

Installing Boards and Cabling

INSTALLATION INSTRUCTION



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1 INTRODUCTION

MX-ONE is a communication solution for enterprises. MX-ONE integrates voice communication in fixed and mobile networks for public as well as private service. MX-ONE can be integrated into an existing Local Area Network (LAN) infrastructure. MX-ONE supports both IP telephony and functions found in classic circuit-switched PBXes (Private Branch Exchanges).

1.1 SCOPE

This document describes the MX-ONE cabling and connection in a detailed way. It is aimed for customers doing new installation. For other parts of the Installation see:

- Installation preparation and Earthing, 19/1531-ASP11301
- Installation Chassis in a Cabinet, 20/1531-ASP11301

1.2 TARGET GROUP

The target group for this document is personnel involved in installing the MX-ONE.

1.3 PREREQUISITES

This section lists requirements that must be fulfilled before the installation starts.

1.3.1 ELECTRICAL CONNECTIONS

Installation procedures involving connection of power cables, batteries and earthing must be performed according to local regulations.

1.3.2 SAFETY

All personnel involved in installation must read and understand the safety instructions prior to installation, see the description document for *SAFETY*.

2

INSTALLING BOARDS

Device boards can, in the 7U chassis only be placed in the board positions 01-29 and 45-73. Not in positions 33, 37 and 41.

Note: It is important to firmly insert the boards, to avoid bending any back plane connectors, or it's contact pins. Press evenly on both sides of the front. Do NOT use the extractor (available in some boards) to press the board in. Only for the final millimeter of sliding in the board, the extractor is allowed to be used.

To remove any board, use the extractor, or use the tool LTD11702 in an available keyhole in the fronts.

Table 1 Boards in MX-ONE

| Board | Product number | Building height | Time Slots used | Remarks |
|----------|------------------|-----------------|-----------------|--|
| ALU2 | ROF 137 5373/11 | 20mm | 8 | Alarm unit for external alarms |
| ASU Lite | ROF 137 6307/31 | 40mm | --- | Mitel Server Unit, Lite. 8GB. For more information see item below. |
| ASU-II | ROF 137 6307/4 | 40mm | --- | Mitel Server Unit. 16GB. For more information see item below. |
| DC/DC | ROF 137 6303/1 | 40mm | --- | Power unit for 7U chassis |
| ELU26 | ROF 137 5321/12 | 20mm | 8 | ISDN-S digital extensions |
| ELU31 | ROF 137 5412/4* | 20mm | 32 | DECT extensions |
| ELU33 | ROF 137 5062/1 | 20mm | 32 | Digital extensions |
| ELU34 | ROF 137 5064/x | 20mm | 32 | Analog extensions with message waiting |
| FTU2 | ROF 137 5415/11 | 20mm | 8 | Failure Transfer Unit |
| MFU | ROF 137 5348/X | 20mm | 8 | Multi frequency unit |
| MGU2 | ROF 137 6304/4 | 20mm | --- | Media Gateway Unit. For more information see item below. |
| TLU76 | ROF 137 5338/x* | 20mm | 32 | Digital trunk, ISDN, E1, DPNSS, CAS, SS7 |
| TLU77 | ROF 137 5387/x* | 20mm | 23 | ISDN, T1, DPNSS, CAS depending on version |
| TLU79 | ROF 137 5349/11* | 20mm | 8 | ISDN-T 2B+D trunk line |
| TLU80 | ROF 137 5406/11 | 20mm | 8 | 4-wire analog trunk using E&M signaling. This board can only be used in MX-ONE Classic. Not in MX-ONE Lite or 1U |
| TLU83 | ROF 137 6305/1 | 20mm | 8/12 | Analog trunk line (loop start, ground start. CLI with FSK and DTMF) |
| TLU83 | ROF 137 6305/2 | 20mm | 8/12 | Analog trunk line (loop start, ground start, call metering. CLI with FSK and DTMF) |
| TMU | ROF 137 5335/x | 20mm | 32 | Tone and Multi part Unit. DTMF |

Note: Secure all boards with the screws located in the extractor. Use screw driver with Torx T8.

2.1 ASU-II AND ASU LITE

The ASU's has a disk bay for 2 separate HDD (Hard disk drives) or SSD (Solid state drives). They are located behind a cover in the front.

Note: SW RAID1 is supported on Mitel ASU and ASU-II.

Close to the LED near the LAN-ports, there is a hole for performing reset/ software shout down.

The ASU's has a battery for real time clock. This battery is located just behind the board for the SATA drives connection.

Note: Due to the high weight of these boards, handle them with care, and hold the board only in the front. Also, be careful when inserting it into the subrack. Do not force it to avoid any bending of the board.

2.2 MGU2

The MGU2 board has a 20mm front and can be used in any chassis.

Close to the LED there is a hole for performing reset.

For more info see description, Media Gateway Unit, MGU, 1/1551-ANF90136.

2.3 EMPTY BOARD POSITIONS

If any empty positions are left in a chassis after mounting all boards, these empty slots have to be filled with Dummy-fronts to fulfill the EMC demands. See 2.4 Dummy Front on page 6.

2.4

DUMMY FRONT

This section describes the dummy front in 19" cabinets.

Dummy fronts are installed at all empty positions in the 19" chassis. New boards can be installed at these positions. Remove the dummy front at the position where the new board is to be installed and insert the new board.

Note: All empty board positions must be covered with dummy fronts to fulfill the EMC requirement and to be compliant with the BYB501 cooling requirements (air flow).

Table 2 Dummy Front

| Function | Product Number | |
|-------------|-----------------|--|
| Front 20 mm | SXK 106 1020/35 | |

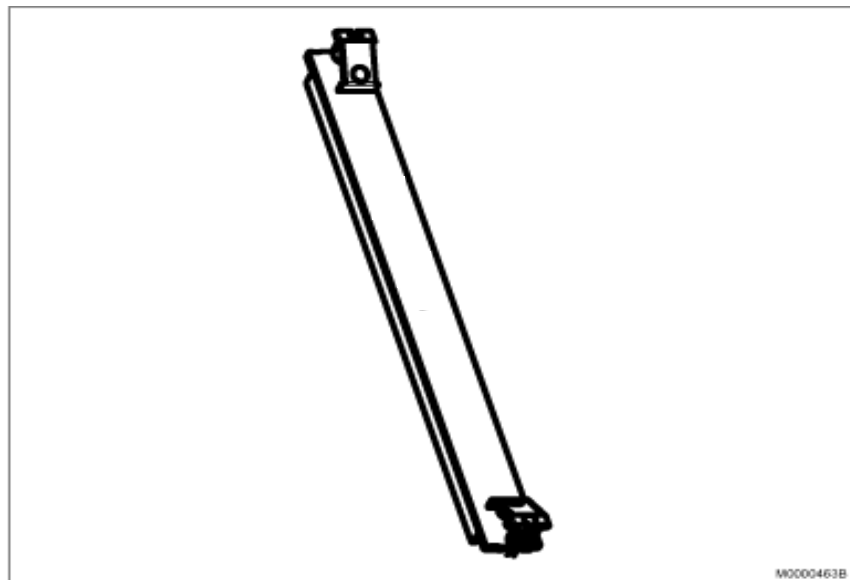


Figure 1: 20mm Dummy Front

2.5

CONNECTORS AND LEDS ON BOARD FRONTS

This section describes the connectors and LEDs on the boards.

The indication of board status with dual color LED is:

- Steady RED: The board is in passive state
- Flashing RED: Error state
- Alternating RED/GREEN: The board is starting up or is blocked.
- Steady GREEN: The board is active.
- Flashing GREEN: The board is active and is signaling.

Note: DC/DC-, MGU-, TLU77- and ASU-boards deviate from above. See the figures below regarding how they differ.

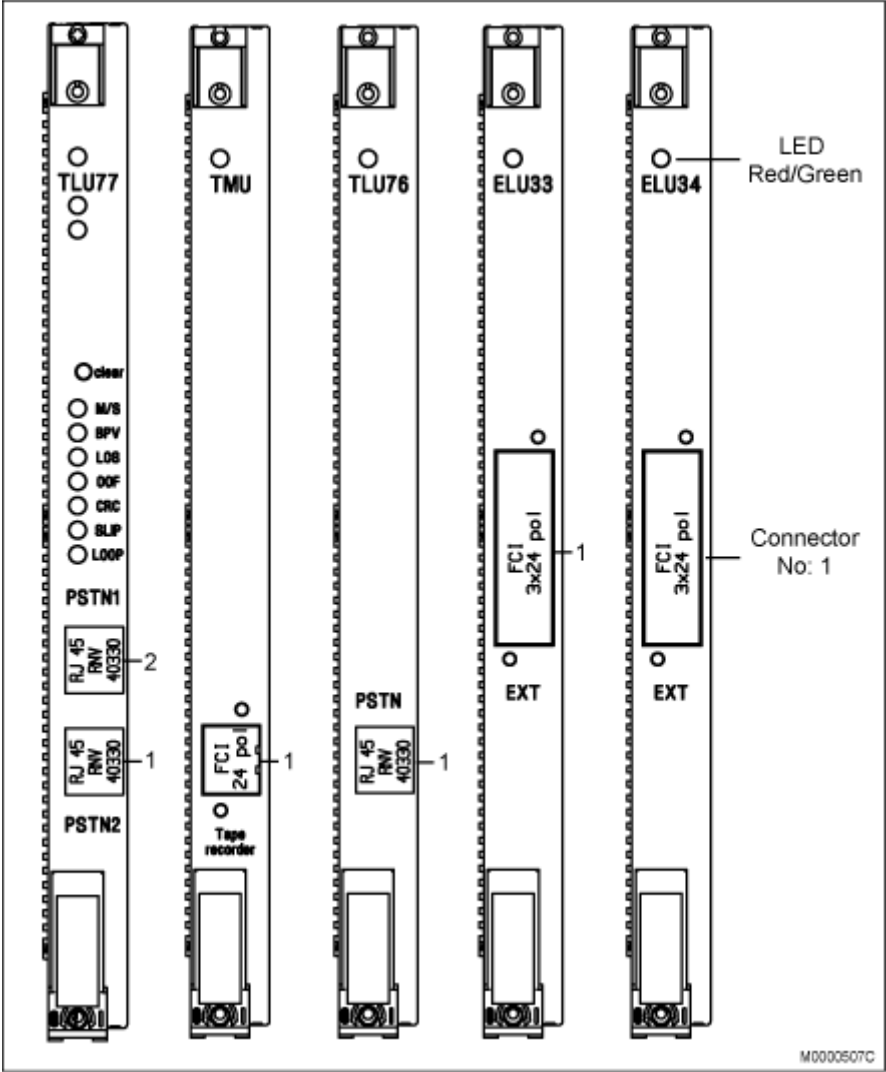


Figure 2: TLU77, TMU, TLU76, ELU33, and ELU34 Board Fronts

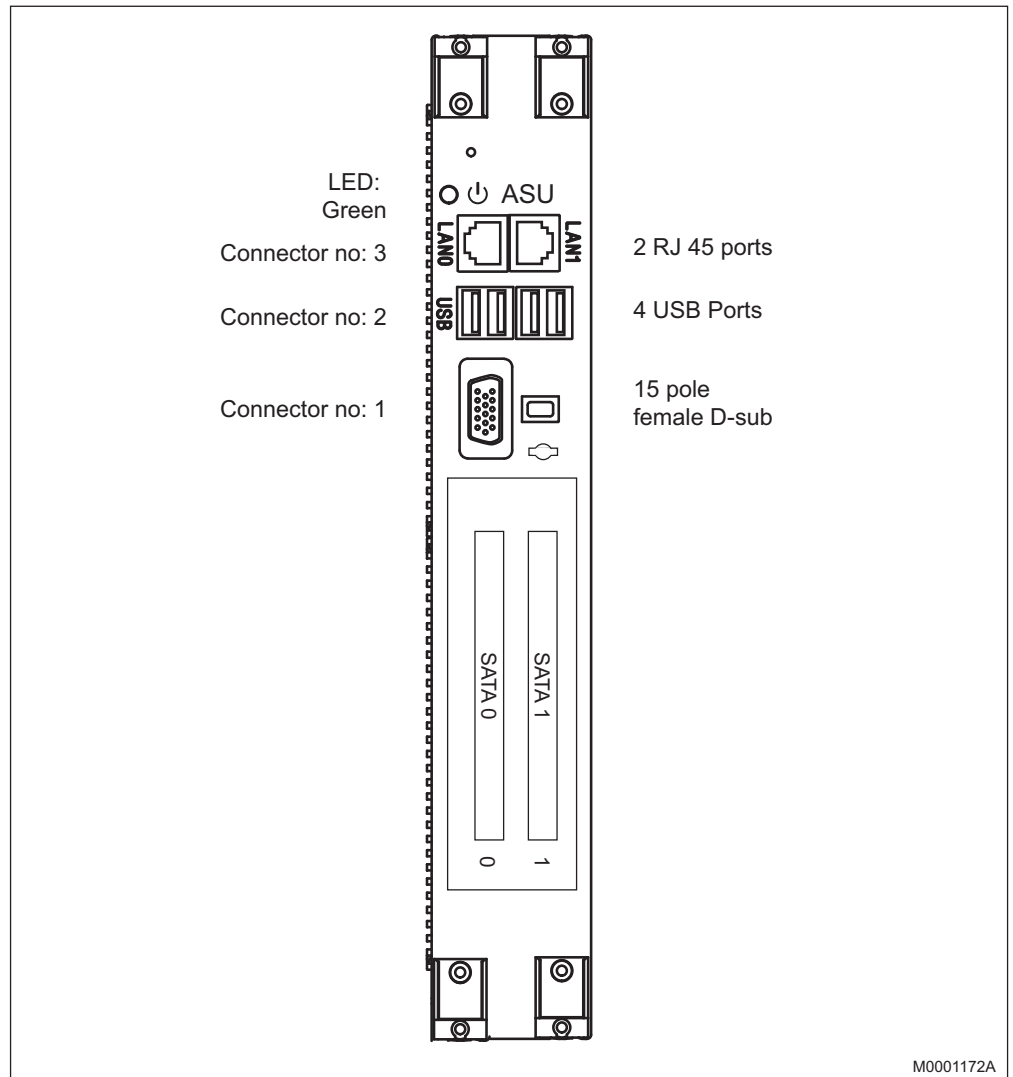


Figure 3: ASU Front Connectors

The SATA disks are located behind a cover. Two disks are used for RAID1.

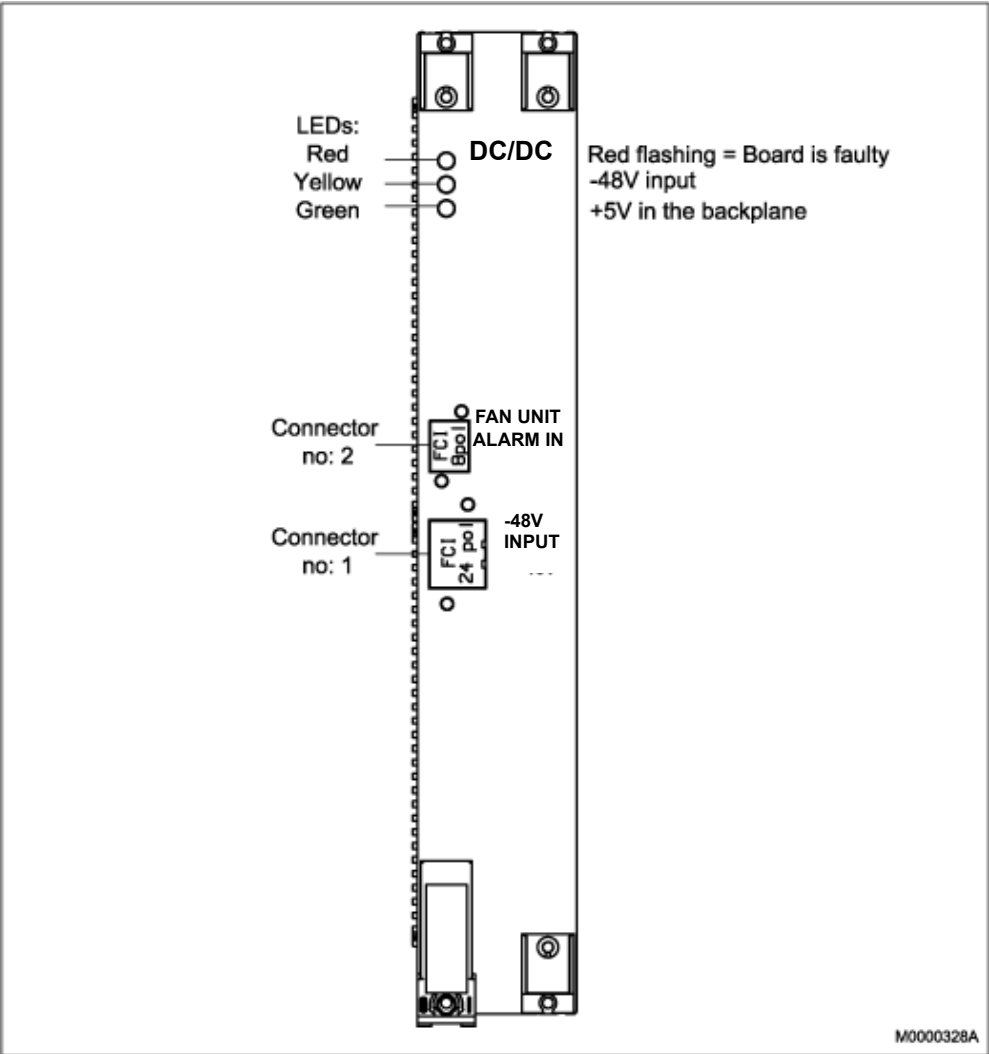


Figure 4: DC/DC Front Connectors and LEDs

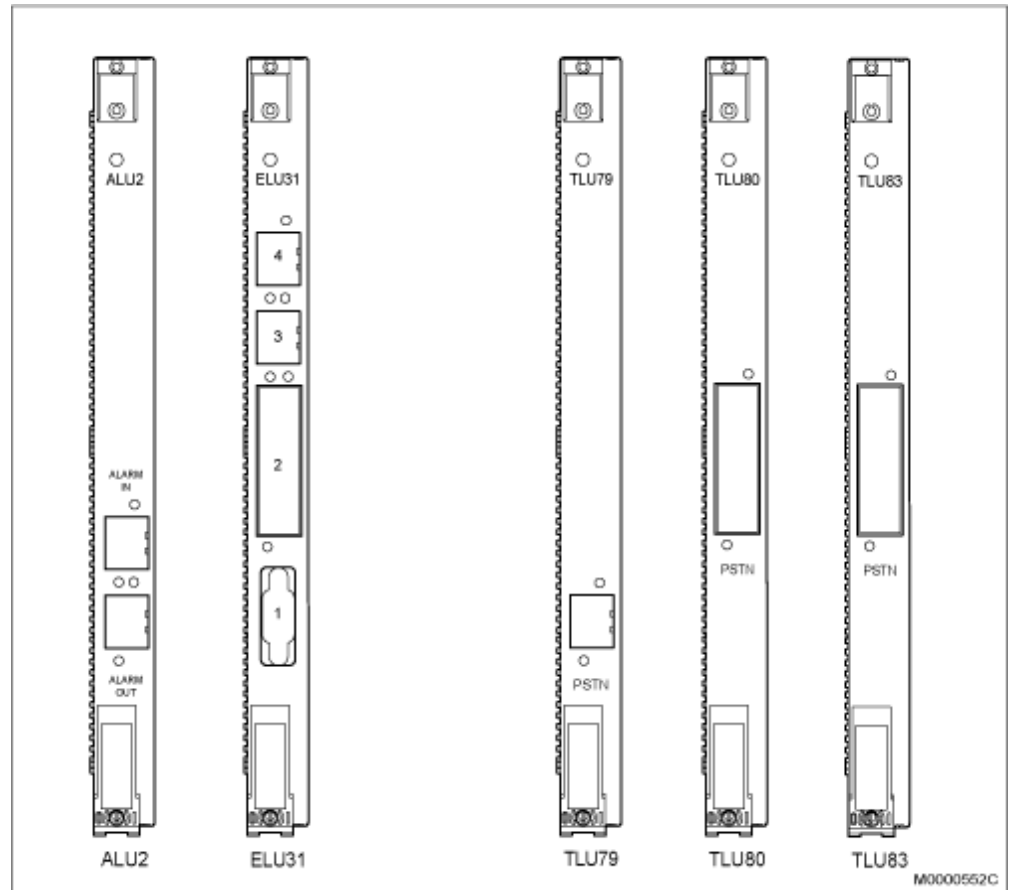


Figure 5: ALU2, ELU31, TLU79, TLU80 and TLU83 Fronts

Note: ELU26 and TLU79 has equal fronts, only different printing.

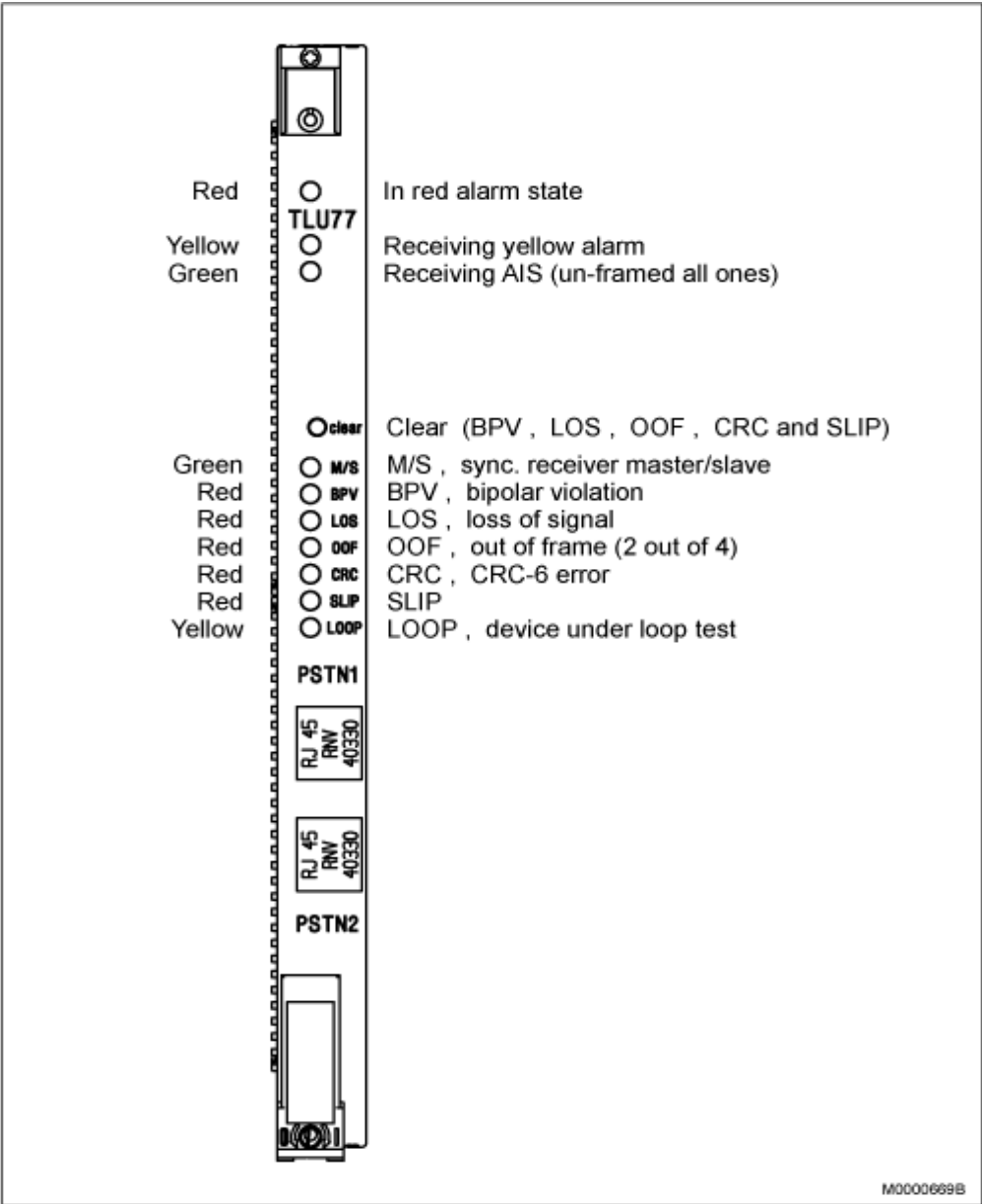


Figure 6: TLU77 Front Connectors and LEDs

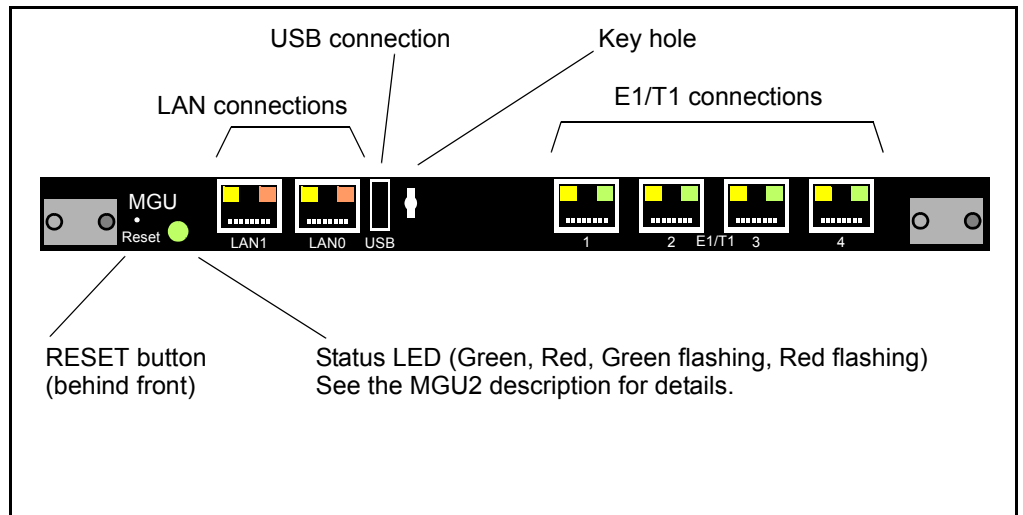


Figure 7: MGU2 with 20mm front

3

CABLING

Cabling involves both internal and external connections on site.

External cabling is the routing of cables for grounding, to power equipment and other external devices. Internal cabling is the routing of cables within a cabinet or between cabinets.

Use the fastener straps (cable tie) provided in material set 25/BYB 501/1 to fasten the cables to the rack, cable chutes, rear sides of chassis and so on. See Table 5 Set of Cable holders (Cable tie) on page 19.

Table 3 Cables in MX-ONE

| Unit | Cable Product Number | Remarks |
|---------------------------------------|--------------------------------|--|
| ALU2 | TSR 491 0306/20M | to MDF |
| ASU-II and ASU Lite | 61L00002AAA-A | to LAN 1Gbit, RJ45-RJ45, straight. L=2,4 meters |
| | TSR 482 0211/2400 | to LAN, 100Kbit, RJ45-RJ45, straight. L=2,4 meters |
| | TRS 899 135/1 | USB to V.24 adapter cable |
| Battery, std | 61L00006CAA-A | to AC/DC. (included in cable kit 51305284) |
| Battery | TFL281325/4000 | Between batteries for parallel connection |
| DC/DC-board (7U) | 51305286 | 5 meters long to AC/DC, 48V |
| | 51305287 | 12 meters long to AC/DC, 48V |
| | 50006938 | 5 meter splitter cable to both 7U AND Fan |
| | 50006937 | 12 meter splitter cable to both 7U AND Fan |
| ELU26 | TSR 491 414/32M | to MDF |
| ELU31, ELU33, ELU34 | TSR 910 1054/16M, 32M | to MDF |
| ELU31 | TSR 901 1226/3000, /5000, /15M | Sync-ring |
| FTU2 | TSR 910 1059/32M | to MDF |
| MFU/11 | TSR 491 0306/20M | to MDF |
| MGU2 | TSR 482 0211/2400, /20M | to LAN 100Kbit or E1/T1 to E1/T1 |
| | TSR 899 135/1 | USB to V.24 adapter cable |
| | TSR 482 0240/7000 | for E1/T1 crossover |
| | 61L00002AAA-A | to LAN 1Gbit, RJ45-RJ45, straight. L=2,4 meters |
| TLU76 | TSR 482 0211/2400, /20M | to MDF |
| TLU77 | TSR 482 0211/2400, /20M | to MDF |
| TLU79 | TSR 491 414/32M | to MDF |
| TLU80 | TSR 910 1054/16M, /32M | to MDF |
| TLU83 | TSR 910 1054/16M, /32M | to MDF |
| TMU/12 | TSR 491 0306/20M | to MDF |
| MX-ONE Lite 3U chassis, 87L00039BAA-A | 51305285 | 2 meters to AC/DC, 48V |
| | 61L00007AAA-A | for Alarm connection |

| Unit | Cable Product Number | Remarks |
|--------------------------------------|--|--|
| MX-ONE 1U chassis, 87L00032BAA-A | 51305285 | 2 meters to AC/DC, 48V |
| Network | TSR 482 0211/20M | LAN, 100KBit. RJ45 - RJ45, straight. L=20 meters |
| | 61L00002BAA-A | LAN, 1GBit, RJ45 - RJ45, straight. L= 20 meters |
| Power to Fan *) and to 7U chassis | 51305286 | 5 meters long, -48V |
| | 51305287 | 12 meters long, -48V |
| | 50006938 | 5 meter splitter cable to both 7U AND Fan, -48V |
| | 50006937 | 12 meter splitter cable to 7U AND Fan, -48V |
| Fan *) to alarm | TSR 902 0274/2200 TSR 902 0277/2000 SXX 106 2097/1 | Alarm cables and plug |
| Splitter cable for 1U and 3U chassis | 50006936 | Splitter 1 to 2. Used when 5 to 8 pcs of 1U/3U chassis are fed from the same power Unit. |

*) Fan BFD50908/4

Note: Consider the needed cabling for network or server redundancy. For more information, see the description for *MIVOICE MX-ONE*, chapter *REDUNDANCY*.

3.1

CONNECTOR POSITIONS

Only boards with EMC shielded fronts are used in the MX-ONE subracks.

3.1.1

CONNECTOR NUMBERING

The connector positions are marked in numerical order starting from 1 for the lowest connector position, 2 for the position above it and so on, see Figure 8: Connectors positioning on page 15.

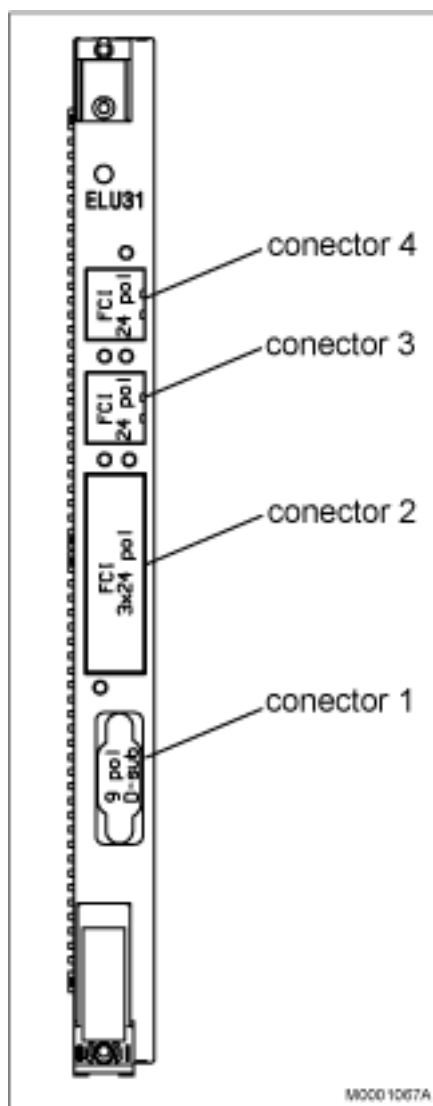


Figure 8: Connectors positioning

3.2 CABLE LABELING

3.2.1 PRODUCT LABELING

Cables have different types of product marking. See Table 3 Cables in MX-ONE on page 13 for a complete list of available cables.

3.2.2 LABEL SETS

Every MX-ONE Service Node has a label set with labels that are used to mark the cables in the MX-ONE. See Table 4 on page 16

Table 4

| Product Number | Server Number | Product Number | Server Number |
|----------------|---------------|----------------|----------------------------|
| SVH 277 030/1 | 1 | SVH 277 030/5 | 6-10 |
| SVH 277 030/2 | 2 | SVH 277 030/6 | 11-20 |
| SVH 277 030/3 | 3 | SVH 277 030/7 | 21-40 |
| SVH 277 030/4 | 4-5 | SVH 277 030/8 | > 40 (one for each Server) |

3.2.3 LABELING OF CABLES

Note: To mark source and destination for the cable, always put a label on each cable end.

Cables are marked with labels in both ends. The labels contain the following information:

- Cable source
- Cable destination
- Server number
- Cable number
- Position (in boards or other devices) for cable connection

For a general explanation of the information in cable labels, see Figure 9: Labeling Cables on page 17.

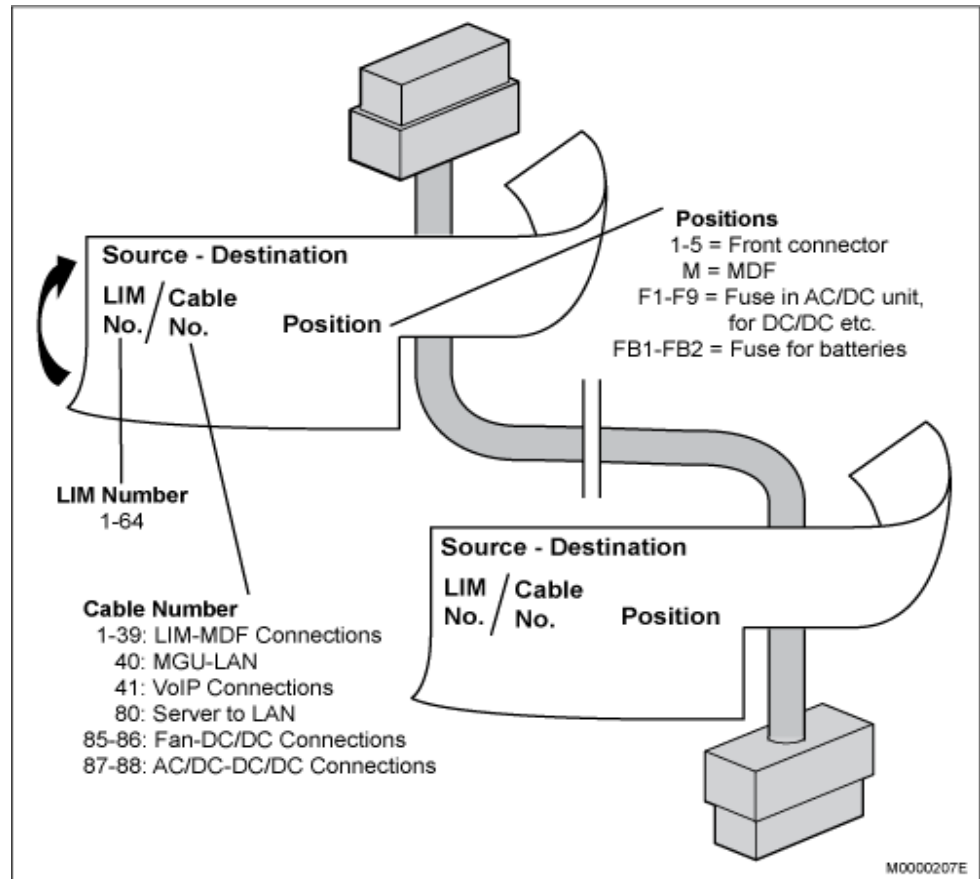


Figure 9: Labeling Cables

3.2.4

LABELING OF INTERNAL CABLES

The internal cables connected to fixed positions in the exchange are already labeled at delivery. The label indicates the position of the cable's own connector as well as that of the other end.

For example: GW1/81 (0*21*4) means that for Gateway 1, cable 81 is to be placed on the left side of MGU (0= left, 1= right), board position 21 (01, 05, 09,..., 77), and at connector 4, counted from the bottom, see Figure 10: Labeling of cables on page 17.

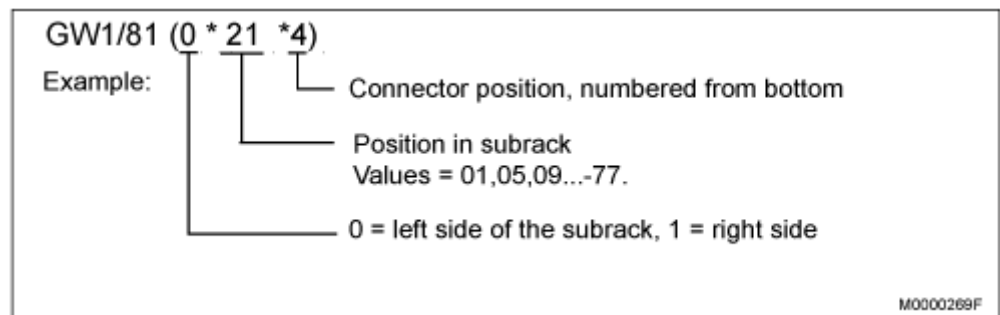


Figure 10: Labeling of cables

3.3

CONNECTING INTERNAL POWER CABLES

For instructions on how to connect mains cable to the AC/DC unit, refer to manufacturer instructions supplied with the unit.

Refer to local regulations when working with electric power.

3.3.1

CONNECTING THE BATTERIES TO THE AC/DC UNIT

Work involving batteries must be carried out by personnel with appropriate technical training and experience necessary to be aware of hazards to which they can be exposed.

The battery fuse/circuit breaker is located in the power supply unit. It means that the conductor connected to the negative pole of the battery and to the battery fuse/circuit breaker is an un-fused battery conductor.

It is extremely hazardous to work with un-fused battery conductors.

Note: Before battery conductors are; connected, disconnected or installed, remove the conductor to the negative pole (A) or remove an interconnection bridge (B), see Figure 11: Example of Removing the Negative Battery Conductor (A) and an Interconnecting Bridge (B) on page 18.

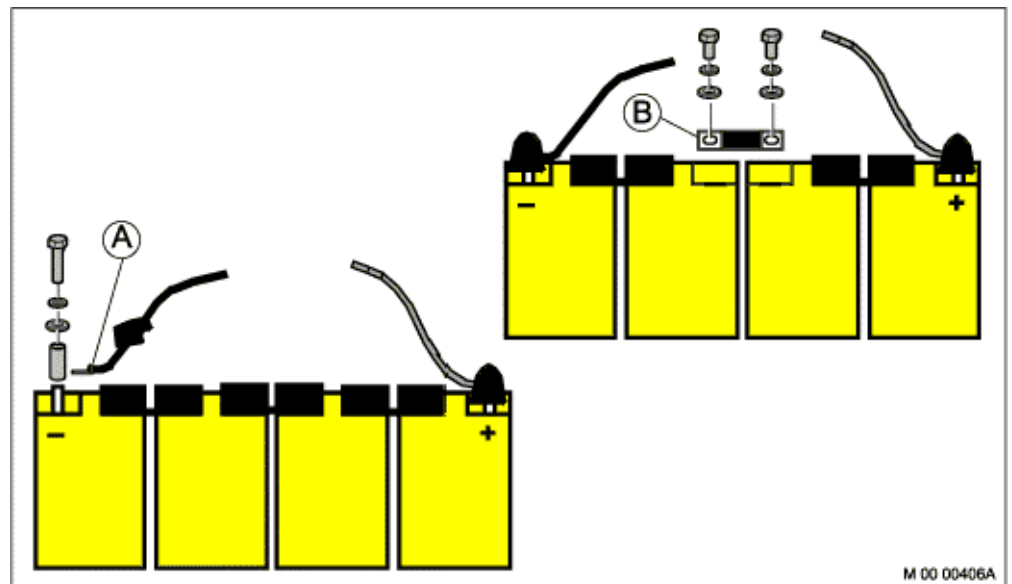


Figure 11: Example of Removing the Negative Battery Conductor (A) and an Interconnecting Bridge (B)

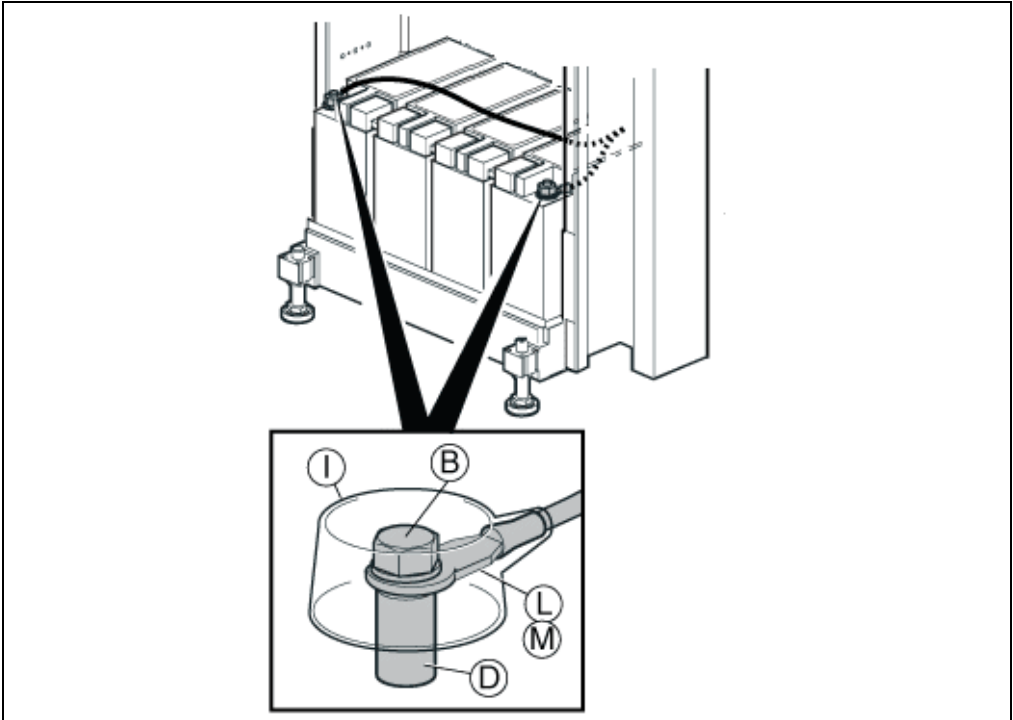


Figure 12: Connecting the Batteries

General battery connection:

1. Connect the cable lug (L) of the grey cable to the red plus pole (D) of the rightmost battery block, see Figure 12: Connecting the Batteries on page 19.
2. Fasten the screw (B) to secure the cable lug and press down the cover (I) on the red plus pole (D).
3. Connect the cable lug (M) of the black cable to the minus pole (D) of the leftmost battery block, see Figure 12: Connecting the Batteries on page 19.
4. Fasten the screw (B) to secure the cable lug and press down the cover (I) on the black minus pole (D).
5. Connect the other end of the cable (blue connector) to the Power Unit. It is positioned at the rear side of the unit.

3.3.2

CONNECTING THE AC/DC UNIT TO THE MIVOICE MX-ONE

See suppliers documentation for correct connection to the AC/DC.

When connecting cables in the AC/DC unit, always fasten nearby cables to each others and to any cable cloth or frame using fastener straps included in the 25/BYB 501/1. This to relieve the force on the connections.

Table 5 Set of Cable holders (Cable tie)

| 25/BYB 501/1 Set for cables | | |
|-----------------------------|----------------|----------|
| Title/Function | Product Number | Quantity |
| HOLDER FOR STRAP | SXA 123 0411/2 | 40 |
| CABLE CLAMP (STRAP) | SET 103 02 | 40 |

Note: Do not cut the cables. The shortest length of the cables from the AC/DC unit to the DC/DC board must be 5 meters.

3.3.3 CONNECTING AC/DC-UNIT 51305282 TO THE MAINS

The Power Unit have IEC connector on the rear side. Connect the mains cables and secure them to avoid power breakdown.

3.3.4 CONNECTING AC/DC TO THE LAN

The Power Unit 51305282 can be equipped with a communication module, the PCC Unit, 5130283. This unit communicate via the LAN. For details about functionality and configuration, see suppliers data sheet/manual.

3.3.5 CONNECTING POWER (-48V) TO FAN UNIT BFD50908/4

Two types of cables can be used to Power the Fan Unit. Single cables or Splitter cables.

Single Cables: Connect the Power to the fan unit using cable 51305286, 5 meter long or 51305287, 12 meters long, see item (1) in Fig. see Figure 13: Single cables to the Fan Unit BFD50908/4 and to 7U chassis on page 21.

Splitter cables: Connect the Power to the fan unit using cable 50006938, 5 meter long or 50006937, 12 meters long, see item (1) in Fig. see Figure 14: Splitter Cable to the Fan Unit BFD50908/4 and to 7U chassis on page 21

Note: If Alarm handling is required, cables marked with *) are also needed. For alarm cables and plugs, see 5.4.2 MiVoice MX-ONE Classic with Power Unit on page 46.

Note: If only one Power cable is connected to the Fan Unit, the alarm on the Fan will be activated. This is not possible to re-configure. To avoid the alarm in the Fan, feed the Fan unit with 2pcs of Power cables or use the Splitter cables.

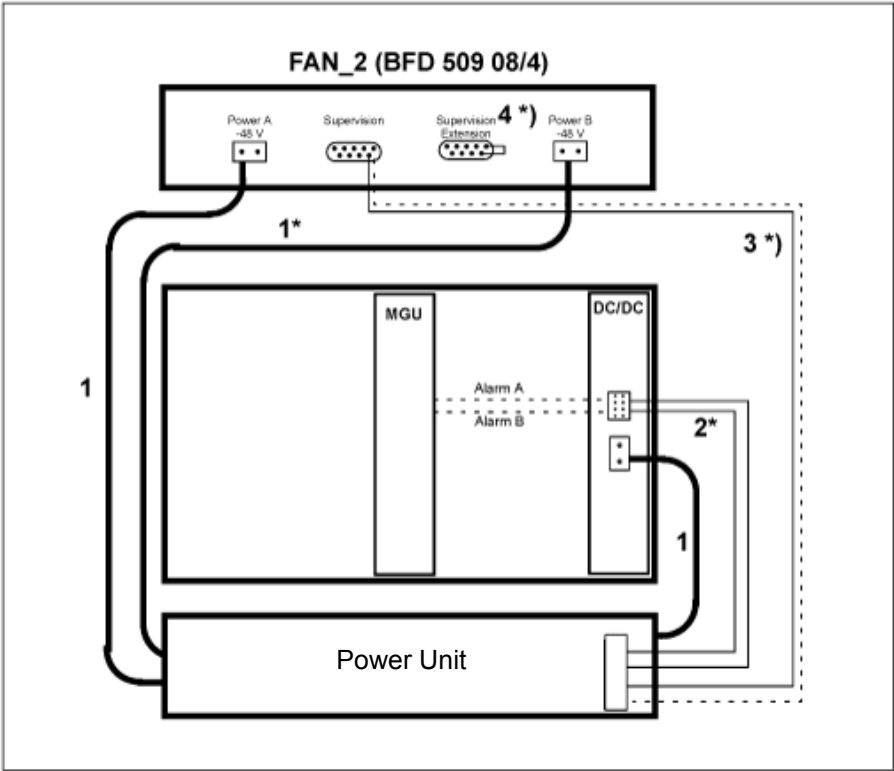


Figure 13: Single cables to the Fan Unit BFD50908/4 and to 7U chassis

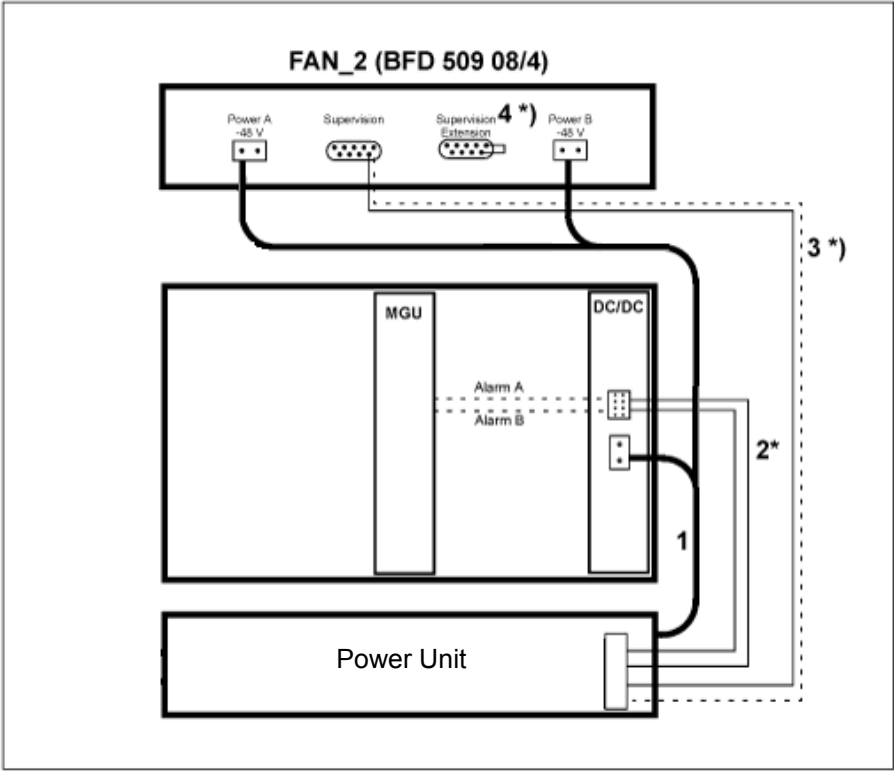


Figure 14: Splitter Cable to the Fan Unit BFD50908/4 and to 7U chassis

3.3.6 CONNECTING POWER TO 1U CHASSIS 87L00032BAA-A

Connect the -48V DC power to the 1U chassis using cable 51305285. The connector on the 1U chassis is located on the rear side of the chassis.

The 1U chassis can be fed also with mains power 100-240VAC. This connector is also located on the rear side.

Note: If more that 4 pcs of 1U chassis and/or 3U chassis are feed with -48V in one system, the power ports in the Power unit are not enough (4 ports). Then a splitter cable can be used to feed 2pcs of 1U/3U chassis per power port. This splitter cable is 50006936. **NOTE:** only 2 chassis can be feed from one port in the Power Unit.

3.3.7 CONNECTING POWER TO 3U CHASSIS 87L00039BAA-A

Connect the -48V DC power to the 3U chassis using cable 51305285. The connector on the 3U chassis is located on the rear side of the chassis.

The 3U chassis can be fed also with mains power 100-240VAC. This connector is located on the rear side.

Note: If more that 4 pcs of 3U chassis and/or 1U chassis are feed with -48V in one system, the power ports in the Power unit are not enough (4 ports). Then a splitter cable can be used to feed 2pcs of 1U/3U chassis per power port. This splitter cable is 50006936. **NOTE:** only 2 chassis can be feed from one port in the Power Unit.

3.3.8 CONNECTING POWER (-48V) TO 7U CHASSIS BFD76140

Two types of cables can be used to Power the 7U chassis. Single cables or Splitter cables.

Single Cables: Connect the -48V power to the DC/DC-board using cable 51305286, 5 meter long or 51305287, 12 meters long, see item (1) in Fig. see Figure 13: Single cables to the Fan Unit BFD50908/4 and to 7U chassis on page 21.

Splitter cables: Connect the -48V power to the DC/DC-board unit using cable 50006938, 5 meter long or 50006937, 12 meters long, see item (1) in Fig. and continue with the remaining of the cable to the Fan unit. see Figure 14: Splitter Cable to the Fan Unit BFD50908/4 and to 7U chassis on page 21

3.4 CONNECTING CABLES

Some cables are pre-connected at delivery, depending on equipment configuration ordered.

Use the figure and the table below to connect cables, or to verify that the cables are correctly connected. For cable connections to board positions, see Figure 15: Cable Connections Configure Example on page 23 and Figure 16: MX-ONE Lite cabling example on page 23.

Always verify that the cable markings correspond before connecting cables.

For a list of cables, including source and destination for every cable, see Table 3 Cables in MX-ONE on page 13.

Do not cut extension cables shorter than 3.5 m. This might disturb the function in the system.

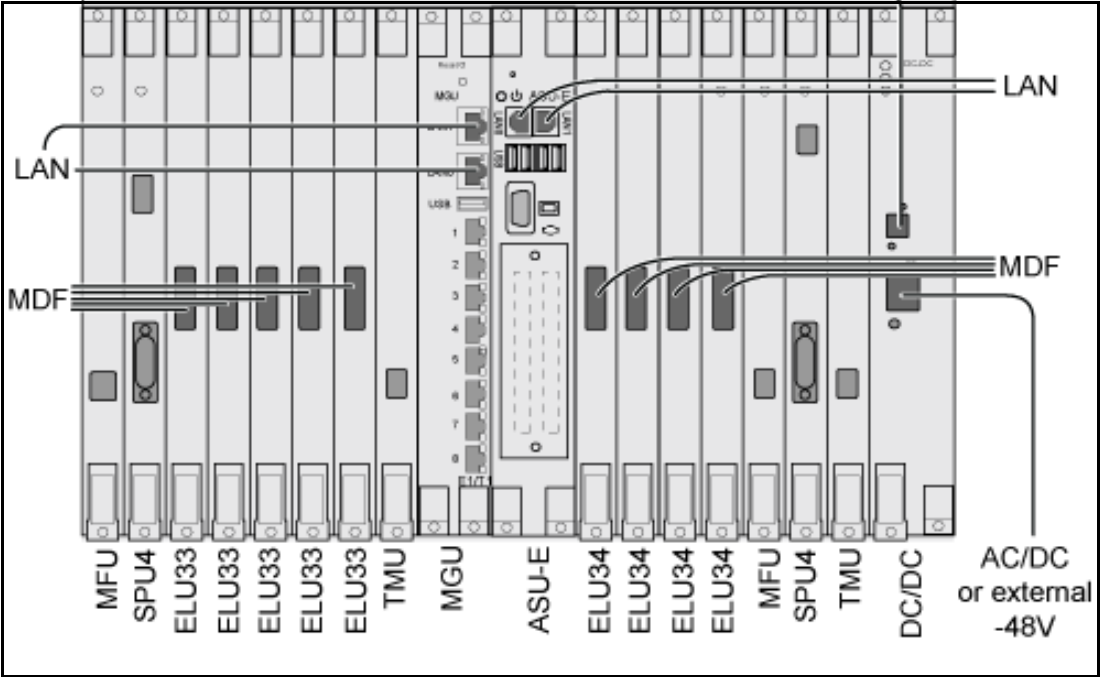


Figure 15: Cable Connections Configure Example

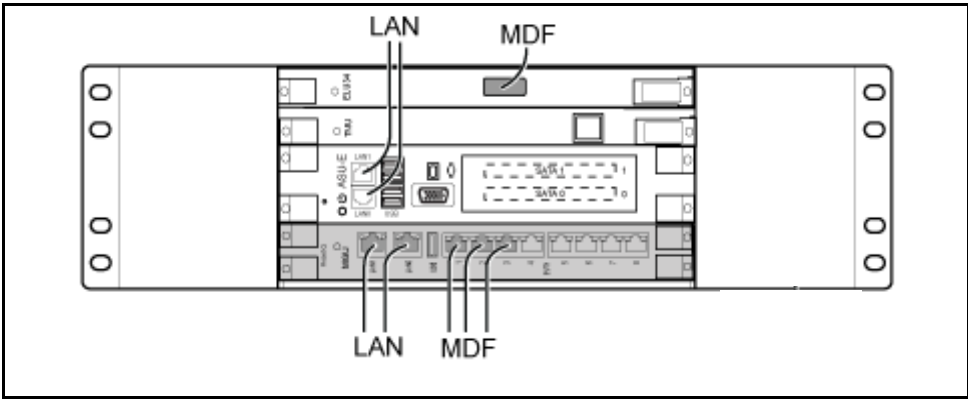


Figure 16: MX-ONE Lite cabling example

The MGU is connected to a server via the corporate LAN (i.e. a Switch). This is also valid when multiple gateways are connected to a server.

3.5

EXTENSION AND TRUNK LINE CABLE STRUCTURE

The twisted pair cable used for Extension and trunk lines in the MX-ONE is delivered with 32 pairs. The cable is structured either with 8 pairs in 4 bundles, 2 blue and 2 orange bundles, or, with 16 pairs in 2 bundles, 1 blue and 1 orange. Each bundle is kept together with a bundle thread, see Figure 17: Cable Structure on page 24.

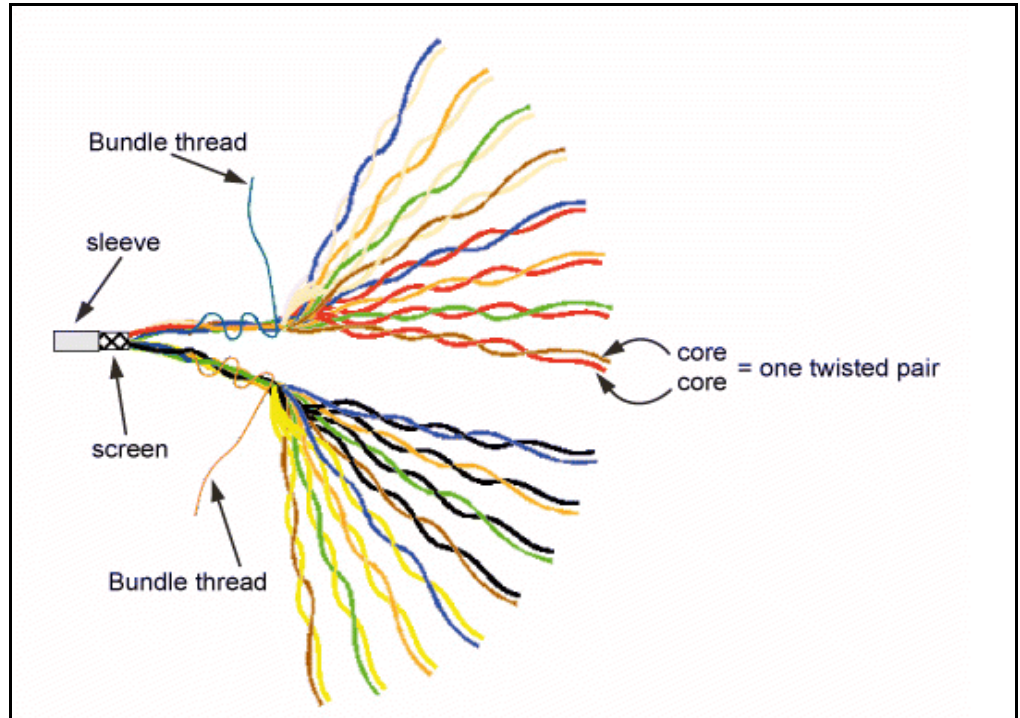


Figure 17: Cable Structure

The cables connected to the extension and trunk boards are connected on the other end to external telephone lines through the Main Distribution Frames (MDF). The following tables specify the color coding of the 32 pair cable used for ELU33, ELU34, and other boards, and the connection cable used for TLU76 , TLU77 and ELU26, TLU79.

Use the tables below to connect extension and trunk cables to the MDF. Note, that the screen also shall be grounded on the MDF-side, due to the demand of Multi point earthing. See document 19/1531-ASP11301.

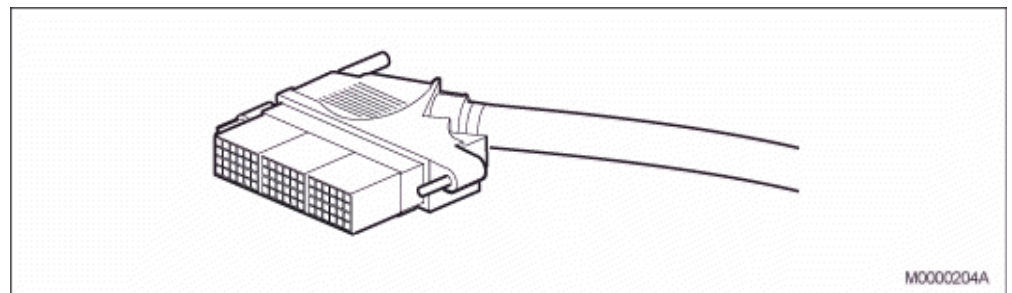


Figure 18: 32 pair cable for ELU33, ELU34, ELU31, TLU80 and TLU83 (TSR 910 1054/16M or 32M)

3.5.1 ELU33, ELU34, ELU31/4 AND TLU80 CABLE STRUCTURE

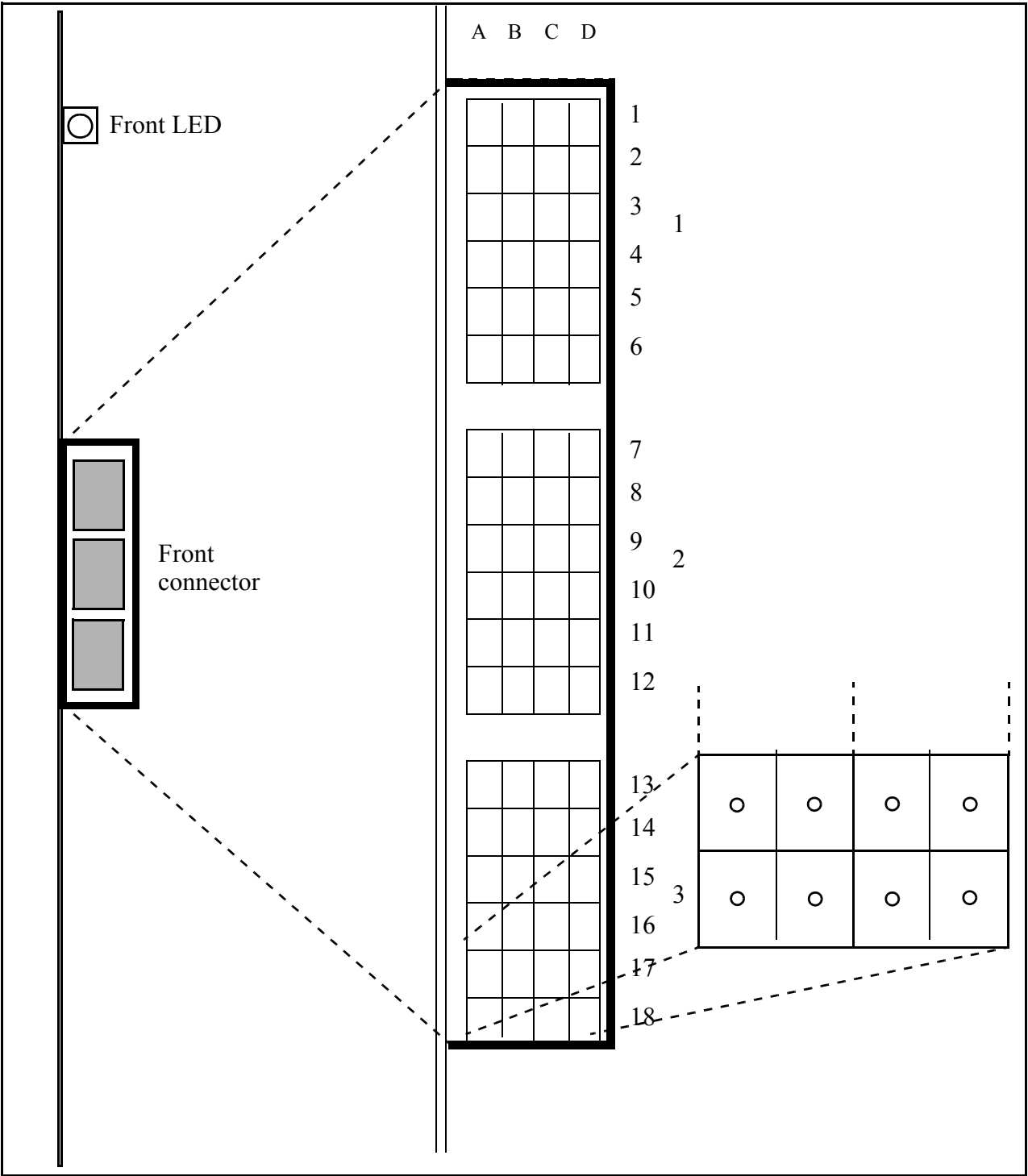


Figure 19: Front view

Note: ELU34 has to have individual 0 activated as the first individual and removed as the last individual, or else the communications with the board will fail.

Table 6 Color Coding in 32 Pair Cable for ELU33, ELU34 and ELU31

| Pair | Core | Color | Bundle | Connector | Pair | Core | Color | Bundle | Connector | |
|------|------|--------|--------|-----------|------|------|--------|--------|-----------|--|
| 1 | a | White | Blue | D18 | 21 | a | White | Orange | D9 | |
| | b | Blue | | C18 | | b | Blue | | C9 | |
| 2 | a | White | | A17 | 22 | a | White | | A8 | |
| | b | Orange | | B17 | | b | Orange | | B8 | |
| 3 | a | White | | D17 | 23 | a | White | | D8 | |
| | b | Green | | C17 | | b | Green | | C8 | |
| 4 | a | White | | A16 | 24 | a | White | | D7 | |
| | b | Brown | | B16 | | b | Brown | | C7 | |
| | | | | | | | | | | |
| 6 | a | Red | | D16 | 26 | a | Red | | A6 | |
| | b | Blue | | C16 | | b | Blue | | B6 | |
| 7 | a | Red | | A15 | 27 | a | Red | | D6 | |
| | b | Orange | | B15 | | b | Orange | | C6 | |
| 8 | a | Red | | D15 | 28 | a | Red | | A5 | |
| | b | Green | | C15 | | b | Green | | B5 | |
| 9 | a | Red | | A14 | 29 | a | Red | | D5 | |
| | b | Brown | | B14 | | b | Brown | | C5 | |
| | | | | | | | | | | |
| 11 | a | Black | Blue | D14 | 31 | a | Black | Orange | A4 | |
| | b | Blue | | C14 | | b | Blue | | B4 | |
| 12 | a | Black | | D13 | 32 | a | Black | | D4 | |
| | b | Orange | | C13 | | b | Orange | | C4 | |
| 13 | a | Black | | D12 | 33 | a | Black | | A3 | |
| | b | Green | | C12 | | b | Green | | B3 | |
| 14 | a | Black | | A11 | 34 | a | Black | | D3 | |
| | b | Brown | | B11 | | b | Brown | | C3 | |
| | | | | | | | | | | |
| 16 | a | Yellow | | D11 | 36 | a | Yellow | | A2 | |
| | b | Blue | | C11 | | b | Blue | | B2 | |
| 17 | a | Yellow | | A10 | 37 | a | Yellow | | D2 | |
| | b | Orange | | B10 | | b | Orange | | C2 | |
| 18 | a | Yellow | | D10 | 38 | a | Yellow | | A1 | |
| | b | Green | | C10 | | b | Green | | B1 | |
| 19 | a | Yellow | | A9 | 39 | a | Yellow | | D1 | |
| | b | Brown | | B9 | | b | Brown | | C1 | |

3.5.1.1

TLU80 cable structure

TLU80 has a 12-wire interface (per individual) where four wires are dedicated for transmission and tone signaling, the remaining eight wires are for E&M-signaling. This line interface is connected via a front connection of the TLU80 board.

Table 7 Front interface

| Signal | Description | | Connector row |
|------------|--|----------|---------------|
| La10, Lb10 | - incoming 4-wire line (ind 0) | D17, C17 | (3D5, 3C5) |
| | - 2-wire line (ind 0) | | |
| La20, Lb20 | - outgoing 4-wire line (ind 0) | A17, B17 | (3A5, 3B5) |
| La11, Lb11 | - incoming 4-wire line (ind 1) | D15, C15 | (3D3, 3C3) |
| | - 2-wire line (ind 1) | | |
| La21, Lb21 | - outgoing 4-wire line (ind 1) | A15, C15 | (3A3, 3B3) |
| La12, Lb12 | - incoming 4-wire line (ind 2) | D12, C12 | (2D6, 2C6) |
| | - 2-wire line (ind 2) | | |
| La22, Lb22 | - outgoing 4-wire line (ind 2) | D13, C13 | (3D1, 3C1) |
| La13, Lb13 | - incoming 4-wire line (ind 3) | D10, C10 | (2D4, 2C4) |
| | - 2-wire line (ind 3) | | |
| La23, Lb23 | - outgoing 4-wire line (ind 3) | A10, B10 | (2A4, 2B4) |
| M0 | - M-lead; transmitter (ind 0) | C18 | (3C6) |
| E0 | - E-lead; receiver (ind 0) | D18 | (3D6) |
| A0 | - A-lead; transmitter for blocking (ind 0) | B16 | (3B4) |
| BLK0 | - BLK; receiver for blocking (ind 0) | A16 | (3A4) |
| R00 | - Return wire (ind 0) | C9 | (2C3) |
| R10 | - Return wire (ind 0) | D9 | (2D3) |
| R20 | - Return wire (ind 0) | B8 | (2B2) |
| R30 | - Return wire (ind 0) | A8 | (2A2) |
| M1 | - M-lead; transmitter (ind 1) | C16 | (3C4) |
| E1 | - E-lead; receiver (ind 1) | D16 | (3D4) |
| A1 | - A-lead; transmitter for blocking (ind 1) | B14 | (3B2) |
| BLK1 | - BLK; receiver for blocking (ind 1) | A14 | (3A2) |
| R01 | - Return wire (ind 1) | C8 | (2C2) |
| R11 | - Return wire (ind 1) | D8 | (2D2) |
| R21 | - Return wire (ind 1) | C7 | (2C1) |
| R31 | - Return wire (ind 1) | D7 | (2D1) |
| M2 | - M-lead; transmitter (ind 2) | C14 | (3C2) |
| E2 | - E-lead; receiver (ind 2) | D14 | (3D2) |
| A2 | - A-lead; transmitter for blocking (ind 2) | B11 | (2B5) |
| BLK2 | - BLK; receiver for blocking (ind 2) | A11 | (2A5) |
| R02 | - Return wire (ind 2) | B6 | (1B6) |
| R12 | - Return wire (ind 2) | A6 | (1A6) |
| R22 | - Return wire (ind 2) | C6 | (1C6) |
| R32 | - Return wire (ind 2) | D6 | (1D6) |

| Signal | Description | | Connector row |
|--------|--|-----|---------------|
| M3 | - M-lead; transmitter (ind 3) | C11 | (2C5) |
| E3 | - E-lead; receiver (ind 3) | D11 | (2D5) |
| A3 | - A-lead; transmitter for blocking (ind 3) | B9 | (2B3) |
| BLK3 | - BLK; receiver for blocking (ind 3) | A9 | (2A3) |
| R03 | - Return wire (ind 3) | B5 | (1B5) |
| R13 | - Return wire (ind 3) | A5 | (1A5) |
| R23 | - Return wire (ind 3) | C5 | (1C5) |
| R33 | - Return wire (ind 3) | D5 | (1D5) |

3.5.1.2

ELU31/4 cable structure

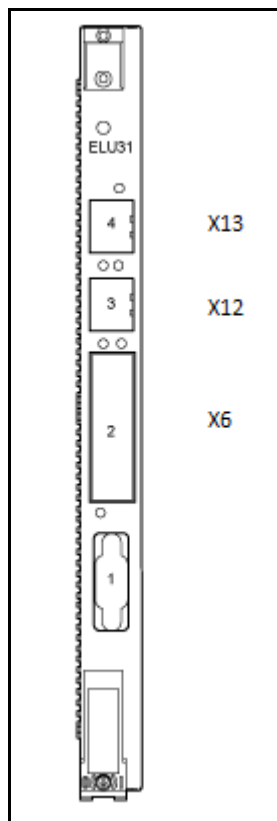


Figure 20: Front connector ELU31

For numbering of rows and columns see Figure 18: 32 pair cable for ELU33, ELU34, ELU31, TLU80 and TLU83 (TSR 910 1054/16M or 32M) on page 24

Table 8 RFP front connector configuration. (X6)

| Connector row | A | B | C | D |
|---------------|----------|---|---|---|
| 1 | Not used | | | |
| 2 | Not used | | | |
| 3 | Not used | | | |

| Connector row | A | B | C | D |
|---------------|---------------|---------------|---------------|---------------|
| 4 | Not used | | | |
| 5 | EPB6 (red) | EPA6 (green) | EPB7 (brown) | EPA7(red) |
| 6 | EPB4 (red) | EPA4 (blue) | EPB5 (orange) | EPA5 (red) |
| 7 | Not used | | EPB3 (brown) | EPA3 (white) |
| 8 | EPB1 (white) | EPA1 (orange) | EPB2 (green) | EPA2 (white) |
| 9 | LB15 (yellow) | LA15 (brown) | EPB0 (blue) | EPA0 (white) |
| 10 | LB13 (yellow) | LA13 (orange) | LB14 (green) | LA14 (yellow) |
| 11 | LB11 (black) | LA11 (brown) | LB12 (blue) | LA12 (yellow) |
| 12 | Not used | | LB10 (green) | LA10 (black) |
| 13 | Not used | | LB9 (orange) | LA9 (black) |
| 14 | LB7 (red) | LA7 (brown) | LB8 (blue) | LA8 (black) |
| 15 | LB5 (red) | LA5 (orange) | LB6 (green) | LA6 (red) |
| 16 | LB3 (white) | LA3 (brown) | LB4 (blue) | LA4 (red) |
| 17 | LB1 (white) | LA1 (orange) | LB2 (green) | LA2 (white) |
| 18 | Not used | | LB0 (blue) | LA0 (white) |

Table 9 Synchronization ring front connector TX configuration. (X13)

| | A | B | C | D |
|---|---------------|------------|---------------|----------|
| 1 | Ring TX comm+ | Bus comm+ | Bus 0 Volt | Not used |
| 2 | ACDM RX+ | Not used | ACDM TX+ | |
| 3 | Ring TX comm- | Buss comm- | Bus TX-strap | |
| 4 | ACDM RX- | Not used | ACDM TX- | |
| 5 | Ring TX sync+ | Bus sync+ | Ring 0 Volt | |
| 6 | Ring TX sync- | Bus sync- | Ring TX-strap | |

Note: If the Sync cable is prolonged, the Twisted pair configuration and polarity has to be kept. See Figure 21: Sync ring cable design (TSR9011226) on page 30

Table 10 Synchronization ring front connector RX configuration. (X12)

| | A | B | C | D |
|---|---------------|------------|---------------|----------|
| 1 | Ring RX comm- | Bus comm+ | Bus RX-strap | Not used |
| 2 | ACDM TX+ | Not used | ACDM RX+ | |
| 3 | Ring RX comm+ | Buss comm- | Bus o Volt | |
| 4 | ACDM TX- | Not used | ACDM RX- | |
| 5 | Ring RX sync+ | Bus sync+ | Ring RX-STRAP | |
| 6 | Ring RX sync- | Bus sync- | Ring 0 Volt | |

Note: If the Sync cable is prolonged, the Twisted pair configuration and polarity has to be kept. See Figure 21: Sync ring cable design (TSR9011226) on page 30

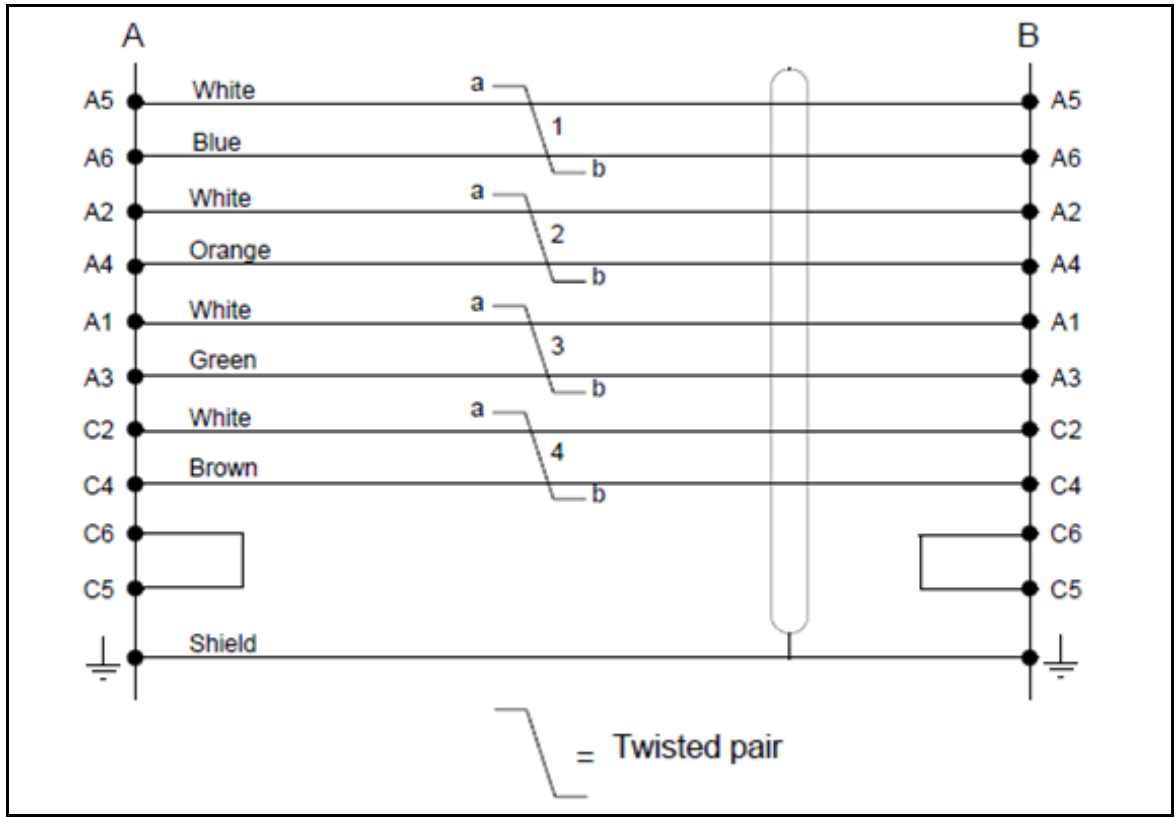


Figure 21: Sync ring cable design (TSR9011226)

3.5.2

TLU83 CABLE STRUCTURE

The TLU83 board uses the same type of 32 pair cable but it is organized differently. TLU83 uses 12 pairs for its 12 trunk line individuals, called TL Ind in the table below. Core **a** is used for Tip and core **b** is used for Ring in each pair. The three upper rows go to 0 V, marked GND. Connectors in rows 7 to 14 are used. The remaining 14 wire pairs are not connected and marked NC. See Table 11 Color Coding in 32 Pair Cable for TLU83 (TSR 910 1054/16M or 32M) on page 30.

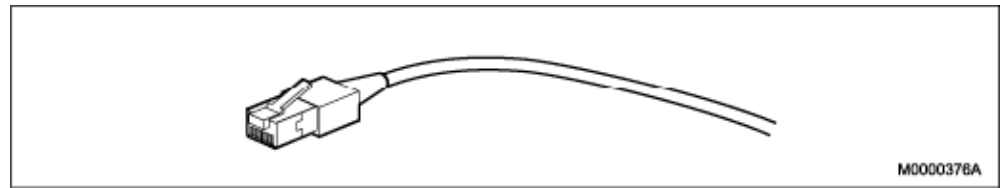
Table 11 Color Coding in 32 Pair Cable for TLU83 (TSR 910 1054/16M or 32M)

| Pair/ TL Ind | Core | Color | Bundle | Connector | Pair/ TL Ind | Core | Color | Bundle | Connector |
|-----------------|------|--------|--------|-----------|-----------------|------|--------|--------|-----------|
| 1/ NC | a | White | | D18 | 21/ 8 | a | White | | D9 |
| | b | Blue | | C18 | | b | Blue | | C9 |
| 2/ NC | a | White | | A17 | 22/ 9 | a | White | | A8 |
| | b | Orange | | B17 | | b | Orange | | B8 |
| 3/ NC | a | White | | D17 | 23/ 10 | a | White | | D8 |
| | b | Green | | C17 | | b | Green | | C8 |

| Pair/ TL Ind | Core | Color | Bundle | Connector | | Pair/ TL Ind | Core | Color | Bundle | Connector |
|-----------------|------|--------|--------|-----------|--|-----------------|------|--------|--------|-----------|
| 4/ NC | a | White | Blue | A16 | | 24/ 11 | a | White | Orange | D7 |
| | b | Brown | | B16 | | | b | Brown | | C7 |
| | | | | | | | | | | |
| 6/ NC | a | Red | | D16 | | 26/ NC | a | Red | | A6 |
| | b | Blue | | C16 | | | b | Blue | | B6 |
| 7/ NC | a | Red | | A15 | | 27/ NC | a | Red | | D6 |
| | b | Orange | | B15 | | | b | Orange | | C6 |
| 8/ NC | a | Red | | D15 | | 28/ NC | a | Red | | A5 |
| | b | Green | | C15 | | | b | Green | | B5 |
| 9/ NC | a | Red | | A14 | | 29/ NC | a | Red | | D5 |
| | b | Brown | | B14 | | | b | Brown | | C5 |
| | | | | | | | | | | |
| 11/ 0 | a | Black | Blue | D14 | | 31/ NC | a | Black | Orange | A4 |
| | b | Blue | | C14 | | | b | Blue | | B4 |
| 12/ 1 | a | Black | | D13 | | 32/ NC | a | Black | | D4 |
| | b | Orange | | C13 | | | b | Orange | | C4 |
| 13/ 2 | a | Black | | D12 | | 33/ GND | a | Black | | A3 |
| | b | Green | | C12 | | | b | Green | | B3 |
| 14/ 3 | a | Black | | A11 | | 34/ GND | a | Black | | D3 |
| | b | Brown | | B11 | | | b | Brown | | C3 |
| | | | | | | | | | | |
| 16/ 4 | a | Yellow | | D11 | | 36/ GND | a | Yellow | | A2 |
| | b | Blue | | C11 | | | b | Blue | | B2 |
| 17/ 5 | a | Yellow | | A10 | | 37/ GND | a | Yellow | | D2 |
| | b | Orange | | B10 | | | b | Orange | | C2 |
| 18/ 6 | a | Yellow | | D10 | | 38/ GND | a | Yellow | | A1 |
| | b | Green | | C10 | | | b | Green | | B1 |
| 19/ 7 | a | Yellow | | A9 | | 39/ GND | a | Yellow | | D1 |
| | b | Brown | | B9 | | | b | Brown | | C1 |

3.5.3

TLU76 AND TLU77 CABLE STRUCTURE

**Figure 22: Connection Cable for TLU76, TLU77 (TSR 482 0211/xxx)****Table 12 Color Coding in Cable for TLU76, TLU77 (TSR 482 0211/xxx)**

| Pair | Core | Color | Pinn No. | Description |
|------|------|--------------|----------|-------------|
| 1 | A | Blue/White | 5 | Tx+ |
| | B | Blue | 4 | Tx- |
| 2 | A | Orange/White | 1 | Rx+ |
| | B | Orange | 2 | Rx- |
| 3 | A | Green/White | 3 | Shield |
| | B | Green | 6 | Shield |
| 4 | A | Brown/White | 7 | NC |
| | B | Brown | 8 | NC |

3.5.4

ELU26 AND TLU79 CABLE STRUCTURE

Table 13 Color Coding in Cable for ELU26 and TLU79 (TSR 491 414)

| Pair | Core | Color | Connector | Description |
|------|------|--------|-----------|--------------------------|
| 1 | A | White | C6 | Individual 0 TX+, TX- |
| | B | Blue | D6 | |
| 2 | A | White | A6 | Individual 1 TX+, TX- |
| | B | Orange | B6 | |
| 3 | A | White | C5 | Individual 0 RX+, RX- |
| | B | Green | D5 | |
| 4 | A | White | A5 | Individual 1 RX+, RX- |
| | B | Brown | B5 | |
| 6 | A | Red | C4 | Individual 2 TX+, TX- |
| | B | Blue | D4 | |
| 7 | A | Red | A4 | Individual 3 TX+, TX- |
| | B | Orange | B4 | |
| 8 | A | Red | D3 | Individual 2 RX+, RX- |
| | B | Green | C3 | |
| 9 | A | Red | B3 | Individual 3 RX+, RX- |
| | B | Brown | A3 | |

3.5.5

MGU AND MGU2 CABLE STRUCTURE

Table 14 Color Coding in Cable for MGU E1/T1 connection (TSR 482 0211/xxx)

| Pair | Core | Color | Pinn No. | Description |
|------|------|--------------|----------|-------------|
| 1 | A | Blue/White | 5 | Tx+ |
| | B | Blue | 4 | Tx- |
| 2 | A | Orange/White | 1 | Rx+ |
| | B | Orange | 2 | Rx- |
| 3 | A | Green/White | 3 | Shield |
| | B | Green | 6 | Shield |
| 4 | A | Brown/White | 7 | NC |
| | B | Brown | 8 | NC |

4

CONNECTION OF EXTERNAL CABLES

4.1

GENERAL

Cabling to the MDF uses prefabricated cables.

Twisted, shielded, pair-cables are to be used for cabling between the PBX and MDF or PBX and PBX (Media Gateway - Media Gateway).

The cable length from the exchange to the MDF shall not be shorter than 3 meters (118 inches).

4.2

LINE LENGTHS

ELU26

The following three connection alternatives are based on the usage of a 75 ohm twisted pair cable, 120 nF/km and wire 0.6 mm or a 150 ohm twisted pair cable, 30 nF/km and wire 0.6 mm or 125 ohm/km DC.

- 1000 m, point-to-point with one terminal.
- 500 m, extended passive bus with 8 terminals.
- 100 m, short passive bus with 8 terminals.

ELU31

For information see Installation Instructions for *CORDLESS PHONES*.

ELU33

600 m if using a twisted pair cable with wire diameter 0.4 mm.

1000 m if using a twisted pair cable with wire diameter 0.5 mm, point-to-point with one terminal.

ELU34

6000 m if using a twisted pair cable with wire diameter 0.4 mm.

9000 m if using a twisted pair cable with wire diameter 0.5 mm.

TLU76

260 m if using a 120 ohm twisted pair cable without repeater

TLU77

260 m if using a 120 ohm twisted pair cable without repeater

TLU79

see Figure 31: Connecting TLU79 to TLU79 through MDF (8 pairs) on page 39.

TLU80

7000 m if using a twisted pair cable with wire diameter 0.4 mm. 11000 m if using a twisted pair cable with wire diameter 0.5 mm.

TLU83

5000 m if using a twisted pair cable with wire diameter 0.4 mm.

8000 m if using a twisted pair cable with wire diameter 0.5 mm.

4.3

ANALOG EXTENSIONS ELU34

ELU34 is a 32 individuals analog extension line unit intended for normal analog telephones, with functionality for both message waiting and call metering. A parallel telephone, an extra bell or a FAX can be connected to an ELU34.

Note: ELU34 has to have individual 0 activated as the first individual and removed as the last individual, or else the communications with the board will fail.

If done in the wrong order individuals will be blocked.

Note: An external primary protection circuit shall be used as an additional protection when outdoor lines from other buildings are connected to the board. This protection circuit must have a striking voltage higher than 280 VDC.

Note: A remaining high voltage may remain on the board when the board is removed from the subrack with the power still on, a so called "hotswap". Do not touch the board component or solder points for a few minutes after the removal. To reduce the high voltage to a safe level, leave the board un-plugged in the subrack for at least 15 seconds.

4.4

DIGITAL EXTENSIONS

As an example, digital system telephones may have the type designations DBC 2XX connected to ELU33.

Only one system telephone per line can be connected, no parallel telephone or extra bell.

Note: The board must not have any open cable ends.

4.4.1

ELU33

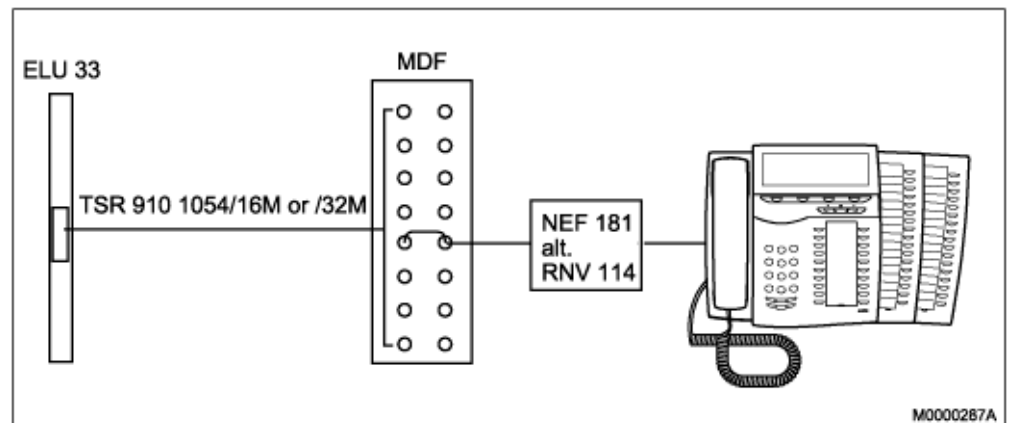


Figure 23: Example with system telephone DBC 2xx, ELU33 - MDF (32 pairs)

The installation instructions 1/LZT 102 537 and 1/LZT 102 762 show how the wires are connected to terminal block NEF 181 or RNV 114. Regarding connection of system telephone DBC 2xx:

see the installation instructions for *TELEPHONE SET DBC 220 01*

see the installation instructions for *TELEPHONE SETS DBC 222 01, DBC 223 01, DBC 224 01, DBC 225 01, KEY PANEL UNIT DBY 419 01 AND OPTION UNIT DBY 420 01.*

Note: ELU33 has to have individual 0 activated as the first individual and removed as the last individual, or else the communications with the board will fail. If done in the wrong order individuals will be blocked.

4.4.2

ISDN EXTENSIONS WITH ELU26

The ISDN-terminals are connected to the ELU26 board in the PBX through the MDF.

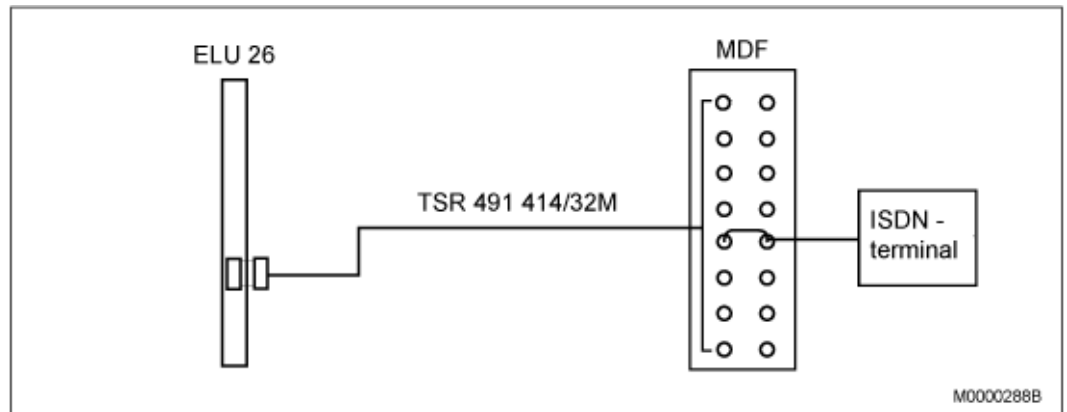


Figure 24: Example with an ISDN-terminal, 4-wire connection

4.5

CORDLESS EXTENSIONS ELU31

To the ELU31/4, radio base stations, RFPs, are to be connected, see Figure 25: ELU31/4 MDF - RFP on page 36. For more information, see Installation Instructions for CORDLESS PHONE.

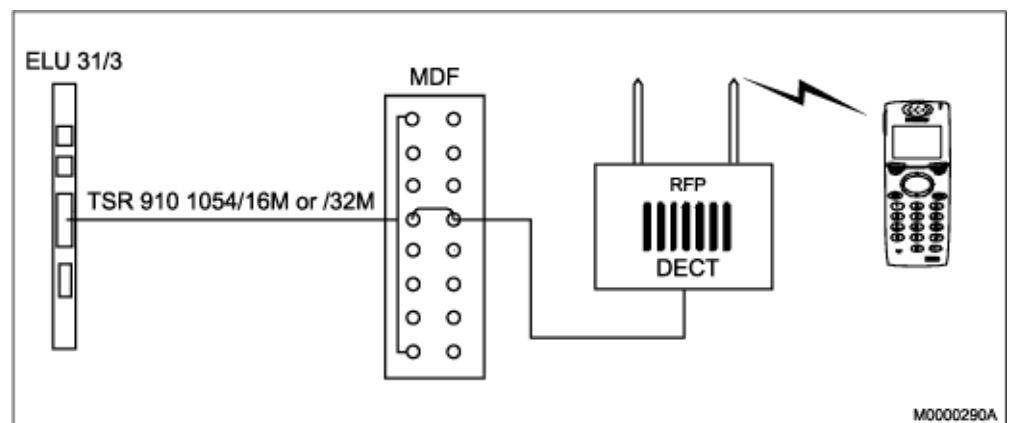


Figure 25: ELU31/4 MDF - RFP

Note: ELU31/4 can today be used in /3 or /4 mode. Check that the switch, both poles, are in correct position. For location of switch, see Figure 26: ELU31/4 - location of switch on page 37.

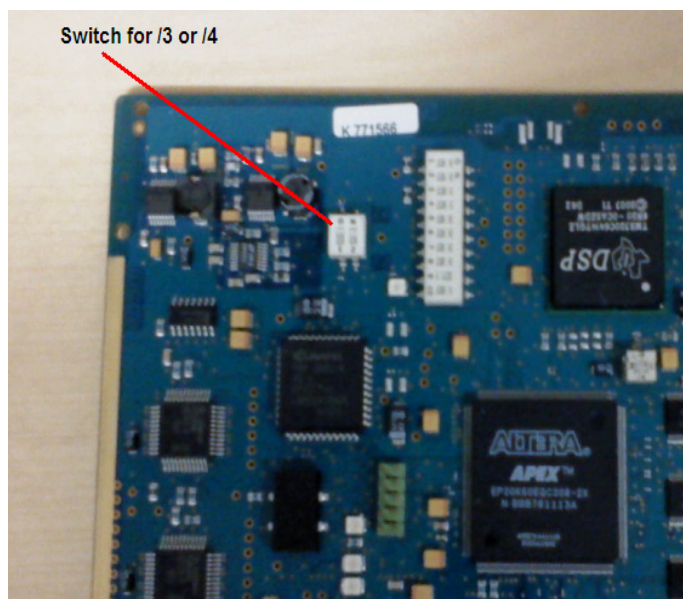


Figure 26: ELU31/4 - location of switch

4.6

ANALOG EXTERNAL LINES, TLU80 AND TLU83

Analog external lines are connected to analog TLU boards.

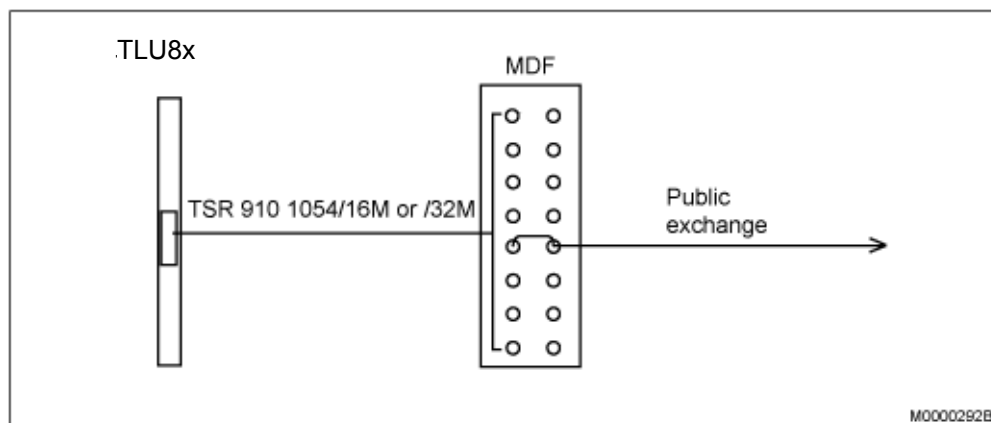


Figure 27: TLU8x - MDF example

4.7

DIGITAL EXTERNAL LINES

Note: If the ISDN T1 interface shall be connected outside the premises, it is mandatory to connect the T1 lines via a Network Terminal 1 (NT1), Channel Service Unit (CSU) or National Certified Terminal Equipment (NCTE) interface. This is essential in order to comply with US and CA regulatory safety requirements in force.

4.7.1

TLU77

Color coding for TLU77 with cable TSR4820211/xxx see item 3.5.3 TLU76 and TLU77 cable structure on page 32

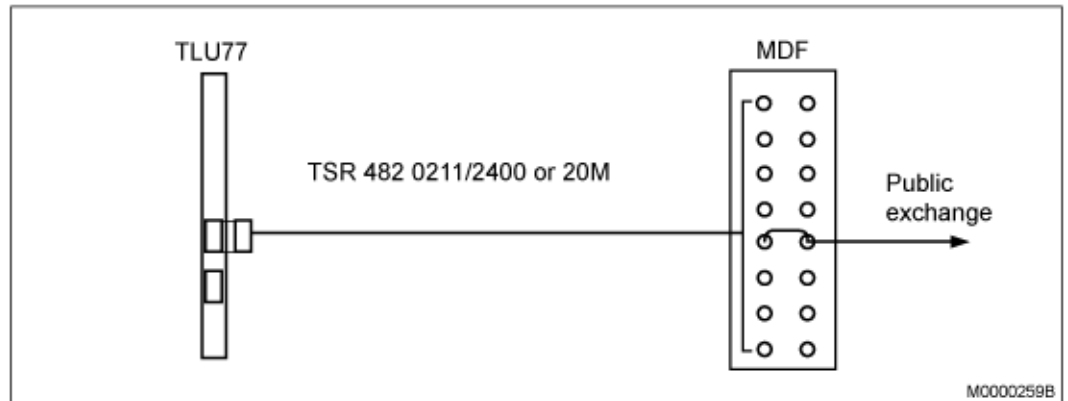


Figure 28: TLU77, 120ohm pair cable

4.7.2

ISDN

4.7.2.1

ISDN PRI with TLU76/11

Color coding for TLU76 with cable TSR4820211/xxxx see item 3.5.3 TLU76 and TLU77 cable structure on page 32

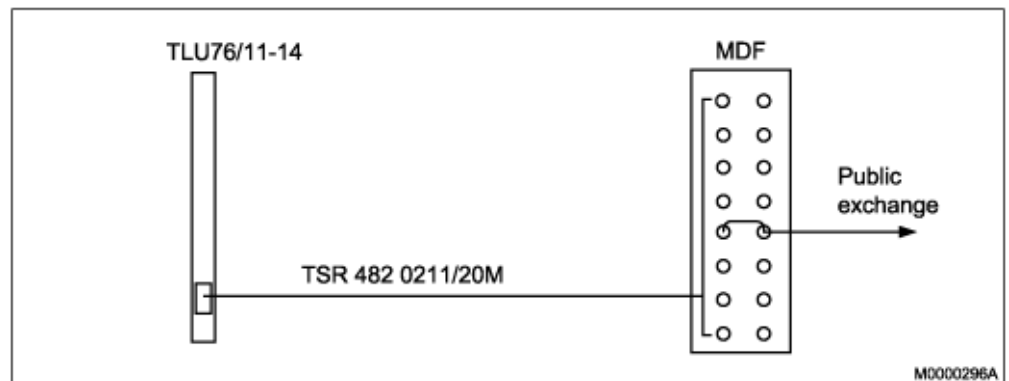


Figure 29: Digital external lines 120 ohm pair cable, TLU76/11 - /14

4.7.2.2

Digital external lines with TLU79 and an NT1-box, Network Terminal-box

Color coding for TLU79 with cable TSR491414/xxx see item 3.5.4 ELU26 and TLU79 cable structure on page 32

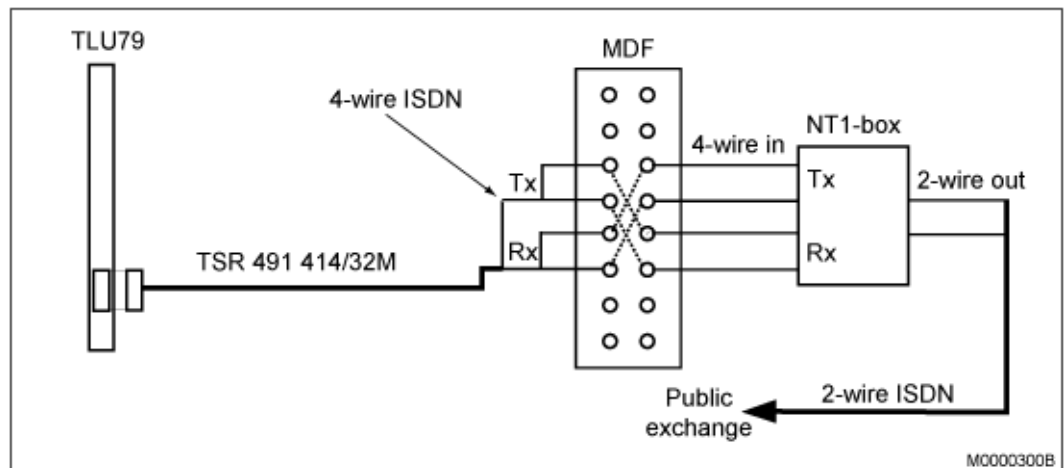


Figure 30: 2-wire ISDN with TLU79 and an NT1-box (8 pairs)

Note: Make sure that each individual's receive (Rx) and transmit (Tx) are properly connected between the TLU79 board and the NT1-box. Necessary corrections between the individuals can preferably be performed in the MDF.

4.7.2.3

Digital external line with TLU79 as a tie line

Color coding for TLU79 with cable TSR491414/xxx see item 3.5.4 ELU26 and TLU79 cable structure on page 32

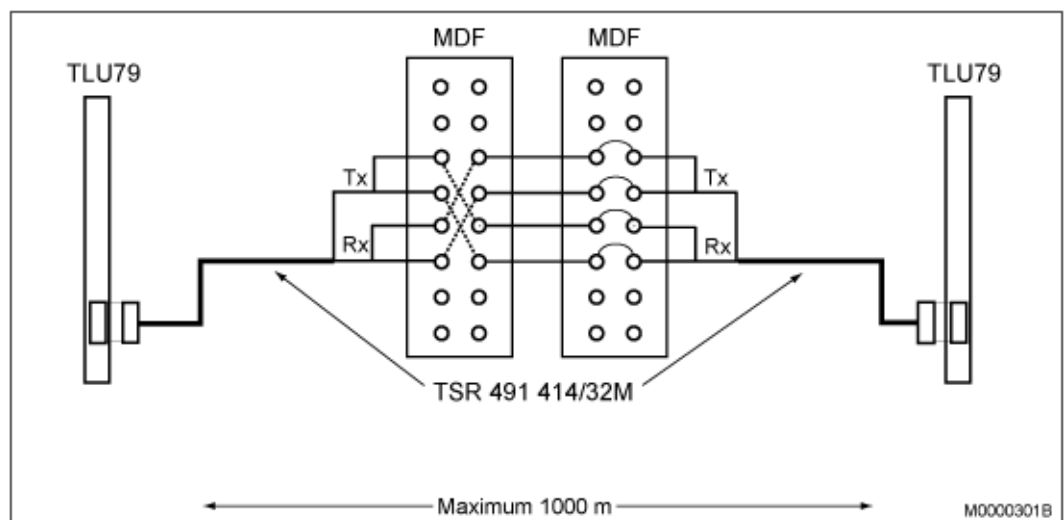


Figure 31: Connecting TLU79 to TLU79 through MDF (8 pairs)

4.8

THROUGH-CONNECTION ON POWER FAILURE OR PROCESSOR MALFUNCTION

If the exchange is equipped with an FTU2 board, one to 32 extensions (8 per FTU2 boards) can be through-connected to the public network in the event of power failure or processor malfunction.

How to carry out the cross-connection, see Figure 32: Through-Connection on Power Failure or Processor Malfunction on page 40.

These extensions must not be equipped with digital system telephones. If the public exchange is not capable of receiving DTMF-signals, then the extension must be equipped with a rotary dial telephone or a telephone for 10 pps (pulse generator). The connection to the public exchange must be of analog type.

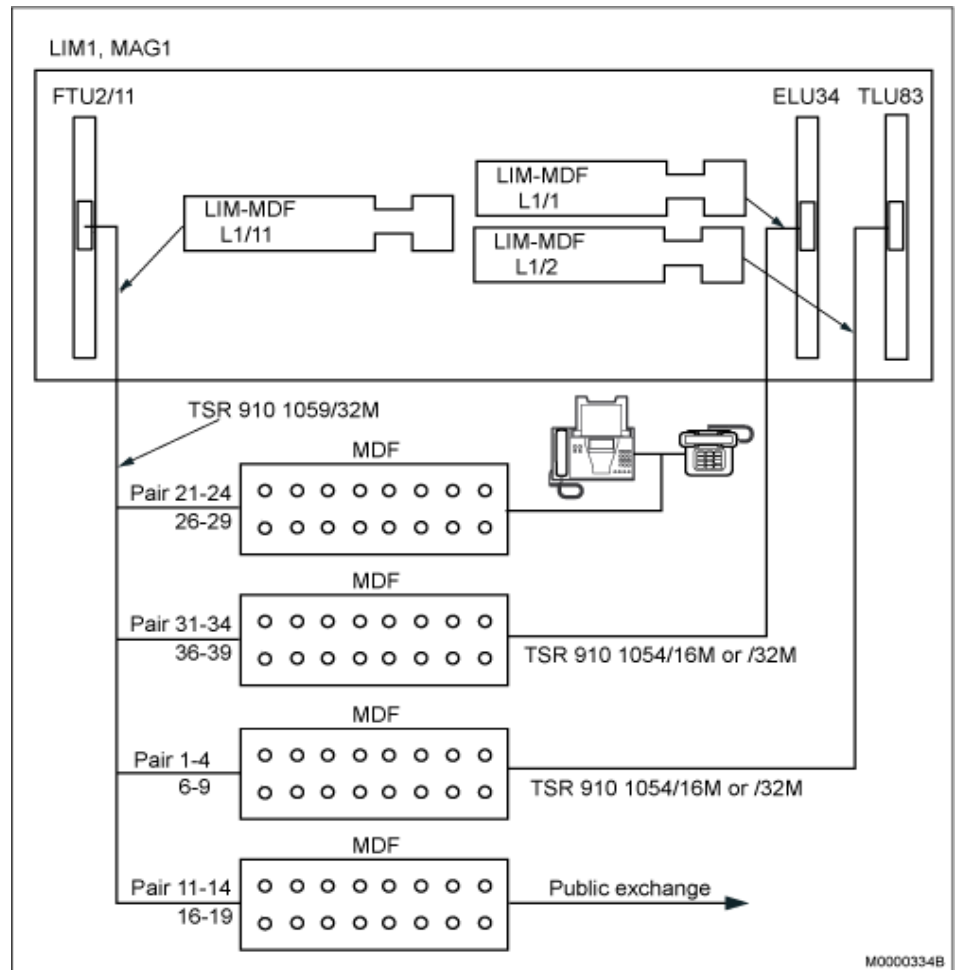


Figure 32: Through-Connection on Power Failure or Processor Malfunction

4.9 CALL METERING

4.9.1 CALL METERING TLU83/2

The TLU83/2 is needed as this board contains the call metering hardware. The metering frequency, of 12 kHz or 16 kHz, is set when the board is activated.

4.10 PRIVATE TRUNK LINES (TIE LINES)

The tie lines can be analog, digital or H.323. See 4.6 Analog External Lines, TLU80 and TLU83 on page 37 or/and see 4.4 Digital Extensions on page 35.

5

ALARMS

General alarms can be monitored in several ways depending on how the system is configured.

In systems with MX-ONE Lite (3U chassis), the MGU board can supervise several alarms, both external and internal in the unit. The alarm input of MX-ONE Lite connects input A and B to the backplane. The MGU boards can then be configured to supervise these alarm inputs.

In systems with MX-ONE Classic (7U-chassis) and MGU boards, the simplest way is to use the alarm input on the DC/DC-board and configure the MGU boards to monitor Alarm A and/or Alarm B input.

When many external alarm shall be monitored or when system is not equipped with MGU boards, an ALU2 board can be used. The ALU2 board can receive up to eight different alarm signals and send out up to seven control signals. See Figure 33: ALU2 - MDF connections on page 42.

If more in- or out- signals are required, the number of ALU2 boards can be increased. Alarm indications are normally transferred to the PBX operator consoles when using ALU2.

A internal power failure alarm for 5V DC is monitored by the MGU board.

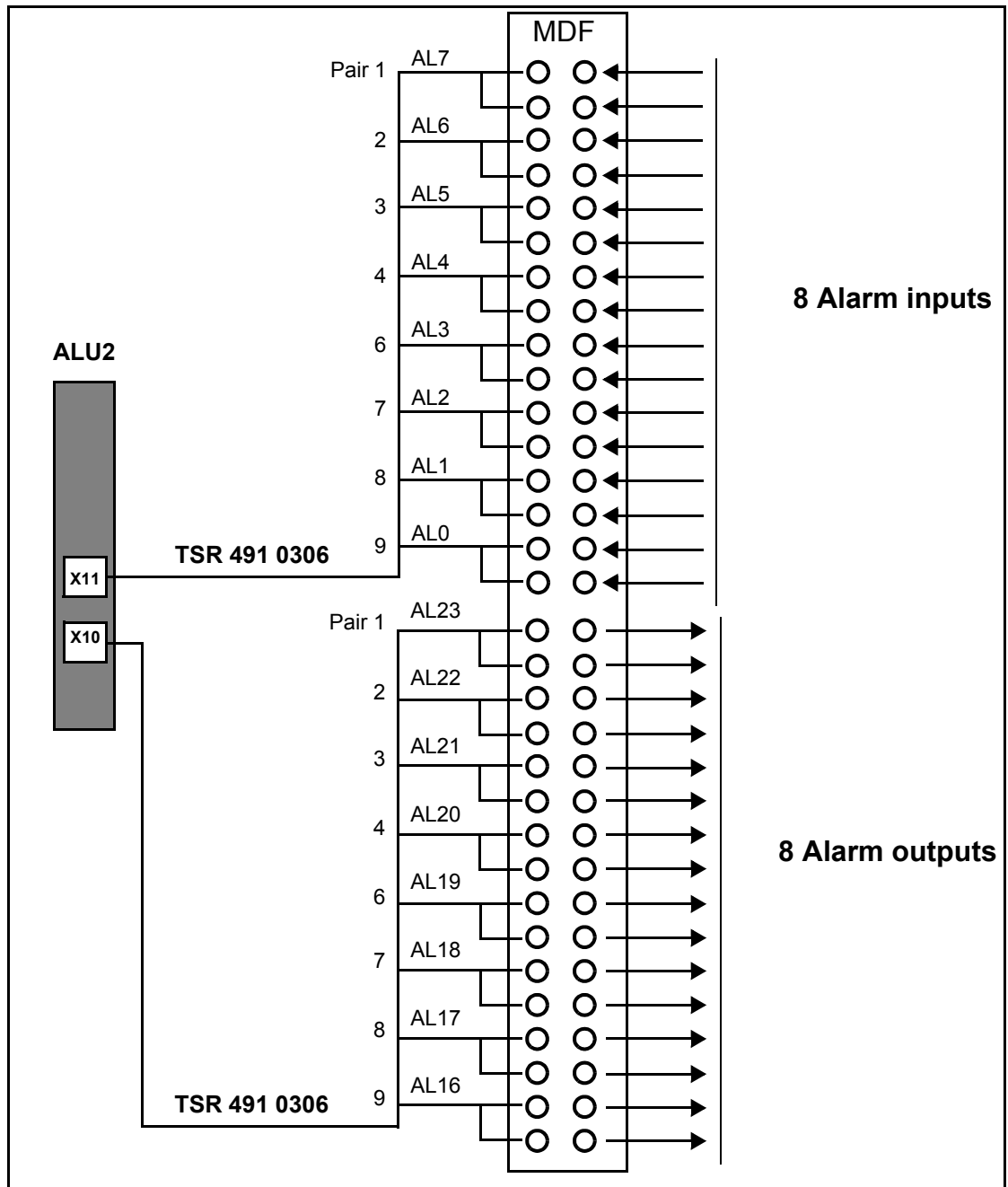


Figure 33: ALU2 - MDF connections

5.1

FAN UNIT ALARM

5.1.1

FAN BFD 509 08/4

Connect the fan alarm cable TSR902 0274/2200 to the D-sub connector on the Fan, and connect the other end to the MDF; see Figure 34: MDF Alarms for the Fan Unit BFD 509 08/4 on page 43.

Connect the Plug, SXK 106 2097/1 in the second D-sub connector on the Fan, to receive a signal loop.

Connect the ALU2 board to the MDF according to the cabling list for the site. Use cable TSR 491 0306 or similar. For an example of connection to the ALU2 board, see Figure 34: MDF Alarms for the Fan Unit BFD 509 08/4 on page 43

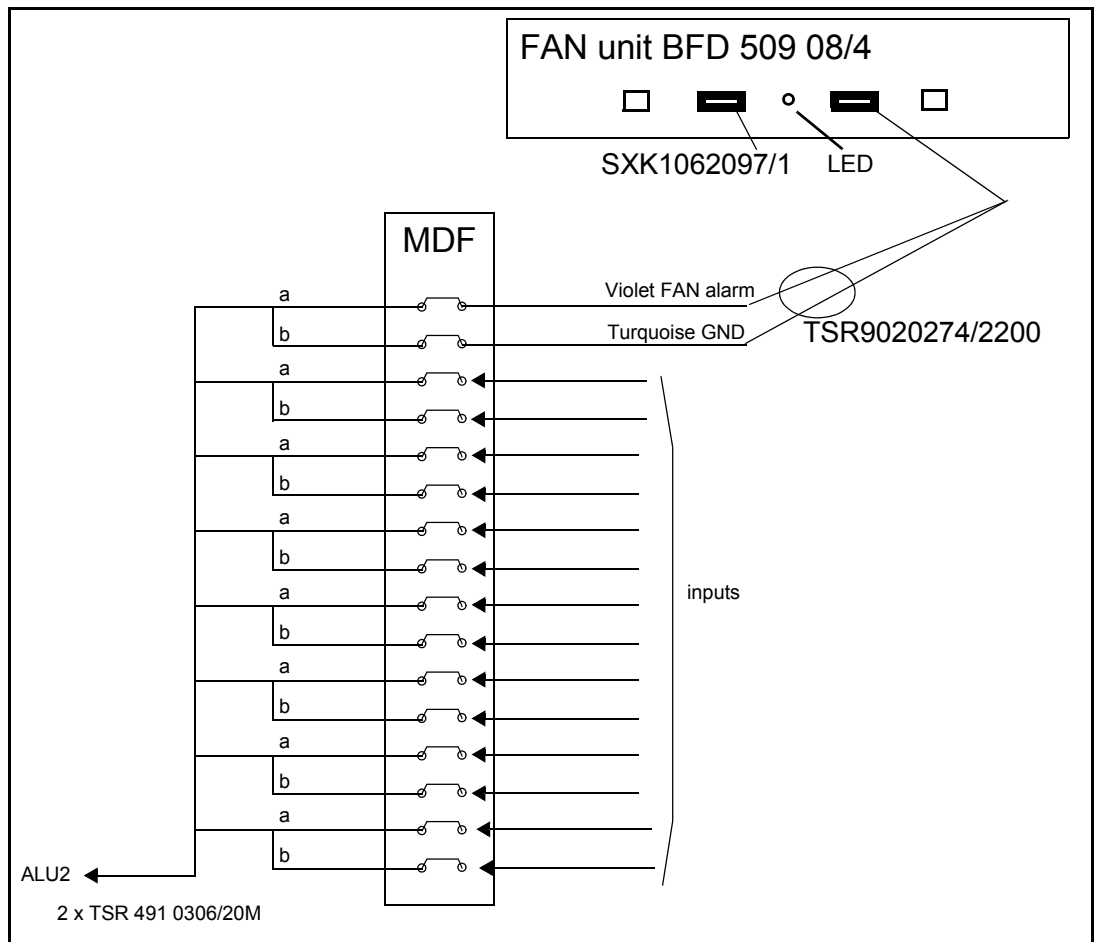


Figure 34: MDF Alarms for the Fan Unit BFD 509 08/4

The Fan unit BFD 509 08/4 has the following alarm indicators:

- Yellow LED

The yellow LED is blinking when the Alarm is activated. The Alarm can be activated either by heat or lost of one of the -48V feeding.

Fan alarm_A is active when one or more of the conditions is/are:

- -48Va or -48Vb input is too low (towards 0 V) or
- the temperature is above 55 degrees C or
- the temp.sensor fails (out of range) or
- the FAN motor current is out of range or
- the FAN or motor voltage regulation fail

5.2

MIVOICE MX-ONE LITE, 3U UNIT, EXTERNAL ALARM

The **Alarm Input**, which is located on the rear side of the unit, has two pins, 1 and 3, which can be detected as alarms when either of them is closed to ground. To reach the connector on the backplane, remove the top cover and break out the small metal cover. Use a plier and fold back and forth until it breaks off.

Table 15 Rear Alarm Input 87L00039BAA-A

| 1 | 2 | 3 | 4 |
|-----------------|-----|-----------------|-----|
| Alarm A (Relay) | GND | Alarm B (Relay) | GND |

When any of the alarms is activated it will be detected by the MGU boards.

5.3

AC/DC UNIT ALARMS

The Alarms can either be connected through the ALU2-board or direct into the DC/DC-board in the 7U-chassis, or direct into the 3U-chassis.

Connect the AC/DC unit alarm relay contacts to the inputs of the ALU2 board through the MDF according to the cabling list for the site. The inputs of the ALU2 are internally tied to -48 V through serial resistors and the board can therefore detect loop or closing to 0 V. The resistance from the source to the ALU2 input should be maximum 20 kohm.

5.3.1

FOR 51305282

For information, see the documentation delivered with the product. These documents are also stored in the Alex data base in parallel with this document.

Document name: *Aspiro 1U in a 2U Enclosure, Instruction Manual PM110_6500_00*, and *Quick Install Guide 100_6500_00-QR*

The power system has a set of ports, alarm contacts, located on the rear side, that reflect different operating conditions for the power supply, see Figure 35: MGU Power Alarm Detection in MX-ONE Lite on page 45 or Figure 36: Power and Fan alarm in Classic chassis on page 46 and Supplier Manual. Wires to the different alarm units can be fastened to the ports.

The communication with the AC/DC-unit can also be done via the PCC unit 51305283. This unit is Optional. The unit have a RJ45-connector to communicate with the LAN.

5.4

AC/DC ALARM THROUGH MGU

5.4.1

MIVOICE MX-ONE LITE 87L00039BAA-A WITH POWER UNIT

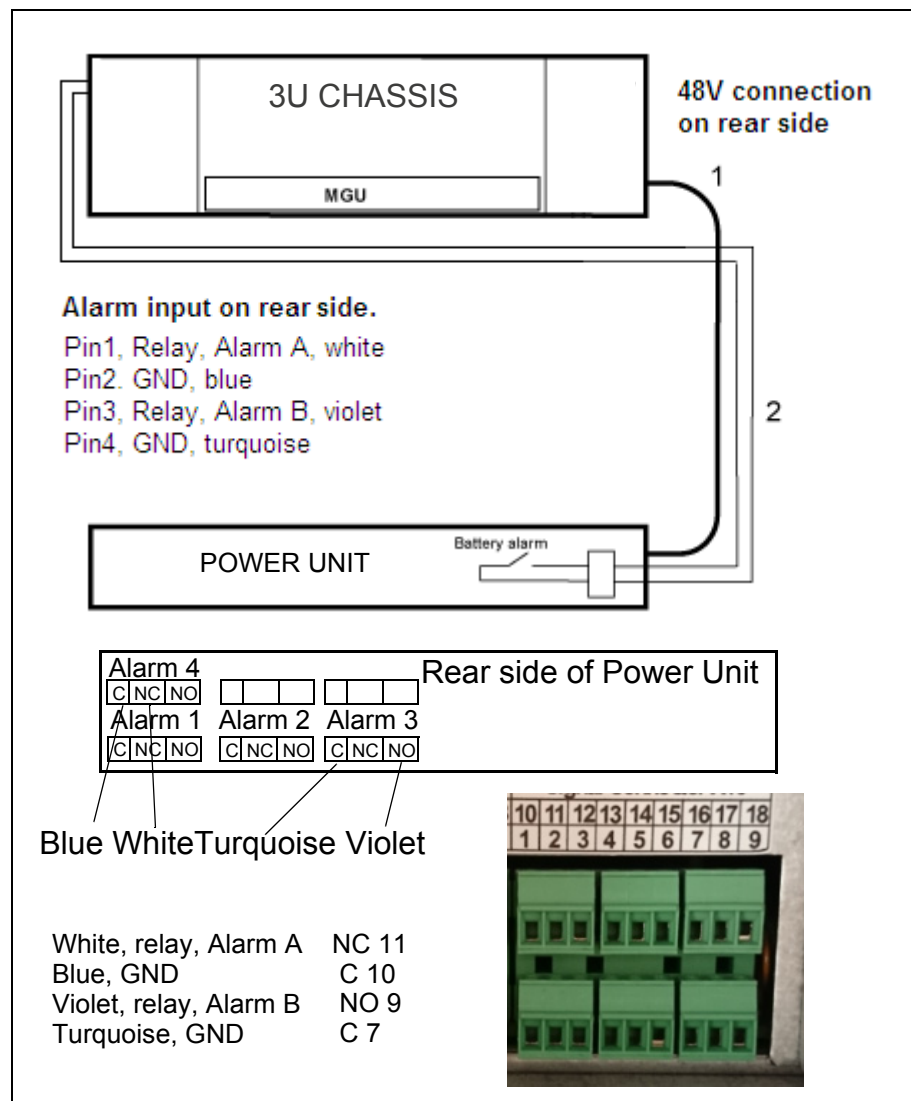


Figure 35: MGU Power Alarm Detection in MX-ONE Lite

The following cables are used:

1. Power cable 51305285
2. Alarm cable 61L00007AAA-A (free end on power unit side)

The alarm cable is optional and needed when alarm handling is required.

To connect the alarm cable on the rear side of the chassis, a break-out plate has to be removed. Open the top cover and break out the plate. Use a plier and fold back and forth until it breaks of.

For details about the connections, see Supplier User Manual.

5.4.2

MIVOICE MX-ONE CLASSIC WITH POWER UNIT

Alarms from FAN_2 units and alarms from power supply, can be routed to the MX-ONE system via the ALARM inlet on either the DC/DC board if a MX-ONE Classic (7U-chassis) is used, or in the rear of a MX-ONE Lite (3U-chassis) if this is used.

The Supervision Extension port must be terminated with alarm plug SXX 106 2097/1 on the FAN_2 unit.

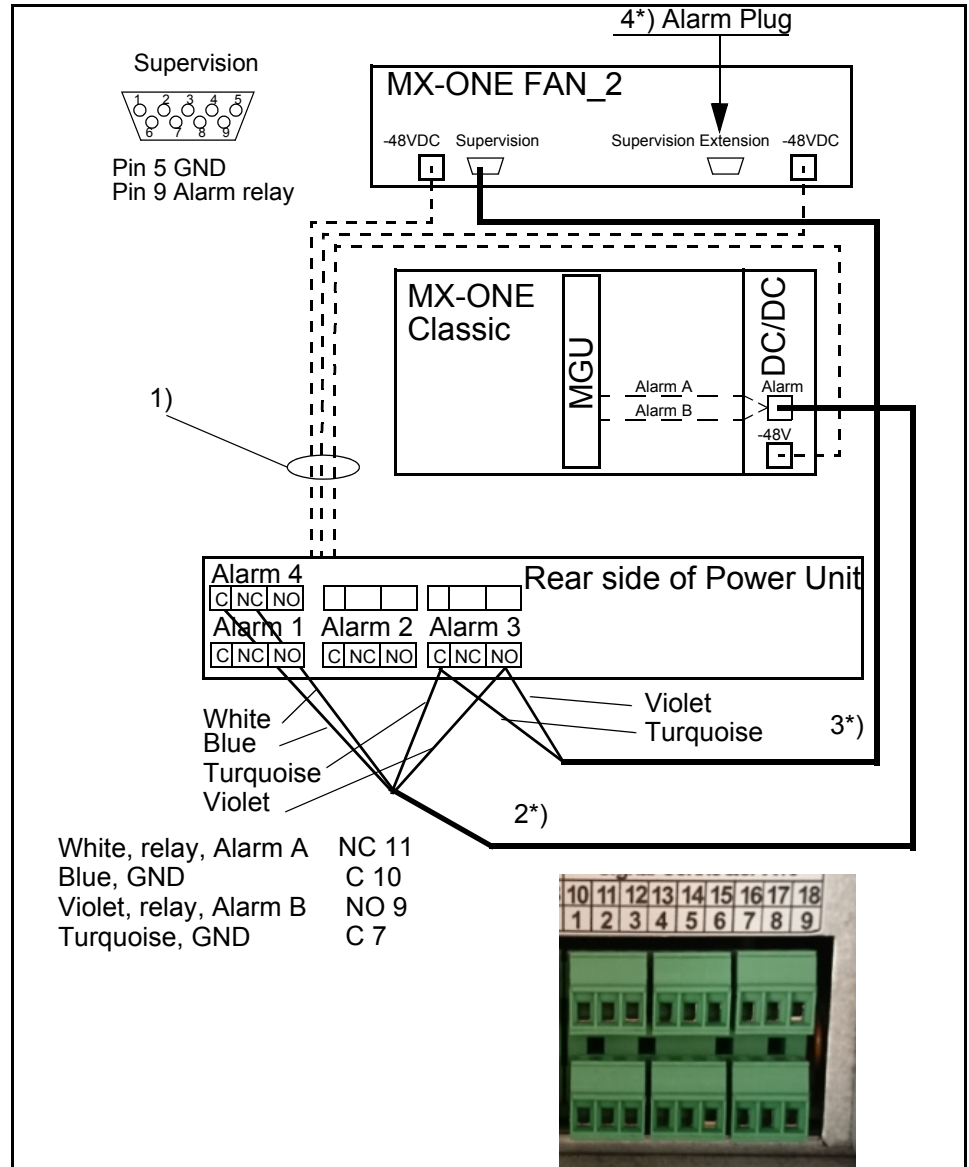


Figure 36: Power and Fan alarm in Classic chassis

The following connections are used:

1. Power cable 53105286 (87) or Power splitter cable 50006938 (37)
(**Note:** If only one (1) Power cable 53105286 (87) are used, the FAN_2 alarm will be activated)
2. * Alarm cable TSR 902 0277/2000 (free end on power unit side)
3. * FAN_2 Alarm cable TSR 902 0274/2200 (free end on power unit side)
4. * Alarm plug SXX 106 2097/1

*) Optional cables and plug. Needed when alarm handling is required.

For details about the power connections, see Supplier User Manual.