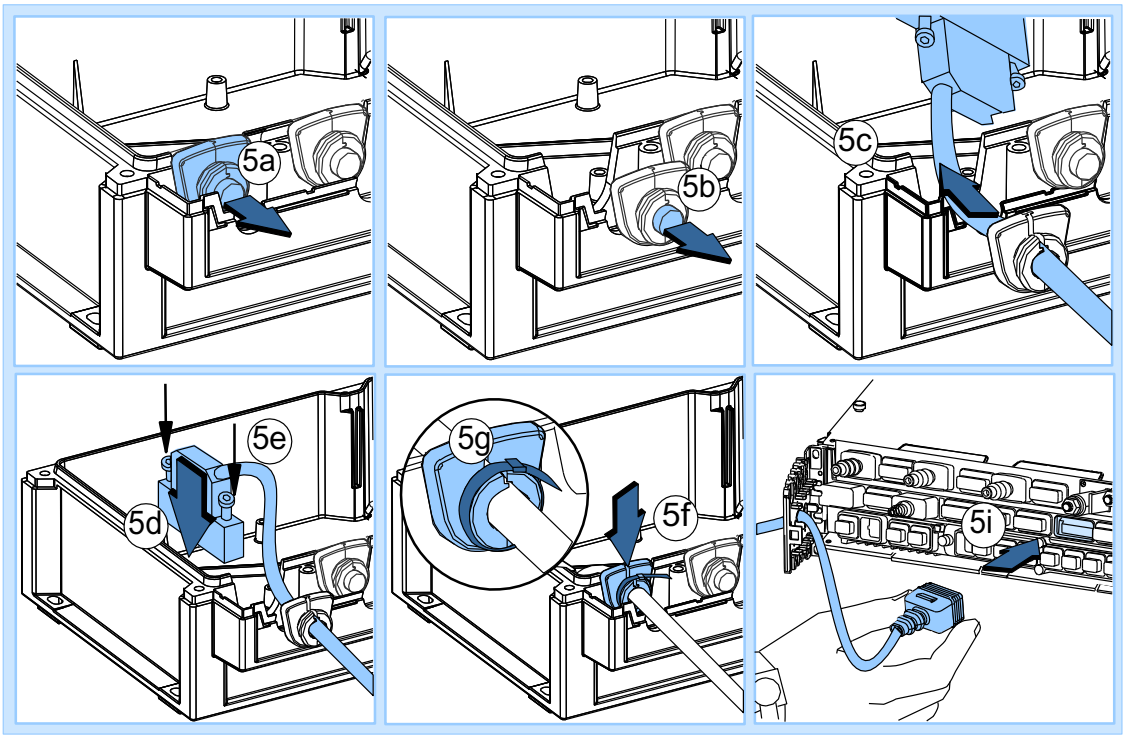


Figure 17. Connect the external alarms cable

a. Pull the left U-shaped cable gland from the FSEB box.
b. Remove the hole closing plug from the cable gland. If the plug is fixed with a cable tie, cut the cable tie first and remove it.
c. Insert the cable in the cable gland. The D-Sub plug must point to the inside of the box.
d. Connect the D-Sub plug to the leftmost D-Sub connector X1101 on the FSEB board.
e. Fix the connector fixing screws.
f. Insert the U-shaped cable gland to the front plate.
g. Insert the cable to the round rubber-seal in front of the U-shaped cable gland.
h. Fix the cable with a cable tie. Make sure that the U-gland fixes the cable tightly.
i. Remove the cover of the EAC connector on the System Module.

j. Insert the other end of the cable with the MDR-36 connector to the EAC connector of the System Module. Make sure that the MDR connector is firmly in place.

k. Push the connector cover over the MDR connector and seal the EAC connector at the System Module with this cover.

l. Route the cable between the FSEB and System Module and fix it with cable ties. The first fixing point must not be further away from the FSEB box than 0.5 m (1.6 ft).

5. If you are using an existing alarm cable with a 37-pole D-Sub connector, connect the cable with a D-Sub connector as follows:

Tip

These two alarm cables can be connected to the EACX-I and EACX-II connectors of the FSEB, respectively. Connect the UltraSite EDGE BTS or CityTalk BTS alarm cables (CS73113.01) 1-12 and 13-24 to EACX-I and EACX-II connectors. Pay attention to connect them to the right EACX connector, otherwise alarm number and alarm description will not match. After the installation configure the alarm and verify the condition using the Flexi EDGE BTS Element Manager.

a. Pull the right U-shaped cable gland from the FSEB box.

b. Cut the cable tie off the cable gland.

c. Remove the hole closing plug from the cable gland.

d. Insert the alarm cable in the cable gland. The D-Sub plug must point to the inside of the box.

e. Attach the D-Sub plug to the right 37-pole D-Sub connector X4101 (EACX-I port).

f. Fix the connector fixing screws.

g. Insert the U-shape cable gland to the front plate.

h. Insert the cable to the round rubber-seal in front of the U-shaped cable gland.

i. Fix the cable with a cable tie. Make sure that the U-gland fixes the cable tightly.

j. Route the cable and fix it with cable ties. The first fixing point must not be further away from the FSEB box than 0.5 m (1.6 ft).

6. If you are using the single alarm cables, connect them to the screw terminals as follows:

a. Insert the alarm cables in the FSEB box by using the cable glands on the right-side half of the FSEB box.

b. Tighten the cable gland nut.

c. Route the alarm cables and fix them with cable ties. The first fixing point must not be further away from the FSEB box than 0.5 m (1.6 ft).

d. Attach alarm lines EXT_AL1 to EXT_AL12 using screw terminal blocks X4106-X4109.

e. For each alarm input connect one wire to the GROUND screw terminal blocks X4107 or X4109 and connect one wire to the selected alarm input on screw terminal blocks X4106 or X4108. The alarm inputs are marked on the FSEB board with "EXT_AL6 ... EXT_AL1" on X4106 and "EXT_AL12 ... EXT_AL7" on X4108.

   Note that if you use alarm inputs on the EACX-I port (D-Sub connector X4101), do not use the same alarm inputs on the screw terminals X4106 and X4108.

7. If you are using the control output cables, connect them as follows:

a. Insert the control output cables in the FSEB box by using the cable glands on the right-side half of the box.

b. Tighten the cable gland nut.

c. Route the control cables and fix them with cable ties. The first fixing point must not be further away from the FSEB box than 0.5 m (1.6 ft).

d. Attach the control lines EXT_CO1 to EXT_CO6 by using the screw terminal blocks X4104 and X4105.

e. For each control output connect one wire to the +5V screw terminal block X4105 and one wire to the selected control output on screw terminal X4104. The control outputs are marked on the FSEB board with "EXT_CO6 ... EXT_CO1" on X4104.

   Note that if you use control outputs on the EACX-I port (D-Sub connector X4101), do not use the same control outputs on the screw terminal X4104.

8. Install the heat detector to the FSEB (optional).

a. Connect the heat detector to the FSEB using a four-wire cable. Two wires are needed for heat detector power supply and two for the heat detector alarm connection.

b. Attach the four wires of the cable to the heat detector relay-base.

c. Insert the other end of the four wire cable through one cable gland at the right half of the FSEB box.

d. Tighten the cable gland nut.

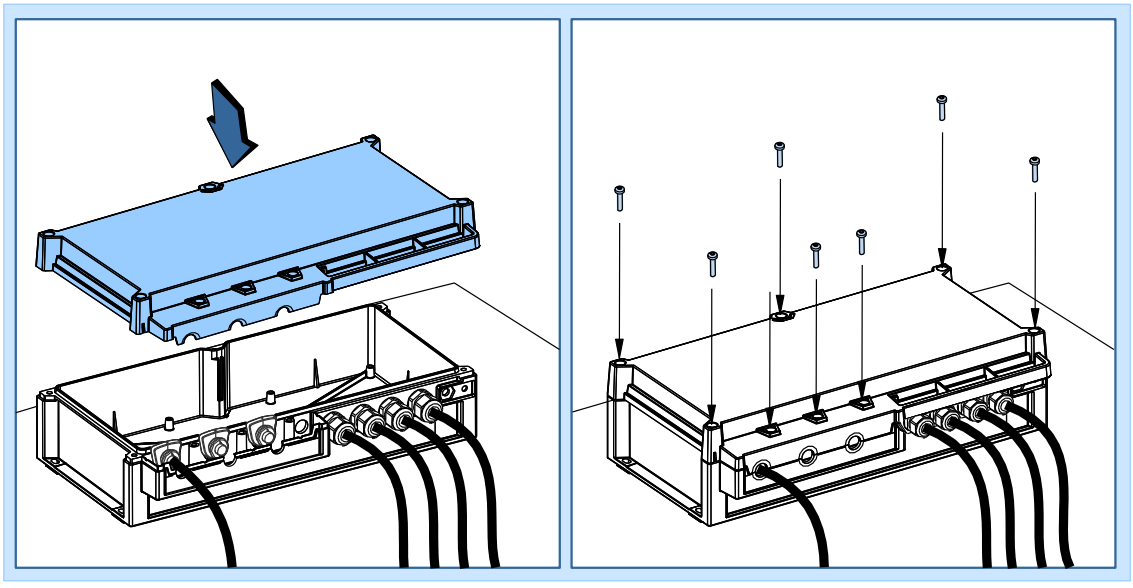
e. Route the cable and fix it with cable ties. The first fixing point must not be further away from the FSEB box than 0.5 m (1.6 ft).

f. Attach the wire marked with + from the heat detector to the leftmost or rightmost opening of the screw terminal X4114.

g. Attach the wire marked with - from the heat detector to one of the four middle openings of the screw terminal X4114 marked with GND.

h. Attach the heat detector alarm wires to one of the alarm inputs "EXT_AL12 ... EXT_AL1".

9. Install the cover of the FSEB box and tighten the eight screws.



DN70285053

Figure 18. Install the cover

6.3 Installing batteries

6.3.1 Installing batteries in FCIA

Before you start

When using batteries with Flexi Cabinet for Indoor (FCIA), Flexi Mounting Kit for Batteries (FMBB) is needed. The mounting kit is installed at the bottom of the cabinet. You can use one of the following battery options:

- Power safe battery 4 x 12V62F
- Power safe battery 4 x 12V92F

Battery cable requirements are:

- 2 x 1000 mm with Anderson connectors
- 4 x M10 cable lugs
- 1/0 AWG. (50 $mm^{2)}$ power cable

Battery cables are not included in the delivery. The cables must be made in the field.

Note that Nokia cable 994954a is 1000 mm in length and meets these requirements. The cable can be ordered as a spare part. Two pcs are needed for FCIA installations.

Summary

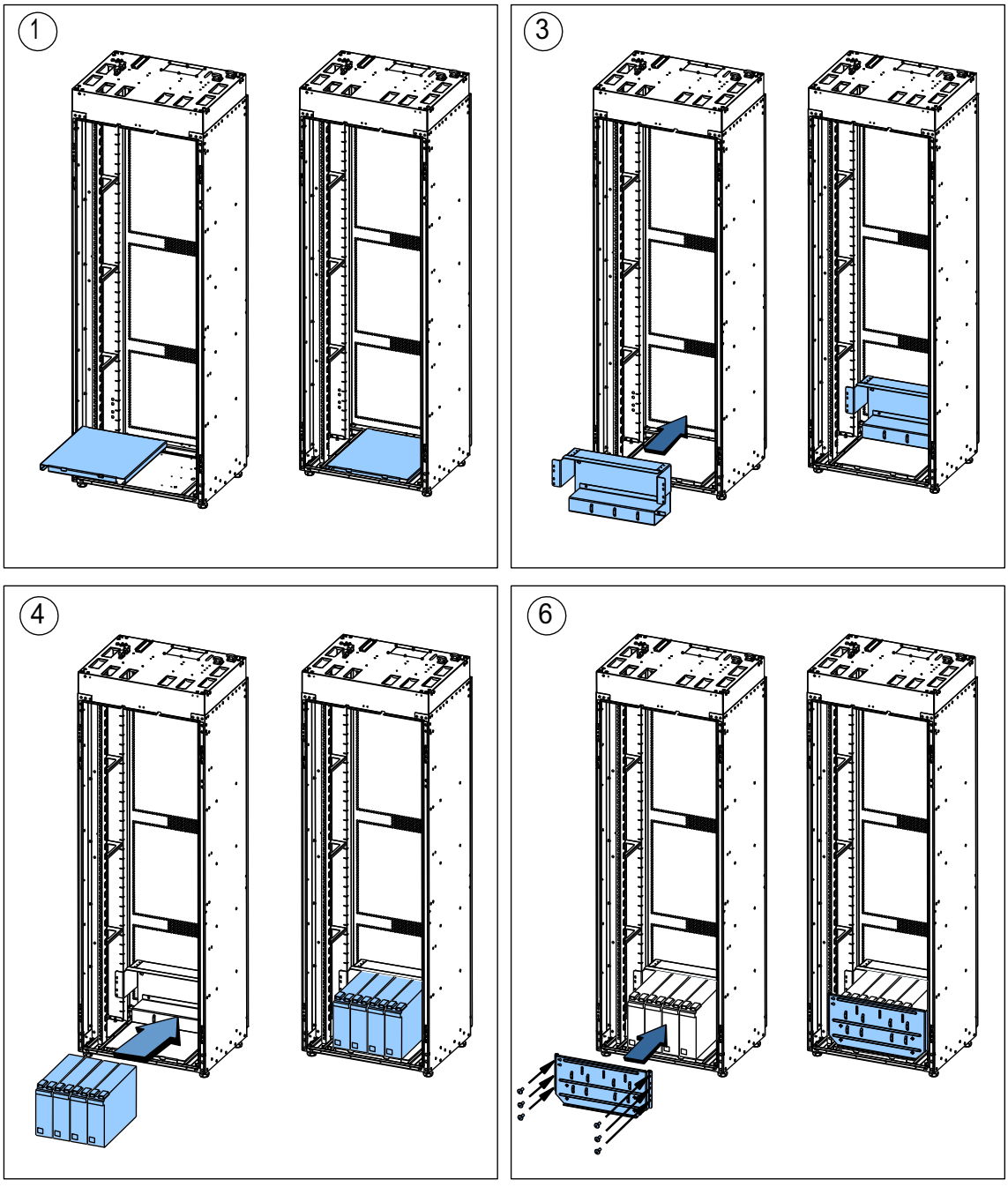


Figure 19. Installing batteries in FCIA

Steps

1. **Install the battery bottom plate.**

2. **If you are using 12V92F batteries, remove the plate stiffener from the battery back plate, and the battery fixing adjuster.**

   Store the plate stiffener and the battery fixing adjuster for later use of 12V62F batteries if needed.

3. **Install the battery back plate.**

4. **Install the batteries.**

5. **If you are using 12V92F batteries, remove the front plate stiffener from the battery front plate, and remove the battery fixing adjuster.**

   Store the front plate stiffener and the battery fixing adjuster for later use of 12V62F batteries if needed.

6. **Install the battery front plate and tighten with six screws.**

7. **Connect the battery cables.**

   Connect the minus (-) power cable first, and then the plus (+) one.

   Route the cables from the back.

8. **Install the battery bridges.**

Warning

Danger of hazardous voltages and electric shock! When installing the battery bridges, make sure the tool does not touch metal.

6.3.2 Installing the rectifier units (WPMB/WPMC)

Purpose

The PDU provides four slots for the rectifiers. Each of the PDU versions (WPUB/WPUC) has its own rectifier unit: WPMB/WPMC. Install the rectifier units as described in these instructions.

Before you start

Remove the dummy panels from the PDU.

Steps

1. Install the rectifier units.

Install the rectifier units in their places. Note that if the rectifier is the type that has the retaining hooks (WPMB), the hooks must be in an open position before fixing the unit in place. Use a small screwdriver in the holes in the upper left- and right-hand corners of the unit to release the hooks.

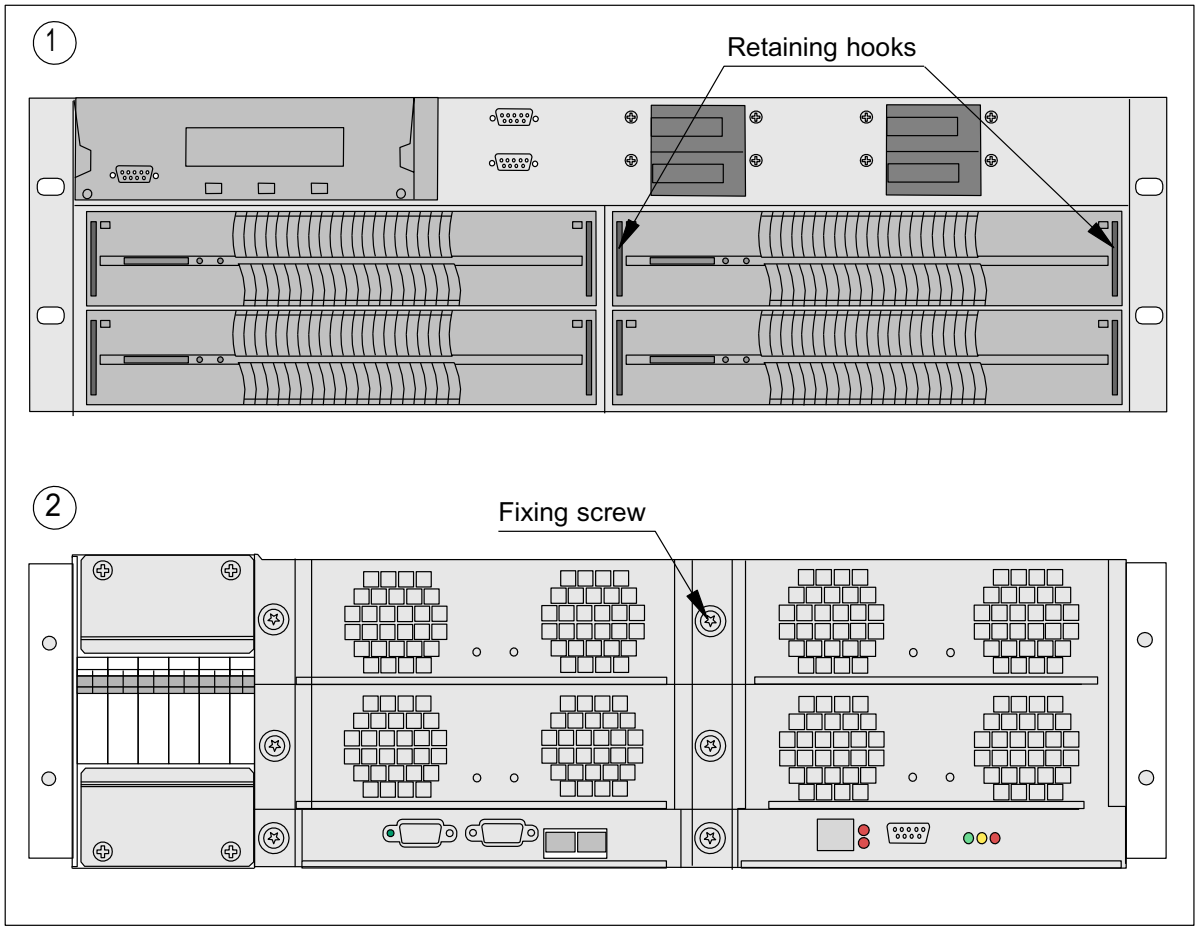


Figure 20. Installing the rectifiers, WPMB (top) and WPMC (bottom)

2. Secure the units.

When the unit is in place, tighten the knurled-head fixing screw or insert the retaining hooks in their slots, depending on the unit type used.

Caution

The retaining hooks are fragile. Do not carry the unit by the retaining hooks.

3. **Switch on the breakers on the PDU front panel.**

   Turn the breakers on the PDU front panel into the ON position.

Warning

Risk of electric shock. Do not switch on the breakers before the base transceiver station (BTS) installation is complete.

4. **Close the lid.**

6.3.3 Installing Power Distribution Unit in FCIA

Purpose

The Power Distribution Unit (PDU) is utilised in Flexi Cabinet for Indoor (FCIA) when battery backup is used. Either WPUB or WPUC can be used.

The PDU converts the AC power into DC power, which the base station uses.

Install the PDU in the top 3U of the cabinet so that the AC terminal can be mounted on the roof.

Before you start

- Prepare the DC cables.
- Open the PDU and take out the installation parts.
- Connect the power cables to the PDU before installing it in the rack.
- Check that the alarm polarity is correct. The default setting for the alarm polarity is Normally Open. If you need to change it, see *Changing the alarm polarity for the WPUB unit* or *Changing the alarm polarity for the WPUC unit*, depending on your base station setup. Remember also to change the Intelligent Shutdown polarity, if using it.

Caution

Risk of short circuit. Make sure that all the breakers on the power distribution unit (PDU) front panel are in the OFF position before you connect the cables.

Steps

1. Connect the control card power feeding cable to the PDU.

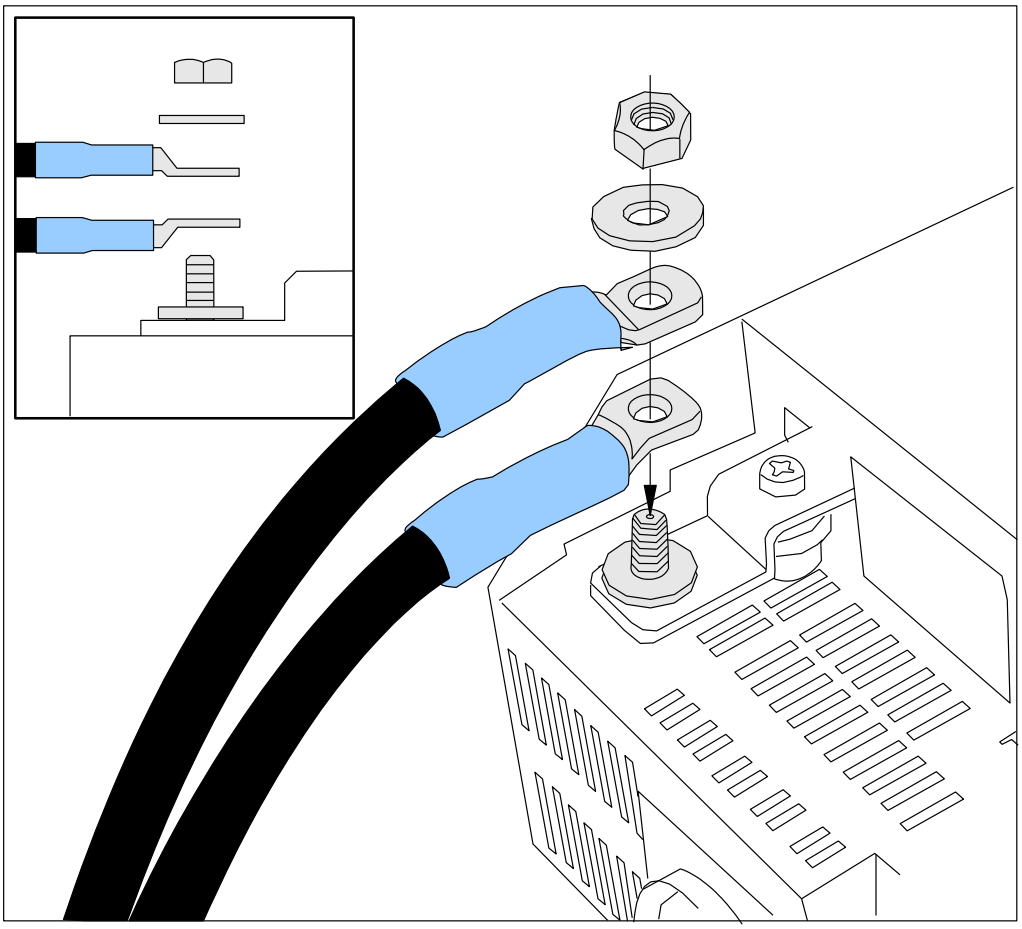


Figure 21. Principle of connecting the control card power feeding cable to PDU

2. Attach the DC cables to the rear of the PDU.

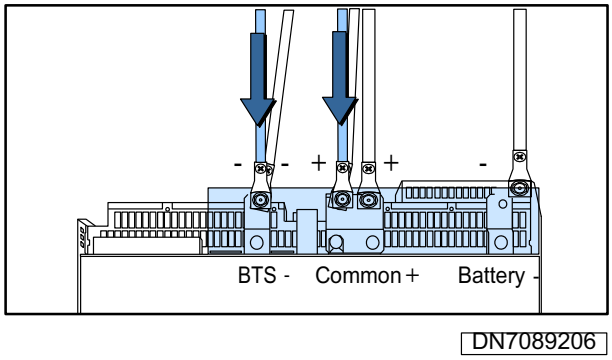


Figure 22. Connecting DC cables to PDU

Top view WPUB cabling

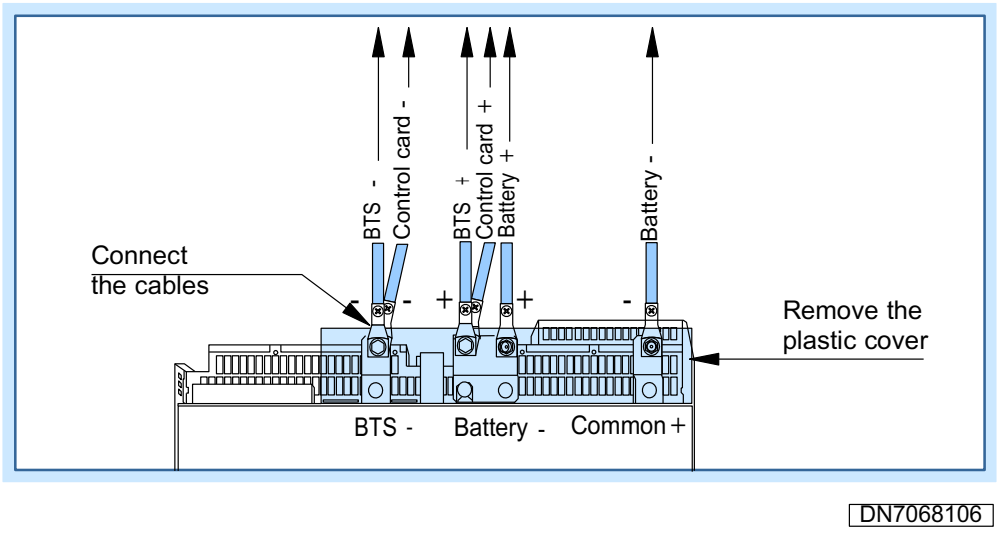


Figure 23. Connecting DC cables to PDU (WPUB)

Top view WPUC cabling

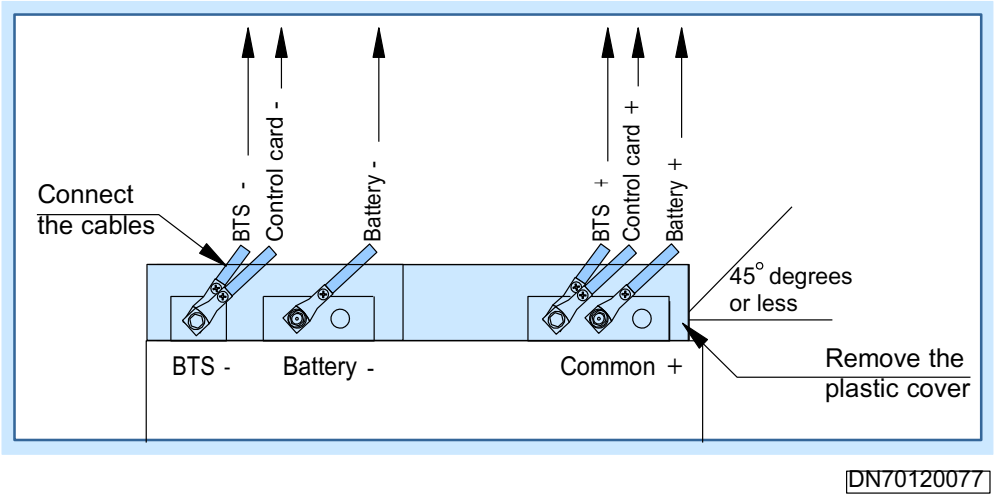


Figure 24. Connecting DC cables to PDU (WPUC)

3. **Reinstall the plastic cover on the PDU.**

4. **If you are using the WPUB unit, connect the thermal sensor cable to the back of the PDU.**

5. **Install the guide plates and cage nuts and mount the PDU in the cabinet.**

   Fix with four M5 screws.

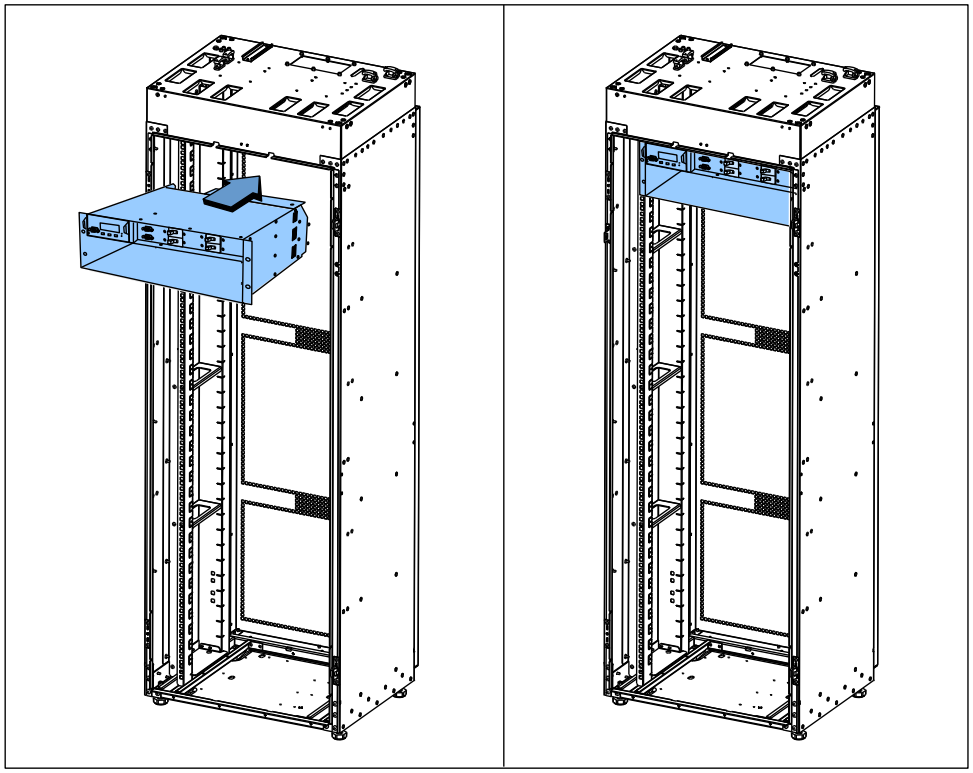


Figure 25. Mounting the PDU

6. Route the battery cables down the back of the cabinet.

7. Install the AC terminal plate to FCIA.

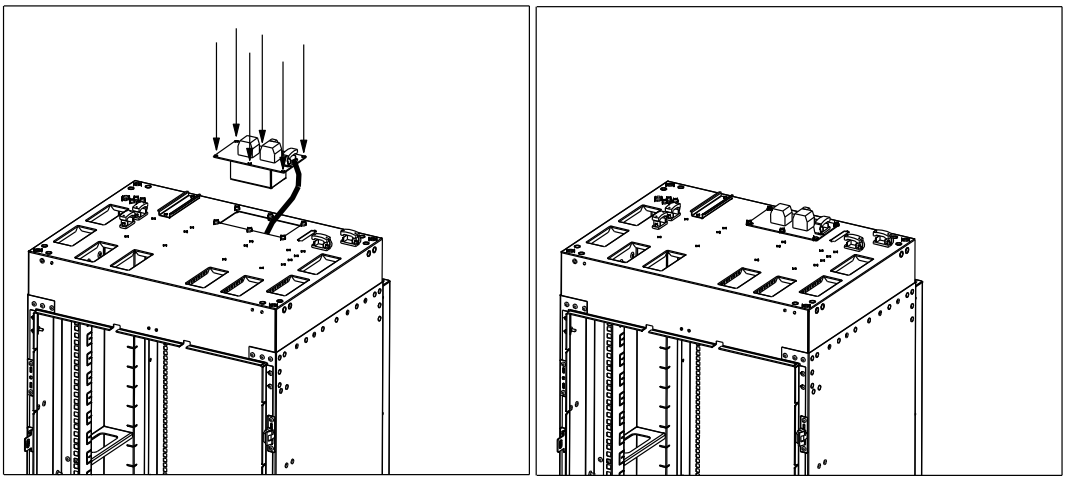


Figure 26. Installing AC terminal plate

8. Connect the AC cable to the AC terminal plate.

See the following figures for AC cable connections.

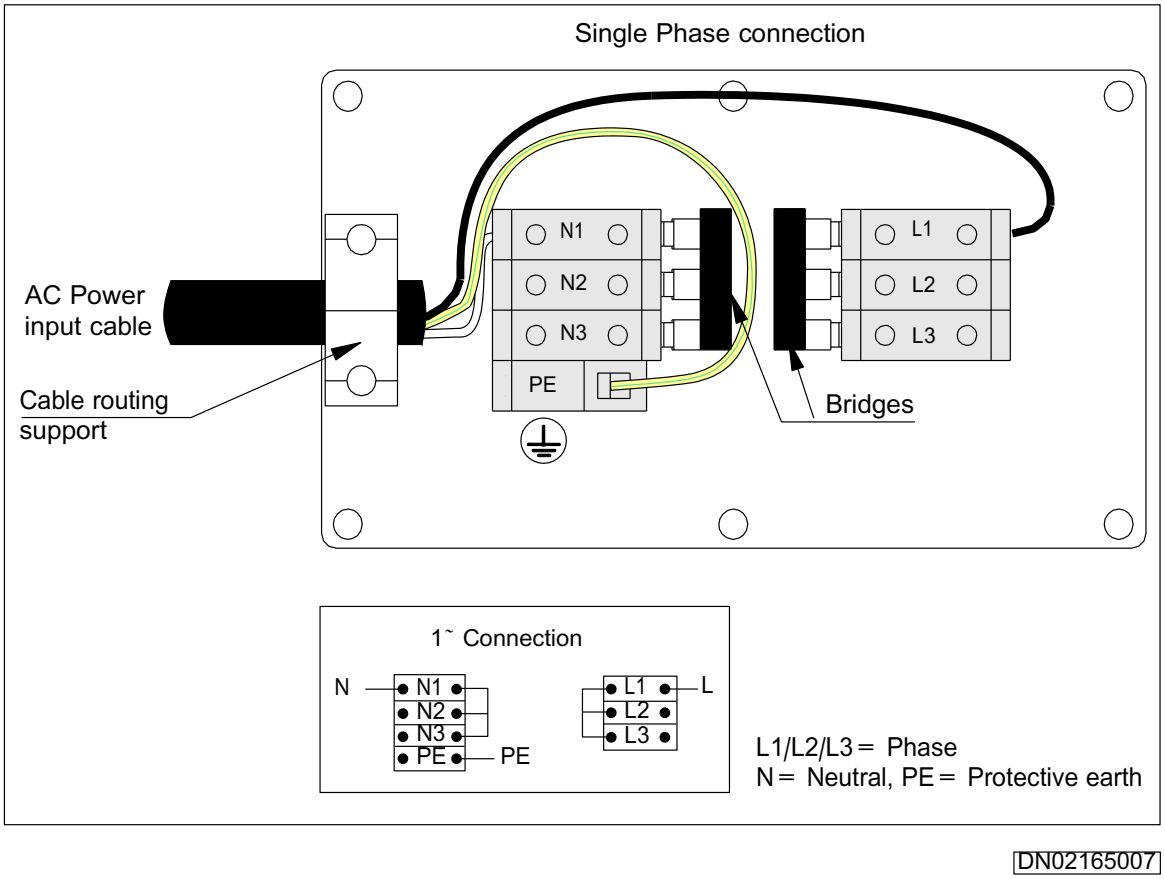


Figure 27. Single phase, 230 V AC

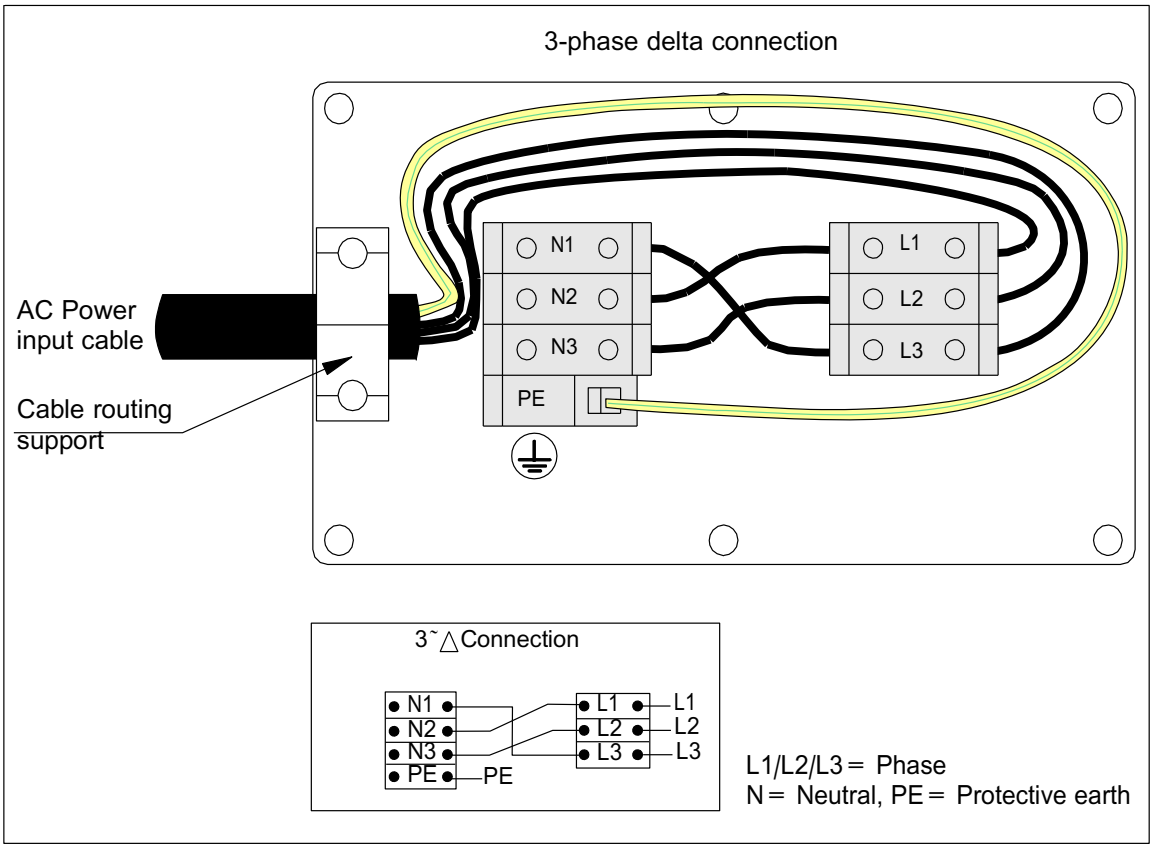


Figure 28. 3-phase (delta), base voltage 100-120 V AC

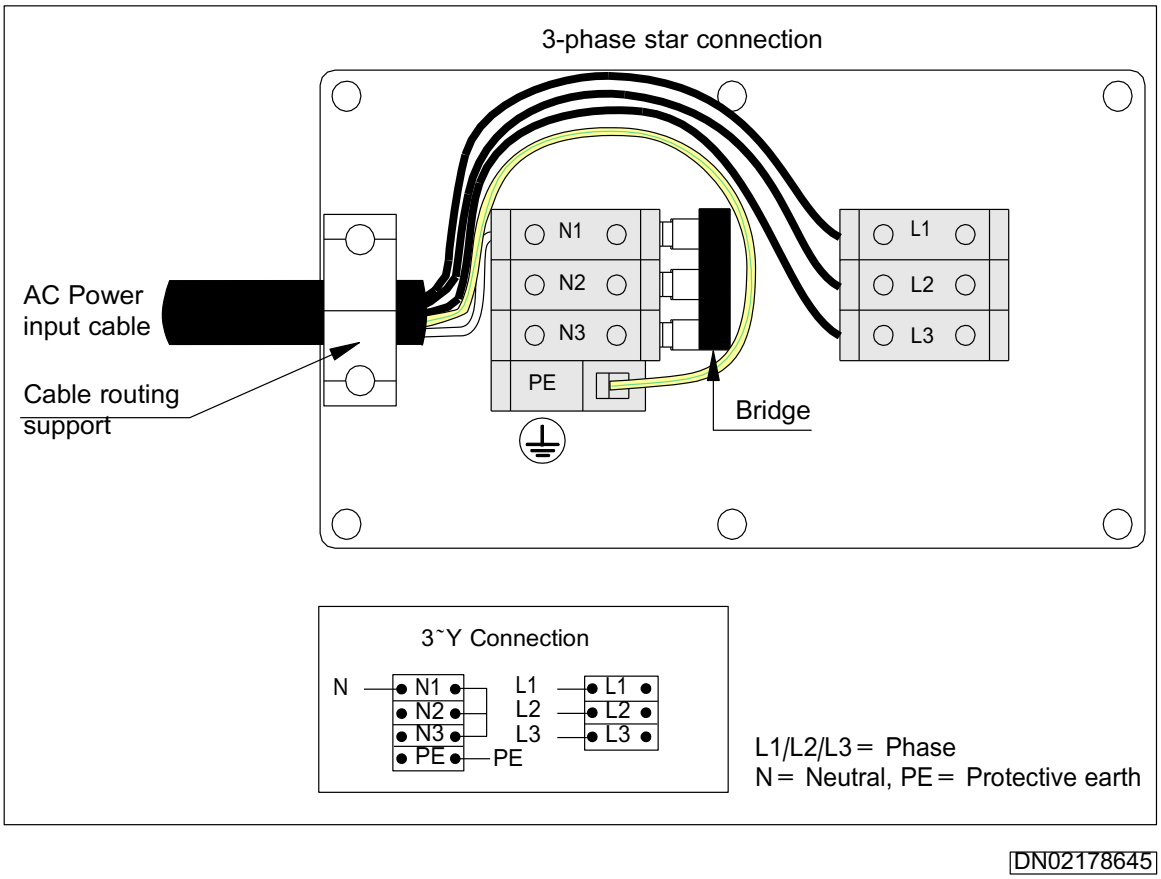


Figure 29. 3-phase (star), 230 V AC

9. Install the AC terminal plastic cover.

10. If you are using the WPUC unit, connect the battery thermal sensor cable to the front panel of the PDU.

11. Fix the battery cables to the battery front plate with cable ties so that they cross each other.

12. Route the thermal sensor cable and push the rubber plug in place.

13. Connect the alarm cable from the EAC connector on the PDU to the Site Support Alarm (SS) connector on the System Module.

Fix with cable ties.

6.3.4 Changing the alarm polarity of the WPUB unit

Before you start

The EAC alarm polarity can be set to two states, Normally Open or Normally Closed.

The Normally Open state means that the galvanic EAC alarm circuit loop is open and electric current is not flowing through it. The corresponding EAC alarm is activated if the EAC alarm circuit loop is closed.

The Normally Closed state means that the galvanic EAC alarm circuit loop is closed and electric current is flowing through it. The corresponding EAC alarm is activated if the EAC alarm circuit loop is opened.

The default alarm polarity is Normally Open. Make sure that you set the EAC alarm polarity correspondingly during BTS commissioning.

Steps

1. **To change the polarity for alarm relay output from the Normally Open state to the Normally Closed state, connect the wires according to the following table and figure *Changing the alarm polarity of the WPUB unit*, option B.**

Table 1. CON 5 Relays for the Normally Closed state

Pin no.	Name	Connect to
19	REL6 NC	Not in use
20	REL6 NO	D-sub female pin 6
21	REL6 COM	Link to pin 36 on this connector
22	REL5 NC	Not in use
23	REL5 NO	D-sub male pin 5
24	REL5 COM	Link to pin 36 on this connector
25	REL4 NC	Not in use
26	REL4 NO	D-sub male pin 4
27	REL4 COM	Link to pin 36 on this connector

Table 1. CON 5 Relays for the Normally Closed state (cont.)

Pin no.	Name	Connect to
28	REL3 NC	Not in use
29	REL3 NO	D-sub male pin 3
30	REL3 COM	Link to pin 36 on this connector
31	REL2 NC	Not in use
32	REL2 NO	D-sub male pin 2
33	REL2 COM	Link to pin 36 on this connector
34	REL1 NC	Not in use
35	REL1 NO	D-sub male pin 1
36	REL1 COM	Common + link to above

Tip

If necessary, use a screwdriver to remove the CON5 connector from the WPUB before changing the polarity. Reinstall the CON5 connector after the polarity has been changed.

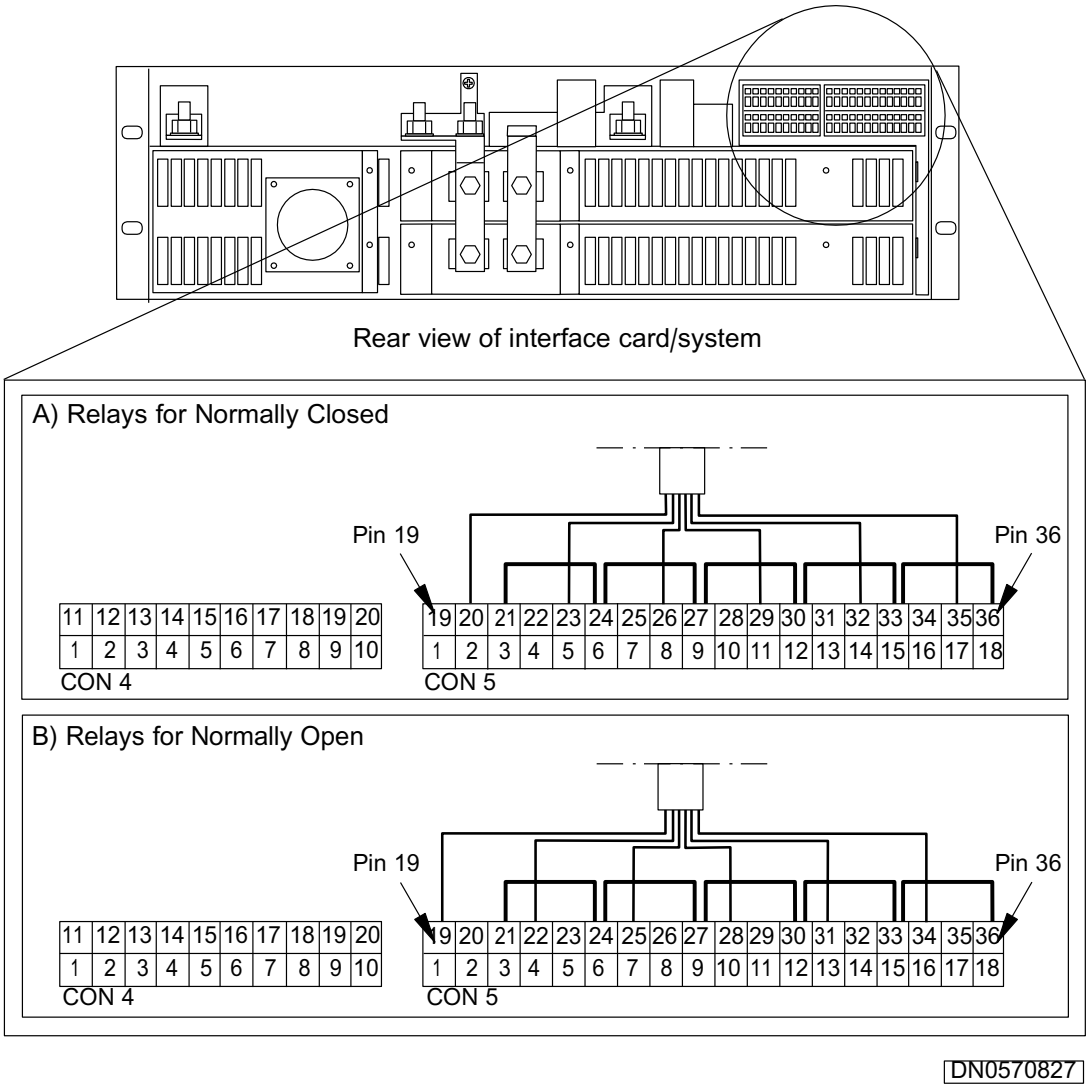


Figure 30. Changing the alarm polarity of the WPUB unit

2. To change the polarity for alarm relay output back from the Normally Closed state to the Normally Open state, connect the wires according to the following table and figure *Changing the alarm polarity of the WPUB unit*, option A.

Table 2. CON 5 relays for the Normally Open state

Pin no.	Name	Connect to
19	REL6 NC	D-sub male pin 6
20	REL6 NO	Not in use
21	REL6 COM	Link to pin 36 on this connector
22	REL5 NC	D-sub male pin 5
23	REL5 NO	Not in use
24	REL5 COM	Link to pin 36 on this connector
25	REL4 NC	D-sub male pin 4
26	REL4 NO	Not in use
27	REL4 COM	Link to pin 36 on this connector
28	REL3 NC	D-sub male pin 3
29	REL3 NO	Not in use
30	REL3 COM	Link to pin 36 on this connector
31	REL2 NC	D-sub male pin 2
32	REL2 NO	Not in use
33	REL2 COM	Link to pin 36 on this connector
34	REL1 NC	D-sub male pin 1
35	REL1 NO	Not in use
36	REL1 COM	D-sub male pin 9 + link to above

Tip

If necessary, use a screwdriver to remove the CON5 connector from the WPUB before changing the polarity. Reinstall the CON5 connector after the polarity has been changed.

6.3.5 Changing the alarm polarity of the WPUC unit

Before you start

There are eight galvanic isolated alarm contacts for remote supervision of the alarms. Each alarm contact represents different alarm conditions. Alarm relay coils are powered during normal operation. All alarm relays will give an alarm with no AC or DC power connected to the system.

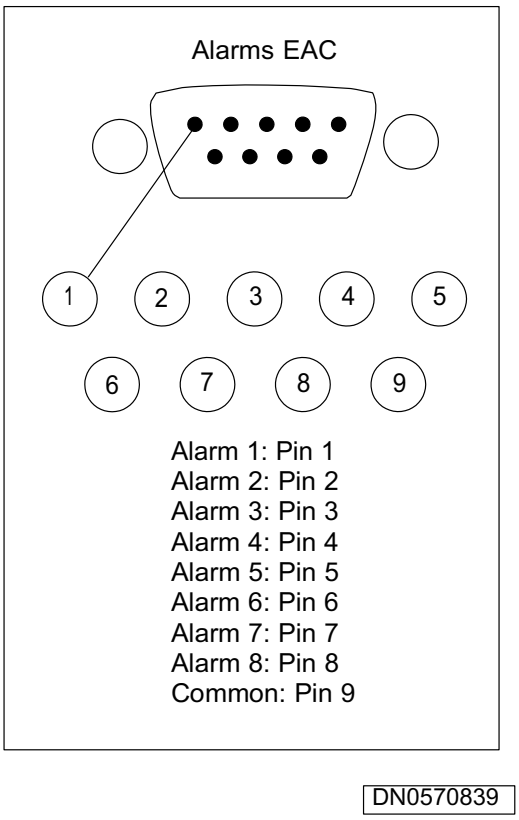


Figure 31. Alarm connection, 9-pin D-sub

Tip

If changing the polarity is needed, it is recommended to do this before installing the WPUC unit into the FCIA.

Caution

Always use an ESD wrist strap when handling units labelled with the ESD sign. Labelled units are sensitive to electrostatic discharge.

Steps

1. **Loosen the fixing screw and pull out the alarm interface unit using the handle.**

2. **Use JP8 for setting the alarm relays to closed on alarm or open on alarm.**

   The jumper mounted between pins 1 and 2 on the jumpers (default) means closed on alarm for the corresponding relay.

   The jumper mounted between pins 2 and 3 on the jumpers means open on alarm for the corresponding relay.

   The jumper numbers correspond to the relay numbering (for instance, JP5 to RL5).

   Note that when the jumpers are mounted between pins 1 and 2, the alarm polarity is Normally Open. When the jumpers are mounted between pins 2 and 3, the alarm polarity is Normally Closed.

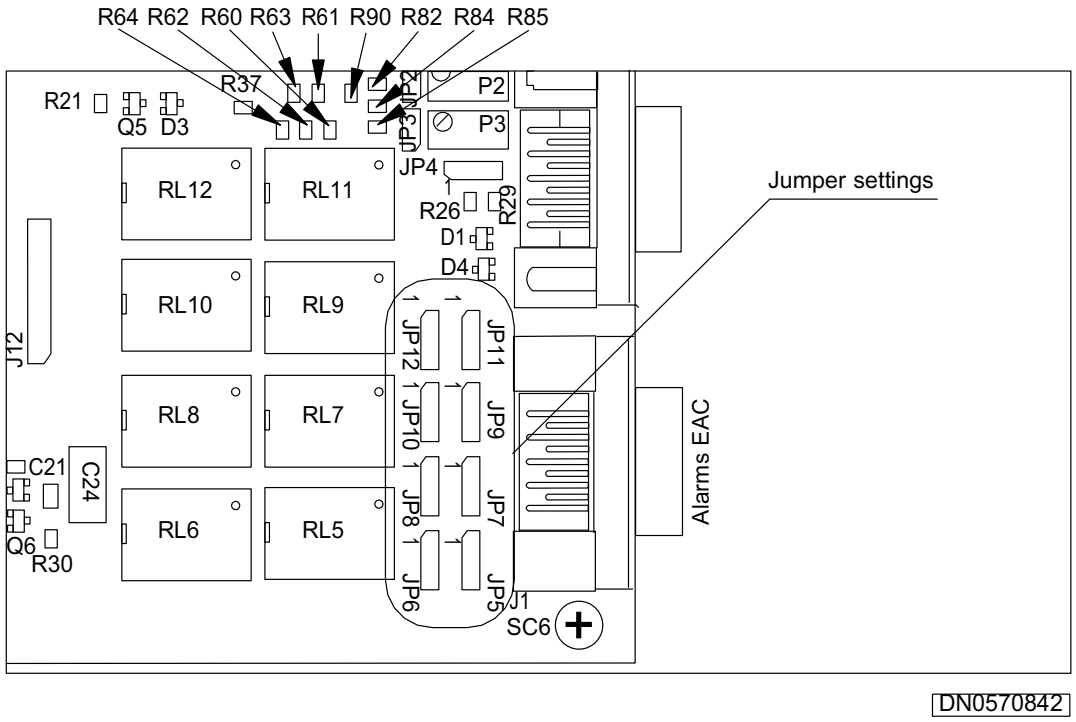


Figure 32. Alarm interface unit from above

3. Reinstall the alarm interface unit.

7 Checklist for installing FCIA

Table 3. Checklist for installing Flexi Cabinet for Indoor (FCIA)

Work phase	Checked
Delivery is complete and undamaged.	
Cabinet is anchored.	
Cabinet is grounded.	
Flexi System External Alarm (FSEB) is installed (if needed).	
Battery backup is installed (if needed).	

Appendix A Contents of delivery

A.1 Contents of Flexi Cabinet for Indoor (FCIA) delivery

Table 4. Nokia Flexi Cabinet for Indoor (FCIA) delivery contents

Description	Product code	Quantity
Nokia Flexi Cabinet for Indoor (FCIA)	470152A	1
Cabinet key		1
Cage nuts; pre-installed for the following configurations: • 1+1+1/2+2+2 bypass • 3+3+3/4+4+4 2-way WBC		62
Site packs; the site packs are attached with cable ties inside the cabinet. Contents of the site packs:		2
• Guide plates		30

A.2 Contents of the System Module (ESMA) delivery

Table 5. Nokia Flexi EDGE System Module (ESMA) delivery contents

Description	Product code	Quantity
EDGE System Module (ESMA):	470246A	1
• M5 screws		4
• AWG 4 (25 mm^2) connector rubber boots		2

A.3 Contents of the Dual TRX Module (EXxA) delivery

Table 6. Nokia Flexi EDGE Dual TRX Module (EXxA) delivery contents

Description	Product code	Quantity
EDGE Dual TRX Module (EXxA):		1
• EDGE Dual TRX Module 800 MHz (EXTA)	470214A	
• EDGE Dual TRX Module 900 MHz (EXGA)	470215A	
• EDGE Dual TRX Module 1800 MHz (EXDA)	470216A	
• EDGE Dual TRX Module 1900 MHz (EXPA)	470217A	
Dual TRX Module Cable Set:	083309A	1
• Power cable 1188 mm (46.8 in.)	• 994940	1
• Bus cable 1054 mm (41.5 in.)	• 994938	1
• RF cable 172 mm (6.8 in.)	• 994931	4
M5 screws		4

A.4 Contents of the Dual Duplexer Module (ERxA) delivery

Table 7. Nokia Flexi EDGE Dual Duplexer Module (ERxA) delivery contents

Description	Product code	Quantity
EDGE Dual Duplexer Module (ERxA):		1
• EDGE Dual Duplexer Module 800 MHz (ERTA)	• 470249A	
• EDGE Dual Duplexer Module 900 MHz (ERGA)	• 470250A	
• EDGE Dual Duplexer Module 900 MHz SB-J (ERJA)	• 470251A	
• EDGE Dual Duplexer Module 900 MHz SB-H (ERHA)	• 470252A	
• EDGE Dual Duplexer Module 1800 MHz (ERDA)	• 470253A	
• EDGE Dual Duplexer Module 1900 MHz (ERPA)	• 470254A	
M5 screws		2

A.5 Contents of the Wideband Combiner Sub-module (EWxx) delivery

Table 8. Nokia Flexi EDGE Wideband Combiner Sub-module (EWxB) delivery contents

Description	Product code	Quantity
EDGE Wideband Combiner Sub-module (EWxB):		1
• EDGE Wideband Combiner Sub-module 800/900 MHz (EWGB)	471492A	
• EDGE Wideband Combiner Sub-module 1800 MHz (EWDB)	471493A	
• EDGE Wideband Combiner Sub-module 1900 MHz (EWPB)	471494A	
Wideband Combiner Sub-module Cable Set:	083256A	1
• RF cable 275 mm (10.8 in.)	• 994933	1
Screw (pre-installed)		1

A.6 Contents of the Remote Tune Combiner (ECxA) delivery

Table 9. Nokia Flexi EDGE Remote Tune Combiner (Cavity Combiner) Module (ECxA) delivery contents

Description	Product code	Quantity
EDGE Remote Tune Combiner (Cavity Combiner) Module (ECxA):		1
• EDGE Remote Tune Combiner (Cavity Combiner) Module 1800 MHz (ECDA)	470260A	
• EDGE Remote Tune Combiner (Cavity Combiner) Module 900 MHz (ECGA)	470258A	
• EDGE Remote Tune Combiner (Cavity Combiner) Module 900 MHz-J (ECJA)	470259A	
Remote Tune Combiner Cable Set:	083257	1
• Power cable 1188 mm (46.8 in.)	• 994940	1
• Bus cable 1054 mm (41.5 in.)	• 994938	1
• RF cable 275 mm (10.8 in.)	• 994933	8
M5 screws		4

Table 9. Nokia Flexi EDGE Remote Tune Combiner (Cavity Combiner) Module (ECxA) delivery contents (cont.)

Description	Product code	Quantity
Cage nuts		4

A.7 Contents of the Power Module (FPMA) delivery

The FPMA Power Module is an optional item that has to be ordered separately, when needed.

The Power Module delivery contains the following items:

- Power Module (FPMA) with internal AC and DC cabling and cable support plates
- 2 x Power Module cable entries (identical to EMHA cable entries)
- Alarm cable to the System Module
- 2 x cable clamps
- 4 x M5 screws for fixing cable entries to the casing
- 4 x K30 screws for the cable clamps
- 2 x M5 screws for fixing the casing to another casing or plinth
- 10 x cable ties

See the following figure for more information on the delivery contents.

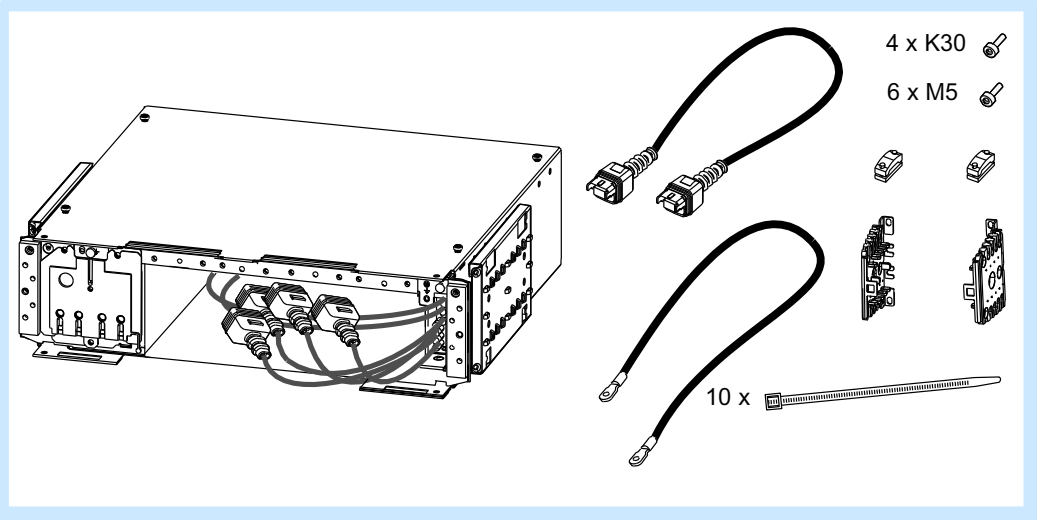


Figure 33. Delivery contents of the FPMA

A.7.1 Contents of the power AC/DC sub-module (FPAA) delivery

The FPAA power sub-module is an optional item that has to be ordered separately, when needed.

The FPAA power sub-module delivery contains the following items:

- Power sub-module (FPAA) with two RJ-45 connector seal caps installed
- Alarm cable
- 2 x M5 screws for fixing the FPAA to FPMA

See the following figure for more information on the delivery contents.

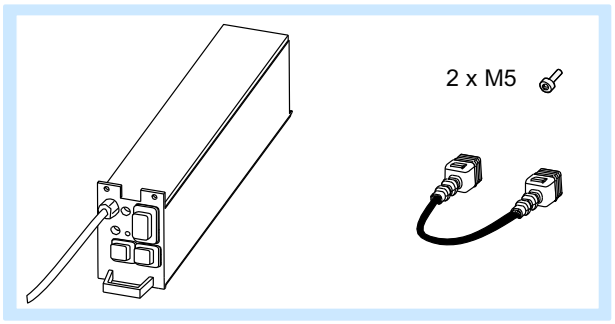


Figure 34. Delivery contents of the FPAA

A.7.2 Contents of the power battery sub-module (FPBA) delivery

The FPBA power battery sub-module is an optional item that has to be ordered separately, when needed.

The FPBA power sub-module delivery contains the following items:

- Power battery sub-module (FPBA) with two RJ-45 connector seal caps installed
- Alarm cable
- 2 x M5 screws for fixing the FPBA to FPMA

See the following figure for more information on the delivery contents.

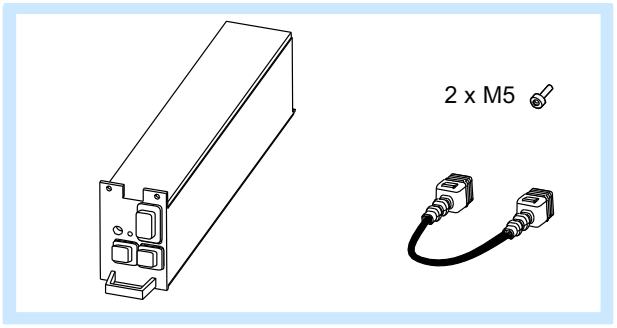


Figure 35. Delivery contents of the FPBA

A.8 Contents of the 24V Power Module (FPDA) delivery

The 24V Power Module (FPDA) is an optional item that has to be ordered separately, when needed.

The 24V Power Module (FPDA) delivery contains the following items:

- DC/DC converter core pre-installed inside a 2U casing with cable support plates and with two RJ-45 connector seal caps installed
- 2 x cable entries
- 2 x DC output power cables
- Alarm cable
- 4 x AWG 4 (25 mm^2) connector single rubber boot
- 2 x AWG 4 (25 mm^2) connector double rubber boot
- 4 x M5 screws for fixing cable entries to the casing and 2 x M5 screws for fixing the casings to each other
- 2 x cable clamps
- 4 x K30 screws for cable clamps

See the following figure for more information on the delivery contents.

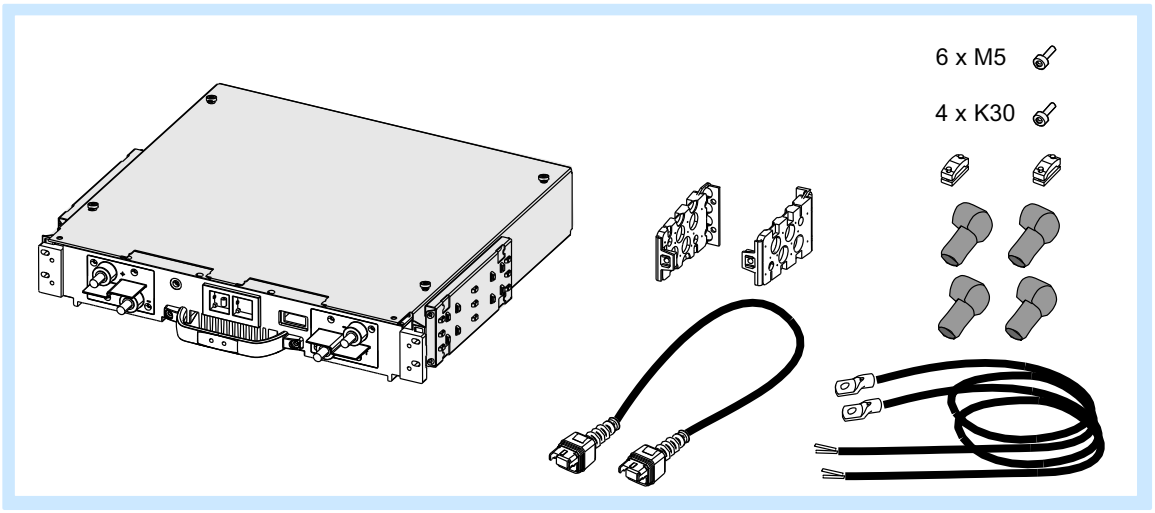


Figure 36. Delivery contents of the FPDA delivery

A.9 Contents of the System Extension Module (ESEA) delivery

Table 10. Nokia Flexi EDGE System Extension Module (ESEA) delivery contents

Description	Product code	Quantity
EDGE System Extension Module (ESEA)	470330A	1
ESEA Cable Set:	083296	1
• Bus cables 1554 mm (61.2 in.)	994939	2
M5 screws	-	4

A.10 Contents of the Flexi System External Alarm Module (FSEB)

Table 11. Nokia Flexi System External Alarm Module (FSEB) delivery contents

Description	Product code	Quantity
Flexi System External Alarm Module (FSEB):	471424A	1
• D37 Cable Assembly		1
• Cable tie, PER31		3

A.11 Contents of the transmission interface E1 sub-module (FIEA) delivery

Table 12. Flexi transmission interface E1 asymmetrical sub-module (FIEA) delivery contents

Description	Product code	Quantity
Flexi transmission interface E1 asymmetrical sub-module (FIEA):	470247A	1
• Screws (pre-installed)		4

A.12 Contents of the transmission interface Flexbus sub-module (FIFA) delivery

Table 13. Flexi transmission interface Flexbus sub-module (FIFA) delivery contents

Description	Product code	Quantity
Flexi transmission interface Flexbus sub-module (FIFA):	471007A	1
• Screws (pre-installed)		4

A.13 Contents of the transmission interface E1/T1 sub-module (FIPA) delivery

Table 14. Flexi transmission interface E1/T1 symmetrical sub-module (FIPA) delivery contents

Description	Product code	Quantity
Flexi transmission interface E1/T1 symmetrical sub-module (FIPA):	470248A	1
• Screws (pre-installed)		4

A.14 Contents of the Upgrade Cable Kit (EUCA) delivery

Table 15. Nokia Flexi EDGE Upgrade Cable Kit (EUCA) delivery contents

Description	Product code	Quantity
EDGE Upgrade Cable Kit (EUCA):	470265A	1
• RF cable 1300 mm (51.2 in.)	• 994936	3

A.15 Contents of the Flexi Mounting Kit for Batteries (FMBB) delivery

Table 16. Flexi Mounting Kit for Batteries (FMBB) delivery (used with Flexi Cabinet for Indoor)

Description	Product code	Quantity
Flexi Mounting Kit for Batteries (FMBB):	471459A	1
• Bottom plate		1
• Back plate		1
• Front plate		1
• M5 X 10 screws		14
• Cage nuts		10
• Cable ties		3

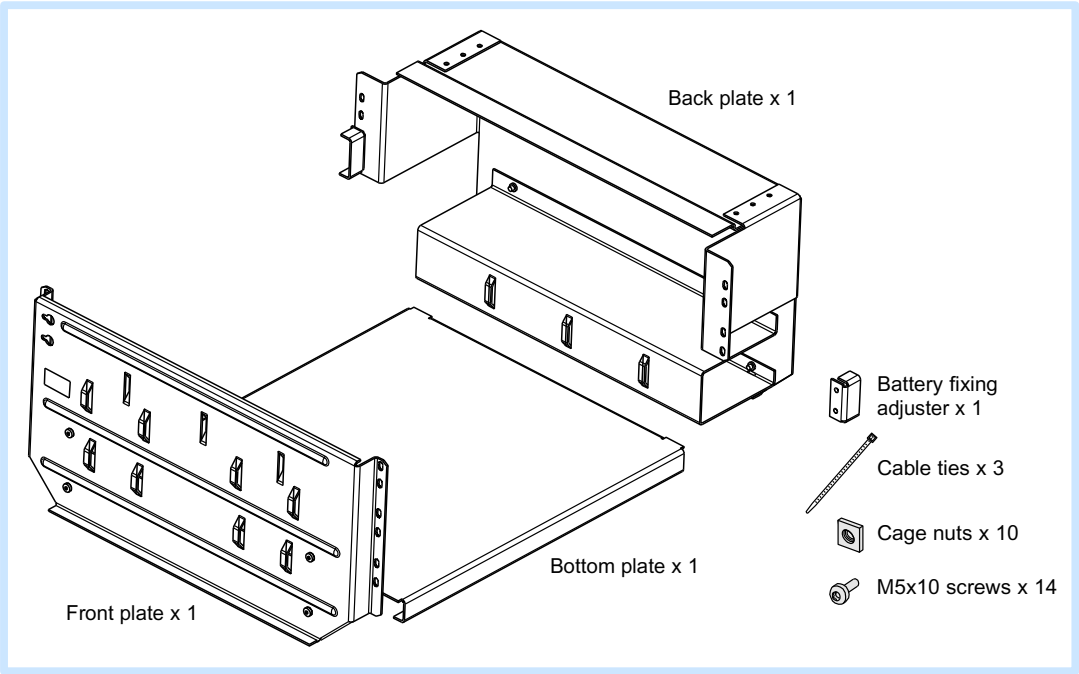


Figure 37. Delivery contents of the FMBB

A.16 Contents of the transmission cable deliveries (FTCx)

Table 17. FTCA/FTCB transmission cable deliveries (used with the E1/T1 transmission sub-module FIPA)

Description	Product code	Quantity
FTCA OD Cable RJ48C – TQ-M/0 120 ohm 5 m (16.4 ft)	470312A	1
FTCB OD Cable RJ48C 120ohm 15 m (49.2 ft)	470309A	1

Table 18. FTCD/FTCE transmission cable deliveries (used with the E1 transmission sub-module FIEA)

Description	Product code	Quantity
FTCD OD Cable SMB-F/0 - BT43-F/0 75 ohm 5 m (16.4 ft)	470313A	1
FTCE OD Cable SMB-F/0 75 ohm 15 m (49.2 ft)	470310A	1

Table 19. FTCJ transmission delivery (used with the Flexibus transmission sub-module FIFA

Description	Product code	Quantity
FTCJ OD Cable TNC-F/0-TNC-M/0 2.5 m (8.2 ft)	471391A	1

A.17 Contents of the LMP cable delivery (ELCA)

Table 20. LMP cable delivery (ELCA)

Description	Product code	Quantity
LMP cable 50 m (164.0 ft), ELCA	471370A	1

A.18 Contents of the synchronisation cable deliveries (ESxA)

Table 21. Synchronisation cable deliveries (ESUA/ESFA/ESLA)

Description	Product code	Quantity
ESUA synchronisation cable for Flexi Ultra 12 m (39.4 ft)	471372A	1
ESFA synchronisation cable for Flexi 12 m (39.4 ft)	471371A	1
ESLA synchronisation LMU Cable 2 m (6.6 ft)	471377A	1

A.19 Contents of the Q1 cable delivery (EQCA)

Table 22. Q1 cable delivery (EQCA)

Description	Product code	Quantity
EQCA Q1 Cable 3.01 m (9.9 ft)	471384A	1

Appendix B Installation tools and torque values

B.1 Installation tools for Flexi EDGE BTS

This list covers the following installation options: stack, wall, pole, Flexi Cabinet for Indoor (FCIA) and Flexi Cabinet for Outdoor (FCOA).

Table 23. Installation tools

Installation tools
ESD wrist strap and cable
TORX screwdriver set: T10, T20, T25
Flathead screwdriver
Socket or open-ended spanner (wrench) set: 8 mm (5/16 in.), 13 mm (1/2 in.), 17 mm (11/16) in.), 19 mm (13/16 in.)
Folding knife
Adjustable wrench
Side cutters
Crimping tool for 25 mm^2 (4 AWG), 35 mm^2 (2 AWG), or 50 mm^2 (1/0 AWG) cable lugs (power input and ground cables for DC-powered sites)
Crimping tool for 16 mm^2 (6 AWG) cable lugs (ground cable for AC-powered sites or custom length module ground cables)
Torque wrench for antenna cables
Cable ties for routing cables
Tape measure
Flashlight, pocket lamp or torch
Hammer drill with drill bits for plinth/cabinet anchor holes
Marker pen or comparable tool
Pliers
Level
Hexagon (Allen) key: 8 mm (5/16 in.). (Pole Mounting Kit only).

B.2 Torque values

Nokia strongly recommends that you tighten to the following torque values. These values assume the use of a lubricated bolt or fastener. Use these values unless stated otherwise.

The torque wrench is presented in the following figure.

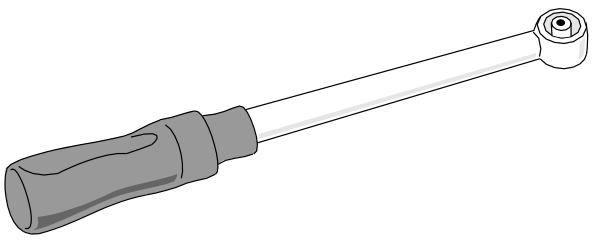


Figure 38. Torque wrench

Table 24. Torque values for the BTS

Bolt/Screw type	Size	Usage	Torque
TORX screw, thumb	M4	Transmission submodules (FIFA, FIEA, FIPA)	2.5 Nm (1.8 ft-lb)
TORX screw, thumb	M4	Wide-band Combiner Sub-module (EWxx)	2.0 - 2.5 Nm (1.5 - 1.8 ft-lb)
TORX screw, pan head	M4	Fan plate assembly	1.2 - 1.6 Nm (0.9 - 1.2 ft-lb)
TORX screw, thumb	M5	Mounting modules on rack or casings (EXxA, ERxA, ESMA, ECxA, FPDA, FPMA)	3.0 Nm (2.2 ft-lb)
TORX screw, thumb	M5	Front covers	2.0 - 2.5 Nm (1.5 - 1.8 ft-lb)
TORX screw, pan head	M5	Cable entry, module/FCIA grounding, locking casings, rear covers, FPAA, FPBA, FPMA AC terminal cover	2.0 - 2.5 Nm (1.5 - 1.8 ft-lb)
Nut	M5	FCOA grounding	3.7 Nm (2.7 ft-lb)
TORX screw, pan head	M8	FCIA grounding	8.0 - 10.0 Nm (5.9 - 7.37 ft lb)

Table 24. Torque values for the BTS (cont.)

Bolt/Screw type	Size	Usage	Torque
Nut	M8	FCOA grounding	8.0 - 10.0 Nm (5.9 - 7.37 ft lb)
Hexagon Head Screw	M8	Plinth grounding	8.0 - 10.0 Nm (5.9 - 7.37 ft lb)
Hexagon Head Screw	M8	Mounting plinth to Pole Mounting Kit (FMBB)	30.0 Nm (22.11 ft lb)
DC Power terminal nut	M10 (13/32 in.)	ESMA, FPDA DC power terminals	10.0 - 14.0 Nm (7.0 ft lb - 9.8 ft lb)
Hexagon head screw	M10 (13/32 in.)	Cabinet/plinth fixing (not included in Flexi EDGE delivery)	40.0 Nm (29.0 ft-lb)
Nut	M10 (13/32 in.)	Cabinet/plinth fixing (not included in Flexi EDGE delivery)	40.0 Nm (29.0 ft-lb)
Hexagon head screw	M12 (15/32 in.)	Cabinet/plinth fixing (not included in Flexi EDGE delivery)	49.0 Nm (36.1 ft-lb)
Nut	M12 (15/32 in.)	Cabinet/plinth fixing (not included in Flexi EDGE delivery)	49.0 Nm (36.1 ft-lb)
Antenna connector	7/16 DIN	Antenna jumper cables (not inlcuded in Flexi EDGE delivery)	25 Nm (18.5 ft lb)

Appendix C FSEB interface signals and connector pin assignments

C.1 FSEB interface signals and connector pin assignments

C.1.1 EAC interface

The EAC interface is an interface on the System Module of the BTS and cannot be found on the Flexi System External Alarm (FSEB) itself.

EAC interface signals

Table 25. EAC interface signals

Signal	Function	Technology	Direction
EXT_CO1	External Control 1	TTL	Output, open col.
EXT_CO2	External Control 2	TTL	Output, open col.
EXT_CO3	External Control 3	TTL	Output, open col.
EXT_CO4	External Control 4	TTL	Output, open col.
EXT_CO5	External Control 5	TTL	Output, open col.
EXT_CO6	External Control 6	TTL	Output, open col.
EXT_AL1	External Alarm 1	TTL	Input
EXT_AL2	External Alarm 2	TTL	Input
EXT_AL3	External Alarm 3	TTL	Input
EXT_AL4	External Alarm 4	TTL	Input
EXT_AL5	External Alarm 5	TTL	Input
EXT_AL6	External Alarm 6	TTL	Input
EXT_AL7	External Alarm 7	TTL	Input
EXT_AL8	External Alarm 8	TTL	Input
EXT_AL9	External Alarm 9	TTL	Input
EXT_AL10	External Alarm 10	TTL	Input
EXT_AL11	External Alarm 11	TTL	Input
EXT_AL12	External Alarm 12	TTL	Input
GND	Chassis Ground	-	-
+5V	Power Supply	Power	-
CAN_L	CAN low signal	CAN	IO
CAN_H	CAN high signal	CAN	IO

EAC connector pin assignment

Table 26. EAC connector pin assignment

Signal	Pin	Pin	Signal
EXT_CO1	1	19	+5V/150mA
EXT_CO2	2	20	+5V/150mA
EXT_CO3	3	21	+5V/150mA
EXT_CO4	4	22	+5V/150mA
EXT_CO5	5	23	CAN_L
EXT_CO6	6	24	CAN_H
EXT_AL1	7	25	GND
EXT_AL2	8	26	GND
EXT_AL3	9	27	GND
EXT_AL4	10	28	GND
EXT_AL5	11	29	GND
EXT_AL6	12	30	GND
EXT_AL7	13	31	GND
EXT_AL8	14	32	GND
EXT_AL9	15	33	GND
EXT_AL10	16	34	GND
EXT_AL11	17	35	GND
EXT_AL12	18	36	GND

C.1.2 EACX interface

EACX interface signals

Table 27. EACX interface signals

Signal	Function	Technology	Direction
EXT_CO1	External Control 1	TTL	Output
EXT_CO2	External Control 2	TTL	Output
EXT_CO3	External Control 3	TTL	Output

Table 27. EACX interface signals (cont.)

Signal	Function	Technology	Direction
EXT_CO4	External Control 4	TTL	Output
EXT_CO5	External Control 5	TTL	Output
EXT_CO6	External Control 6	TTL	Output
EXT_AL1	External Alarm 1	TTL	Input
EXT_AL2	External Alarm 2	TTL	Input
EXT_AL3	External Alarm 3	TTL	Input
EXT_AL4	External Alarm 4	TTL	Input
EXT_AL5	External Alarm 5	TTL	Input
EXT_AL6	External Alarm 6	TTL	Input
EXT_AL7	External Alarm 7	TTL	Input
EXT_AL8	External Alarm 8	TTL	Input
EXT_AL9	External Alarm 9	TTL	Input
EXT_AL10	External Alarm 10	TTL	Input
EXT_AL11	External Alarm 11	TTL	Input
EXT_AL12	External Alarm 12	TTL	Input
EXT_AL13	External Alarm 13	TTL	Input
EXT_AL14	External Alarm 14	TTL	Input
EXT_AL15	External Alarm 15	TTL	Input
EXT_AL16	External Alarm 16	TTL	Input
EXT_AL17	External Alarm 17	TTL	Input
EXT_AL18	External Alarm 18	TTL	Input
EXT_AL19	External Alarm 19	TTL	Input
EXT_AL20	External Alarm 20	TTL	Input
EXT_AL21	External Alarm 21	TTL	Input
EXT_AL22	External Alarm 22	TTL	Input
EXT_AL23	External Alarm 23	TTL	Input
EXT_AL24	External Alarm 24	TTL	Input
GND	Chassis Ground	-	-
+5V	External Supply	Power	-

EACX-S interface signals and screw terminal pin assignment

Table 28. EACX-S interface signals and screw terminal pin assignment

Pin	Signal	Screw terminal	Pin	Signal	Screw terminal
1	EXT_CO1	Connector X4104 pin1	31	+5V	Connector X4105 pin1
2	EXT_CO2	Connector X4104 pin 2	32	+5V	Connector X4105 pin 2
3	EXT_CO3	Connector X4104 pin 3	33	+5V	Connector X4105 pin 3
4	EXT_CO4	Connector X4104 pin 4	34	+5V	Connector X4105 pin 4
5	EXT_CO5	Connector X4104 pin 5	35	+5V	Connector X4105 pin 5
6	EXT_CO6	Connector X4104 pin 6	36	+5V	Connector X4105 pin 6
7	EXT_AL1	Connector X4106 pin1	37	GND	Connector X4107 pin1
8	EXT_AL2	Connector X4106 pin 2	38	GND	Connector X4107 pin 2
9	EXT_AL3	Connector X4106 pin 3	39	GND	Connector X4107 pin 3
10	EXT_AL4	Connector X4106 pin 4	40	GND	Connector X4107 pin 4
11	EXT_AL5	Connector X4106 pin 5	41	GND	Connector X4107 pin 5
12	EXT_AL6	Connector X4106 pin 6	42	GND	Connector X4107 pin 6
13	EXT_AL7	Connector X4108 pin1	43	GND	Connector X4109 pin1
14	EXT_AL8	Connector X4108 pin 2	44	GND	Connector X4109 pin 2
15	EXT_AL9	Connector X4108 pin 3	45	GND	Connector X4109 pin 3
16	EXT_AL10	Connector X4108 pin 4	46	GND	Connector X4109 pin 4
17	EXT_AL11	Connector X4108 pin 5	47	GND	Connector X4109 pin 5
18	EXT_AL12	Connector X4108 pin 6	48	GND	Connector X4109 pin 6
19	EXT_AL13	Connector X4110 pin1	49	GND	Connector X4111 pin1

Table 28. EACX-S interface signals and screw terminal pin assignment (cont.)

Pin	Signal	Screw terminal	Pin	Signal	Screw terminal
20	EXT_AL14	Connector X4110 pin 2	50	GND	Connector X4111 pin 2
21	EXT_AL15	Connector X4110 pin 3	51	GND	Connector X4111 pin 3
22	EXT_AL16	Connector X4110 pin 4	52	GND	Connector X4111 pin 4
23	EXT_AL17	Connector X4110 pin 5	53	GND	Connector X4111 pin 5
24	EXT_AL18	Connector X4110 pin 6	54	GND	Connector X4111 pin 6
25	EXT_AL19	Connector X4112 pin1	55	GND	Connector X4113 pin1
26	EXT_AL20	Connector X4112 pin 2	56	GND	Connector X4113 pin 2
27	EXT_AL21	Connector X4112 pin 3	57	GND	Connector X4113 pin 3
28	EXT_AL22	Connector X4112 pin 4	58	GND	Connector X4113 pin 4
29	EXT_AL23	Connector X4112 pin 5	59	GND	Connector X4113 pin 5
30	EXT_AL24	Connector X4112 pin 6	60	GND	Connector X4113 pin 6

EACX connector I pin assignment

Table 29. EACX connector I pin assignment (Sub-D37)

Signal	Pin	Pin	Signal
EXT_CO1	1	19	GND
EXT_CO2	2	20	+5V/30mA
EXT_CO3	3	21	+5V/30mA
EXT_CO4	4	22	+5V/30mA
EXT_CO5	5	23	+5V/30mA
EXT_CO6	6	24	+5V/30mA
EXT_AL1	7	25	+5V/30mA
EXT_AL2	8	26	GND

Table 29. EACX connector I pin assignment (Sub-D37) (cont.)

Signal	Pin	Pin	Signal
EXT_AL3	9	27	GND
EXT_AL4	10	28	GND
EXT_AL5	11	29	GND
EXT_AL6	12	30	GND
EXT_AL7	13	31	GND
EXT_AL8	14	32	GND
EXT_AL9	15	33	GND
EXT_AL10	16	34	GND
EXT_AL11	17	35	GND
EXT_AL12	18	36	GND
-	-	37	GND

EACX connector II pin assignment

Table 30. EACX connector II pin assignment (Sub-D37)

Signal	Pin	Pin	Signal
EXT_AL13	1	19	GND
EXT_AL14	2	20	GND
EXT_AL15	3	21	GND
EXT_AL16	4	22	GND
EXT_AL17	5	23	GND
EXT_AL18	6	24	GND
EXT_AL19	7	25	GND
EXT_AL20	8	26	GND
EXT_AL21	9	27	GND
EXT_AL22	10	28	GND
EXT_AL23	11	29	GND
EXT_AL24	12	30	GND
Not used	13	31	Not used
Not used	14	32	Not used
Not used	15	33	Not used

Table 30. EACX connector II pin assignment (Sub-D37) (cont.)

Signal	Pin	Pin	Signal
Not used	16	34	Not used
Not used	17	35	Not used
Not used	18	36	Not used
		37	Not used

C.1.3 ESM interface

ESM interface signals

Table 31. ESM interface signals

Signal	Function	Technology	Direction
EXT_CO1	External Control 1	TTL	Input
EXT_CO2	External Control 2	TTL	Input
EXT_CO3	External Control 3	TTL	Input
EXT_CO4	External Control 4	TTL	Input
EXT_CO5	External Control 5	TTL	Input
EXT_CO6	External Control 6	TTL	Input
EXT_AL1	External Alarm 1	TTL	Output
EXT_AL2	External Alarm 2	TTL	Output
EXT_AL3	External Alarm 3	TTL	Output
EXT_AL4	External Alarm 4	TTL	Output
EXT_AL5	External Alarm 5	TTL	Output
EXT_AL6	External Alarm 6	TTL	Output
EXT_AL7	External Alarm 7	TTL	Output
EXT_AL8	External Alarm 8	TTL	Output
EXT_AL9	External Alarm 9	TTL	Output
EXT_AL10	External Alarm 10	TTL	Output
EXT_AL11	External Alarm 11	TTL	Output
EXT_AL12	External Alarm 12	TTL	Output
GND	Chassis Ground	-	Output
+5V	External Supply	Power	-

Table 31. ESM interface signals (cont.)

Signal	Function	Technology	Direction
CAN_L	CAN low signal		IO
CAN_H	CAN high signal		IO

ESM connector pin assignment

Table 32. ESM connector pin assignment

Signal	Pin	Pin	Signal
EXT_CO1	1	19	+5V/150mA
EXT_CO2	2	20	+5V/150mA
EXT_CO3	3	21	+5V/150mA
EXT_CO4	4	22	+5V/150mA
EXT_CO5	5	23	CAN_L
EXT_CO6	6	24	CAN_H
EXT_AL1	7	25	GND
EXT_AL2	8	26	GND
EXT_AL3	9	27	GND
EXT_AL4	10	28	GND
EXT_AL5	11	29	GND
EXT_AL6	12	30	GND
EXT_AL7	13	31	GND
EXT_AL8	14	32	GND
EXT_AL9	15	33	GND
EXT_AL10	16	34	GND
EXT_AL11	17	35	GND
EXT_AL12	18	36	GND
-	-	37	Not used

C.1.4 Heat detector power supply interface

Table 33. Heat detector power screw terminal X4114 pin assignment

Pin	Signal
1	+8.55V ... +11.5V
2	Ground
3	Ground
4	Ground
5	Ground
6	+8.55V ... +11.5V