EXTRATALK II / II+ AND EXTENSION OUTDOOR

Installation Manual

NOKIA

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CONTENTS

1. SCOPE AND PURPOSE

This document describes the installation of the Nokia Extratalk II / II+ and extension outdoor cabinets, which are used in conjunction with the Nokia Citytalk DE 34 / DF 34 Outdoor Base Station (BTS) installation. The Extratalk II / II+ and extension cabinets are pre assembled with racks, units and cables. Other items have to be installed at the site.

The Extratalk II / II+ cabinet houses a battery backup system, and provides space and DC power for customer supplied and fitted Radio Link Equipment (RLEs).

If required by the customer, an Extratalk II / II+ extension can be installed. The Extratalk II / II+ extension allows for a further number of customer supplied and fitted RLEs or provision for additional batteries.

This document also describes the installation of the SSS1100 upgrade kit to bring pre-installed Nokia SSS1100 installations up to Extratalk II / II+ specification.

Installations are to be undertaken considering [3] and [12].

2. INSTALLATION REQUIREMENTS

2.1. Environment

2.1.1. Climatic conditions

This section details the environmental conditions during storage, transportation and operation for the Extratalk II / II+ and extension.

2.1.1.1. Storage

Because the units are sensitive to electrostatic and susceptible to mechanical damage, they must be kept in their original, protective packages until required for use.

The environmental conditions during storage are defined according to ETSI 300 019-1-1 class 1.3E.

The climatic conditions during storage for temperature, humidity and air pressure are detailed in Table 1.

Table 1 Climatic conditions during storage

Environmental parameter	Value / unit
Air temperature range	-45 to +45°C
Relative humidity	8%
High relative humidity	100%
Absolute humidity range	0.03 to 30g/m^3
Temperature change rate	0.5°C/min
Air pressure range	70 to 106kPa

2.1.1.2. Transport

The environmental conditions during the transport are defined according to ETSI 300 019-1-2 class 2.3. Mechanical conditions are defined according to ETSI 300 019-1-2 class 2.2.

The main points of climatic conditions during transport are detailed in Table 2.

Table 2 Climatic conditions during transport

Environmental parameter	Value / unit
Air temperature range	-40 to +70°C
High relative humidity	95%
High absolute humidity	60g/m^3
Low air pressure	70kPa

2.1.1.3. Operation

The Extratalk II / II+ and extension are fitted with a choice of Heat Management Unit (HMU). The Extratalk II and extension cabinets are equipped with a Heat Exchanger (HE) whereas Extratalk II+ and extension cabinets are equipped with an Air Conditioning Unit (ACU).

The environmental conditions for outdoor operation are defined according to ETSI 300 019-1-4 class 4.1. The mechanical conditions are defined according to ETSI 300 019-2-4 class 4M3 (see Table 4). Special class 4M5 is not applicable.

When working with the cabinet front door open, the internal faces of the equipment (front panels, cables, connectors and documentation) must not get into contact with dust, debris, rain or snow.

CAUTION If a cabinet door is opened in low temperatures (below +5°C), an adequate heating and weather protection must be provided for the cabinet, in order to maintain the cabinet temperature above +5°C.

The main points of the climatic conditions for the outdoor operation are shown in Table 3.

Table 3 Climatic conditions for outdoor operation

Environmental parameter	Value / unit
Air temperature range with HE	-33 to +40°C
Absolute humidity range with HE	0.26 to 25g/m^3
Air temperature range with ACU	-33 to +50°C (+50°C at 101.3kPa)
Absolute humidity range with ACU	0.26 to 36g/m^3
Relative humidity range	15 to 100%
Temperature change rate	0.5°C/min
Air pressure range	70 to 106kPa
Solar radiation	1120W/m^2
Movement of surrounding air	50m/s
Condensation	Yes
Precipitation (rain, snow, hail)	Yes
Ice and frost formation	Yes

Table 4 Mechanical conditions during operation

Environmental parameter		Value / unit
Stationary vibration, sinusoidal	Frequency range	5-200Hz
	Velocity	5mm/s, 5-62Hz
	Peak acceleration	2m/s^2, 62-200Hz

Non-stationary vibration, including shock	Acceleration amplitude	50m/s^2
	Pulse duration	6m/s

2.1.2. Water resistance

The cabinet is water resistant as required in the IP 55 standard, IEC 529. The cabinet base must always remain above the water surface level (local precipitation must be taken into account).

2.1.3. Acoustic noise

The acoustic noise generated by the equipment is measured according to ISO 3743 or ISO 3744. The noise is measured in sound power (dB).

The Extratalk II and extension fulfil ETSI 300 019-1-4 class 4.1 (GSM 11.22), according to which the maximum noise generated by a cabinet is 60 dB (A) sound power.

The Extratalk II+ and extension fulfil ETS 300 019-1-4 class 4.1E (GSM 11.22), according to which the maximum noise generated by a cabinet is 65 dB (A) sound power. The noise level specified for Extratalk II+ and extension cabinet is, however, lower than that, the typical day-time noise being 63 dB(A) sound power and the night-time noise (at 25°C maximum) 58 dB(A) sound power.

2.1.4. EMC shielding

The cabinet functions as an Electro Magnetic Compatibility (EMC) shield which confines the radiation produced by the plug-in units to the cabinet, and protects the plug-in units against electromagnetic fields outside the cabinet, as required in;

- FCC Rules to Part 15
- BELCORE GR1089
- PRETS 300-386-1
- PRETS 300-386-2-3

2.1.5. Safety

The cabinet fulfils the relevant safety requirements: IEC 215, IEC-950, with CENELEC common modifications, including UL and CSA deviations.

2.2. Physical requirements

Refer to section 4 for the actual installation of the cabinet.

2.2.1. Cabinet dimensions and weights

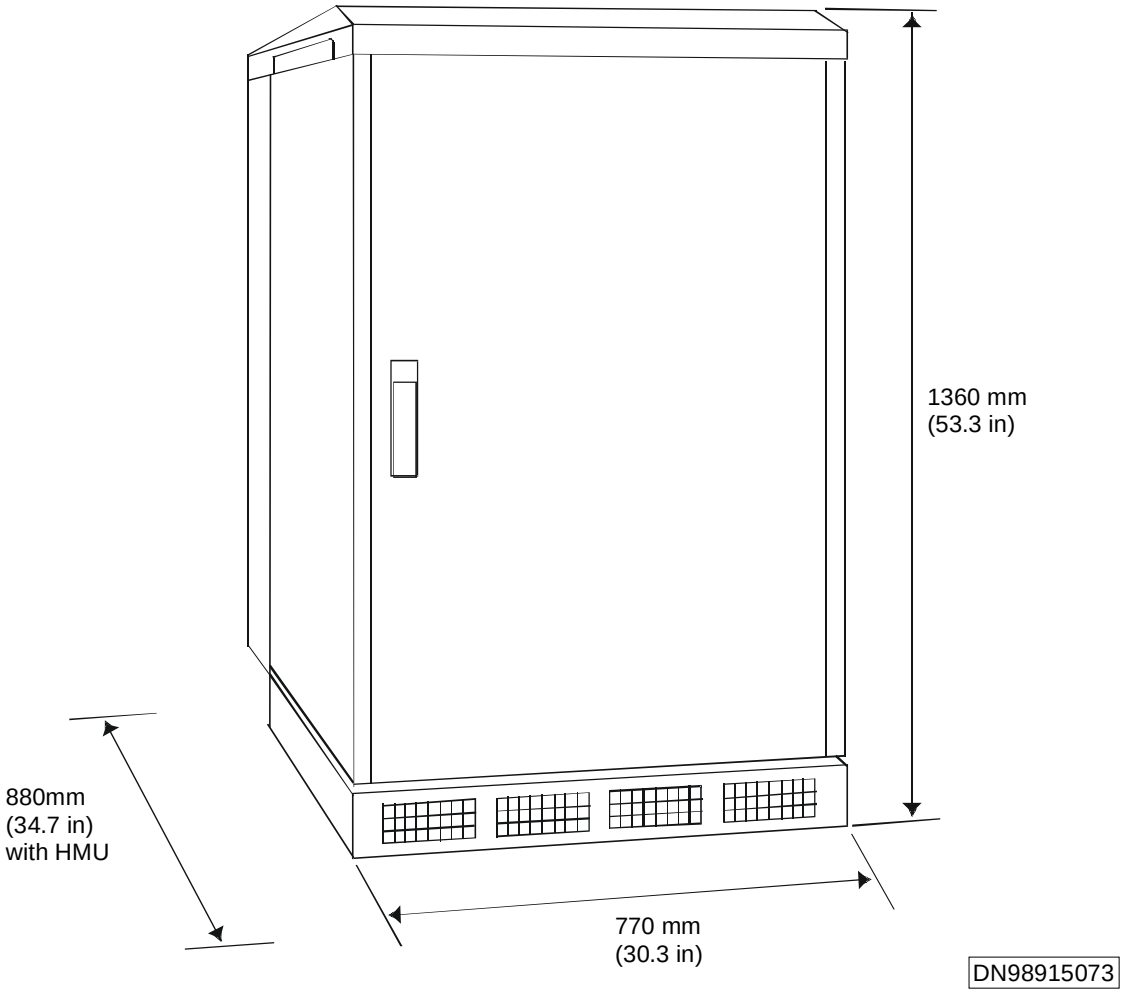


Figure 1 Extratalk II / II+ or extension dimensions

Table 5 Weights of Extratalk II / II+ and extension cabinet parts

Part	Weight
Single plinth	12kg
Double plinth	20kg
Single roof	15kg
Double roof	25kg
Front door	16kg
HE	30kg
ACU	65kg
Power Distribution Unit (PDU)	9.5kg
PDU extension	6kg
Extension cabinet PDU	9.5kg
PDU extension for the extension cabinet	6.5kg
RM1100 Rectifier	3.1kg
RM1100 Backplane (including extension)	2.5kg
SBS60 Battery	18kg
Battery Tray	3.7kg

Table 6 Extratalk II / II+ and extension cabinet dimensions and weights

Configuration	Extratalk II / II+	Extratalk II / II+ extension
Height with plinth and roof	1360mm	
Width	770mm	
Depth with HMU	880mm	
Cabinet weight without units, door, roof, plinth, HMU	102kg	90kg
Maximum operational weight (excluding customer supplied and fitted RLEs)	550kg	665kg

2.2.2. Service clearances

The minimum clearances around the cabinets are as follows:

- 500 mm above the top
- 870 mm at the front
- 400 mm on sides not flush with other cabinets
- at the rear, 700mm for Extratalk II and extension, and 800 mm for Extratalk II+ and extension.

Figure 2 shows the minimum clearances for Extratalk II / II+ and extension cabinets and BTS and extension cabinets.

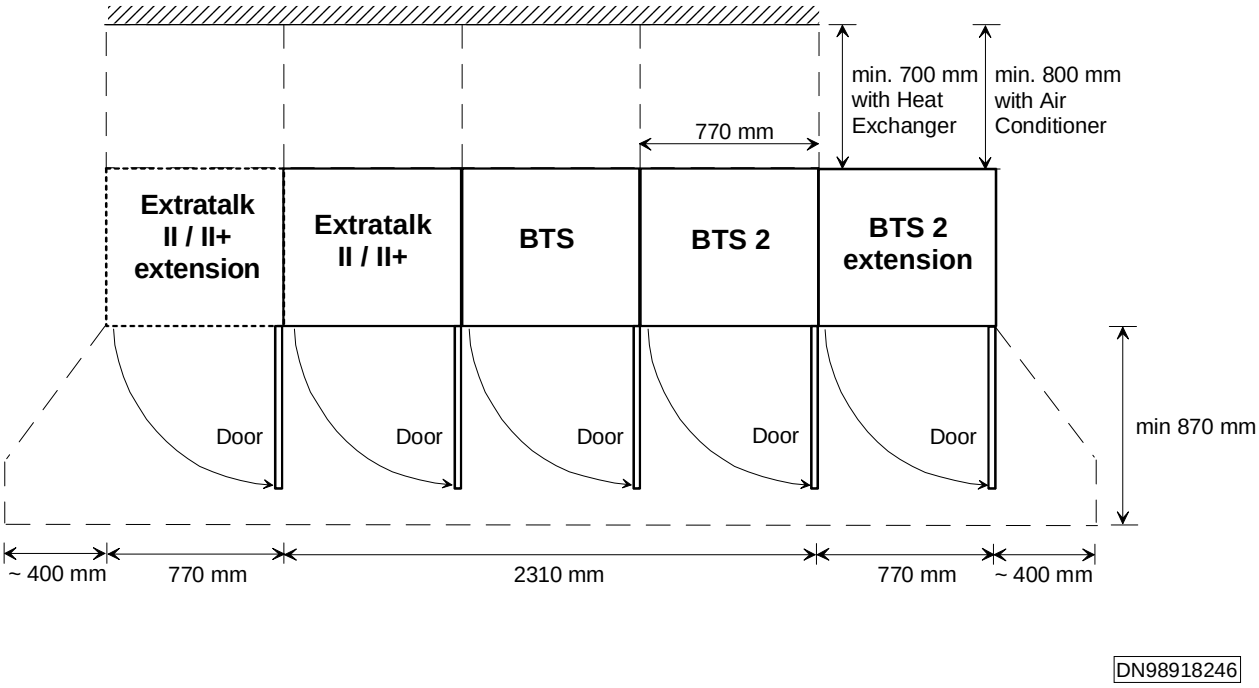


Figure 2 Service clearances for Extratalk II / II+ and extension (top view)

Reserve adequate space (according to size and type) for the AC power cable entering the cabinet. The cable must be supported and clamped outside the cabinet.

Note also the dimensions in Figure 3 and in Table 7 when planning the installation of the AC power cable.

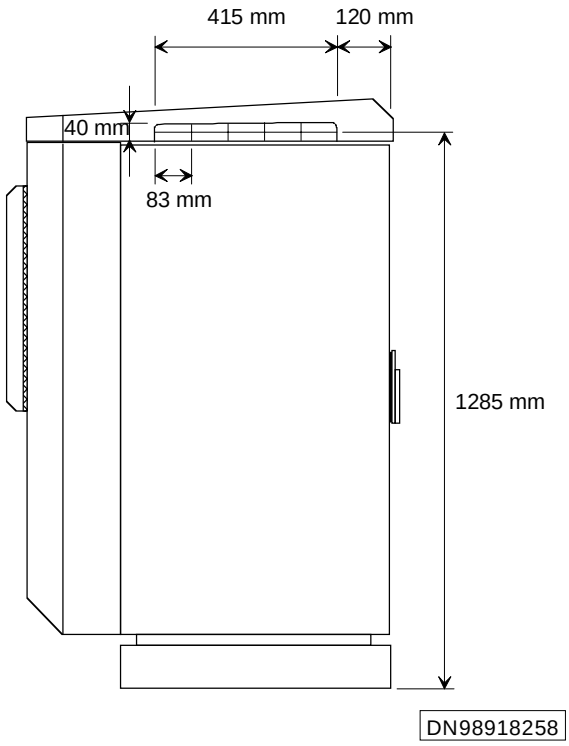


Figure 3 Dimensions related to cable entry arrangement

Table 7 Dimensions related to cable entry arrangement

Description	Dimension
Total height from ground to the centre line of the cable entry block	1285mm
Distance from the front of the cabinet to the cable entry	120mm
Length of the cable entry	415mm
Height of a cable entry block	40mm
Width of a cable entry block	83mm

2.2.3. Installation base requirements

The base to which the Extratalk II / II+ cabinet is mounted can either be made of concrete or constructed of steel bars. Anchor bolts are used to secure the cabinet to the base. The steel bar construction may feature ready-made holes for these anchor bolts. The anchor bolts can be pre-installed into the concrete base.

The base for the cabinets must be level. Requirements for the base are as follows:

- The base must be high enough to remain above the water surface level under all climatic conditions (the local precipitation must be taken into account).
- Aberration for plane: ± 2.5 mm over 1600 mm span true to the horizontal plane. Note that there should be no steps in the level of the base.
- Inclination: max. 2 mm/metre.
- When two or more plinths are mounted adjacent, the top face of the plinths must be levelled within ± 0.5 mm of each other to a true horizontal plane. When necessary, the plinths can be adjusted using shims between the base and the plinth. These shims are supplied by the customer. Recommended shim dimensions are shown in Figure 4.

A spirit level is required to verify that the above requirements are met.

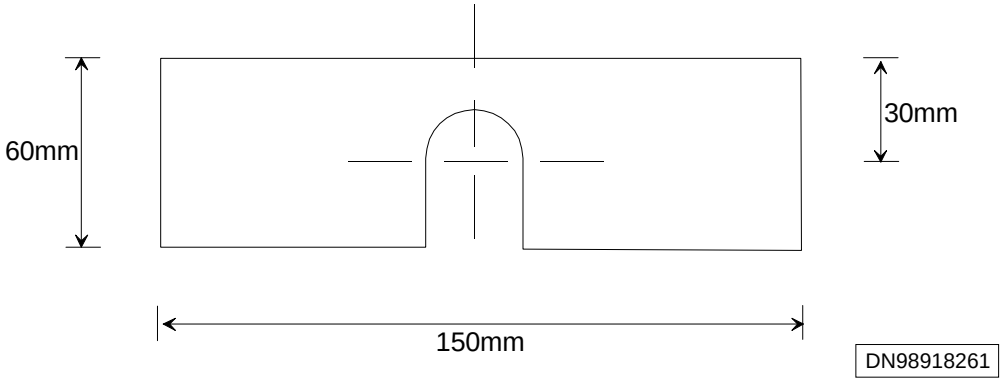


Figure 4 Recommended shim dimensions

2.2.4. Lifting

There are two cabinet lifting methods; lifting the cabinet using eye bolts, and lifting the cabinet using the cabinet lifting handles.

There are four lifting points built into the cabinet, which are compatible with M12 lifting eye bolts. These lifting points have been designed to support the weight of the

cabinet, without the plug-in units, batteries and HMU fitted. All four lifting points must be used when lifting the cabinet.

The lifting handles should be used for lifting the cabinet only when no mechanical lifting device is available and the customer project has reserved sufficient personnel to carry out the task.

The lifting eye bolts and the lifting handles are optional fittings and are not included in the cabinet delivery unless requested by the customer.

2.2.5. Mounting

The Extratalk II / II+ cabinet and extension cabinet can be installed either onto a single plinth, or onto a double plinth, side by side with the BTS. The plinth may feature built-in grids, which cannot be removed, or removable grids. If removable grids are not already fitted, they should be fitted to the rear side of the installed plinths where necessary, as shown in Figure 8. Each grid is secured with ten M6 x 16 screws with washers.

The single plinth is anchored to the base with four M12 anchor bolts and washers, two at the cabinet rear and two at the front. The washers are included in the single plinth delivery and are specified to provide complete cover of the plinth fixing holes.

The double plinth is anchored to the base with six M12 anchor bolts.

The anchor bolts are supplied by the customer.

The cabinet is bolted to the single plinth using the four M8 fastening screws and washers delivered with the transportation pallet. Two screws are used at the rear of the cabinet and two at the front.

The cabinet is bolted to the single plinth using the four M8 fastening screws and washers delivered with the transportation pallet. Two screws are used at the rear of the cabinet and two at the front.

The cabinet is bolted to the right side of the double plinth using the four M8 fastening screws and washers delivered with the transportation pallet. Two screws are used at the rear of the cabinet and two at the front.

Figure 6 and Figure 7 show the bolt holes in the single and double plinths.

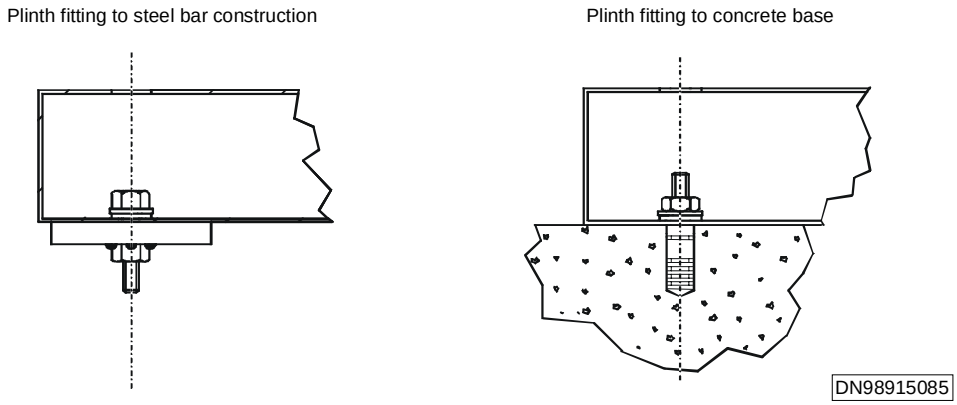


Figure 5 Bolting the plinth to the base

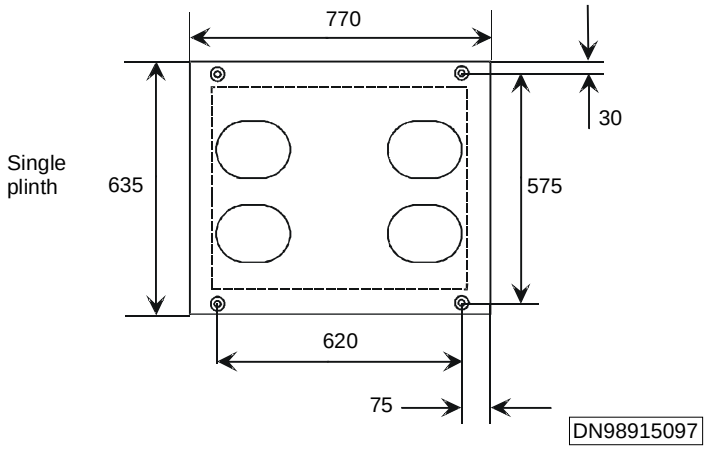


Figure 6 Single plinth fixing holes

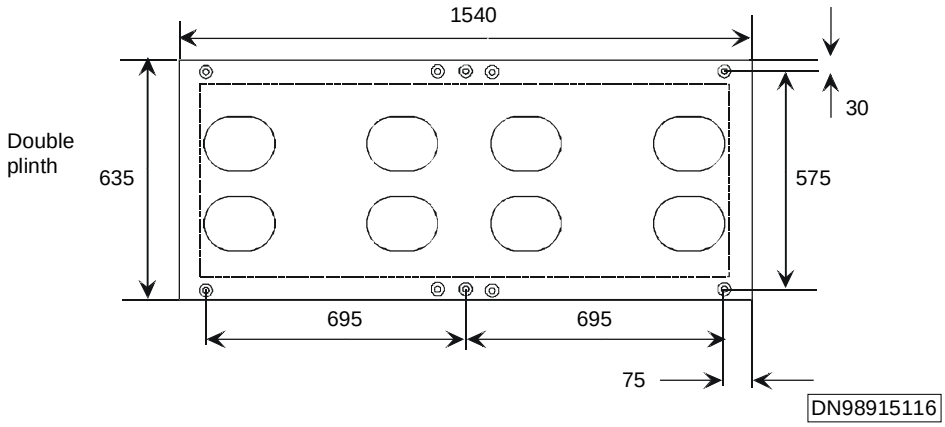


Figure 7 Double plinth fixing holes

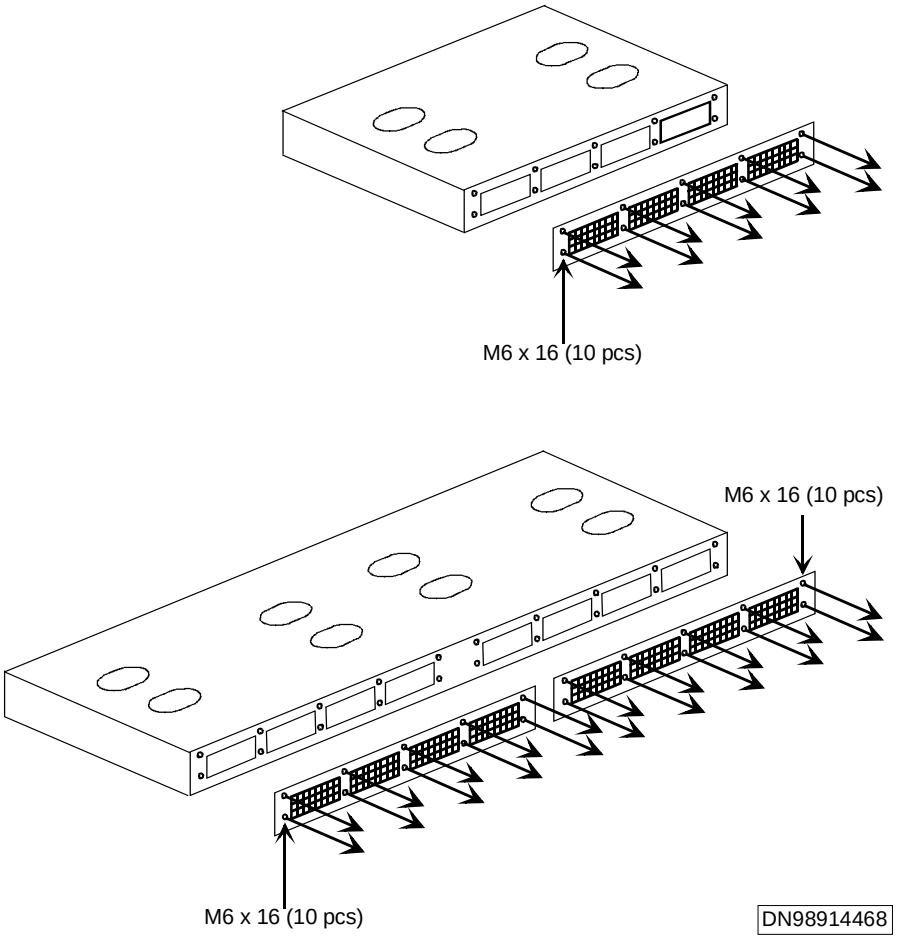


Figure 8 Installation of the grid plates

2.3. Power requirements

WARNING!

The operations detailed in sections 2.3.1, 2.3.2, 2.3.3 and 2.3.4 must be undertaken in order to ensure the safe and satisfactory installation of the Extratalk II / II+ and extension.

2.3.1. Initial site inspection

A site survey should be conducted prior to installation of the Extratalk II / II+ and extension to ensure that the local power supply cabling and fuse box fitted is adequate. Sections 2.3.2 and 2.3.3 define the power requirements for three phase and single phase respectively.

In the event that the present cabling is not adequate, it must be replaced with cabling of the correct rating, either prior to the upgrade commencing or before the power is turned on after the upgrade has been completed.

NOTE For the maximum cable size and types of AC systems the Extratalk II / II+ can accommodate, refer to [5].

2.3.2. Three phase power requirements

Voltage 230V +/-15% Phase to Neutral

Current 20A per phase

Frequency 50Hz +/-6%

2.3.3. Single phase power requirements

Voltage 230V +/-15%

Current 50A

Frequency 50Hz +/-6%

2.3.4. Disconnect and over-current devices

An appropriate disconnect device and appropriate primary circuit over-current protection devices shall be incorporated within the fixed wiring to the Extratalk II / II+ and extension. Rating of the disconnect device and the primary circuit over-current protection devices shall be commensurate with the chosen site configuration power requirements detailed in sections 2.3.2 and 2.3.3.

2.3.5. Earthing

The Extratalk II / II+ and extension are positive earthed systems. Cabinet grounding is carried out according to the local legislation. The cabinets are provided with four M6 grounding terminals for connection to ground.

2.4. Cabinet interfaces

All Extratalk II / II+ and extension cabinet interfaces are routed through the cable entry shown in Figure 3 using a cable entry kit.

2.4.1. Cable entry kits

There are five-cable entry kits available (see Table 8). All kits include cable entry blocks, a cover plate, three assembly parts, and screws.

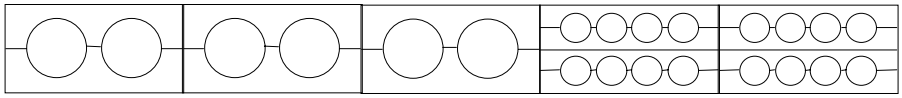
The cable entry kit is supplied with all new BTS installations. If the Extratalk II / II+ and extension are to be installed at an existing BTS site, then the cable entry kit must be ordered with the Extratalk II / II+ and extension.

The cable entry kits are detailed in Table 8 and Figure 9.

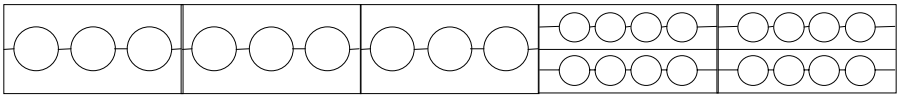
Table 8 Cable entry kits available

Cable Entry Kit	Number of Entries	Cable Diameter
Cable Entry Kit 1 CEKA 11	6 (3 x 2-entry blocks) 16 (2 x 8-entry blocks)	18.to.28mm 5.to.13mm
Cable Entry Kit 2 CEKB 11	9 (3 x 3-entry blocks) 16 (2 x 8-entry blocks)	10.to.18mm 5.to.13mm
Cable Entry Kit 3 CEKC 11	8 (4 x 2-entry blocks) 8 (1 x 8-entry blocks)	18.to.28mm 5.to.13mm
Cable Entry Kit 4 CEKD 11	10 (5 x 2-entry blocks) 8 (1 x 8-entry blocks)	18.to.28mm 5.to.13mm
Cable Entry Kit 5 CEKE 11	6 (3 x 2-entry blocks) 6 (2 x 3-entry blocks)	18.to.28mm 10.to.18mm

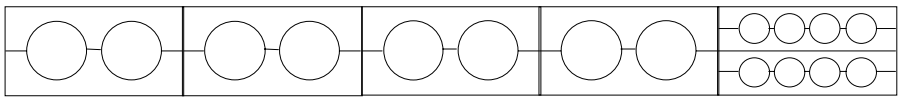
CEKA 11 Cable Entry Kit 1 (466292_)



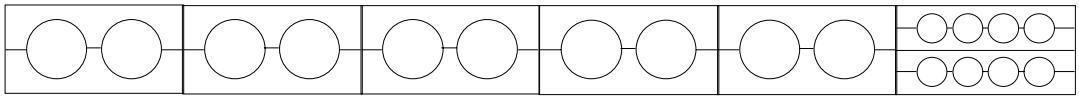
CEKB 11 Cable Entry Kit 2 (466293_)



CEKC 11 Cable Entry Kit 3 (466785_)



CEKD 11 Cable Entry Kit 4 (467050_)



CEKE 11 Cable Entry Kit 5 (467192_)

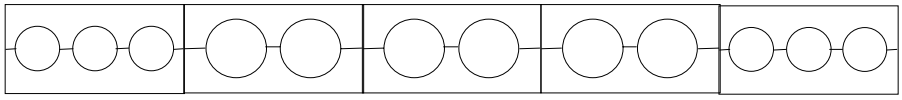


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Figure 9 Cable entry kits

2.5. Installation overview

The complete installation process is detailed in this manual, from the time that the Extratalk II / II+ and extension equipment is delivered to site, to the Extratalk II / II+ and extension power-ON-test prior to commissioning.

Installation of the Extratalk II / II+ and extension must only be carried out by authorised personnel who have completed the Nokia training course for BTS installation, or have an equivalent understanding of the system.

2.5.1. Checking the site

The installation requires that, in addition to the site power requirements, the site itself is properly surveyed and prepared, and all the required external connections are correctly installed. The surveyor must also identify any special requirements for the installation, such as lifting equipment.

► The site must meet the following requirements before the installation can be started:

1. Ensure the site is accessible and safe for working.
2. Inspect the site visually to ensure the following requirements are fulfilled: the site-specific installation instructions are available, the site survey is completed, the Site Survey Report is available, and the site is clean.
3. Check that the base for the plinth is in order: the base structure is as specified, the fixing points are ready for the plinth, if applicable, and the bolts are anchored to the base, if applicable.
4. Verify that all external connections for the BTS and the Extratalk II / II+ are available: grounding point, mains voltage AC, A-bis connection point.
5. Ensure that the cabinet can be installed safely by verifying the availability of lifting and other equipment, as defined in the Site Survey Report.
6. Check that the delivery is complete.

2.5.2. Fault reporting

All damage, failures and faults should be corrected, wherever possible, during installation of the cabinet, and reported to Nokia using a Failure Report Form provided by the Customer Service Centre (CSC).

2.5.3. Site folders

Nokia recommends a site-specific folder for every BTS site for recording the Factory Acceptance Tests (FAT), the installation, commissioning, and integration logs, inventory lists and site-specific installation information. The project and / or the customer should determine the exact content of the site folder.

Site folders should be archived by the customer.

2.5.4. Torque recommendations

Table 9 Torque recommendations

Bolt / screw Type	SFS	DIN	Size	Torque
Hexagon socket head Screw cylinder head	2219	912	M6	8.0Nm
Hexagon socket head Screw cylinder head	2219	912	M8	16.0Nm
Nut	2067	934	M6	8.0Nm

2.5.5. Installation tools and accessories

Table 10 Installation tools and accessories

Item No.	Tool
1.	Antistatic hand strap and cable.
2.	Screwdrivers, pozidrive, PZ 1, 2 and 3.
3.	Screwdrivers, standard flat blade, small, medium and large size.
4.	Side cutters.
5.	Triangle BTS door key, included with the BTS.
6.	Cable wraps.

Item No.	Tool
7.	Drill, drill bit (e.g. for drilling cabinet mounting holes).
8.	Spanner, 10mm.
9.	Allen key set.
10.	Multimeter.
11	Voltmeter.
12.	Spirit level.
13.	Tape measure.
14.	Pen.
15.	Crimping tool.
16.	Insulated torque spanner for battery connections.
17.	Socket wrench, 13mm and 19mm with extension bar.
18.	M12 bolts, nuts, washers, and dowels (4 for single plinth, 6 for double plinth).
19.	Tamper-proof bit set.
20.	Lubricating oil.
21.	Cabinet lifting handles (optional).
22.	Cabinet lifting eye bolts, M12 4 off (optional).
23.	Shims for levelling the plinth (optional).
24.	Petroleum jelly.

3. CONFIGURATIONS

This section details the basic installation configurations of the Extratalk II / II+ and extension. The Extratalk II and extension are equipped with a HE, and the Extratalk II+ and extension are equipped with an ACU; otherwise the configurations are identical.

3.1. Power distribution between cabinets

The recommended AC power distribution from an external power supply for the various Extratalk II / II+ installation configurations are presented in Figure 10.

The recommended DC power distribution from the Extratalk II / II+ for the various installation configurations is described in Figure 11.

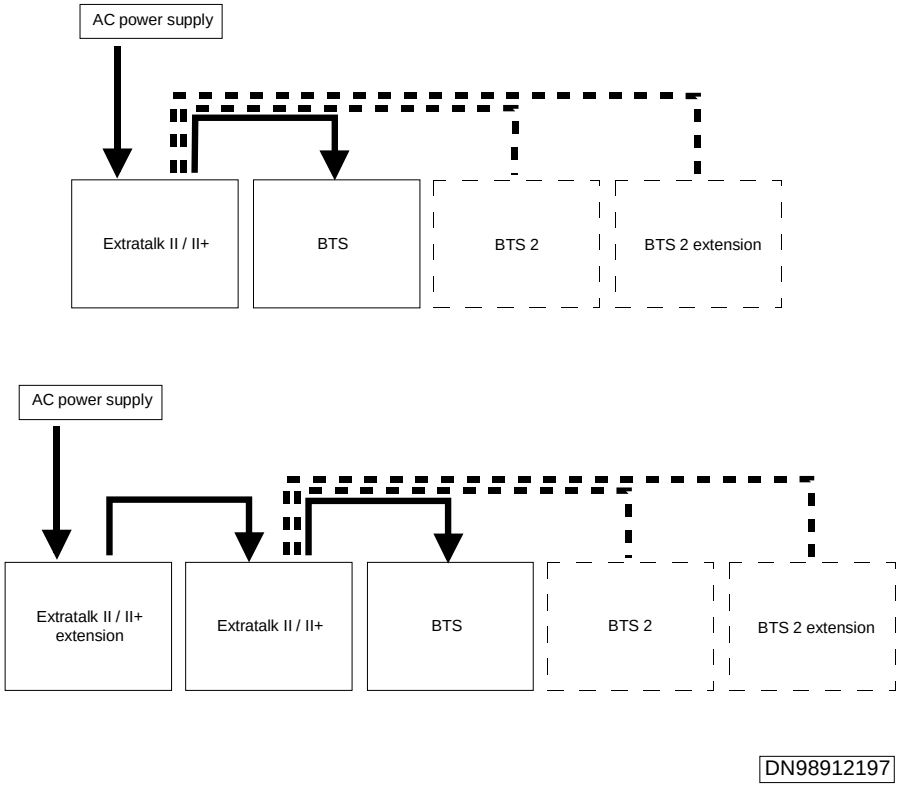

Figure 10 AC power distribution to Extratalk II / II+ installation configurations

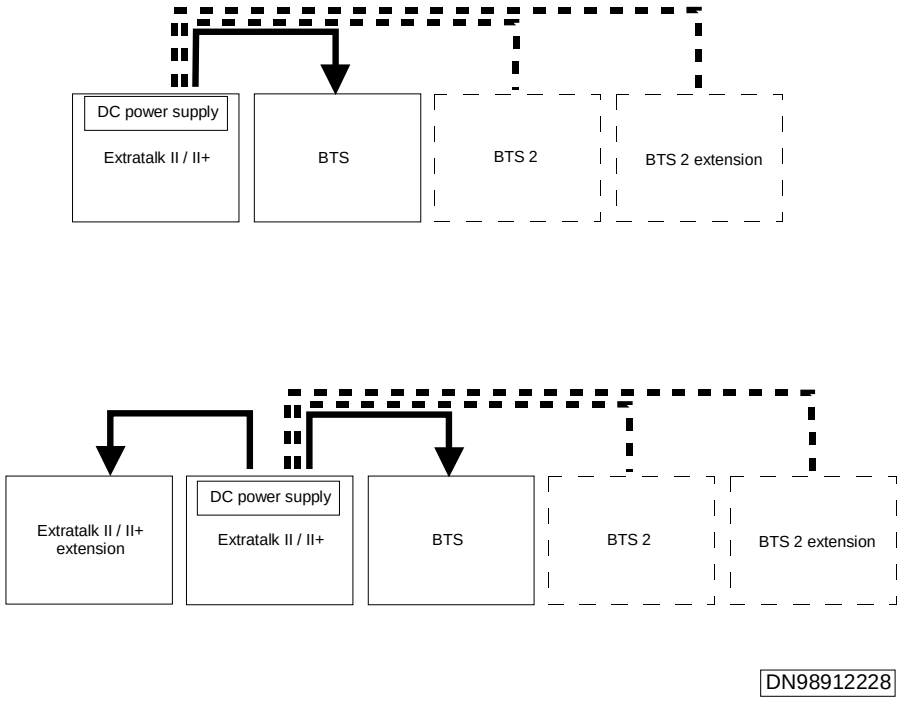

Figure 11 DC power distribution to Extratalk II / II+ installation configurations

3.2. Cabinet configurations

The configurations of the Extratalk II /II+ and extension cabinets are flexible in order to suit the customers requirements.

The configurations for the Extratalk II /II+ cabinet are shown in Figure 12. The Extratalk II / II+ cabinet is always installed to the left of the BTS cabinet when viewed from the front.

The configurations for the Extratalk II /II+ extension cabinet are shown in Figure 13. The configurations range from a cabinet dedicated to RLEs to a cabinet dedicated to batteries, with various combinations of RLEs, batteries and PDUs also available. Each of the Extratalk II / II+ extension configurations can be used with any of the Extratalk II / II+ configurations shown in Figure 12. The Extratalk II / II+ extension cabinet is always installed to the left of the Extratalk II / II+ cabinet when viewed from the front.

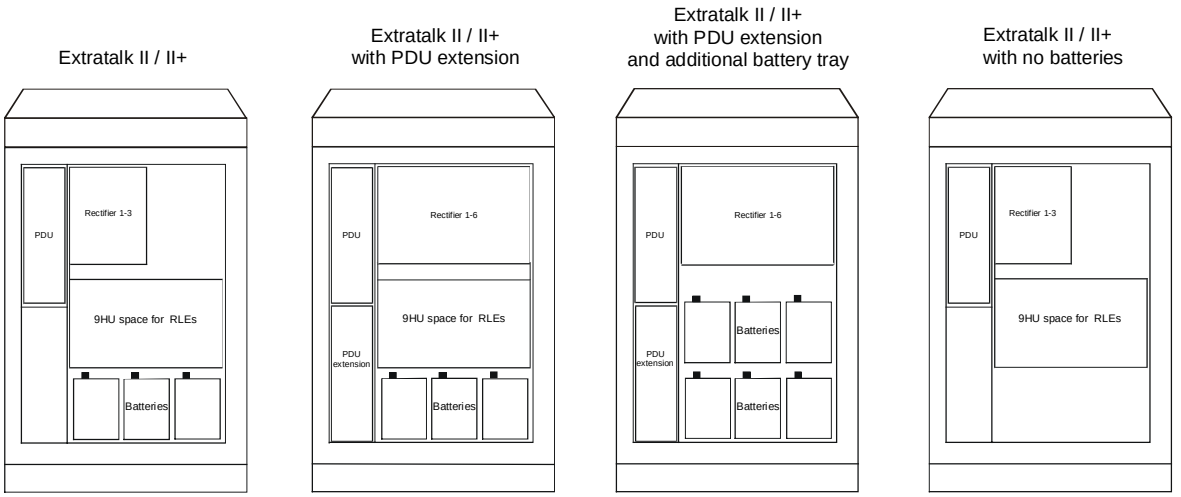

Figure 12 Extratalk II / II+ configurations

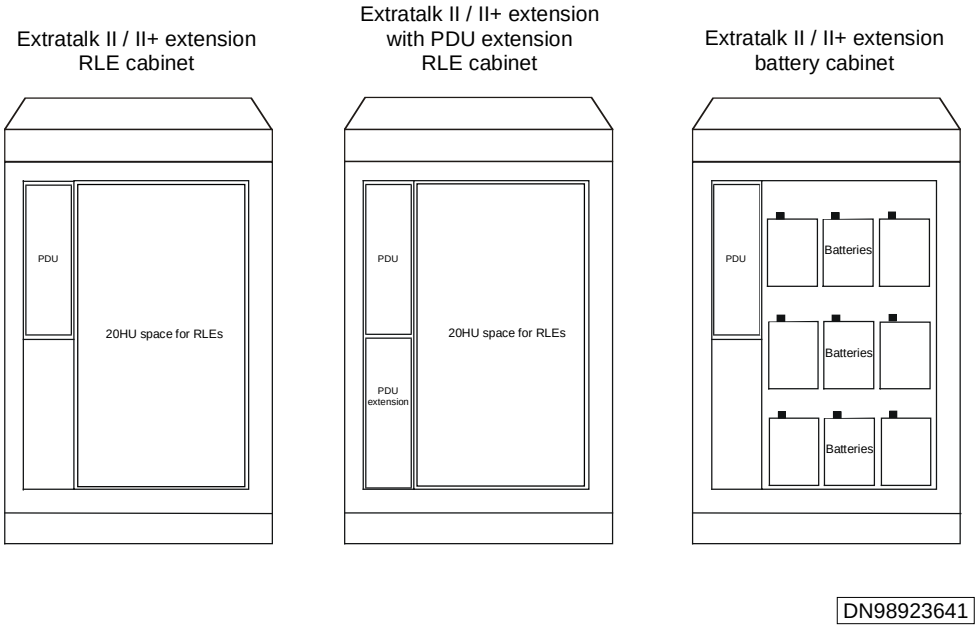

Figure 13 Extratalk II /II+ extension configurations

4. CABINET INSTALLATION

CAUTION Read carefully [3] before commencing the installation, and implement whenever appropriate.

This section details the installation of the Extratalk II / II+ and extension outdoor cabinets

Before starting the installation, ensure that the site is prepared as detailed in section 2.

4.1. Unpacking and checking the delivery

NOTE Do not discard the M8 screws and washers which attach the cabinet to the transportation pallet. These screws are required for fastening the cabinet to the plinth.

Do not break the plywood container or misplace the metal clips while opening it. Both the container and the clips are reusable.

There are several delivery package types and the unpacking procedure may differ from the one detailed in this section.

► Unpack and check the cabinet delivery as follows:

1. Remove the metal clips retaining the top cover of the plywood container and remove the cover.
2. Remove the clips retaining the sides of the plywood container and remove the sides.
3. Lift off the cardboard or plastic cover from around the cabinet.
4. Open the cabinet door.
5. Unscrew the four M8 screws fastening the cabinet to the pallet. Retain the screws and washers for the cabinet installation. There are two screws in the front and two screws in the rear of the cabinet, as shown in Figure 14. It may be necessary to remove the bottom plates of the cabinet to access the screws. These plates have to be reinstalled after the cabinet installation.
6. Unpack the plinth and roof packages.
7. Check the delivery for damage.

8. Check the contents of the delivery against the Packing List.
9. Place the Packing List into the site folder.
10. Recycle the packing material.

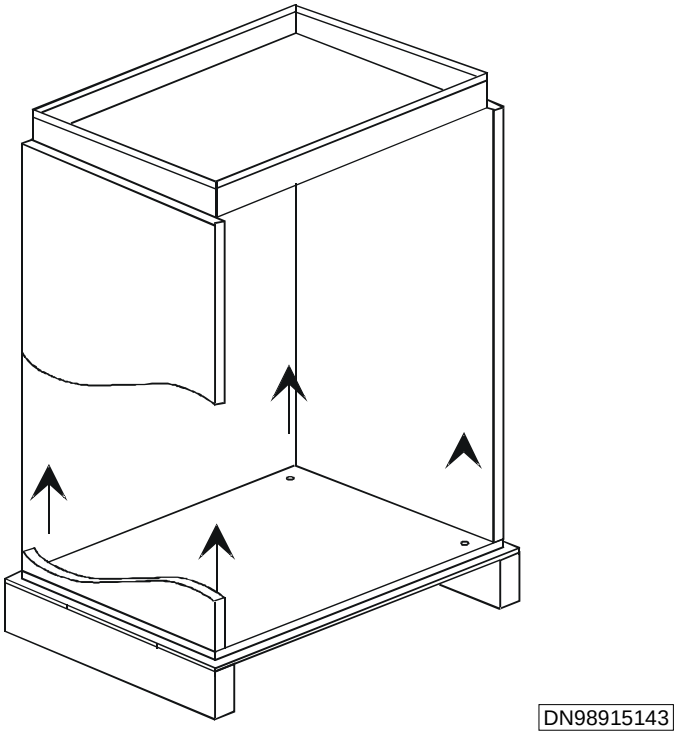

Figure 14 Pallet mounting screw positions

After unpacking and checking the delivery, tick off the box in the checklist.

Unpacking and delivery check ☐ failed or ☐ passed.

4.2. Installing the cabinet to site

This chapter details the installation of the cabinet and the cabinet parts at the site. Observe the space requirements detailed in 2.2.

CAUTION Do not expose the cabinet top and interior to rain. Keep the cabinet and units protected until all site work, such as drilling, is completed.

4.2.1. Preparing the base for plinth installation

CAUTION Handle the plinth with care. Refer to section 2.2.1 for weights.

▶ Prepare the concrete base for the plinth installation as follows:

1. Position the plinth on the base according to the site plan.
2. Using the plinth fixing holes as a template, drill one anchor bolt hole in the base. Insert an anchor bolt into the hole to keep the plinth in position.
3. Check the alignment of the plinth with the site and correct, if necessary.
4. Drill a second anchor bolt hole into the base, using another plinth fixing hole as location. Insert an anchor bolt into the hole.
5. Drill the remaining anchor bolt holes into the base. Remove the two anchor bolts fitted, and, if necessary, remove the plinth in order to finish the holes.

4.2.2. Installing the single plinth

NOTE A blanking plate identifies the bottom face of the plinth. The top face is identified by four large holes.

▶ Secure the plinth to the base as follows:

1. Place the plinth on the base so that the plinth fixing holes (shown in Figure 6) and the anchor bolt holes in the base are in line.
2. Insert the anchor bolts with washers into the holes and tighten.
3. Ensure that the washers cover the plinth fixing holes. Ensure with a spirit level that the plinth is level. If it is not, remove the anchor bolts and level the plinth using shims, inserted, where necessary, between the base and the plinth. Re-insert the anchor bolts with washers into the holes and tighten.

4.2.3. Installing the double plinth

NOTE A blanking plate identifies the bottom face of the plinth. The top face is identified by eight large holes.

▶ Secure the plinth to the base as follows:

1. Place the plinth on the base so that the plinth fixing holes (shown in Figure 7) and the anchor bolt holes in the base are in line.
2. Insert the anchor bolts into the holes and tighten.

3. Ensure with a spirit level that the plinth is level. If it is not, remove the anchor bolts and level the plinth using shims inserted, where necessary, between the base and the plinth. Re-insert the anchor bolts into the holes and tighten.

After installing the plinth give the required information by ticking the boxes in the checklist.

Plinth installation ☐ on steel construction or ☐ on concrete base.

☐ Single plinth or ☐ double plinth.

4.2.4. Installing the grid plates to the plinth

Grid plates may need to be fitted to the rear side of the installed plinth where necessary, as shown in Figure 8, if they are not already fixed to the plinth. Each grid is secured with ten M6 x 16 screws with washers.

After installing the grid plates to the plinth give the required information by ticking the boxes in the checklist.

Grid plates fixed to plinth ☐ no or ☐ yes.

4.3. Installing the cabinet onto the plinth

This sections details the following:

- installing a single cabinet onto the single plinth,
- installing a single cabinet onto the double plinth,
- installing two cabinets onto the double plinth,
- installing a bridging plate and bracket to join adjacent cabinets.

4.3.1. Cabinet configurations

The cabinet configurations are detailed in section 3.2. When mounted adjacently, the Extratalk II / II+ cabinet is always installed to the left side of the BTS cabinet when viewed from the front. The Extratalk II / II+ extension cabinet is always installed to the left side of the Extratalk II / II+ cabinet when viewed from the front.

4.3.2. Lifting the cabinet

CAUTION Cabinets should not be lifted with the HMU, the rectifier modules or the batteries installed.

4.3.2.1. Lifting the cabinet using the optional eye bolts

► Lift the cabinet using the lifting eye bolts as follows:

1. Screw the lifting eyebolts into the four lifting points, positioned near the top corners of the cabinet.
2. Attach the lifting lines to the lifting eyebolts according to Figure 15.

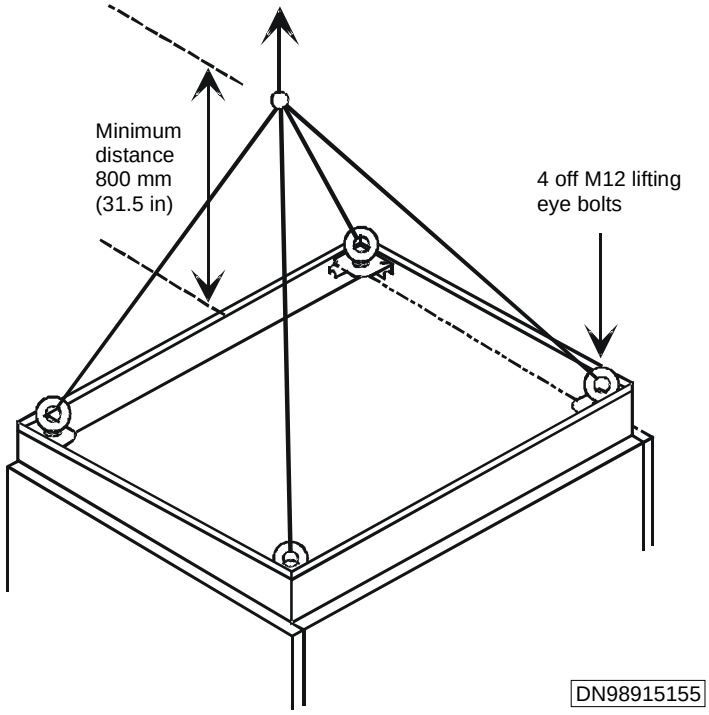

Figure 15 Lifting the cabinet using lifting eyebolts

3. Carefully lift the cabinet directly upward from the ground.
4. Position the cabinet in the desired location.
5. Remove the lifting ropes and the lifting eye bolts.

4.3.2.2. Lifting the cabinet using the optional lifting handles

CAUTION Care should be taken when handling the cabinet due to its significant weight. It is therefore extremely important that sufficient personnel are applied to the task of moving the cabinet. Refer to section 2.2.1 for weights.

There are two alternative fixing positions for the handles, as shown in Figure 16. The handle fixing screws are included in the lifting handle delivery package.

► Lift the cabinet using the lifting handles as follows:

1. Place the lifting handle against the cabinet side panel as shown in Figure 16.
2. Attach the lifting handle to the cabinet side panel, at the desired lifting handle position, with two M6 screws. Place a piece of plastic or cardboard between the handle and the cabinet lifting points to avoid scratching the cabinet.
3. Lift the lifting handle upwards so that the screws are engaged in the narrow ends of the lifting handle guide holes.

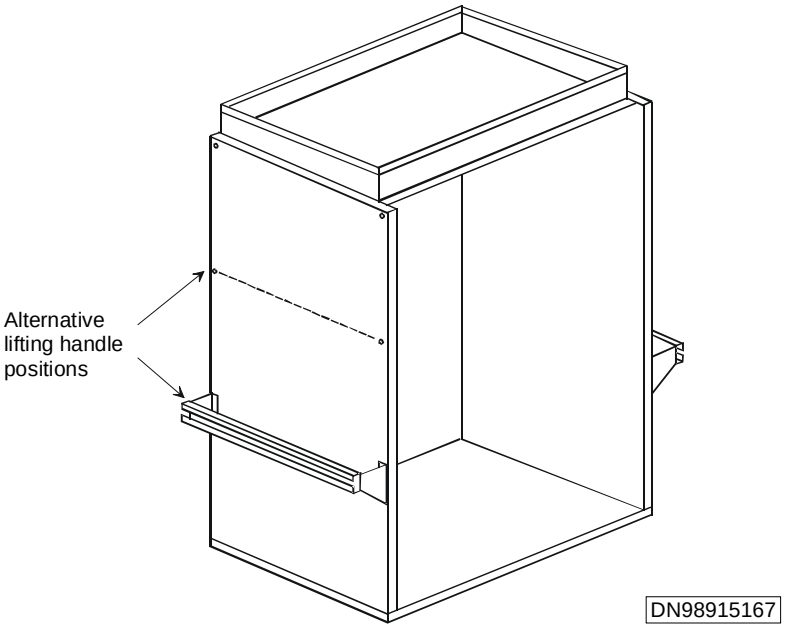

Figure 16 Cabinet lifting handle positions

4. Attach the other lifting handle to the opposite side of the cabinet.
5. Carefully lift and carry the cabinet to the correct position.
6. Remove the screws and the handles from the side panels.

4.3.3. Installing the cabinet onto a single plinth

► Install the cabinet onto the single plinth as follows:

1. Lift the cabinet onto the plinth as shown in Figure 17.

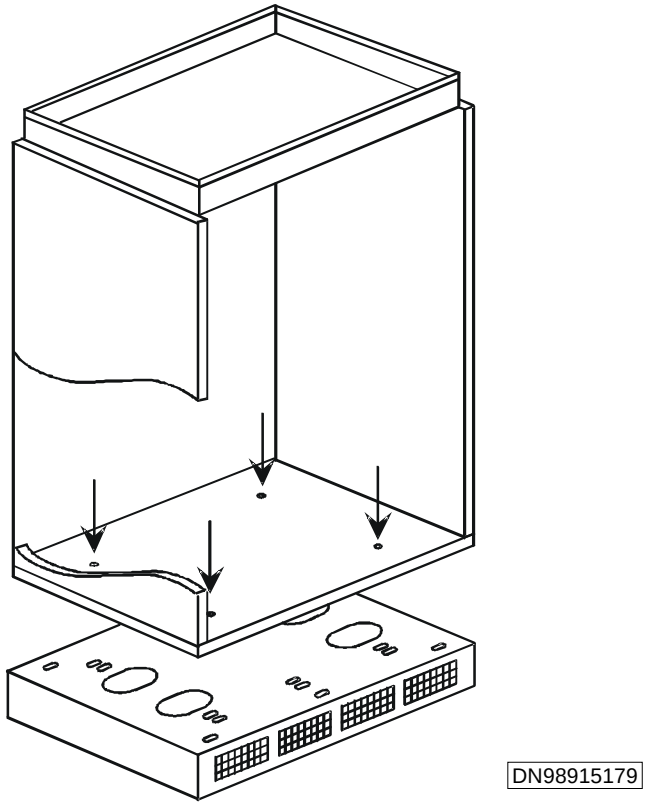

Figure 17 Fixing points between the cabinet and plinth

2. Open the cabinet door.
3. Remove the battery plate from the cabinet floor.
4. Align the cabinet fixing holes and the mating holes in the plinth.
5. Insert the four fastening screws and washers into the cabinet fixing holes but do not tighten.
6. Working from the front, pull the cabinet forwards as far as required to align the fastening screws with the mating holes in the plinth.
7. Ensure that the sides of cabinet are flush with the sides of the plinth.
8. Tighten the fastening screws with a suitable tool.
9. Replace the battery plate to the cabinet floor.

4.3.4. Installing the cabinet onto a double plinth

► Install the cabinet onto a double plinth as follows:

1. Lift the cabinet onto the right side of the double plinth as shown in Figure 18.

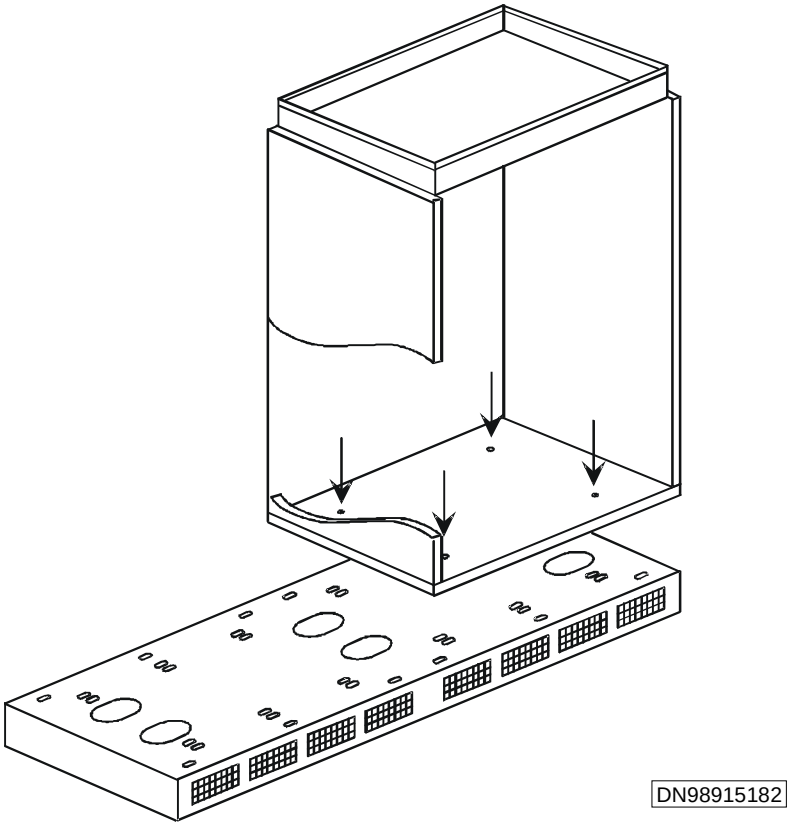

Figure 18 Fixing points between the cabinet and double plinth

2. Open the cabinet door.
3. Remove the battery plate from the cabinet floor.
4. Align the cabinet fixing holes and the mating holes in the plinth.
5. Insert the four fastening screws and washers into the cabinet fixing holes but do not tighten.
6. Working from the front, pull the cabinet forwards as far as required to align the fastening screws with the mating holes in the plinth.
7. Ensure that the side of the cabinet is flush with the right side of the plinth.
8. Tighten the fastening screws with a suitable tool.
9. Replace the battery plate to the cabinet floor.

4.3.5. Installing two cabinets onto a double plinth

Two cabinets can be mounted on a double plinth, noting the cabinet configurations described in section 3.2. BTS cabinets should be installed in accordance with [13], however, any additional requirements described below should also be observed for installation onto a double plinth.

▶ Install the cabinets onto the double plinth as follows:

1. Lift the cabinets onto the plinth. Leave at least 35 cm (13.8in) of working space between them.
2. Open the cabinet doors.
3. Remove the battery plate from the floor of the Extratalk II / II+ cabinet, and extension cabinet if necessary.
4. Push the cabinets side by side and align the cabinet fixing holes with the mating holes in the plinth.
5. Insert the fastening screws and washers into the cabinet fixing holes, but do not tighten.
6. Working from the front, pull the cabinets forward as far as required to align the fastening screws with the mating holes in the plinth.
7. Adjust one of the cabinets so that it is exactly flush with the side of the plinth, and then tighten the associated fastening screws with a suitable tool.
10. Push the second cabinet against the first so that no gap remains between them and tighten the cabinet fastening screws with a suitable tool.
11. Replace the battery plate to the Extratalk II / II+ cabinet floor, and extension cabinet floor if necessary.

After mounting the cabinets to the plinth tick off the box in the checklist.

Cabinets mounted to plinth ☐ no or ☐ yes.

4.3.6. Installing the bridging plate and bracket

The cabinets are joined together using a bridging plate secured by the eight M6 fastening screws provided, and by a bridging bracket on top of the bridging plate, which is secured by a further four M6 fastening screws.

One bridging plate and bracket should be installed between the Extratalk II / II+ cabinet and the BTS, and one bridging plate and bracket between the Extratalk II / II+ cabinet and the Extratalk II / II+ extension cabinet.

► Install the bridging plate and bracket onto the adjacent cabinets as follows:

1. Starting from the seam at the rear of the cabinets, carefully pull off the top seals lining the cover plates on both cabinets, as shown in Figure 19.
2. Unscrew the cover plate retaining screws and remove the cover plates on both cabinets. There are two screws at each end of the cover plates, as shown in Figure 19.

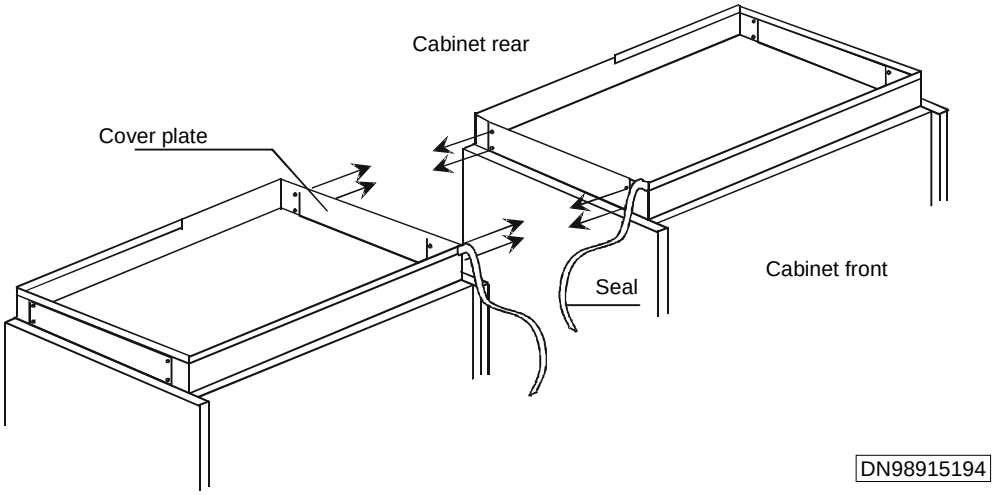

Figure 19 Removing cabinet top seals and cover plates

3. Place the bridging plate across the cabinets as shown in Figure 20. Note that the underside of the bridging plate has a full-length seal and the topside has seals at both ends.
4. Secure the bridging plate to the cabinets with eight M6 screws and fully tighten with a suitable tool.

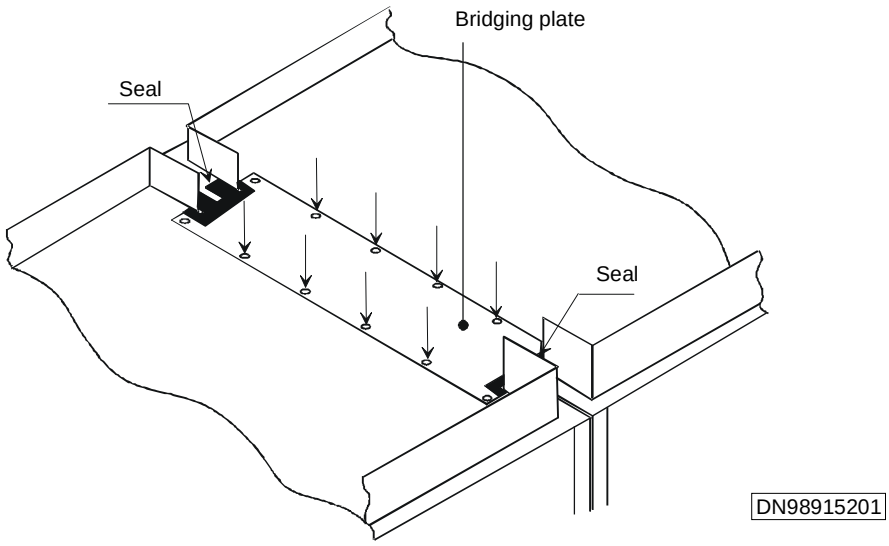

Figure 20 Positioning the bridging plate

5. Place the bridging bracket on top of the bridging plate: first fit the bracket's narrow end to the rear of the cabinet, and then fit the bracket's broad end to the front as shown in Figure 21. Be careful not to damage the seals at both ends of the bracket. Lubricate if necessary.

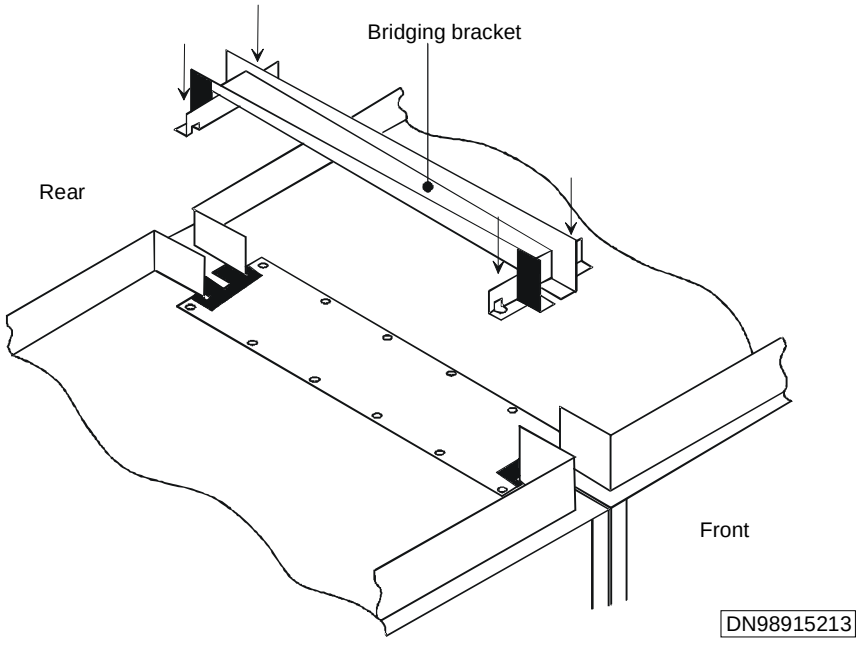

Figure 21 Positioning the bridging bracket

6. Secure the bridging bracket to the cabinets with the four M6 screws provided.

7. Replace the cabinet top seals tightly along the bridging bracket top edges.
8. Make sure that all seals are tight and the cabinets are aligned.

After installing the bridging bracket tick off the box in the checklist.

Bridging plate and bracket installed ☐ no or ☐ yes.

4.4. Unlocking and locking the cabinet door

4.4.1. Unlocking the door

The cabinet door is locked when the cabinet comes to the site.

1. Lift up the lock cover.
2. The security door key will be in the lock. Use the key to turn the lock 360 degrees clockwise. When you hear a clicking sound, the door is unlocked.
3. Turn the triangle BTS door key 45 degrees clockwise to open the door.

NOTE

If you have any problems with unlocking the door, try turning the triangle BTS door key clockwise and counter-clockwise, at the same time turning the security key clockwise.

The security key cannot be removed from the lock when the door is open.

4.4.2. Locking the door

1. Close the door.
2. Turn the triangle BTS door key 45 degrees counter-clockwise.
3. Turn the security key 90 degrees counter-clockwise. The door is locked now.
4. Turn the security key counter-clockwise, so that the security key is in a vertical position. The security key will come out of the lock now.
5. Click down the lock cover.

4.5. Cabinet door adjustment

WARNING!

Do not touch the EMC shields situated around the cabinet door. The sharp edges of the EMC shields may cause personal injury.

CAUTION Care should be taken when adjusting the cabinet door, due to its significant weight. Refer to section 2.2.1 for weights.

The cabinet door is installed in the factory with the hinges on the right. If the site so requires, the door opening direction can be changed, following the instructions given below.

► Change the position of the door locking mechanism and ground cable as follows:

1. Release the ground cable, which is attached to the door with a M6 nut and washer.
2. Unscrew the two M6 bolts which secure the door locking mechanism to the upper left frame of the cabinet. See Figure 22.

NOTE Ensure the bond between the ground cable and the cabinet door is at an angle of 45 degrees from the top edge of the door, as shown in Figure 22.

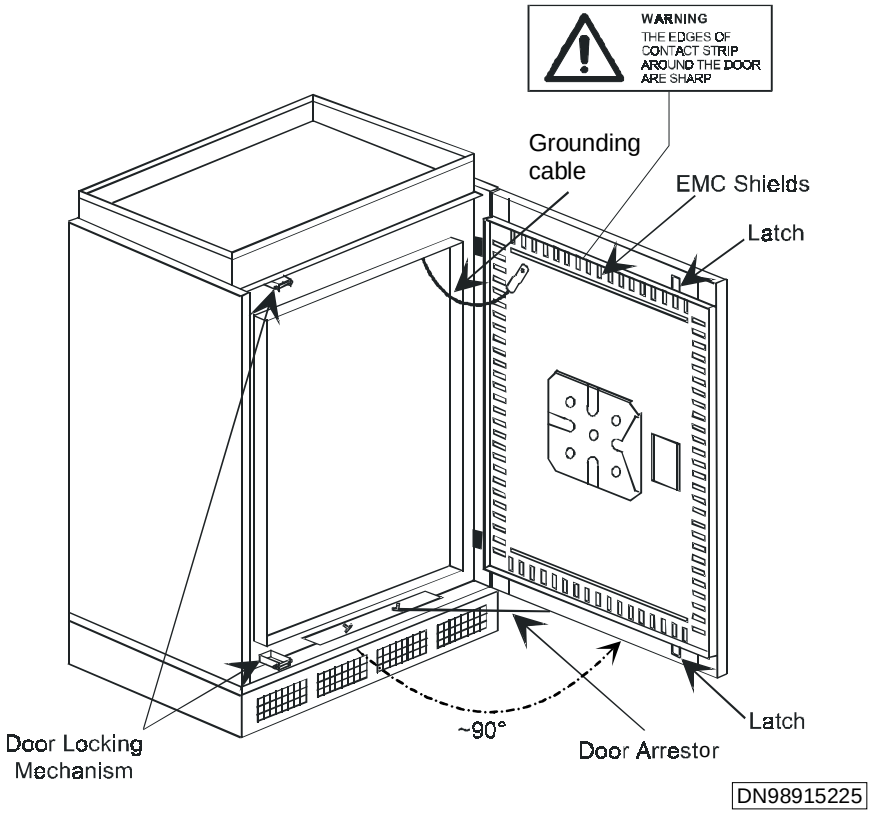

Figure 22 Cabinet door with EMC shields and ground cable

3. Unscrew the two blanking screws in the upper right frame of the cabinet.
4. Secure the door locking mechanism to the upper right frame of the cabinet with the two M6 bolts, at the position previously occupied by the blanking screws.
5. Screw the two blanking screws into the empty holes in the upper left frame of the cabinet, the position previously occupied by the door locking mechanism.
6. Unscrew the two M6 bolts which secure the door locking mechanism to the lower left frame of the cabinet. See Figure 22.
7. Unscrew the two blanking screws in the lower right frame of the cabinet.
8. Secure the door locking mechanism to the lower right frame of the cabinet with the two M6 bolts, at the position previously occupied by the blanking screws.
9. Screw the two blanking screws into the empty holes in the lower left frame of the cabinet, at the position previously occupied by the door locking mechanism.

10. Locate the ground cable fixing nut under the front right corner of the cabinet roof by hand.
11. Detach the ground cable from the cabinet. The ground cable is secured to the cabinet with a M6 nut and washer. See Figure 22.
12. Secure the ground cable to the cabinet, under the front left corner of the cabinet roof, with the M6 nut and washer removed in the previous step.
13. Ease off the door arrestor, located near the bottom edge of the door, at the right arrestor position on the cabinet.

► Change the door lock orientation as follows:

1. Remove the four M2 screws which retain the door lock cover plate, as shown in Figure 23.
2. Remove the door lock cover plate.
3. Gently cut away the seal behind the cover plate where necessary to give access to the two M6 bolts which retain the lock fascia panel. Remove as little of the seal as possible, ensuring that the outer edge of the seal is maintained, as shown in Figure 23.

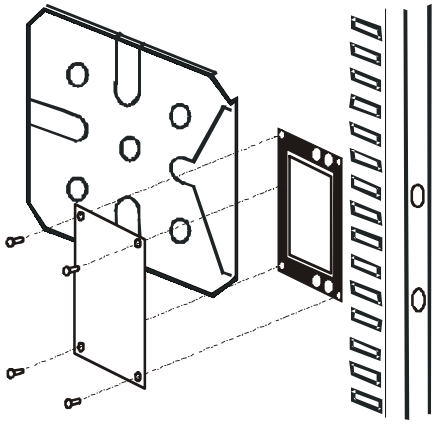

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Figure 23 Door lock cover plate removal

4. Using the access hole in the side of the cabinet door, remove the M4 screw which retains the security lock barrel, as shown in Figure 24. Turn the triangle BTS door key 45 degrees counter-clockwise to the locked position. Turn the security key counter-clockwise until the key and barrel can be removed.

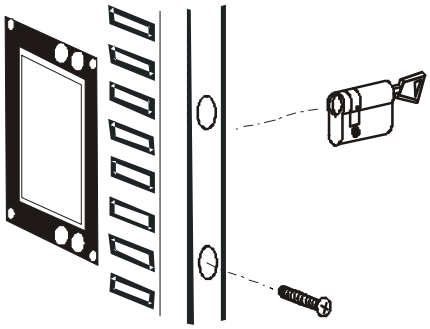

Figure 24 Security door lock barrel removal

5. Remove the two bolts and washers which retain the lock fascia panel carefully and remove the lock fascia panel, the outer spacer panel and the triangle lock collar, as shown in Figure 25.

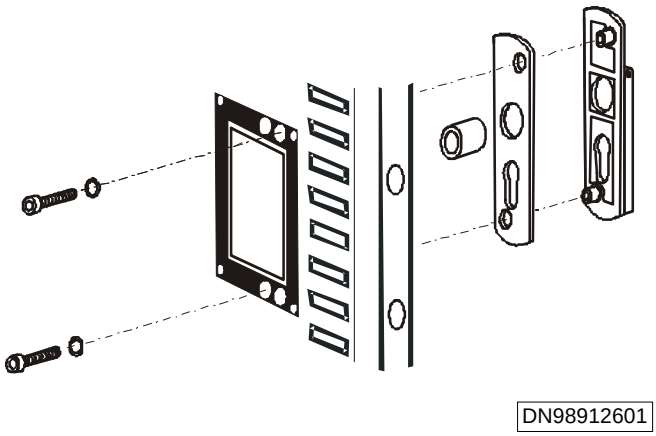

Figure 25 Door lock fascia panel removal

6. Remove the M6 screw which retains the triangle lock barrel, as shown in Figure 26.

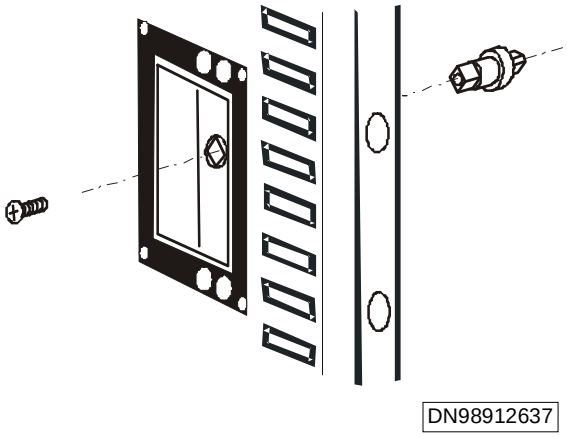

Figure 26 Triangle lock barrel removal

7. Remove the triangle lock barrel. Ensure that the inner spacer panel does not drop inside the door.
8. Manipulate the lock, through the lock access panel in the door, to give access to the M4 bolt which retains the upper door locking bar.
9. Unscrew the bolt sufficiently to allow removal of the upper latch bar. Thread the upper latch bar out through the top edge of the cabinet door.
10. Manipulate the lock, through the lock access panel in the door, to give access to the M4 bolt which retains the lower latch bar.
11. Unscrew the bolt sufficiently to allow removal of the lower latch bar. Allow the lower latch bar to rest upright inside the cabinet door. Ensure that the lock and inner spacer panel do not drop inside the door.
12. Rotate the lock and the inner spacer panel through 180°.
13. Fit the lower latch bar to the lock, ensuring that the latch taper is positioned as shown in Figure 27. Tighten the bolt.
14. Thread the upper latch bar through the top edge of the cabinet door. Fit the upper latch bar to the lock, ensuring that the latch taper is positioned as shown in Figure 27. Tighten the bolt.

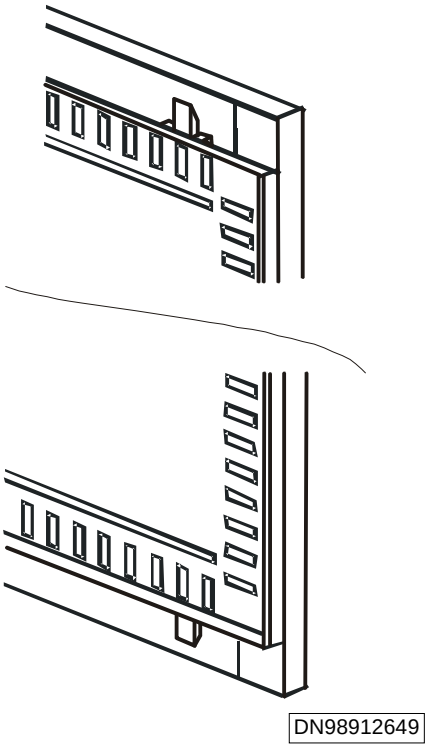

Figure 27 Door lock latch position

15. Refit the security lock barrel with the M4 screw. Use a small amount of grease between the head of the screw and the screwdriver to aid location of the screw.
16. Refit the triangle lock barrel with the M6 screw.
17. Refit the lock fascia panel, the outer spacer panel and the triangle lock collar, with the two M6 bolts and washers.
18. Refit the door lock cover plate with the four M2 screws.

► Change the door opening direction as follows:

1. Open the door at 90 degrees to the cabinet.
2. Lift the door carefully upwards until the door hinge pins are disengaged from the cabinet hinges on the right of the cabinet. See Figure 28.

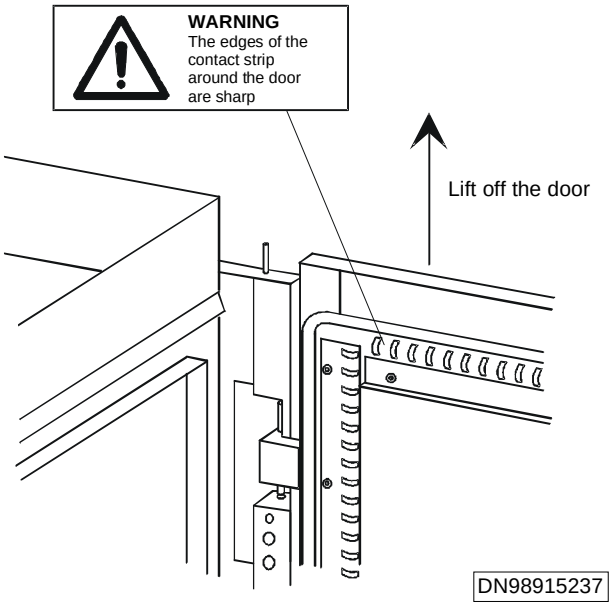

Figure 28 Lifting the cabinet door

3. Ease the door arrestor away from the bottom edge of the door, and refit to the top edge of the door.
4. Turn the door upside down.
5. Guide the door hinge pins into the cabinet hinge location holes on the left of the cabinet, and lower the door in place.
6. Reconnect the ground cable to the door with the M6 bolt and washer, ensuring that the bond is at an angle of 45 degrees.
7. Guide the door arrestor into its left arrestor position on the cabinet by turning it until it becomes engaged.

Give information of the door opening direction by ticking off the box in the checklist.

Door opening direction ☐ default or ☐ changed.

4.6. Installing the roof

CAUTION Care should be taken when handling the cabinet roof due to its significant weight. Refer to section 2.2.1 for weights.

NOTE The HMU should be installed prior to roof installation. There are small guide pins at the front corners of the cabinet. If guide pins are also fitted at the rear they will need to be removed.

RECOMMENDATION If possible, connect all interface cabling on the cabinet top before installing the roof.

This section details the installation of the single and double roof panels.

► Install the roof as follows:

1. Lift the roof on to the top of the cabinet, with the roof locking plate at the rear as shown in Figure 29.

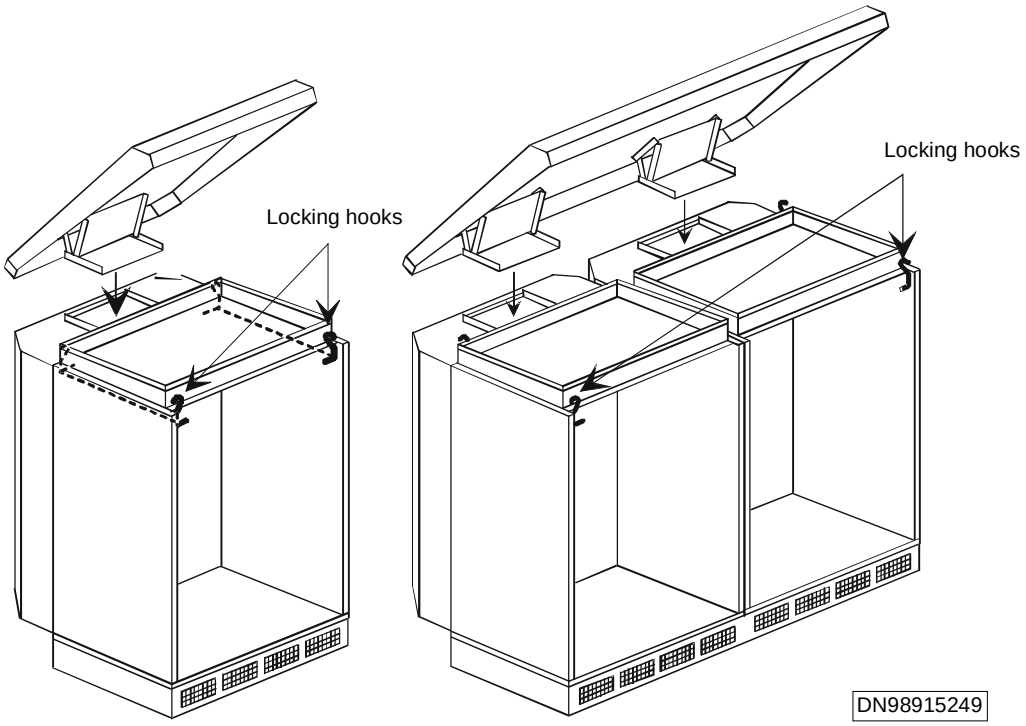

Figure 29 Installing the cabinet roof

2. Direct the roof guide pins into the cabinet guide slots as shown in Figure 30.
3. Slide the roof backwards so that the roof guide pins are engaged in the cabinet guide slots, as shown in Figure 30.
4. Release the roof spring pins shown in Figure 30.

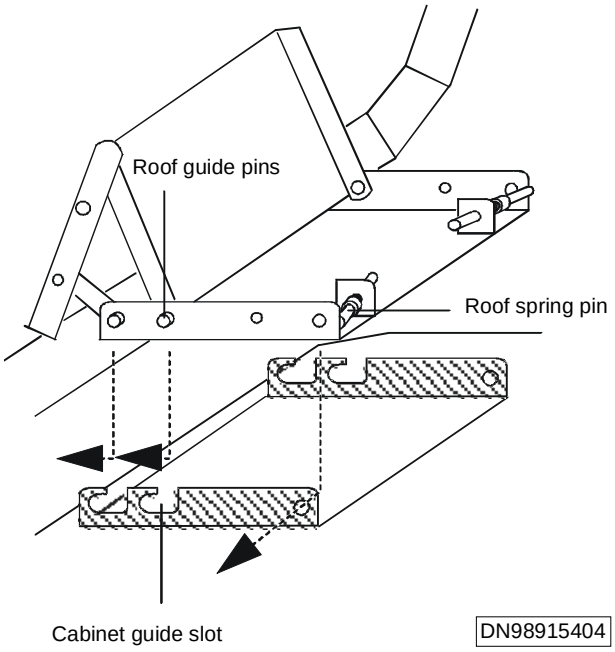

Figure 30 Securing the roof to the cabinet

5. Using the door key handle, press the locking hook down on both sides to release the roof locking mechanism. If required, adjust the roof to match the roof guide holes with the cabinet guide pins.
6. Lock the roof by closing the hooks with the door key handle at both sides, as shown in Figure 31.

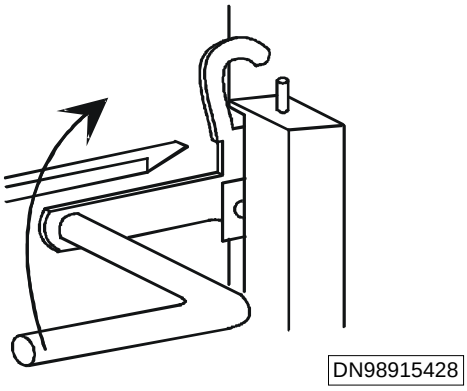

Figure 31 Locking the roof

After installing and locking the roof tick off the box in the checklist.

Roof installed ☐ no or ☐ yes.

4.7. Installing the grounding frame (option)

The grounding frame is an option for the Extratalk II / II+ and extension, and it offers the customer ten M8 grounding points. The customer provides the M8 x 25 screws, washers, and nuts required for grounding connections to the frame.

The grounding frame is attached to the left-hand side of the cabinets when viewed from the front. However, when only one cabinet is installed on the right side of a double plinth, the grounding frame is attached to the plinth and supported by support parts.

4.7.1. Installing the grounding frame to the cabinet

The grounding bar can be fixed to four alternative levels marked A, B, C, and D, as shown in Figure 32.

► Install the grounding frame to the cabinet as follows:

1. Attach the grounding frame to the cabinet with four M6x40 screws and washers.
2. Attach the grounding bar to the grounding frame with two M6x16 screws and washers.

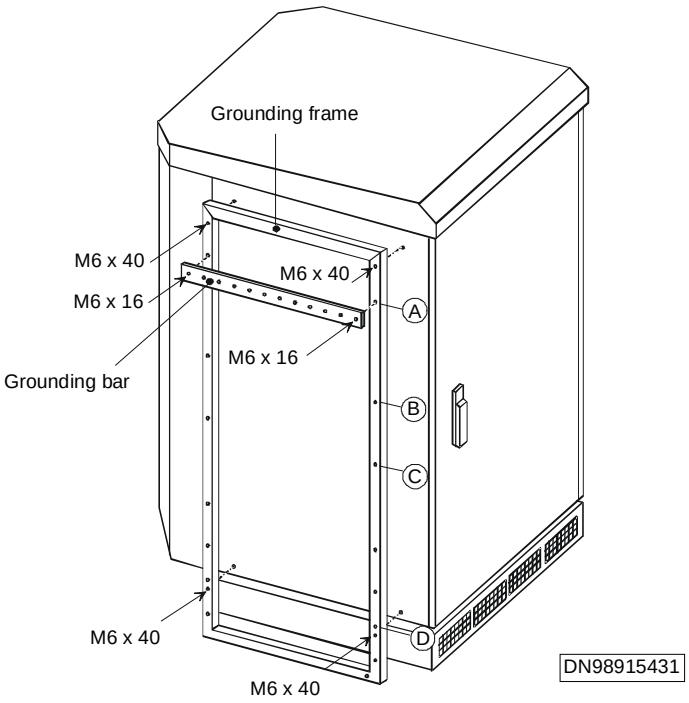

Figure 32 Installing the grounding frame to the cabinet

4.7.2. Installing the grounding frame to the double plinth

► Install the grounding frame to the left of the double plinth as follows:

1. Attach the grounding frame to the plinth with M6 x 40 screws and washers. The fixing points are marked with (1) in Figure 33
2. Position the support parts onto the plinth as shown in Figure 33.
3. Fasten the support parts to the grounding frame with M6 x 40 screws and washers. Hand tighten the screws. The fixing points are marked with (2) in Figure 33.

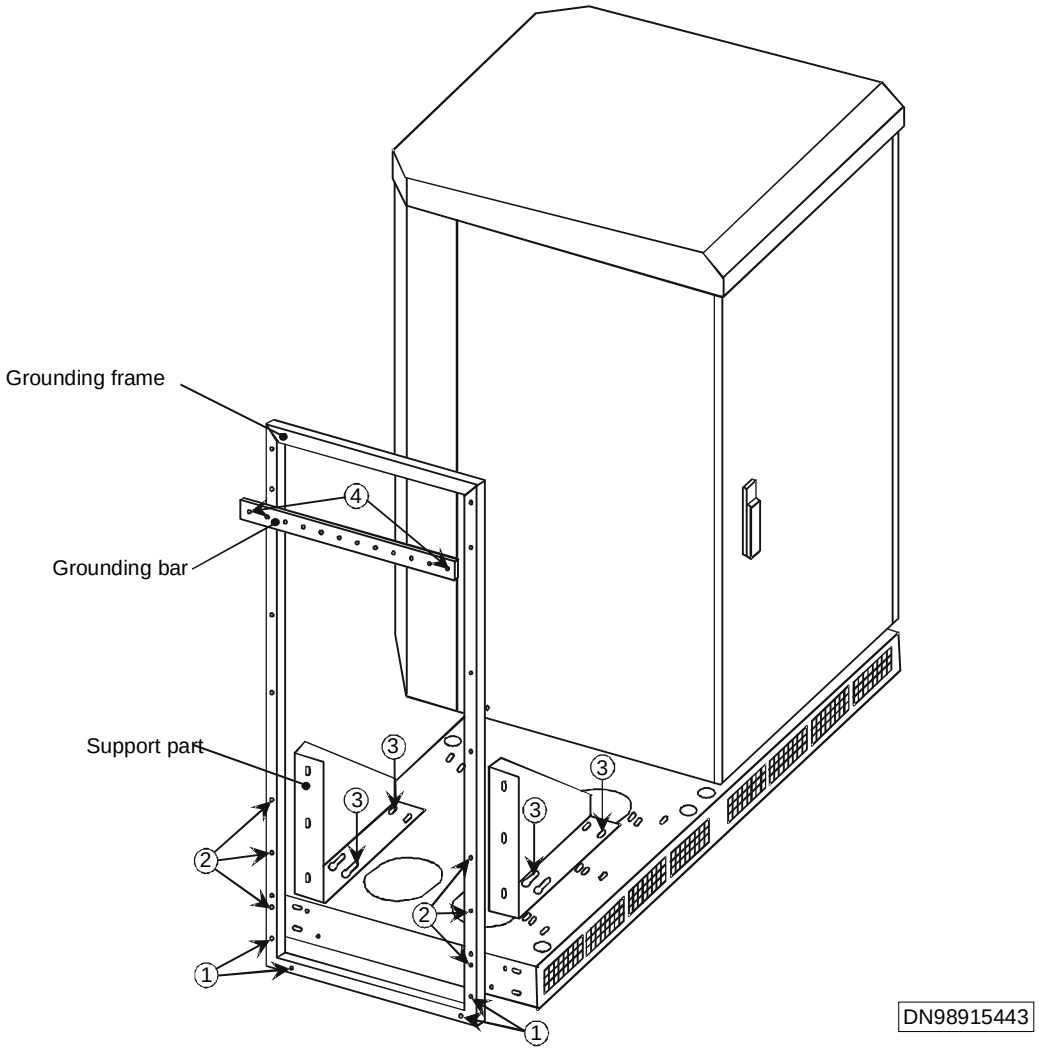

Figure 33 Installing the grounding frame to the double plinth

4. Fasten the support parts to the plinth with M8x20 screws and washers. Hands tighten the screws. The fixing points are marked (3) in Figure 33.
5. Tighten all support part fastening screws.
6. Attach the grounding bar to the grounding frame with the two M6x16 screws and washers.

After installing the grounding frame tick off the box in the checklist.

Grounding frame installed ☐ no or ☐ yes.

5. INSTALLING THE HMU

This chapter details the installation of the HMU to the Extratalk II / II+ and extension cabinet.

5.1. Unpacking and checking the delivery

The HMU is delivered on a transportation pallet. All necessary fastenings are included. HMU lifting handles are optional.

Unpack the HMU as follows:

1. Unpack the delivery and check for any damage.
2. Check the delivery against the packing list.
3. Place the packing list into the site folder.
4. Recycle the packing material.

5.2. Installing the Heat Exchanger

WARNING!

Care should be taken when handling the HE due to its significant weight. Refer to section 2.2.1 for weights.

Do not touch the EMC shields around the HE, as they may cause personal injury.

Make sure that all power to the HE is switched off before starting the installation.

The HE can be lifted and carried using one or more optional lifting handles. The triangle BTS door key is used to lock the HE in place.

NOTE

The function check laid down in section 8.1 is to be undertaken before the HE is lifted into position.

► Install the HE to the rear of the cabinet as follows:

1. Attach the lifting handle or handles at the positions shown in Figure 34. Place a piece of plastic or cardboard between the handle and the HE lifting points to avoid scratching the HE.

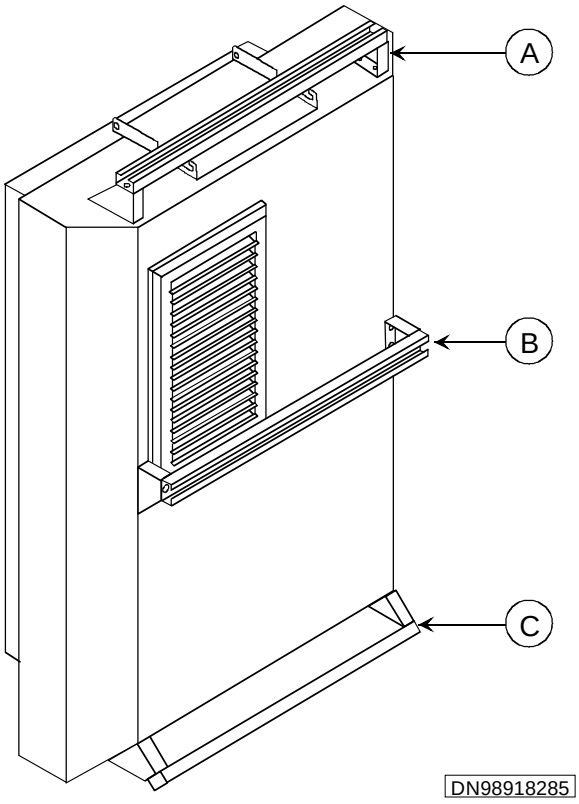

Figure 34 HMU lifting handle positions

2. Using the triangle BTS door key, unlock the locking mechanism as shown in Figure 35.

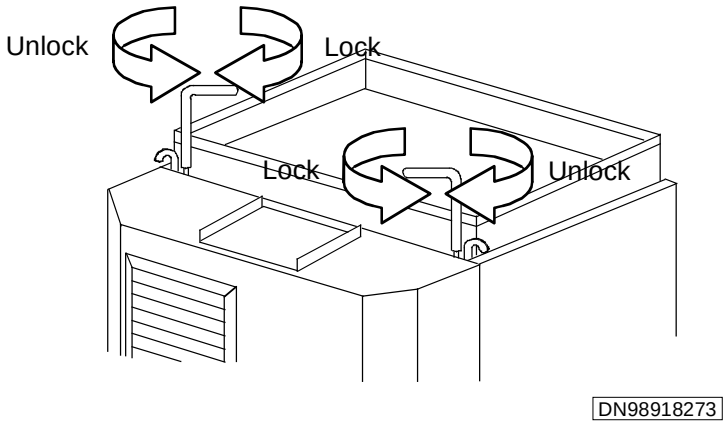

Figure 35 Locking bar opening direction

3. Take the ends of the HE cables out of the rear side of the cabinet.
4. Position the HE near to the cabinet, so that the cables reach the relevant connectors on the HE.
5. Connect the grounding cable, control cable, AC power cable, and DC power cable as shown in Figure 36. Check that the installed grounding cable is in the position shown in Figure 36.

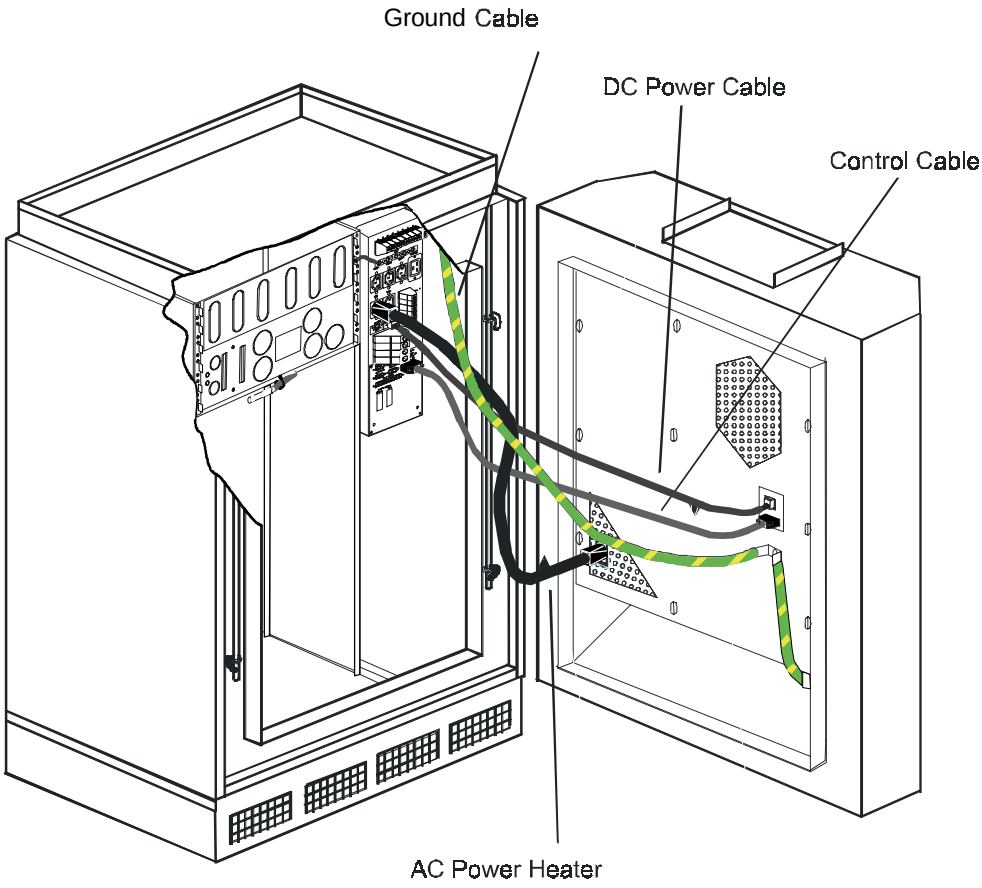

Figure 36 HE cable connections

6. Direct the cabinet guide pins into the guide holes of the HE.
7. Support the HE and lock both sides using the triangle BTS door key, as shown in Figure 35. Ensure that there is no gap between the HE and the cabinet.

5.3. Installing the Air Conditioning Unit

WARNING!

Care should be taken when handling the ACU due to its significant weight. Refer to section 2.2.1 for weights.

Do not touch the EMC shields around the ACU, as they may cause personal injury.

Make sure that all power to the ACU is switched off before starting the installation.

The ACU can be lifted and carried using one or more optional lifting handles. The triangle BTS door key is used to lock the ACU in place.

NOTE The function check laid down in the power-ON-test section 8.1 is to be undertaken before the ACU is lifted into position.

▶ Install the ACU to the rear of the cabinet as follows:

1. Attach the lifting handle or handles at the positions shown in Figure 34. Place a piece of plastic or cardboard between the handle and the ACU lifting points to avoid scratching the ACU.
2. Using the triangle BTS door key, unlock the locking mechanism as shown in Figure 35.
3. Take the ends of the ACU cables out of the rear side of the cabinet.
4. Position the ACU near to the cabinet, so that the cables reach the relevant connectors on the ACU.
5. Connect the grounding cable, control cable, AC power cable, AC compressor cable, and DC power cable as shown in Figure 37. Check that the installed grounding cable is in the position shown in Figure 37.

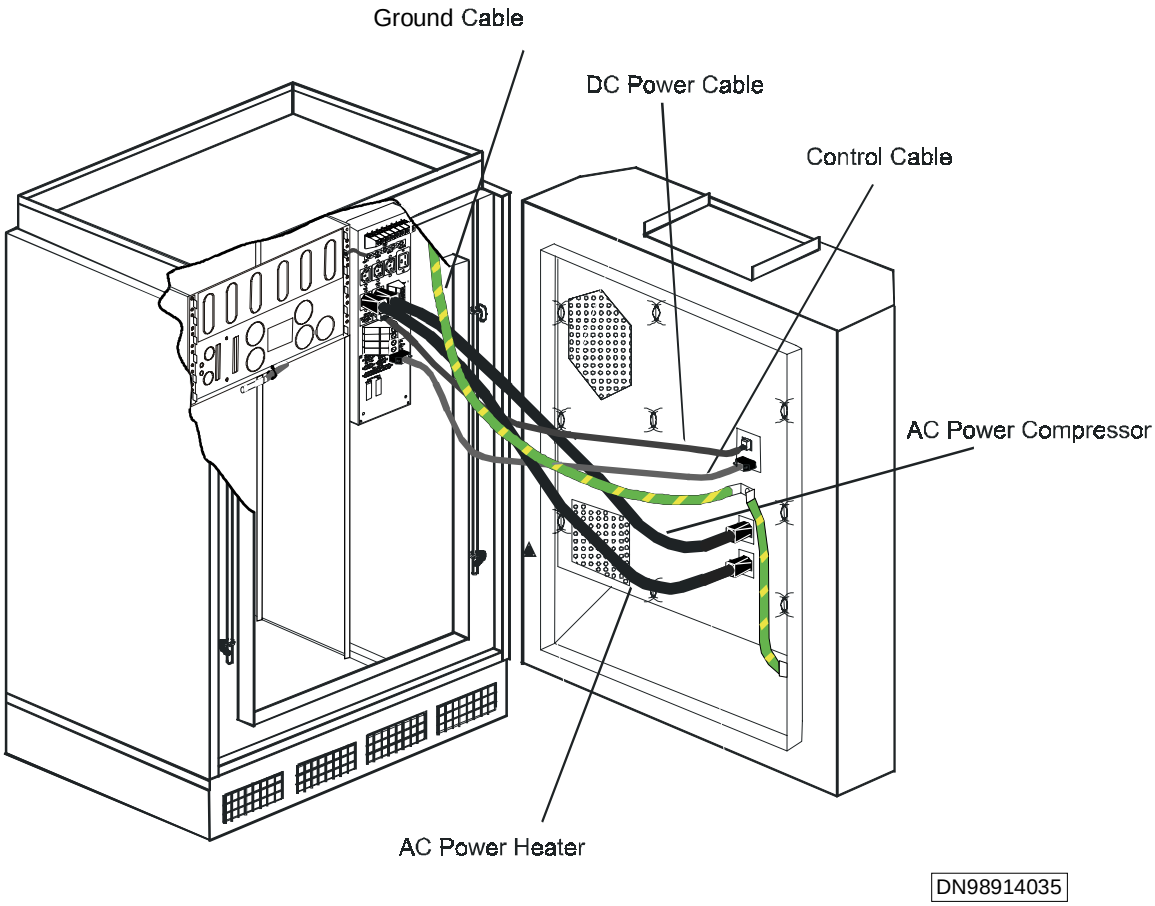

Figure 37 ACU cable connections

6. Direct the cabinet guide pins into the guide holes of the ACU.
7. Support the ACU and lock both sides using the triangle BTS door key, as shown in Figure 35. Ensure that there is no gap between the ACU and the cabinet.
8. Ensure that the air inlet and outlet are unimpeded for the required drawing and blowing of air.
9. Ensure that the gasket seals on the intake and return air apertures are properly fitted, so that no air can be drawn into the internal airflow circuit from the atmosphere.

5.3.1. ACU condensation hose

The ACU produces condensation during operation, due to the relative humidity of its environment. In order to drain the condensation from the ACU, a tube in the bottom

panel of the ACU is fitted. This tube is connected to a plastic hose to remove the condensation from the ACU. Check the installed ACU to ensure that the plastic hose is in position.

5.4. Checklist

After installing and locking the HMU tick off the box in the checklist.

HMU installed ☐ no or ☐ yes.

6. INTERFACE CABLING

CAUTION Read carefully [3] before commencing the installation, and implement whenever appropriate.

This section details the interface cabling of the Extratalk II / II+ and extension outdoor cabinets.

6.1. Interfaces

6.1.1. Check of pre-installed cabling and units

From the open rear side of the cabinet the pre-installed cabling must be checked to ensure that the connection points and cables are not damaged and are fastened securely. For the correct cabling refer to the 'Extratalk II / II+ and extension outdoor Commissioning Manual'. Also the pre-installed units have to be checked for correct installation and that they are not damaged. After checking the pre-installed cables and units tick off the box in the checklist.

Pre-installed cables and units check ☐ failed or ☐ passed.

6.1.2. Cables requiring on-site installation

WARNING!

The grounding cables should be routed before any other cables. Ensure by taking measurements that all cables are not powered when routing and connecting them

The power cables, once routed through the cabinet cable entries, are connected to the rear side of the necessary PDU. The AC mains input cable must always be prepared and installed at the site prior to Extratalk II / II+ and extension installation, as detailed in section 2.3. The DC output cables are standard length cables. One DC output cable in the Extratalk II / II+ is pre-installed. For detailed information of the pre-installed cables refer to [8]. The cable lengths are sufficient if the Extratalk II / II+ and extension cabinets are installed next to the BTS cabinets, as detailed in section 3.2. If a longer distance between both cabinets is needed, correct length cables have to be made

and installed on site. The alarm interface cables should be ordered from Nokia to the required length.

6.1.2.1. Extratalk II / II+

The following interface cables have to be routed during the installation, in order to connect the Extratalk II / II+ cabinet with mains voltage supply, the main ground and the BTS cabinets:

- Grounding cables.
- AC mains voltage supply input cable to the Extratalk II / II+ PDU.
- AC voltage supply from the Extratalk II / II+ PDU to the BTS cabinets.
- DC (+) and (-) output cables from the Extratalk II / II+ PDU to the BTS cabinets.
- Alarm interface cable from the Extratalk II / II+ PDU to the BTS cabinets.

6.1.2.2. Extratalk II / II+ with PDU extension

The following interface cables have to be routed during the installation, in order to connect the Extratalk II / II+ cabinet with PDU extension with the mains voltage supply, the main ground and the BTS cabinets:

- Grounding cables.
- AC mains voltage supply input cable to the Extratalk II / II+ PDU.
- AC voltage supply from the Extratalk II / II+ PDU to the BTS cabinets.
- AC voltage supply from the Extratalk II / II+ PDU to the PDU extension.
- DC (+) and (-) output cables from the Extratalk II / II+ PDU to the BTS cabinets.
- DC (+) and (-) output cables from the Extratalk II / II+ PDU extension to the BTS cabinets.
- Alarm interface cable from the Extratalk II / II+ PDU to the BTS.
- Connection cable from the Extratalk II / II+ PDU extension to the Extratalk II / II+ PDU.

6.1.2.3. Extratalk II / II+ extension

If an Extratalk II / II+ extension is required, the following interface cables have to be routed during the installation, in order to connect with mains voltage supply, the Extratalk II / II+, the main ground and the BTS cabinets:

- Grounding cables.
- AC mains voltage supply input cable to the Extratalk II / II+ extension PDU.
- AC voltage supply from the Extratalk II / II+ extension PDU to the Extratalk II / II+.
- AC voltage supply from the Extratalk II / II+ to the BTS cabinets.
- DC (+) and (-) output cables from the Extratalk II / II+ to the Extratalk II / II+ extension PDU and the BTS cabinets.
- Alarm interface cables from the Extratalk II / II+ extension PDU to the Extratalk II / II+.
- Alarm interface cable from the Extratalk II / II+ to the BTS.

See section 6.1.2.1 or 6.1.2.2 for the applicable Extratalk II / II+ cabling.

6.1.2.4. Extratalk II / II+ extension with PDU extension

If an Extratalk II / II+ extension with PDU extension is required, the following interface cables have to be routed during the installation, in order to connect with mains voltage supply, the Extratalk II / II+, the main ground and the BTS cabinets:

- Grounding cables.
- AC mains voltage supply input cable to the Extratalk II / II+ extension PDU.
- AC voltage supply from the Extratalk II / II+ extension PDU to the Extratalk II / II+.
- AC voltage supply from the Extratalk II / II+ to the BTS cabinets.
- DC (+) and (-) output cables from the Extratalk II / II+ to the Extratalk II / II+ extension PDU and the BTS cabinets.
- DC (+) and (-) output cables from the Extratalk II / II+ extension PDU to the PDU extension for the Extratalk II / II+ extension cabinet.
- Alarm interface cables from the Extratalk II / II+ extension PDU to the Extratalk II / II+.

– Connection cables from the PDU extension for the Extratalk II / II+ extension cabinet to the Extratalk II / II+ extension PDU.

See section 6.1.2.1 or 6.1.2.2 for the applicable Extratalk II / II+ cabling.

6.2. Grounding cables

Two grounding cables have to be prepared and connected to the Extratalk II / II+ cabinet:

– Grounding cable between the grounding bar and the Extratalk II / II+ cabinet.

– Grounding cable between Extratalk II / II+ cabinet and BTS.

When an Extratalk II / II+ extension is required, three grounding cables have to be prepared and connected to the Extratalk II / II+ and extension cabinets:

– Grounding cable between the grounding bar and the Extratalk II / II+ extension.

– Grounding cable between Extratalk II / II+ extension and Extratalk II / II+.

– Grounding cable between Extratalk II / II+ and BTS.

Cut off the required lengths of cable and fit the ends with 6mm ring cable tags for the cabinet connection bolts. The connection points on the Extratalk II / II+ top plate are shown in Figure 44. The connection points on the Extratalk II / II+ extension top plate are shown in Figure 45. For the connection point on the BTS top plate connector and for connection of BTS extensions refer to the BTS user manual.

After connecting the grounding cables tick off the box in the checklist.

Grounding cables connected ☐ no or ☐ yes.

6.3. Power supply

6.3.1. DC power supply

The recommended DC power supply arrangement is described in section 3.1. The DC power supply arrangement is dependent upon the configuration of the installation.

6.3.1.1. Extratalk II / II+

The Extratalk II / II+ is fitted with a pre-installed DC output cable for connection to the BTS basic cabinet. This cable is connected at one end to the DC Output 1 connector of the PDU, and the other end should be connected to the (+) and (-) connectors on the top plate connector of the BTS, as shown in Figure 38.

The blue wire is to be connected to the (-) clamp, the black wire to the (+) clamp.

The Extratalk II / II+ is provided with a second DC output, known as DC Output 2, which can be used to support BTS 2. An additional DC output cable is connected at one end to the DC Output 2 connector of the PDU, and the other end should be connected to the (+) and (-) connectors on the top plate connector of BTS 2, as shown in Figure 38.

The blue wire is to be connected to the (-) clamp, the black wire to the (+) clamp.

After routing and connecting the DC output cables to the BTS cabinets tick off the box in the checklist.

DC output cables to BTS cabinets connected ☐ no or ☐ yes.

6.3.1.2. Extratalk II / II+ with PDU extension

The Extratalk II / II+ can be fitted with a PDU extension. The PDU extension is connected to the PDU for DC supply via a cable connected to the PDU extension terminals of each PDU, as shown in Figure 39.

The Extratalk II / II+ PDU should be connected as described in section 6.3.1.1.

The Extratalk II / II+ with PDU extension provides a further two DC outputs, known as DC Output 3 and DC Output 4.

DC Output 3 can be used to support the BTS 2 extension. A DC output cable is connected at one end to the DC Output 3 connector of the PDU, and the other end should be connected to the (+) and (-) connectors on the top plate connector of the BTS 2 extension, using the principle shown in Figure 38.

The blue wire is to be connected to the (-) clamp, the black wire to the (+) clamp.

DC Output 4 is only used to support the BTS 2 extension if an Extratalk II / II+ extension is supported, as the Extratalk II / II+ extension uses DC Output 1 of the Extratalk II / II+ PDU, as described in section 6.3.1.3. A DC output cable is connected

at one end to the DC Output 4 connector of the PDU, and the other end should be connected to the (+) and (-) connectors on the top plate connector of the BTS 2 extension, using the principle shown in Figure 38.

The blue wire is to be connected to the (-) clamp, the black wire to the (+) clamp.

After routing and connecting the DC output cables to the BTS cabinets tick off the box in the checklist.

DC output cables to PDU extension and BTS cabinets connected ☐ no or ☐ yes.

6.3.1.3. Extratalk II / II+ extension

The Extratalk II / II+ is fitted with a pre-installed DC output cable, which is usually used for connection to the BTS basic cabinet. However, if an Extratalk II / II+ extension is fitted, this pre-installed cable is used to supply DC power to the Extratalk II / II+ extension. This cable is connected at one end to the DC Output 1 connector of the PDU, and the other end should be connected to the Rectifier 1-3 connector of the Extratalk II / II+ extension PDU, as shown in Figure 40 and Figure 41.

The blue wire is to be connected to the (-) terminal, the black wire to the (+) terminal.

As the pre-installed DC cable is used for connection to the Extratalk II / II+ extension, an additional DC output cable for connection of the Extratalk II / II+ to the BTS basic cabinet needs to be routed and connected. This additional cable is connected at one end to the DC Output 2 connector of the PDU, and the other end should be connected to the (+) and (-) connectors on the top plate connector of the BTS, using the principle shown in Figure 38.

The blue wire is to be connected to the (-), the black wire to the (+) clamp.

A second BTS and an extension can be supported as described in section 6.3.1.2.

After routing and connecting the DC output cables to the Extratalk II / II+ extension and BTS tick off the box in the checklist.

DC output cable to Extratalk II / II+ extension connected☐ no or ☐ yes.

6.3.1.4. Extratalk II / II+ extension with PDU extension

The Extratalk II / II+ extension can be fitted with a PDU extension. The PDU extension is connected to the PDU via a cable connected to the PDU extension terminals of the extension PDU and the SSS1 input connector of the PDU extension for the extension cabinet, as shown in Figure 42.

The Extratalk II / II+ extension PDU should be connected as described in section 6.3.1.3.

After routing and connecting the DC output cables to the BTS cabinets tick off the box in the checklist.

DC output cable to the PDU extension for the Extratalk II / II+ extension cabinet connected ☐ no or ☐ yes.

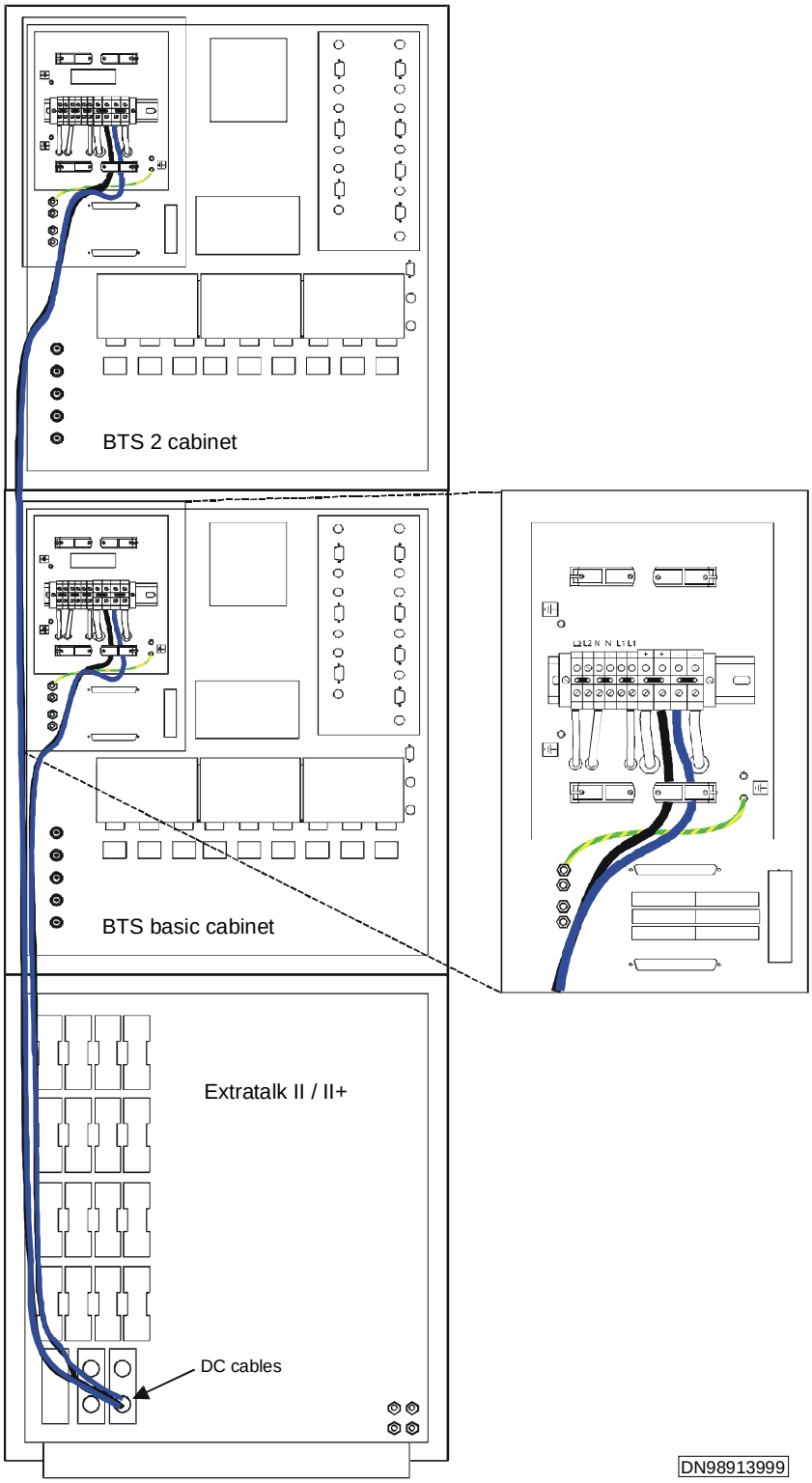

Figure 38 Extratalk II / II+ DC voltage cables

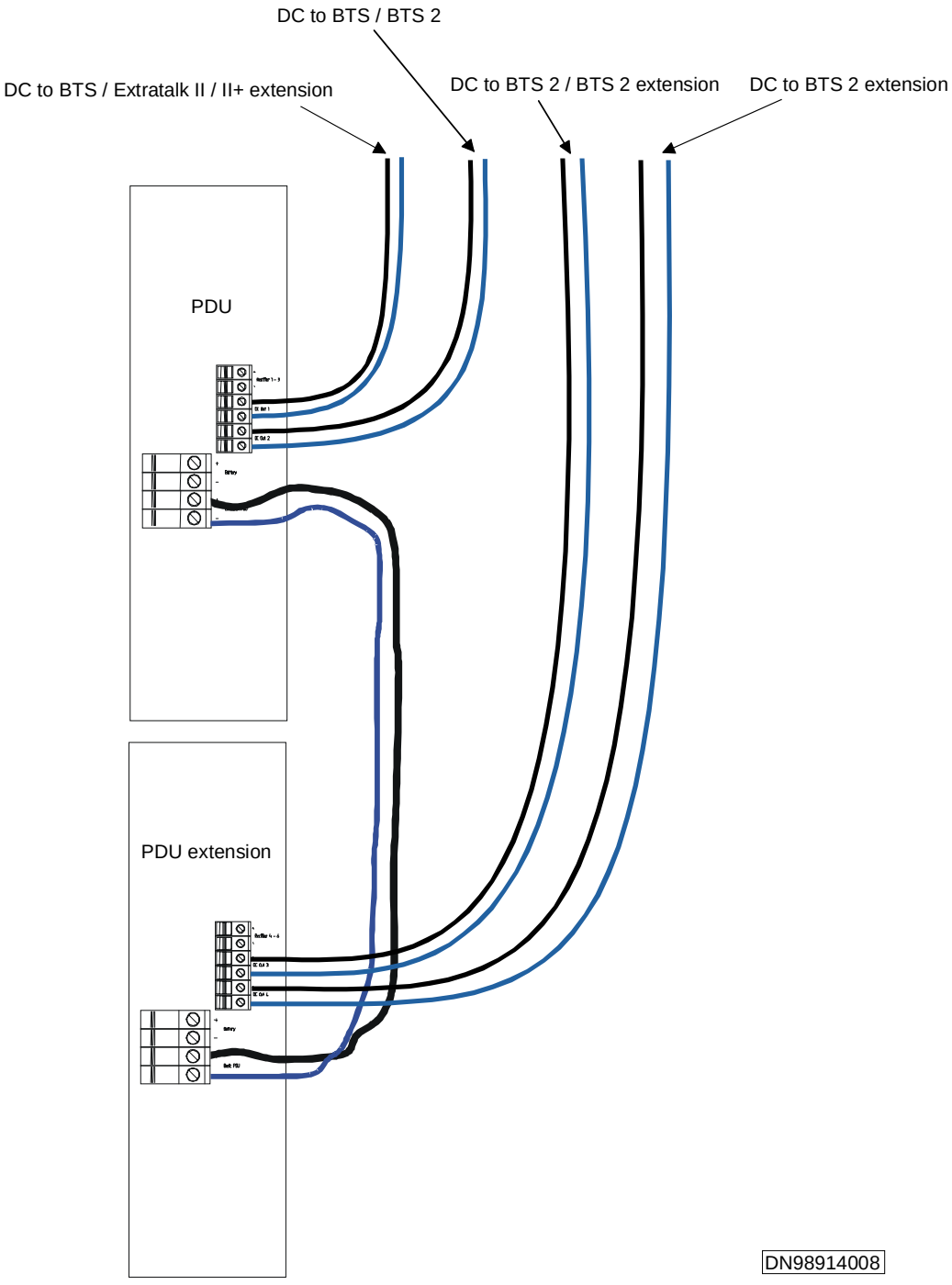

Figure 39 Extratalk II / II+ with PDU extension DC voltage cable connection

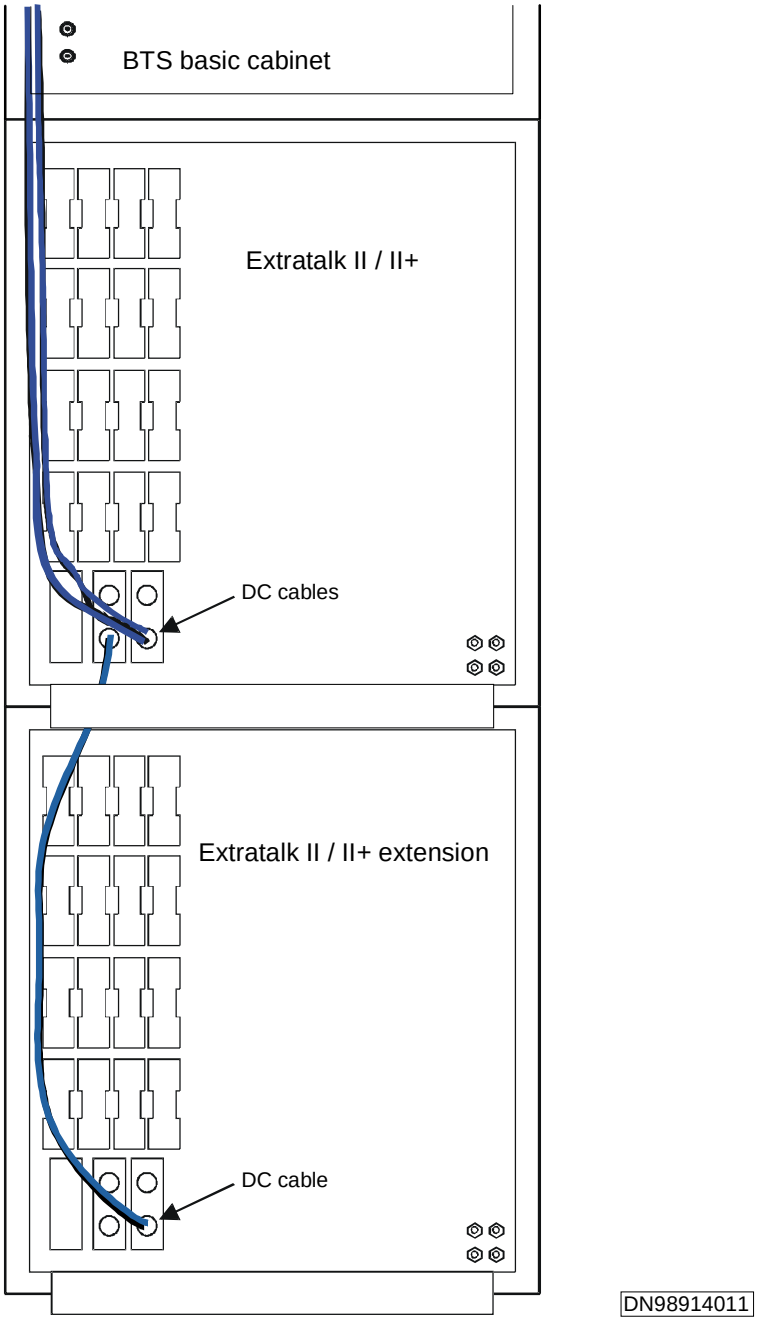

Figure 40 Extratalk II / II+ extension DC voltage cables

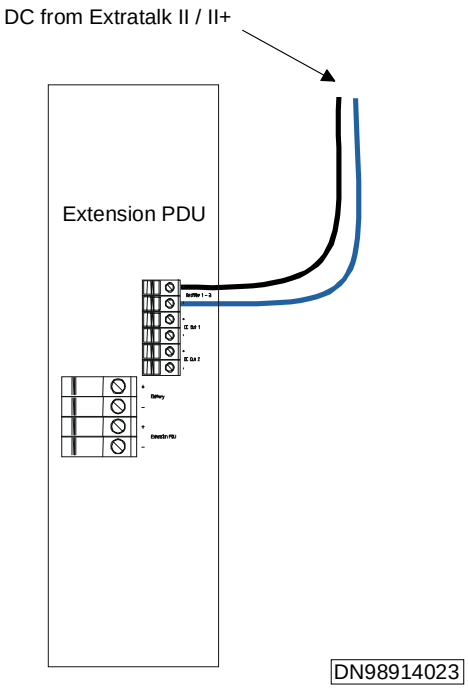

Figure 41 Extratalk II / II+ extension DC voltage cable connection

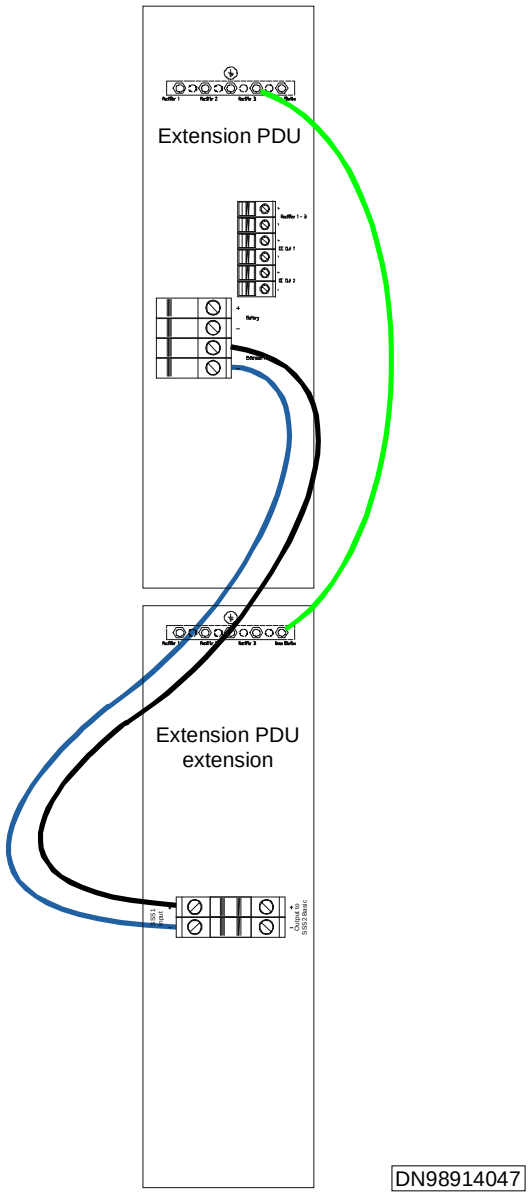

Figure 42 Extratalk II / II+ extension with PDU extension DC voltage cable connection

6.3.2. AC power supply

The recommended AC power supply arrangement is described in section 3.1.

6.3.2.1. AC mains input cable

► Install and connect the AC mains input cable as described below:

- Cut off the required length of the cable and route one end through the corresponding cable entry into the required cabinet. See section 6.1.2, Figure 44 and Figure 45.
- Remove about 15 mm of the insulation at the cabinet end. Prepare the cable by crimping an eye of 6mm diameter at the end of the PE wire (yellow / green).

Continue the installation using one of the sections below dependent on whether a single phase or a three-phase connection is used.

a) Three-phase connection

For the Extratalk II / II+, connect the wires to the rear connectors of the PDU as shown in Figure 46. For the Extratalk II / II+ extension, connect the wires to the rear connectors of the PDU as shown in Figure 47.

b) Single phase connection

1. Install the attached phase bridges as shown in Figure 43.

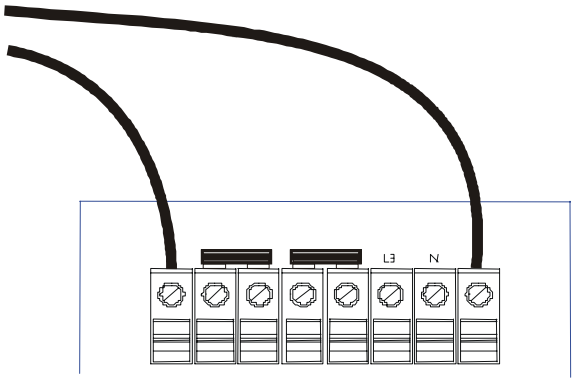

Figure 43 Bridging of a single-phase connection

2. For the Extratalk II / II+, connect the wires to the rear of the PDU as shown in Figure 46. For the Extratalk II / II+ extension, connect the wires to the rear connectors of the PDU as shown in Figure 47.

After routing and connecting the AC mains input cable to the Extratalk II / II+ or extension cabinet tick off one of the boxes in the checklist.

 AC mains 3-phase connected ☐ no or ☐ yes.

or

 AC mains single phase connected ☐ no or ☐ yes.

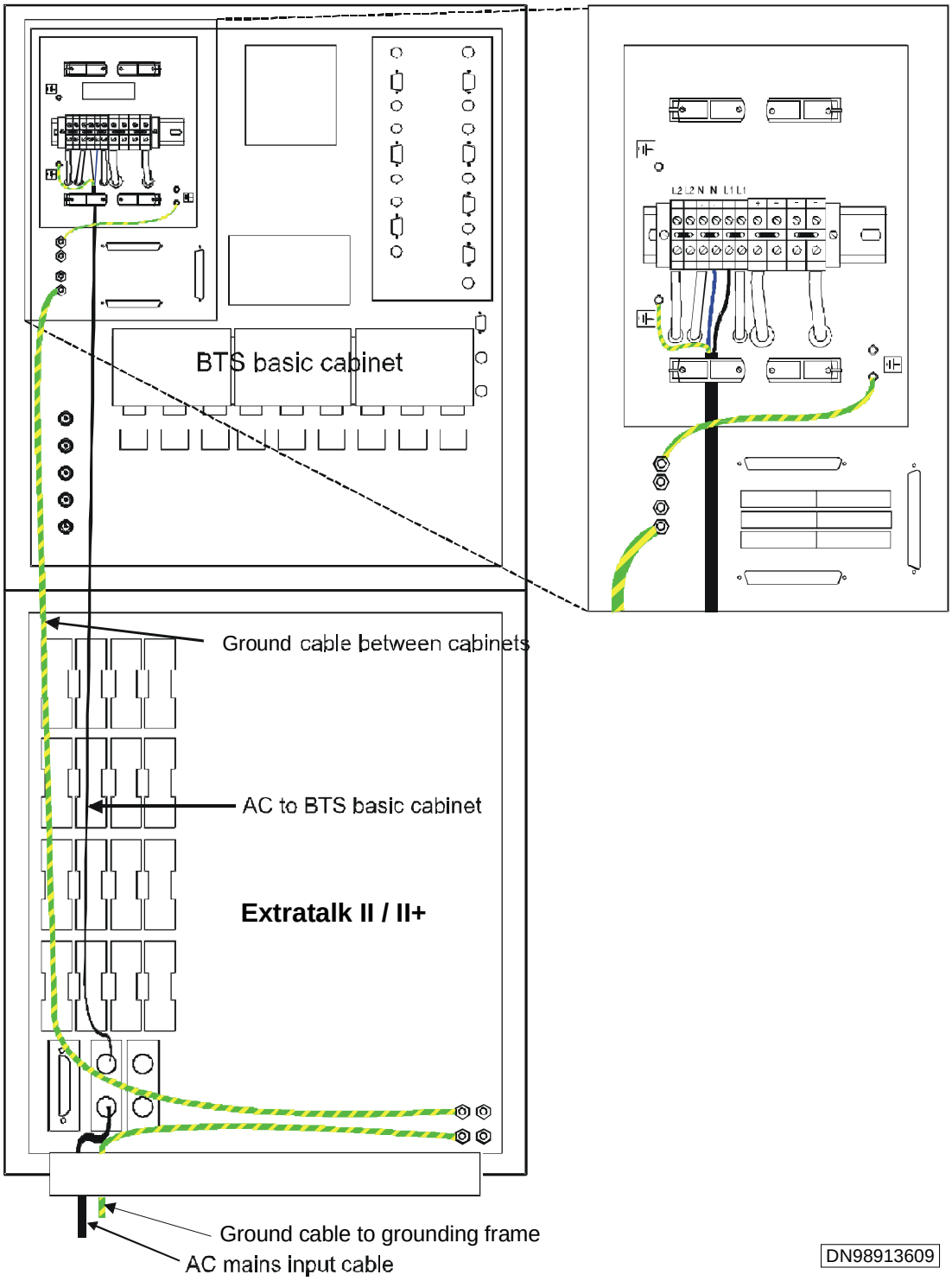

Figure 44 Extratalk II / II+ AC voltage and grounding cables

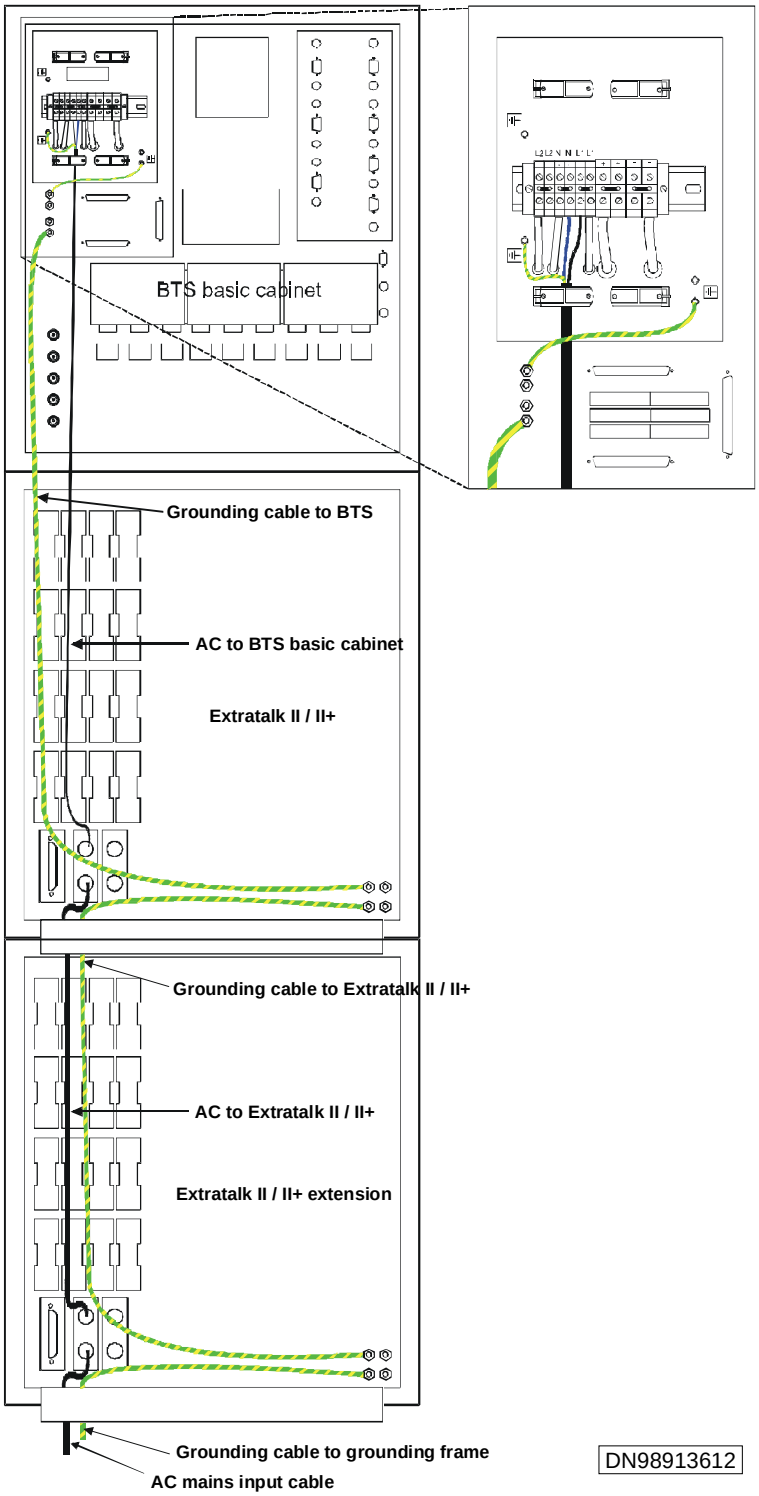

Figure 45 Extratalk II / II+ and extension AC voltage and grounding cables

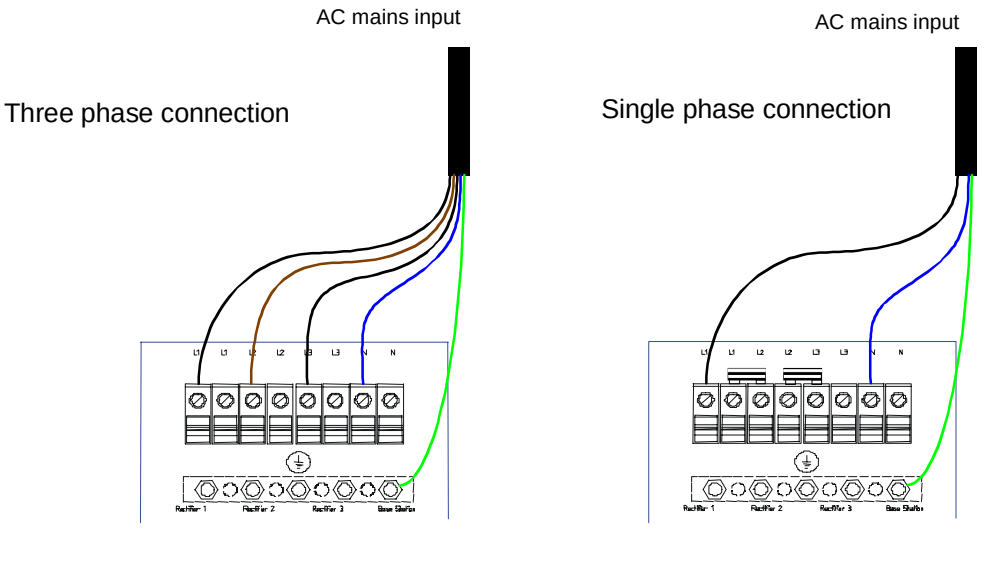

Figure 46 Extratalk II / II+ AC mains power connections

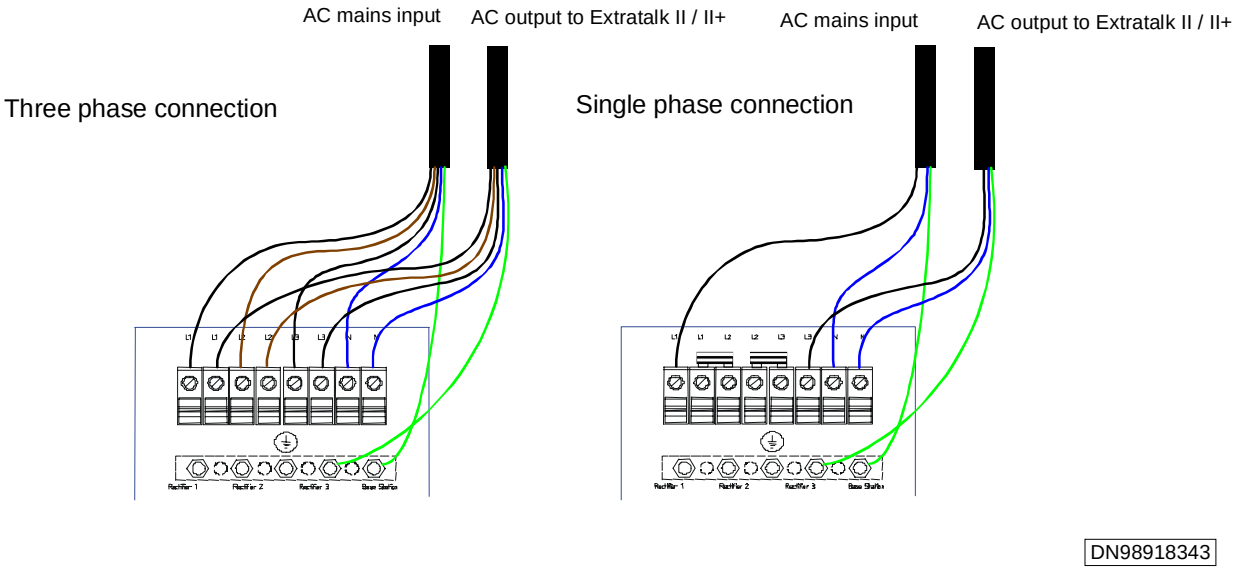

Figure 47 Extratalk II / II+ extension AC mains power and output connections

6.3.2.2. Extratalk II / II+ AC output to PDU extension

The Extratalk II / II+ can be fitted with a PDU extension. The PDU extension is connected to the PDU for AC supply, via an AC cable connected as shown in Figure 48.

The Extratalk II / II+ with PDU extension provides a further two AC outputs in order to support BTS 2 and a BTS 2 extension. See section 6.3.2.4 and 6.3.2.5.

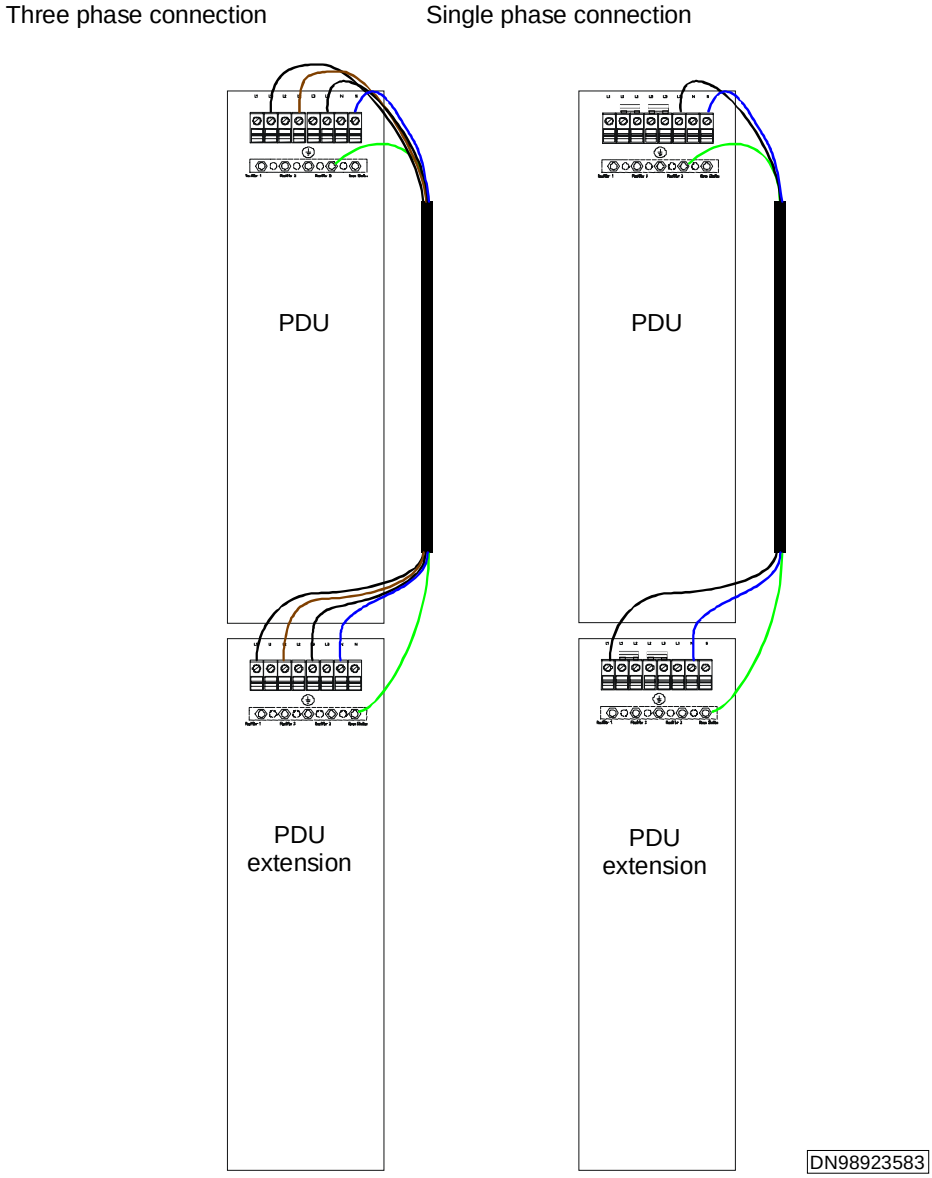

Figure 48 Extratalk II / II+ AC output to PDU extension

After routing and connecting the AC cable to the PDU extension tick off the box in the checklist.

AC cable to PDU extension connected ☐ no or ☐ yes

6.3.2.3. Extratalk II / II+ AC output to BTS

The AC output cable to the BTS has to be connected to the BTS (heater) connector of the Extratalk II / II+ PDU, and the connectors on the top plate connector of the BTS, using the principle shown in Figure 44.

After routing and connecting the AC output cable to the BTS tick off the box in the checklist.

AC output cable to BTS (heater) connected ☐ no or ☐ yes

6.3.2.4. Extratalk II / II+ with PDU extension AC output to BTS 2

The AC output cable to BTS 2 has to be connected to the BTS extension (heater) connector of the Extratalk II / II+ PDU extension, and the connectors on the top plate connector of BTS 2, using the principle shown in Figure 44.

After routing and connecting the AC output cable to BTS 2 tick off the box in the checklist.

AC output cable to BTS 2 (heater) connected ☐ no or ☐ yes

6.3.2.5. Extratalk II / II+ with PDU extension AC output to BTS 2 extension

The AC output cable to BTS 2 extension has to be connected to the BTS extension 2 (heater) connector of the Extratalk II / II+ PDU extension, and the connectors on the top plate connector of BTS 2 extension, using the principle shown in Figure 44.

After routing and connecting the AC output cable to BTS 2 extension tick off the box in the checklist.

AC output cable to BTS 2 extension (heater) connected ☐ no or ☐ yes

6.3.2.6. Extratalk II / II+ extension AC output connection to the Extratalk II / II+

The AC output cable from the Extratalk II / II+ extension to the Extratalk II / II+ has to be connected to the Extratalk II / II+ extension PDU AC connection block as shown in Figure 47. The PE-wire (yellow/green) is already equipped with a ring tag and is to be fitted to the grounding bolt shown in Figure 47. The other end of the cable is connected to the Extratalk II / II+ PDU as per the AC mains input, as shown in Figure 46.

After routing and connecting the AC output cable to the Extratalk II / II+ tick off the box in the checklist.

AC output cable to Extratalk II / II+ connected ☐ no or ☐ yes

6.3.3. Alarm interface cable

An alarm interface cable is to be routed between the Extratalk II / II+ cabinet and the BTS cabinet. The cable has a 37-pin Sub-D connector at both ends.

One end of the alarm interface cable should be connected to the Extratalk II / II+ alarm slice connector, as shown in Figure 49. The cable should then be routed to the Support Alarms connector on the BTS basic cabinet top plate. Figure 50 shows the position of the Support Alarms connector on all BTS cabinets.

In order to support a second BTS cabinet, an additional alarm interface cable needs to be connected between the second connector on the Extratalk II / II+ alarm slice connector, and the Support Alarms connector on the second BTS, as shown in Figure 51.

If an Extratalk II / II+ extension is fitted, an additional alarm slice connector, which supports the extension cabinet, should be fitted as described in section 6.5. The standard alarm slice connector and the additional alarm slice connector need to be configured as shown in Figure 52, and connected by the Y-cable shown.

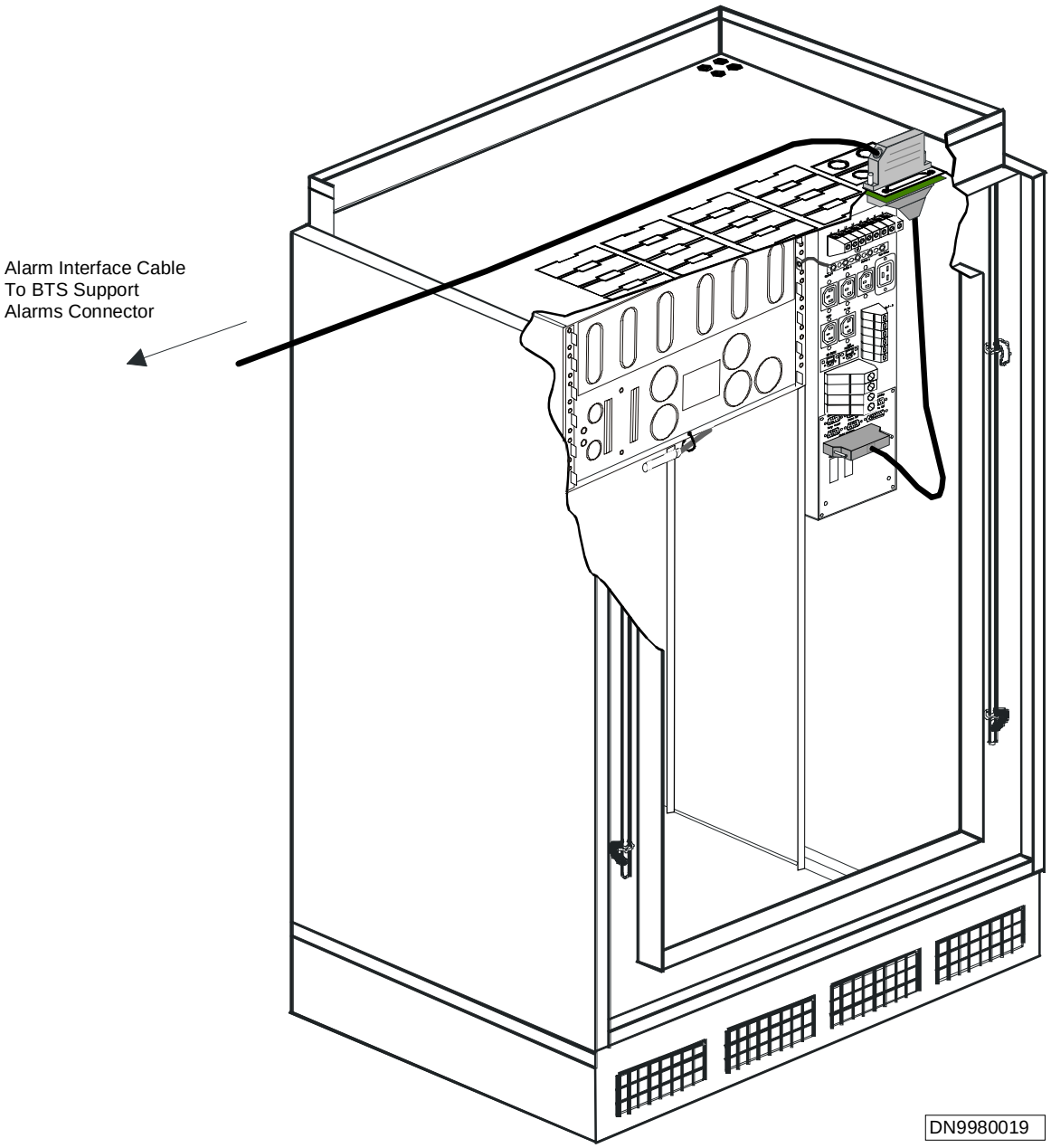

Figure 49 Extratalk II / II+ alarm interface cabling

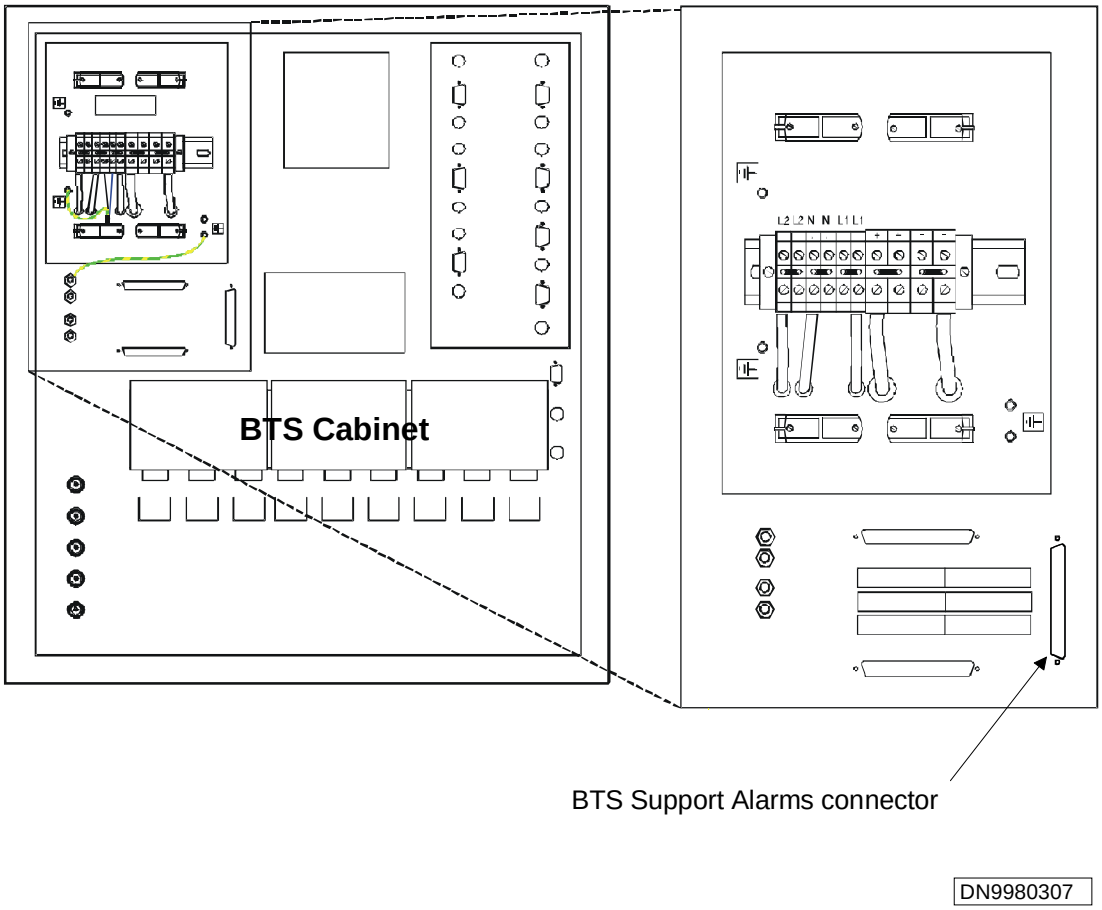

Figure 50 BTS Support Alarms connector position

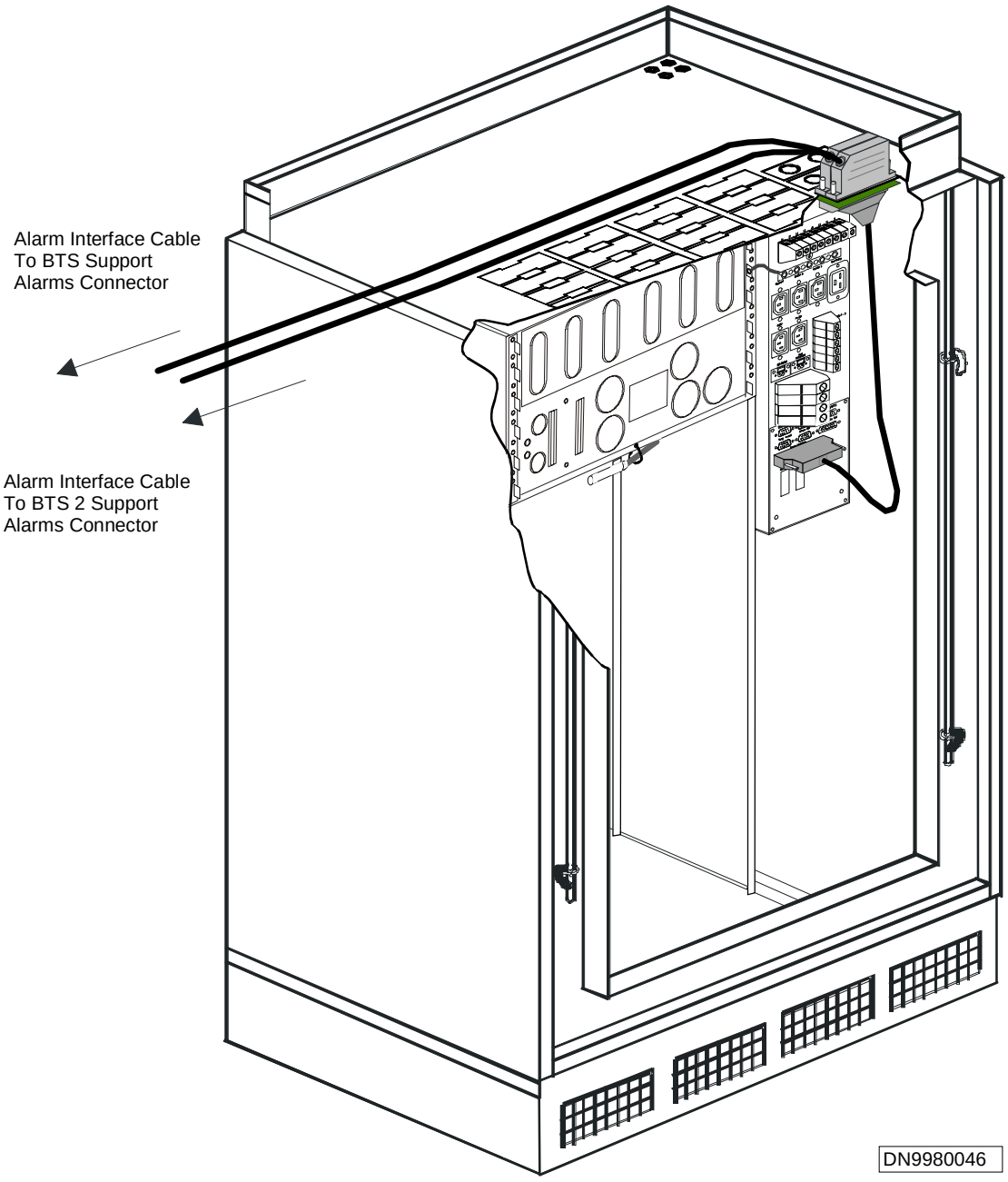

Figure 51 Extratalk II / II+ alarm interface cabling to support an eighteen TRX BTS installation

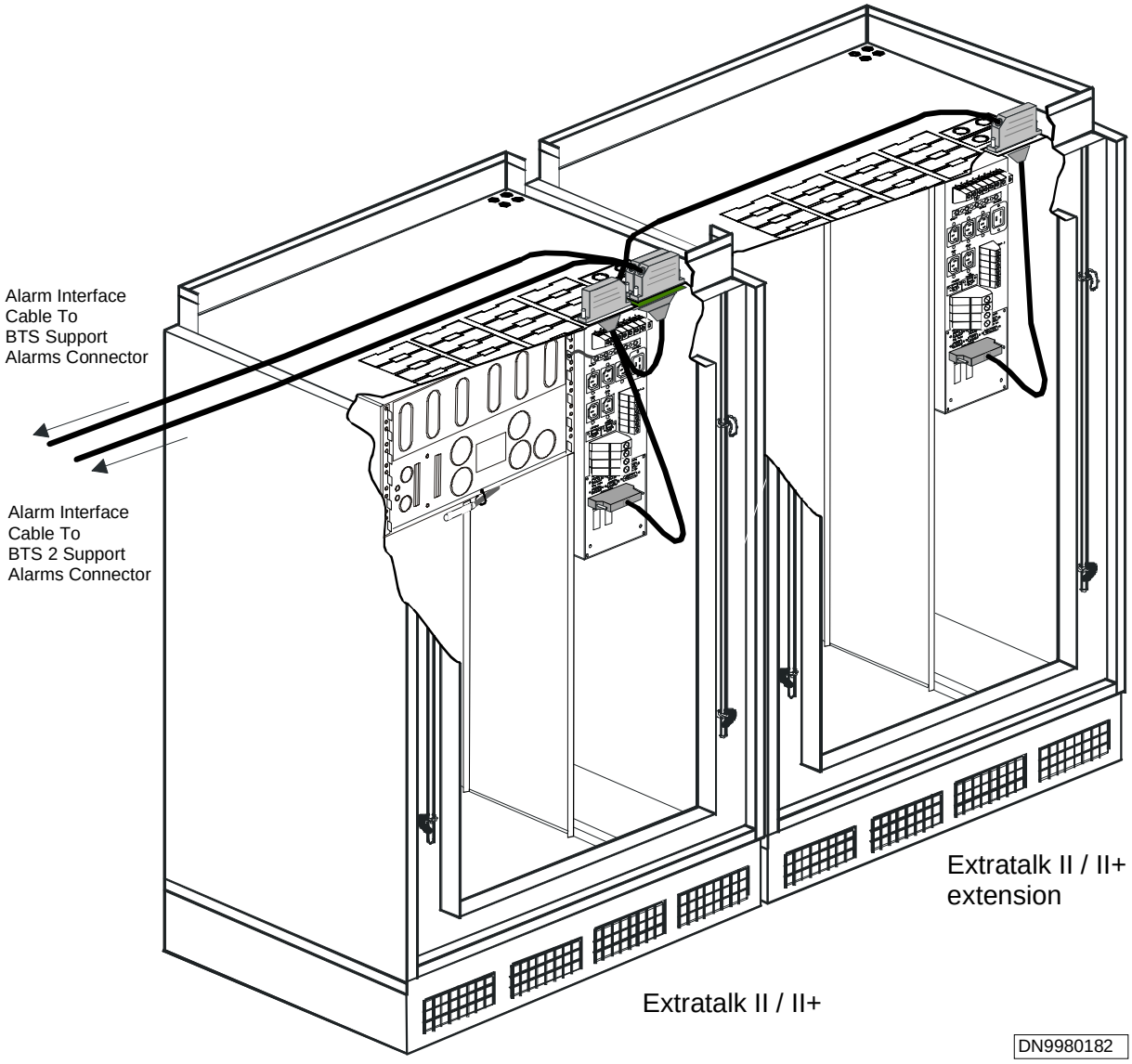

Figure 52 Extratalk II / II+ and extension alarm interface cabling to support an eighteen TRX BTS installation

After connecting the alarm interface cable tick off the box in the checklist.

Alarm interface cable connected ☐ no or ☐ yes.

6.4. Assembling the cable entry

The cable entry should be installed to the left side of the Extratalk II / II+. If an Extratalk II / II+ extension is fitted, the cable entry should be installed to the left side of the Extratalk II / II+ extension.

6.4.1. Cable entry kits

There are five-cable entry kits available, as described in section 2.4.

6.4.2. Assembly instructions

► Assemble the cable entry as follows:

NOTE Do not discard the cover plate retaining screws.

New cable entry blocks are talcum powdered to make the installation easier. If the set to be used is not talcum powdered, moisten all rubber blocks and cables with water before use (or use a suitable lubricant on the cables). The moisture between the rubber blocks and cables guarantees the tightness of the structure.

1. Remove the seal lining of the cover plate as shown in Figure 53.
2. Unscrew the cover plate retaining screws and remove the cover plate by inclining it away from the cabinet. Screw two of the cover plate screws back in to the holes from inside, as shown in Figure 53.

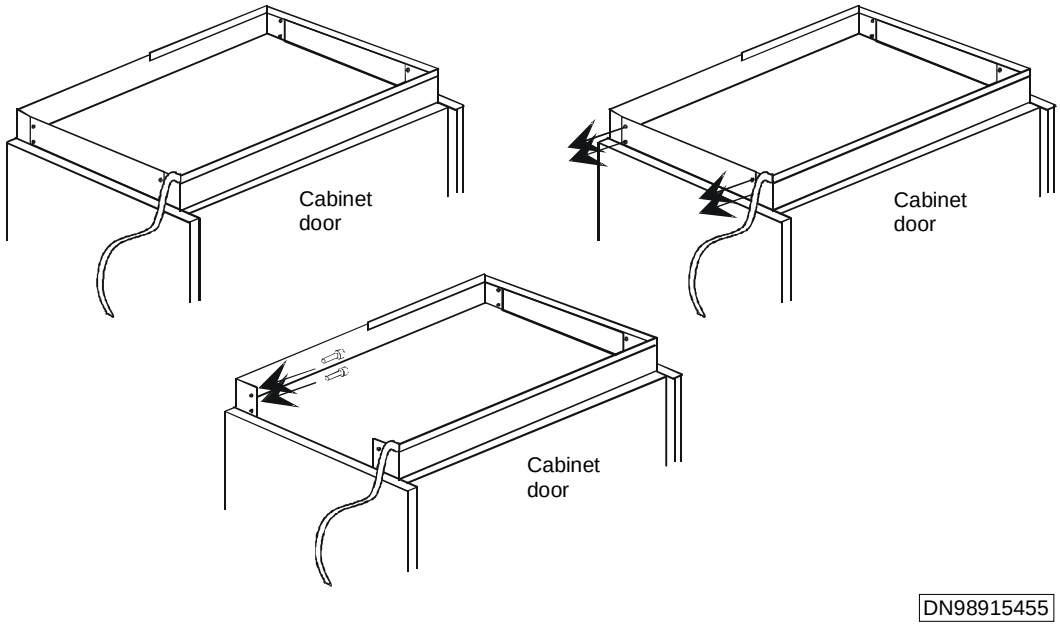

Figure 53 Removing the cover plate

RECOMMENDATION Cut the V-shaped entries according to the cable size so that the maximum depth of the entry is half of the cable cross-section and the maximum width equal to the cable cross-section.

3. Determine the arrangement for the cable entry blocks. Use side-cutters to cut suitable V-shaped entries in the front and the back of all the rubber blocks used. See Figure 54. Ensure that the cutting lines do not reach the metal structure inside the rubber block.

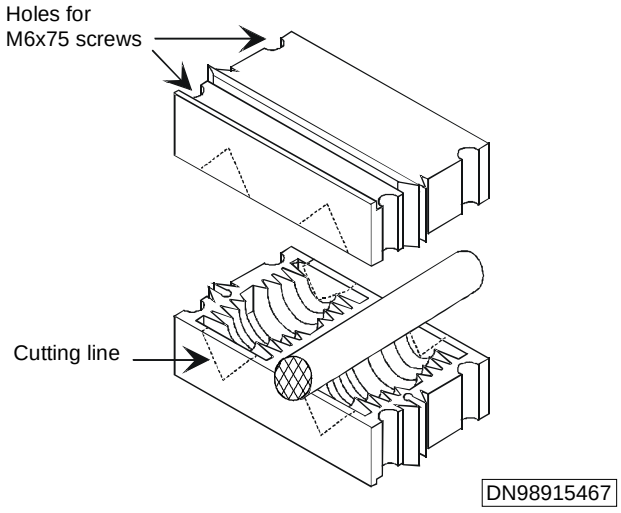

Figure 54 Cutting the cable entry

4. Place the bottom rubber blocks on the cabinet top so that the rubber guides on the bottom of the blocks settle between the cabinet wall and the cabinet inner body as shown in the cross-section in Figure 55.
5. Place the feeders and other cables on the bottom rubber blocks.
6. Place the top rubber blocks on the bottom rubber blocks and carefully align the blocks.
7. Place the part marked with (1) in Figure 55 on the rubber blocks with the wider side towards the cabinet door as shown in Figure 55 and align the fixing holes.
8. Lubricate the six fixing screws with petroleum jelly and fit washers before inserting them in the holes. Fasten the screws but do not tighten them yet.

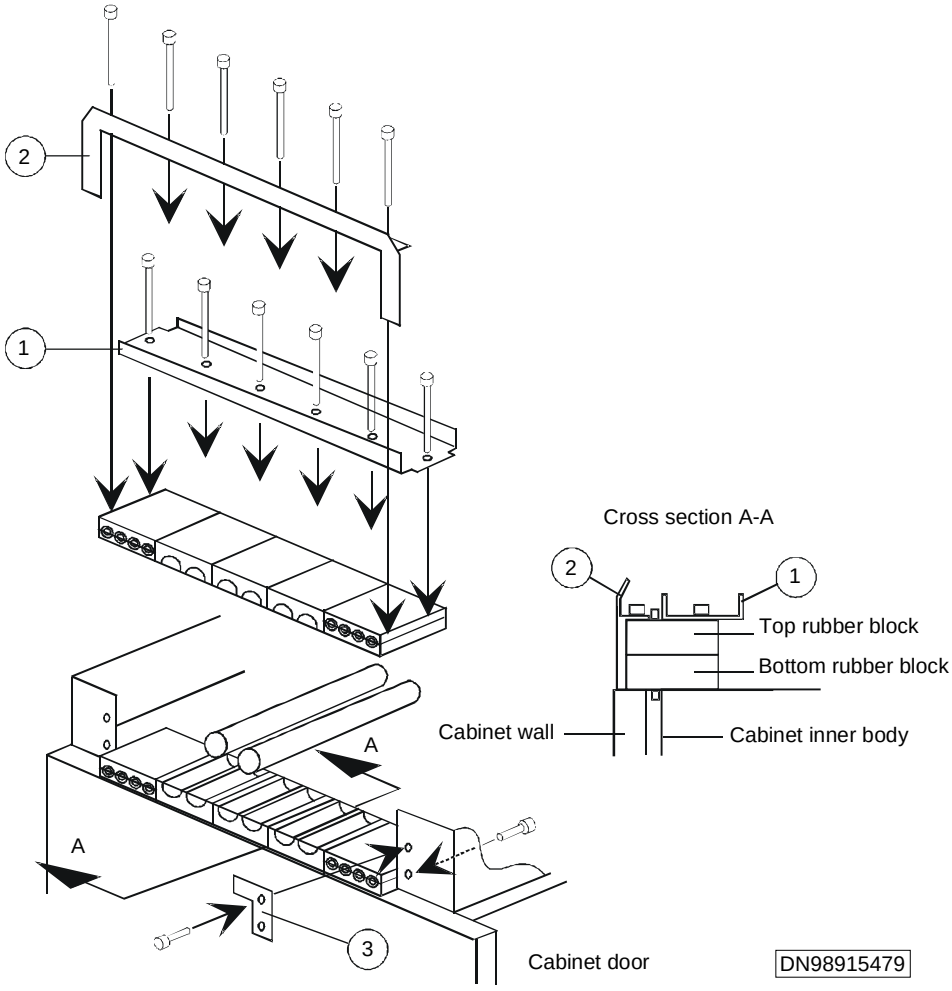

Figure 55 Cable entry assembly

9. Place part (3) into position as shown in Figure 55.

10. Secure part (3) with the two remaining cover plate fixing screws. Insert the lower fixing screw from inside and the upper one from outside as shown in Figure 55.
11. Place part (2) on the rubber blocks and align the fixing holes. The rubber guides on the top rubber blocks remain between parts (1) and (2) as shown by the cross-section in Figure 55.
12. Lubricate the six fixing screws with petroleum jelly and fit washers before inserting them into the holes. Fasten the screws but do not tighten them yet.
13. Tighten the fixing screws of parts (1) and (2) in turn. Tighten one at a time and just a little at a time, until the front edge of part (1) sits flush with the side plates, and the lower parts of part (2) reach the cabinet wall top level, as shown by the dashed lines in Figure 56.
14. Ensure that the metal parts keep their original shape while tightening. All screws should be evenly tightened to ensure that the cable entry is waterproof.

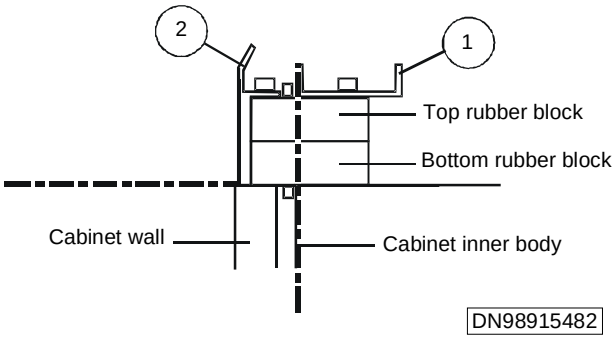

Figure 56 Tightening of assembly parts

15. Tighten the seal lining along part (1) back to its place.
16. Install the cover plate (included in the cable entry kit) on the opposite side with the two M6x16 screws as shown in Figure 57.

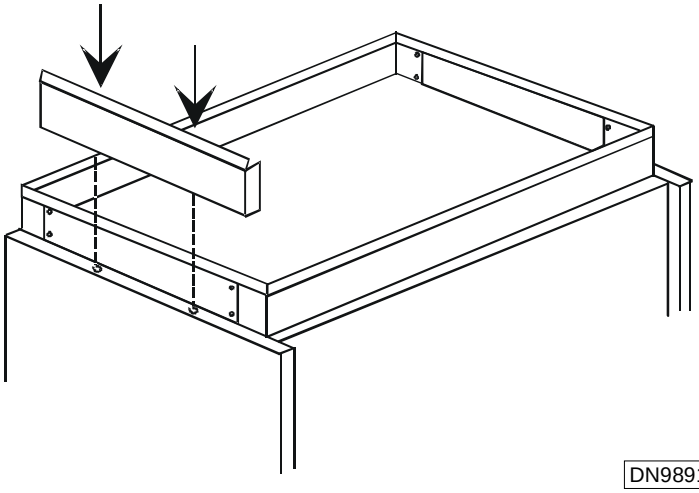

Figure 57 Installing the cover plate

After installing the cable entry tick off the box in the checklist.

Cable entry installed ☐ no or ☐ yes.

6.5. Installation and removal of alarm slices

The configuration of the Extratalk II / II+ may require the installation of additional alarm slices for connection of alarm cables to the Extratalk II / II+ extension, the BTS, BTS 2, and the BTS 2 extension. Additional alarm slices can be installed at any of the dummy plate positions at the rear of the cabinet top panel.

RECOMMENDATION It is recommended that additional alarm slices are positioned next to or close to the standard alarm slice, in order to allow connection via the Y-cable described in section 6.3.3.

► Alarm slices can be installed as follows:

1. Remove the dummy plate at the required position using side cutters.
2. Position the alarm slice on the top of the cabinet at the required position.
3. Secure the alarm slice to the cabinet using the four screws and washers provided with the alarm slice.

► Alarm slices can be removed as follows:

1. Remove the four screws and washers which secure the alarm slice to the cabinet.
2. Remove the alarm slice from the cabinet.
3. Fit the blanking plate to the cabinet using the four screws and washers from the alarm slice.

6.6. Installation and removal of cable slices

The configuration of the Extratalk II / II+ and extension may require the installation of additional cable slices for customer cabling such as for RLEs.

Customer supplied cable slices must be dimensioned as shown in Figure 58.

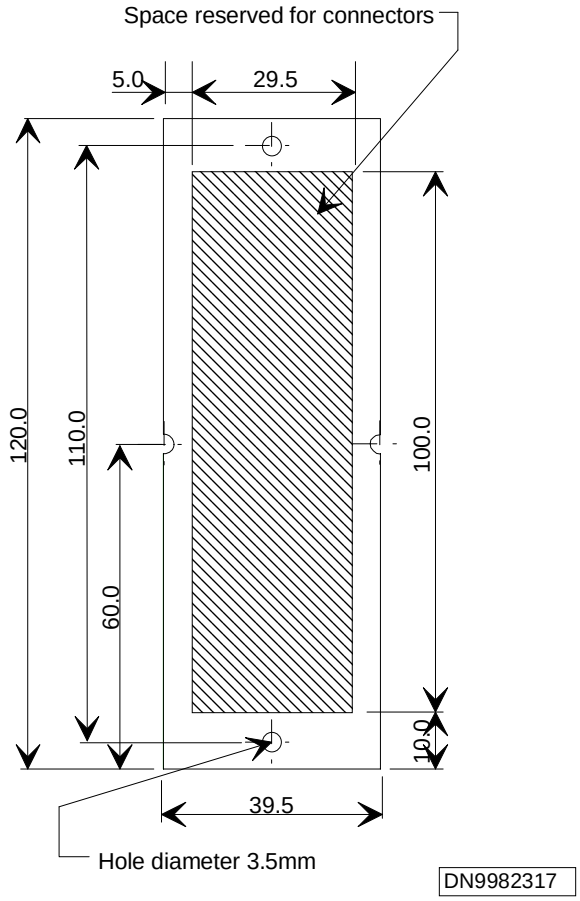

Figure 58 Cable slice dimensions

Additional cable slices can be installed at any of the dummy plate positions at the rear of the cabinet top panel.

RECOMMENDATION It is recommended that additional cable slices are positioned next to or close to the standard cable slice.

► Cable slices can be installed as follows:

1. Remove the dummy plate at the required position using side cutters.
2. Check that the two rubber seals fitted to the cable slice are in position.
3. Cut a small round hole in the rubber seal, roughly ¾ of the diameter of the cable to pass through it, if required. Do not cut holes in the rubber seals which will not have cables passing through them.
4. Position the cable slice on the top of the cabinet at the required position.
5. Secure the cable slice to the cabinet using four M3x6 screws and washers.

► Cable slices can be removed as follows:

1. Remove the four screws and washers which secure the cable slice to the cabinet.
2. Remove the cable slice from the cabinet.
3. Fit the blanking plate to the cabinet using the four screws and washers from the cable slice.

7. INSTALLATION OF THE UNITS

This chapter details the handling and installation of plug-in units and other units which are to be installed in the Extratalk II / II+ and extension cabinets. Refer to [3] for warnings and cautions.

7.1. Handling of the units

WARNING!

Units carrying the ESD sign are sensitive against electrostatic discharging. Always use the antistatic hand strap when handling units that are marked with the ESD sign.

CAUTION

Keep the units in their protective packages until installation. The units must be protected against humidity.

Care should be taken when handling plug-in units and other units, due to their significant weight. Refer to section 2.2.1 for weights.

7.2. Removal and installation of PDU / extension PDU

The Extratalk II / II+ PDU is pre-fitted to the Extratalk II / II+.

The Extratalk II / II+ extension PDU is pre-fitted to the Extratalk II / II+ extension.

The following procedure applies to both of the above PDUs.

► The PDU should be removed as follows:

1. Switch off all AC and DC breakers on the PDU.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.

6. Disconnect the following cables from the rear of the PDU, if applicable:

– Grounding cables.

– Alarm cables.

– AC power cables.

– DC power cables. Remove the battery cables from the batteries before disconnecting the battery cables from the PDU.

– Rectifier cables.

7. Remove the four M6 screws and plastic washers on the PDU front panel, which fix it to the cabinet support frame.

8. Slide the PDU out of the cabinet.

► The PDU should be installed as follows:

1. If the PDU is new, unpack the PDU from its protective package and check for damage. Check the contents of the delivery against the Packing List, and place the list into the site folder. Recycle the packing material.

2. Line the PDU up with its position at the top left of the cabinet support frame.

3. Slide the PDU into the cabinet.

4. Tighten the four M6 screws and plastic washers on the PDU front panel, which fix it to the cabinet support frame.

5. Connect the following cables to the rear panel of the PDU, if applicable (the cabling arrangement is dependent upon the configuration of the installation, see section 6):

– Grounding cables.

– Alarm cables.

– AC power cables.

– DC power cables. Connect the battery cables to the PDU before connecting the battery cables to the batteries.

– Rectifier cables.

6. Perform the power-ON-test as described in section 8.1.

7.3. Removal and installation of backplane

The Extratalk II / II+ backplane is pre-fitted to the Extratalk II / II+. The cabling arrangement for the backplane is shown in Figure 59. All other cables are omitted from this figure for clarity.

► The backplane should be removed as follows:

1. Switch off all AC and DC breakers on the PDU.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.
6. Remove the rectifiers. See section 7.4.
7. Loosen the temperature sensor, which is tied to the rectifier frame, also loosen the grounding cable on the rectifier frame and on the PDU.
8. Unplug the rectifier control cable from the backplane. Bend the fixings points of the rectifier frame on the rear side so that you can lift out the rectifier frame. Be careful with the cabling when lifting out.
9. Disconnect the black DC power cable from the upper conductor rail and the blue DC power cable from the lower conductor rail.
10. Disconnect the AC cables for the rectifiers. Ensure that the ferrites stay in position around the cables.
11. Remove the splint and screw which secure the backplane to the rectifier frame.
12. Remove the backplane.

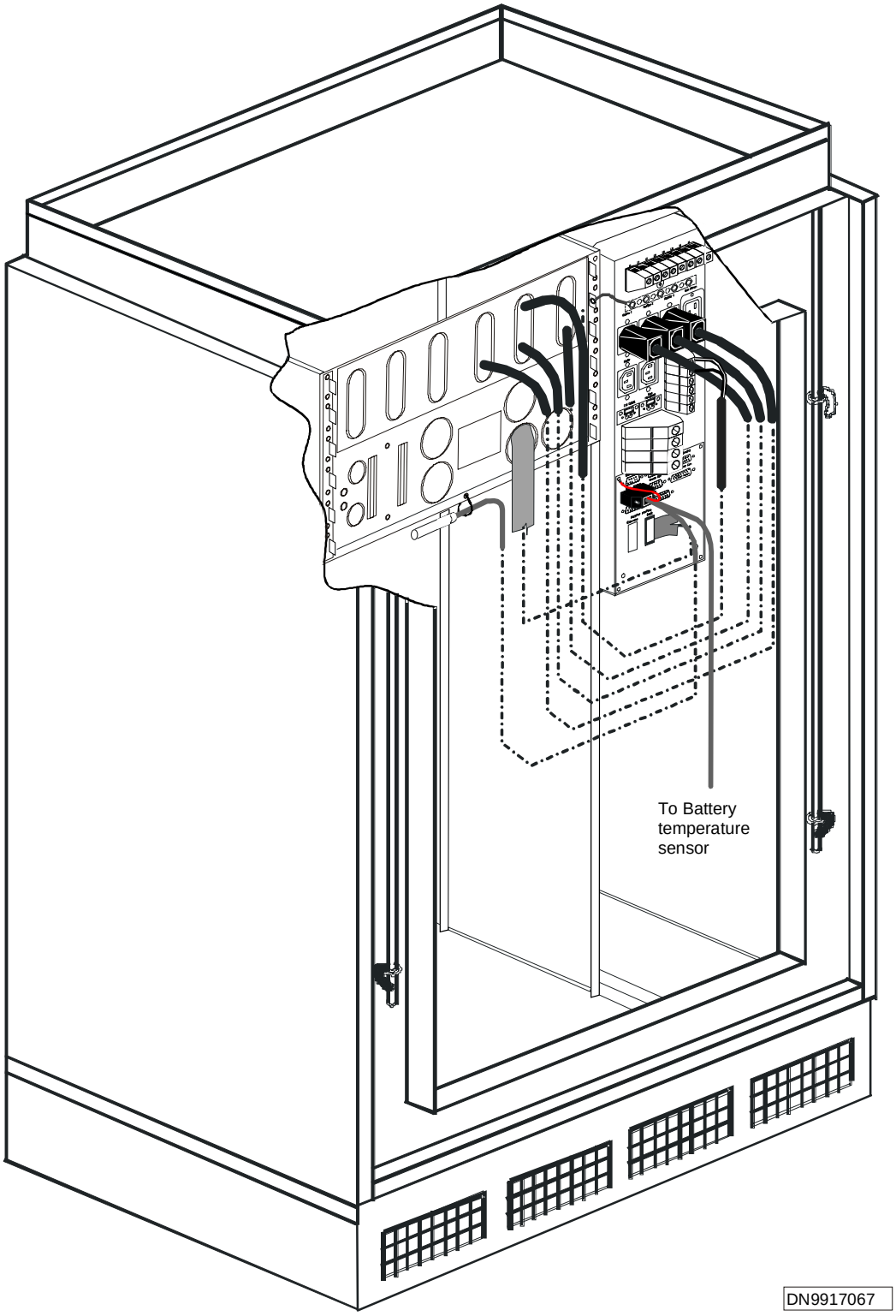

Figure 59 Backplane cabling arrangement

► The backplane should be installed as follows:

1. If the backplane is new, unpack the backplane from its protective package and check for damage. Check the contents of the delivery against the Packing List, and place the list into the site folder. Recycle the packing material.
2. Position the backplane into the rectifier frame.
3. Secure the backplane to the rectifier frame with the splint and screw.
4. Connect the AC cables for the rectifiers as shown in Figure 60. Ensure that the ferrites stay in position around the cables.
5. Connect the black DC power cable to the upper conductor rail and the blue DC power cable to a suitable position on the lower conductor rail.
6. Position the rectifier frame into the cabinet support frame.
7. Bend the fixing points on the rectifier frame to fix it in position.
8. Calibrate the backplane as described in section 7.3.1.
9. Tighten the temperature sensor and grounding cable. The temperature sensor and grounding cable should be positioned as shown in Figure 59.
10. Insert the rectifiers into the cabinet. See section 7.4.
11. Perform the power-ON-test as described in section 8.1.

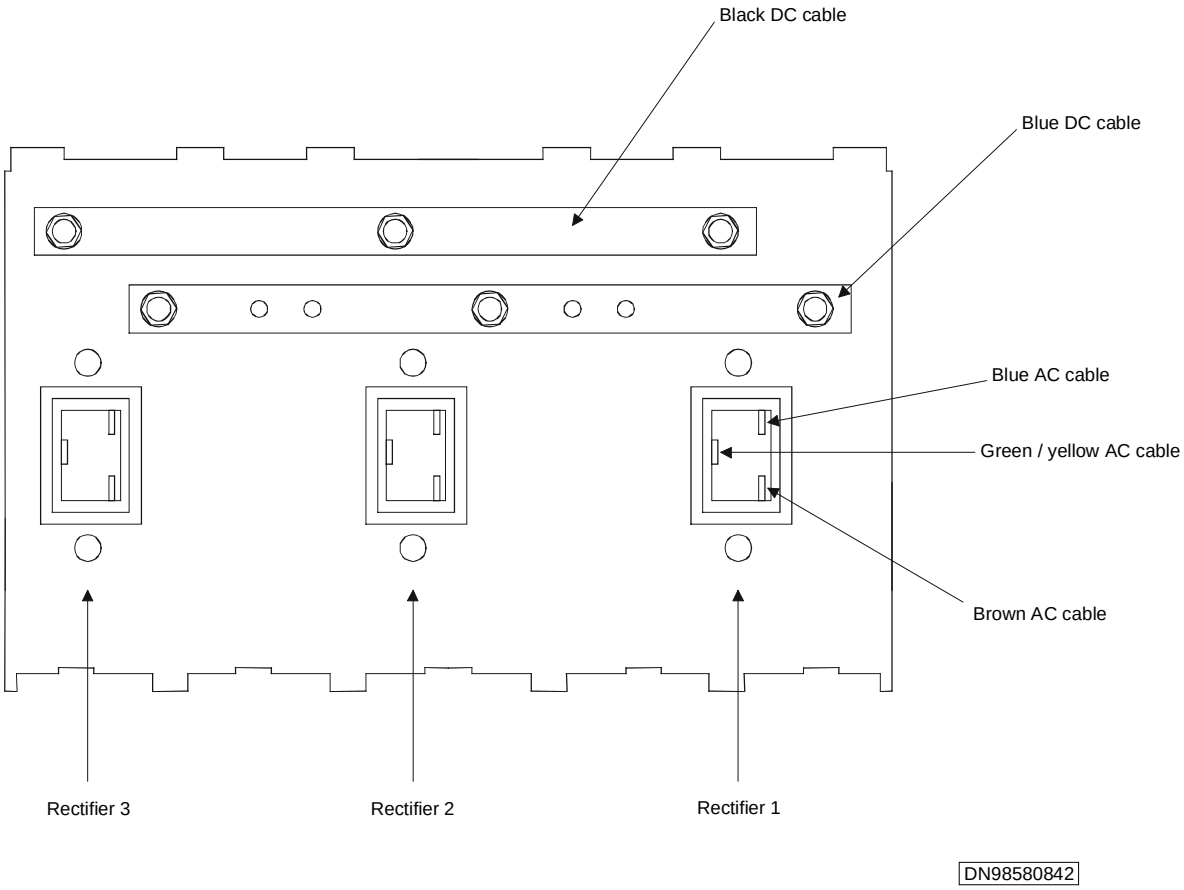

Figure 60 Connections on rear of backplane

7.3.1. Backplane calibration

The Extratalk II / II+ backplane, pre-fitted to the Extratalk II / II+, is not calibrated. The backplane must be calibrated at 53V.

► Calibrate the backplane as follows:

1. Switch off the DC and AC breakers for all rectifiers.
2. Switch on the AC power at the wall distribution box.
3. Using a volt meter measure the voltage on the AC terminals
4. At the PDU measure the voltage between N and L1, L2, L3.

5. Insert the first rectifier in the position first from the left on the backplane (when viewed from the cabinet front) known as POS 0, as described in section 7.4.
6. Switch on the DC and then the AC breaker for rectifier 1 on the PDU.
7. Adjust the voltage to 53V with the sealed screw at position P1 (see Figure 61). The voltage can be measured at the screws SKR11, SKR12.
8. Switch off the AC and the DC breaker for rectifier 1 and remove rectifier 1.
9. Insert the second rectifier into the middle position on the backplane, known as POS 1.
10. Switch on the DC and then the AC breaker for rectifier 2.
11. Adjust the voltage to 53V with the sealed screw at position P11 (see Figure 61). The voltage can be measured at the screws SKR1, SKR2.
12. Switch off the AC and the DC breaker for rectifier 2 and remove rectifier 2.
13. Insert the third rectifier into the right position on the backplane, known as POS 2.
14. Switch on the DC and then the AC breaker for rectifier 3.
15. Adjust the voltage to 53V with the sealed screw at position P21 (see Figure 61). The voltage can be measured at the screws SKR1, SKR2
16. Switch off the AC and the DC breaker for rectifier 3 and remove rectifier 3.
17. Plug the rectifier control cable into the backplane connector (PL4) under rectifier 1, and into the connection point on the rear of the PDU.

The backplane is now calibrated.

After calibrating the backplane tick off the box in the checklist.

Backplane calibrated ☐ no or ☐ yes.

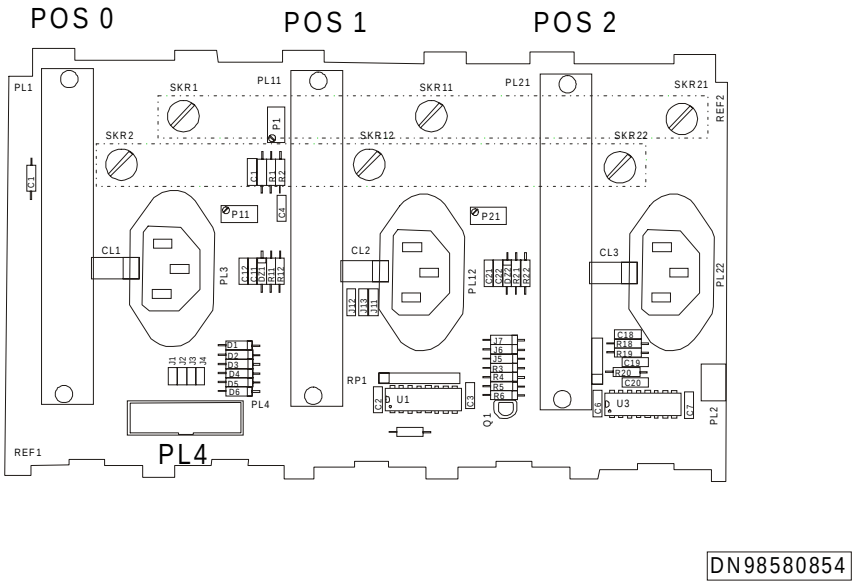

Figure 61 Backplane front view

7.4. Removal and installation of rectifiers

Three rectifiers are pre-fitted to the Extratalk II / II+. The Extratalk II / II+ cabinet provides space for an additional three rectifiers if required, which can only be used in conjunction with a PDU extension and a backplane extension.

Start the rectifier removal from the right to the left according to the positions shown in Figure 62.

► Remove each rectifier as follows:

1. Remove the two fixing screws at the front panel of the rectifier.
2. Secure the rectifiers against dropping down until it is removed.
3. Carefully pull the rectifier out of its designated slot.
4. Repeat points 1, 2 and 3 for each rectifier to be removed.

Start the rectifier installation from the left to the right according to the positions shown in Figure 62.

▶ Install each rectifier as follows:

1. If the rectifier is new, unpack the rectifier from its protective package and check for damage. Check the contents of the delivery against the Packing List, and place the list into the site folder. Recycle the packing material.
2. Carefully place the rectifier into the designated slot and shift it in till you feel the rear connector snapping into the backplane connector.
3. Secure the rectifiers against dropping down until the fixing screws are fastened.
4. Fasten the two fixing screws at the front panel of the rectifier.
5. Repeat points 1, 2, 3 and 4 for each rectifier to be installed.

After installing the rectifiers tick off the box and enter the number of rectifiers.

Rectifiers installed ☐ no or ☐ yes, number of rectifiers ___.

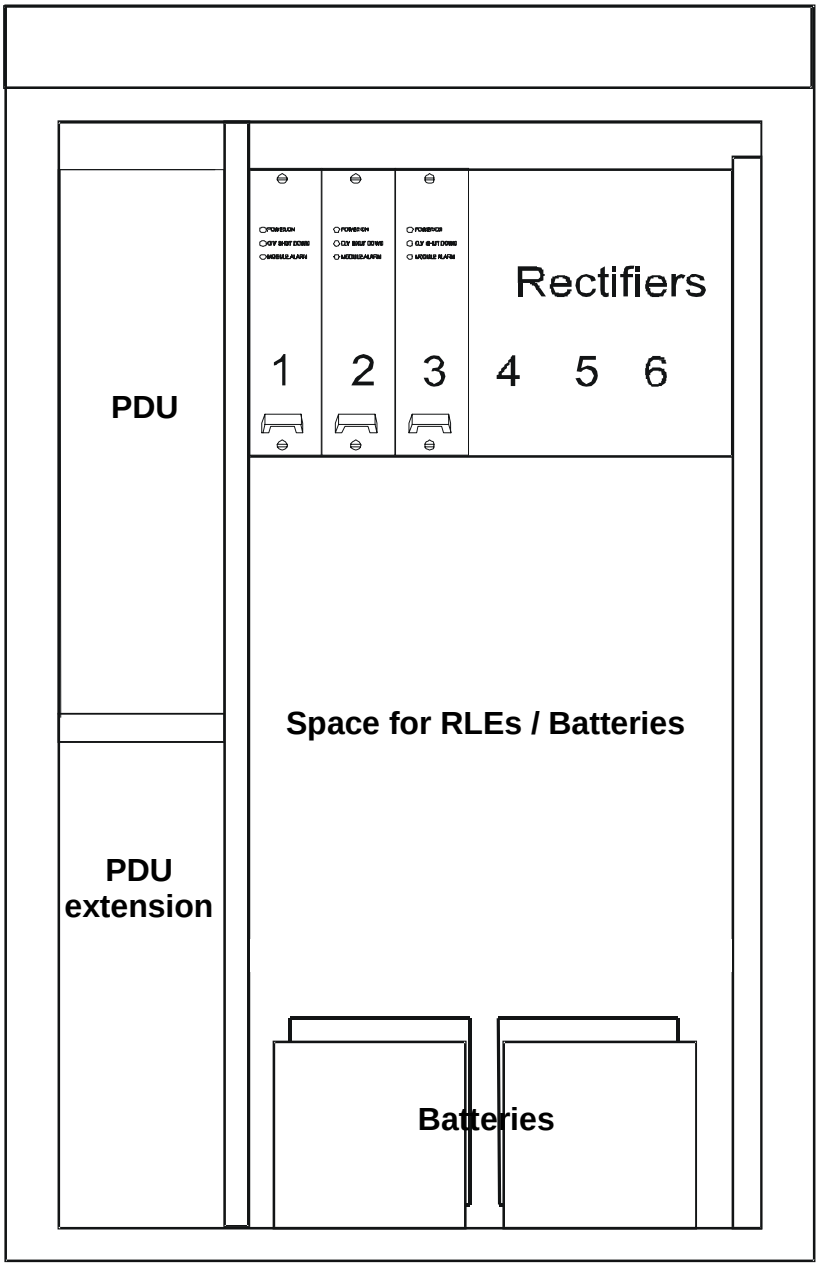

Figure 62 Rectifier positions

7.5. Installation and removal of rectifier upgrade kit

The rectifier upgrade kit consists of a PDU extension, a backplane extension and associated cables and fittings. The rectifier upgrade kit should be installed when four or more rectifiers are required. The cabling arrangement for the backplane extension is shown in Figure 63, and is used in conjunction with the backplane cabling arrangement shown in Figure 59. All other cables are omitted from this figure for clarity.

7.5.1. Delivery check

Unpack and check the delivery against the Packing List. With the rectifier upgrade kit the following equipment is delivered:

- One PDU extension.
- One backplane extension.
- Two copper rails.
- One steel splint.
- One screw for fixing the splint.
- One set of DC cables from rectifier backplane to PDU extension.
- Three sets of AC cables from rectifier backplane to PDU extension.
- One AC cable from the PDU to PDU extension.
- One PDU connection cable between PDU and PDU extension.
- One rectifier control cable from backplane extension to PDU.
- One grounding cable with screw.
- One set of DC cables from PDU to PDU extension.
- One set of ferrites for the AC cables to the rectifiers.

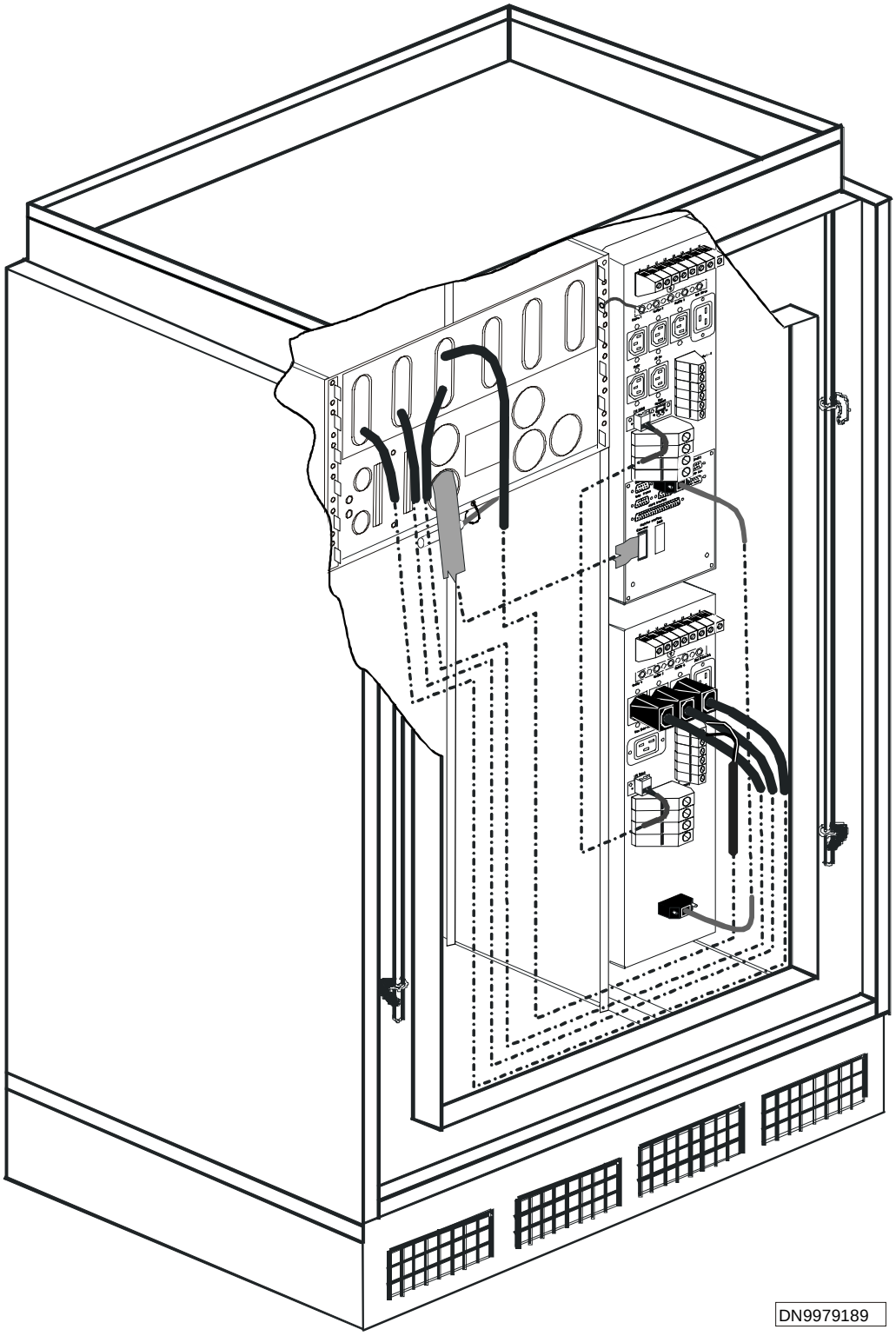

Figure 63 Backplane extension cabling arrangement

7.5.2. Installation procedure

▶ Prepare the cabinet as follows:

1. Unpack the rectifier upgrade kit from its protective packaging and check for damage. Check the contents of the delivery against the Packing List (see section 7.6.1), and place the list into the site folder. Recycle the packing material.
2. Switch off all AC and DC breakers on the PDU.
3. Switch off the AC voltage in the external wall distribution box.
4. Remove the cabinet roof and HMU. See section 4.6 and 5.
5. Position the HMU near to the cabinet, being careful with the cabling.
6. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.
7. Remove the rectifiers. See section 7.4.
8. Loosen the temperature sensor, which is tied to the rectifier frame, also loosen the grounding cable on the rectifier frame and on the PDU.
9. Unplug the rectifier control cable from the backplane. Bend the fixings points of the rectifier frame on the rear side so that you can lift out the rectifier frame. Be careful with the cabling when lifting out.

▶ Install the backplane extension as follows:

1. Install the backplane extension into position in the right-hand side of the rectifier frame and fix it with the splint and the screw.
2. Lay the rectifier frame down on a clean area and loosen the DC cables for the backplane from the upper and lower conductor rails.
3. Connect the conductor rails for the two backplanes using the two rails made of copper as shown in Figure 64.

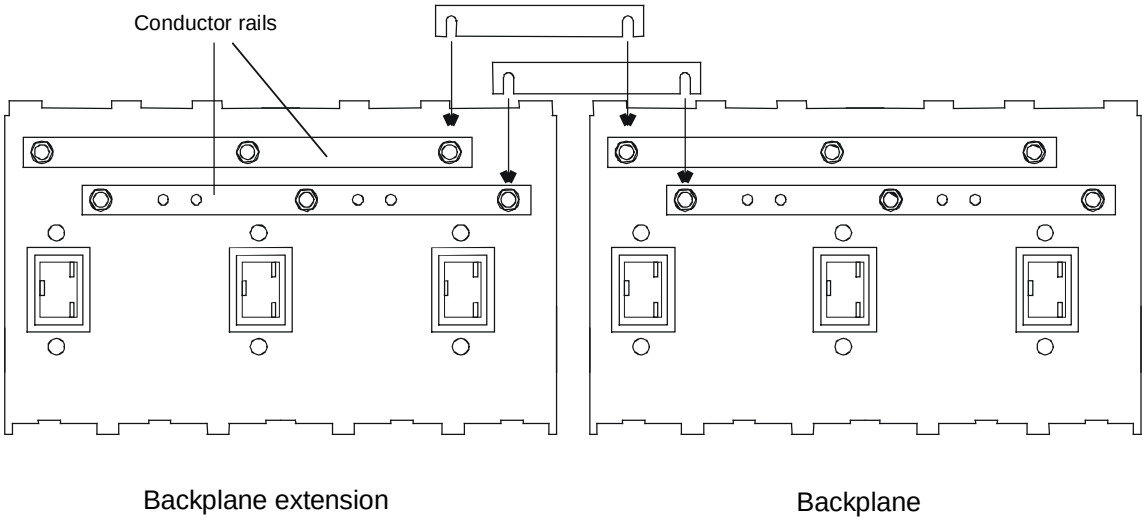

Figure 64 Connecting conductor rails on rear of the backplane

4. Connect the AC cables for the rectifiers as shown in Figure 65. Place the ferrites in position around the cables.
5. Connect the black DC power cable to a suitable position on the upper conductor rail and the blue DC power cable to a suitable position on the lower conductor rail of the backplane extension.
6. Tighten the DC power cables to the backplane.

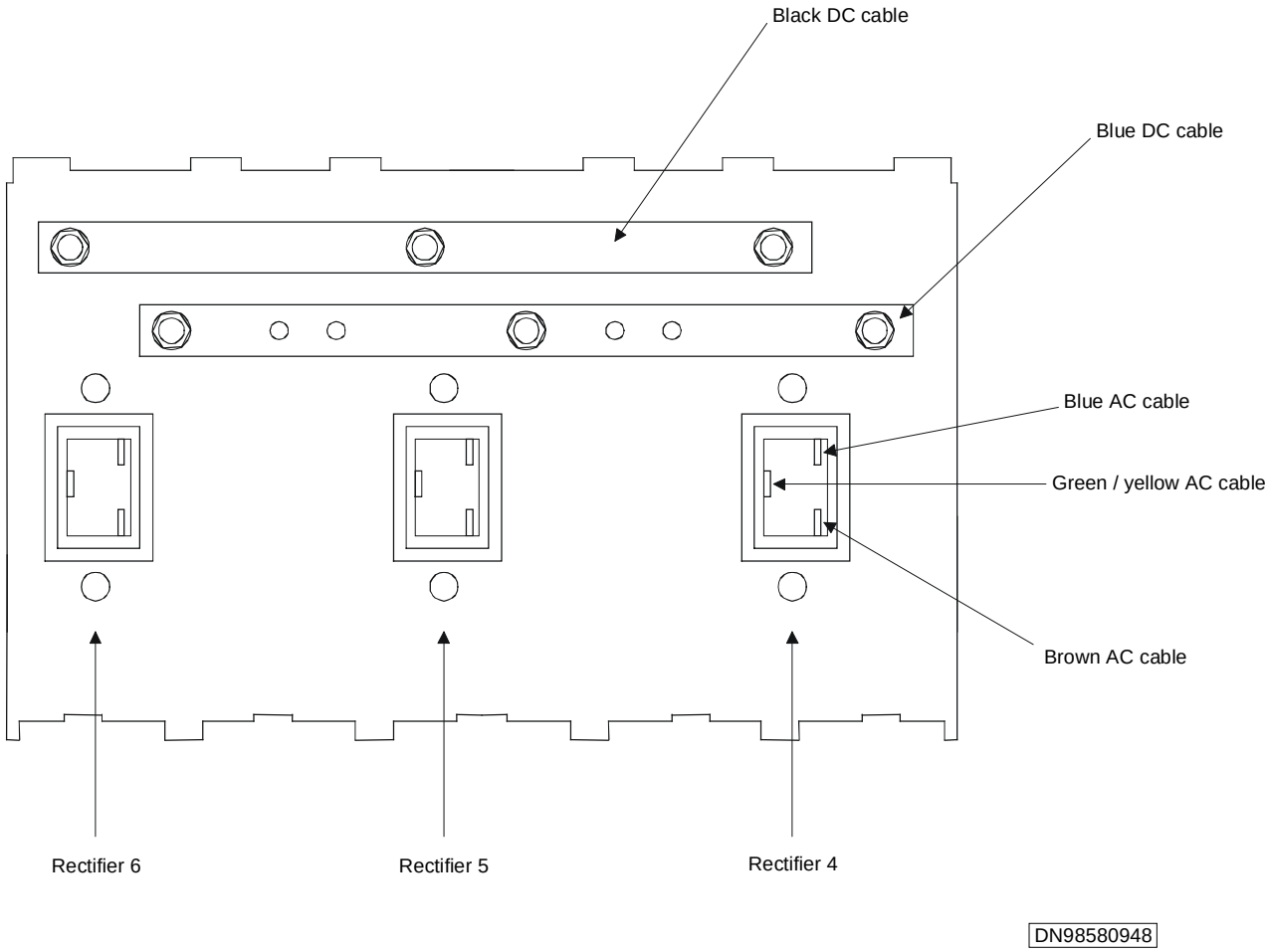

Figure 65 Connections on rear of backplane extension

7. Position the rectifier frame into the cabinet support frame.
8. Bend the fixing points on the rectifier frame to fix it in position.
9. Plug the rectifier control cables into both backplanes.
10. Tighten the temperature sensor and grounding cable. The temperature sensor should be positioned as shown in Figure 59.

▶ Install the PDU extension as follows:

1. Line the PDU extension up with its position at the bottom left of the cabinet support frame.
2. Slide the PDU extension into the cabinet.

3. Tighten the four M6 screws and plastic washers on the PDU extension front panel, which fix it to the cabinet support frame.
4. Connect the following cables to the rear panel of the PDU extension (the cabling arrangement is dependent upon the configuration of the Extratalk II / II+ installation, see section 6). See Table 11:

– Grounding cables.
– PDU connection cable, as shown in Figure 63.
– AC power cables. The AC terminals are shown in Figure 67.
– DC power cables. Connect additional battery cables to the PDU extension before connecting the battery cables to the batteries. The DC terminals are shown in Figure 66.
– Rectifier cables (AC and DC), as shown in Figure 63.
– LVD control cable, as shown in Figure 63.

5. Connect the following cables to the rear panel of the PDU (see section 6):

– Rectifier control cable, as shown in Figure 63.
– PDU connection cable from PDU extension, as shown in Figure 63.
– AC power cables.
– DC power cables. Connect the battery cables to the PDU before connecting the battery cables to the batteries.
– Grounding cable from the rear side of the rectifier frame with a supplied M5 screw, as shown in Figure 59.
– LVD control cable, as shown in Figure 63.

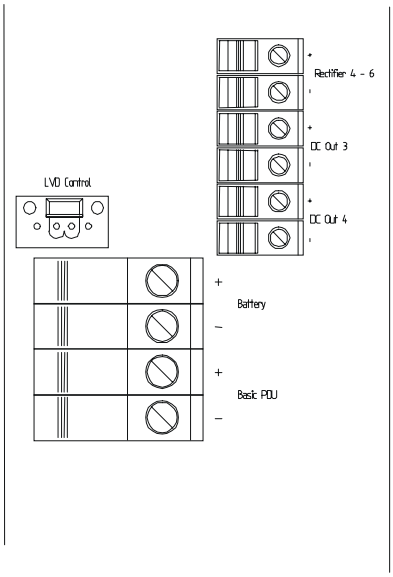

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Figure 66 Location of the DC terminals

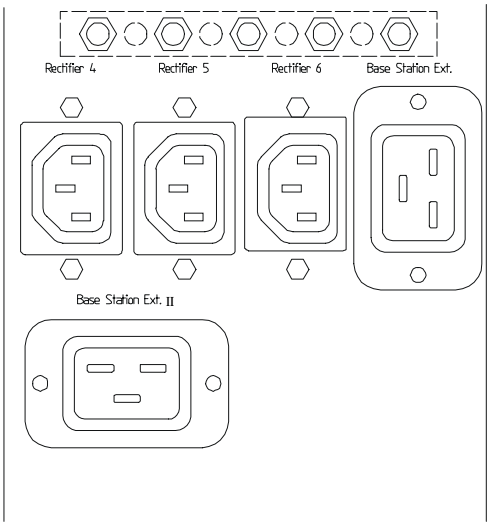

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Figure 67 Location of the AC terminals

Table 11 PDU and PDU extension interconnection cables

Cable	Terminal Name	
	PDU	PDU Extension
Three Phase AC Power Supply	L1, L2, L3, N, Ground	L1, L2, L3, N, Ground
Single Phase AC Power Supply	L3, N, Ground	L3, N, Ground
48V DC Black +	PDU Extension +	PDU +
48V DC Blue -	PDU Extension -	PDU -
PDU connection cable	Extension	PDU Control

► Calibrate the backplane extension as follows:

1. Using a volt meter measure the voltage on the AC terminals.
2. At the PDU measure the voltage between N and L1, L2, and L3.
3. Disconnect the rectifier control cable from the backplane extension.
4. Insert the first rectifier in the position first from the left on the backplane extension (when viewed from the cabinet front) known as POS 3, as described in section 7.4.
5. Switch on the DC and then the AC breaker for rectifier 4 on the PDU extension.
6. Adjust the voltage to 53V with the sealed screw at position P1 on the backplane extension. The voltage can be measured at the screws SKR11, SKR12.
7. Switch off the AC and the DC breaker for rectifier 4 and remove rectifier 4.
8. Insert the second rectifier into the middle position on the backplane extension, known as POS 4.
9. Switch on the DC and then the AC breaker for rectifier 5.
10. Adjust the voltage to 53V with the sealed screw at position P11. The voltage can be measured at the screws SKR1, SKR2.
11. Switch off the AC and the DC breaker for rectifier 5 and remove rectifier 5.

12. Insert the third rectifier into the right position on the backplane extension, known as POS 5.
13. Switch on the DC and then the AC breaker for rectifier 6.
14. Adjust the voltage to 53V with the sealed screw at position P21. The voltage can be measured at the screws SKR1, SKR2
15. Switch off the AC and the DC breaker for rectifier 6 and remove rectifier 6.
16. Plug the rectifier control cable into the backplane extension connector (PL4) under rectifier 4, and into the connection point on the rear of the PDU.
17. Perform the power-ON-test as described in section 8.1.

The rectifier upgrade kit installation is complete.

After installing and connecting the rectifier upgrade kit tick off the box in the checklist.

Rectifier upgrade kit installed and calibrated ☐ no or ☐ yes.

7.5.3. Removal procedure

▶ Remove the PDU extension as follows:

1. Switch off all AC and DC breakers on the PDU and PDU extension.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.
6. Disconnect the following cables from the rear of the PDU extension, if applicable:

– Grounding cables.
– PDU connection cable.
– AC power cables.
– DC power cables. Remove the battery cables from the batteries before disconnecting the battery cables from the PDU.
– Rectifier cables.

– LVD control cable.

7. Remove the four M6 screws and plastic washers on the PDU extension front panel, which fix it to the cabinet support frame.
8. Slide the PDU extension out of the cabinet.

► The backplane extension should be removed as follows:

1. Switch off all AC and DC breakers on the PDU and PDU extension.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.
6. Remove the rectifiers. See section 7.4.
7. Loosen the temperature sensor, which is tied to the rectifier frame, also loosen the grounding cable on the rectifier frame and on the PDU.
8. Unplug the rectifier control cables from both backplanes. Bend the fixings points of the rectifier frame on the rear side so that you can lift out the rectifier frame. Be careful with the cabling when lifting out.
9. Disconnect the black DC power cable from the upper conductor rail and the blue DC power cable from the lower conductor rail of the backplane extension.
10. Disconnect the AC cables for the rectifiers on the backplane extension. Ensure that the ferrites stay in position around the cables.
11. Remove the two copper connector rails.
12. Remove the splint and screw which secure the backplane extension to the rectifier frame.
13. Remove the backplane extension.

7.6. Installation and removal of the PDU extension for the Extratalk II / II+ extension cabinet

The PDU extension kit consists of a PDU extension and associated cables and fixings. The PDU extension should be installed additional RLEs are required in the Extratalk II / II+ extension.

▶ The PDU extension for the Extratalk II / II+ extension cabinet should be installed as follows:

1. Switch off all AC and DC breakers on the Extratalk II /II+ PDUs and the Extratalk II /II+ extension PDU.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the extension cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the extension cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.
6. Unpack the PDU extension from its protective package and check for damage. Check the contents of the delivery against the Packing List, and place the list into the site folder. Recycle the packing material.
7. Line the PDU extension up with its position at the bottom left of the extension cabinet support frame.
8. Slide the PDU extension into the extension cabinet.
9. Tighten the four M6 screws and plastic washers on the PDU extension front panel, which fix it to the extension cabinet support frame.
10. Connect the following cables to the rear panel of the PDU extension and the rear panel of the PDU:

– Grounding cable.

– PDU connection cable.

– DC power cables.

11. Perform the power-ON-test as described in section 8.1.

After installing and connecting the PDU extension for the extension cabinet tick off the box in the checklist.

PDU extension for the extension cabinet installed ☐ no or ☐ yes.

▶ The PDU extension for the Extratalk II / II+ extension cabinet should be removed as follows:

1. Switch off all AC and DC breakers on the PDUs.
2. Switch off the AC voltage in the external wall distribution box.

3. Remove the extension cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the extension cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU extension, in order to check that the AC power is switched off.
6. Disconnect the following cables from the rear of the PDU extension and the rear panel of the PDU:

– Grounding cables.

– Alarm cables.

– DC power cables.

7. Remove the four M6 screws and plastic washers on the PDU extension front panel, which fix it to the extension cabinet support frame.
8. Slide the PDU extension out of the extension cabinet.

7.7. Installation and removal of batteries

WARNING!

Make sure that the battery circuit breaker is in the off position before starting the installation procedure. Use only insulated tools for working on the batteries.

Never connect or disconnect the battery lead from the PDU rear connector when the other end is connected to the batteries.

As the cabinets are positive earthed, to minimise the risk of short circuits whilst the battery leads are loose, always connect the negative battery lead to the PDU before the positive cable. Always disconnect the positive battery lead from the PDU before the negative cable.

CAUTION Care should be taken when handling the batteries due to their significant weight. Refer to section 2.2.1.

NOTE If a battery type is used other than the one described here, proceed according to the instructions delivered with the batteries.

The standard Extratalk II / II+ configuration requires the installation of four 12V battery blocks. Alternative configurations may consist of eight battery blocks, configured as 2*4 12 volt units**;** twelve battery blocks, configured as four 12 volt units

plus eight battery blocks, configured as 2*4 12 volt units, using an additional battery tray; or sixteen battery blocks, configured as 2*2*4 12 volt units, using an additional battery tray.

The batteries on the lower tray should be connected to the two feed-through screw terminals for batteries on the rear of the PDU. The batteries on the upper tray can be connected either to the terminals on the PDU, via a suitable arrangement, or the terminals on the PDU extension, if fitted. The customer should determine the most suitable battery connection arrangement.

The Extratalk II / II+ extension can be fitted with three battery trays, allowing the installation of twenty four battery blocks.

The batteries should be connected to the two feed-through screw terminals for batteries on the rear of the basic PDU using a suitable arrangement.

Before installing the batteries perform the following voltage measurements as follows and fill the results into the checklist.

Battery voltages (without load):

Battery 1 ____V	Battery 2 ____V
Battery 3 ____V	Battery 4 ____V
Battery 5 ____V	Battery 6 ____V
Battery 7 ____V	Battery 8 ____V
Battery 9 ____V	Battery 10 ____V
Battery 11 ____V	Battery 12 ____V
Battery 13 ____V	Battery 14 ____V
Battery 15 ____V	Battery 16 ____V
Battery 17 ____V	Battery 18 ____V
Battery 19 ____V	Battery 20 ____V
Battery 21 ____V	Battery 22 ____V
Battery 23 ____V	Battery 24 ____V

Check the batteries visually for damage and fill the result into the checklist.

Visual check of batteries for external damages ☐ failed or ☐ passed.

7.7.1. Installing and removing four battery blocks

► Install the four battery blocks into the Extratalk II / II+ cabinet as follows:

1. Place the lower tray into the bottom of the battery compartment of the cabinet. The tray should be positioned so that the depth is greater than the width.
2. Place the batteries on the lower tray as shown in Figure 68.

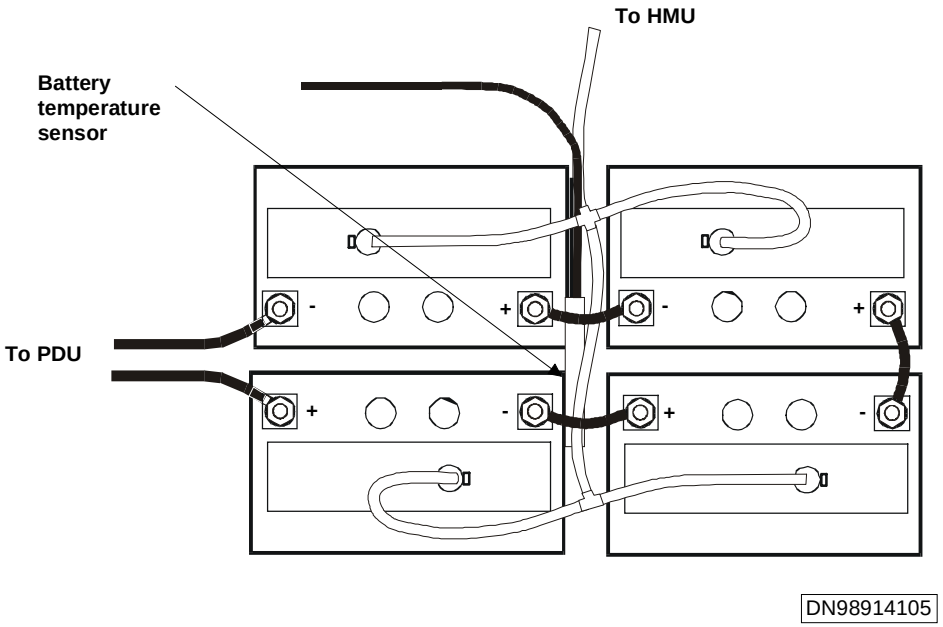

Figure 68 Four battery block installation

3. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 68. Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).
4. Position the battery temperature sensor as shown in Figure 68. Secure the sensor in position using a cable wrap.

► Remove the four battery blocks from the Extratalk II / II+ cabinet as follows:

1. Loosen the cable wrap which secures the battery temperature sensor in position, and remove the sensor.
2. Disconnect the cables, cable bridges and the battery ventilation tubes.

3. Remove the batteries from the battery compartment.
4. Remove the lower tray from the bottom of the battery compartment.

7.7.2. Installing and removing eight battery blocks

► Install the eight battery blocks into the Extratalk II / II+ cabinet as follows

1. Place the lower tray into the bottom of the battery compartment of the cabinet. The tray should be positioned so that the depth is greater than the width.
2. Place the batteries on the lower tray as shown in Figure 69.

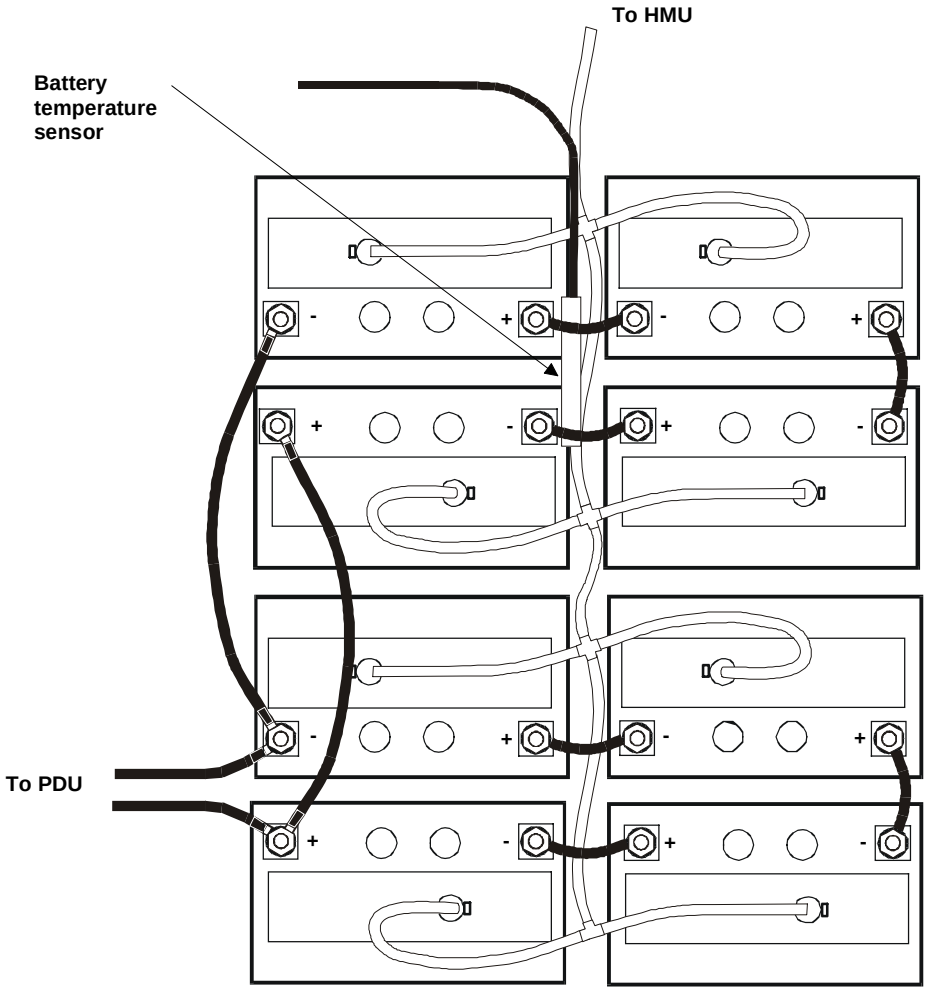

Figure 69 Eight battery block installation

3. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 69. Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).
4. Position the battery temperature sensor as shown in Figure 69. Secure the sensor in position using a cable wrap.

► Remove the eight battery blocks from the Extratalk II / II+ cabinet as follows:

1. Loosen the cable wrap which secures the battery temperature sensor in position, and remove the sensor.
2. Disconnect the cables, cable bridges and the battery ventilation tubes.
3. Remove the batteries from the battery compartment.
4. Remove the lower tray from the bottom of the battery compartment.

7.7.3. Installing and removing sixteen battery blocks

► Install eight battery blocks on to the lower tray as follows

1. Place the lower tray into the bottom of the battery compartment of the cabinet. The tray should be positioned so that the depth is greater than the width.
2. Place the batteries on the lower tray as shown in Figure 70.

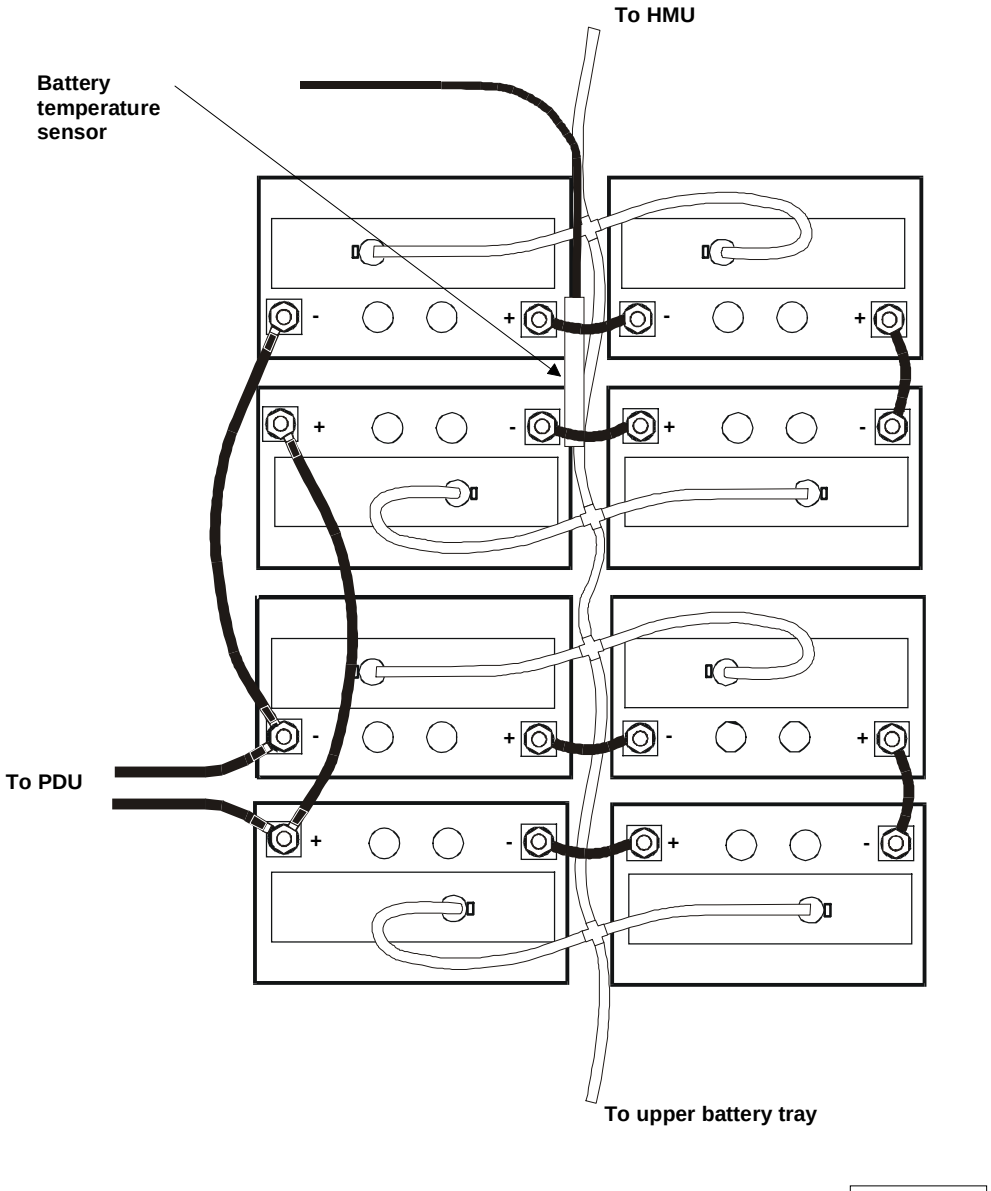

Figure 70 Sixteen battery block installation lower tray

3. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 70. Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).
4. Position the battery temperature sensor as shown in Figure 70. Secure the sensor in position using a cable wrap.

► Install the upper battery tray as follows:

1. Unpack the upper battery tray kit from its protective packaging and check for damage. Check the contents of the delivery against the Packing List and place the list into the site folder. Recycle the packing material.
2. Position one of the tray bars against the rear of the support frame, at 7U up from the bottom of the frame.
3. Secure the bar to the frame with four M6 screws.
4. Position the other tray bar against the front of the support frame, at 7U up from the bottom of the frame.
5. Secure the bar to the frame with four M6 screws.
6. Position the upper tray on top of the bars
7. Secure the upper tray to the bars using four M6 screws, ensuring that the tray position allows the cabinet door to be closed.

► Install eight battery blocks on to the upper tray as follows

1. Place the second block of batteries onto the upper battery tray as shown in Figure 71.

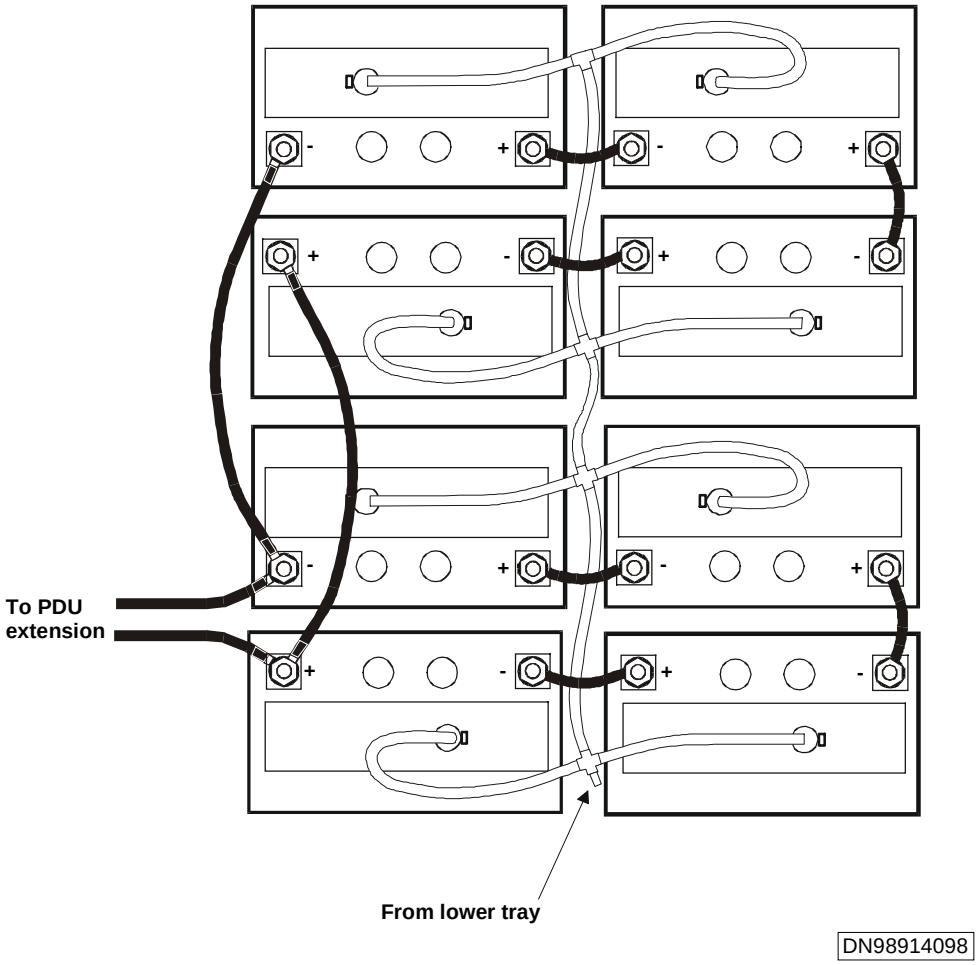

Figure 71 Sixteen battery block installation upper tray

2. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 71. Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).

► Remove the sixteen battery blocks from the cabinet as follows:

1. Disconnect the cables, cable bridges and the battery ventilation tubes from the batteries on the upper tray.
2. Remove the batteries from the upper tray.
3. Remove the four M6 screws which secure the upper tray to the tray bars.
4. Remove the upper tray.
5. Remove the four M6 screws which secure the front bar to the support frame.
6. Remove the front bar.

7. Remove the four M6 screws which secure the rear bar to the support frame.
8. Remove the rear bar.
9. Loosen the cable wrap which secures the battery temperature sensor in position, and remove the sensor.
10. Disconnect the cables, cable bridges and the battery ventilation tubes from the batteries on the lower tray.
11. Remove the batteries from the battery compartment.
12. Remove the lower tray from the bottom of the battery compartment.

7.7.4. Installing and removing twenty four battery blocks

NOTE

Twenty four battery blocks can only be installed in the Extratalk II / II+ extension cabinet. They should be connected to the PDUs of the Extratalk II / II+ cabinet using a suitable arrangement.

► Install eight battery blocks on to the lower tray as follows:

1. Place the lower tray into the bottom of the battery compartment of the cabinet. The tray should be positioned so that the depth is greater than the width.
2. Place the batteries on the lower tray as shown in Figure 70.
3. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 70 (but not the battery temperature sensor). Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).

► Install the upper battery tray as follows:

1. Unpack the upper battery tray kit from its protective packaging and check for damage. Check the contents of the delivery against the Packing List and place the list into the site folder. Recycle the packing material.
2. Position one of the tray bars against the rear of the support frame, at 7U up from the bottom of the frame.
3. Secure the bar to the frame with four M6 screws.
4. Position the other tray bar against the front of the support frame, at 7U up from the bottom of the frame.
5. Secure the bar to the frame with four M6 screws.
6. Position the upper tray on top of the bars

7. Secure the upper tray to the bars using four M6 screws, ensuring that the tray position allows the cabinet door to be closed.

► Install eight battery blocks on to the upper tray as follows

1. Place the second block of batteries onto the upper battery tray as shown in Figure 72.

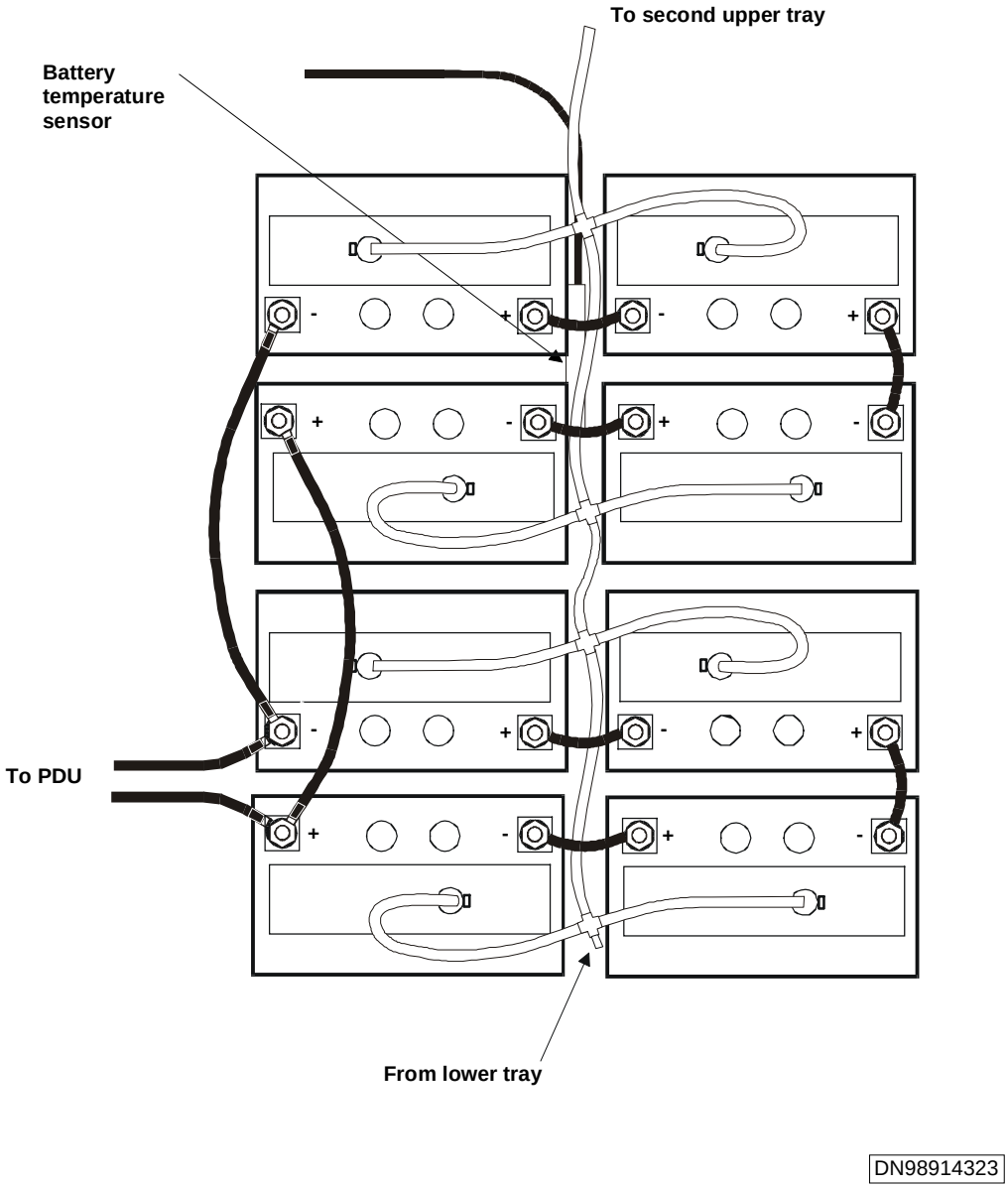

Figure 72 Twenty four battery block installation upper tray

2. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 72. Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).
3. Position the battery temperature sensor as shown in Figure 72. Secure the sensor in position using a cable wrap.

► Install the second upper battery tray as follows:

1. Unpack the second upper battery tray kit from its protective packaging and check for damage. Check the contents of the delivery against the Packing List and place the list into the site folder. Recycle the packing material.
2. Position one of the tray bars against the rear of the support frame, at 15U up from the bottom of the frame.
3. Secure the bar to the frame with four M6 screws.
4. Position the other tray bar against the front of the support frame, at 15U up from the bottom of the frame.
5. Secure the bar to the frame with four M6 screws.
6. Position the second upper tray on top of the bars
7. Secure the second upper tray to the bars using four M6 screws, ensuring that the tray position allows the cabinet door to be closed.

► Install eight battery blocks on to the second upper tray as follows

1. Place the third block of batteries onto the upper battery tray as shown in Figure 73.

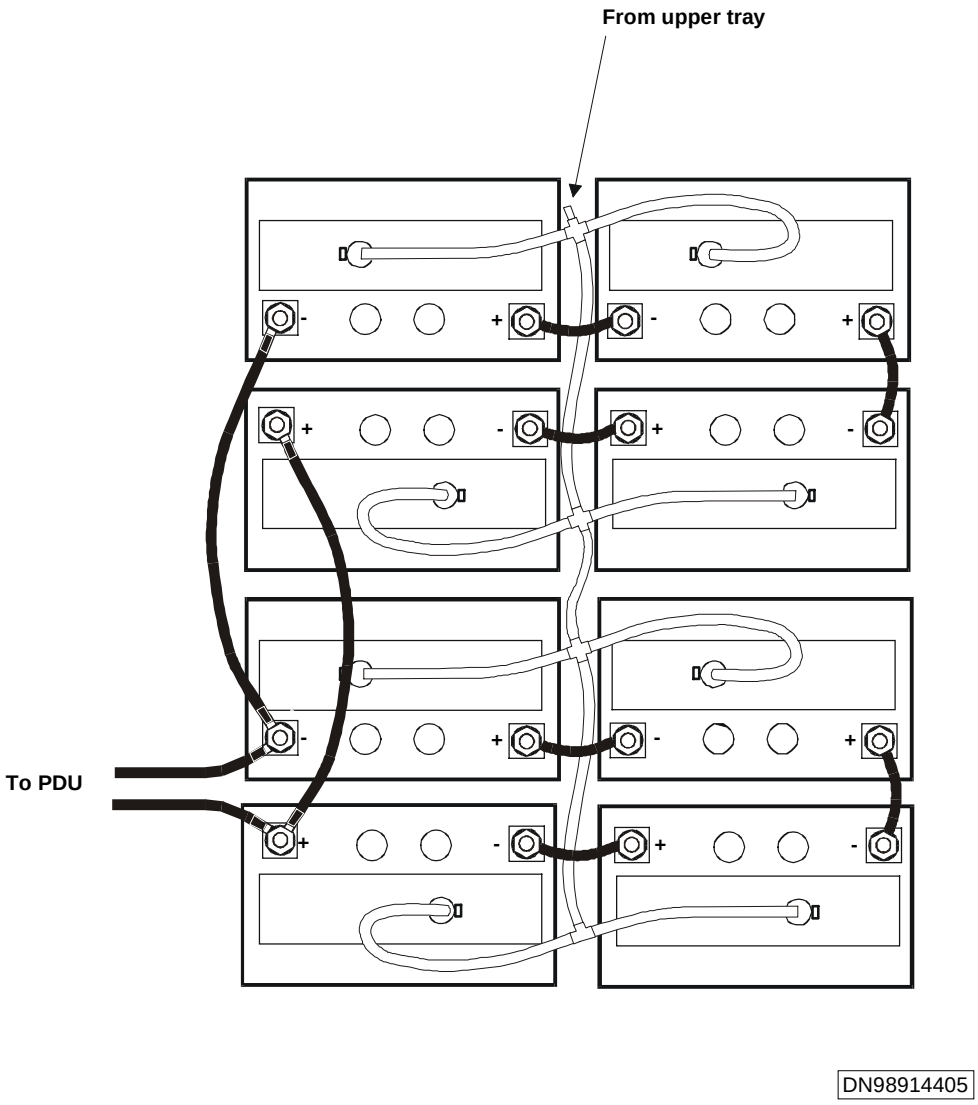

Figure 73 Twenty four battery block installation second upper tray

2. Connect the cables, cable bridges and the battery ventilation tubes as shown in Figure 73. Use an insulated torque wrench and tighten the battery contact screws to 6.78 Nm (5.0 ft-lb.).

▶ Remove the twenty four battery blocks from the cabinet as follows:

1. Disconnect the cables, cable bridges and the battery ventilation tubes from the batteries on the second upper tray.
2. Remove the batteries from the second upper tray.

3. Remove the four M6 screws which secure the second upper tray to the tray bars.
4. Remove the second upper tray.
5. Remove the four M6 screws which secure the front bar to the support frame.
6. Remove the front bar.
7. Remove the four M6 screws which secure the rear bar to the support frame.
8. Remove the rear bar.
9. Disconnect the cables, cable bridges and the battery ventilation tubes from the batteries on the upper tray.
10. Remove the batteries from the upper tray.
11. Remove the four M6 screws which secure the upper tray to the tray bars.
12. Remove the upper tray.
13. Remove the four M6 screws which secure the front bar to the support frame.
14. Remove the front bar.
15. Remove the four M6 screws which secure the rear bar to the support frame.
16. Remove the rear bar.
17. Loosen the cable wrap which secures the battery temperature sensor in position, and remove the sensor.
18. Disconnect the cables, cable bridges and the battery ventilation tubes from the batteries on the lower tray.
19. Remove the batteries from the battery compartment.
20. Remove the lower tray from the bottom of the battery compartment.

7.7.5. Check list

After installing and connecting the batteries tick off the box in the checklist.

Batteries installed and connected ☐ no or ☐ yes, number of batteries____.

7.8. RLE installation

NOTE Customer equipment other than RLEs can be fitted to the Extratalk II / II+ and extension cabinets provided that it meets the requirements described in this section.

In order to fit into the 19" equipment support frame of the cabinets, the physical dimensions for each customer chosen and supplied RLE should be:

Table 12 RLE physical dimensions

Width	19"
Depth	400 mm (15.7in) from front panel to rear 70 mm (2.8in) from front panel to front (for cabling)
Height	Multiples of 1HU

The DC power supply to the RLEs is provided by six Phoenix DFK MSTB 2,5 two pin connectors on the Extratalk II / II+ PDU, six on the Extratalk II / II+ extension PDU, and ten on the PDU extension for the Extratalk II / II+ extension cabinet.

RECOMMENDATION Nokia recommends the RLE configuration detailed in Table 13, dependent upon the BTS configuration supported.

Table 13 Recommended RLE configuration

Height of RLE	1HU
RLE heat dissipation	25W per HU
RLE DC power consumption	75W
Number of RLEs in Extratalk II / II+	6
Number of RLEs in Extratalk II / II+ extension	20

It is recommended that 1HU of space be provided below the Extratalk II / II+ rectifiers, before any RLE is installed.

RLEs which do not meet the above recommendations, can be installed at the discretion of Nokia and the customer.

The quantity of customer chosen and supplied RLEs is dependent upon the RLE physical dimensions, the RLE heat dissipation, the RLE DC power consumption, the total DC consumption of the site (such as BTS, Extratalk II / II+ and extension consumption), the fusing for the RLE DC connectors, and the available space in the cabinets. The total heat dissipation of the RLEs fitted to the Extratalk II / II+ must not exceed 150W. The total heat dissipation of the RLEs fitted to the Extratalk II / II+ extension must not exceed 500W. The quantity of RLEs should be decided at the discretion of Nokia and the customer.

After installing and connecting the RLEs complete the information in the checklist.

Total power consumption for all RLEs ____W

7.8.1. Uprating RLE connectors

It is possible to uprate the 3,15A fuses for the RLE connectors to 6,30A fuses, where necessary, in order to increase the potential RLE power consumption at the connectors.

The recommended fuse types are as follows;

Wickmann Fuse 3,15A T No.19181 250VAC 10G time lag. Switch off capacity H1500 A AC high breaking capacity.

Wickmann Fuse 6,30A T No.19181 250VAC 10G time lag. Switch off capacity H1500 A AC high breaking capacity.

▶ Uprate the RLE connector fusing from 3,15A to 6,30A as follows:

1. Switch off all AC and DC breakers on all PDUs.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the required RLE fuse by pushing the fuse cap in and turning it anti-clockwise, until it springs out.
4. Remove the 3,15A fuse from the cap and replace with a 6,30A fuse.
5. Push the fuse cap into position and turn it clockwise until locked.
6. Switch on the AC voltage in the external wall distribution box.
7. Switch on all AC and DC breakers on all PDUs.

7.9. Installation of SSS1100 upgrade kit

The SSS1100 upgrade kit is used to upgrade an existing SSS1100 installation capable of supporting a twelve TRX BTS installation, to an Extratalk II /II+ installation capable of supporting an eighteen TRX BTS installation. The SSS1100 upgrade kit consists of an Extratalk II / II+ PDU, an Extratalk II / II+ PDU extension, an uprated cable set and fittings, an alarm slice, and a set of labels.

Once the upgrade kit has been fitted, the cabinet becomes an Extratalk II /II+ cabinet, and, as such, is covered by the procedures described in this installation manual. The cabinet should be commissioned and maintained as described in [8] and [9].

The SSS1100 may be fitted with a PDU extension BIG, offering an additional four DC RLE connectors, making a total of ten DC RLE connectors for the cabinet. After installing the SSS1100 upgrade kit, the ten DC RLE connectors can be achieved by uprating the fusing for four of the six connectors on the Extratalk II / II+ PDU, as described in section 7.8.1. Consult section 7.8 when determining the RLE configuration.

If the SSS1100 is supported by an SSS2, the SSS1100 upgrade kit can be installed to the SSS1100 cabinet without affecting the functionality of the SSS2. The SSS2 can be connected to the Extratalk II / II+ in a similar manner to the Extratalk II / II+ extension.

7.9.1. Delivery check

Unpack and check the delivery against the Packing List. With the SSS1100 upgrade kit the following equipment is delivered:

- One Extratalk II / II+ PDU
- One Extratalk II / II+ PDU extension
- One AC cable between the PDU and PDU extension
- One AC cable between the PDU and rectifier 1
- One AC cable between the PDU and rectifier 2
- One AC cable between the PDU and rectifier 3
- One AC cable between the PDU extension and rectifier 4
- One AC cable between the PDU extension and rectifier 5
- One AC cable between the PDU extension and rectifier 6
- One set of ferrites for the AC cables to the rectifiers

- One AC cable between the PDU extension and BTS 2 (heater)
- One AC cable between the PDU extension and BTS 2 extension (heater)
- One AC cable between the PDU and the HMU
- One AC cable between the PDU and the ACU (compressor)
- One DC cable between the PDU / PDU extension and BTS 2
- One DC cable between the PDU extension and BTS 2 extension
- One DC cable between the PDU and PDU extension
- One DC cable between the PDU and the backplane
- One DC cable between the PDU extension and the backplane extension
- One DC cable between the PDU and the HMU
- One alarm slice to support the BTS cabinets.
- One set of labels

7.9.2. Site preparations

Consult the SSS1100 installation check list and the commissioning check list contained in the site folder. The SSS1100 upgrade kit can only be installed if the check lists are completed satisfactorily.

In addition the following checks should be performed:

1. Site is clean and safe.
2. The cabinets and the units have suffered no physical damage.
3. Site folder contains the following:

- Nokia packing list
- Nokia factory test results
- Installation check list
- Commissioning check list

After checking the installation, tick the box in the checklist.

 Check of SSS1100 installation ☐ failed or ☐ passed.

7.9.3. Installation procedure

► The SSS1100 PDU should be removed as follows:

1. Switch off all AC and DC breakers on the PDU and PDU extension.
2. Switch off the AC voltage in the external wall distribution box.
3. Remove the cabinet roof and HMU. See section 4.6 and 5.
4. Position the HMU near to the cabinet, being careful with the cabling.
5. Measure the voltage on the AC terminals L1, L2, L3 and N on the rear side of the PDU, in order to check that the AC power is switched off.
6. Disconnect the following cables from the rear of the PDU, if applicable:

– Grounding cables.

– Alarm cables.

– AC power cables.

– DC power cables. Remove the battery cables from the batteries before disconnecting the battery cables from the PDU.

– Rectifier cables.

7. Remove the four M6 screws and plastic washers on the PDU front panel, which fix it to the cabinet support frame.
8. Slide the PDU out of the cabinet.

► Remove the SSS1100 PDU extension as follows:

1. Disconnect the following cables from the rear of the PDU extension, if applicable:

– Grounding cables.

– Alarm cables.

– AC power cables.

– DC power cables. Remove the battery cables from the batteries before disconnecting the battery cables from the PDU extension.

– Rectifier cables.

2. Remove the four M6 screws and plastic washers on the PDU extension front panel, which fix it to the cabinet support frame.
3. Slide the PDU extension out of the cabinet.

- Remove the following cables from the cabinet and replace with those in the upgrade kit:
  1. Remove the six AC cables to the rectifiers and replace with those in the upgrade kit. Place a ferrite over the end of each new cable, at the rectifier end, before connection to the backplanes.
  2. Remove the six DC cables to the rectifiers and replace with the two in the upgrade kit.
  3. Remove the AC cables to the HMU. There are two AC cables for cabinets equipped with an ACU, and one for cabinets equipped with a HE. Replace the cables with those in the upgrade kit.
  4. Remove the DC cable to the HMU and replace with the one in the upgrade kit.

- Install and connect the BTS alarm slice as follows:
  1. Remove the dummy plate at the required position using side cutters.
  2. Position the alarm slice on the top of the cabinet at the required position.
  3. Secure the alarm slice to the cabinet using the four screws and washers provided with the alarm slice.

- Install the Extratalk II /II+ PDU extension as follows:
  1. Line the PDU extension up with its position at the bottom left of the cabinet support frame.
  2. Slide the PDU extension into the cabinet.
  3. Tighten the four M6 screws and plastic washers on the PDU extension front panel, which fix it to the cabinet support frame.
  4. Connect the following cables to the rear panel of the PDU extension:
  - Grounding cables.
  - Alarm cable to PDU.
  - AC cables from the PDU.
  - AC cables to the rectifiers.
  - AC cable to BTS extension (heater).
  - DC cables from the rectifiers.
  - DC cables to the PDU.

– DC cables to the batteries. Connect the battery cables to the PDU extension before connecting the battery cables to the batteries.

► The Extratalk II /II+ PDU should be installed as follows:

1. Line the PDU up with its position at the top left of the cabinet support frame.
2. Slide the PDU into the cabinet.
3. Tighten the four M6 screws and plastic washers on the PDU front panel, which fix it to the cabinet support frame.
4. Connect the following cables to the rear panel of the PDU:

– Control cables (including the two rectifier control cables).

– Alarm cables from PDU extension and alarm cable to alarm slice connector.

– AC mains supply cable.

– AC cables to the rectifiers.

– AC cables to the HMU.

– AC cables to the PDU extension.

– AC cables to the BTS (heater).

– Grounding cables, including the cable from the rear side of the rectifier frame, secured with a supplied M5 screw.

– DC cables to BTS (or SSS2).

– DC cables from the rectifiers.

– DC cables to the PDU extension.

– DC cables to the batteries. Connect the battery cables to the PDU extension before connecting the battery cables to the batteries.

– DC cables to the HMU.

► Install the following new cables to the cabinet:

1. Connect the AC cable for the BTS 2 (heater) between the PDU extension and BTS 2.
2. Connect the AC cable for the BTS 2 extension (heater) between the PDU extension and the BTS 2 extension.
3. Connect the DC cable for the BTS or BTS 2 between the PDU and the BTS / BTS 2.

4. Connect the DC cable for BTS 2 or the BTS 2 extension between the PDU extension and BTS 2 / BTS 2 extension.
5. Connect the DC cable for the BTS 2 extension between the PDU extension and the BTS 2 extension.

▶ Complete the SSS1100 upgrade kit installation as follows:

1. Calibrate the cabinet backplanes as described in sections 7.3.1 and 7.5.2.
2. Affix the supplied cabinet designation labels over those fixed to the cabinet.
3. Complete the Extratalk II /II+ and extension outdoor installation check list, using the information supplied on the SSS1100 installation check list. Where the required information is not contained in the SSS1100 installation check list, the information should be gathered by checking the installation. Discard the SSS1100 check list and replace in the site folder with the Extratalk II /II+ and extension outdoor installation check list.
4. Perform the power-ON-test as described in section 8.1.

The SSS1100 upgrade kit installation is now complete

After completing the installation, tick the box in the checklist.

SSS1100 upgrade kit installed ☐ no or ☐ yes.

8. COMPLETING THE INSTALLATION AND CHECKLIST

8.1. Power-ON-test

After finishing the installation a first function check is to be undertaken with the power-ON-test.

NOTE The power up sequence is to be carried out with HMUs removed from the cabinets.

▶ Perform the power-ON-test as follows:

- Check that all circuit breakers for each PDU are switched off.
- Check that the connected BTS or other power consumers are all switched off.
- **Make sure that the input voltage to the cabinets is correct by measuring the voltages at the external mains power distribution box.**
- Switch on the AC voltage in the external mains power distribution box.
- **Measure the voltages at the AC input connector of each PDU, using a voltmeter between N and L1, L2, L3.**
- Switch on DC power to all rectifiers.
- Switch on the AC power circuit breakers for the rectifiers on each PDU and verify that the green power LED on each rectifier is illuminated
- Switch on all DC power circuit breakers now except those for the batteries.
- Verify that the HMU fans start running at high speed and slow down approximately 15 seconds after start-up time.
- Check all RLE outputs by removing the fuses one by one and measuring the voltage at the RLE connectors.
- Switch on the battery circuit breakers.

After the power-on-test is performed, tick off the box in the checklist.

Power-ON-test ☐ failed or ☐ passed.

8.2. Site leaving conditions

After finishing all the installation tasks described in the previous sections, check that the cabinets are locked. Tick off the following boxes in the checklist.


HMU installed and locked ☐ no or ☐ yes.


Roof installed and locked ☐ no or ☐ yes.


Door installed and locked ☐ no or ☐ yes.

The other conditions, e.g. if power is to be switched off after leaving the site, are to be determined by Nokia or the customer.

RECOMMENDATION

Before the site is integrated to the network, no alarms are transmitted to the BSC/OMC. To avoid false alarms, due to cabinets which have not been commissioned, the cabinets are to be powered down.

Powering down the cabinets is undertaken by switching off all circuit breakers at each PDU and switching off the AC mains input at the external power distribution box.

Supply this information by ticking off the box in the checklist.


Cabinets powered down ☐ no or ☐ yes.

9. INSTALLATION CHECKLIST

	Serial Number	**Date**	
Section with Instructions	**Extratalk II / II+ and extension installation checklist**	☐ **failed**	☐ **passed**
4.2.1	Unpacking and delivery check	☐ **failed**	☐ **passed**
4.2.3	Plinth installation on steel construction or on concrete base		☐ **yes** ☐ **yes**
4.2.3	Single plinth or double plinth	☐ **single**	☐ **double**
4.2.4	Grid plates fixed to plinth	☐ **no**	☐ **yes**
4.3.5	Cabinets mounted to plinth	☐ **no**	☐ **yes**
4.3.6	Bridging plate and bracket installed	☐ **no**	☐ **yes**
4.5	Door opening direction	☐ **default**	☐ **changed**
4.6	Roof installed	☐ **no**	☐ **yes**
4.7.2	Grounding frame installed	☐ **no**	☐ **yes**
5.4	HMU installed	☐ **no**	☐ **yes**
6.1.1	Pre-installed cables and units check	☐ **failed**	☐ **passed**
6.2	Grounding cables connected	☐ **no**	☐ **yes**
6.3.1.1	DC output cables to BTS cabinets connected	☐ **no**	☐ **yes**

6.3.1.2	DC output cables to PDU extension and BTS cabinets connected	☐ **no**	☐ **yes**
6.3.1.3	DC output cables to Extratalk II / II+ extension connected	☐ **no**	☐ **yes**
6.3.1.4	DC output cables to PDU extension for the Extratalk II / II+ extension cabinet connected	☐ **no**	☐ **yes**
6.3.2.1	AC mains 3-phase connected	☐ **no**	☐ **yes**
6.3.2.1	AC mains single phase connected	☐ **no**	☐ **yes**
6.3.2.2	AC cable to PDU extension connected	☐ **no**	☐ **yes**
6.3.2.3	AC output cable to BTS (heater) connected	☐ **no**	☐ **yes**
6.3.2.4	AC output cable to BTS 2 (heater) connected	☐ **no**	☐ **yes**
6.3.2.5	AC output cable to BTS 2 extension (heater) connected	☐ **no**	☐ **yes**
6.3.2.6	AC output cable to Extratalk II / II+ connected	☐ **no**	☐ **yes**
6.3.3	Alarm interface cable connected	☐ **no**	☐ **yes**
6.4.2	Cable entry installed	☐ **no**	☐ **passed**
7.3.1	Backplane calibrated	☐ **no**	☐ **yes**
7.4	Rectifiers installed	☐ **no**	☐ **yes, number of rectifiers**___
7.5.2	Rectifier upgrade kit installed and calibrated	☐ **no**	☐ **yes**
7.6	PDU extension for the extension cabinet installed	☐ **no**	☐ **yes**

7.7	Battery voltages (without load): Battery 1 ____V Battery 2 ____V Battery 3 ____V Battery 4 ____V Battery 5 ____V Battery 6 ____V Battery 7 ____V Battery 8 ____V Battery 9 ____V Battery 10 ____V Battery 11 ____V Battery 12 ____V Battery 13 ____V Battery 14 ____V Battery 15 ____V Battery 16 ____V Battery 17 ____V Battery 18 ____V Battery 19 ____V Battery 20 ____V Battery 21 ____V Battery 22 ____V Battery 23 ____V Battery 24 ____V		
7.7	Visual check of batteries for external damage	☐ **failed**	☐ **passed**
7.7.5	Batteries installed and connected	☐ **no**	☐ **yes, number of batteries**___
7.8	Total power consumption for all RLEs ____W		
7.9.2	Check of SSS1100 installation	☐ **failed**	☐ **passed**
7.9.3	SSS1100 upgrade kit installed	☐ **no**	☐ **yes**

8.1	Power ON test	☐ **failed**	☐ **passed**
8.2	HMU installed and locked	☐ **no**	☐ **yes**
8.2	Roof installed and locked	☐ **no**	☐ **yes**
8.2	Door installed and locked	☐ **no**	☐ **yes**
8.2	Cabinets powered down	☐ **no**	☐ **yes**

For every check result marked failed or no give remarks below.

Remarks :

Name: _____ Company: _____ Sign. : _____

10. REFERENCES

[1] Extratalk II / II+ and extension outdoor Description of customer documentation DN9913129

[2] Extratalk II Family Glossary DN9913156

[3] Extratalk II Family Warnings and Cautions DN9913168

[4] Extratalk II / II+ and extension outdoor Product Description DN9913171

[5] Extratalk II / II+ and extension Power Distribution Units Product Description DN9913183

[6] Extratalk II Family Heat Management Unit Product Description DN9913195

[7] Extratalk II Family Rectifier Module RM1100 and Backplane Product Description DN9913202

[8] Extratalk II / II and extension outdoor Commissioning Manual DN9913226

[9] Extratalk II / II and extension outdoor Maintenance Manual DN9913238

[10] Man-Machine Interface User's Guide B6Z 052596AE

[11] DE 34/DF 34 BTS Commissioning B6Z 054211AE

[12] DE 34/DF 34 Warnings and Cautions B6Z 052592AE

[13] Nokia Citytalk DE 34/DF 34 Outdoor GSM/DCS BTS B6Z 056296 AE

[14] Nokia Intratalk DE 34/DF 34 Indoor GSM/DCS BTS B6Z 056496 AE