Alarm installation

INSTALLATION INSTRUCTION

Mitel®

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TRADEMARKS

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 alarm installation in a detailed way. It is aimed for customers doing new installation. For other parts of the Installation see:

- **19/1531-ASP11301 Installation preparation and Earthing**
- **20/1531-ASP11301 Hardware Installation**
- **21/1531-ASP11301 Cabling and Connections**

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 and batteries 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 ALARMS

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

In systems with MX-ONE Lite, the MGU boards 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 1:ALU2 - MDF connections on page 5.

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.

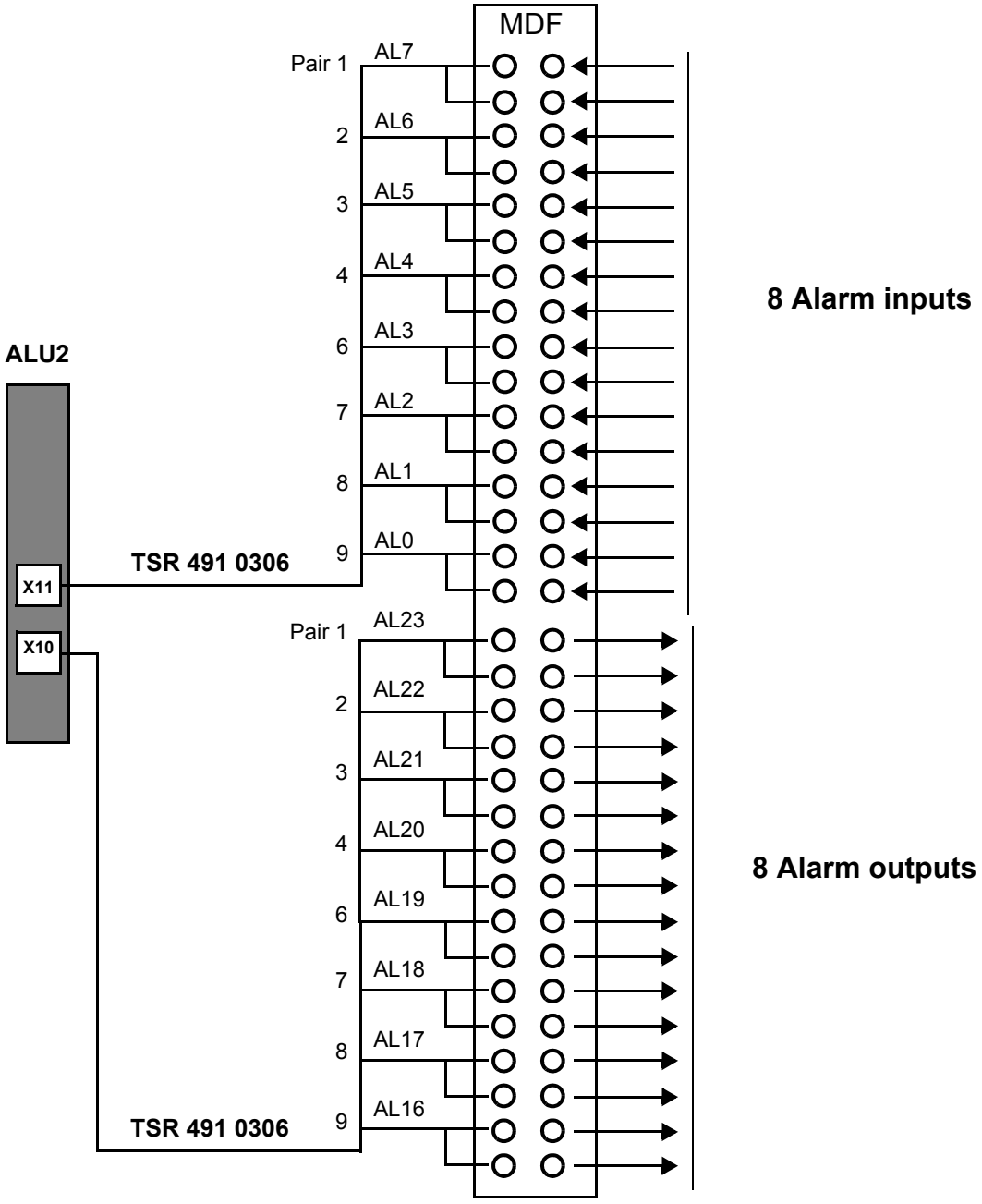


Figure 1: ALU2 - MDF connections

2.1 FAN UNIT ALARM

2.1.1 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 2:MDF Alarms for the Fan Unit BFD 509 08/4 on page 6.

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 2:MDF Alarms for the Fan Unit BFD 509 08/4 on page 6

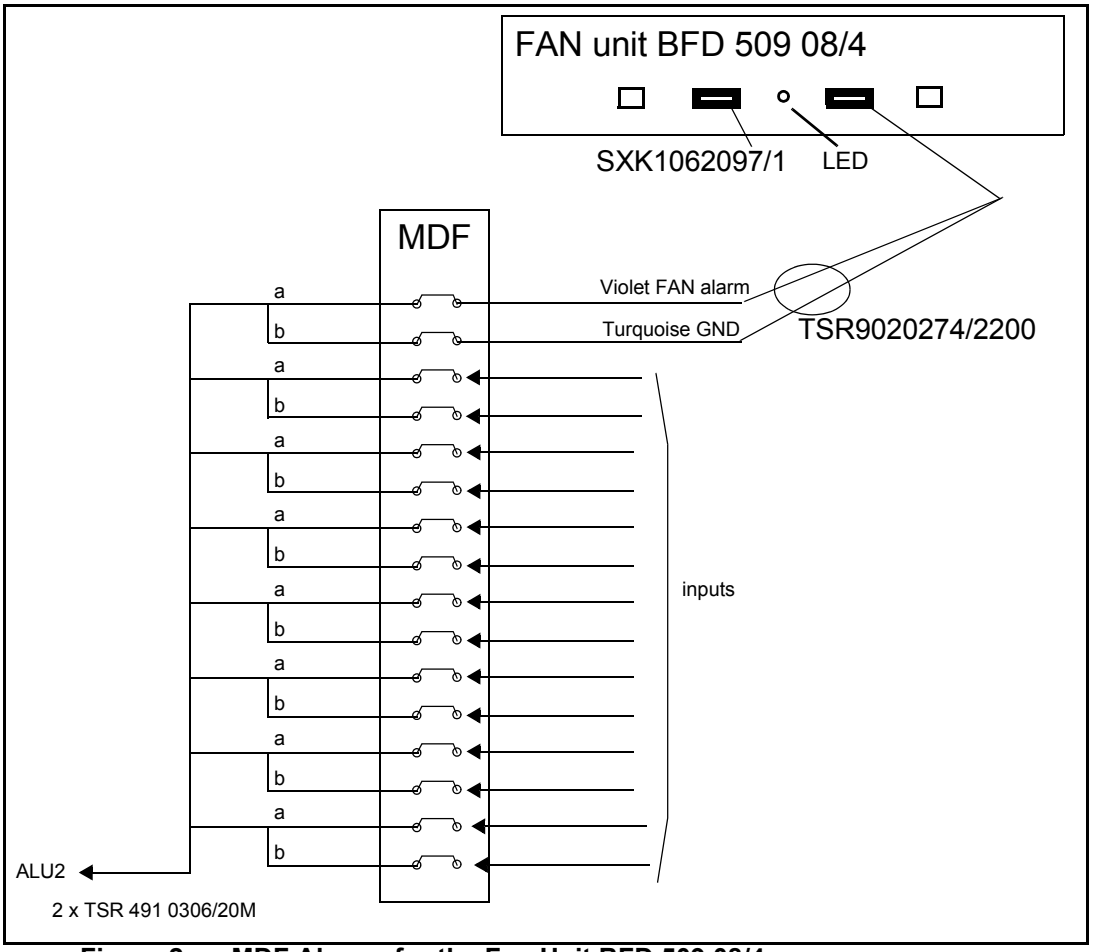


Figure 2: MDF Alarms for the Fan Unit BFD 509 08/4

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.

Table 1 Fan Unit Alarms

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

2.1.2 FAN BFD 509 13

Connect the fan alarm using cable TSR 482 0211/20M to the MDF, see Figure 3:MDF Alarms for the Fan Unit BFD 509 13 on page 7 and connect the ALU2 board to the MDF according to the cabling list for the site. For an example of connection to the ALU2 board, see Figure 3:MDF Alarms for the Fan Unit BFD 509 13

on page 7.

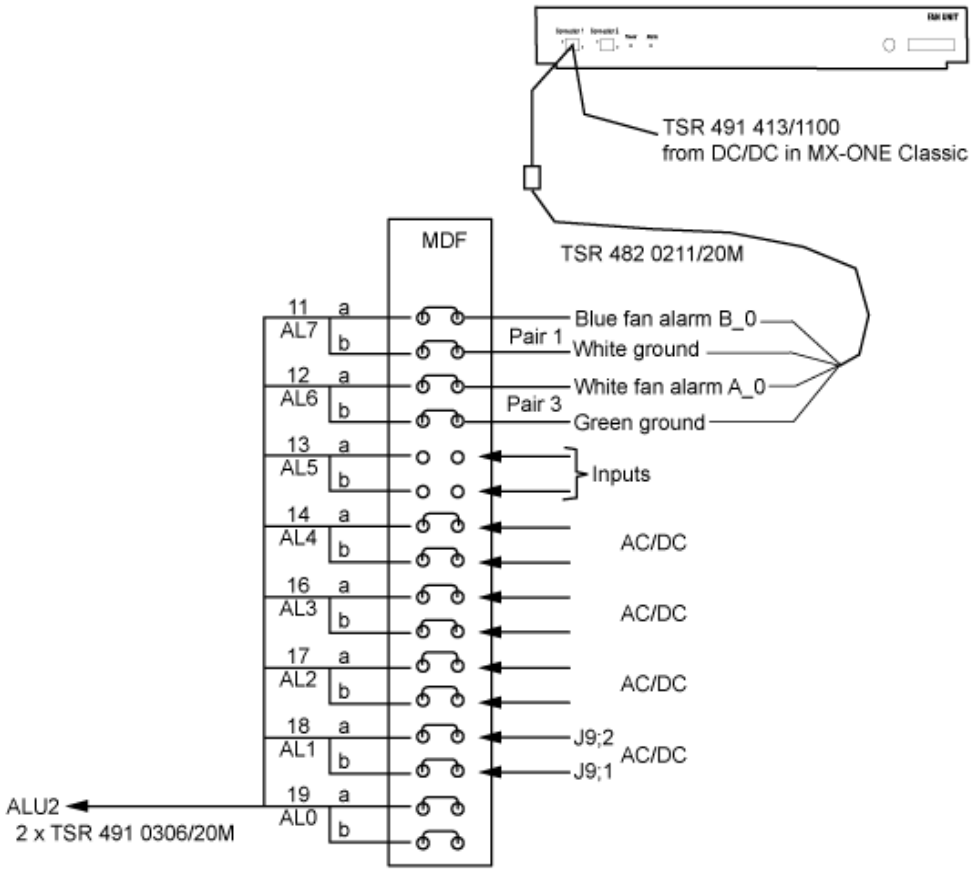


Figure 3: MDF Alarms for the Fan Unit BFD 509 13

The Fan unit BFD 509 13 has the following alarm indicators:

- Green LED

  The green LED is lit when there is input power at Connector 1 or Connector 2. The LED is blinking in the dual feed mode if one of the -48 V supply voltages is missing. Otherwise the LED is dark.

- Red LED

  The red LED is normally dark. The LED is lit for A- and B- alarm conditions. The LED is dark for alarm condition: the (absolute) supply voltage is below 15 V.

Table 2 Fan Unit Alarms

Fan alarm_A is active when one or more of the conditions is/are:	-48V is too low (towards 0 V) **or** the temperature is above 65 degrees C
Fan alarm_B is active when one or more of the conditions is/are:	one -48V input is missing **or** the temperature is above 55 degrees **or** the temp.sensor fails **or** the FAN or motor regulation fails

The alarm_a signal is tied to ground when alarm A is active while the alarm_b signal is open when alarm B is active

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

BFD76142

The front **Alarm Input**, which is located on the right side of the unit, has two pins, A1 and B1, which can be detected as alarms when either of them is closed to ground. This is valid from revision R1E and later.

Table 3 Front Alarm Input BFD76142

A1	**A2**	**A3**	**A4**
Alarm A	GND	NC	NC
B1	**B2**	**B3**	**B4**
Alarm B	GND	NC	NC

The over-temperature sensor of the internal fan unit is connected to Alarm A. It will be pulled low when the temperature rises above the maximum level.

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

87L00039AAA-A

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 4 Rear Alarm Input 87L00039AAA-A

1	**2**	**3**	**4**
Alarm A (Relay)	GND	Alarm B (Relay)	GND

The over-temperature sensor of the internal fan unit is connected to Alarm A. It will be pulled low when the temperature rises above the maximum level.

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

2.3 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 (front or back side depending on version of 3U).

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.

2.3.1 FOR BZA 109 11 (2U POWER UNIT)

For information, see the documentation delivered with the product. These documents are also stored in the Alex data base in parallel with this document. See document BCG.00075 for User manual, and 1/1531-BZA10911 for Quick Install Guide.

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 5:Rear view of BZA 109 11 on page 9. 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 com-module. The modules have a RJ45-connector to communicate with the LAN.

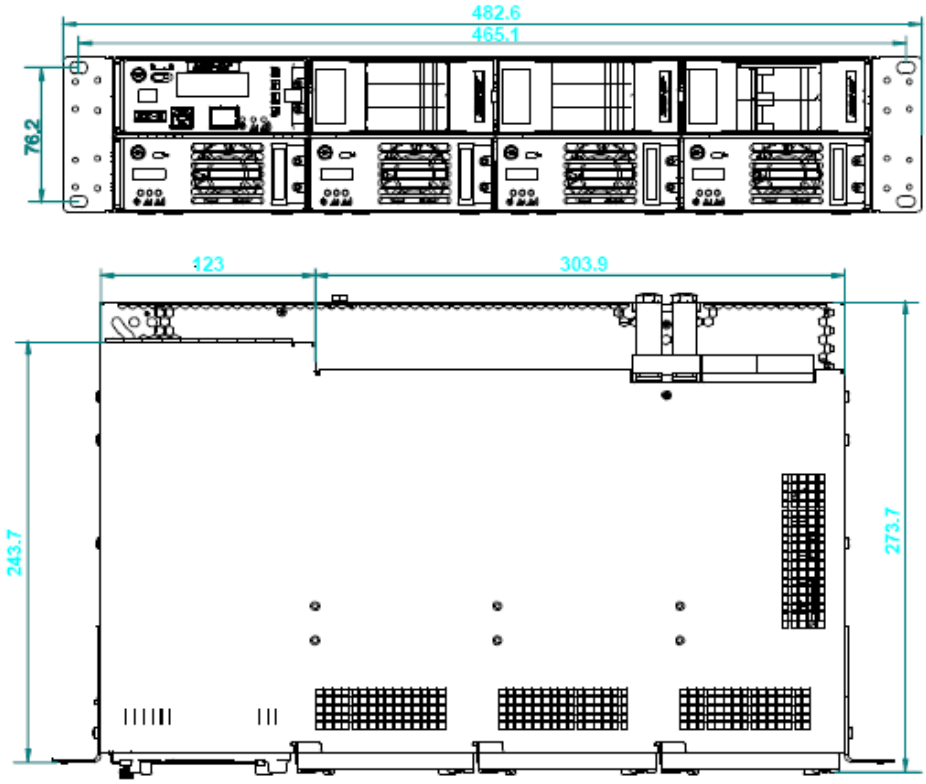
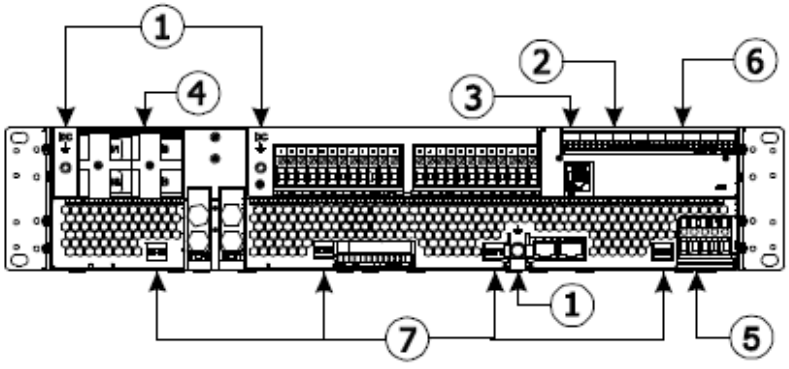


Figure 4: Top and front view of BZA 109 11



1. Earth Connection
2. Configuration-specific Alarms Connection
3. Temperature Sensor Connection
4. Battery Connectors
5. Mains Connections (single-phase)
6. Multi Purposes (Symmetry and Analog Inputs)
7. Rectifier Addressing (4R System)

Figure 5: Rear view of BZA 109 11

2.3.2 FOR 87L00034AAA-A (1U POWER UNIT)

For information, see the documentation delivered with the product. These documents are also stored in the Alex data base in parallel with this document. See document BCG 00031.44 for Supplier User manual, and document BCG 00133 for Quick Install Guide.

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 5:Rear view of BZA 109 11 on page 9.

Note: The picture shows the 2U Power Unit but the 1U Power unit has the same connectors but in another position.

The communication with the AC/DC-unit can also be done via the com-module. The modules have a RJ45-connector to communicate with the LAN.

2.4 AC/DC ALARM THROUGH MGU

2.4.1 MX-ONE LITE 87L00039AAA-A WITH 1U POWER UNIT

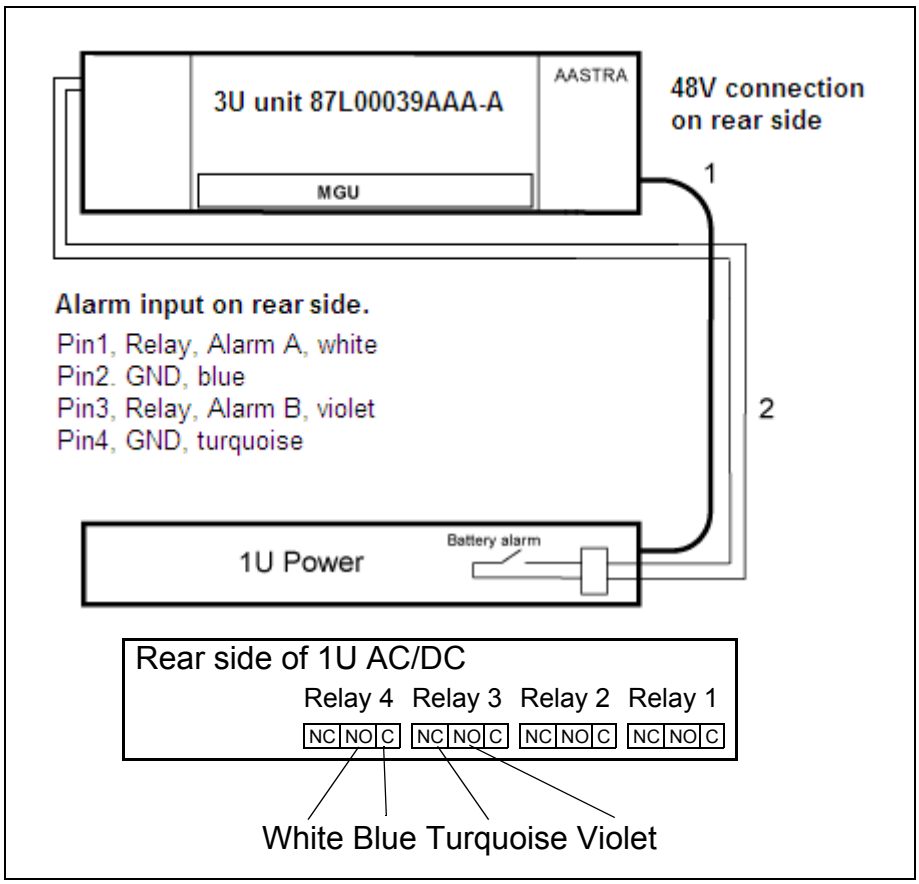


Figure 6: MGU Power Alarm Detection in MX-ONE Lite

The following cables are used:

- Power cable TSR 9020279/2000 (free end on power unit side)
- Alarm cable 61L00007AAA-A (free end on power unit side)

The alarm cable is optional and is only 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 1U-power connection, see doc. BCG 00031.44, Supplier User Manual.

2.4.2 MX-ONE LITE BFD76142 WITH 1U POWER UNIT

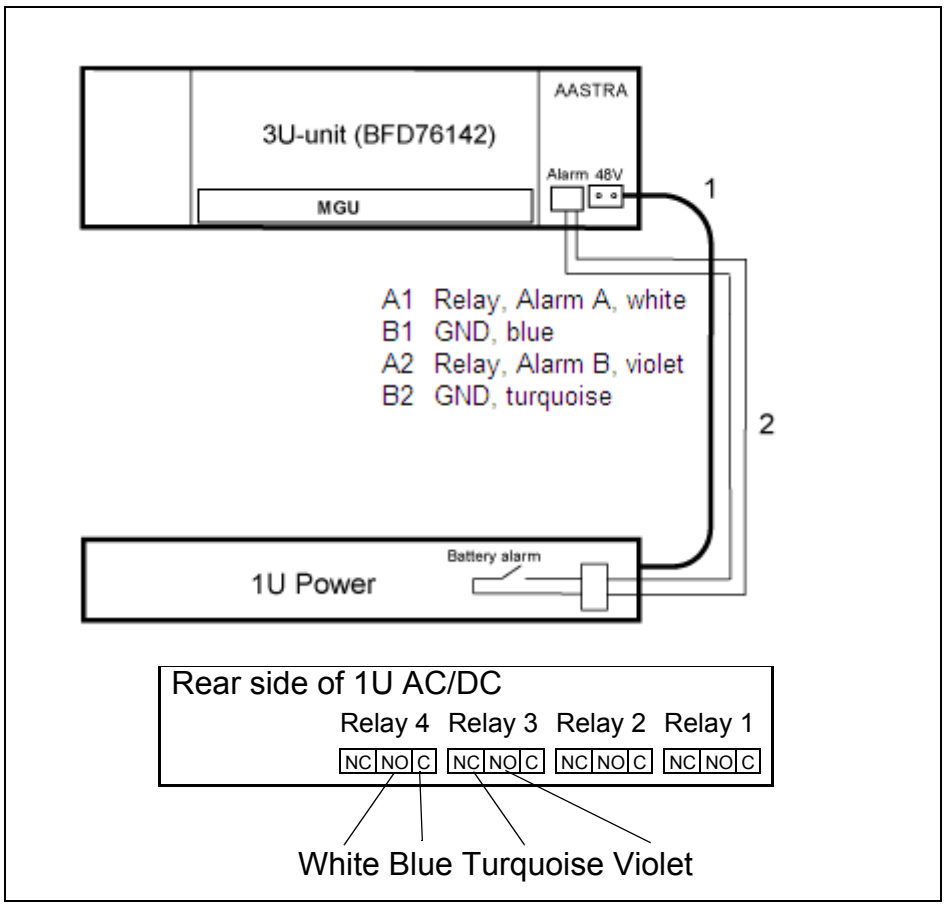


Figure 7: MGU Power Alarm Detection in MX-ONE Lite

The following cables are used:

- Power cable TSR 903 021/5000 (free end on power unit side)
- Alarm cable TSR 902 0277/2000 (free end on power unit side)

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

The alarm port is different on MX-ONE Lite (3U) BFD76142, after revision R1D. The alarm port on revision R1E and later is the same as the one used on the DC/DC board in MX-ONE Classic.

If an R1D or earlier BFD76142 unit is used, swap the blue and violet wires on the DC/DC Alarm Cable, TSR 902 0277/2000

For details about the 1U-power connection, see doc. BCG 00031.44, Supplier Instruction Manual.

2.4.3 MX-ONE CLASSIC WITH 2U 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-unit) is used or in the front/back of a MX-ONE Lite (3U-unit) is used.

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

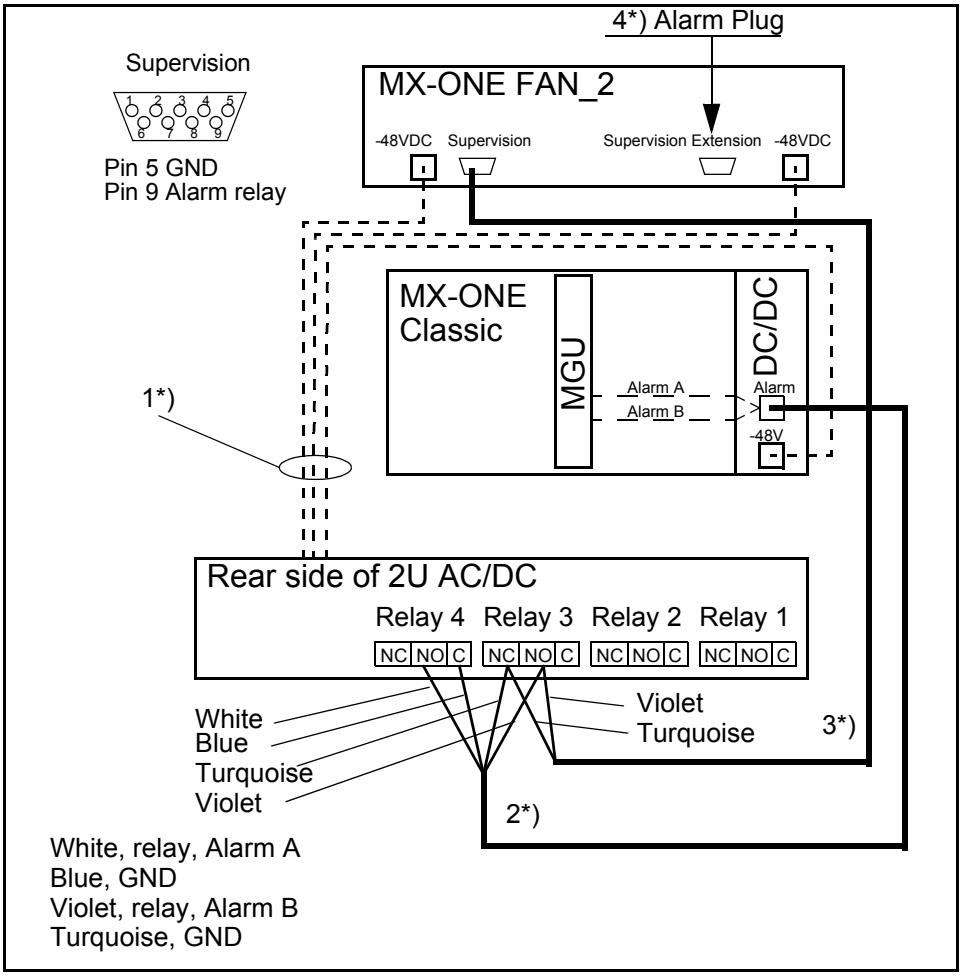


Figure 8: MGU Power and Fan alarm in Classic subracks

The following connections are used:

- Power cable TSR 903 021/5000 (free end on power unit side)
- * Alarm cable TSR 902 0277/2000 (free end on power unit side)
- * FAN_2 Alarm cable TSR 902 0274/2200 (free end on power unit side)
- * Alarm plug SXK 106 2097/1

*) Optional cables and plug. Only needed if alarm handling is required.

For details about the 2U-power connection, see doc. BCG.00075, Supplier User Manual.