

MINI-LINK™

MXU Installation Instruction

Installation of MXU

1

Installation Details

2

Repair

3

MINI-LINK E

MXU

Installation Instruction

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EN/LZT 110 5088 R1A

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1 Installation of MXU

This chapter describes how to install the MINI-LINK cross-connect unit (MXU). The instructions cover typical configurations such as Embedded management, Grooming and Ring protection.

- *For installation of MXU for embedded management, follow the instructions in section 1.*
- *For installation of MXU for grooming with or without embedded management, follow the instructions in section 2.*
- *For installation of MXU for ring protection with or without embedded management, follow the instructions in section 3.*
- *For installation details, see chapter 2.*
- *For repair information, see chapter 3.*

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1.1 Embedded Management

The MXU makes it possible to transport operation and maintenance data between isolated sub-networks in an available time slot in the 2 Mbit/s traffic. The MXU is connected to the SAU (RAC connector) as described below. This instruction describes how to install the equipment and connect the cables for embedded management.

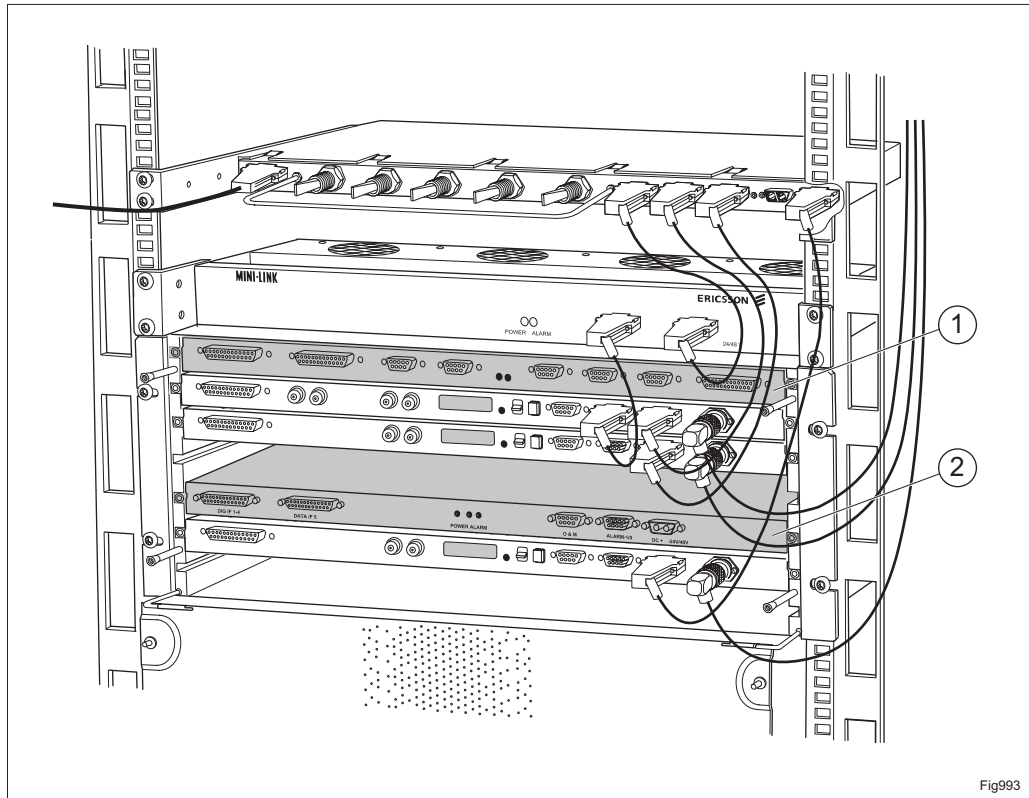
1.1.1 Preparations

Make sure you have the following equipment before starting the installation:

Product description	Product code	Qty
Access Module Magazine (AMM) 4U ¹⁾ with all necessary screws and earthing cable	AM0010401/00	1
Service Access Unit, SAU Exp 1 or SAU Exp 2	SA0110012/00 or SA0210012/00	1 1
MXU with DC connector and connector for balanced traffic	FAB 102 426/42 (balanced traffic)	1
Cable assembly for V.24 interface	RPM 113 4257/02000	1
DC distribution cable (included with the DDU) or DC cable (when not using a DDU)	(TSR 632 190/1) TFL 424 02	1 1 length (ordered in meters)

¹⁾ AMM 2U-3 with appropriate fan kit for small configurations.

1.1.2 Installation



Item	Unit	Position in the magazine
①	SAU	7
②	MXU	3 (or 4)

Figure 1-1. Inserting the plug-in units for embedded management

1. Insert the plug-in units into the magazine in the recommended positions, according to the figure above. See “Inserting the Plug-in Units” in chapter 2 for instructions.

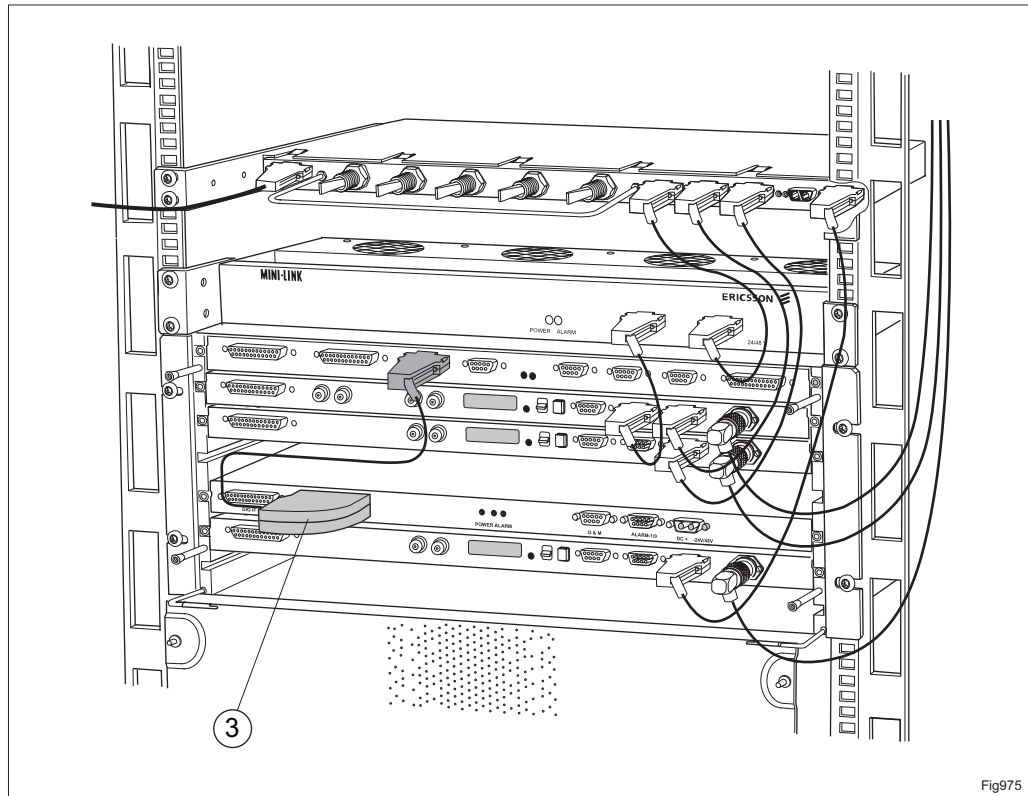


Fig975

Figure 1-2. Connecting the cable from the SAU to the MXU

2. Connect the cable assembly ③ from the SAU (RAC1) to the MXU (DATA IF 5).

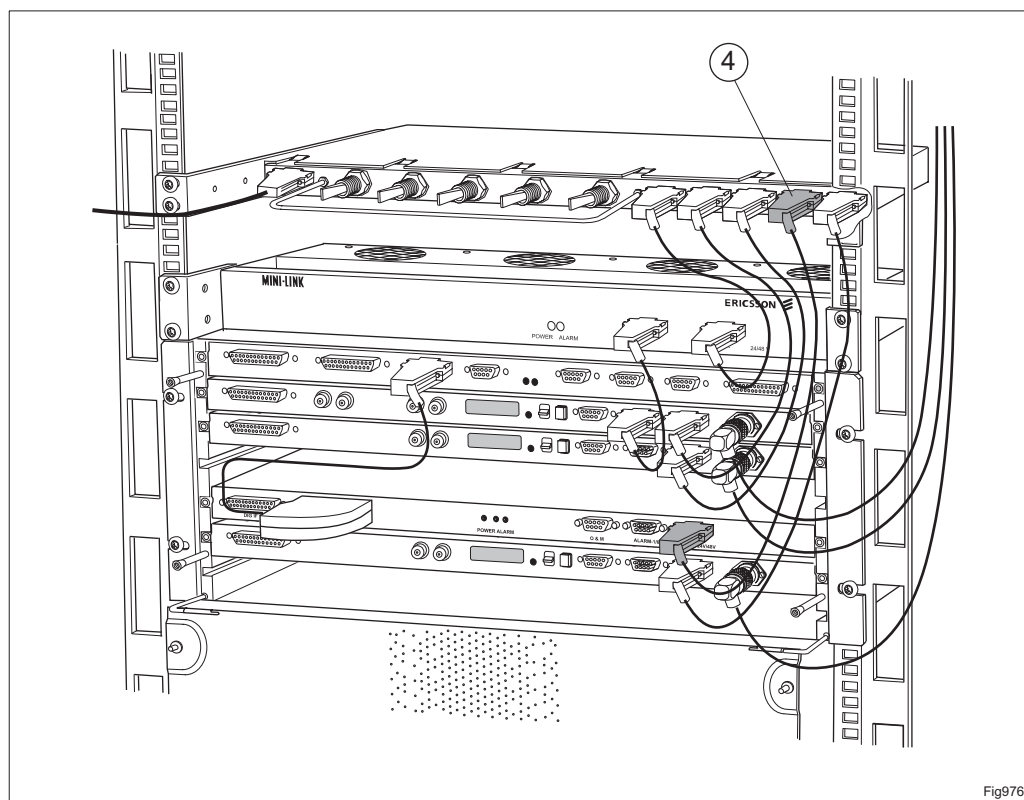


Figure 1-3. Connecting the DC cables

Note: Make sure all the switches on the DDU are in position **OFF**.

3. Connect the DC cable ④ between the MXU and the DDU. See “Trimming, Assembling and Connecting the DC Cables” in chapter 2 when not using a DDU with pre-assembled DC cables.

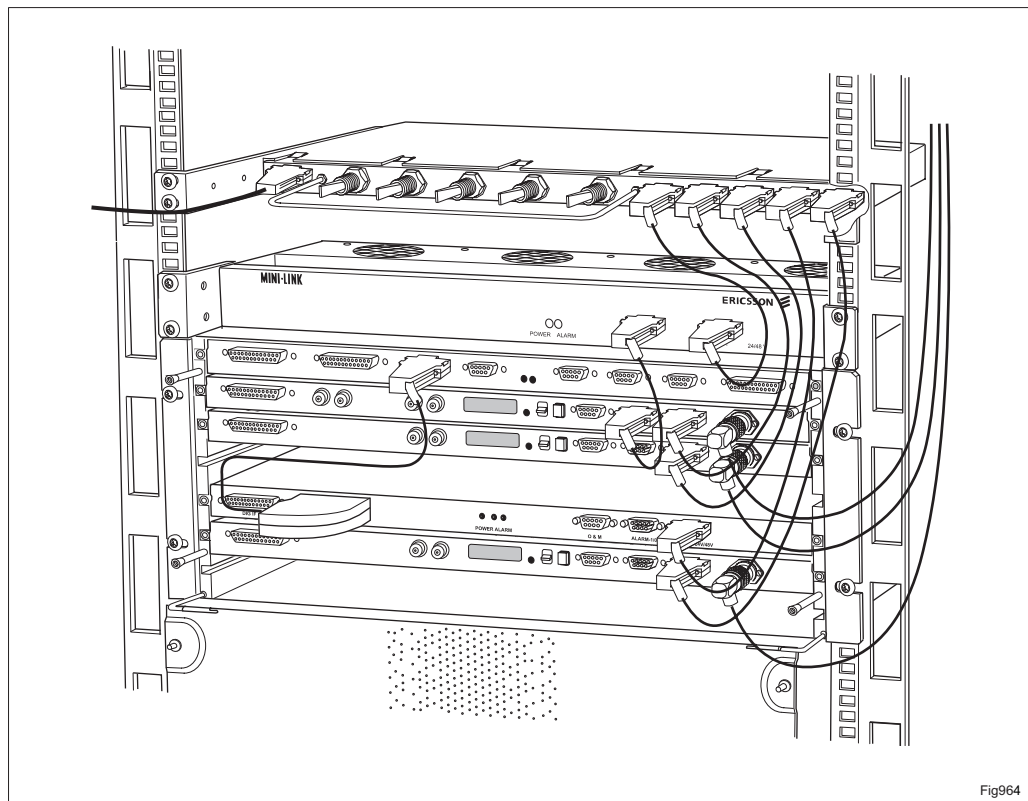


Fig964

Figure 1-4. Embedded management

4. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

1.2 Grooming

The MXU can save traffic capacity by packing traffic on 64 kbit/s level. A normal configuration contains two or three MMUs 2x2 when using drop/insert. This instruction describes the maximum configuration with three MMUs.

Note: Other MMUs can also be used but it is not described in this instruction.

1.2.1 Balanced Traffic

The MXU is connected to the MMUs and the BTS via balanced cables.

1.2.1.1 Preparations

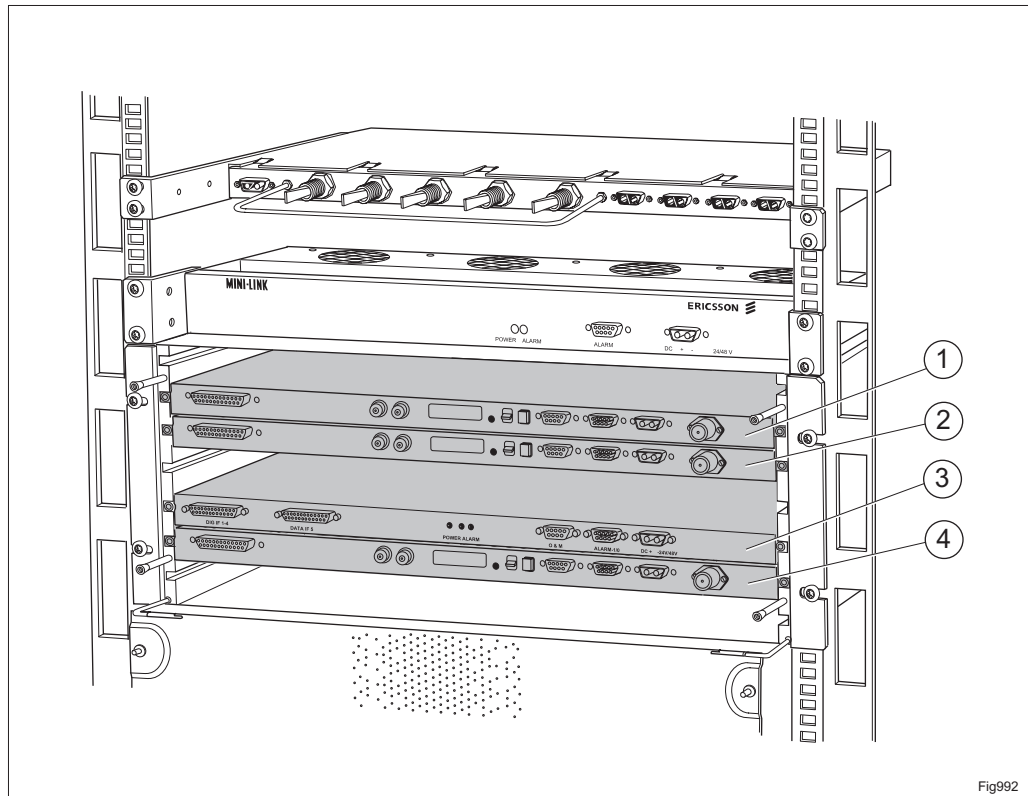
Make sure you have the following equipment before starting the installation:

Product description	Product code	Qty
Access Module Magazine (AMM) 4U ¹⁾ with all necessary screws and earthing cable	AM0010401/00	1
MMU 2x2, incl. station radio cable, DC connector and traffic connector	MM0012202/00	2-3
Traffic cable	TFL 481 52	2-3 lengths (ordered in metres)
MXU, incl. DC connector and connector for balanced traffic	FAB 102 426/42 (balanced traffic)	1
Fan kit with DC connector, fan alarm cable and earthing cable (optional)	SXK 111 509/1	1
DC Distribution Unit (DDU) with 5 pre-assembled DC distribution cables	BMG 907 003/1 (negative earth) or BMG 907 013/1 (positive earth)	1 1
or DC Cable (when not using a DDU)	TFL 424 02	4-5 lengths (Ordered in metres)

¹⁾ AMM 2U-3 with appropriate fan kit for small configurations.

1.2.1.2 Installation

1. Earth the units, see “Earthing the Units” in chapter 2.



Item	Unit	Position in the magazine
①	MMU	6
②	MMU	5
③	MXU	3
④	MMU (optional)	2

Figure 1-5. Inserting the plug-in units for grooming with MXU for balanced traffic

2. Install the DDU and the AMM in a 19" rack, see “Installing the Units in a 19" Rack” in chapter 2.
3. Insert the plug-in units into the magazine according to the figure above, see “Inserting the Plug-in Units” in chapter 2 for instruction.

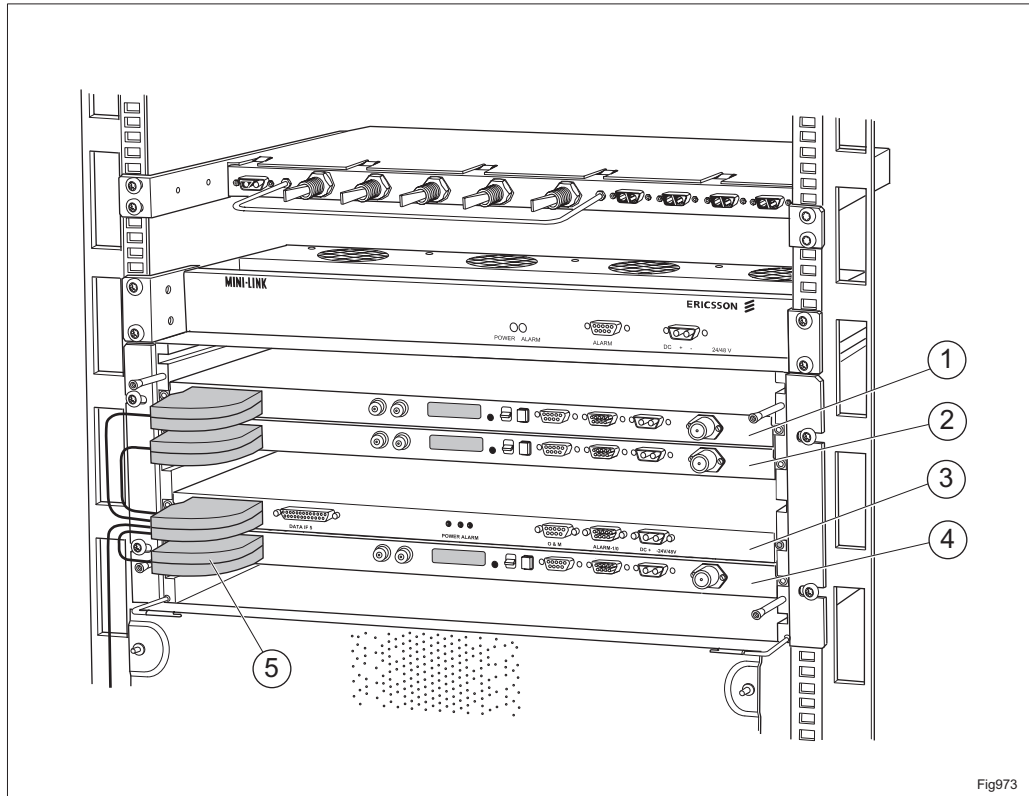


Fig973

Item	Unit	Position in the magazine	Connection	Recommended cable marking
①	MMU	6	TR1A-TR1B	MXU IF1 MMU (6) TR1A
②	MMU	5	TR1A-TR1B	MXU IF2 MMU (5) TR1A
③	MXU	3	IF 1-4	-
④	MMU	2	TR1A-TR1B	MXU IF3 MMU (2) TR1A

Figure 1-6. Connecting the cable to the MXU and MMUs

4. Prepare the cable ⑤ and connect it to the MXU and MMUs, according to the figure above. See "Preparing the Cables for Balanced Traffic" in chapter 2 for information on how to prepare and connect the cable. We recommend a cable length of 1 m for each MMU connector.

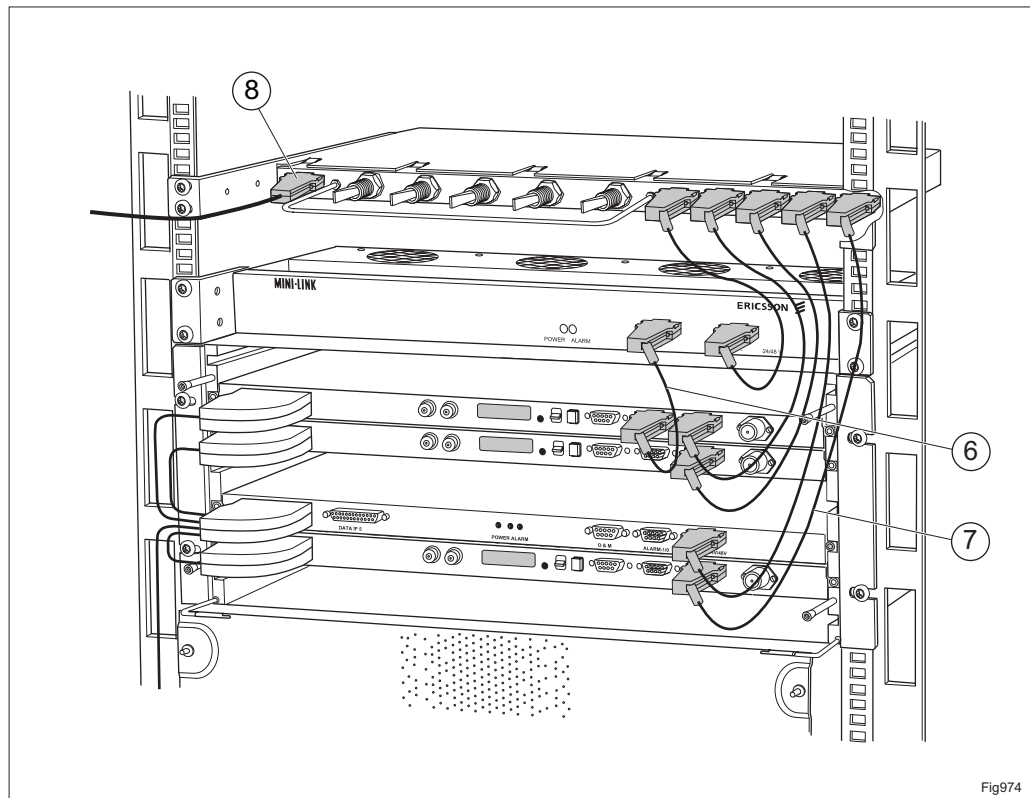


Figure 1-7. Connecting the DC cables

Note: Make sure all the switches on the DDU are in position **OFF**.

5. Connect the fan alarm cable ⑥ to the alarm port on the fan unit and the NCC port on the upper MMU.
6. Connect the DC cables ⑦ from the plug-in units and the fan unit to the DDU. See “Trimming, Assembling and Connecting the DC Cables” in chapter 2 when not using a DDU with pre-assembled DC cables.
7. Connect the DC power supply cable ⑧ on the primary side of the DDU.

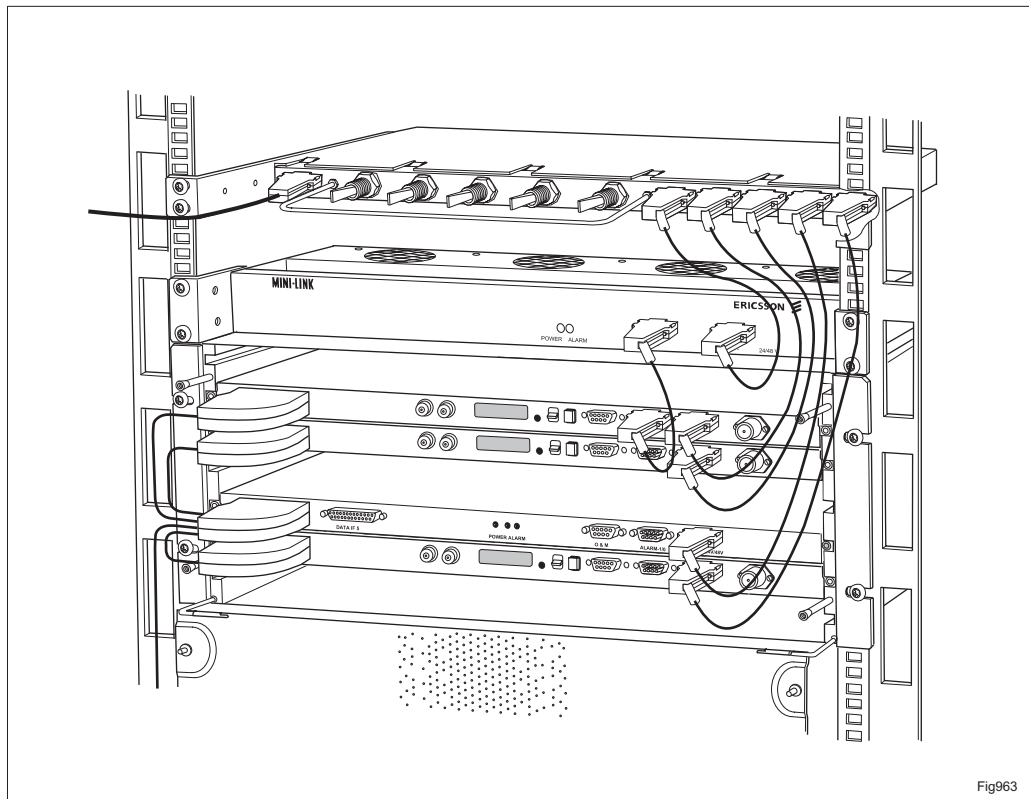


Figure 1-8. Grooming with MXU for balanced traffic

8. See Installation Manual (EN/LZT 110 2014) for information on outdoor installation, radio cable installation and setup. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

Embedded Management

It is possible to add embedded management. The following equipment is required:

Service Access Unit, SAU Exp 1 or SAU Exp 2	SA0110012/00 or SA0210012/00	1 1
Cable assembly for V.24 interface	RPM 113 4257/02000	1

9. Insert the SAU into the magazine in position 7. See “Inserting the Plug-in Units” in chapter 2 for instructions.
10. Connect the cable assembly from the SAU (RAC1) to the MXU (DATA IF5).
11. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

1.2.2 Unbalanced Traffic

The MXU is connected to the MMUs via a coaxial cable panel. It is also possible to connect a BTS to the coaxial cable panel.

1.2.2.1 Preparations

Make sure you have the following equipment before starting the installation:

Product description	Product code	Qty
Access Module Magazine (AMM) 4U ²⁾ with all necessary screws and earthing cable	AM0010401/00	1
MMU 2x2	MM0012202/01	2-3
Station radio cable	RPM 517 6906/01	2-3
SMZ panel, incl. one coaxial cable assembly (2 cables) and SMZ connectors for user's connection ¹⁾ or BNC panel, incl. one coaxial cable assembly (2 cables)	SXK 111 542/7 (SMZ) or SXK 111 541/7 (BNC)	2-3 2-3
Cable for BTS	TZC 750 24	2 lengths (Ordered in metres)
MXU with DC connector, cross-connect cables (8 pcs), SMZ connectors for BTS and SMZ panel with coaxial cable assembly or MXU with DC connector, cross-connect cables (8 pcs), BNC connectors for BTS and BNC panel with coaxial cable assembly	FAB 102 426/411 (unbalanced traffic, SMZ) or FAB 102 426/412 (unbalanced traffic, BNC)	1 1
Fan kit with DC connector, fan alarm cable and earthing cable (optional).	SXK 111 509/1	1
DC Distribution Unit (DDU) with 5 pre-assembled distribution cables or DC Connectors (when not using a DDU) DC Cable (when not using a DDU)	BMG 907 003/1 (negative earth) or BMG 907 013/1 (positive earth) SXK 111 516/1 TFL 424 02	1 1 2-3 4-5 lengths (Ordered in metres)

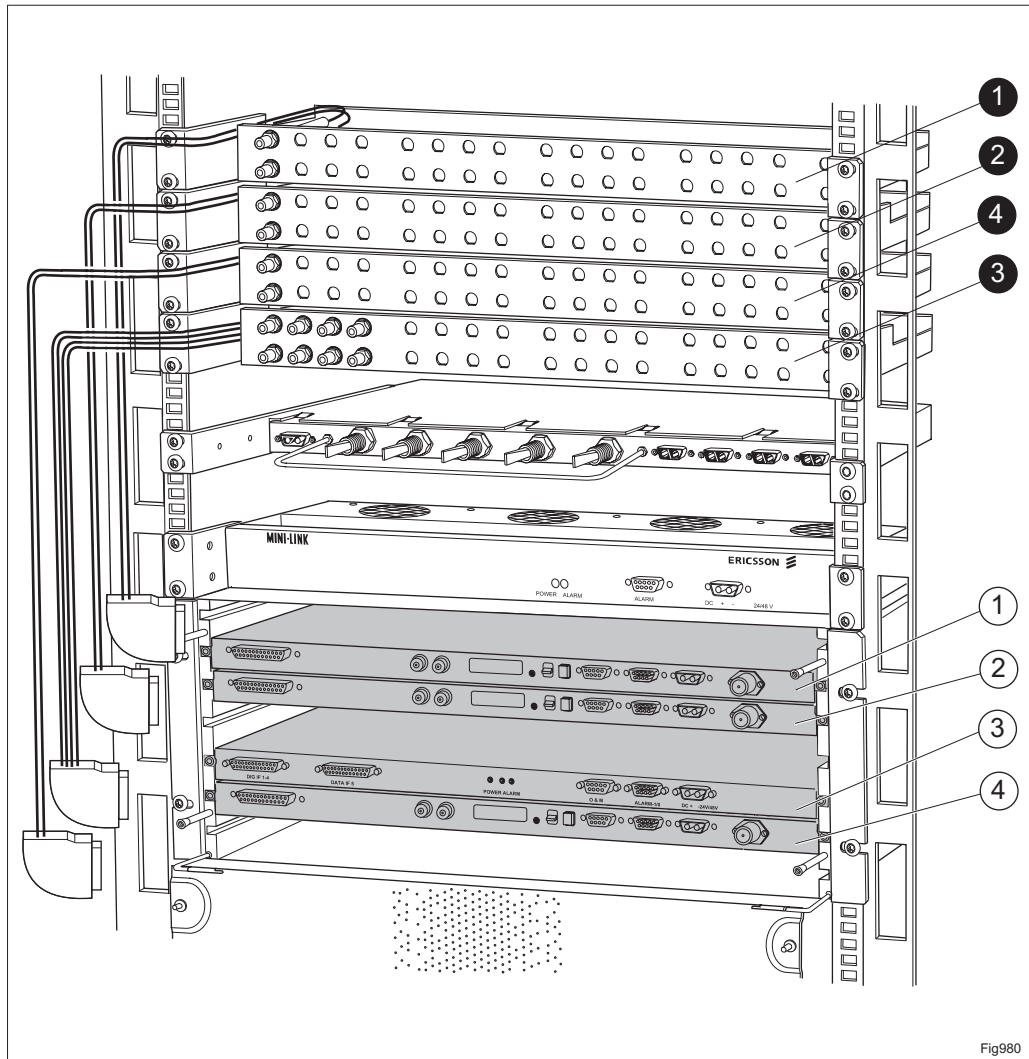
* AMM 2U-3 with appropriate fan kit for small configurations.

¹⁾ The SMZ connectors are not used in this application.

²⁾ AMM 2U-3 with appropriate fan kit for small configurations.

1.2.2.2 Installation

1. Earth the units, see “Earthing the Units” in chapter 2.



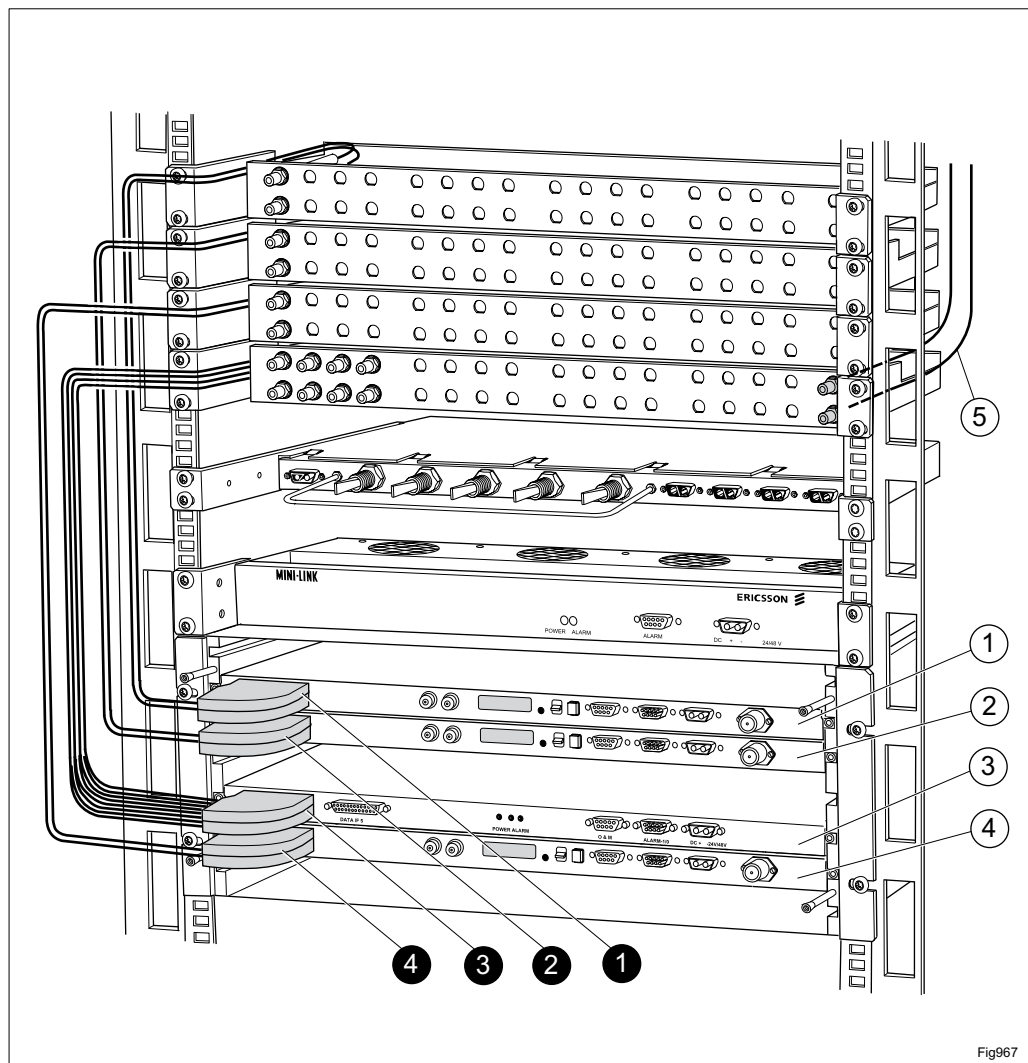
Item	Unit	Position in the magazine
①	MMU	6
②	MMU	5
③	MXU	3 (or 4)
④	MMU (optional)	2

Figure 1-9. Inserting the plug-in units for grooming with MXU for unbalanced traffic

2. Fit the DDU, fan unit, coaxial cable panels and AMM in a 19" rack, see “Installing the Units in a 19" Rack” in chapter 2.

Note: Fit the coaxial cable panel for the MXU ③ at the bottom and the panels for the MMUs (①, ② and ④) on top of it.

3. Insert the plug-in units (① to ④) into the magazine in the recommended positions, according to the table and figure above. See “Inserting the Plug-in Units” in chapter 2 for instructions.



Item	Unit	Position in the magazine	Connection	Corresponding coaxial cable panel
①	MMU	6	TR1A-TR1B	①
②	MMU	5	TR1A-TR1B	②
③	MXU	3	IF 1-4	③
④	MMU	2	TR1A-TR1B	④

Figure 1-10. Connecting the cables from the plug-in units to the coaxial cable panels.

4. Connect the coaxial cables from the panels to the units according to the table and figure above.
5. Connect the cables ⑤ between the base station and the BTS socket on the back of the coaxial cable panel according to the figure above, see “Preparing the Cables for Unbalanced Traffic” in chapter 2.

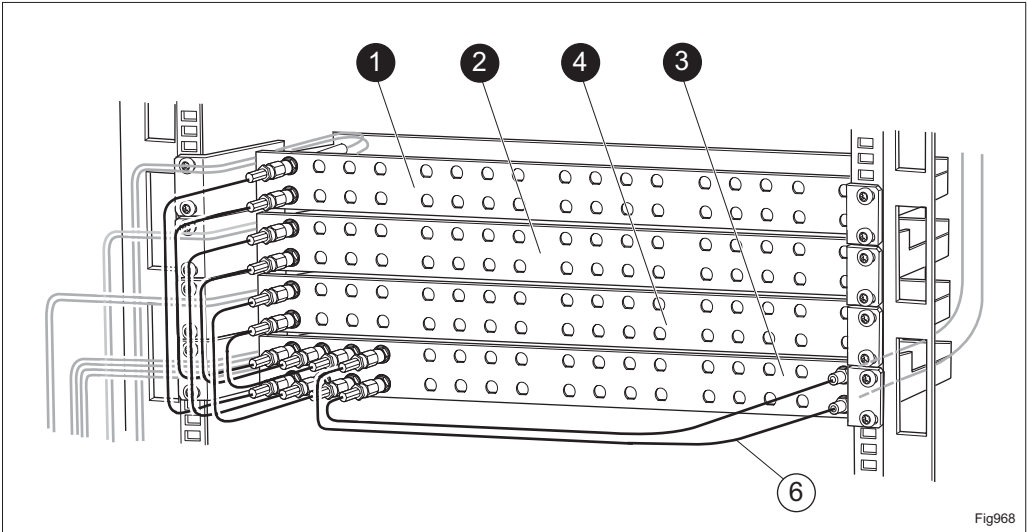


Fig968

From		To	
Item	Connection	Item	Connection
③	IF 1 IN	①	TR1A OUT
	IF 1 OUT		TR1A IN
	IF 2 IN	②	TR1A OUT
	IF 2 OUT		TR1A IN
	IF 3 IN	④	TR1A OUT
	IF 3 OUT		TR1A IN
	IF 4 IN	③	BTS OUT
	IF 4 OUT		BTS IN

Figure 1-11. Cross-connecting between the coaxial cable panels.

- 6. Connect the cross-connection cables ⑥ to the coaxial cable panels according to the table above.

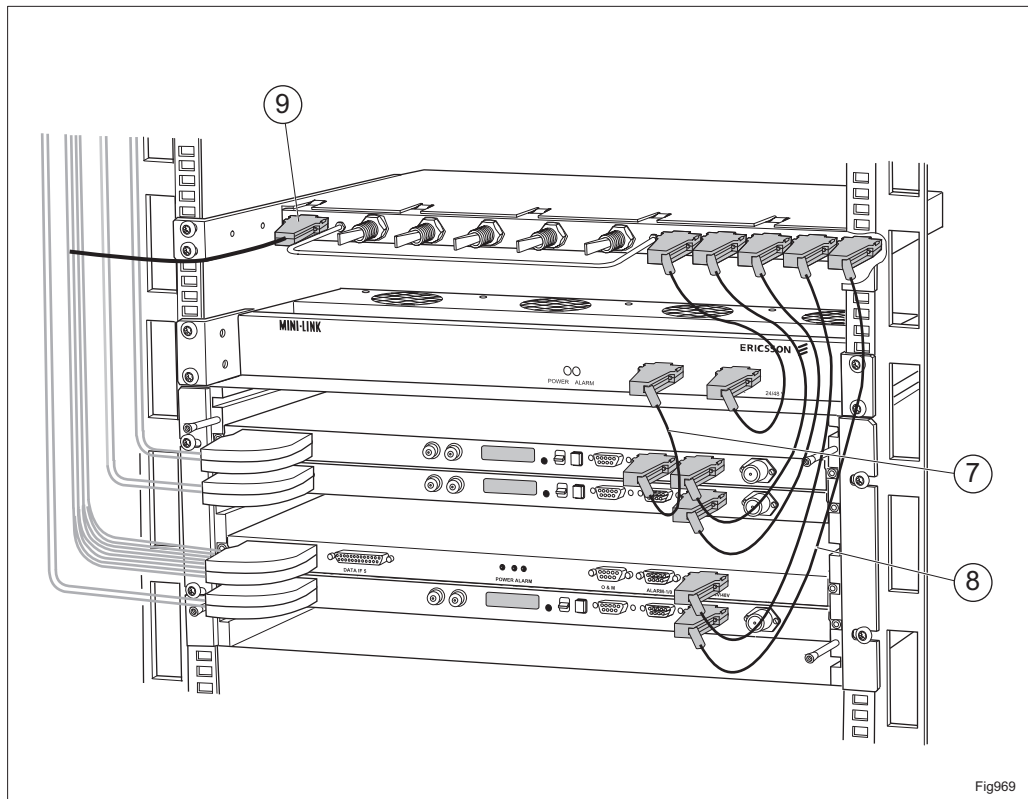


Figure 1-12. Connecting the DC cables and fan alarm cable.

Note: Make sure all the switches on the DDU are in position **OFF**.

7. Connect the fan alarm cable ⑦ to the alarm port on the fan unit and the NCC port on the upper MMU.
8. Connect the DC cables ⑧ from the plug-in units and the fan unit to the DDU. See “Trimming, Assembling and Connecting the DC Cables” in chapter 2 when not using a DDU with pre-assembled DC cables.
9. Connect the DC power supply cable ⑨ on the primary side of the DDU.

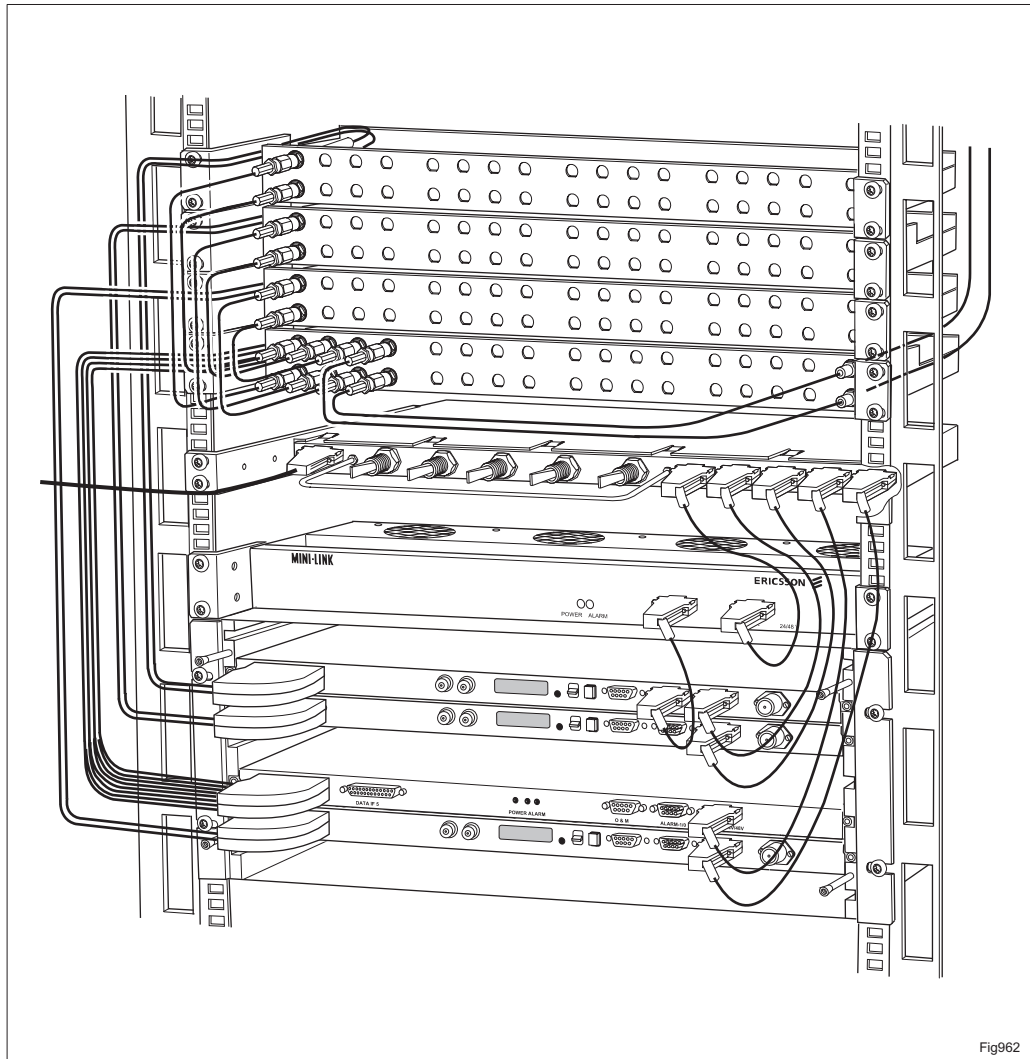


Fig962

Figure 1-13. Grooming with MXU for unbalanced traffic

10. See the Installation Manual (EN/LZT 110 2014) for information on outdoor installation, radio cable installation and setup. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

Embedded Management

It is possible to add embedded management. The following equipment is required:

Service Access Unit, SAU Exp 1 or SAU Exp 2	SA0110012/00 or SA0210012/00	1 1
Cable assembly for V.24 interface	RPM 113 4257/02000	1

11. Insert the SAU into the magazine in position 7. See “Inserting the Plug-in Units” in chapter 2 for instructions.
12. Connect the cable assembly from the SAU (RAC1) to the MXU (DATA IF5).
13. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

1.3 Ring Protection

The MXU makes ring-network protection possible. A drop node contains one MXU and other MINI-LINK equipment. A feeder node contains MINI-LINK equipment and another DXX cross-connect unit than the MXU. This instruction describes a drop node configuration .

Note: The MXU provides protection on 2 Mbit/s level in this ring configuration.

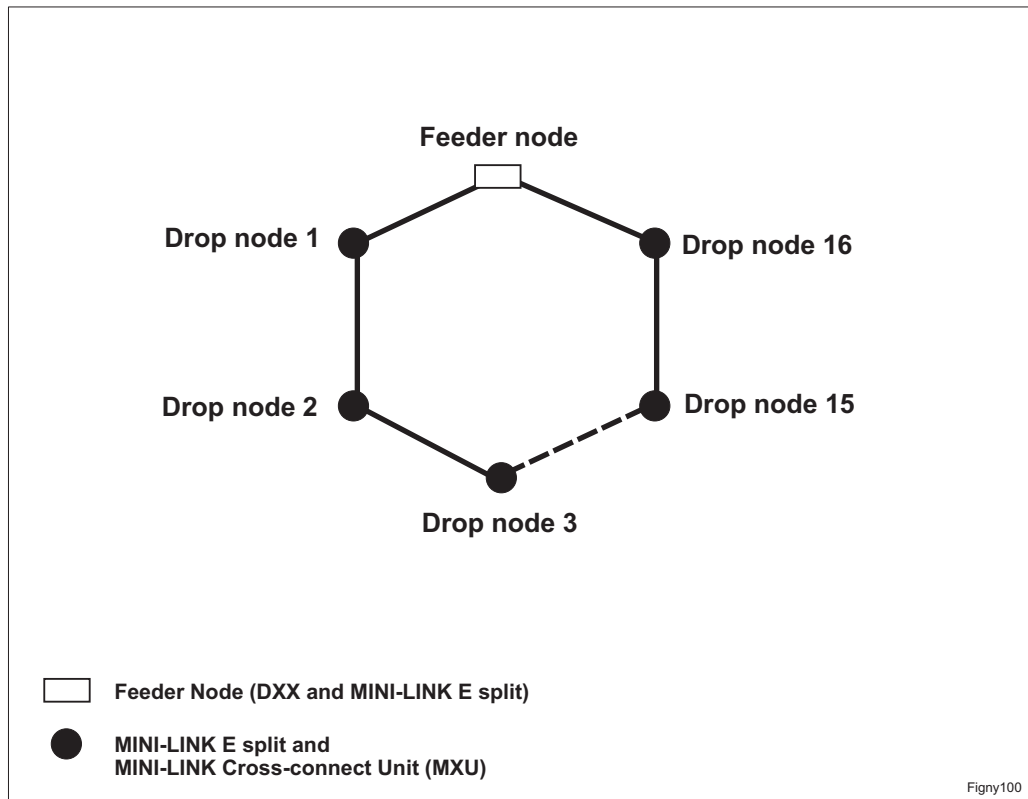


Figure 1-14. Ring configuration.

The following instructions show connections for drop node 1 to 4.

1.3.1 Balanced Traffic

1.3.1.1 Preparations

Make sure you have the following equipment before starting the installation:

Product description	Product code	Qty
Access Module Magazine (AMM) 4U ¹⁾ with all necessary screws and an earthing cable	AM0010401/00	1
MMU 2x2*	MM0012202/00	2
or		
MMU 4x2/8*	MM0014202/00	2
or		
MMU 2x8* and SMU 8x2**	MM0012812/00 and SM0010802/00	2 2
or		
MMU 34+2* and SMU 16x2**	MM0013402/00 SM0011602/00	2 2
(* incl. station radio cable, DC connector and traffic connector) (** incl. traffic connectors)		
Traffic cable	TFL 481 52	2 lengths (ordered in metres)
MXU, incl. DC connector and connector for balanced traffic	FAB 102 426/42 (balanced traffic)	1
Fan kit with DC connector, fan alarm cable and earthing cable (optional)	SXK 111 509/1	1
DC Distribution Unit (DDU) with 5 pre-assembled DC distribution cables	BMG 907 003/1 (negative earth) or BMG 907 013/1 (positive earth)	1 1
or		
DC Cable (when not using a DDU)	TFL 424 02	4 lengths

¹⁾ AMM 2U-3 with appropriate fan kit for small configurations.

1.3.1.2 Installation

1. Earth the units, see “Earthing the Units” in chapter 2.

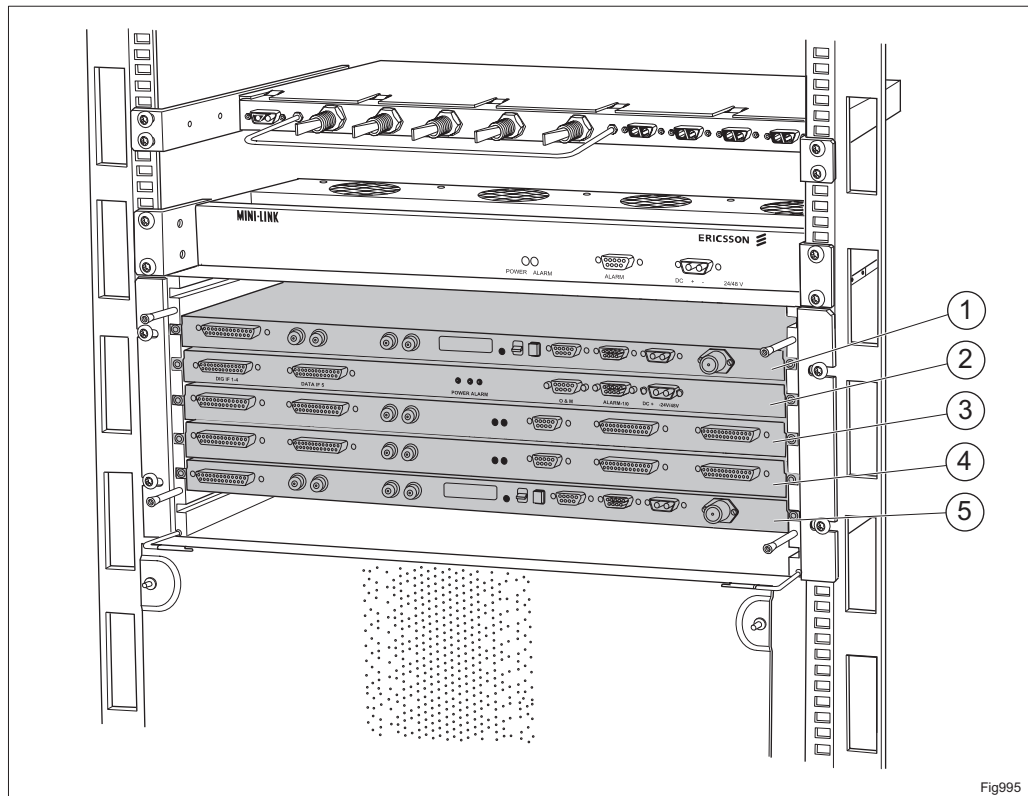


Fig995

Item	Unit	Position in the magazine
①	MMU	6
②	MXU	5 (or 1)
③	SMU (optional)	4
④	SMU (optional)	3
⑤	MMU	2

Figure 1-15. Inserting the plug-in units for ring protection for balanced traffic

2. Install the DDU, fan unit and AMM in a 19" rack, see “Installing the Units in a 19" Rack” in chapter 2.
3. Insert the plug-in units into the magazine in the recommended positions according to the figure above. See “Inserting the Plug-in Units” in chapter 2 for instruction.

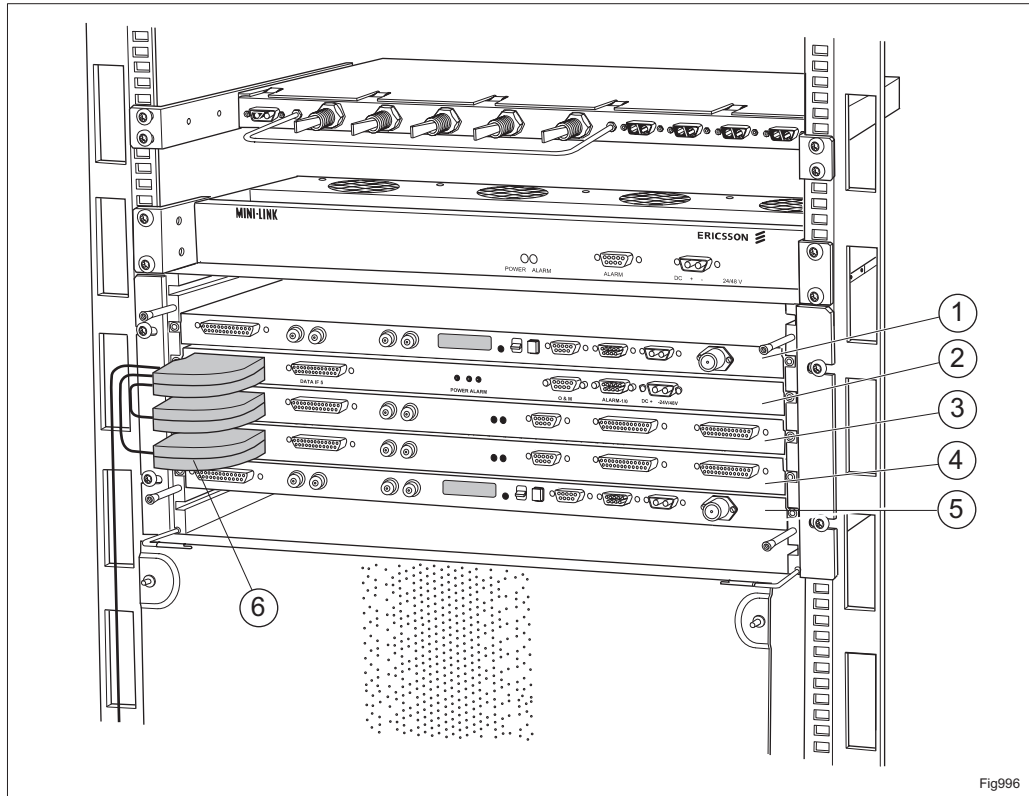


Fig996

Item	Unit	Position in the magazine	Connection	Recommended cable marking
①	MMU ³⁾	6	TR1A-TR1D	MXU IF1 MMU (6) TR1A
②	MXU	5	IF 1-4	-
③	SMU	4	TR1A-TR1D	MXU IF1 SMU (4) TR1A
④	SMU	3	TR1A-TR1D	MXU IF2 SMU (3) TR1A
⑤	MMU ³⁾	2	TR1A-TR1D	MXU IF2 MMU (2) TR1A

Figure 1-16. Connecting the cables from the SMUs to the MXU for drop node 1.

4. Prepare the cable ⑥ and connect it to the MXU and SMUs or MMUs.

Note: The figure and table above describes the connections to be made for the first of the drop nodes (see fig 1-14 for information). The connections for the drop nodes are:

Drop node	Connector on the SMUs or MMUs
1-4	TR1A-TR1D
5-8	TR2A-TR2D
9-12	TR3A-TR3D
13-16	TR4A-TR4D

³⁾ Connect to the MMUs if there are no SMUs installed.

See "Preparing the Cables for Balanced Traffic" in chapter 2 for information on how to prepare and connect the cable. We recommend a cable length of 1 m for each MMU connector.

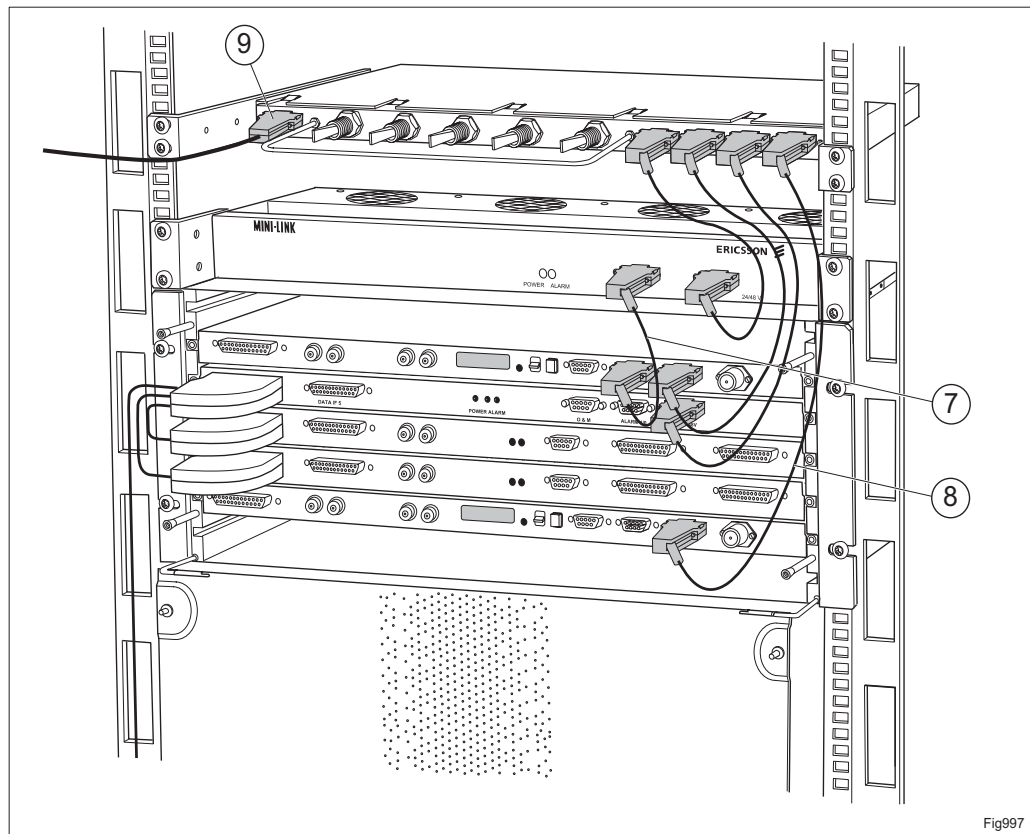


Figure 1-17. Connecting the DC cables

Note: Make sure all the switches on the DDU are in position **OFF**.

5. Connect the fan alarm cable ⑦ to the alarm port on the fan unit and the NCC port on the upper MMU.
6. Connect the DC cables ⑧ from the plug-in units and the fan unit to the DDU. See "Trimming, Assembling and Connecting the DC Cables" in chapter 2 when not using a DDU with pre-assembled DC cables.
7. Connect the DC power supply cable ⑨ on the primary side of the DDU.

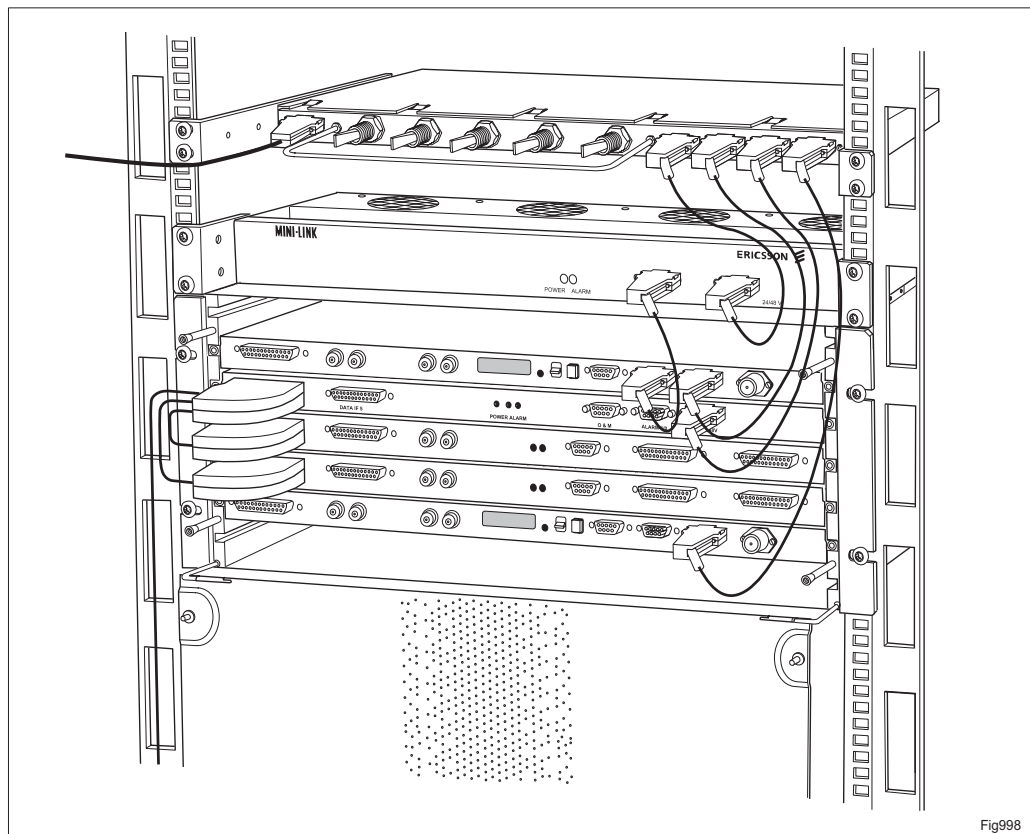


Fig998

Figure 1-18. Ring protection for balanced traffic

8. See Installation Manual (EN/LZT 110 2014) for information on outdoor installation, radio cable installation and setup.

Note: The traffic is always connected to the A tributary (TR1A, TR2A ...TRnA) which makes traffic routing necessary. See chapter 5 in the Planning and Engineering Manual (EN/LZT 110 2013) for information.

9. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

Embedded Management

It is possible to add embedded management. The following equipment is required:

Service Access Unit, SAU Exp 1 or SAU Exp 2	SA0110012/00 or SA0210012/00	1 1
Cable assembly for V.24 interface	RPM 113 4257/02000	1

10. Insert the SAU into the magazine in position 7. See “Inserting the Plug-in Units” in chapter 2 for instructions.
11. Connect the cable assembly from the SAU (RAC1) to the MXU (DATA IF5).
12. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

1.3.2 Unbalanced Traffic

The MXU is connected to the MMUs via coaxial cable panels. It is also possible to connect a BTS to the coaxial cable panel.

1.3.2.1 Preparations

Make sure you have the following equipment before starting the installation:

Product description	Product code	Qty
Access Module Magazine (AMM) 4U ²⁾ with all necessary screws and earthing cable	AM0010401/00	1
MMU 2x2	MM0012202/01	2
or		
MMU 4x2/8	MM0014202/01	2
or		
MMU 2x8 and SMU 8x2	MM0012812/01 and SM0010802/01	2 2
or		
MMU 34+2 and SMU 16x2	MM0013402/01 SM0011602/01	2 2
Station radio cable	RPM 517 6906/01	2
Cable for BTS	TZC 750 24	2 lengths (Ordered in metres)
For MMU 2x2:		
SMZ panel, incl. one coaxial cable assembly (2 cables) and SMZ connectors for user's connection ¹⁾	SXK 111 542/7 (SMZ)	2
or	or	
BNC panel, incl. one coaxial cable assembly (2 cables)	SXK 111 541/7 (BNC)	2
For MMU 4x2/8:		
SMZ panel, incl. one coaxial cable assembly (8 cables) and SMZ connectors for user's connection ¹⁾	SXK 111 542/1 (SMZ)	2
or	or	
BNC panel, incl. one coaxial cable assembly (8 cables)	SXK 111 541/1 (BNC)	2

¹⁾ The SMZ connectors are not used in this application.

²⁾ AMM 2U-3 with appropriate fan kit for small configurations.

Product description	Product code	Qty
<p>For SMU 8x2: SMZ panel, incl. two coaxial cable assemblies (2x8 cables) and SMZ connectors for user's connection¹⁾</p> <p>or BNC panel, incl. two coaxial cable assemblies (2x8 cables)</p>	<p>SXK 111 542/2 (SMZ)</p> <p>or SXK 111 541/2 (BNC)</p>	<p>2</p> <p>2</p>
<p>For SMU 16x2: SMZ panel, incl. four coaxial cable assemblies (4x8 cables) and SMZ connectors for user's connection¹⁾</p> <p>or BNC panel, incl. four coaxial cable assemblies (4x8 cables)</p>	<p>SXK 111 542/3 (SMZ)</p> <p>or SXK 111 541/3 (BNC)</p>	<p>2</p> <p>2</p>
<p>MXU with DC connector, cross-connect cables (8 pcs), two SMZ connectors for BTS and SMZ panel with coaxial cable assembly</p> <p>or MXU with DC connector, cross-connect cables (8 pcs), two BNC connectors for BTS and BNC panel with coaxial cable assembly</p>	<p>FAB 102 426/411 (unbalanced traffic, SMZ)</p> <p>or FAB 102 426/412 (unbalanced traffic, BNC)</p>	<p>1</p> <p>1</p>
<p>Fan kit with DC connector, fan alarm cable and earthing cable (optional)</p>	<p>SXK 111 509/1</p>	<p>1</p>
<p>DC Distribution Unit (DDU) with 5 pre-assembled distribution cables</p> <p>or DC Connectors (when not using a DDU) DC Cable (when not using a DDU)</p>	<p>BMG 907 003/1 (negative earth)</p> <p>or BMG 907 013/1 (positive earth)</p> <p>SXK 111 516/1 TFL 424 02</p>	<p>1</p> <p>1</p> <p>2 4 lengths (Ordered in metres)</p>

¹⁾ The SMZ connectors are not used in this application

1.3.2.2 Installation

1. Earth the units, see “Earthing the Units” in chapter 2.

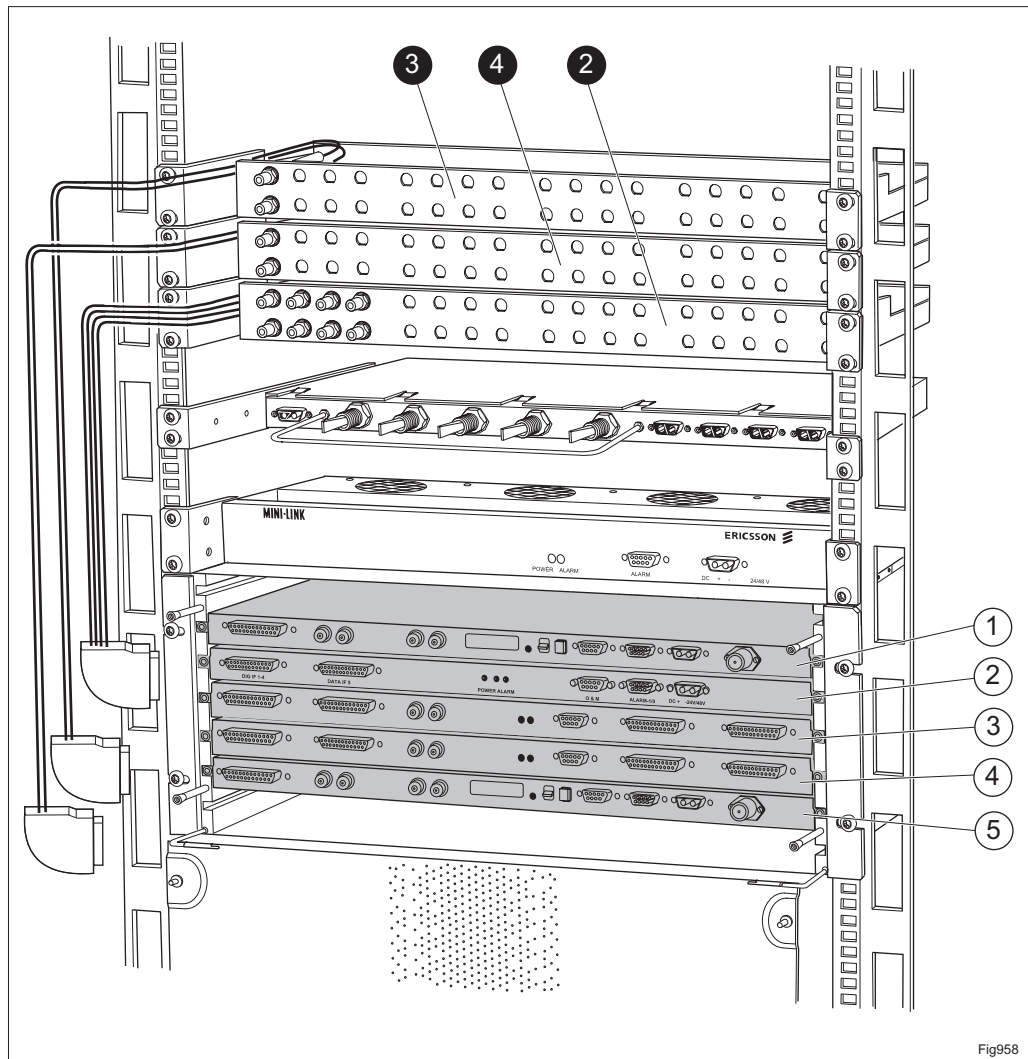


Fig958

Item	Unit	Position in the magazine
①	MMU	6
②	MXU	5 (or 1)
③	SMU	4
④	SMU	3
⑤	MMU	2

Figure 1-19. Inserting the plug-in units for ring protection for unbalanced traffic

2. Fit the DDU, fan unit, coaxial cable panels and AMM in a 19" rack, see “Installing the Units in a 19" Rack” in chapter 2.

Note: Fit the coaxial cable panel for the MXU ② at the bottom and the panels for the MMUs (③ and ④) on top of it.

3. Insert the plug-in units (① to ⑤) into the magazine in the recommended positions, according to the table and figure above. See “Inserting the Plug-in Units” in chapter 2 for instructions.

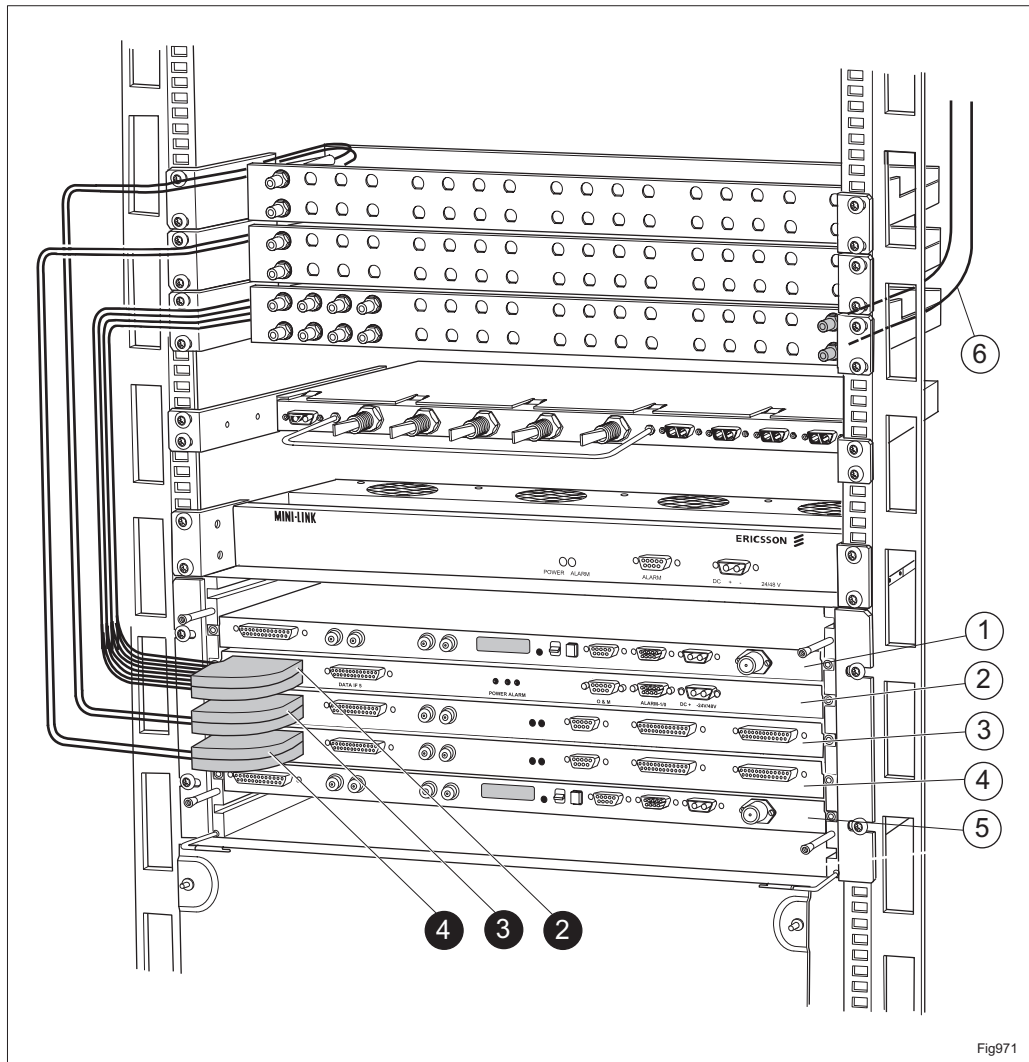


Fig971

Item	Unit	Position in the magazine	Connection	Corresponding coaxial cable panel
①	MMU ²⁾	6	TR1A-TR1D	③
②	MXU	5	IF 1-4	②
③	SMU	4	TR1A-TR1D	③
④	SMU	3	TR1A-TR1D	④
⑤	MMU ²⁾	2	TR1A-TR1D	④

Figure 1-20. Connecting the cables from the plug-in units to the coax cable panel

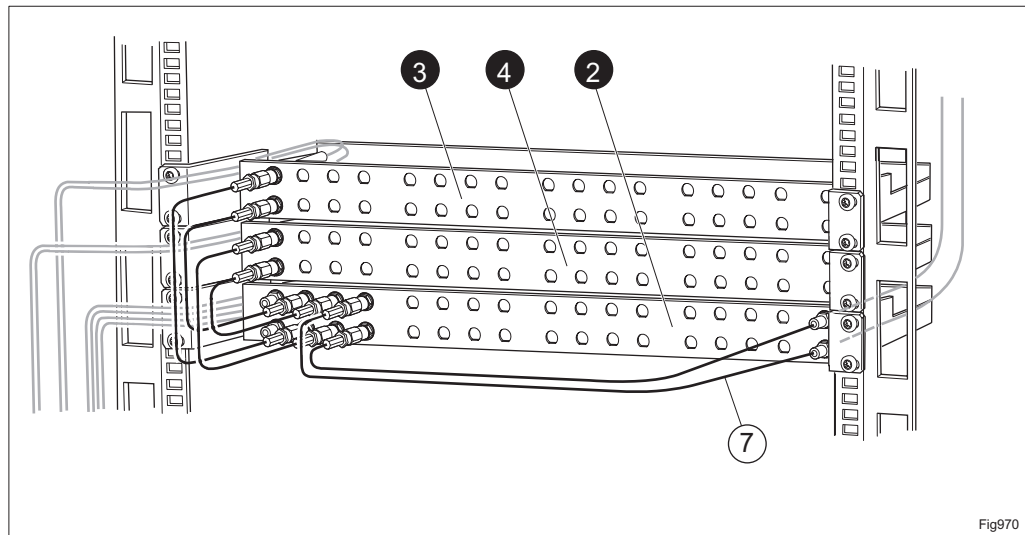
²⁾ Connect to the MMUs if there are no SMUs installed.

4. Connect the coaxial cables from the panels to the units.

Note: The figure and table above describes the connections to be made for the first of the drop nodes (see fig 1-14 for information). The connections for the drop nodes are:

Drop node	Connector on the SMUs or MMUs
1-4	TR1A-TR1D
5-8	TR2A-TR2D
9-12	TR3A-TR3D
13-16	TR4A-TR4D

5. Connect the cables ⑥ between the base station and the BTS socket on the back of the coaxial cable panel according to figure 1-20, see "Preparing the Cables for Unbalanced Traffic" in chapter 2 for information on how to prepare the cables.



From		To	
Item	Connection	Item	Connection
②	IF 1 IN	③	TR1A OUT
	IF 1 OUT		TR1A IN
	IF 2 IN	④	TR1A OUT
	IF 2 OUT		TR1A IN
	IF 4 IN	②	BTS OUT
	IF 4 OUT		BTS IN

Figure 1-21. Cross-connecting on the coax cable panel

6. Connect the cross-connection cables ⑦ to the coaxial cable panels according to the table above.

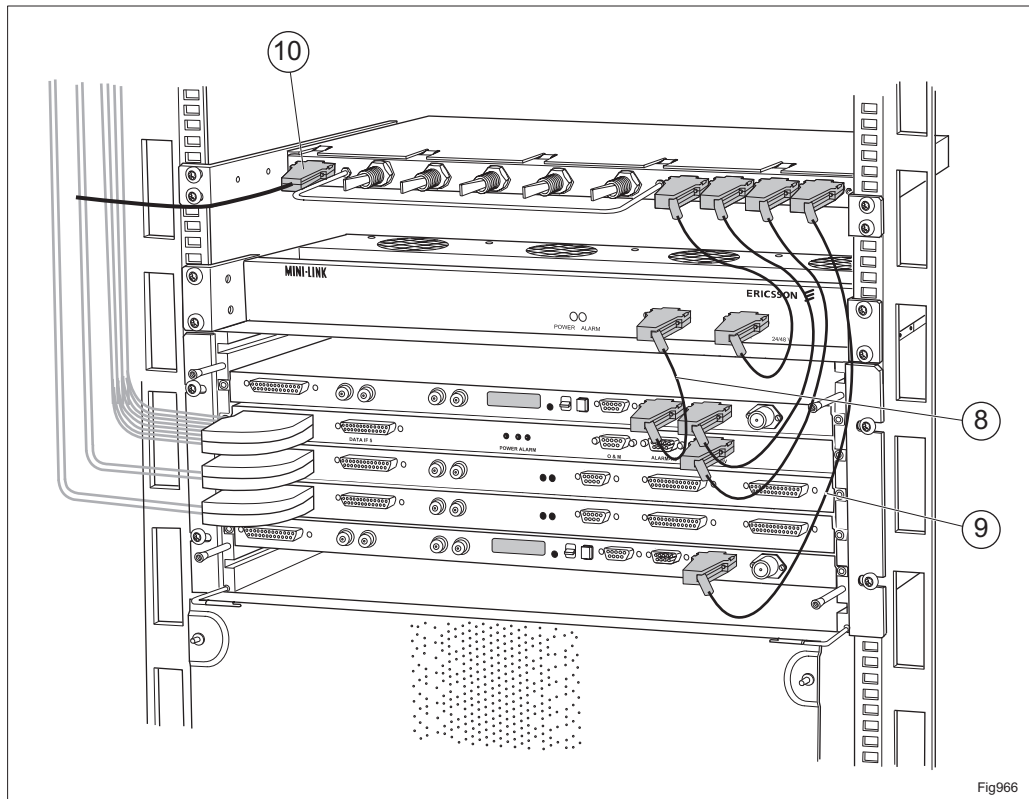


Figure 1-22. Connecting the DC cables

Note: Make sure all the switches on the DDU are in position **OFF**.

7. Connect the fan alarm cable ⑧ to the alarm port on the fan unit and the NCC port on the upper MMU.
8. Connect the DC cables ⑨ from the plug-in units and the fan unit to the DDU. See “Trimming, Assembling and Connecting the DC Cables” in chapter 2 when not using a DDU with pre-assembled DC cables.
9. Connect the DC power supply cable ⑩ on the primary side of the DDU.

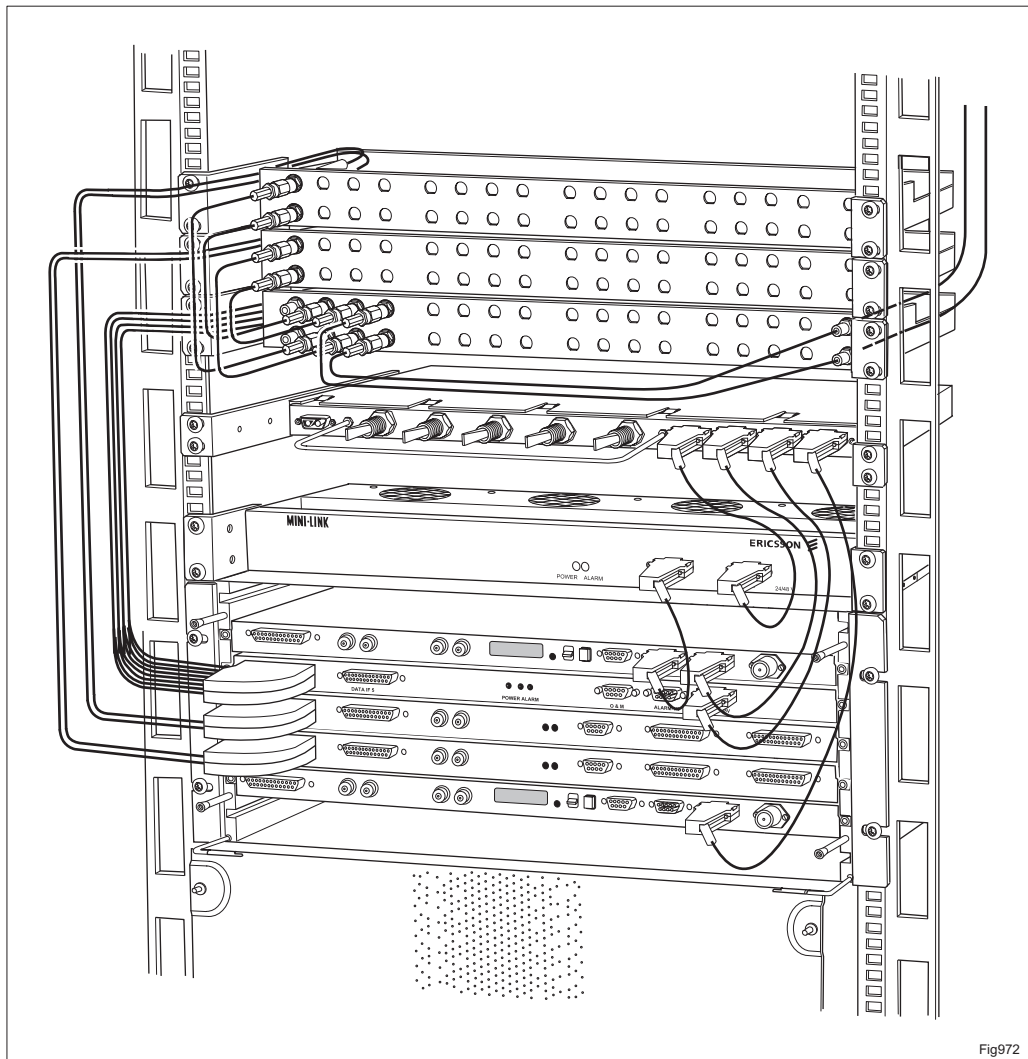


Figure 1-23. Ring protection for unbalanced traffic

10. See Installation Manual (EN/LZT 110 2014) for information on outdoor installation, radio cable installation and setup.

Note: The traffic is always connected to the A tributary (TR1A, TR2A ... TRnA) which makes traffic routing necessary. See chapter 5 in the Planning and Engineering Manual (EN/LZT 110 2013) for information.

11. For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

Embedded Management

It is possible to add embedded management. The following equipment is required:

Service Access Unit, SAU Exp 1 or SAU Exp 2	SA0110012/00 or SA0210012/00	1 1
Cable assembly for V.24 interface	RPM 113 4257/02000	1

- 12.** Insert the SAU into the magazine in position 7. See “Inserting the Plug-in Units” in chapter 2 for instructions.
- 13.** Connect the cable assembly from the SAU (RAC1) to the MXU (DATA IF5).
- 14.** For information on setup of the MXU, see the MXU Setup Instruction (EN/LZT 110 5089).

2 Installation Details

This chapter describes how to earth and install the magazine and how to insert the plug-in units. It also describes how to prepare the cables for balanced traffic.

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- 2.1 Installation Equipment 2-3
- 2.2 Earthing the Units 2-4
- 2.3 Installing the Units in a 19" Rack 2-7
- 2.4 Inserting the Plug-in Units 2-11
- 2.5 Preparing the Cable for Balanced Traffic 2-12
- 2.6 Preparing the Cables for Unbalanced Traffic 2-21
- 2.7 Trimming, Assembling and Connecting the DC Cable 2-27
- 2.8 Connector and Pin Connection Overview MXU..... 2-37

2.1 Installation Equipment

The following tools are required for installation of MXU.

Installation of units

- Torx screwdriver TX 30 (M6)
- Slot screwdriver 2 mm
- Ring and open jaw wrench 13 mm

Preparing the traffic cables (balanced)

- Crimping tool LSD 319 84/1
- D-sub connector pressfit tool LSD 319 83
- D-sub connector extraction tool LSY 120 10
- Cutting pliers
- Slot screwdriver 2 mm

Preparing the traffic cables (unbalanced)


- Cutting pliers
- Crimping tool (SMZ) LSD 319 86/1 or 319 82
- Crimping tool (SMZ) LSD 319 87/1 or LSD 319 82
- Crimping tool (BNC) LSD 319 85/2

Preparing the DC cables

- Cutting pliers
- Crimping tool LSD 319 80, number 3.
- Pin extraction tool LSY 141 12
- Cross slot tool Type H (Philips), no 1
- Cross slot tool Type H (Philips), no 2

2.2 Earthing the Units

This section describes the procedure when earthing the different units.

WARNING 	The access module magazine and the DDU must be earthed.
---	--

2.2.1 Earthing the Magazine

The earthing cable kit, SXX 111 514/2, is included as standard in the AMM delivery.

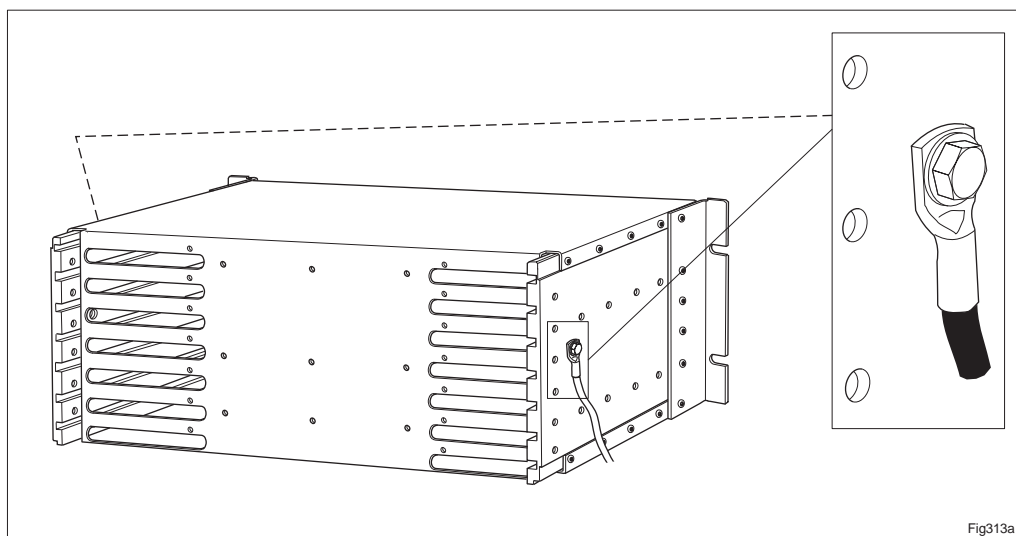


Figure 2-1. Earthing the access module magazine 4U.

1. Connect the cable to the magazine, as shown in the figure above. Use the 13 mm ring and open jaw wrench for tightening. As an alternative, the earthing cable can be connected to the magazine on the opposite side.

2.2.2 Earthing the Fan Unit

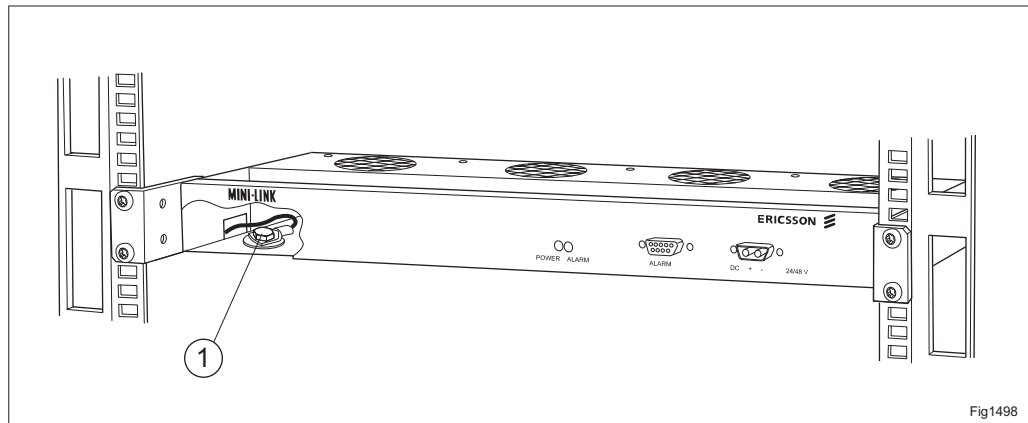


Figure 2-2. Earthing the fan unit.

1. Insert the earthing cable ① into the fan unit. The earthing cable can be inserted in four different ways, using two separate holes on the front and one on each side of the fan unit.
2. Connect the earthing cable inside the fan unit. Use the 13 mm ring and open jaw spanner for tightening.

2.2.3 Earthing the DDU

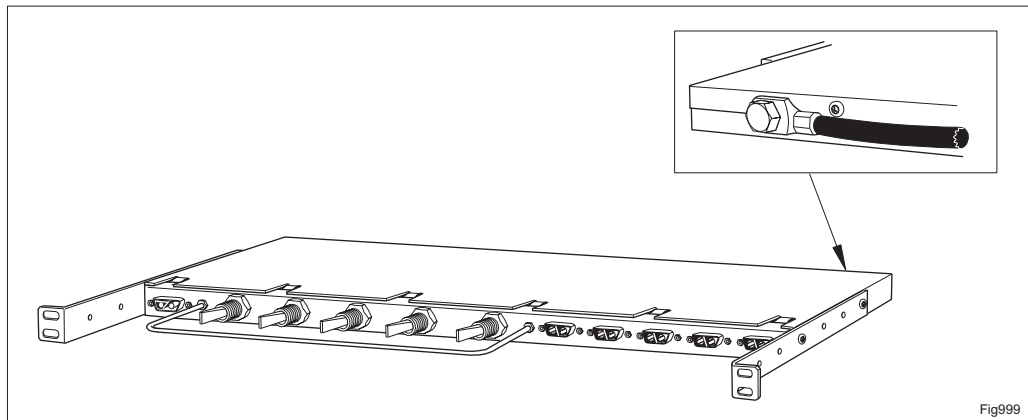


Figure 2-3. Earthing the DC distribution Unit (DDU).

Earthing the DDU

1. Connect the cable to the DDU, as shown in the figure above. Use the 13 mm ring and open jaw wrench for tightening.

2.3 Installing the Units in a 19" Rack

This section describes how to install the different units in a 19" rack.

2.3.1 Installing the Magazine

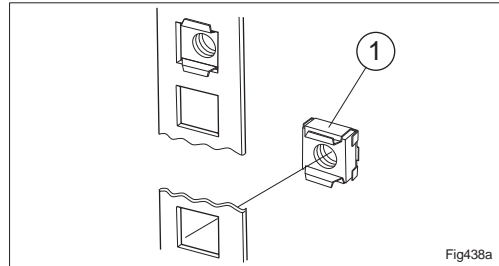


Figure 2-4. Fitting the captive nuts for the magazine.

1. Fit the four captive nuts ① to the rack.
2. Remove the front panel and fit the empty magazine in the rack.

Note: Make sure the magazine is positioned correctly into the rack. The holes for the front panel hinges ② shall be at the bottom of the magazine.

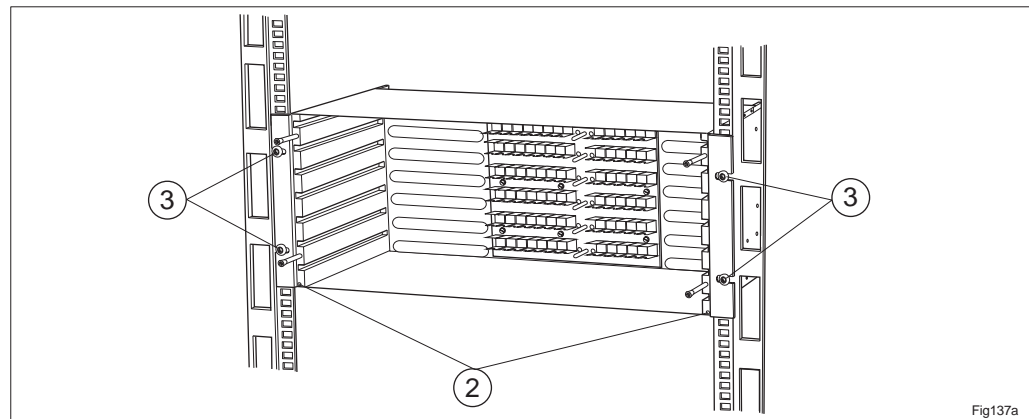


Figure 2-5. Installing the access module magazine in a 19" rack.

3. Tighten the four screws ③ using the Torx screwdriver TX 30 (M6), as shown in the figure above.
4. Connect the earthing cable from the magazine to station earth.

2.3.2 Installing the Fan Unit

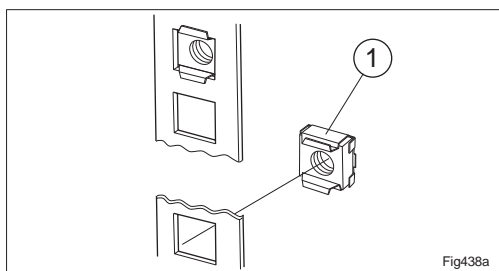


Figure 2-6. Fitting the captive nuts for the fan unit.

1. Fit the four captive nuts ① to the rack.

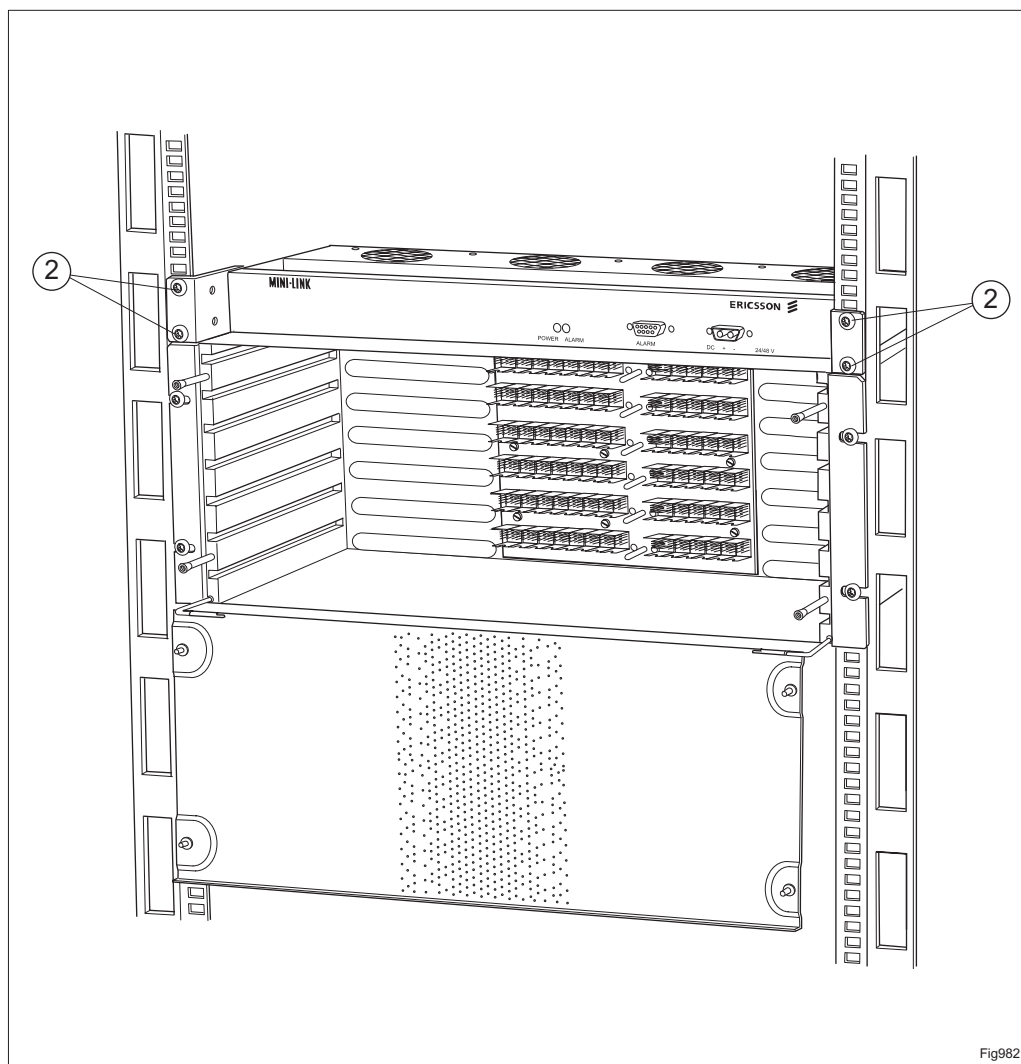


Figure 2-7. Fitting the fan unit in a 19" rack.

2. Fit the fan unit in the rack and tighten the four screws, ②, using the Torx screwdriver TX 30 (M6).
3. Connect the other end of the earthing cable to the station earth.

2.3.3 Installing the DDU

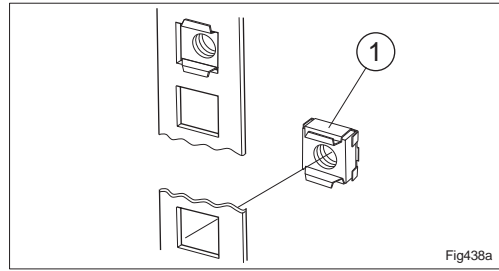


Figure 2-8. Fitting the captive nuts for the DDU.

1. Fit the four captive nuts ① to the rack.

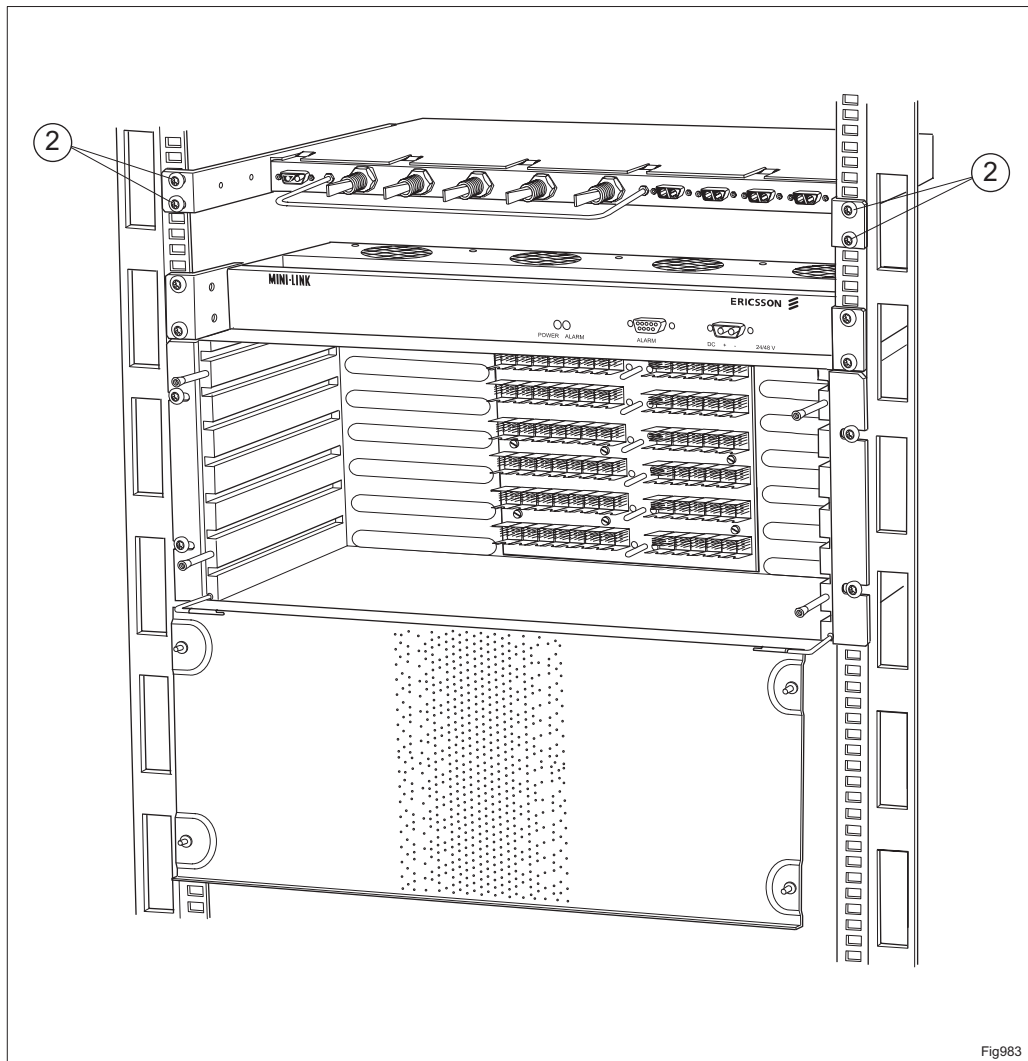


Figure 2-9. Fitting the DDU in a 19" rack, using captive nuts.

2. Fit the DDU in the rack.

Note: Make sure there is 1U free space between the fan unit and the DDU.

3. Tighten the four screws ② using the Torx screwdriver TX 30 (M6), as shown in the figure above.
4. Connect the earthing cable from the DDU to station earth.

2.3.4 Installing the Coax Cable Panel (only for unbalanced traffic)

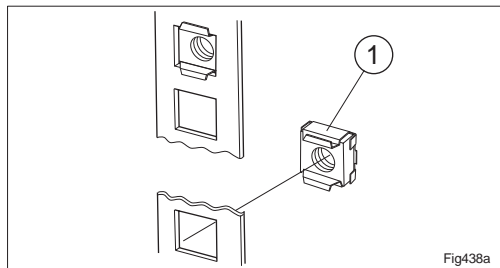


Figure 2-10. Fitting the captive nuts for the coax cable panel.

1. Fit the four captive nuts ① to the rack.

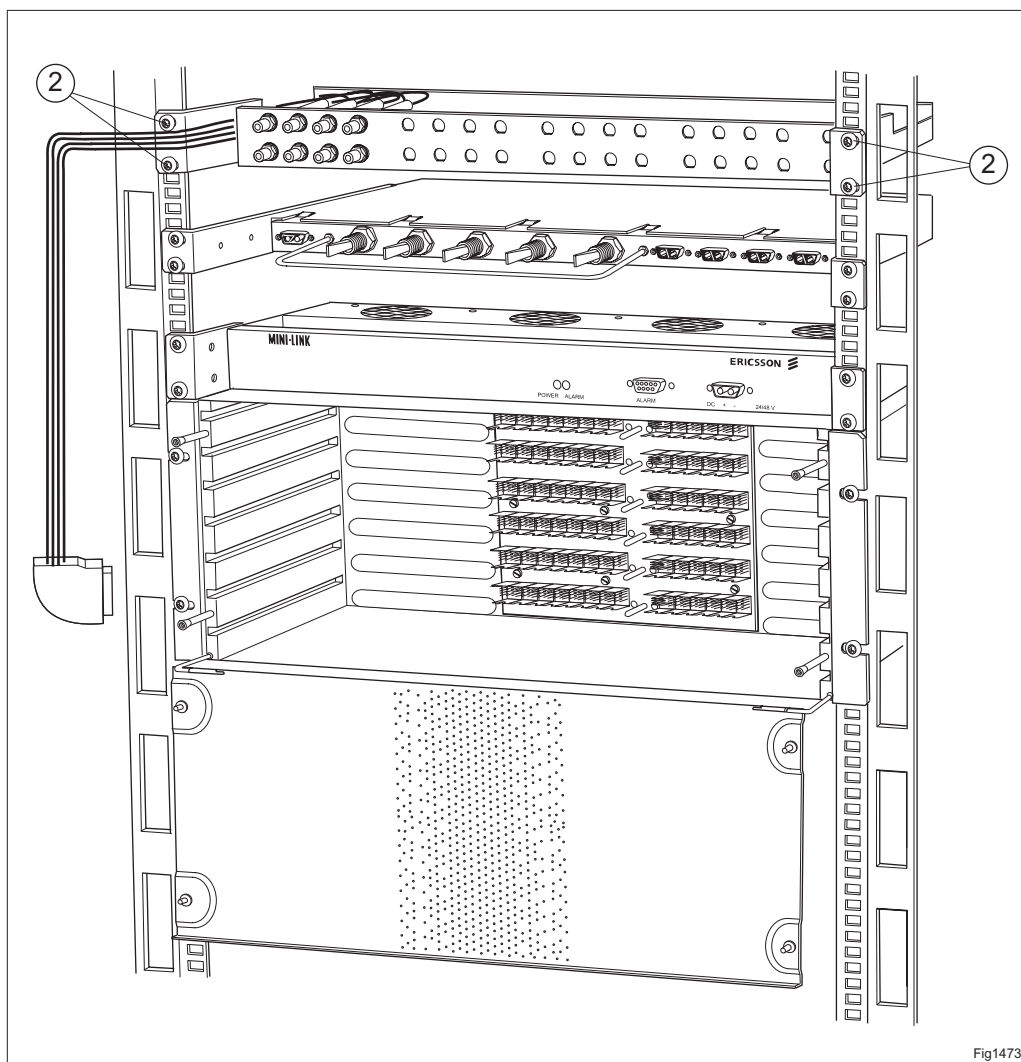


Figure 2-11. Fitting the coax cable panel in a 19" rack, using captive nuts.

2. Fit the coax cable panel in the rack.
3. Tighten the four screws ② using the Torx screwdriver TX 30 (M6), as shown in the figure.

2.4 Inserting the Plug-in Units

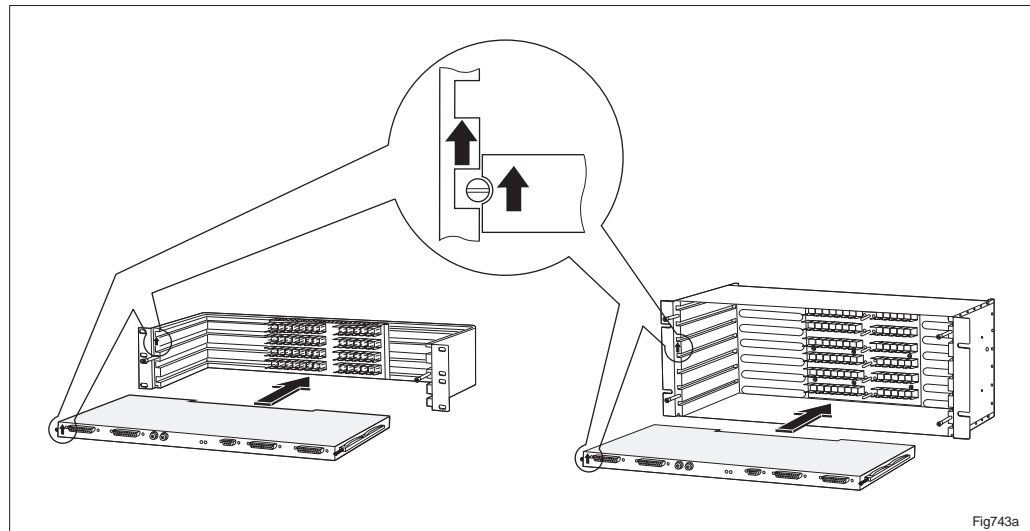


Figure 2-12. Orientation of the plug-in unit and the magazine.

1. Insert the plug-in unit in the magazine, in accordance with the label on the inside of the front panel. The arrow on the magazine as well as on the plug-in unit must point upwards, see figure above.

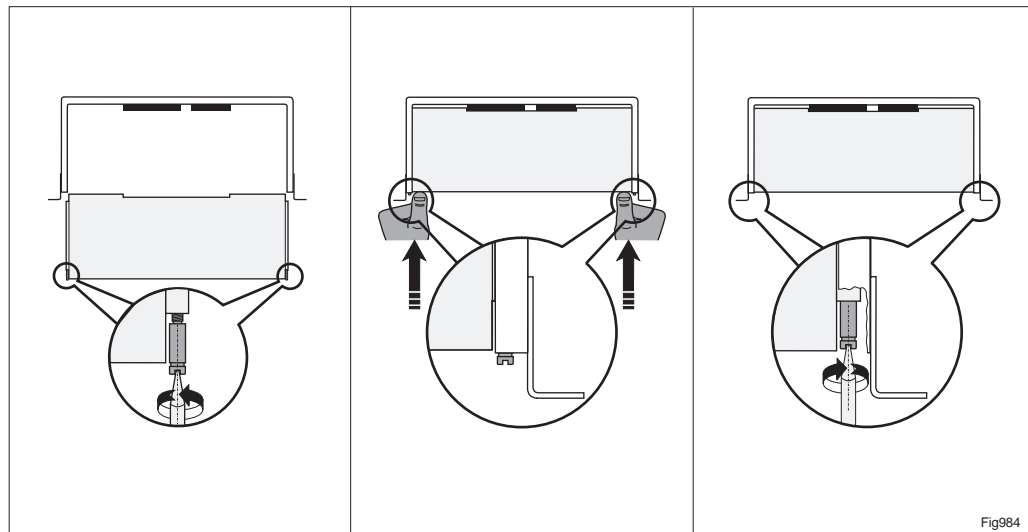


Figure 2-13. Fitting the plug-in unit.

2. Loosen the two screws (2 mm screwdriver), one on each side of the plug-in unit. The slot on the screws must be aligned with the front of the plug-in unit, see figure above.
3. Press in the plug-in unit according to the figure.

Note: Make sure the plug-in unit is pressed in straight and until it connects to the back of the AMM.

4. Secure the plug-in unit using the two screws (2 mm screwdriver), one on each side of the plug-in unit.

Note: Tighten the screws fully. Make sure the head of the screw is not outside the front of the plug-in unit.

2.5 Preparing the Cable for Balanced Traffic

The connector used is a 25-pin connector (SXX 111 517/1) and it applies to cable TFL 481 52.

Up to five 2 pair cables can be connected.

Note: Included in the connector kit are tubes to suit both the 8 pair and the 2 pair alternatives (five small tubes, five medium and one big), therefore there will always be tubes left over when the cabling is done.

The figures below show the parts included in the connector and cable. Item □ is delivered inside the connector casing.

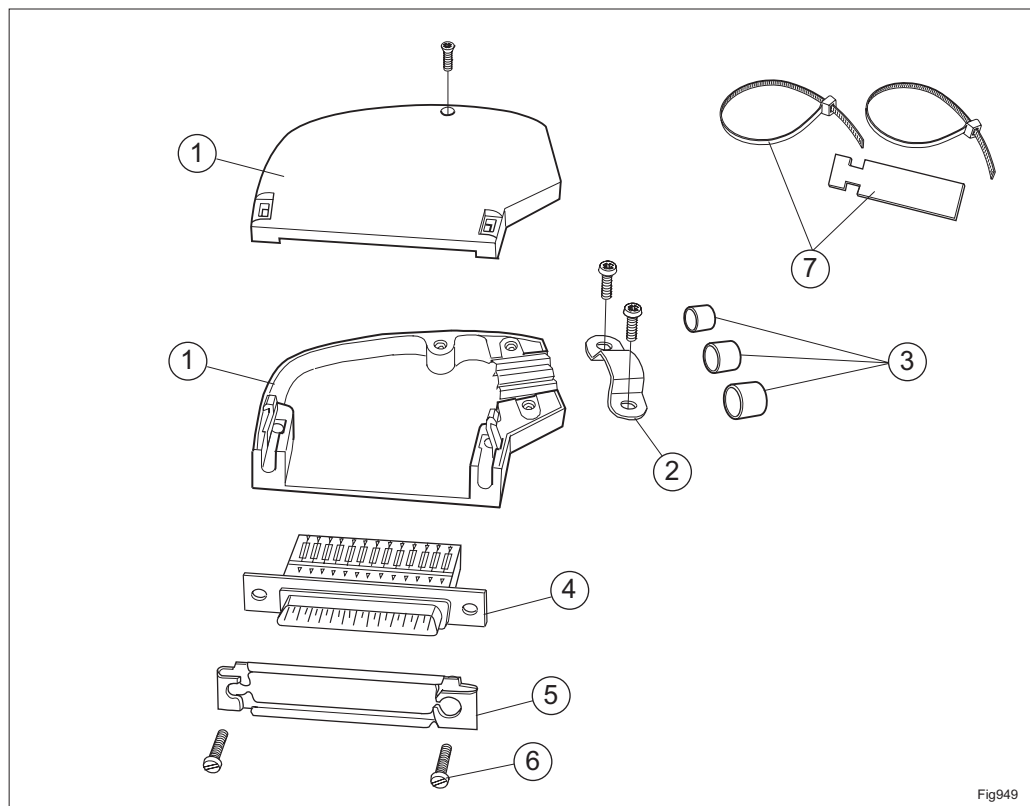


Figure 2-14 The connector.

- | | |
|---------------------------------|-----------------|
| ① Connector casing | ⑤ Locking plate |
| ② Clamp | ⑥ Screw |
| ③ Tubes, (small, medium, large) | ⑦ Label |
| ④ Contact socket | |

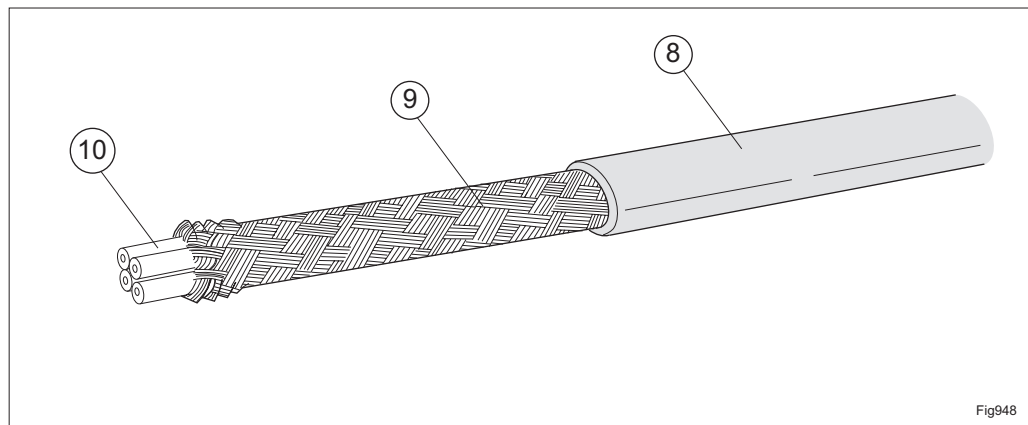


Figure 2-15. The cable.

- ⑧ Jacket
- ⑨ Screen
- ⑩ Wire

Trimming:

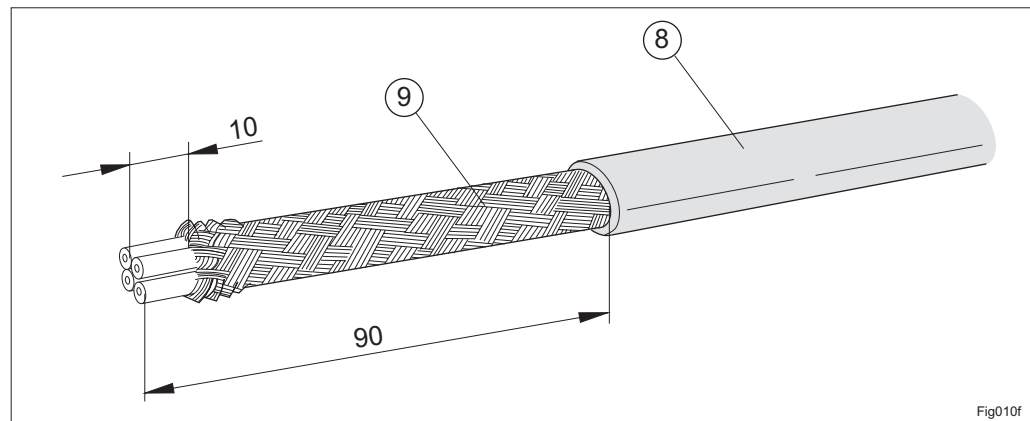


Figure 2-16. Stripping the cable.

5. Strip the jacket ⑧ approximately 90 mm.
6. Push the screen ⑨ back and cut the wires 10 mm.

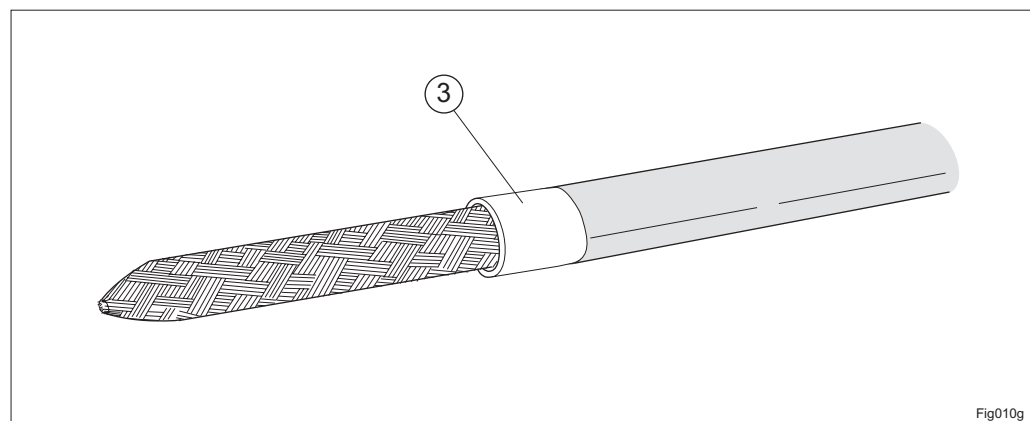


Figure 2-17. Applying the tube.

7. Pull the screen down towards the cable end (it makes it easier to slide on the tube) and slide the small tube ③ onto the cable.

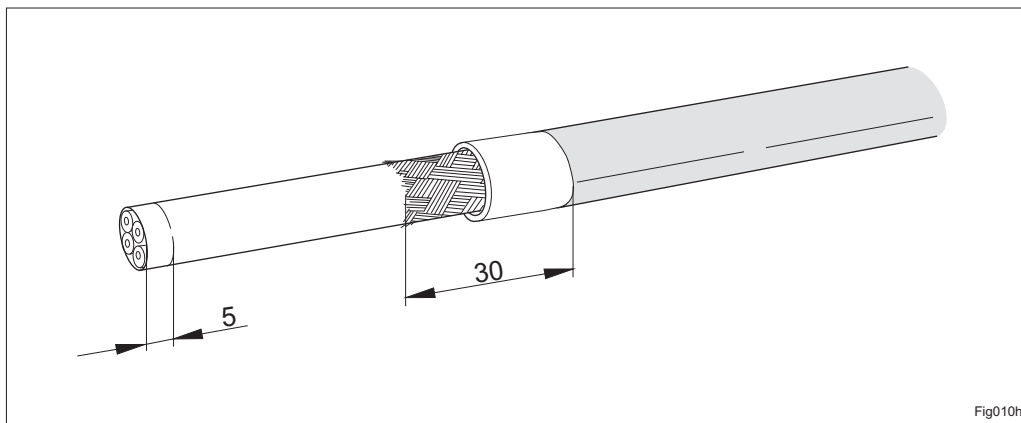


Figure 2-18. Cutting the wires and screen

- 8. Cut the screen 60 mm (leave 30 mm).
- 9. Cut the wires 5 mm.

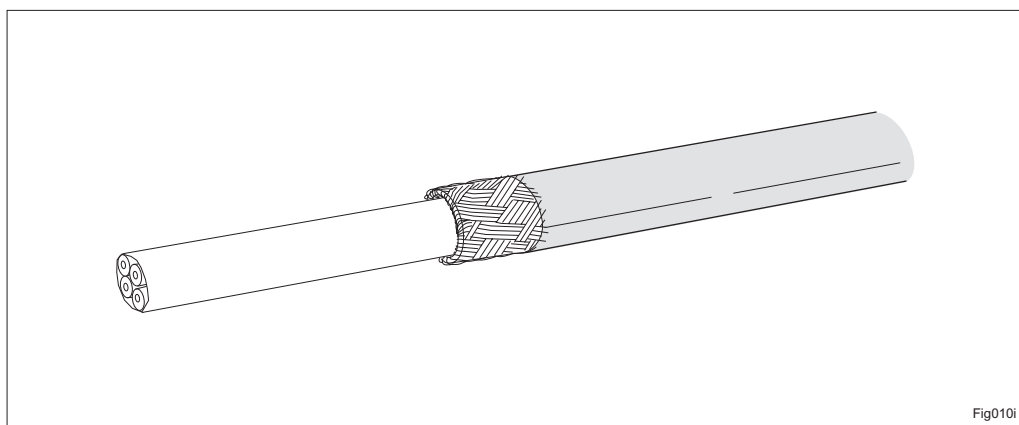


Figure 2-19. Folding the screen over the tube.

- 10. Fold the screen back over the tube and trim the screen.

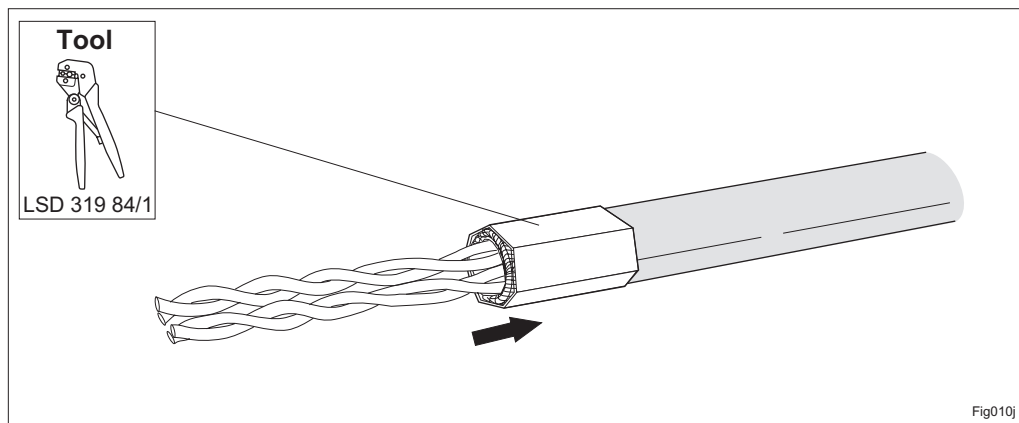


Figure 2-20. Crimping the tube.

- 11. Slide the medium tube over the small tube and crimp it, using crimping tool (LSD 319 84/1).
 - 12. Cut the aluminium sheet.
- Note:** Keep the wires twisted in pairs.

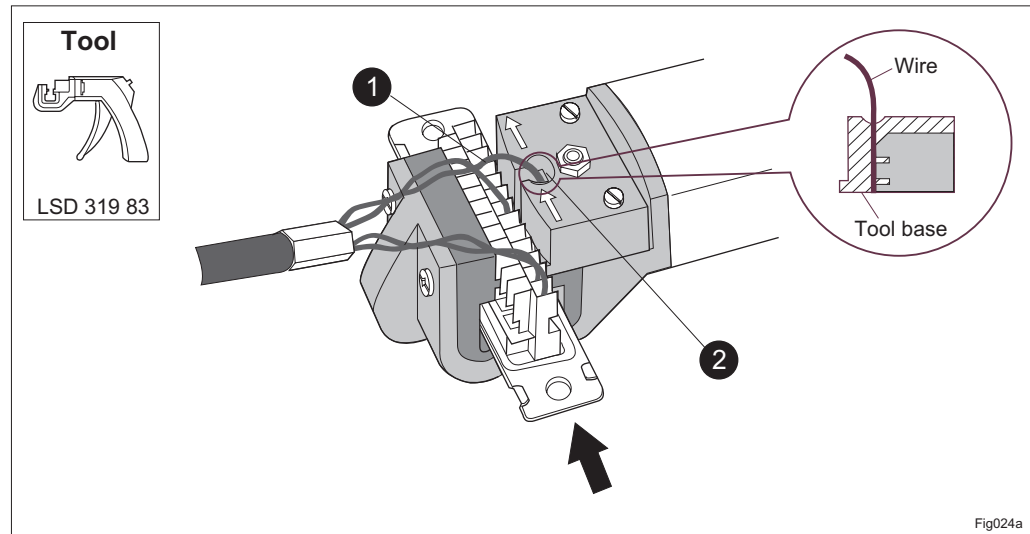
Assembling:

Figure 2-21. Crimping a wire

13. Insert the contact socket from the left (arrow direction in the figure above) into the feeder channel of the press-fit tool (LSD 319 83) until the desired connector pin faces the wire slot ②.
14. Insert an unstripped wire ① into the wire slot until the wire bottoms on the tool base.
15. Centre the wire in the wire slot. Squeeze the handle until the inserter bottoms.
16. Release the handle. The inserter will retract and the connector will advance to the next connector pin. Connect all the wires to the contact socket in the same way. Remove the connector from the right side of the feeder channel.

Note: Ensure the wires are connected in pairs and inserted into the cavities as described in the tables below.

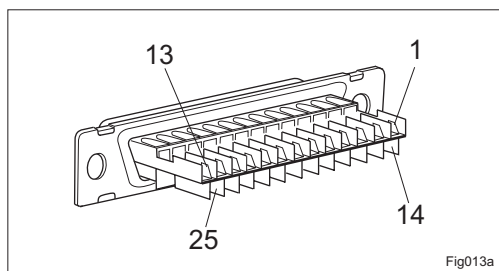


Figure 2-22. 25-pin traffic connector.

Grooming

		TFL 481 52		MXU	
External connector	Pin No	Signal, MMU	Colour	Pin No	External connector
MMU1 pos6	13	TRAFFIC 1A OUT A	WHITE	10	DIG IF 1-4
	12	TRAFFIC 1A OUT B	BLUE	9	
	10	TRAFFIC 1A IN A	WHITE	13	
	9	TRAFFIC 1A IN B	ORANGE	12	
MMU2 pos5	13	TRAFFIC 1A OUT A	WHITE	3	
	12	TRAFFIC 1A OUT B	BLUE	2	
	10	TRAFFIC 1A IN A	WHITE	6	
	9	TRAFFIC 1A IN B	ORANGE	5	
MMU3 pos2	13	TRAFFIC 1A OUT A	WHITE	17	
	12	TRAFFIC 1A OUT B	BLUE	18	
	10	TRAFFIC 1A IN A	WHITE	14	
	9	TRAFFIC 1A IN B	ORANGE	15	
Base station		TRAFFIC 1 OUT A	WHITE	23	
		TRAFFIC 1 OUT B	BLUE	24	
		TRAFFIC 1 IN A	WHITE	20	
		TRAFFIC 1 IN B	ORANGE	21	

Ring Protection

		TFL 481 52		MXU	
External connector	Pin No	Signal, MMU	Colour	Pin No	External connector
MMU1 (pos6) or SMU1 (pos4)	13	TRAFFIC 1A OUT A	WHITE	10	DIG IF 1-4
	12	TRAFFIC 1A OUT B	BLUE	9	
	10	TRAFFIC 1A IN A	WHITE	13	
	9	TRAFFIC 1A IN B	ORANGE	12	
MMU2 (pos2) or SMU2 (pos3)	13	TRAFFIC 1A OUT A	WHITE	3	
	12	TRAFFIC 1A OUT B	BLUE	2	
	10	TRAFFIC 1A IN A	WHITE	6	
	9	TRAFFIC 1A IN B	ORANGE	5	
Base station		TRAFFIC 1 OUT A	WHITE	23	
		TRAFFIC 1 OUT B	BLUE	24	
		TRAFFIC 1 IN A	WHITE	20	
		TRAFFIC 1 IN B	ORANGE	21	

Removing a wire:

Items 13 and 14 only apply if a wire is connected improperly.

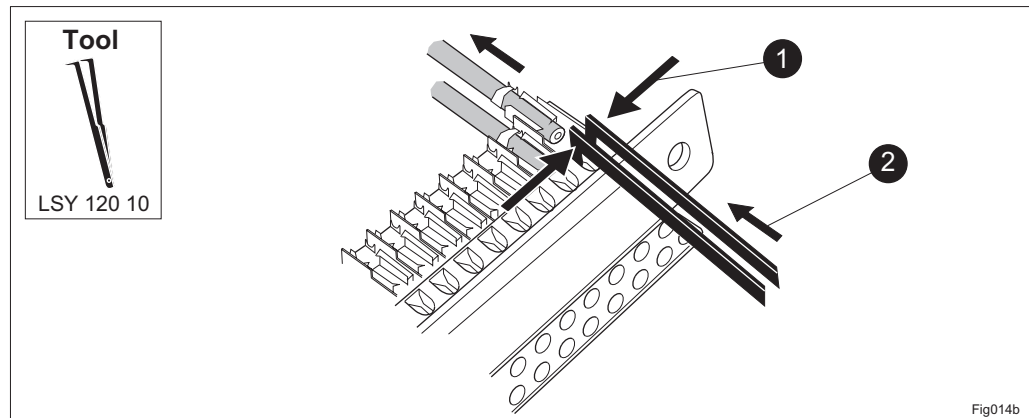


Figure 2-23. Removing a contact pin.

17. Remove the contact pin by using the extraction tool (LSY 120 10) on the contact pin. Press the extraction tool together ❶ and push it upwards ❷.
18. Insert the contact pin in the correct position.

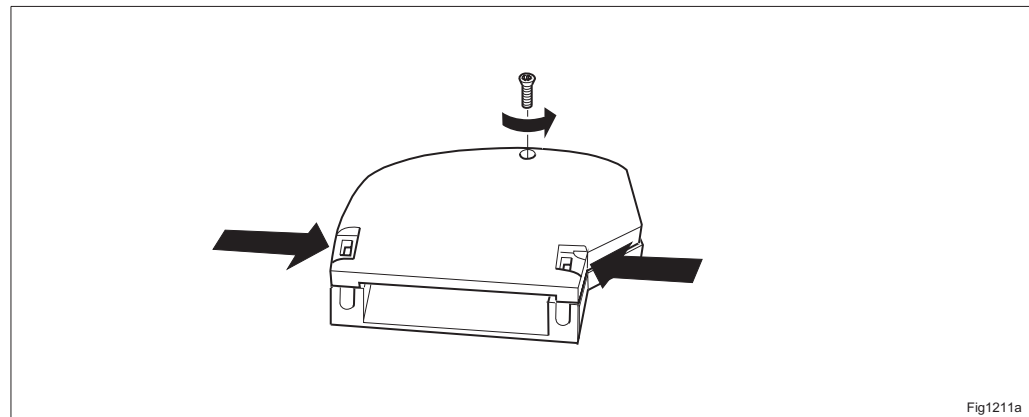
Opening the connector casing:

Figure 2-24. Opening the connector casing

19. Open the connector casing by removing the screw, pushing the two plastic springs together and lifting the casing halves apart.

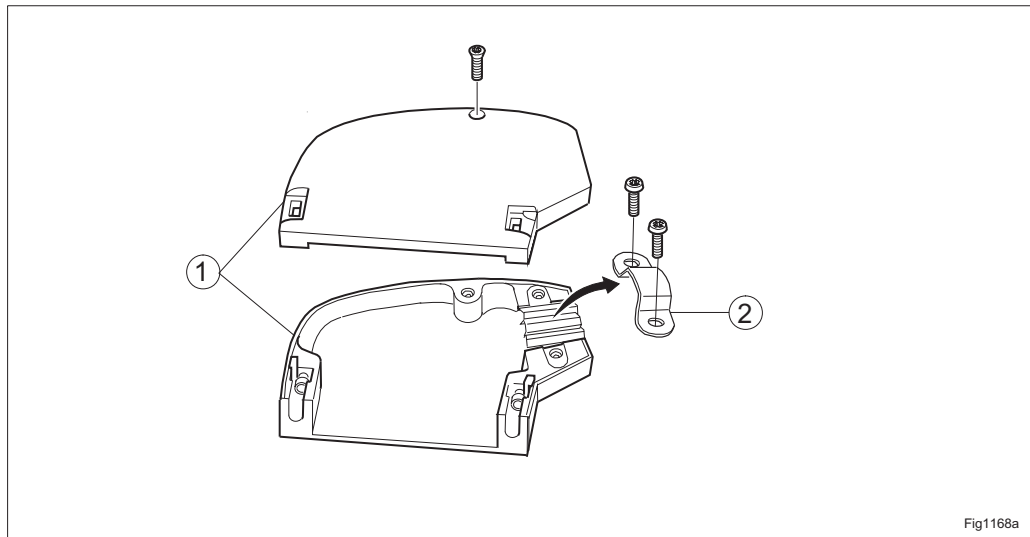


Figure 2-25. Removing the clamp.

20. Remove the clamp ② from the connector casing.

Assembling:

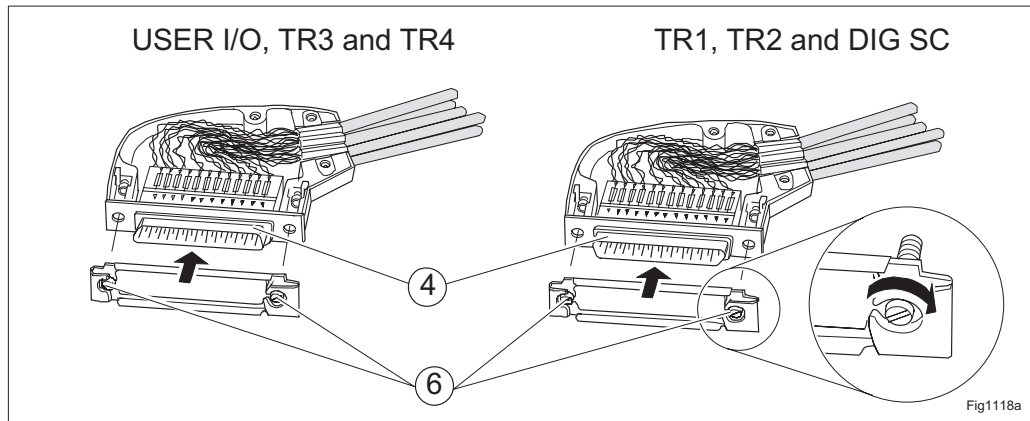


Figure 2-26. Fastening the contact socket in the connector casing.

21. Fasten the contact socket ④ in the connector casing with the sliding lock screws ⑥ as shown in the figure above.

Note: Ensure that the contact socket is positioned as shown in the figure. Otherwise the cable outlet will point in the wrong direction when the connector is connected to the access module.

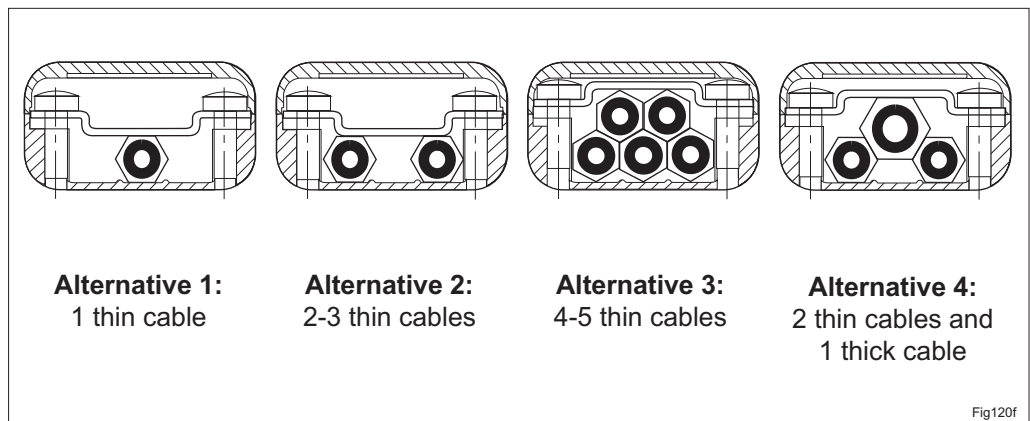


Figure 2-27. Positioning the cables in the connector casing.

22. Position the cables in the connector casing as shown in the alternatives above, depending on the diameter of the cables.

Note: Use the tubes to fill out the empty spaces. The tubes must be positioned at the inlet of the rear shell half.

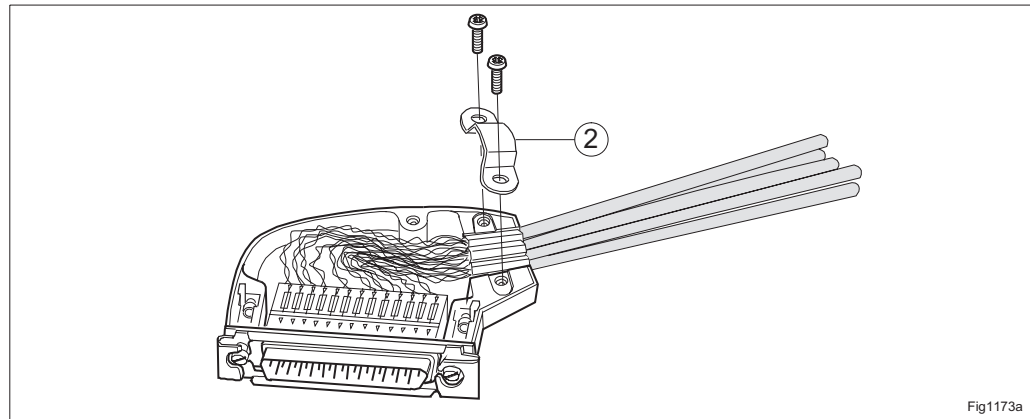


Figure 2-28. Fastening the clamp.

23. Fasten the cables and tubes using the clamp ②.

24. Arrange the wires in the connector casing.

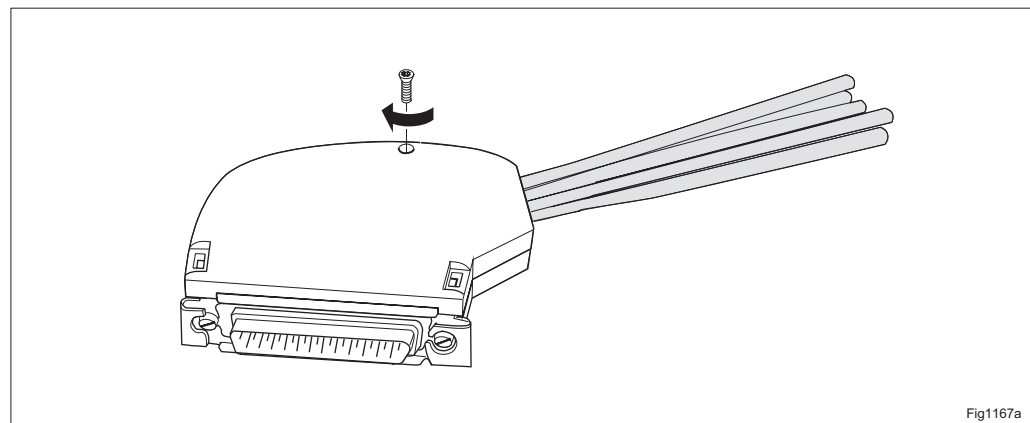


Figure 2-29. Assembling the connector.

25. Fasten the top of the connector with the screw.

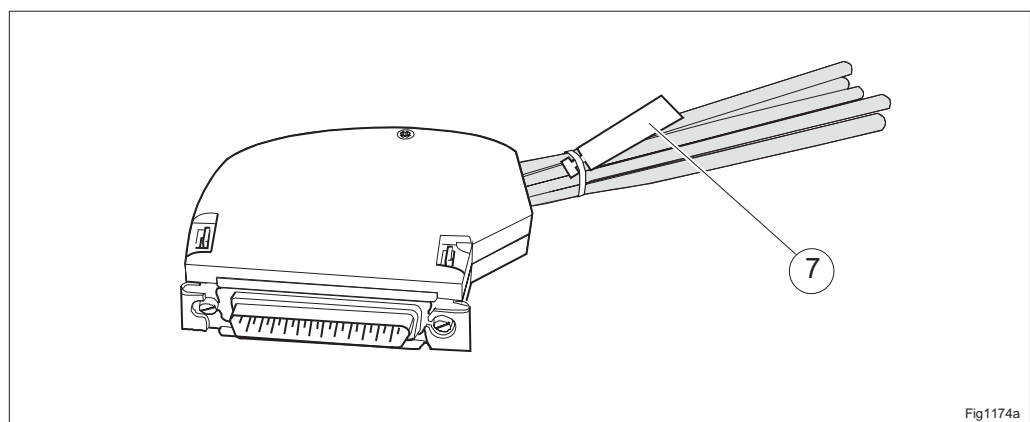


Figure 2-30. Fastening a tag.

22. Fasten a tag ⑦ to the cables using a strap.

26. Mark the assembled connector by writing on the yellow part of the tape and attach it to the tag (wrapping the transparent part around the tag).

Note: There are two tags, one for each end of the cable.

Connecting:

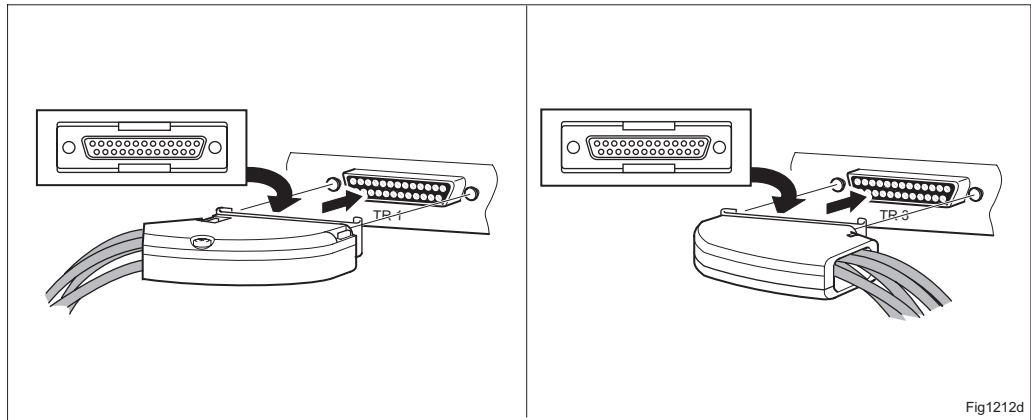


Figure 2-31. Connecting the cable to an MMU or SMU.

27. Connect the cable to the MMU or SMU according to the figure above.

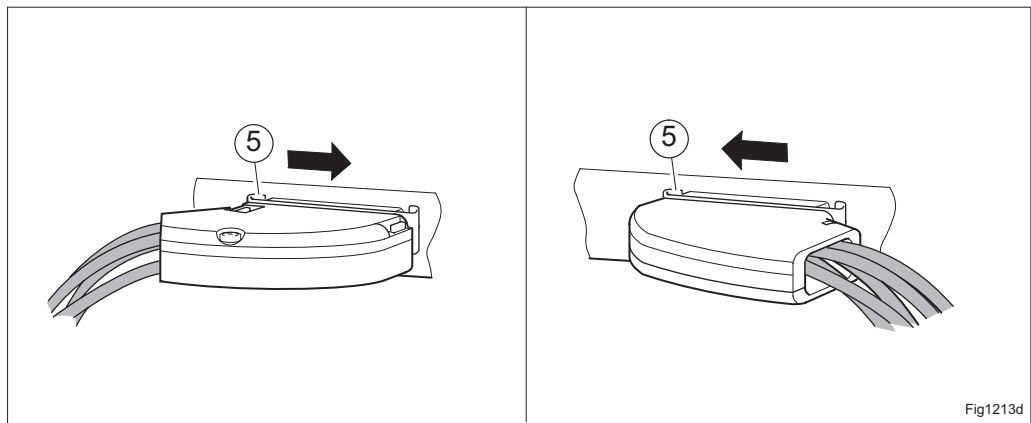


Figure 2-32. Fastening the Traffic cable.

28. Fasten the connector by pushing the locking plate ⑤ aside.

2.6 Preparing the Cables for Unbalanced Traffic

2.6.1 Trimming and Assembling the Cables with SMZ connectors

Applies to cable TZC 750 24 and connector kit SXX 111 520/1.

Trimming and Assembling:

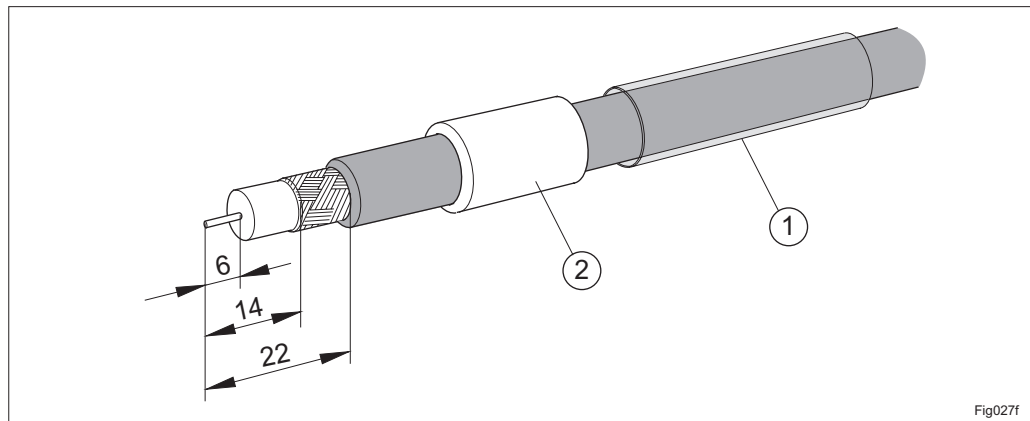


Figure 2-33. Stripping a cable.

1. Strip the wires as shown in the figure above. Be careful not to nick the screen or centre conductor.
2. Slide the shrink sleeve ① and the tube ② over the cable.

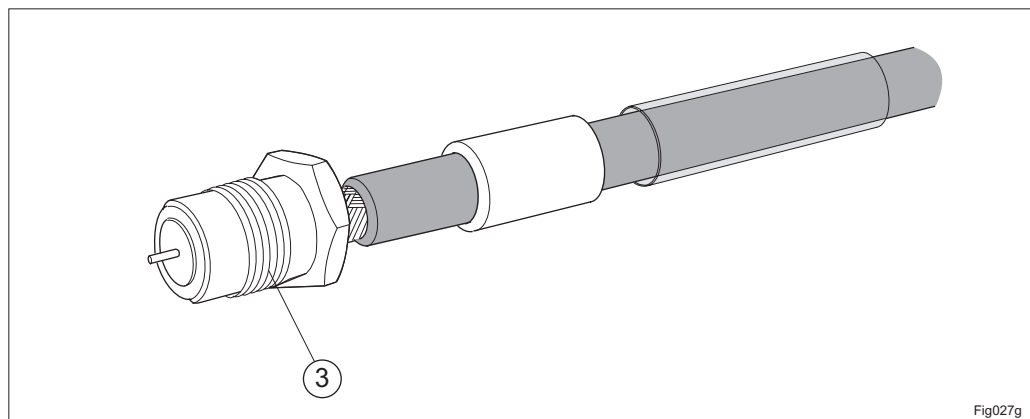


Figure 2-34. . Inserting the trimmed cable into the rear end of the rear part connector.

3. Slide the rear part connector ③ over the cable so that the rear body comes between the screen and the dielectric. Gently twisting and rocking the connector body will help.

Note: Ensure that no part of the screen is trapped under the rear part connector.

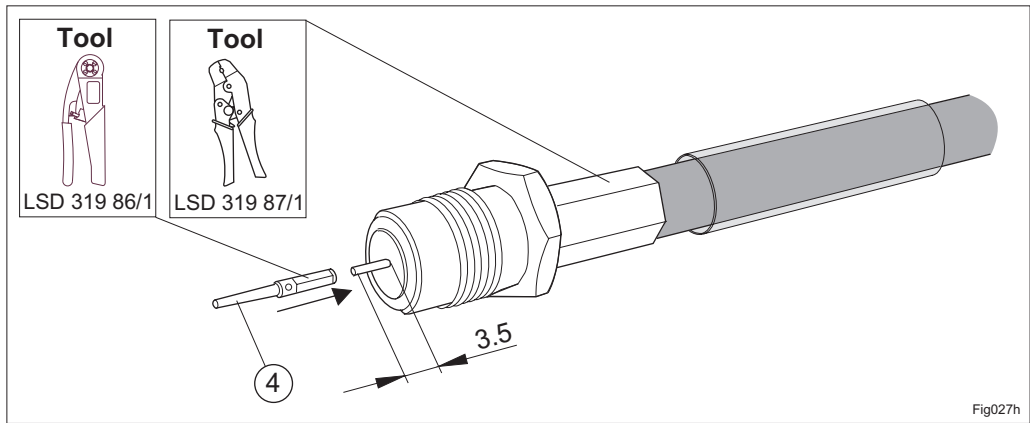


Figure 2-35. Assembling the contact.

4. Slide the tube forward over the screen until it butts up against the back nut of the rear part connector, and crimp it using tool LSD 319 87/1 or LSD 319 82.

Note: Slide the tube tightly against the back of the nut. The screen must not be visible.

5. Trim the centre conductor until 3.5 mm protrudes from the face of the rear insulator.
6. Assemble the contact pin ④ onto the centre conductor and crimp using tool LSD 319 86/1 or LSD 319 82.

Note: Ensure that the centre conductor is visible in the inspection hole when it is positioned for crimping.

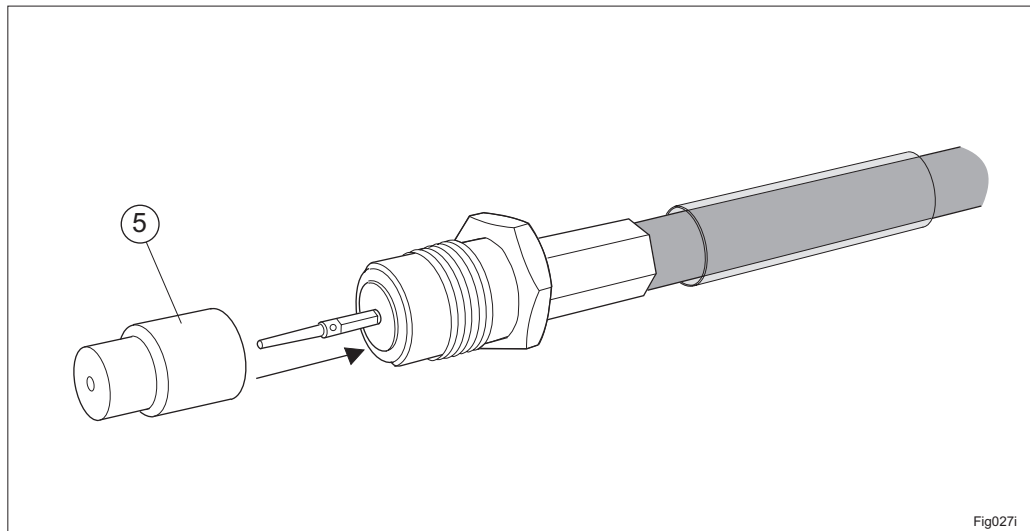


Figure 2-36. Assembling the front insulator.

7. Assemble the front insulator ⑤ over the contact pin.

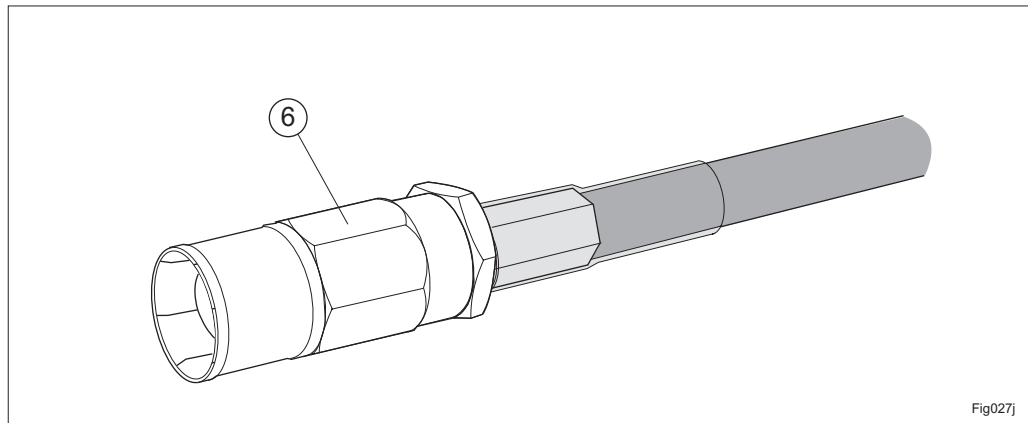


Figure 2-37. Assembled connector.

8. Slip the front body ⑥ over the rear body and tighten it with a torque of 1 Nm.
9. Slide the shrink sleeve over the crimped tube and heat it until it shrinks.
10. Fasten a tag to the cable using a strap.
11. Mark the assembled connector by writing on the yellow part of the tape and attach it to the tag (wrapping the transparent part around the tag).

Note: There are two tags, one for each end of the cable.

2.6.2 Trimming and Assembling the Cables with BNC connectors

Applies to cable TZC 750 24 and connector kit SXX 111 520/2.

Trimming and Assembling:

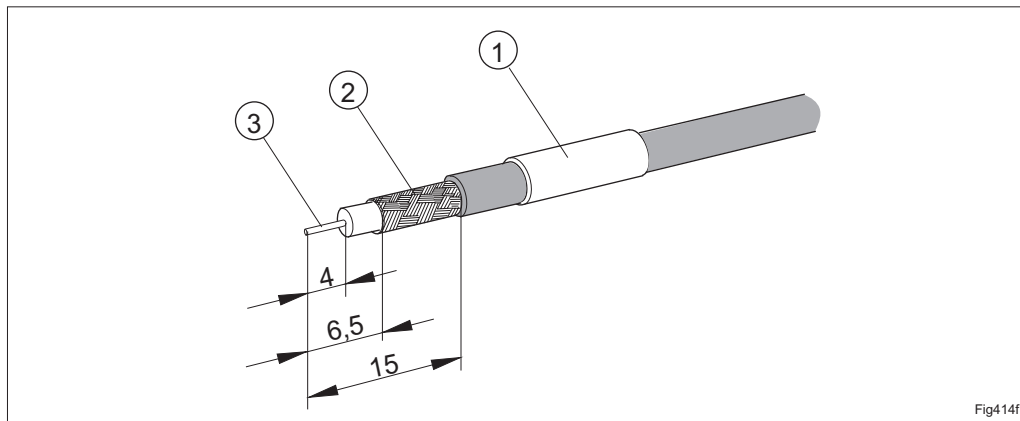


Figure 2-38. Stripping the cable.

1. Slide the tube ① over the cable.
2. Strip the cable as shown in the figure above. Be careful not to nick the screen ② or centre conductor ③.

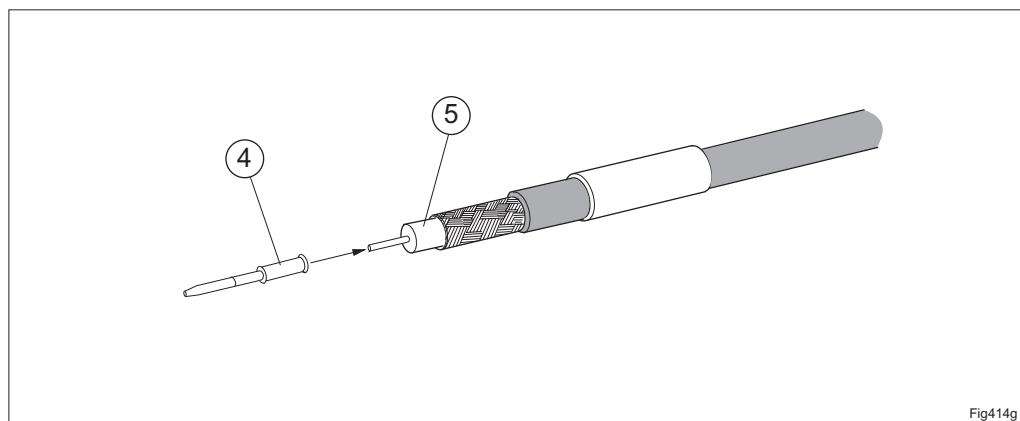


Figure 2-39. Assembling the contact pin.

3. Slide the contact pin ④ over the centre conductor until it bottoms against the dielectric ⑤.

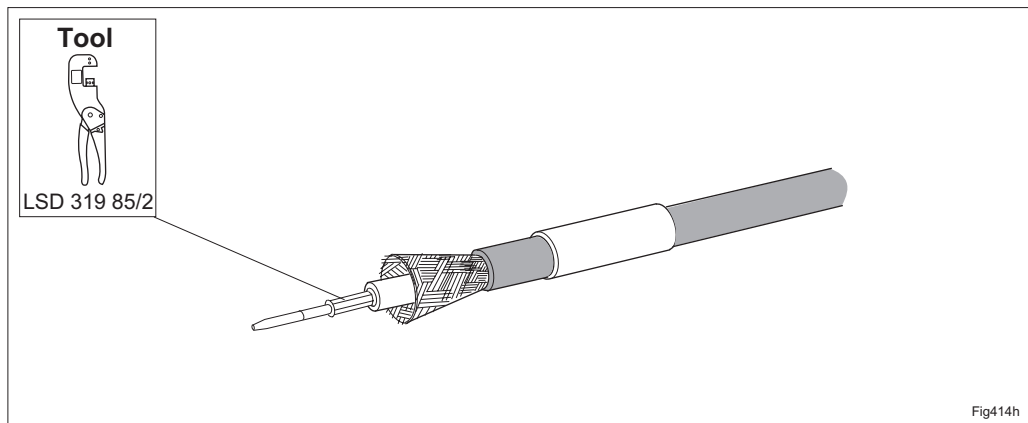


Figure 2-40. Folding out the screen.

4. Crimp the contact pin using tool LSD 319 85/2.

There are two pairs of crimp dies for the tool; one for each contact brand.

- For Radiall, use crimp dies with hexagon cavities 1.45 and 4.45
- For Suhner, use crimp dies with square cavity 0.67 and hexagon cavity 4.95

5. Fold out the screen as shown in the figure above.

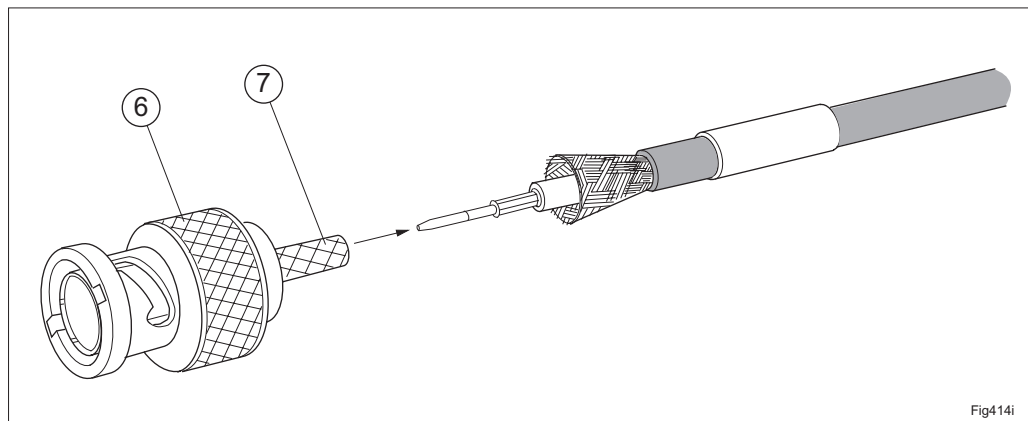


Figure 2-41. Assembling the connector.

6. Slide the connector ⑥ over the cable so that the rear body ⑦ comes between the screen and the dielectric.

Note: Ensure that no part of the screen is trapped under the rear body.

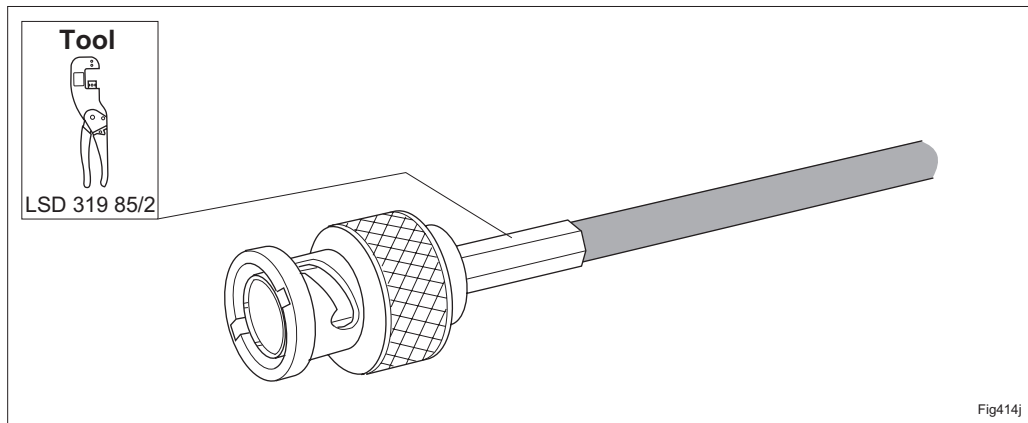


Figure 2-42. Assembled connector.

7. Slide the tube forward over the screen and the rear body until it butts up against the back of the connector, and crimp it using tool LSD 319 85/2 (see step 4).
8. Fasten a tag to the cable using a strap.
9. Mark the assembled connector by writing on the yellow part of the tape and attach it to the tag (wrapping the transparent part around the tag).

Note: There are two tags, one for each end of the cable.

2.7 Trimming, Assembling and Connecting the DC Cable

Applies to cable TFL 424 02 and 2-pin connector SXX 111 516/1.

The figures below show the parts included in the connector and the cable. Items ② to ⑤ are delivered inside the connector casing.

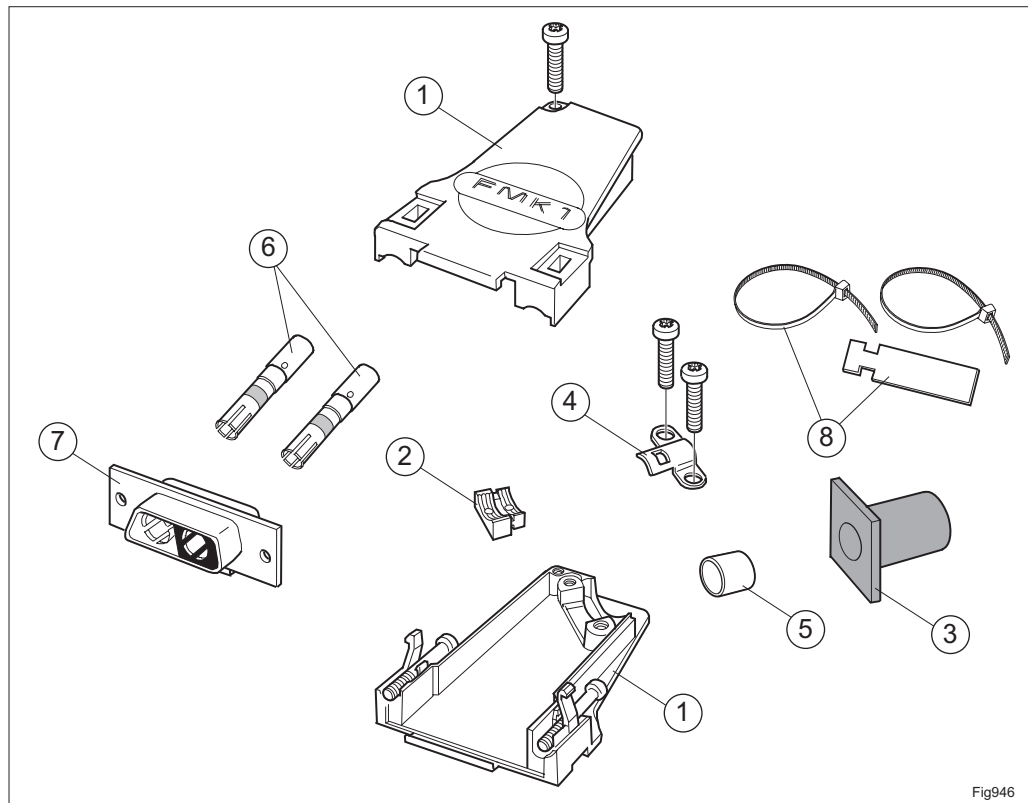


Figure 2-43. The DC connector.

- | | | | |
|---|------------------|---|----------------|
| ① | Connector casing | ⑤ | Tube |
| ② | Insert | ⑥ | Contact sleeve |
| ③ | Rubber bushing | ⑦ | Contact socket |
| ④ | Clamp | ⑧ | Label |

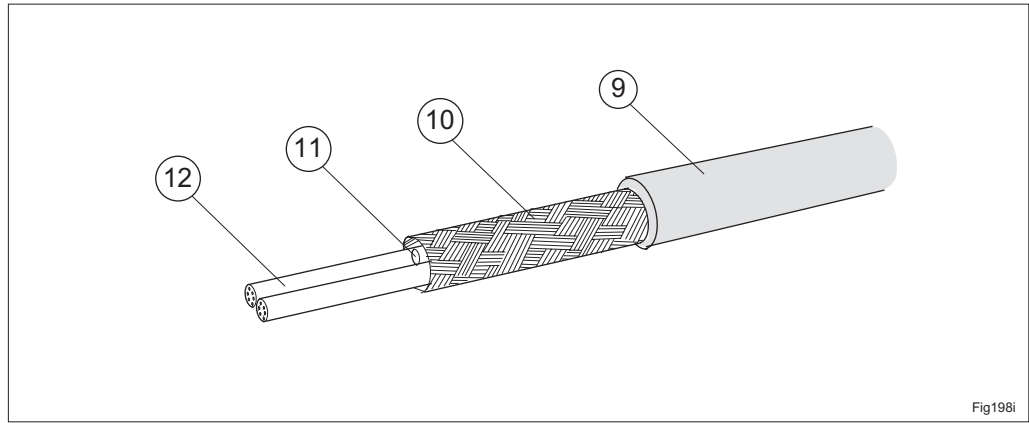


Figure 2-44. The DC cable.

- | | | | |
|---|--------|---|--------|
| ⑨ | Jacket | ⑪ | Filler |
| ⑩ | Screen | ⑫ | Wire |

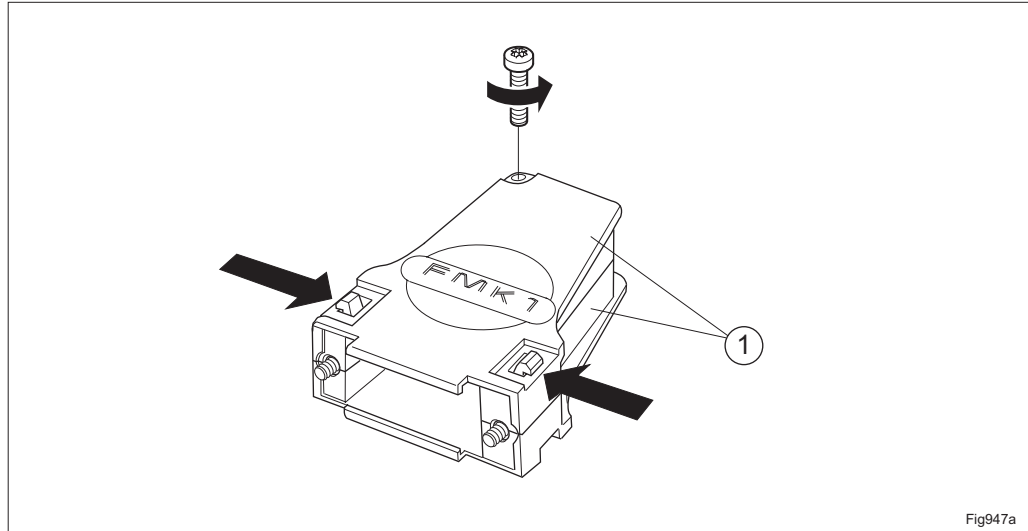
Opening the connector casing:

Figure 2-45. Opening the connector casing.

1. Open the connector casing ① by removing the screw, pushing the two plastic springs together and lifting the casing halves apart.

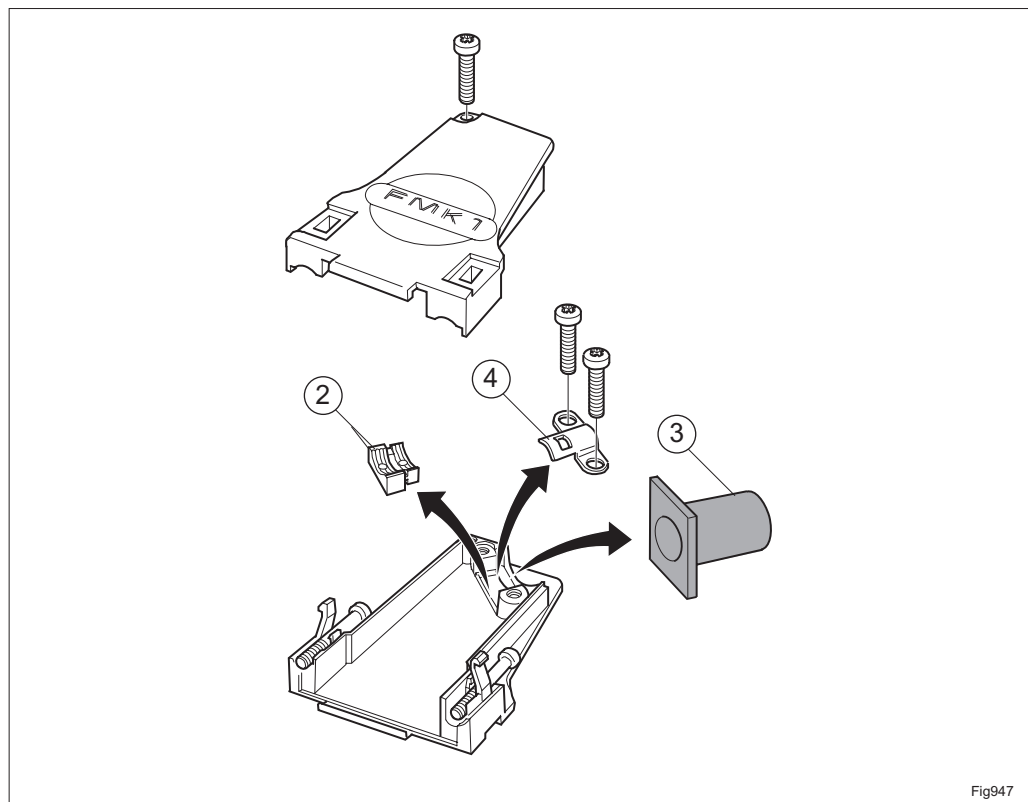


Figure 2-46. Removing parts

2. Remove the insert ②, rubber bushing ③ and clamp ④ from the connector casing.

Trimming:

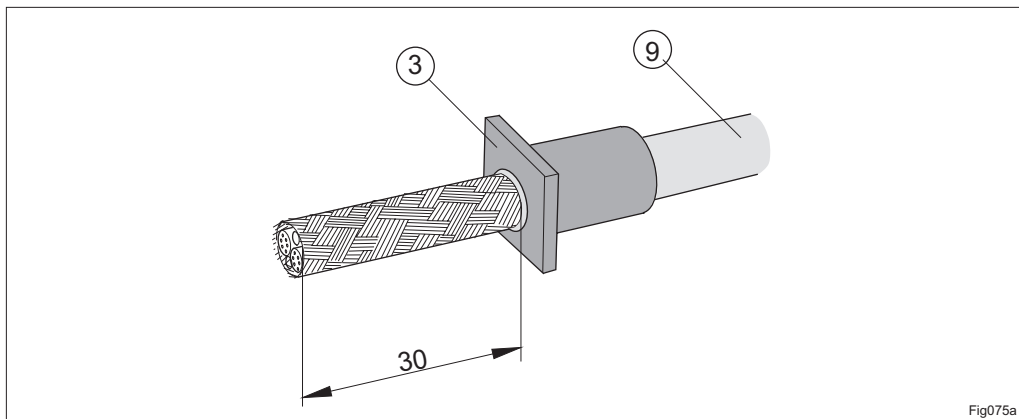


Figure 2-47. Stripping the cable and applying the rubber bushing

3. Slide the rubber bushing ③ over the cable.
4. Strip the jacket ⑨ approximately 30 mm.

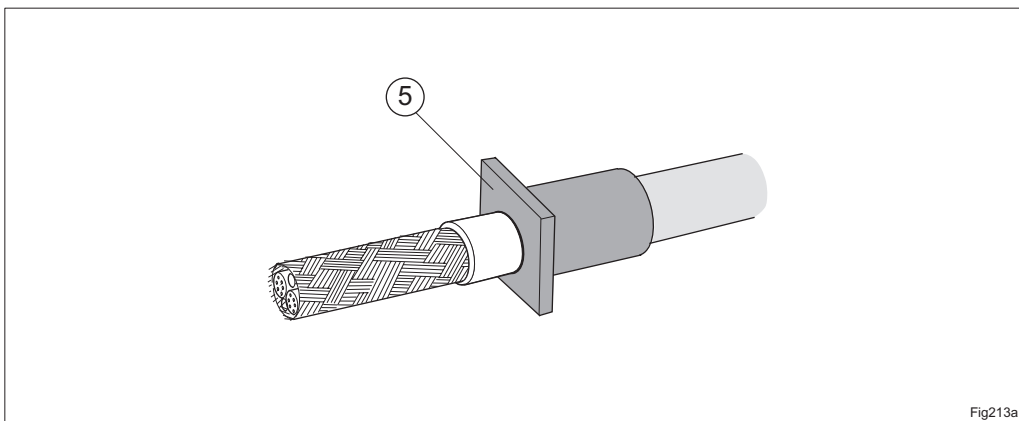


Figure 2-48. Sliding the tube against the jacket.

5. Slide the tube ⑤ over the screen and against the jacket.

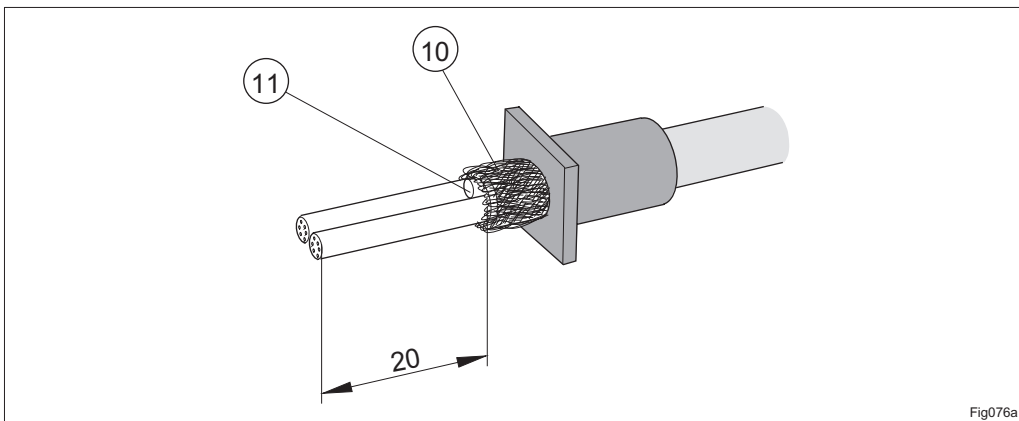


Figure 2-49. Cutting the screen and fillers.

6. Fold the screen ⑩ over the tube and trim the screen.
7. Cut both fillers ⑪ and leave 20 mm of the wires.

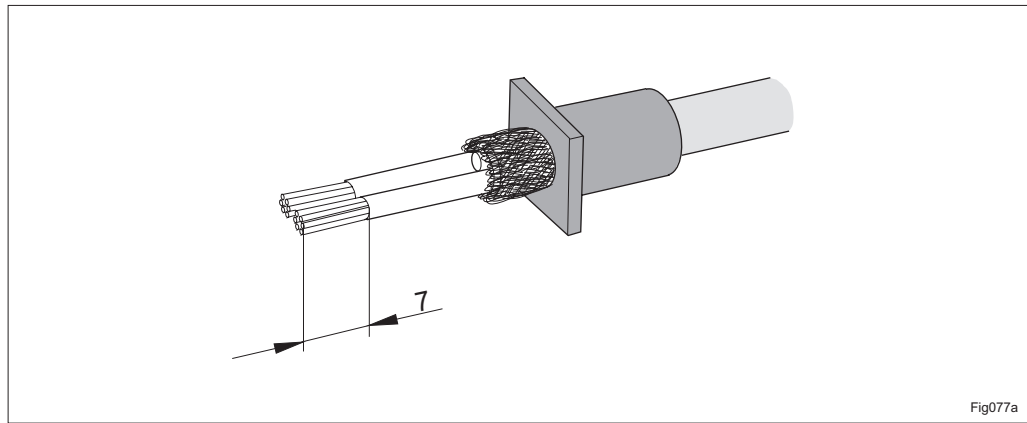


Figure 2-50. Stripping the wires.

8. Strip the wires 7 mm.

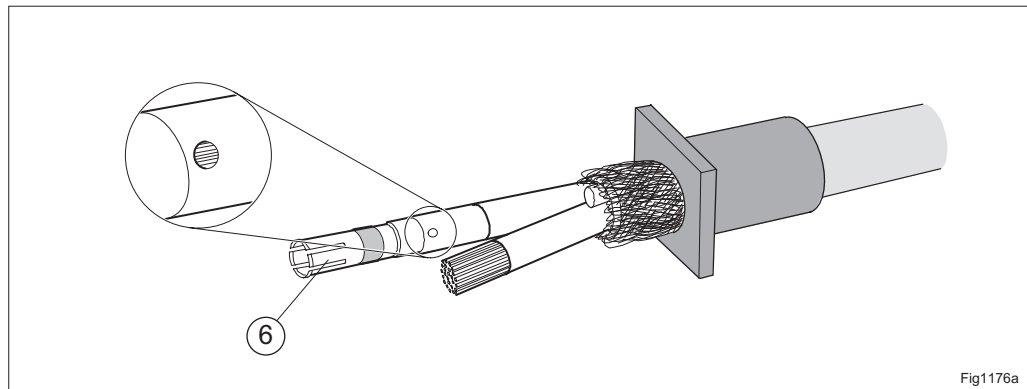


Figure 2-51. Assembling and crimping the contact sleeve

9. Slide the contact sleeve ⑥ over the wire. Make sure the wire is visible in the inspection hole.

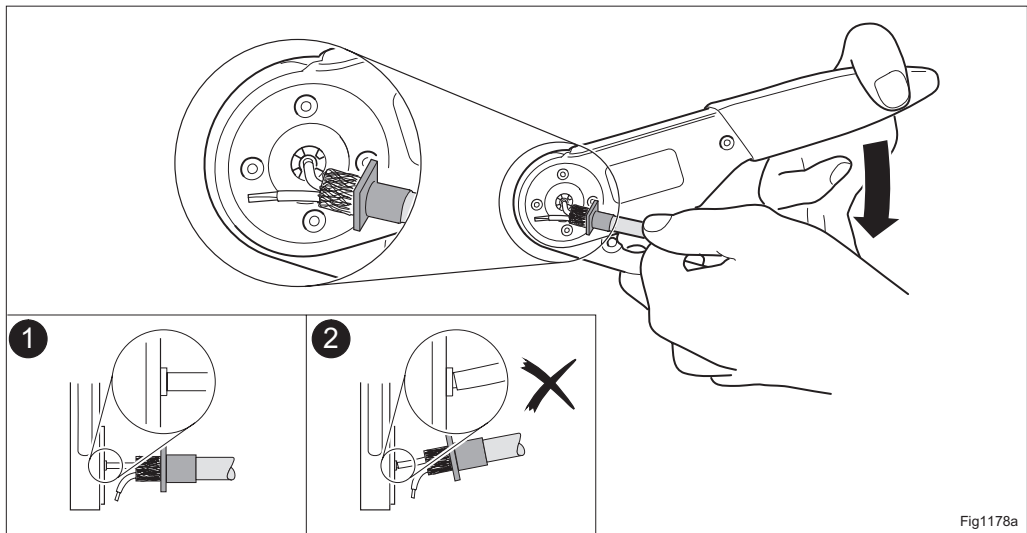


Figure 2-52. Using the crimping tool LSD 319 80

10. Crimp the contact sleeve by using the crimping tool (LSD 319 80, number 3) and make sure the contact sleeve is inside the crimping tool during crimping. Also make sure the contact and wire are inserted at right angles to the tool
 ①. Example ② is incorrect.

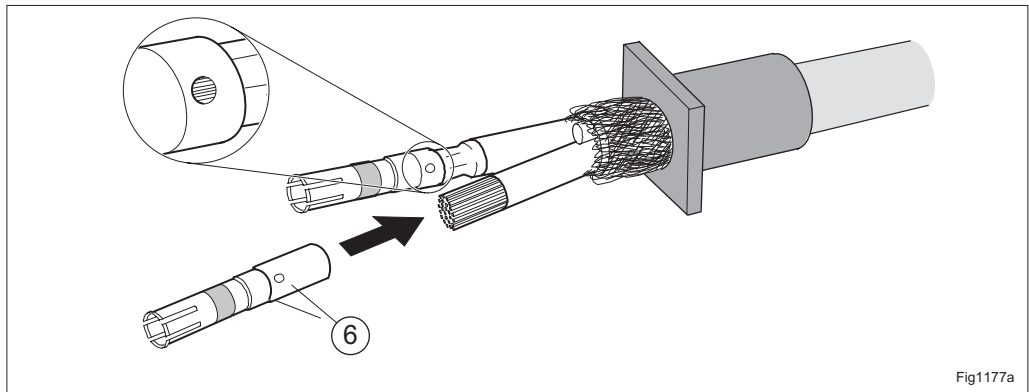


Fig1177a

Figure 2-53. Checking the inspection hole and sliding on the second sleeve.

11. Make sure the wires are visible in the inspection hole after crimping. Repeat the operation for the second contact sleeve.

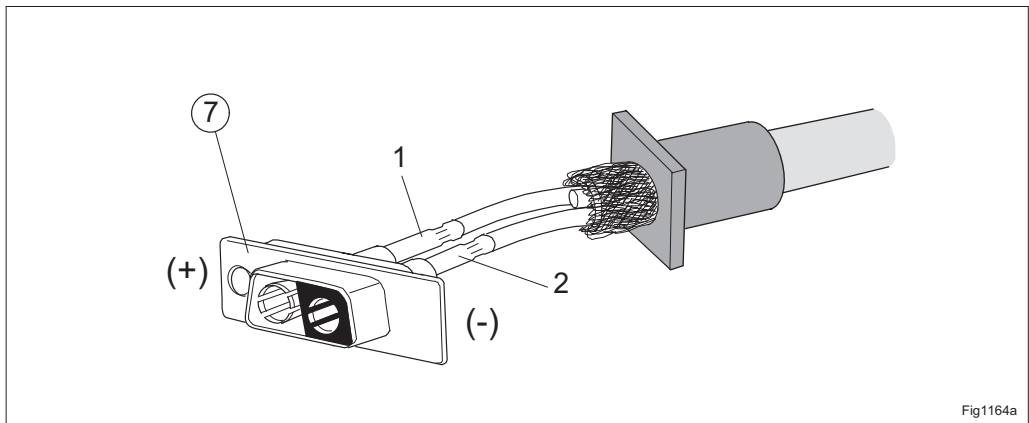


Fig1164a

External Connector	Pin no	Signal	TFL 424 02
DC	1	DC +	Red
	2	DC -	Black

Note: The MMU must be installed in the AMM before the power is switched on.

Figure 2-54. Inserting the contact sleeves into the contact socket.

12. Insert the contact sleeves into the contact socket ⑦ according to the table above.

Note: Write down colour and polarity (for the connection in the other end.)

Extracting the contact sleeves:

Items 13 and 14 only apply if a contact sleeve is inserted improperly.

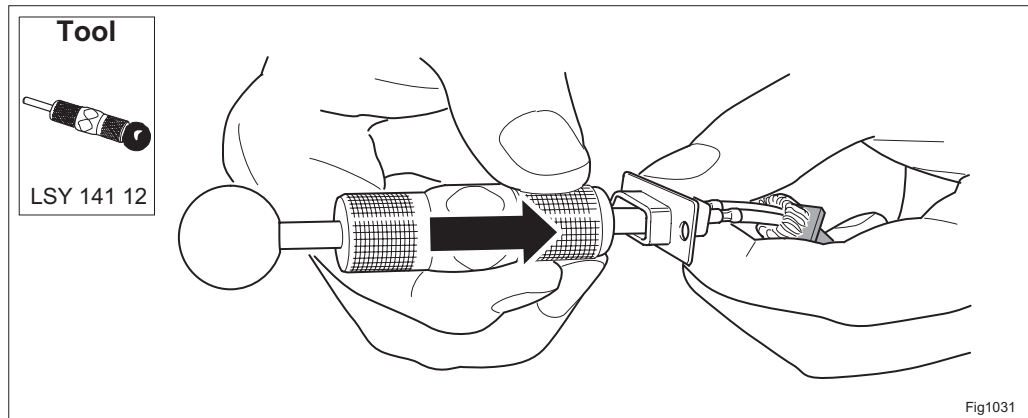


Figure 2-55. Applying the pin extraction tool on the contact socket.

- 13.** Pull back the handle on the pin extraction tool, LSY 141 12, and apply it on the contact socket.

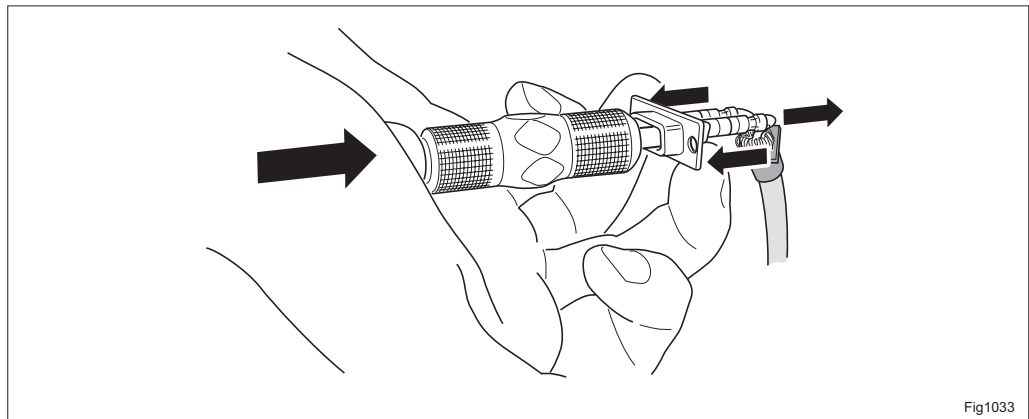


Figure 2-56. Extracting the contact sleeve from the contact socket.

- 14.** Extract the contact sleeve by pressing the contact socket and the tool handle together.

Assembling:

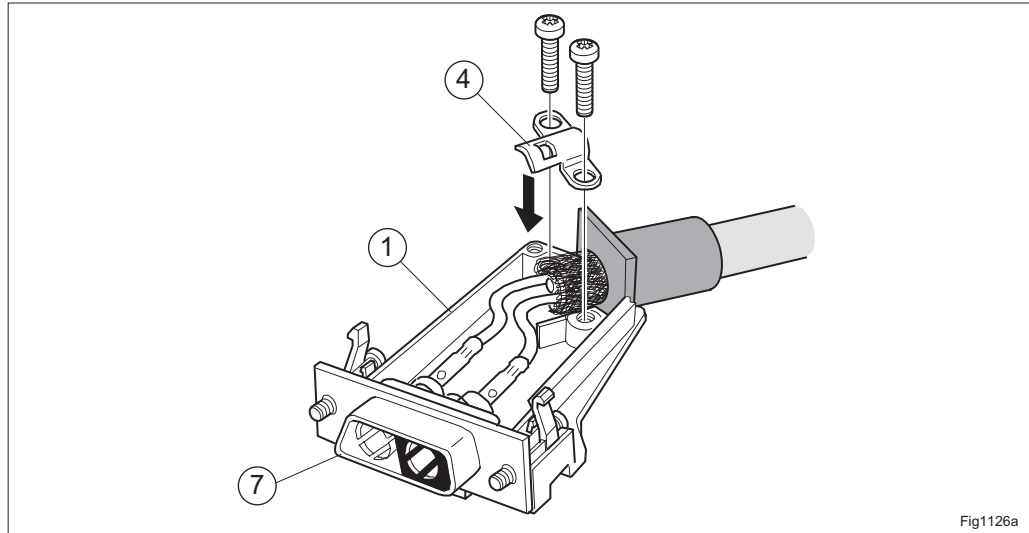


Figure 2-57. Assembling the connector.

15. Lay down the cable and adjust the contact socket ⑦ in the connector casing ①.

Note: Ensure the rubber bushing enters the slot in the connector casing properly.

Note: Ensure the contact socket ⑦ is positioned as shown in the figure above. Otherwise the cable outlet will point in the wrong direction when the connector is connected to the access module.

16. Fasten the wires and screen with the clamp ④ included, using cross-slot tool type H (Philips) no 1.

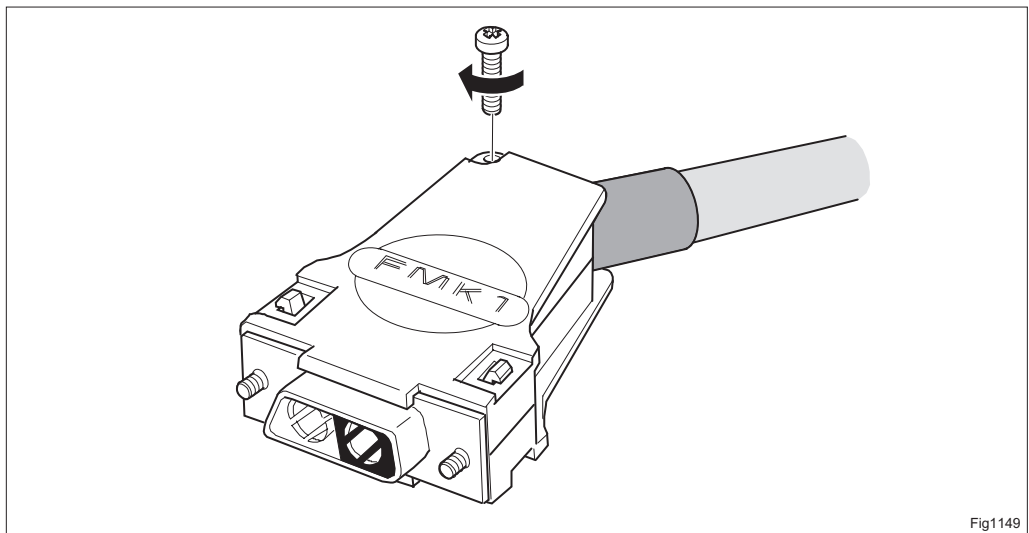


Figure 2-58. Assembled connector.

17. Fasten the top of the connector casing with the screw using cross slot tool type H (Philips) no 2.

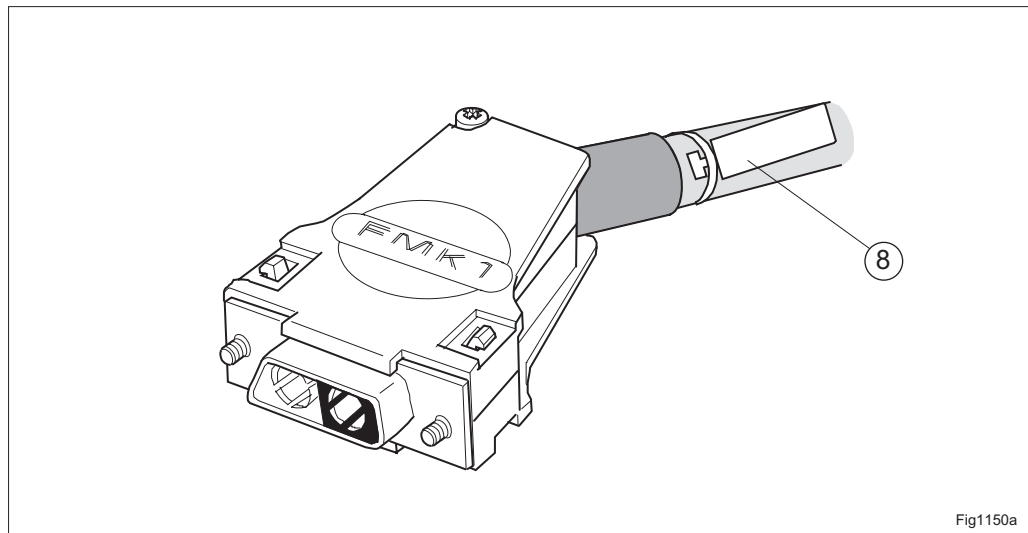


Figure 2-59. Fastening the tag.

18. Fasten a tag ⑧ to the cable using a strap.

19. Mark the assembled connector by writing on the yellow part of the tape and attaching it to the tag (wrapping the transparent part around the tag).

Note: There are two tags, one for each end of the cable.

Connecting:

CAUTION



Make sure the power supply is within the voltage range.

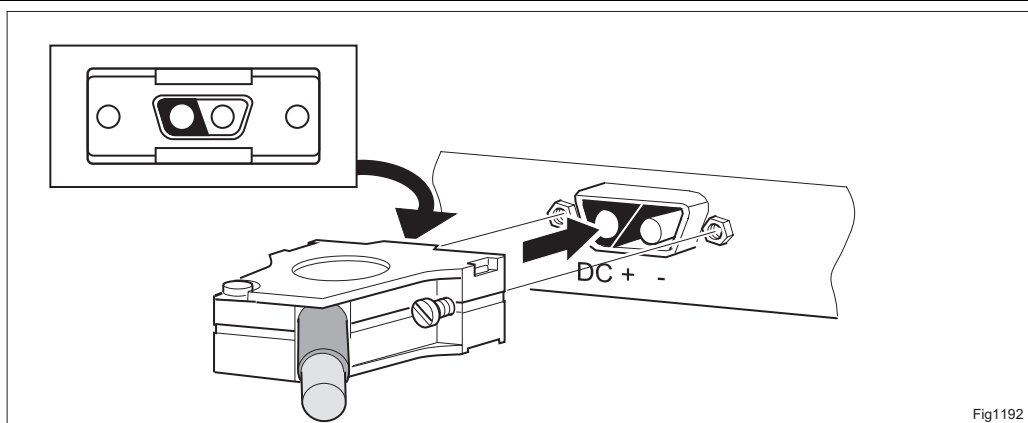


Figure 2-60. Connecting the DC cable.

20. Connect the cable to the DC port on the MMU.

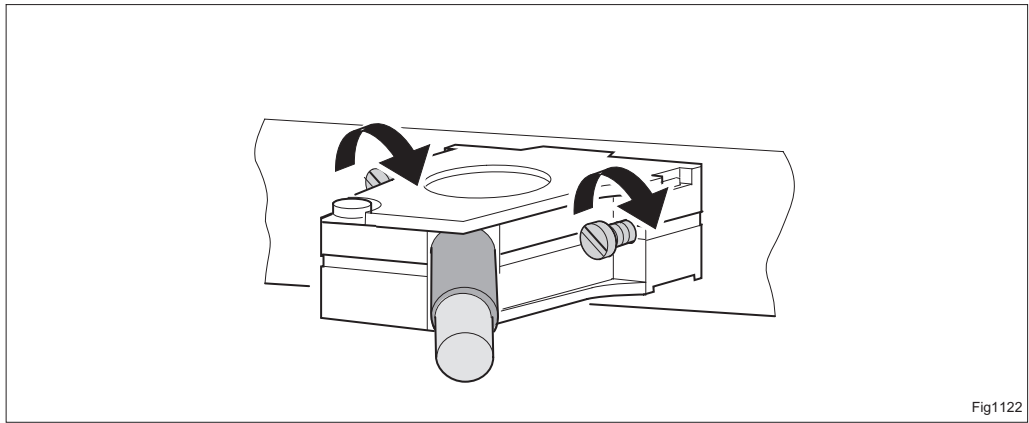


Fig1122

Figure 2-61. Fastening the connector.

21. Fasten the connector using the two screws.

Note: The MMU must be installed in the AMM before the power is switched on.

Each MMU and the fan unit must have its own fuse. We recommend you to use a DDU (see separate instruction EN/LZT 110 2049). For other cases follow the instruction below:

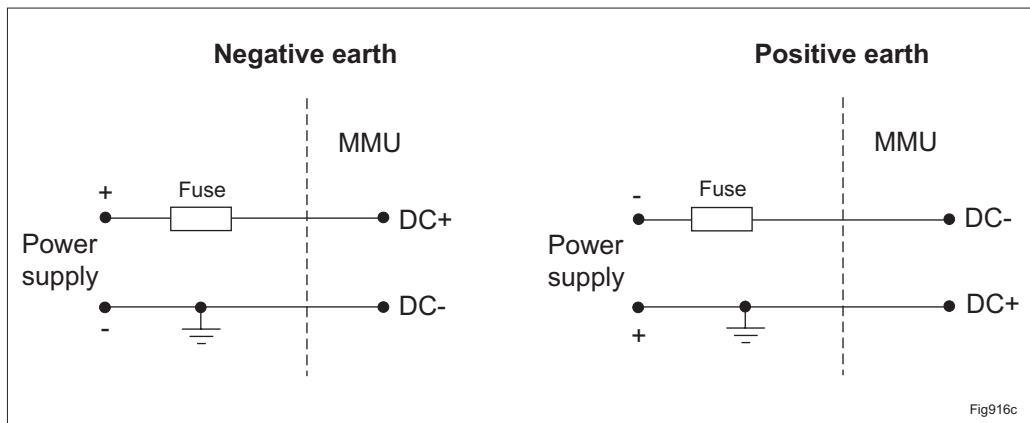


Fig916c

Figure 2-62. How to fuse the power supply for the access module.

22. Fuse the power supply as shown in the figure above.

Recommended fuses:

- 5A, min. 100V of type F with ceramic body and high breaking capacity according to UL/CSA 248-14.
- 4A, min 100V of type F with ceramic body and high breaking capacity according to IEC 127.

2.8 Connector and Pin Connection Overview MXU

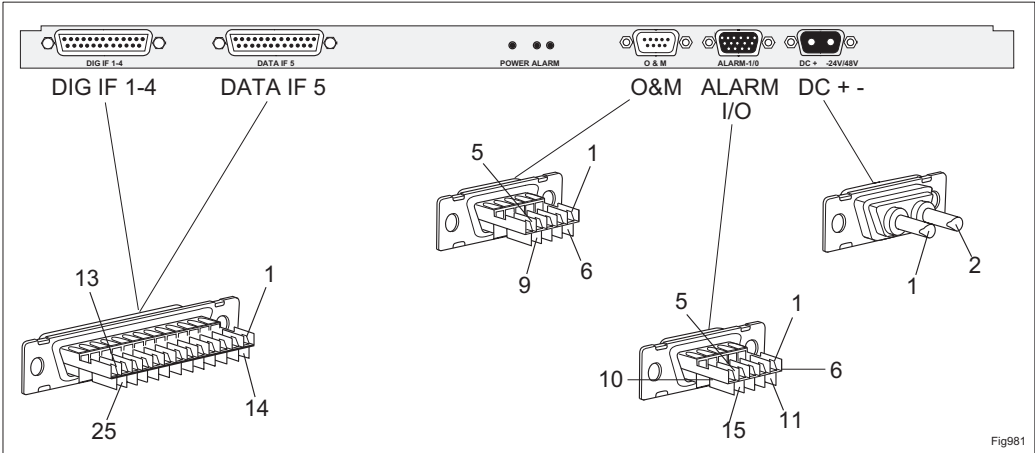


Fig981

External connector	Pin No	Signal
DIG IF 1-4	13	TR1 A OUT A120
	12	TR1 A OUT B120 A75
	11	TR1 A OUT B75
	10	TR1 A IN A120
	9	TR1 A IN B120 A75
	8	TR1 A IN B75
	7	NC
	6	TR1 B OUT A120
	5	TR1 B OUT B120 A75
	4	TR1 B OUT B75
	3	TR1 B IN A120
	2	TR1 B IN B120 A75
	1	TR1 B IN B75
	14	TR1 C OUT A120
	15	TR1 C OUT B120 A75
	16	TR1 C OUT B75
	17	TR1 C IN A120
	18	TR1 C IN B120 A75
	19	TR1 C IN B75
	20	TR1 D OUT A120
	21	TR1 D OUT B120 A75
	22	TR1 D OUT B75
	23	TR1 D IN A120
	24	TR1 D IN B120 A75
	25	TR1 D IN B75

External connector	Pin No	Signal
O&M	5	GND
	4	Data Set Ready (DSR)
	3	Receive Data (RD)
	2	Transmit Data (TD)
	1	Data carrier Detector
	6	Data Terminal Ready (DTR)
	7	Clear To Send (CTS)
	8	Request To Send (RTS)
	9	NC

External connector	Pin No	Signal
ALARM I/O	1	OUT 2B
	2	OUT 2A
	3	OUT 2
	4	Yellow Alarm
	5	Red Alarm
	6	Out 1B
	7	Out 1A
	8	Out 1
	9	GND
	10	IN 1
	11	IN 2
	12	IN 3
	13	IN 4
	14	IN 5
	15	IN 6

External connector	Pin No	Signal
DATA IF 5	13	106B
	12	114B
	11	NC
	10	109B
	9	115B
	8	109A (DCD)
	7	GND
	6	107a (Data Set Ready)
	5	106A (Clear To Send)
	4	105A (Request To Send)
	3	104A (104)
	2	103A (103)
	1	GND
	14	103B
	15	114A (TxCLK)
	16	104B
	17	115A (RxCLK)
	18	NC
	19	105B
	20	NC
	21	NC
	22	107B
	23	NC
	24	NC
	25	NC

External connector	Pin No	Signal	TFL 424 02
DC	1	DC +	Red
	2	DC -	Black

Figure3-1 MXU

3 Repair

This chapter contains a failure report and shipping instructions.

Contents

3	Repair	3-1
3.1	MINI-LINK Failure Report	3-3
3.2	Shipping Instructions	3-4

3.1 MINI-LINK Failure Report

For fast handling of repairs, please complete and enclose the Failure Report together with the other requested documents (see the shipping instructions in section 3.3) and the faulty unit. The Failure Report is found last in this chapter. The Failure report should be as detailed as possible for us to make an efficient and quick analysis. See section 9.3 in the MINI-LINK E Installation Manual (EN/LZT 110 2014) for information on different tests. If no fault is found, the cost for a full system test will be applied.

3.2 Shipping Instructions

Follow the instruction below when sending MINI-LINK equipment to the MINI-LINK Repair Centre.

1. Pack the goods thoroughly and mark it with our address, written below.
2. Enclose delivery note and a copy of the proforma invoice. The information must include:
 - Product codes
 - Serial numbers
 - Number of parts included in the shipment
 - Goods address
 - Invoice address
 - Customs value
 - Customer reference: name or reference number for the shipping.
3. Enclose a failure report giving information about the failure. Use the failure report in this manual.
4. Inform the Repair Centre and our shipping department, by fax, about goods being sent. Please enclose a copy of the proforma invoice.

Goods address:

MINI-LINK Repair Centre

Sandlidsgatan 3

S-504 62 Borås

Sweden

Fax number: +46 33 179947

Shipping Department:

Fax number: +46 31 7471665

MINI-LINK Failure Report

Date of report: _____

Date of failure: _____

After repair return to:

Goods Address	Invoice address

Failure report

Unit name	Ordering code	Serial No	H/W Revision state
Configuration (1+0, 1+1 etc).			S/W Revision state

MECHANICAL DAMAGE
 DC FAILURE
 TRAFFIC FAILURE
 RF OUTPUT FAILURE
 RF INPUT FAILURE
 INTERMITTENT FAILURE
 NOT WORKING AT INSTALLATION
 UNKNOWN

Detailed fault description:

Alarms noticed:

Location of faulty unit

Site name	
Name of opposite site	
Transmit frequency (MHz) / Channel	Traffic type (Mbit/s)
Start of operation, date	Latest previous failure on same unit, date

Name: _____

Telephone no: _____

E-mail: _____

ERICSSON MICROWAVE SYSTEMS AB

Mail	Goods address	Telephone	Telefax	E-mail
P.O Box 22150 S-500 02 BORÅS SWEDEN	MINI-LINK Repair Centre Sandlidsgatan 3 S-504 62 BORÅS SWEDEN	+46 33 179600	+ 46 33 179947	emwbsrep@ emw.ericsson.se



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