

MINI-LINK C Micro

Installation Manual



ERICSSON 

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MINI-LINK C Micro Installation Manual

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1 Introduction

1.1 MINI-LINK C Micro

The MINI-LINK C Micro is an AC powered, all outdoor microwave radio. It is a MINI-LINK C radio module installed with a C Micro kit. The C Micro kit replaces the lid at the rear side of the radio module.

The MINI-LINK C Micro is specially designed for micro base station applications. It is used in transmission systems together with a micro-BTS (Base Tranceiver Station) and has a standard ITU-T Rec G.703 interface between the radio and the micro-BTS.

1.2 This Manual

This manual deals with the MINI-LINK C Micro specific characteristics concerning installation and technical data. For further information on the MINI-LINK C radio, see MINI-LINK C Radio Module User's manual.

1.3 Parts List

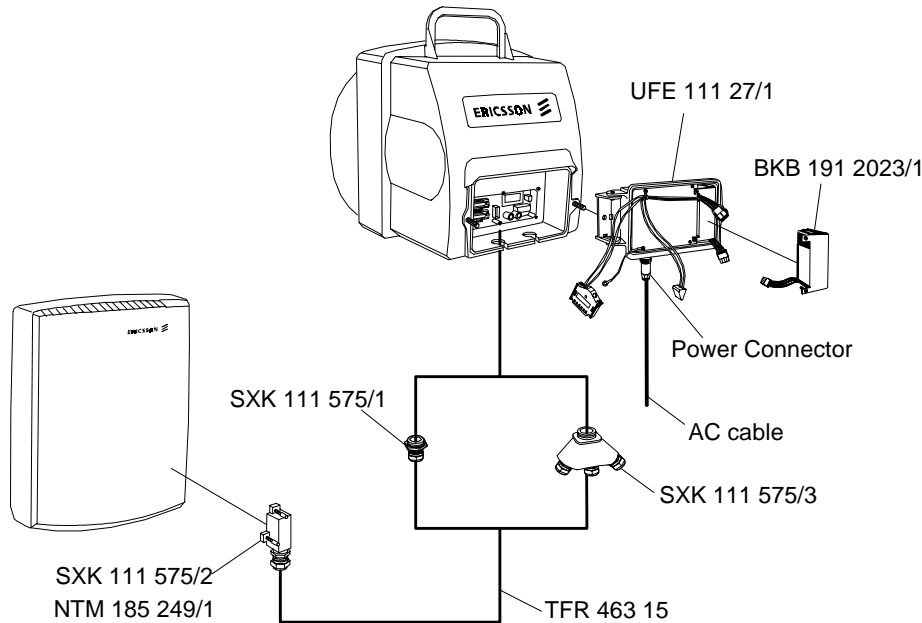


Figure 1-1. Parts for one side of a hop.

The following is required for a MINI-LINK C Micro terminal (one side of a hop) besides one MINI-LINK C radio module and one antenna.

- One C Micro kit, UFE 111 27/1, consisting of :
 - A Power Supply Unit.
 - A battery pack, BKB 191 2023/1, included in the power supply unit.
 - A power connector.
 - A connector kit, SXX 111 575/1, holding material for one cable to the radio (end terminal)
- A traffic cable, TFR 463 15
- An AC cable

For connecting 2 to 4 traffic or EAC cables to the MINI-LINK C Micro radio module you need the following:

- A connector kit, SXX 111 575/3, holding material for 2 to 4 cables to the radio.

For connecting the MINI-LINK C Micro to the Ericsson micro base station RBS 2301 you need the following:

- A connector kit for 1 or 2 cables , SXX 111 575/2.
- A cable set, NTM 185 249/1, ordered together with RBS 2301 from Ericsson.

1.4 Safety Requirements


Electrical Safety

The equipment meets the requirements for class I EN 60950 and EN 41003.

Service Personnel

Installation and service must be done by personnel having appropriate technical training and experience necessary to be aware of hazards during installation and/or service and of measures to minimize any danger to themselves or any other person.

Safety Precautions

- Follow all warnings and instructions in the manual.
- This symbol  appears in the manual and identifies conditions or practices that are hazardous or affect safe operation of the equipment.
- Access to equipment in use shall be restricted to service personnel.
- Do not use any installation components (screws, nuts etc.) other than those enclosed with the equipment or recommended by the MINI-LINK manufacturer.
- Ensure that the installation instructions, including required tightening torques for bolted joints, are followed and that appropriate tools (preferably the recommended tools) are used.
- Use adequate safety devices (helmet, gloves, safety cables etc.) when working on or around the mast. Be aware of the risk of falling objects. Consider the safety catch when hoisting the antenna and radio.
- The AC installation must be carried out according to local regulations. These regulations may require the work to be carried out by a qualified and authorised electrician. See section 4.7 for more information.
- Do not put down the MINI-LINK C Micro on the ground with the power connector connected. The power connector can be damaged, see figure below.

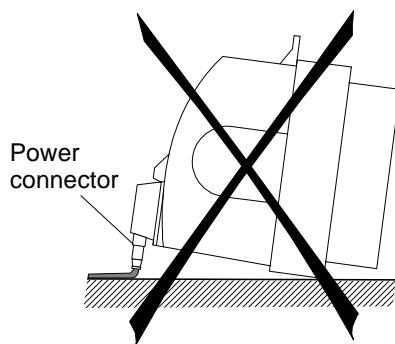


Figure 1-2. Do not damage the power connector.

Microwave Radiation

No dangerous levels of microwave radiation exist outside the antenna feeder. However, the body shall not be exposed to the radiation in front of the antenna (<0.5 m from the feeder) for a long time (>6 minutes), see ENV 50166-2.

The transmitter should be switched off before disassembling the equipment, to avoid microwave radiation.

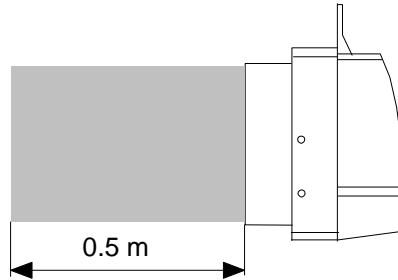


Figure 1-3. Restricted area.

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2 Technical Description

The MINI-LINK C Micro is a MINI-LINK C radio module supplemented with a power supply unit, the C Micro kit, fitted to it at the rear side. All transmission components are then housed in one outdoor unit.

The MINI-LINK C Micro is specially designed for micro base station applications. Standard interfaces make it possible to combine the MINI-LINK C Micro with any radio base station. A pair-twisted cable carries balanced traffic (ITU-T Rec G.703) between the radio base station and the MINI-LINK C Micro.

The radio module is available in four traffic capacities; 2, 2x2, 8 and 2x8 Mbps (2 and 2x2 Mbps are sufficient in a micro-base application). It can be integrated with an 0.3 or an 0.6 m antenna module, or installed separately with any standard antenna module.

The C Micro kit consists of a power supply unit which converts the mains AC supply to DC, which is required for the radio module. Since the MINI-LINK C Micro and the micro-base are powered separately, an AC power cable is connected directly to the MINI-LINK C Micro. In case of disrupted mains supply, a back-up battery will support the equipment for at least three minutes. The power supply unit is equipped with lightning protection, short circuit protection and EMC filters, and it has an alarm output for AC failure. This alarm is connected to User In on the radio module and thus supervised via the MINI-LINK network.

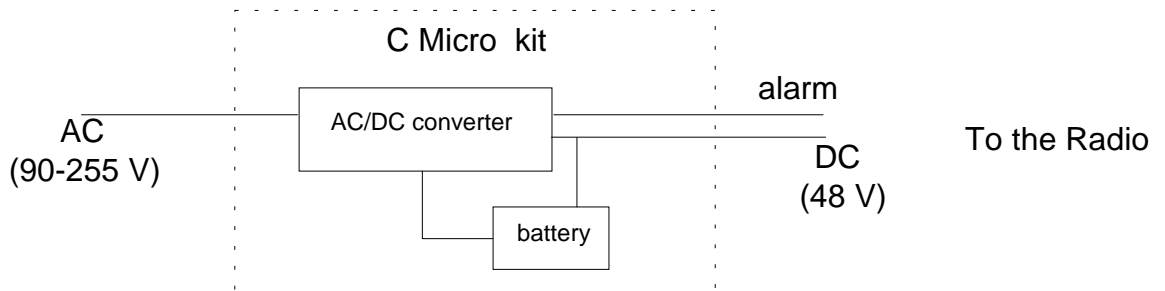


Figure 2-1. The main building blocks of the C Micro kit.

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3 Cabling

3.1 Introduction

This chapter gives some examples of cabling for the MINI-LINK C Micro radio. The number of cables and pin connections depend on the site configuration.

3.2 End terminal

At the end terminal a two pair traffic cable is required to connect the 2 Mbps to the BTS and an AC cable is required for the AC power.

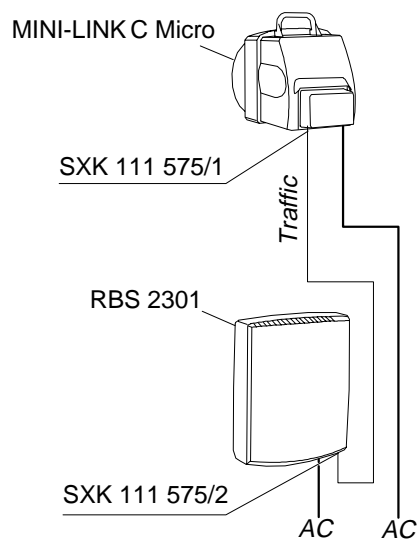


Figure 3-1 A MINI-LINK C Micro connected to RBS 2301.

3.3 Supervision Network Cabling

If more than one MINI-LINK radio is installed at the site, the EAC (External Alarm Channel) must be connected to the other MINI-LINK equipment at the site for supervision of the network. The EAC cables are connected outdoors to other MINI-LINK C Micro radios or to the EAC port on an indoor ICM-C, SMM-C or MINI-LINK E SAU. The two pair traffic cable is required for the EAC cabling and to connect the 2 Mbps to the BTS. AC cables are required for the AC power.

- Note:** Maximum cable length for EAC at one site is 1200 m.
- Maximum 6 ICM or 6 MINI-LINK C Micro can be connected per site.
- Maximum 32 SMMs or 26 SMMs and 6 ICM can be connected per site.

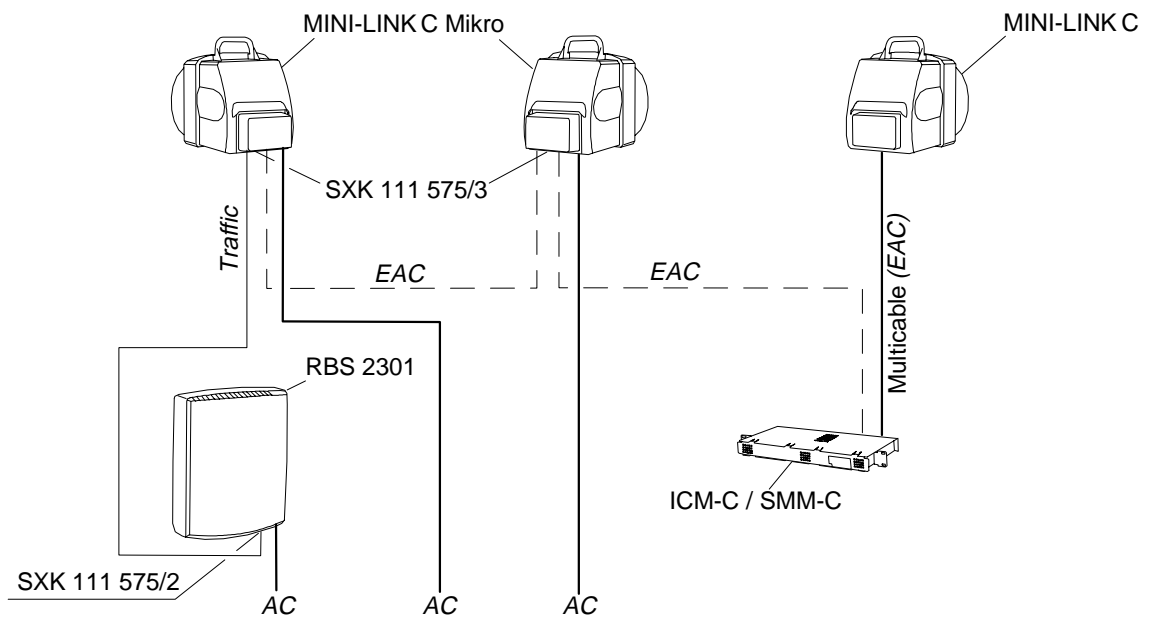


Figure 3-2. Supervision Network Cabling.

3.4 Multi-Terminal Node with Cascaded BTSs

Two pair traffic cables are required to connect the 2 Mbps to the BTSs and the 2 Mbps to the second MINI-LINK C Micro. The two pair traffic cable is also used for the EAC cabling. AC cables are required for the AC power.

Note: It is necessary to use the same type of cable used for connecting MINI-LINK C Micro to the first BTS when connecting the BTSs to each other. Also note that the total length of the traffic cables between the MINI-LINK C Micro and the last BTS must not exceed 200 metres. Maximum cable length for EAC at one site is 1200 m.

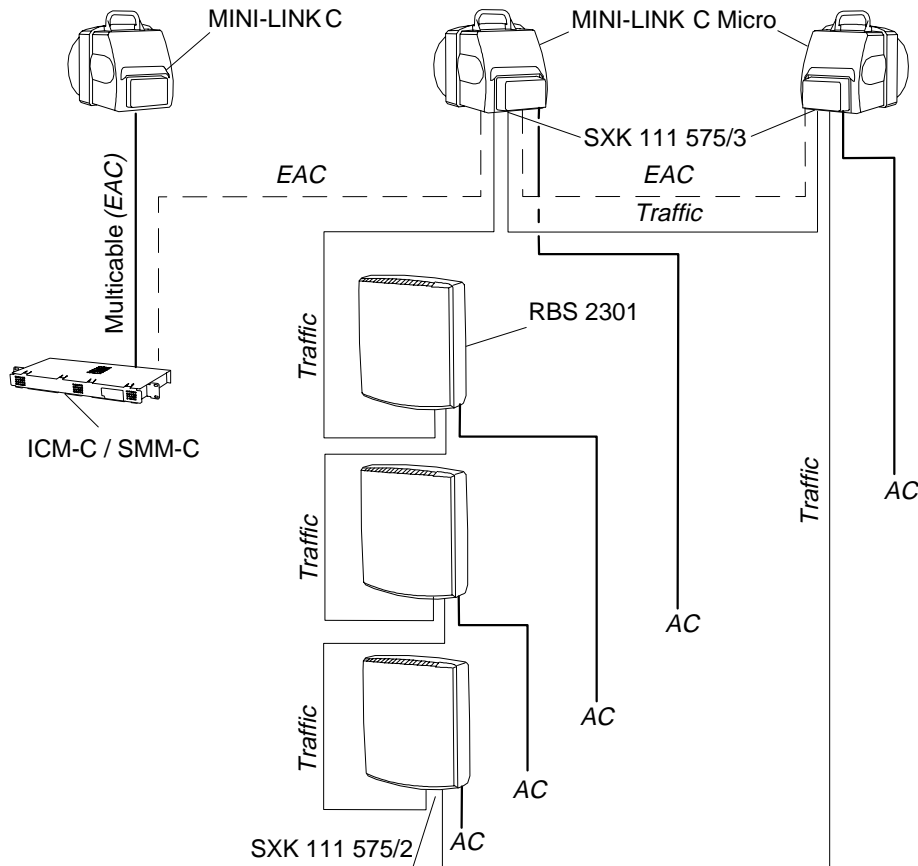


Figure 3-3. A MINI-LINK C Micro connected to three cascaded RBS 2301 base stations. It is also connected to another MINI-LINK C Micro and a MINI-LINK C.

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4 Installation

4.1 Introduction

This instruction describes the installation of MINI-LINK C Micro with base station RBS 2301. The steps required for the installation are as follows:

- | | |
|----------------|--|
| STEP 1 | Installing the C Micro kit to the MINI-LINK C radio module. |
| STEP 2 | Trimming and assembling the traffic and EAC cables for the radio. |
| STEP 3 | Assembling the power supply cable. |
| STEP 4 | Mounting the radio. |
| STEP 5 | Connecting the traffic cable to the radio. |
| STEP 6 | Connecting the radio earthing kit. |
| STEP 7 | Connecting the battery. |
| STEP 8 | Connecting the power supply connector. |
| STEP 9 | Trimming and assembling the traffic cable to micro base station RBS 2301 |
| STEP 10 | Connecting the traffic cable to micro base station RBS 2301. |
| STEP 11 | Clamping of the cable to the mast. |
| STEP 12 | Completing the installation, including: frequency setting, alignment, software settings, start-up etc. |

Initial settings for the radio, mounting of the antenna and radio and alignment of the antenna are described in the associated MINI-LINK Radio Module manual. Connecting the traffic cable to micro base station RBS 2301 is described in the associated RBS 2301 User's Guide. All other instructions are given below.

4.2 Installation Tools

The following special tools are required for cabling of MINI-LINK C Micro and installation of the C Micro kit, in addition with the tools required for installing the MINI-LINK C radio module.

- Crimping tool LSD 319 11 for D-sub connectors
- Extraction tool LSY 139 02

4.3 Description of Connections

4.3.1 Overview

This section describes the connection to be made for MINI-LINK C radio. For specification of the ports, see chapter "6. Technical Data". The AC cable is connected to the power supply unit. All other connections to/from the MINI-LINK radio are made at the connection field of the radio module.

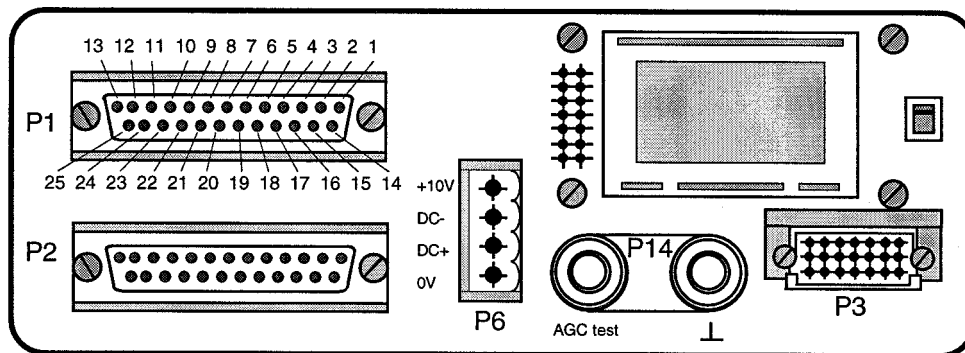


Figure 4-1. Connection field

The connection field has five connector plugs: P1, P2, P3, P6 and P14.

P1 is connected to the micro-BTS.

P2 and **P6** are connected to the power supply unit via prefabricated cables.

P3 is used for connection of service telephone, PC or pocket terminal.

P14 is an AGC testport with a ground contact.

Connector	Pin no	Signal	Used for
P1	1	BB OUT 1A	Traffic output 1
	14	BB OUT 1B	Traffic output 1
	2	BB OUT 2A	Traffic output 2 (only 2x2 and 2x8 Mbps)
	15	BB OUT 2B	Traffic output 2 (only 2x2 and 2x8 Mbps)
	3	EAC CLOCK B	EAC connection
	16	EAC CLOCK A	EAC connection
	4	EAC DATA B	EAC connection
	17	EAC DATA A	EAC connection
	12	BB IN 2A	Traffic input 2 (only 2x2 and 2x8 Mbps)
	24	BB IN 2B	Traffic input 2 (only 2x2 and 2x8 Mbps)
	13	BB IN 1A	Traffic input 1
	25	BB IN 1B	Traffic input 1
P2	4	USER IN 1	AC alarm from the power supply unit
	6	0 V	Alarm return
P6	1	0 V	DC from the power supply unit
	2	DC +	DC from the power supply unit
	3	DC -	DC from the power supply unit
	4	+ 10 V	DC from the power supply unit
P3	A04	SERV IN 1A	Service channel port 1
	A08	SERV OUT 1A	Service channel port 1
	C04	SERV IN 1B	Service channel port 1
	C08	SERV OUT 1B	Service channel port 1
	C06	MODEM CONNECT	Modem connection (option to P1:6)
	B08	+ 10V	+ 10V output
	C02	0 V	Ground connection
	B02	RS232 FROM RADIO	Terminal interface for PC or pocket terminal
	B04	RS232 TO RADIO	Terminal interface for PC or pocket terminal

Table 4-1. Description of signals in P1, P2, P3 and P6.

4.4 C Micro kit Installation

STEP 1

1. Remove the lid from the radio module .
2. Fit the power supply unit to the radio.
3. Tighten the nut with 10 Nm on the right hand side of the power supply unit, using a 13 mm ring and open jaw wrench, see figure below.

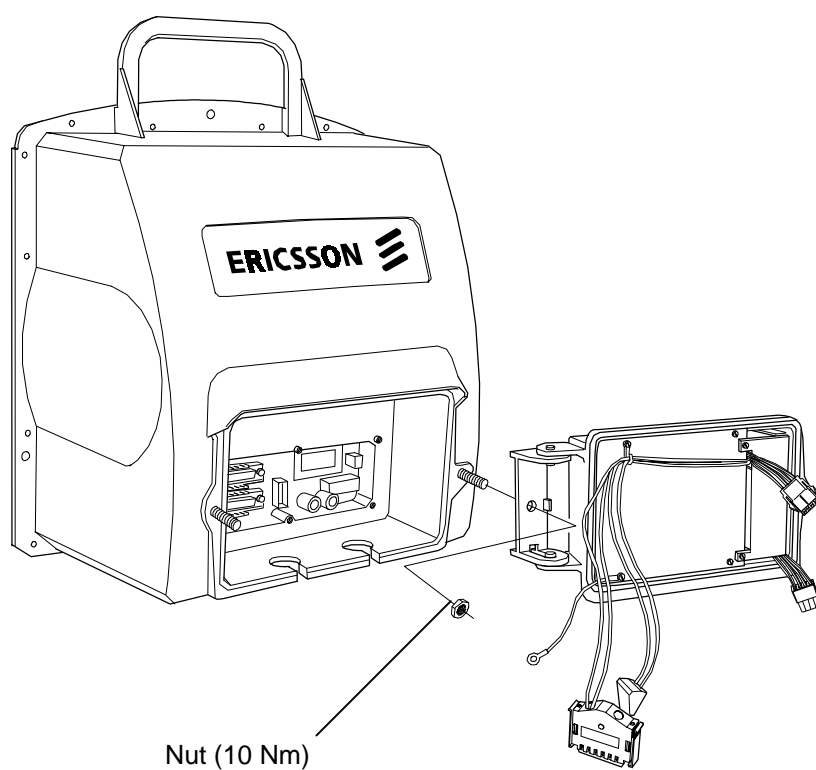


Figure 4-2. Connecting the C Micro kit to the radio.

Connect the cables from the C Micro kit to the connectors respectively on the radio module in accordance with figure below;

- the DC cable to the DC connector, P6.
- the AC alarm cable to connector P2.

Note: Do not connect the battery!

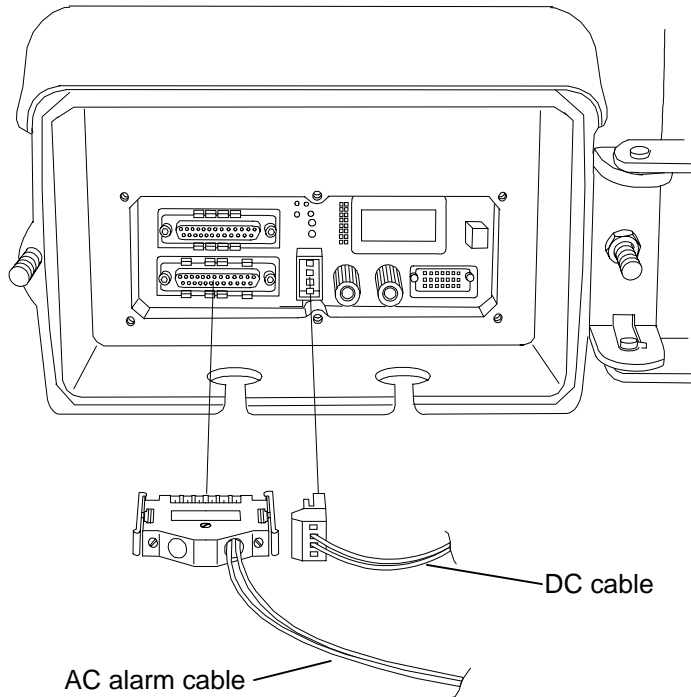


Figure 4-3. Connecting the DC and AC alarm cable.

5. Fasten the earthing cable to the earthing surface using the torx screw included in the C Micro kit. Attach the marking plate, included in connector kit SXX 111 575/1, according to the figure below.

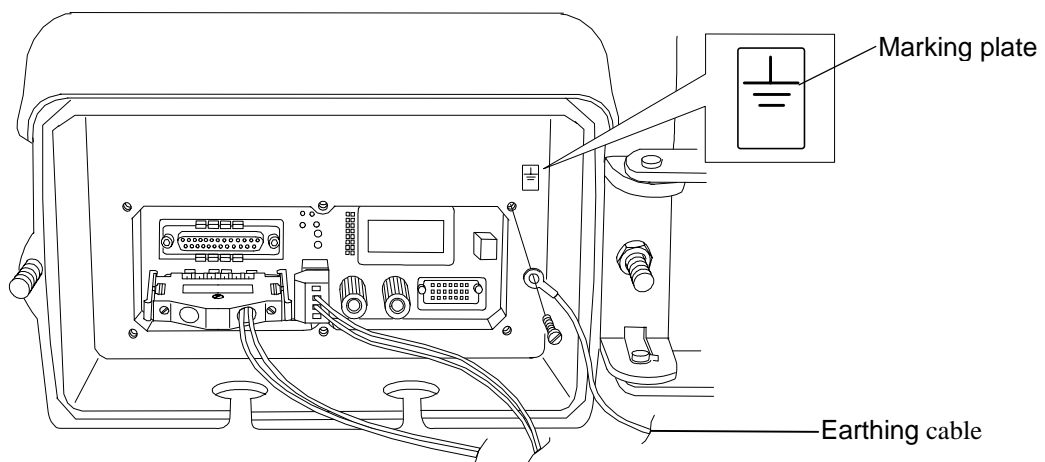


Figure 4-4. Earthing the power supply unit in the radio.

6. Tighten the nut attached to the power supply unit on the left hand side using a 13 mm ring and open jaw wrench.
7. Place the securing plate on the nut on the right hand side and tighten it with a fly nut in accordance with the figure below. The plate presses the power supply unit to the radio module on the right hand side.

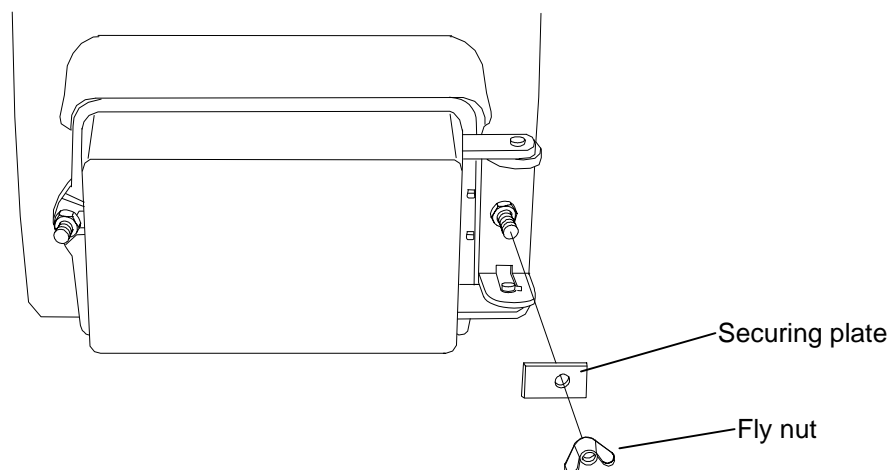


Figure 4-5. Tightening the lid.

4.5 Cabling between BTS and Radio

Cable TFR 463 15 is recommended.

Note: The total length of the traffic cables between the MINI-LINK C Micro and the last BTS in a cascade site configuration must not exceed 200 m. The total length of the EAC cables at one site must not exceed 1200 m.

The table below shows the cables and connector kits which can be used in MINI-LINK C Micro applications depending on the application. The connector kits required are ordered separately except connector kit SXX 111 575/1 which is delivered with the C Micro kit.

Interface	Connector kit	Cable	Cable clamp kit
Traffic C Micro (1 inlet)	SXA 107 6268/1 (included in the radio delivery).	TFR 463 15 *	SXX 111 0315/1 (< 90 mm) SXX 111 0315/2 (< 180 mm)
Traffic and EAC C Micro (4 inlets)	SXX 111 575/1		
Traffic RBS 2301	SXX 111 575/3		
	SXX 111 575/2		

Table 4-2. Table showing connectors and cables needed for the traffic cables.

* Or equivalent shielded pair-twisted cable with a cross section of 0,141 mm² (AWG26).

4.6 Trimming and Assembling the Traffic and EAC Cables for the Radio

STEP 2

The following instruction describes the trimming and assembling procedure at the radio end.

Section 4.6.1 describes the part of the trimming procedure that is the same for both 1 inlet and 4 inlets. Section 4.6.1.1 describes the trimming procedure for 1 inlet only and section 4.6.1.2 the trimming procedure for 4 inlets only.

Use connector kit SXX 111 575/1 when using 1 inlet or SXX 111 575/3 when using 4 inlets, then follow the instructions below.

4.6.1 Trimming the Traffic and/or the EAC Cable for the Radio

1. Slide the nut and the rubber sealing ring onto the cable and strip the jacket by approximately 220 mm.

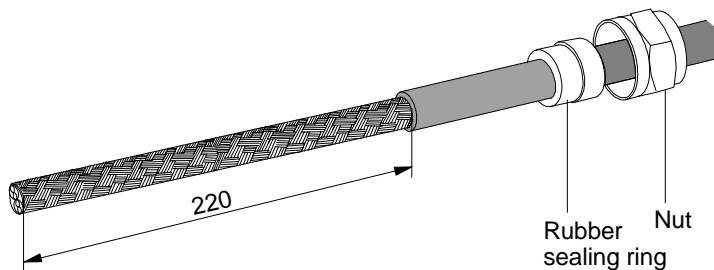


Figure 4-6. Stripping the outer jacket

2. Cut the outer screen leaving 25 mm.

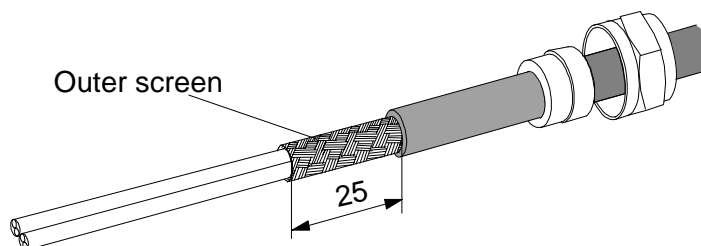


Figure 4-7. Cutting the outer screen

3. Fold back the outer screen and strip the inner cables - leave maximum 3 mm next to the outer jacket. Cut the inner screens for each of the two pairs of cable leaving approximately 75 mm.

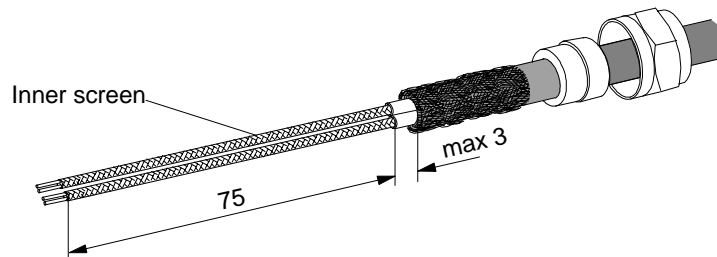


Figure 4-8. Cutting the inner screens.

4. Fold the outer screen forward again and slide the washer with the biggest hole onto it.

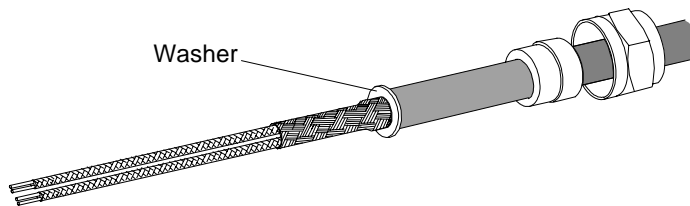


Figure 4-9. Folding the outer screen forward.

5. Spread the outer screen. Push the inner screens together and cut off the aluminium sheets (not shown) next to the washer.

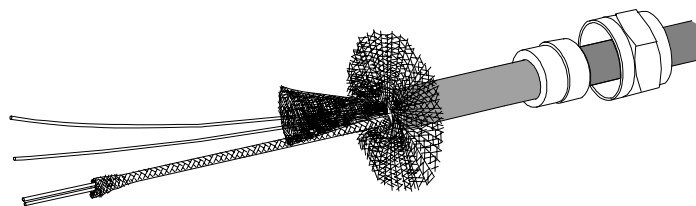


Figure 4-10. Pushing the inner screens together.

- Slip the wires through their inner screens and let them come out next to the washer.

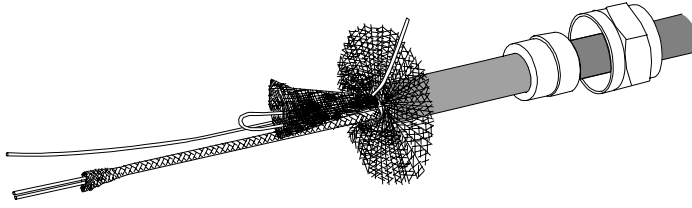


Figure 4-11. Slipping the wires through their inner screens

- Cut the inner screens, leaving 15 mm.

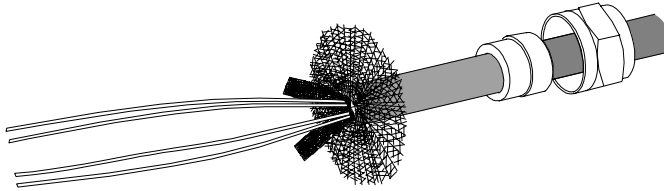


Figure 4-12. Cutting the inner screens

- Spread all the screens over the washer. Trim the screens against the edge of the washer.

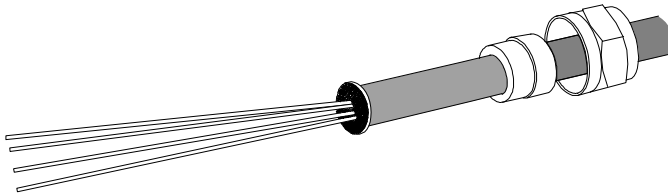


Figure 4-13. Spreading and trimming the screens.

- Slide the washer with the small hole and the forward half of the cable bushing onto the cable.

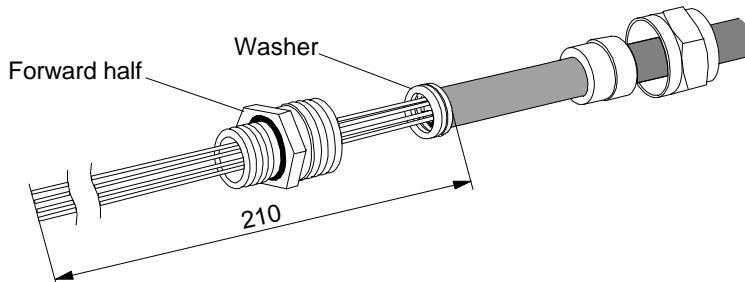


Figure 4-14. Sliding the smallest washer and part of the fitting onto the cable.

4.6.1.1 Trimming the Traffic Cable for the Radio (1 inlet)

Applies to connector kit SXX 111 575/1.

10. Tighten the cable bushing.

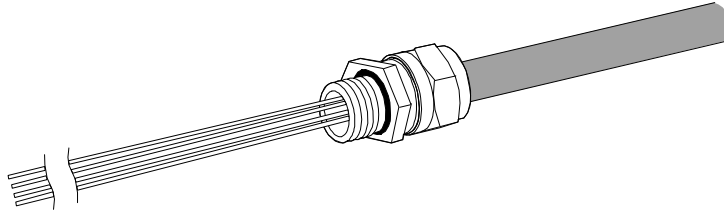


Figure 4-15. Tightening the cable bushing.

11. Tighten the reduction flange to the cable bushing and thread the nut over the cables.

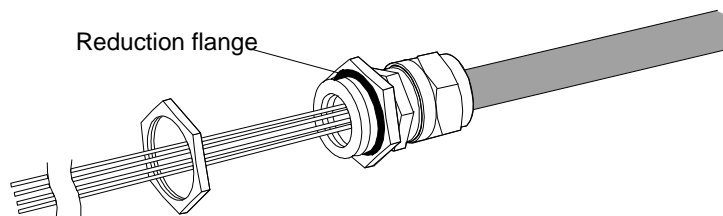


Figure 4-16. Tightening the reduction flange.

4.6.1.2 Trimming the Traffic and/or the EAC Cable for the Radio (4 inlets)

Applies to connector kit SXX 111 575/3.

10. Tighten the forward half of the cable bushing to the cable lead-in.

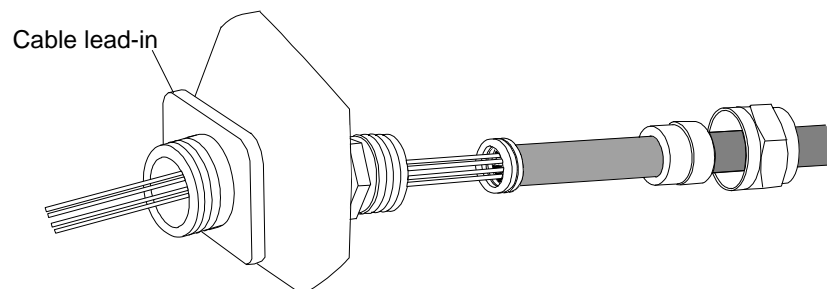


Figure 4-17. Tightening the forward half of the cable bushing to the cable lead-in.

11. Tighten the cable bushing and thread the nut over the wires.

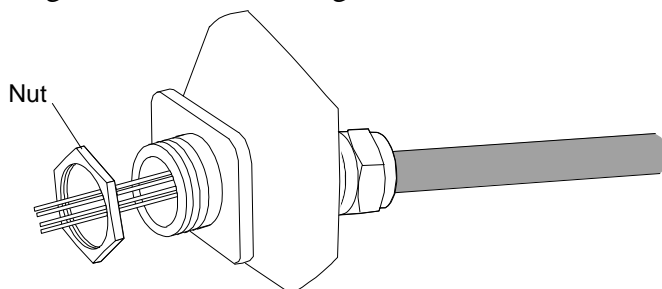


Figure 4-18. Tightening the cable bushing..

12. In case all inlets are not used, they must be plugged according to the figure below.

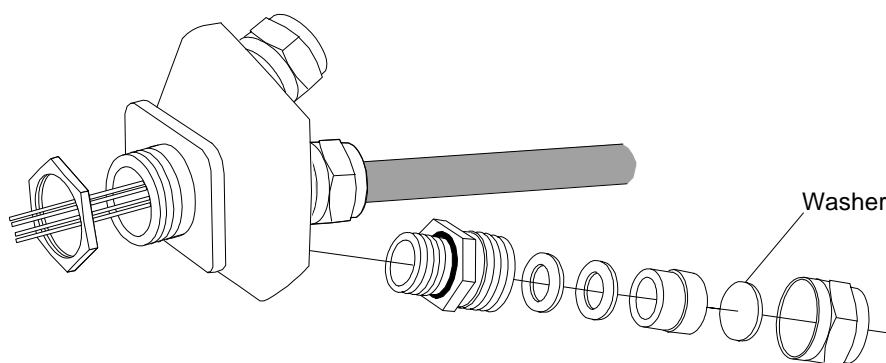


Figure 4-19. Plugging the inlets.

4.6.2 Assembling the Connector P1 for connection to the Radio

1. Strip the wires in accordance with the figure below.

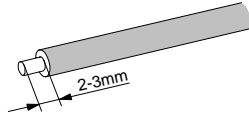


Figure 4-20. Stripping the wires.

2. Insert a contact pin in the crimping tool and tighten gently until the contact pin is fixed. Use crimping tool LSD 319 11.
3. Put in the wire and crimp.

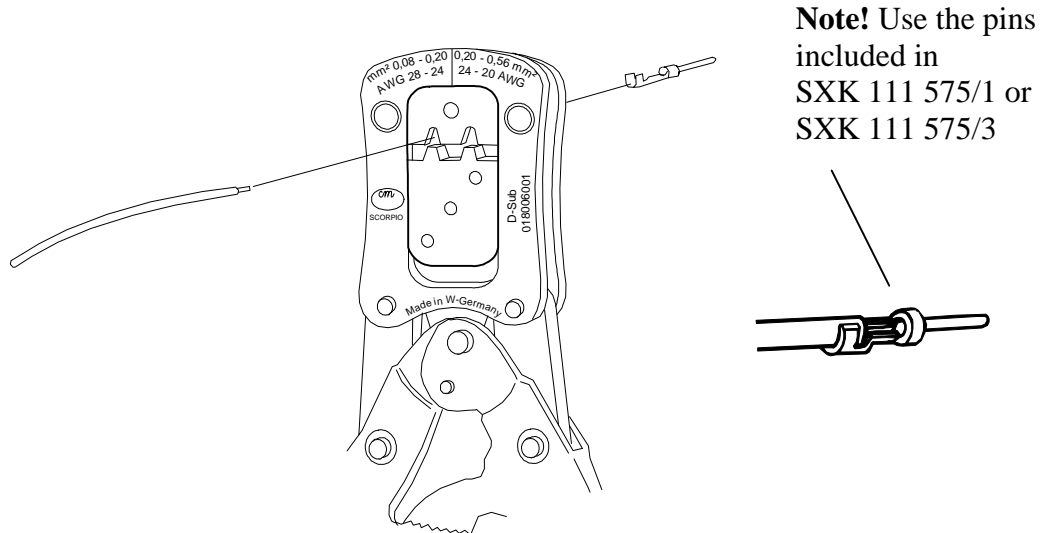


Figure 4-21. Crimping a wire (crimp tool LSD 319 11).

4. Inspect the crimp.

MINI-LINK	TFR 463 15	
P1		
Pin no	Colour	Signal
1	White	BB OUT 1A
14	Blue	BB OUT 1B
13	White	BB IN 1A
25	Orange	BB IN 1B

Table 4-3 Pin connections for End Terminal, see section 3.2.

MINI-LINK	TFR 463 15		
P1	Colour		Signal
Pin no	Cable 1	Cable 2	
1	White		BB OUT 1A
14	Blue		BB OUT 1B
3		White*	EAC CLOCK B
16*		Blue*	EAC CLOCK A
4		White*	EAC DATA B
17*		Orange*	EAC DATA A
13	White		BB IN 1A
25	Orange		BB IN 1B

Table 4-4 Pin connections for Supervision Network see section 3.3.

MINI-LINK	TFR 463 15				
P1	Colour				Signal
Pin no	Cable 1	Cable 2	Cable 3	Cable 4	
1	White				BB OUT 1A
14	Blue				BB OUT 1B
2		White			BB OUT 2A (2x2 Mbps)
15		Blue			BB OUT 2B (2x2 Mbps)
3			White*	White*	EAC CLOCK B
16*			Blue*	Blue*	EAC CLOCK A
4			White*	White*	EAC DATA B
17*			Orange*	Orange*	EAC DATA A
12		White			BB IN 2A (2x2 Mbps)
24		Orange			BB IN 2B (2x2 Mbps)
13	White				BB IN 1A
25	Orange				BB IN 1B

Table 4-5 Pin connections for Multi-Terminal Node, see section 3.4.

*The following pairs **must** be twisted all the way down to the contact pins. At least 1 turn/3 cm: pin 3 and 16 (white/blue) and 4 and 17 (white/orange).

When there are more than two EAC connections the wires in cable 3 and 4 **must** be crimped together, white with white, blue with blue etc. Contact pin (AWG 20-24) must be used. The contact pins needed can be found in the connector kit that is delivered with the MINI-LINK C equipment. As an alternative the EAC connection can be made to indoor equipment.

5. **Note:** Use connector kit SXA 107 6268/1 included in the radio delivery for the following instruction.
Insert the contact pin into the cavity in accordance with the table above and make sure the contact pin is fixed.

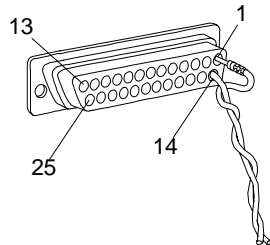


Figure 4-22. Inserting contact pins into cavity.

6. If a contact pin has been inserted in the wrong cavity, place the extraction tool LSY 139 02 in the cavity, positioned as shown in the figure, and press out the contact pin from the opposite side.

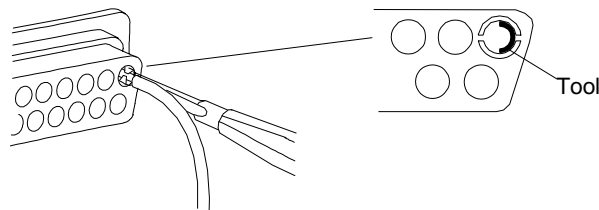


Figure 4-23. Extracting a contact pin from the cavity.

7. Fasten the wires as illustrated in the figure.
8. Insert the sliding lock on both sides of the connector.
9. Assemble the top.

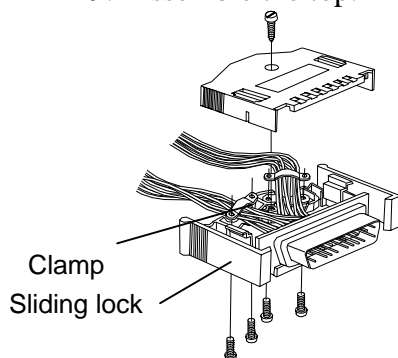
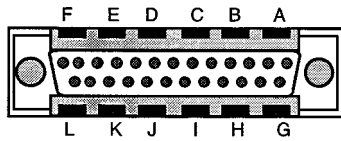


Figure 4-24. Assembling connector P1.

9. Code the connector according to the figure below.



Connector	Position in the connector											
	A	B	C	D	E	F	G	H	I	J	K	L
P1	X					X	X					X

X = Code plug inserted

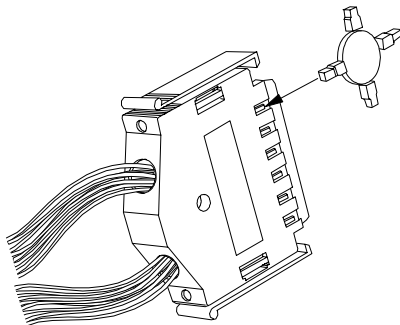


Figure 4-25. Insertion of code plug.

10. Twin the cables and fasten with clamps.

4.7 Assembling the Power Supply Cable (AC)

STEP 3



High voltage is used in the operation of this equipment. Both direct contact with the mains power and indirect contact via damp items or moisture can be fatal.

- The AC installation must be carried out according to local regulations. These regulations may require the work to be carried out by a qualified and authorised electrician.
- Remove wrist watch, rings, bracelets etc.
- Switch off the power if the unit is damp inside.
- Prevent moisture entering the equipment during work in bad weather conditions.

4.7.1 Cable and Connector for the Power Supply

The table below shows our recommendation for the AC cable to use in MINI-LINK C Micro applications. The connector required is included in the C Micro kit.

Interface	Cable
AC	<p>Power supply cable with a cross section of 1,3 - 2,5 mm² (AWG 16 -13).</p> <p>Max. outer diameter: Ø 9,5 mm Min. outer diameter: Ø 6 mm</p> <p>The cable must meet national requirements and be designed for outdoor use.</p> <p>Make sure the cable is designed for the environment it is intended for considering:</p> <ul style="list-style-type: none"> - Resistance to UV-light - Water-resistance - Current

4.7.2 Assembling the Power Supply Connector



Make sure the power is switched off!

1. Slide the nut, washer, rubber sealing ring and the rear part of the connector onto the cable.

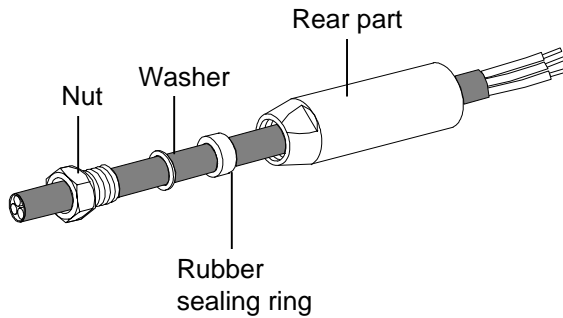


Figure 4-26. Sliding the rear parts onto the connector.

2. Insert the wires into the cavities in the front body in accordance with the table below. Lock them by tightening the screws.

Cavity no	Signal
2	Phase
3	Neutral
⊕	Earth

Table 4-6. Connecting the wires

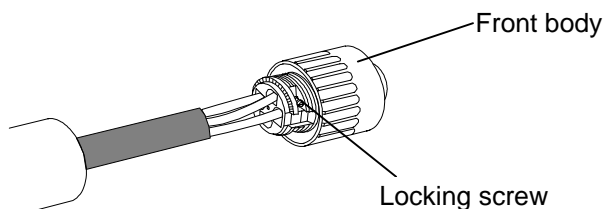


Figure 4-27. Inserting and locking the wires.

3. Fit the clamp support in accordance with the figure below. Fasten the cable with the clamp using a screwdriver.

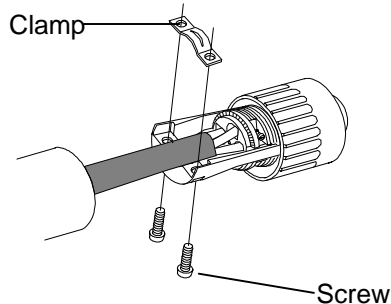


Figure 4-28. Fastening the cable with a clamp.

4. Slip the front body over the rear part of the connector and tighten by pressing them together and, at the same time, turning the front body. Tighten the rear nut using a 17 mm ring and open jaw wrench .

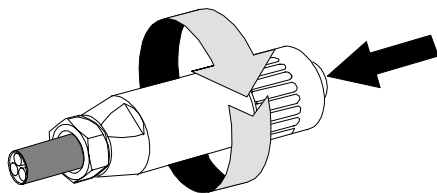


Figure 4-29. Tightening the connector.

4.8 Mounting the Radio

STEP 4

For more information see EN/LZB 105 494 "MINI-LINK C, Radio Module User's Manual".

4.9 Connecting the Traffic Cable to the Radio

STEP 5



WARNING! - Depending on the DC supply, hazardous voltage (>60 V) may exist in the connector field near the the connector for the power supply (P6).

1. Hoist the assembled cable.
2. Open the power supply unit on the radio module
3. Place the cable with the cable bushing or the cable lead-in in the slotted hole on the radio module.

4. Fit the dust protection plate (optional) as shown in the figure.

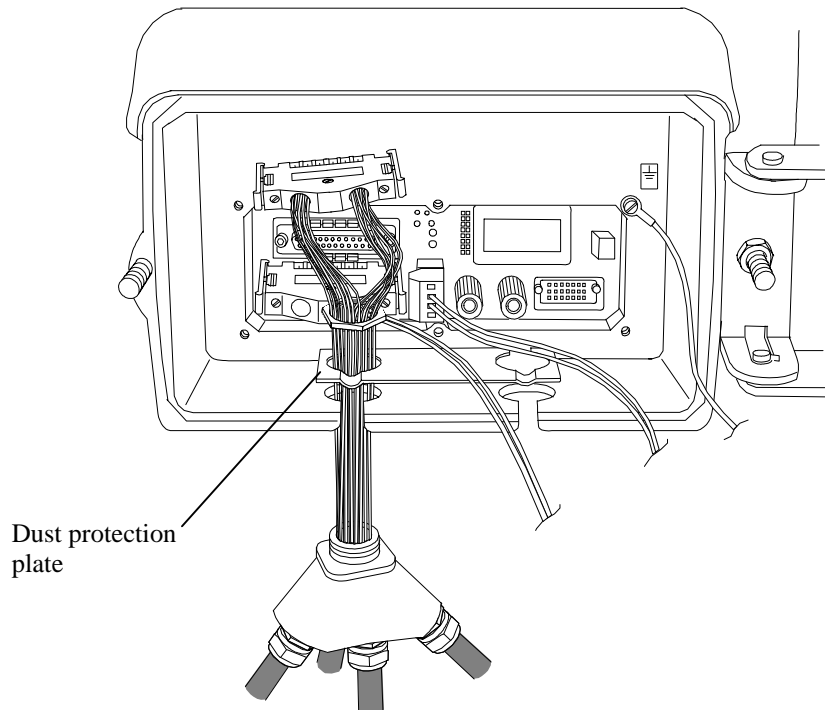


Figure 4-30. Fitting the dust protection plate.

5. Connect the plug to its right position according to the figure below.

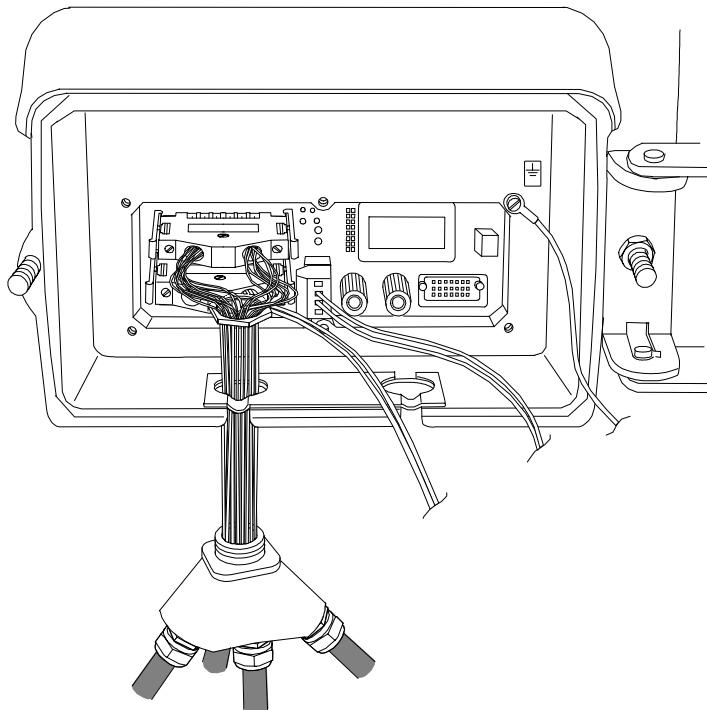


Figure 4-31. Connecting connector P1

6. Fasten the cable bushing or the cable lead-in with the nut using a 26/27 mm open jaw wrench (included in the connector kit).

4.10 Connection of the Radio Earthing Kit

STEP 6

If only one cable is connected to the radio, radio earthing kit SXX 111 0349 can be connected in the second hole on the radio module.

1. Fasten the radio earthing kit in the hole on the radio module with the locking nut included in the connector kit SXA 107 6268/1, using the 26/27 mm open jaw wrench.
2. Fit the earthing cable to the earthing screw and secure it with a nut. The nut shall be mounted with the plastic part facing downwards.
3. Connect the other end of the earthing cable to mast earth, see section 3.6.4 in EN/LZB 105 494 "MINI-LINK C, Radio Module User's Manual".

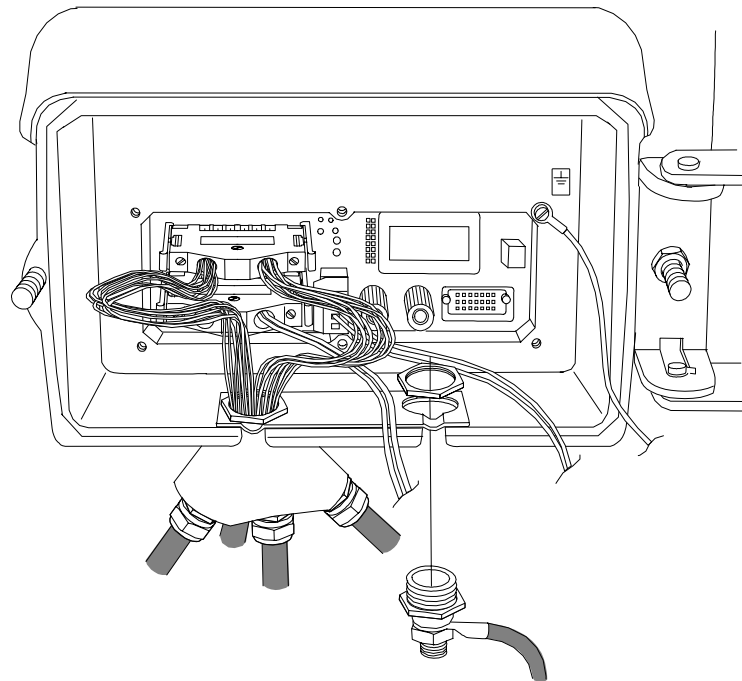


Figure 4-32. Connecting the radio earthing kit to the radio module.

4.11 Connecting the Battery

STEP 7

1. In the power supply unit, connect the battery cable to the connector next to the battery in accordance with the figure below.

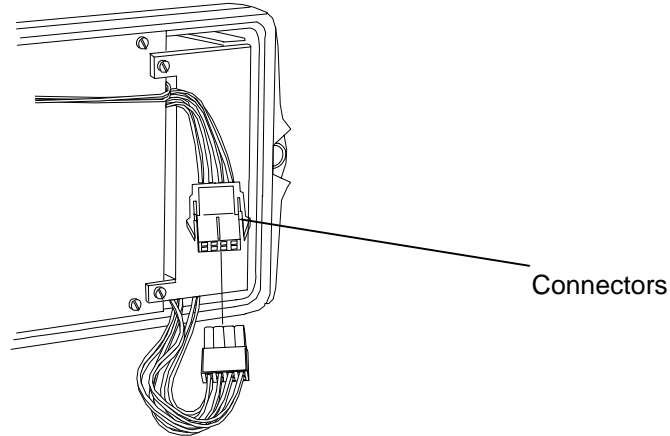


Figure 4-33. Connecting the battery cable

2. Tighten the nut attached to the power supply unit on the left hand side using a 13 mm ring and open jaw wrench.
3. Place the securing plate on the nut on the right hand side and tighten it with a fly nut in accordance with the figure below. The plate presses the power supply unit to the radio module on the right hand side.

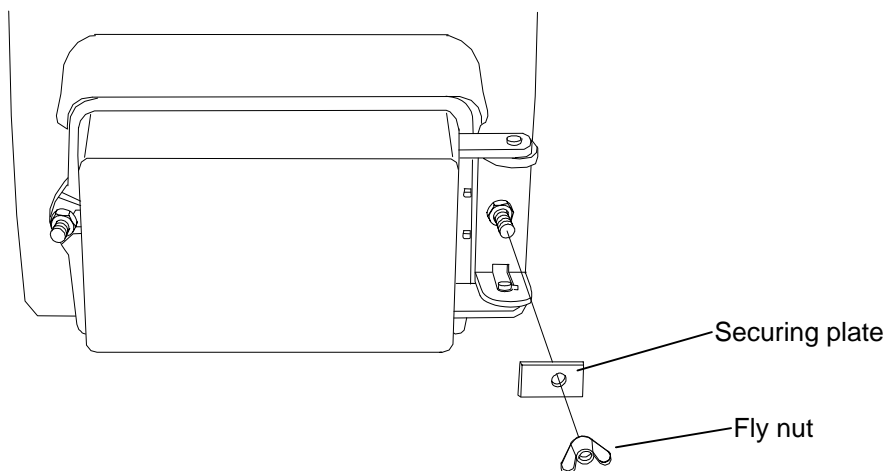


Figure 4-34. Tightening the lid.

4.12 Connecting the Power Supply Connector.

STEP 8

Connect the AC cable to the power supply unit. The connector is tightened by turning the front body clockwise.

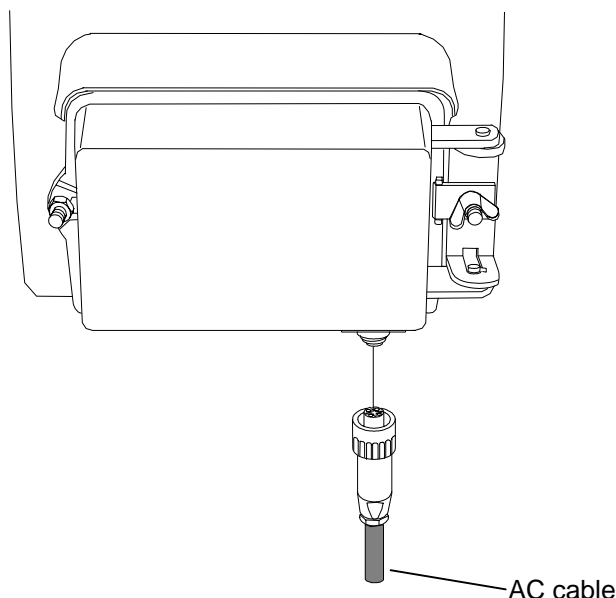


Figure 4-35. Connecting the AC cable.

4.13 Trimming and Assembling the Traffic Cable to Micro Base Station RBS 2301

STEP 9

The following instruction describes the trimming and assembling procedure at the base station end (RBS 2301). Please see separate instructions when installing in other base stations.

Section 4.13.1 describes the trimming procedure for 1 inlet and section 4.13.2 the trimming procedure for 2 inlets.

Use connection kit SXX 111 575/2 and cable set NTM 185 249/1, then follow the instructions below.

4.13.1 Trimming the Traffic Cable for Micro Base Station RBS 2301 (1 inlet).

1. Slide the nut and the rubber sealing ring onto the cable and strip the jacket by approximately 220 mm.

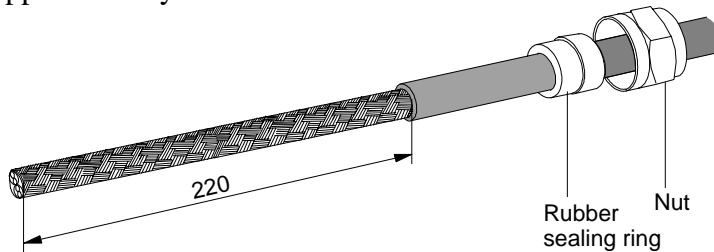


Figure 4-36. Stripping the outer jacket

2. Cut the outer screen leaving 25 mm.

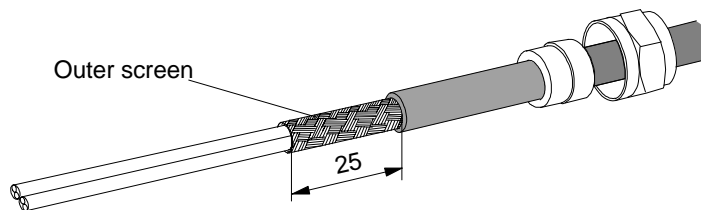


Figure 4-37. Cutting the outer screen

3. Fold back the outer screen and strip the inner cables - leave maximum 3 mm next to the outer jacket. Cut the inner screens for each of the two pairs of cable leaving approximately 75 mm.

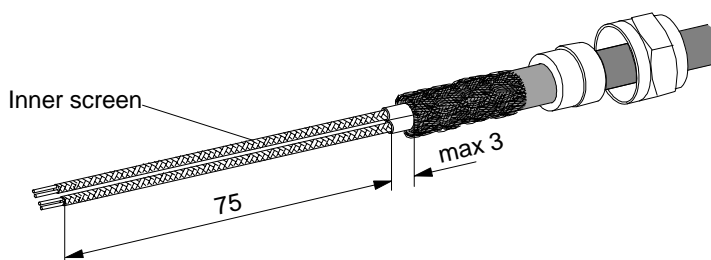


Figure 4-38. Cutting the inner screens.

4. Fold the outer screen forward again and slide the washer with the biggest hole onto it.

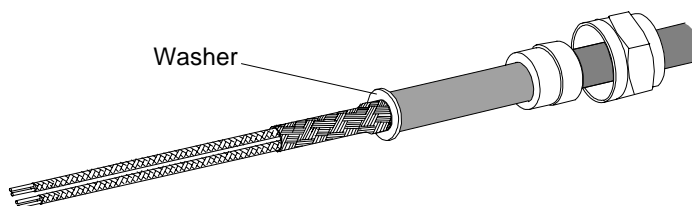


Figure 4-39. Folding the outer screen forward.

5. Spread the outer screen. Push the inner screens together and cut off the aluminium sheets (not shown) next to the washer.

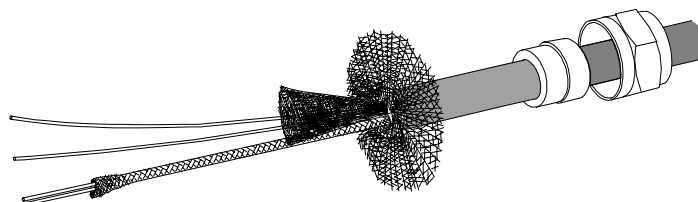


Figure 4-40. Pushing the inner screens together.

6. Slip the wires through their inner screens and let them come out next to the washer.

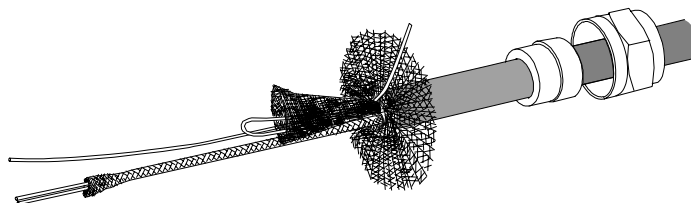


Figure 4-41. Slipping the wires through their inner screens.

7. Cut the inner screens, leaving 15 mm.

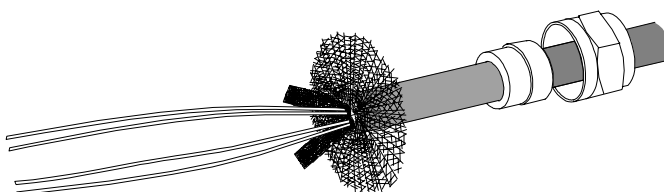


Figure 4-42. Cutting the inner screens.

8. Spread all the screens over the washer. Trim the screens against the edge of the washer.

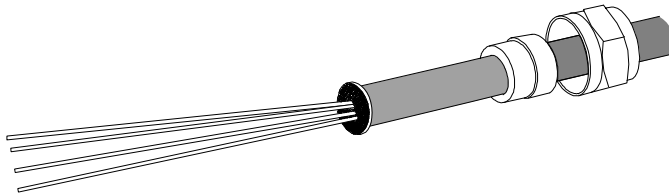


Figure 4-43. Spreading and trimming the screens.

9. Strip the additional wire, used for signal earthing, by 15 mm at the ends. Spread the wire ends against the surface of the washer together with the screens. Trim the wire ends against the edge of the washer.

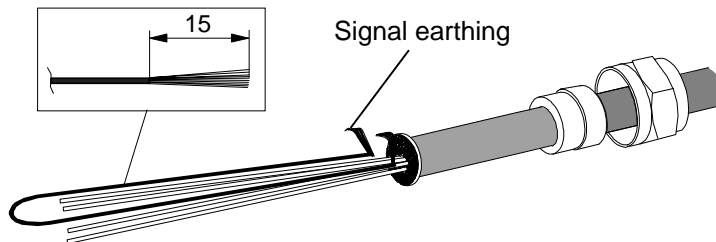


Figure 4-44. Stripping the wires for signal earthing.

10. Slide the second washer and the forward half of the cable bushing onto the cable.

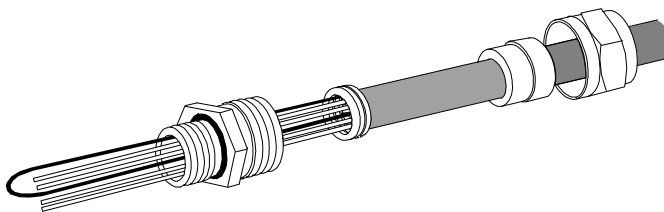


Figure 4-45. Sliding the washer and the forward half fitting of the fitting onto the cable.

11. Tighten the cable bushing.

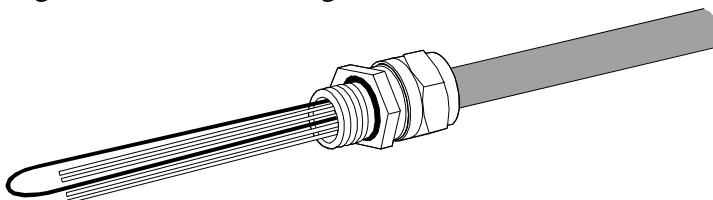


Figure 4-46. Tightening the cable bushing.

12. Slip the wires through the connector cover and tighten the cable bushing to the cover. Note how the connector is positioned.

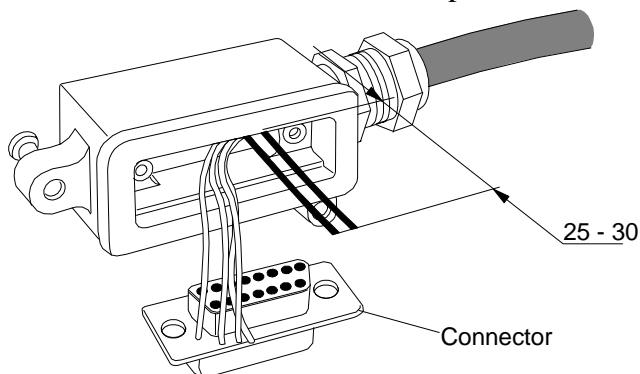


Figure 4-47. Tightening the cable bushing to the cover.

4.13.2 Trimming the Traffic Cable for Micro Base Station RBS 2301 (2 inlets).

1. Slide the nut, the rubber sealing ring and the washer onto the cable and strip the jacket by 300-350 mm. Slide the washer at least 40 mm onto the jacket (see figure below).

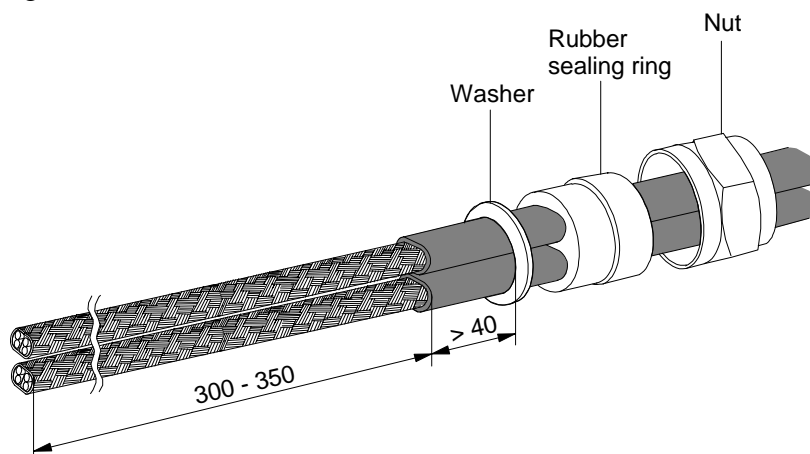


Figure 4-48. Stripping the outer jacket.

2. Cut the outer screens, leaving 25-35 mm.

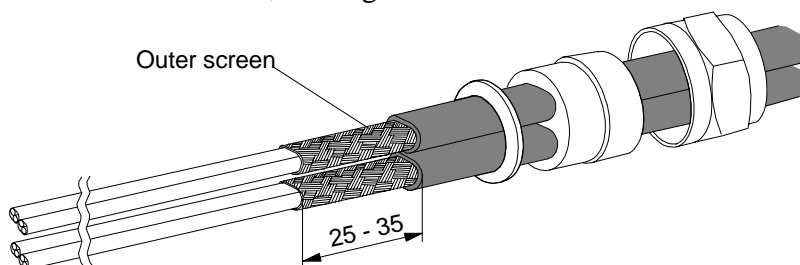


Figure 4-49. Cutting the outer screen.

3. Fold back the outer screens and strip the inner cables - leave maximum 3 mm next to the outer jackets. Cut the inner screens for each of the four cable pairs, leaving 60-80 mm.

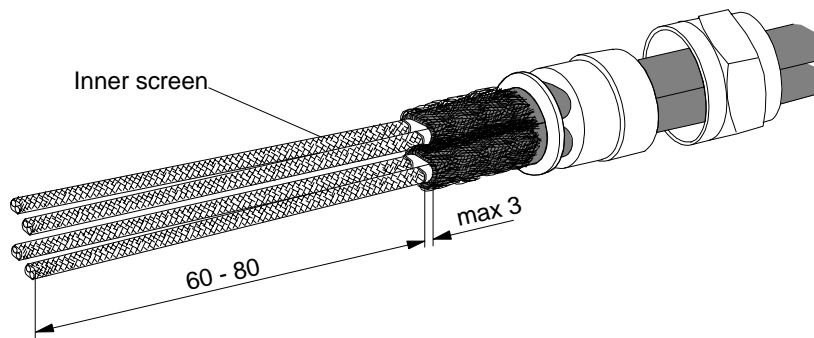


Figure 4-50. Stripping and cutting the inner screens.

4. Spread the outer screens.

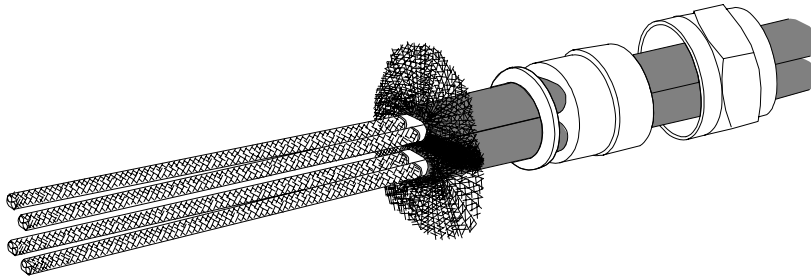


Figure 4-51. Spreading the inner screens.

5. Push the inner screens together and cut off the aluminium sheets next to the washer.

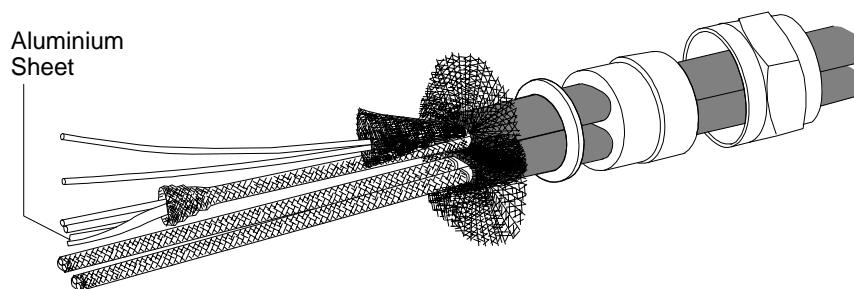


Figure 4-52. Pushing the inner screens together.

6. Slip the wires through their inner screens and let them come out next to the washer.

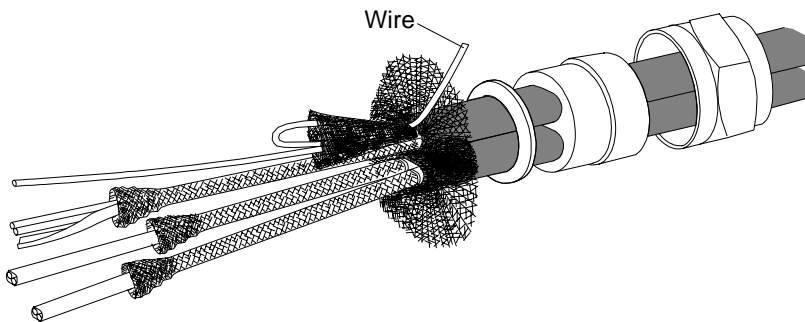


Figure 4-53. Slipping the wires through their inner screens.

7. Tie each pair of wires together to avoid mixing them. Bunch and mark up the wires using the enclosed marking labels.

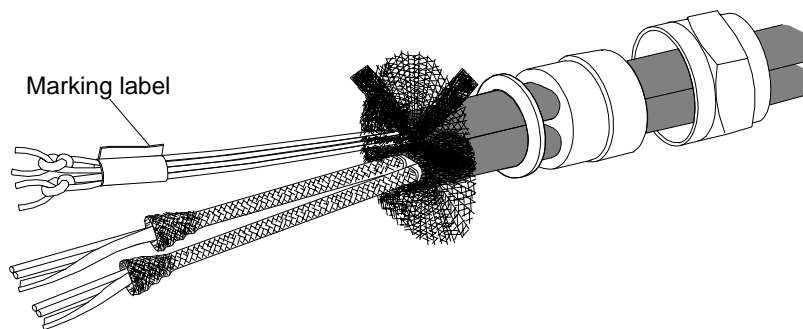


Figure 4-54. Tying and labelling the wires.

8. Repeat the procedure for all the wire pairs. Slip the washer next to the screens. Spread the inner screens and trim all the screens against the edge of the washer.

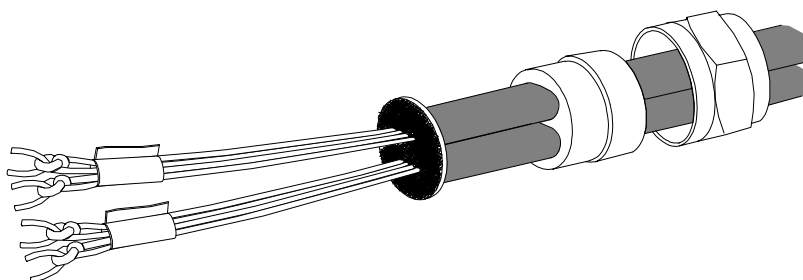


Figure 4-55. Spreading and trimming the screens.

- Strip the additional wires, used for signal earthing, by 15-20 mm at the ends. Spread the wire ends against the surface of the washer together with the screens and trim them against the edge of the washer. Slide the second washer, with the small hole, and the forward part of the cable bushing onto the cables.

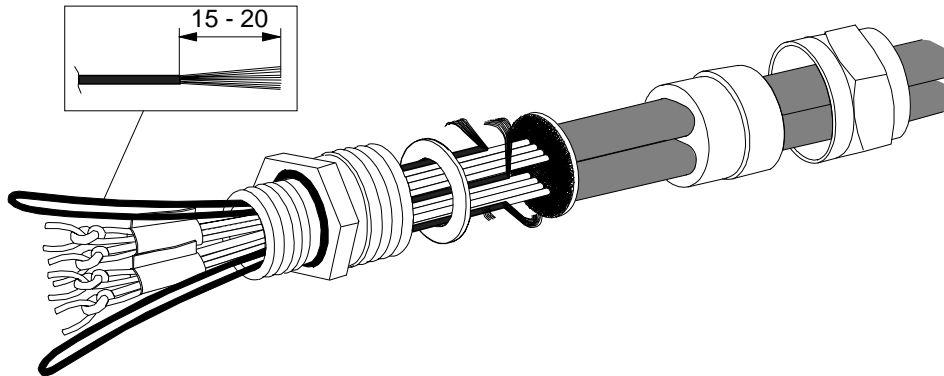


Figure 4-56. Stripping and fitting the wires used for signal earthing.

- Slide the rear part of the cable bushing and the rubber sealing next to the washer. Slide the second washer together with the first, inner, washer.

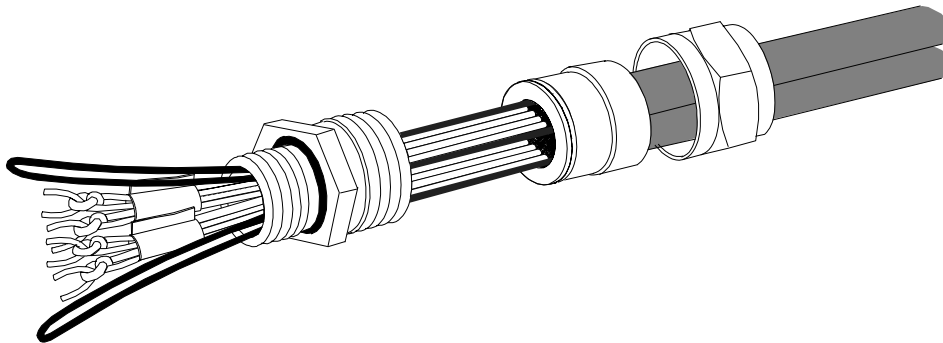


Figure 4-57. Sliding the parts together.

- Tighten the cable bushing.

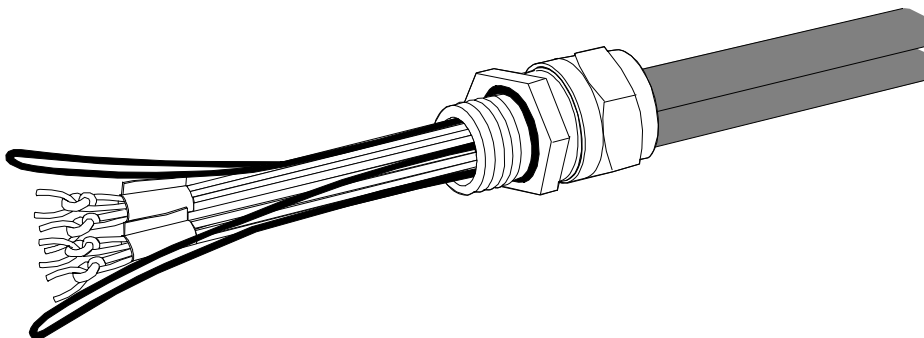


Figure 4-58. Tightening the cable bushing.

12. Slide the two additional extensions onto the cables according to the figure below.

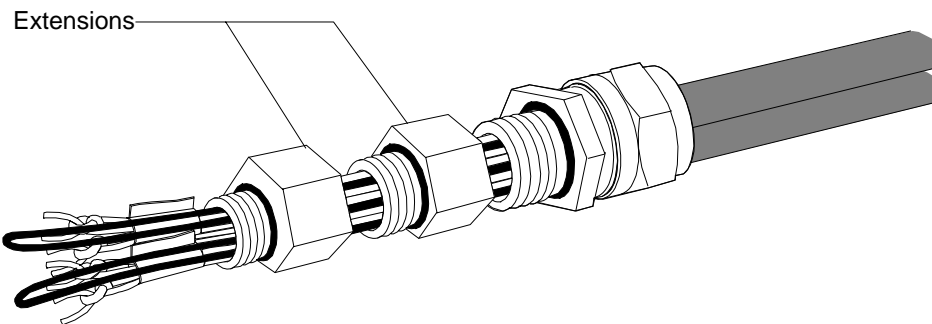


Figure 4-59. Sliding the two extensions onto the cables.

13. Slip the wires through the connector cover and tighten the fittings to the cover. Cut the wires leaving 25-30 mm. **Note:** Cut and fit the wires pair by pair. Crimp and assemble according to chapter 4.13.3. Also note how the connector is positioned.

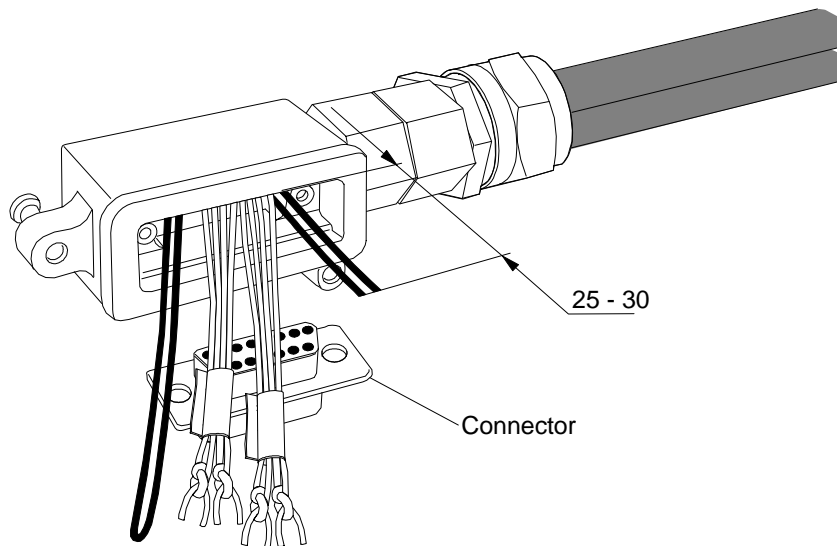


Figure 4-60. Slipping the wires through the connector cover and cutting them off.

4.13.3 Assembling the Connector for connection to the Micro Base Station, RBS 2301

1. Strip the wires in accordance with the figure below.

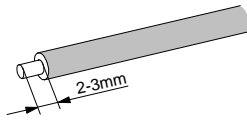


Figure 4-61. Stripping the wires.

2. Insert a contact pin in the crimping tool and tighten gently until the contact pin is fixed. Use crimping tool LSD 319 11.
3. Put in the wire and crimp.

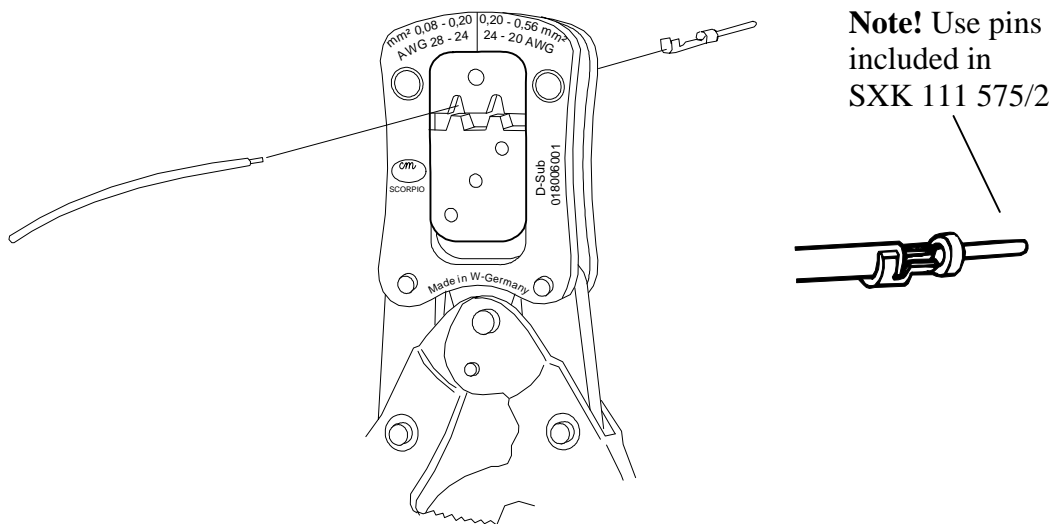


Figure 4-62. Crimping a wire.

4. Inspect the crimp.

RBS 2301	TFR 463 15			MINI-LINK
				P1
Pin no	Signal	Colour	Signal	
8	PCM-A IN	White	BB OUT 1A	1
13	PCM-A IN	Blue	BB OUT 1B	14
5	Signal earthing	Black*	Not used	
1	PCM-A OUT	White	BB IN 1A	13
9	PCM-A OUT	Orange	BB IN 1B	25
7	Signal earthing	Black*	Not used	

Table 4-7. Pin connections for 2 Mbps at the BTS end (1 inlet).

RBS 2301	TFR 463 15			MINI-LINK
				P1
Pin no	Signal	Colour	Signal	
8	PCM-A IN	White	BB OUT 1A	1
13	PCM-A IN	Blue	BB OUT 1B	14
5	Signal earthing	Black*	Not used	
1	PCM-A OUT	White	BB IN 1A	13
9	PCM-A OUT	Orange	BB IN 1B	25
7	Signal earthing	Black*	Not used	
4	PCM-B IN	White	BB OUT 2A (2x2 Mbps)	2
11	PCM-B IN	Blue	BB OUT 2B (2x2 Mbps)	15
2	Signal earthing	Black*	Not used	
6	PCM-B OUT	White	BB IN 2A (2x2 Mbps)	12
12	PCM-B OUT	Orange	BB IN 2B (2x2 Mbps)	24
3	Signal earthing	Black*	Not used	

Table 4-8. Pin connections for 2 and 2x2 Mbps at the BTS end (2 inlets).
* Additional wires.

5. **Note:** Use cable set NTM 185 249/1 ordered with RBS 2301 for the following instruction.

Insert the contact pin into the cavity in accordance with the table above and make sure the contact pin is fixed.

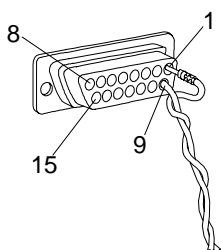


Figure 4-63. Inserting contact pins into cavity.

If a contact pin has been inserted in the wrong cavity place the extraction tool LSY 139 02 in the cavity, positioned as shown in the figure, and press out the contact pin from the opposite side.

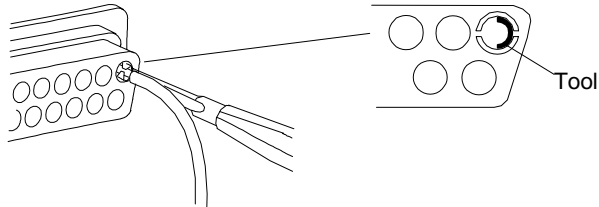


Figure 4-64. Extracting a contact pin from the cavity.

7. Tighten the connector to the cover using a screwdriver.

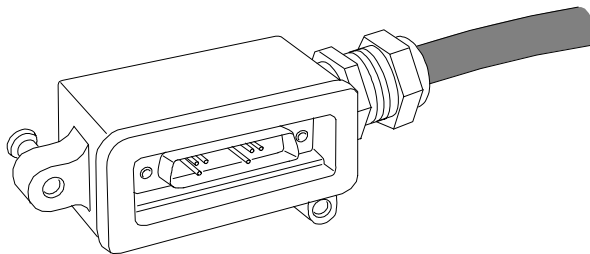


Figure 4-65. Tightening the connector to the cover.

4.13.4 Connecting the Traffic Cable to Micro Base Station, RBS 2301

STEP 10

For more information see EN/LZB 119 3030 "RBS 2301 User's Guide".

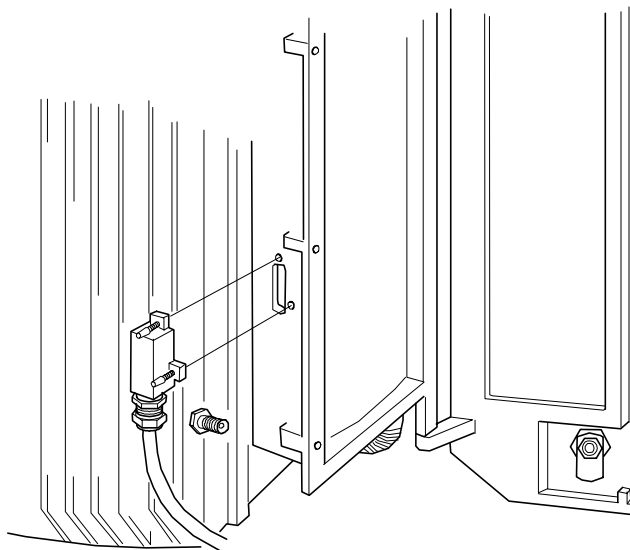


Figure 4-66. Connecting the traffic cable to Micro Base Station RBS 2301.

4.14 Clamping of the Cable to the Mast

STEP 11

To fasten the cable to the mast, use the pliers LSD 349 20 and the cable clamp kit SXX 111 0315/1 (for diameters < 90 mm) or SXX 111 0315/2 (for diameters < 180 mm).

- Loop the clamp around the mast and the cable. Insert the tip through the head and tighten.
- Place the pliers on the clamp as shown in the figure.

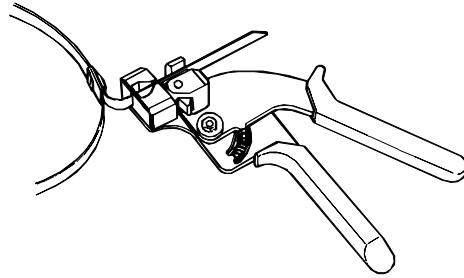


Figure 4-67. Placing the pliers on the clamp.

- Squeeze the handles as many times as necessary to tighten the cable to the mast, without damaging the cable.
- When the cable is tightened to the mast, after final handle pressure, rotate the pliers 1/4-1/2 turn to cut the excess tail off.
- Place the clamps at recommended distance from each other, see figure.

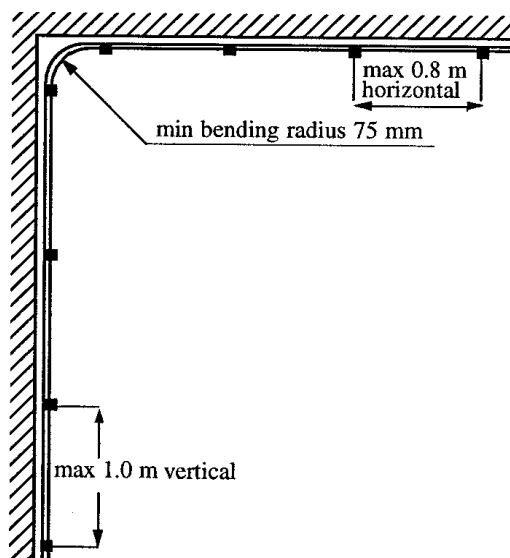


Figure 4-68. Recommended distances for placing of the clamps.

4.15 Connection of Cable Earthing Kits

For lightning protection of radio cable TFR 463 15, cable earthing kit SXX 111 528/1 can be connected.

It is recommended to mount one cable earthing kit per 50 meters cable for severe conditions. With each earthing kit goes a detailed description of how to mount it on the radio cable.

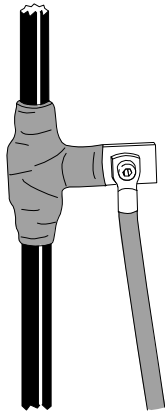


Figure 4-69. Connecting the cable earthing kit.

4.16 Completing the Installation.

STEP 12 For Frequency settings, alignment, software settings, functional check and starting up the system, see Chapter 3.9-3.14 in EN/LZB 105 494 "MINI-LINK C, Radio Module User's Manual".

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5 Operation & Maintenance

Supervision of MINI-LINK C Micro is carried out by building a standard MINI-LINK supervision network. Operation and maintenance functions are accessible by connecting a PC with suitable PC software directly to the MINI-LINK C Micro radio or to any MINI-LINK C or E unit in the network. See MINI-LINK Radio C User's Manual, chapter 4, for information on operation and maintenance.

5.1 Software Setup

The EE-PROM in the MINI-LINK C Micro radio must be set up before the system can work. For information, consult the MINI-LINK C Radio User's Manual, section 4.4 and MINI-LINK Operation Manual, section 3.3.1.

5.2 AC Alarm

The power supply unit has an alarm output for AC failure. This alarm is connected to User In 1 on the radio module and is thus supervised via the MINI-LINK network. At AC failure the status for the MINI-LINK C radio is "No conn" (in MNM). In the alarm log list for the radio you can see that the User In 1 alarm has changed status (A User In 1 alarm will not change the status for the radio).

5.3 Replacing the Battery

The battery is fitted into a housing containing battery, heating plates and insulation. It can be replaced when the AC power is on.

Replacing the battery:

- Disconnect the connectors and unscrew the two screws using a screwdriver.

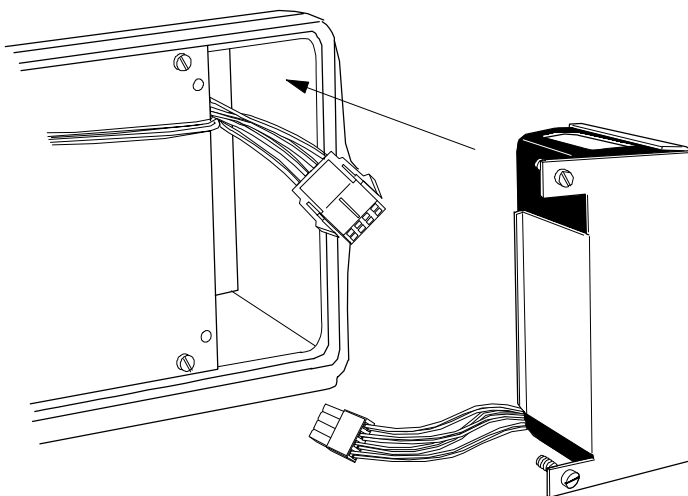


Figure 5-1. Replacing the battery.

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6 Technical Data

All technical parameters for the original MINI-LINK C radio, apart from some mechanical data and the DC interface, apply to the MINI-LINK C Micro (see MINI-LINK C Radio Module User's Manual).

6.1 Mechanical Data

Dimensions (HxWxD)

MINI-LINK C Micro with 0.3 m integrated antenna: 411x334x419 mm

MINI-LINK C Micro with 0.6 m integrated antenna: 660x660x589 mm

6.2 Power Supply Unit

Input AC Voltage: 90-255 V / 50-60 Hz

Power Consumption: <45 W

Current Consumption: <0,8 A (at 90 V)

Battery Capacity

The battery has the capacity to supply the DC voltage within its specified values for at least three minutes at nominal load. It is restored to full capacity within four hours of AC mains supply being available. A typical value for the battery life is 3-5 years so the battery should therefore be replaced within this period.

