

## Mediant™ 800 MSBR



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## Notice

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This document is subject to change without notice.

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## Security Vulnerabilities

All security vulnerabilities should be reported to [vulnerability@audiocodes.com](mailto:vulnerability@audiocodes.com).

## WEEE EU Directive

Pursuant to the WEEE EU Directive, electronic and electrical waste must not be disposed of with unsorted waste. Please contact your local recycling authority for disposal of this product.

## Customer Support

Customer technical support and services are provided by AudioCodes or by an authorized AudioCodes Service Partner. For more information on how to buy technical support for AudioCodes products and for contact information, please visit our website at <https://www.audiocodes.com/services-support/maintenance-and-support>.

## Stay in the Loop with AudioCodes



## Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Throughout this manual, unless otherwise specified, the term *device* refers to Mediant 800 MSBR.

## Related Documentation

| Document Name                      |
|------------------------------------|
| MSBR Series Release Notes          |
| Mediant 800 MSBR SIP User's Manual |
| CLI Reference Guide                |

## Notes and Warnings



**Warning:** The device is an INDOOR unit and therefore, must be installed only indoors.



Open-source software may have been added and/or amended for this product. For further information, please contact your AudioCodes sales representative.



### Caution Electrical Shock

Do not open or disassemble this device. The device carries high voltage and contact with internal components may expose you to electrical shock and bodily harm.



**Warning:** The device must be installed and serviced only by qualified service personnel.



**Warning:** For deployment in Finland, Sweden and Norway, the device must be installed ONLY in restricted access locations that are compliant with ETS 300253 guidelines here equipotential bonding has been implemented.



**Warning:** Disconnect the device from the mains and Telephone Network Voltage (TNV) before servicing.

## Document Revision Record

| LTRT  | Description                                                                                                                                                                                  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10403 | RJ-11 connector pinouts for FXS                                                                                                                                                              |
| 10402 | IEC power statements for Mediant 800C                                                                                                                                                        |
| 10239 | OSN USB cabling update; EN 55024 replaced by EN 55035                                                                                                                                        |
| 10238 | OSN removed from Mediant 800B                                                                                                                                                                |
| 10237 | E1/T1 WAN removed; 3G cellular removed                                                                                                                                                       |
| 10236 | LTE support added.                                                                                                                                                                           |
| 10235 | Dimensions updated; grounding EN/UL updated; serial cable and E1/T1 splitter cable removed from supplied list                                                                                |
| 10234 | Amperage values updated.                                                                                                                                                                     |
| 10233 | Cellular modem (3.5G replaced by 4G).                                                                                                                                                        |
| 10232 | Cooling guidelines for mounting.                                                                                                                                                             |
| 10231 | Mediant 800C added; figures updated with new corporate logo; power fuse updated; AC power rating updated; warnings added for grounding; cable type for LAN updated; SFP for WAN copper added |
| 10230 | Lifeline splitter cable – not supplied.                                                                                                                                                      |
| 10229 | Logo updated;                                                                                                                                                                                |

| LTRT  | Description                                           |
|-------|-------------------------------------------------------|
| 10228 | Typo fixed re 19-inch rack mounting brackets.         |
| 10227 | BRI/PRI cabling warning.                              |
| 10225 | AC power cable warning (Japanese); STATUS LED update. |
| 10225 | A/VDSL port (RJ-45) cabling.                          |
| 10224 | DSL connector pinouts updated.                        |
| 10223 | Power surge protection warnings.                      |
| 10222 | E1 cabling warning statement regarding STP.           |
| 10221 | A/VDSL and SHDSL LEDs updated.                        |
| 10220 | SHDSL LEDs added.                                     |
| 10210 | Initial document release for Version 6.8.             |

## Documentation Feedback

AudioCodes continually strives to produce high quality documentation. If you have any comments (suggestions or errors) regarding this document, please fill out the Documentation Feedback form on our website at <https://online.audiocodes.com/documentation-feedback>.

# 1 Introduction

This document provides a hardware description of the Mediant 800 MSBR (hereafter referred to as *device*) and step-by-step procedures for mounting and cabling the device.

The device provides the following interfaces:

- Optional telephony interfaces:
  - E1/T1:
    - ◆ (Mediant 800B MSBR) Up to 2 E1/T1 port interfaces (over single copper wire pair).
    - ◆ (Mediant 800C MSBR) Up to 4 E1/T1 port interfaces
  - Up to 8 BRI ports (supporting up to 16 voice channels)
  - Up to 12 FXS ports
  - FXS Lifeline on FXS Port 1, maintaining PSTN connectivity upon power failure. For the combined FXS/FXO configuration, one Lifeline is available; for the 12-FXS configuration, up to three Lifelines are available.
  - Up to 12 FXO ports
- Optional LAN interfaces:
  - Up to 12 Ethernet LAN ports:
    - ◆ Up to 4 RJ-45 10/100/1000Base-T (Gigabit Ethernet) ports
    - ◆ Up to 8 RJ-45 10/100Base-TX (Fast Ethernet) ports
- Two USB ports for USB storage services
- Integrated Gigabit Ethernet (GE) Unshielded Twisted Pair (UTP) interface port, with an option of one or two additional WAN interfaces of the following types (factory assembled option):
  - GE UTP
  - 1.25 Gbps Optical Fiber SFP form factor
  - ADSL2+ / VDSL2
  - (Mediant 800B MSBR) SHDSL, supporting up to four wire-pairs
  - 1 x Ethernet copper WAN port (10/100/1000Base-T)
  - (Mediant 800C MSBR) 4G Cellular WAN access, using an integrated LTE modem
- RJ-45 serial interface port
- (Mediant 800C MSBR) Optional, Open Solutions Network (OSN) server platform for hosting third-party applications such as an IP PBX.
- Power:
  - (Mediant 800B MSBR) Single AC power inlet
  - (Mediant 800C MSBR) Single AC power inlet, and a DC power inlet (optional, customer ordered)



- Mediant 800 includes two hardware revisions which differ as follows:
  - Mediant 800B MSBR: Max. 2 E1/T1; AC power only
  - Mediant 800C MSBR: Max. 4 E1/T1; AC and DC power (optional)
- The SFP module can be used for WAN fiber-optic interface or WAN copper interface.
- The USB port is not provided when the device is ordered with LTE cellular support.
- Hardware configurations may change without notice. Currently available hardware configurations are listed in AudioCodes Price Book. For available hardware configurations, contact your AudioCodes sales representative.
- For configuring the different interfaces, refer to the *User's Manual*.

## 2 Unpacking the Device

Follow the procedure below for unpacking the carton in which the device was shipped.

**To unpack the device:**

1. Open the carton and carefully remove packing materials.
2. Remove the chassis from the carton.
3. Check that there is no equipment damage.
4. Ensure that in addition to the chassis, the package contains the following items:
  - Four anti-slide bumpers for desktop installation
  - Two mounting brackets for 19-inch rack mounting
  - (Mediant 800C MSBR) Two cellular antennas (if ordered with LTE)
  - One AC power cable
  - (Mediant 800C MSBR) one AC/DC power adaptor (optional, separate orderable item)
5. Check, retain and process any documents.

If there are any damaged or missing items, notify your AudioCodes sales representative.

## 3 Physical Description

This section provides a physical description of the device.

### 3.1 Physical Dimensions

The device's physical dimensions and weight are listed in the table below:

**Table 1: Physical Dimensions**

| Physical Specification        | Value                                                                                                                                                                           |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dimensions (W x D x H)</b> | 1U x 345 mm x 320 mm (13.6 x 12.6 inches)                                                                                                                                       |
| <b>Weight</b>                 | 2.5 kg (5.5 lb)                                                                                                                                                                 |
| <b>Environmental</b>          | <ul style="list-style-type: none"> <li>Operational: 5 to 40°C (41 to 104°F)</li> <li>Storage: -25 to 85°C (-13 to 185°F)</li> <li>Humidity: 10 to 90% non-condensing</li> </ul> |

### 3.2 Front Panel Description

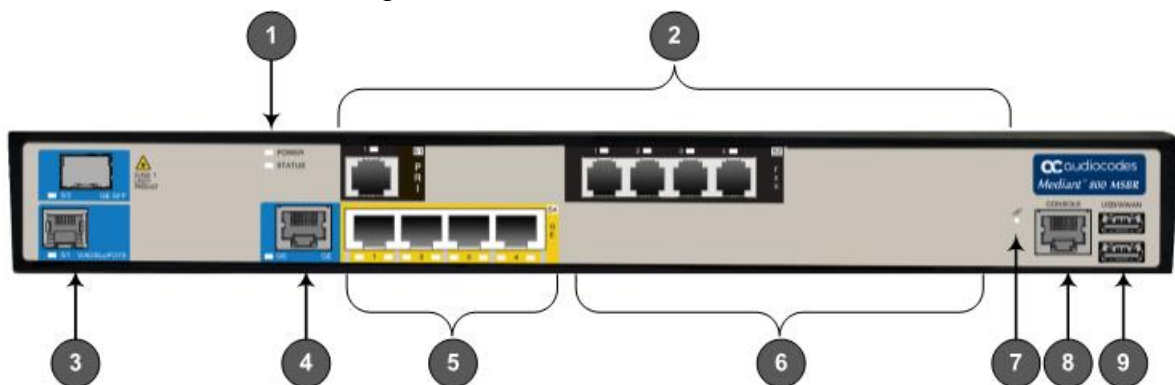
The front panel provides the telephony port interfaces, various networking ports, reset pinhole button, and LEDs.

#### 3.2.1 Ports and Buttons

The device's front panel is shown in the figure below and described in the subsequent table.

##### 3.2.1.1 Mediant 800B MSBR

**Figure 1: Mediant 800B MSBR Front Panel**



- The figure above is used only as an example; the number and type of port interfaces depends on the ordered model.
- For available hardware configurations, please contact your AudioCodes sales representative.

**Table 2: Mediant 800B MSBR Front Panel Description**

| Item # | Label                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | <b>POWER / STATUS</b>                                                                                 | Power and operating status LEDs. For more information, see Section 3.2.2 on page 13.                                                                                                                                                                                                                                                                                                                                                            |
| 2      | <b>FXS / FXO / BRI / PRI</b>                                                                          | <p>(Optional) Telephony port interfaces, which can include one or a combination of the following, depending on ordered model:</p> <ul style="list-style-type: none"> <li>■ FXS port interfaces (RJ-11)</li> <li>■ FXO port interfaces (RJ-11)</li> <li>■ ISDN BRI port interfaces (RJ-45)</li> <li>■ ISDN PRI (E1/T1) port interfaces (RJ-48)</li> </ul> <p><b>Note:</b> The FXS/FXO interfaces support loop-start signaling (indoor only).</p> |
| 3      | <b>GE (Copper GbE)<br/>V/ADSLoPOTS<br/>DSLtoISDN<br/>DSLtoPOTS<br/>SHDSL<br/>GE SFP (Optic Fiber)</b> | (Optional) One or two additional WAN interfaces (copper GE, SFP, SHDSL, and A/VDL). For a list of supported WAN configurations, please contact your AudioCodes sales representative.                                                                                                                                                                                                                                                            |
| 4      | <b>GE 0/0</b>                                                                                         | Gigabit Ethernet (10/100/1000Base-T) copper WAN interface (RJ-45), provided on all models.                                                                                                                                                                                                                                                                                                                                                      |
| 5      | <b>GE</b>                                                                                             | Up to four Gigabit Ethernet (10/100/1000Base-T) LAN ports for connecting IP phones, computers, or switches. These ports support half- and full-duplex modes, auto-negotiation, and straight or crossover cable detection.                                                                                                                                                                                                                       |
| 6      | <b>FE</b>                                                                                             | (Optional) Eight Fast Ethernet (10/100Base-TX) RJ-45 LAN ports for connecting IP phones, computers, or switches. These ports support half- and full-duplex modes, auto-negotiation, and straight or crossover cable detection.                                                                                                                                                                                                                  |
| 7      | <b>//</b>                                                                                             | <p>Reset pinhole button for resetting the device and optionally, for restoring the device to factory defaults.</p> <p>To restore the device to factory defaults, do the following: With a paper clip or any other similar pointed object, press and hold down the pinhole button for <b>at least 12 seconds, but no longer than 25 seconds</b>.</p>                                                                                             |
| 8      | <b>CONSOLE</b>                                                                                        | RS-232 serial communication port (RJ-45).                                                                                                                                                                                                                                                                                                                                                                                                       |
| 9      | <b>USB/WWAN</b>                                                                                       | Two USB ports that can be used for storage capabilities.                                                                                                                                                                                                                                                                                                                                                                                        |

## 3.2.1.2 Mediant 800C MSBR

Figure 2: Mediant 800C MSBR Front Panel

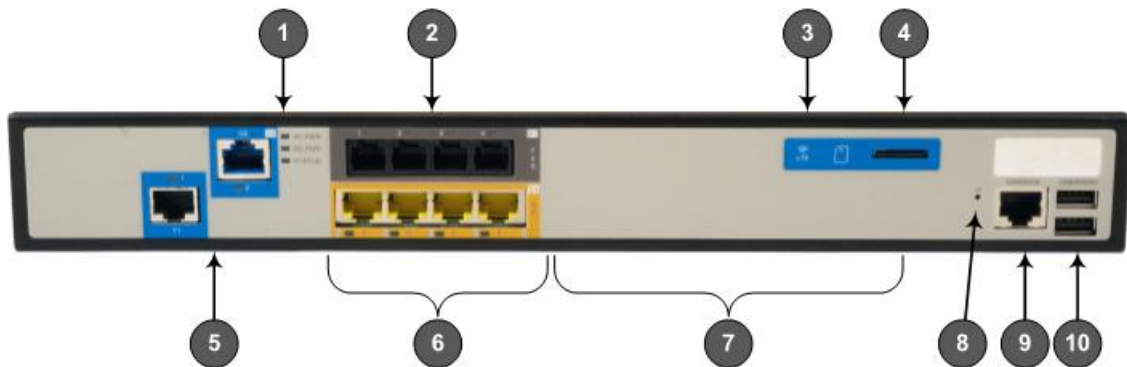


Table 3: Mediant 800C MSBR Front Panel Description

| Item # | Label                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                            |
|--------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | <b>AC PWR / DC PWR / STATUS</b>                                                            | Power and operating status LEDs. For more information, see Section 3.2.2 on page 13.                                                                                                                                                                                                                                                                                                   |
| 2      | <b>FXS / FXO / BRI / PRI</b>                                                               | (Optional) Telephony port interfaces, which can include one or a combination of the following, depending on ordered model: <ul style="list-style-type: none"> <li>■ FXS port interfaces (RJ-11)</li> <li>■ ISDN BRI port interfaces (RJ-45)</li> <li>■ ISDN PRI (E1/T1) port interfaces (RJ-48)</li> </ul> <b>Note:</b> The FXS interfaces support loop-start signaling (indoor only). |
| 3      | <br>LTE | LTE cellular status LED. For more information, see Section 3.2.2.3 on page 15.<br><b>Note:</b> The LED is applicable only to models ordered with the 4G LTE cellular functionality.                                                                                                                                                                                                    |
| 4      |         | SIM card slot for 4G LTE cellular.<br><b>Note:</b> The SIM card slot is applicable only to models ordered with the 4G LTE cellular functionality.                                                                                                                                                                                                                                      |
| 5      | <b>GE<br/>V/ADSL/POTS<br/>DSL/ISDN<br/>DSL/POTS<br/>GE SFP</b>                             | (Optional) One or two additional WAN interfaces (copper GE, SFP, and A/VDSL). For a list of supported WAN configurations, please contact your AudioCodes sales representative.<br><b>Note:</b> Gigabit Ethernet (10/100/1000Base-T) copper WAN interface (RJ-45) is provided on all models.                                                                                            |
| 6      | <b>GE</b>                                                                                  | Up to four Gigabit Ethernet (10/100/1000Base-T) LAN ports for connecting IP phones, computers, or switches. These ports support half- and full-duplex modes, auto-negotiation, and straight or crossover cable detection.                                                                                                                                                              |

| Item # | Label    | Description                                                                                                                                                                                                                                                                                                                               |
|--------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7      | FE       | (Optional) Eight Fast Ethernet (10/100Base-TX) RJ-45 LAN ports for connecting IP phones, computers, or switches. These ports support half- and full-duplex modes, auto-negotiation, and straight or crossover cable detection.                                                                                                            |
| 8      | //       | Reset pinhole button for resetting the device and optionally, for restoring the device to factory defaults.<br>To restore the device to factory defaults, do the following: With a paper clip or any other similar pointed object, press and hold down the pinhole button for <b>at least 12 seconds, but no longer than 25 seconds</b> . |
| 9      | CONSOLE  | RS-232 serial communication port (RJ-45).                                                                                                                                                                                                                                                                                                 |
| 10     | USB/WWAN | Two USB ports that can be used for storage capabilities.                                                                                                                                                                                                                                                                                  |

## 3.2.2 LEDs

The front panel provides various LEDs depending on the device's hardware configuration (e.g., the available telephony interfaces). These LEDs are described in the subsequent subsections.

### 3.2.2.1 LAN Interface LED

Each LAN port provides a LED (located on its left) for indicating LAN operating status, as described in the table below.

**Table 4: LAN LED Description**

| LED Color | LED State | Description                            |
|-----------|-----------|----------------------------------------|
| Green     | On        | Ethernet link established.             |
|           | Flashing  | Data is being received or transmitted. |
| -         | Off       | No Ethernet link.                      |

### 3.2.2.2 WAN LEDs

This section describes the WAN LEDs.

#### 3.2.2.2.1 GE WAN LED

The WAN GE port provides a LED for indicating operating status, as described in the table below.

**Table 5: GE WAN LED Description**

| LED Color | LED State | Description                            |
|-----------|-----------|----------------------------------------|
| Green     | On        | WAN link established.                  |
|           | Flashing  | Data is being received or transmitted. |
| -         | Off       | No WAN link.                           |
| -         | Off       | No power received by the device.       |

### 3.2.2.2.2 SHDSL WAN LED

The SHDSL WAN port provides a LED for indicating operating status, as described in the table below.

**Table 6: SHDSL WAN LED Description**

| LED Color | LED State     | Description                                     |
|-----------|---------------|-------------------------------------------------|
| Green     | On            | At least one of the links is synchronized.      |
|           | Fast Flashing | At least one of the links is initializing.      |
|           | Slow Flashing | SHDSL firmware is running.                      |
| -         | Off           | No WAN link or no power received by the device. |



SHDSL is applicable only to Mediant 800B MSBR.

### 3.2.2.2.3 A/VDSL WAN LED

The A/VDSL WAN port provides a LED for indicating operating status, as described in the table below.

**Table 7: A/VDSL WAN LED Description**

| LED Color | LED State                                | Description                                                                     |
|-----------|------------------------------------------|---------------------------------------------------------------------------------|
| Green     | On                                       | DSL link connected (trained) successfully with peer ("showtime").               |
|           | Fast Flashing                            | Training up (connection in progress) and negotiating with peer.                 |
|           | Slow Flashing                            | DSL port is administratively up, but idle (not connected and no peer detected). |
|           | Two Fast Flashes and then Idle Sequences | DSL port is initializing itself after being enabled or upon mode change.        |
| -         | Off                                      | DSL port is administratively shutdown or not configured.                        |

### 3.2.2.2.4 SFP WAN LED

The **WAN SFP** LED indicates the status of the optical fiber WAN link, as described in the table below.

**Table 8: WAN SFP LED Description**

| LED Color | LED State | Description                                            |
|-----------|-----------|--------------------------------------------------------|
| Green     | On        | WAN fiber link established.                            |
|           | Flashing  | Data is being received or transmitted.                 |
| -         | Off       | No WAN fiber link or power not received by the device. |

### 3.2.2.3 LTE LED

The **LTE** LED indicates the 4G LTE cellular link status, as described in the table below.

**Table 9: LTE LED Description**

| LED Color | LED State | Description                                                                                                                  |
|-----------|-----------|------------------------------------------------------------------------------------------------------------------------------|
| Green     | On        | Connected to the cellular network.                                                                                           |
|           | Flashing  | In the process of connecting to the cellular network.                                                                        |
| Red       | On        | No SIM card in the SIM slot, or if there is a SIM card, the device cannot connect to the cellular network.                   |
| -         | Off       | Cellular WAN interface has not been configured (or the functionality is not included in the device's installed License Key). |

### 3.2.2.4 FXS LED

Each FXS port provides a LED for indicating operating status, as described in the table below.

**Table 10: FXS LED Description**

| LED Color | LED State | Description                                                                                                                                                                                                                               |
|-----------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green     | On        | Phone is off-hooked.                                                                                                                                                                                                                      |
|           | Flashing  | Rings the extension line.                                                                                                                                                                                                                 |
| Red       | On        | <ul style="list-style-type: none"> <li>■ Error - malfunction in line or out of service due to Serial Peripheral Interface (SPI) failure</li> <li>■ Disabled port initiated by user (using the CLI command, analog-port-enable)</li> </ul> |
|           | Off       | Phone is on hook.                                                                                                                                                                                                                         |
| -         | Off       | No power received by the device.                                                                                                                                                                                                          |

### 3.2.2.5 FXO LED

Each FXO port provides a LED for indicating operating status, as described in the table below.

**Table 11: FXO LED Description**

| LED Color | LED State | Description                                                                                                                                                                                                                               |
|-----------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green     | On        | FXO line is off-hooked toward the PBX.                                                                                                                                                                                                    |
|           | Flashing  | Ring signal detected from the PBX.                                                                                                                                                                                                        |
| Red       | On        | <ul style="list-style-type: none"> <li>■ Error - malfunction in line or out of service due to Serial Peripheral Interface (SPI) failure</li> <li>■ Disabled port initiated by user (using the CLI command, analog-port-enable)</li> </ul> |
|           | Off       | Line is on hook.                                                                                                                                                                                                                          |
| -         | Off       | No power received by the device.                                                                                                                                                                                                          |

### 3.2.2.6 BRI LED

Each BRI port provides a LED for indicating operating status, as described in the table below:

**Table 12: BRI LED Description**

| Color | State | Description                                                  |
|-------|-------|--------------------------------------------------------------|
| Green | On    | Physical layer (Layer 1) is synchronized (normal operation). |
| Red   | On    | Physical layer (Layer 1) is not synchronized.                |
| -     | Off   | Trunk is not active.                                         |

### 3.2.2.7 PRI (E1/T1) LED

Each trunk port provides a LED for indicating operating status, as described in the table below:

**Table 13: E1/T1 LED Description**

| Color | State | Description                                                                                                                                                                                                                                                             |
|-------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green | On    | Trunk is synchronized (normal operation).                                                                                                                                                                                                                               |
| Red   | On    | Loss due to any of the following signals: <ul style="list-style-type: none"> <li>■ LOS - Loss of Signal</li> <li>■ LOF - Loss of Frame</li> <li>■ AIS - Alarm Indication Signal (the Blue Alarm)</li> <li>■ RAI - Remote Alarm Indication (the Yellow Alarm)</li> </ul> |
| -     | Off   | Failure / disruption in the AC power supply or the power is currently not being supplied to the device through the AC power supply entry.                                                                                                                               |

### 3.2.2.8 STATUS LED

The **STATUS** LED indicates the operating status, as described in the table below.

**Table 14: STATUS LED Description**

| LED Color | LED State | Description                                                                                                                                                                           |
|-----------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Green     | On        | Device is operational.                                                                                                                                                                |
| Green     | Flashing  | <ul style="list-style-type: none"> <li>■ Initial rebooting stage.</li> <li>■ Software upgrade (.cmp file) in process (currently supported only from Software Version 6.8).</li> </ul> |
| Red       | On        | Boot failure.                                                                                                                                                                         |
| -         | Off       | Advanced rebooting stage.                                                                                                                                                             |

### 3.2.2.9 Power LEDs

The power LEDs depend on the Mediant 800 model.

#### 3.2.2.9.1 POWER LED

The **POWER** LED indicates the power supply status, as described in the table below.

**Table 15: POWER LED Description**

| LED Color | LED State | Description                      |
|-----------|-----------|----------------------------------|
| Green     | On        | Power is received by the device. |
| -         | Off       | No power received by the device. |



The **POWER** LED is applicable only to Mediant 800B MSBR.

#### 3.2.2.9.2 AC PWR LED

The **AC PWR** LED indicates the AC power supply status, as described in the table below.

**Table 16: AC PWR LED Description**

| Color | State | Description                         |
|-------|-------|-------------------------------------|
| Green | On    | AC power is received by the device. |
| -     | Off   | No power received by the device.    |



The **AC PWR** LED is applicable only to Mediant 800C MSBR.

#### 3.2.2.9.3 DC PWR LED

The **DC PWR** LED indicates the DC power supply status, as described in the table below.

**Table 17: DC PWR LED Description**

| Color | State | Description                         |
|-------|-------|-------------------------------------|
| Green | On    | DC power is received by the device. |
| -     | Off   | No power received by the device.    |



The **DC PWR** LED is applicable only to Mediant 800C MSBR.

### 3.3 Rear Panel Description

The device's rear panel is shown in the figure below and described in the subsequent table.

#### 3.3.1 Median 800B MSBR

Figure 3: Mediant 800B MSBR Rear Panel



The figure above is used only as an example.

Table 18: Rear Panel Description

| Item # | Label                  | Description                    |
|--------|------------------------|--------------------------------|
| 1      |                        | Protective earthing screw.     |
| 2      | 100-240V~4A<br>50-60Hz | 3-Prong AC power supply entry. |

### 3.3.2 Median 800C MSBR

Figure 4: Mediant 800C MSBR Rear Panel



The figure above is used only as an example.

Table 19: Rear Panel Description

| Item # | Label             | Description                                                                                                                                                                                                                                                                                                                     |
|--------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | <b>OSN USB</b>    | USB port (Standard-A type) for connecting USB storage device.<br><b>Note:</b> This port is available only if the device is installed with the OSN server (customer ordered).                                                                                                                                                    |
| 2      | -                 | Reset button for resetting the OSN server.<br><b>Note:</b> This button is available only if the device is installed with the OSN server (customer ordered).                                                                                                                                                                     |
| 3      | <b>CONSOLE</b>    | USB-C console port for connecting a computer to the OSN for serial communication.<br><b>Note:</b> This port is available only if the device is installed with the OSN server (customer ordered).                                                                                                                                |
| 4      | <b>GE 1/2/3/4</b> | 10/100/1000Base-T Ethernet ports (RJ-45) for connecting directly to the OSN server. For example, one port can be connected to the LAN (to IP Phones) and the second port to the WAN interface (to an IP PBX).<br><b>Note:</b> These ports are available only if the device is installed with the OSN server (customer ordered). |

| Item # | Label                                                                             | Description                                                                                                                                             |
|--------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5      | DC IN 12V-10A                                                                     | DC power inlet for accepting a DC terminal block plug.<br><b>Note:</b> Use only the AC/DC power adaptor supplied by AudioCodes to connect the DC inlet. |
| 6      |  | Protective earthing screw.                                                                                                                              |
| 7      | 100-240V~1.5A<br>50-60Hz                                                          | 3-Prong AC power supply entry.                                                                                                                          |
| 8      | -                                                                                 | Cellular antennas for LTE.                                                                                                                              |

## 4 Mounting the Device

The device can be mounted in one of the following ways:

- Placed on a desktop – see Section 4.1 on page 21
- Installed in a standard 19-inch rack – see Section 4.2 on page 22

### 4.1 Desktop Mounting

The device can be placed on a desktop when its four anti-slide bumpers (supplied) are attached to the underside of the device.



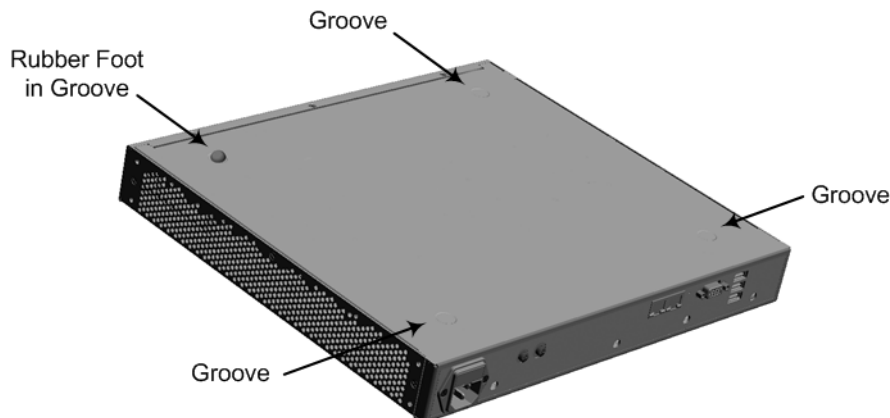
**Warning:** To ensure proper cooling and prevent over-heating of internal components:

- Do not place any equipment directly on top of the device.
- The side panels of the chassis, where the air vents are located, must remain unobstructed to ensure adequate airflow through the chassis. Make sure that clearance from the ventilation openings is at least 13 cm.

**To attach the anti-slide rubber bumpers to the device:**

1. Flip the device over so that its underside faces up.
2. Locate the four anti-slide grooves on the underside - one in each corner.
3. Peel off the adhesive, anti-slide rubber feet and stick one in each anti-slide groove.

**Figure 5: Location for Applying Rubber Feet**



4. Flip the device over again so that it rests on the rubber feet and place it in the required position on a desktop.

## 4.2 19-Inch Rack Mounting

The device can be installed in a standard 19-inch rack by implementing one of the following mounting methods:

- Placing it on a pre-installed shelf in a 19-inch rack – see Section 4.2.1 on page 22
- Attaching it directly to the rack's frame using the device's mounting brackets (supplied) that need to be attached to the chassis – see Section 4.2.2 on page 23



**Warning:** To ensure proper cooling and prevent over-heating of internal components:

- Do not place any equipment directly on top of the device.
- The side panels of the chassis, where the air vents are located, must remain unobstructed to ensure adequate airflow through the chassis. Make sure that clearance from the ventilation openings is at least 13 cm.
- Ensure that at least a 1U separation is maintained between the device and other mounted devices or equipment in the rack.



### Rack Mount Safety Instructions

When installing the chassis in a rack, implement the following safety instructions:

- **Elevated Operating Ambient Temperature:** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment with maximum ambient temperature (T<sub>ma</sub>) of 40°C (104°F).
- **Reduced Air Flow:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation on the equipment is not compromised.
- **Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing:** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips). For earthing the device, see Section 5.1 on page 24.

### 4.2.1 Using a Pre-Installed Rack Shelf

The procedure below describes how to place the device on a pre-installed shelf in a 19-inch rack.

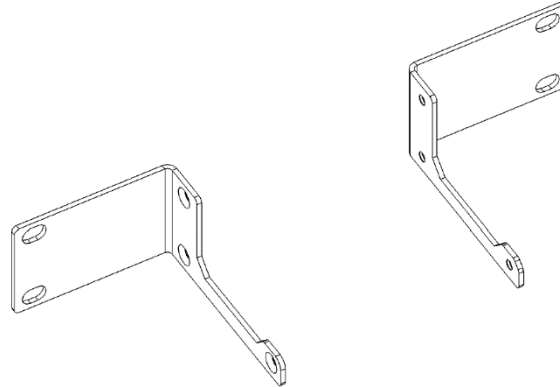
**To mount the device on a pre-installed shelf in the rack:**

1. Before installing it in the rack, ensure that you have a pre-installed rack shelf on which the device can be placed.
2. Place the device on the pre-installed shelf in the rack.

## 4.2.2 Using Mounting Brackets

The procedure below describes how to mount the device in a 19-inch rack. Rack mounting involves placing the device on a pre-installed rack shelf (not supplied) and then securing the device to the rack frame using the mounting brackets (supplied).

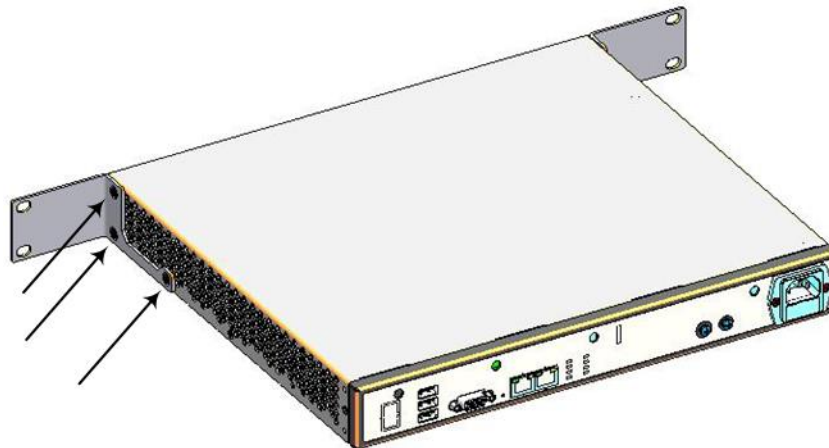
**Figure 6: Mounting Brackets**



**To mount the device in a 19-inch rack using mounting brackets:**

1. Attach the two mounting brackets (supplied) to each side of the device's chassis, using the supplied screws, as shown in the figure below:

**Figure 7: Attaching the Mounting Brackets**



2. Place the device on a pre-installed shelf in the rack.
3. Attach the ends of the mounting brackets (that you installed in Step 1) to the vertical track of the rack's frame, using standard 19-inch rack bolts (not supplied).

## 5 Cabling the Device

This section describes the cabling of the device.

### 5.1 Grounding and Surge Protection

The device must be connected to earth (grounded) using an equipment-earthing conductor.



#### Protective Earthing

The equipment is classified as Class I EN 62368-1 and UL 62368-1 and must be earthed at all times.

For Finland: "Laite on liltettava suojamaadoituskoskettimilla varustettuun pistorasiaan."

For Norway: "Apparatet rna tilkoples jordet stikkontakt."

For Sweden: "Apparaten skall anslutas till jordat uttag."



#### Grounding and Power Surge Protection

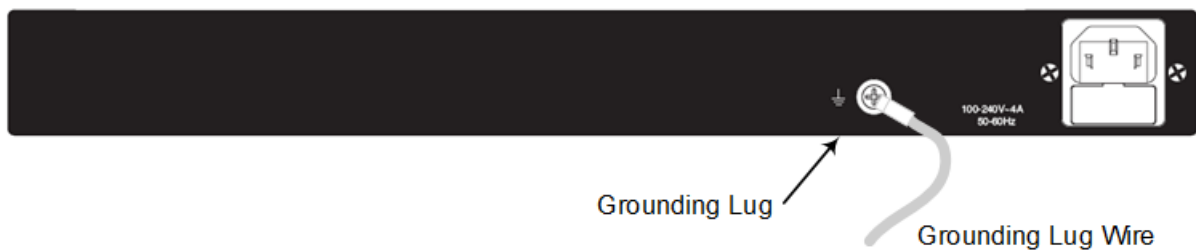
- The device must be installed only in telecommunication sites / centers in compliance with ETS 300-253 requirements "Earthing and Bonding of Telecommunication Equipment in Telecommunication Centers".
- Prior to installation, earth loop impedance test must be performed by a certified electrician to ensure grounding suitability at the power outlet intended to feed the unit. It is essential that the impedance will be kept below 0.5 ohms!
- Proper grounding is crucial to ensure the effectiveness of the lightning protection, connect the device permanently to ground (as described in the procedure below). The device's grounding screw must be connected to the equipotential grounding bus bar located in the Telecommunication rack or installation site, using a wire of 6 mm<sup>2</sup> surface wire. If the device is installed in a rack with other equipment, the rack must be connected to the equipotential grounding bus bar of the Telecommunication room, using a stranded cable with surface area of 25 mm<sup>2</sup>. The length of this cable must be as short as possible (no longer than 3 meters).
- The device does **not** include primary telecom protection! When the **FXO / DSL** telephone lines are routed **outside the building**, additional protection - usually a 350V three-electrode Gas Discharge Tube (GDT) as described in ITU-T K.44 - **must** be provided at the entry point of the telecom wires into the building (usually on the main distribution frame / MDF), in conjunction with proper grounding. The center pin of the GDT (MDF grounding bar) must be connected to the equipotential grounding bus bar of the Telecommunication room.
- Failing to install primary surge protectors and failing to comply with the grounding instructions or any other installation instructions, may cause permanent damage to the device!
- As most of the installation is the responsibility of the customer, AudioCodes can assume responsibility for damage only if the customer can establish that the device does not comply with the standards specified above (and the device is within the hardware warranty period).
- The device complies with protection levels as required by EN 55035 / EN 300386. Higher levels of surges may cause damage to the device.
- To protect against electrical shock and fire, use a minimum of 26-AWG wire size to connect the **FXO / DSL** ports.

**Warning:**

- To avoid electric shock and/or damage to ports due to over-voltage phenomena, you must connect the device to a reliable ground using the grounding termination located on the device's rear panel.
- When the device is powered only from the 12V DC supply (utilizing the external power adaptor), the device is not grounded!
- Ground the device prior to connecting the telephony port interfaces (FXO, FXS, E1/T1 and BRI).
- When powering off the device, remove all interface cables prior to disconnecting (if required) the ground cable at the rear panel.

**To earth the device:**

1. Connect an electrically earthed strap of 16 AWG wire (minimum) to the chassis' earthing screw (located on the rear panel), using the supplied washer.
2. Connect the other end of the strap to a protective earthing. This should be in accordance with the regulations enforced in the country of installation.

**Figure 8: Earthing the Device**

## 5.2 Connecting to WAN

This section provides a description on how to cable the WAN port. The cabling procedure depends on the ordered WAN interface.



The device supports multiple WAN redundancies, where multiple WAN interfaces can serve as backups for the primary or a backup WAN interface. For example, if the main WAN interface is GE and it fails, the device switches over to the SHDSL WAN interface. For configuring WAN redundancy, refer to the *CLI Reference Guide*.

### 5.2.1 Copper Gigabit Ethernet (GE) Cabling

The procedure below describes how to connect the copper Gigabit Ethernet RJ-45 port to the WAN.

Cable specification:

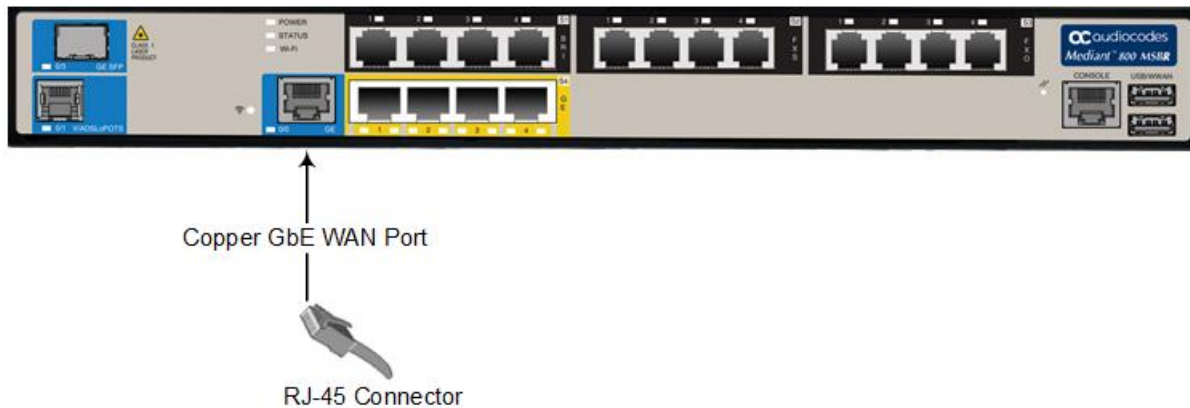
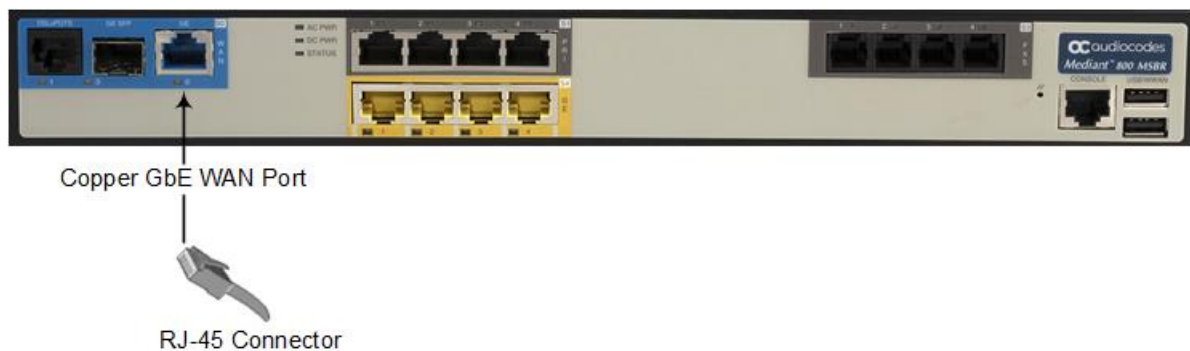
- **Cable:** Category 5e or Category 6 shielded twisted pair (STP) straight-through
- **Connector:** RJ-45
- **Connector Pinouts:**

**Table 20: RJ-45 Connector Pinouts for Copper GE WAN**

| Pin    | Signal Name          |
|--------|----------------------|
| 1      | Ethernet signal pair |
| 2      |                      |
| 3      | Ethernet signal pair |
| 6      |                      |
| 4      | Ethernet signal pair |
| 5      |                      |
| 7      | Ethernet signal pair |
| 8      |                      |
| Shield | Chassis ground       |

**To connect the WAN copper GE port:**

1. Connect one end of a straight-through RJ-45 Ethernet cable to the RJ-45 port labeled **GE**, located on the front panel.

**Figure 9: Cabling WAN Copper GE Port – Mediant 800B MSBR****Figure 10: Cabling WAN Copper GE Port – Mediant 800C MSBR**

2. Connect the other end of the cable to the Ethernet WAN (e.g., ADSL or Cable modem).

**5.2.2 Fiber-Optic Gigabit Ethernet Cabling**

The device supports up to two pairs of 1.25 Gbps optical small form-factor pluggable (SFP) transceiver modules. The SFP module can be used for fiber-optic or copper WAN interface.

**Caution Laser**

This device contains a Class 1 LED/Laser emitting device, as defined by 21CFR 1040 and IEC825. Do not stare directly into the beam or into fiber optic terminations as this can damage your eyesight.

**Care in Handling Fiber Optic Cabling**

1. Excessive bending of the Fiber Optic Cable can cause distortion and signal losses.
2. Ensure the minimum bending radius recommended by the Fiber Optic Cable supplier.
3. Incoming optic cabling from the network infrastructure can originate from the top of the rack or from another shelf within the rack. Preserve the minimum-bending ratio indicated by the cable manufacturer.
4. To ensure full high-availability capabilities, the configuration of the interface to the IP backbone must include certain redundant features from which two separate fiber optic cables are entering the device.



- The SFP modules and fiber-optic cables are not supplied. It is recommended that you purchase the SFP modules from AudioCodes. For a list of orderable SFP modules, see Appendix A on page 56, or contact your AudioCodes sales representative.
- This AudioCodes device has been evaluated with the laser transceiver modules (SFP) listed in Appendix A on page 56. If other SFP modules are used, the person installing the device is solely responsible for the usage of correct SFP modules to comply with local, applicable laser safety requirements and certification. AudioCodes will not be held responsible for any damage to human body or equipment caused as a result from the usage of SFP modules that are not listed in Appendix A on page 56.

Cable specifications:

- WAN fiber-optic interface: LC-type plug
- WAN copper interface: see Section 5.2.1 on page 26

**To connect the fiber-optic WAN GbE port:**

1. Remove the protective dust plug from the SFP transceiver module.

**Figure 11: Removing Protective Dust Plug – Mediant 800B MSBR**



**Figure 12: Removing Protective Dust Plug – Mediant 800C MSBR**



2. Connect a cable with LC-type plugs to the SFP transceivers (labeled **GE SFP**).

**Figure 13: Cabling Fiber-Optic WAN GbE Port – Mediant 800B MSBR**

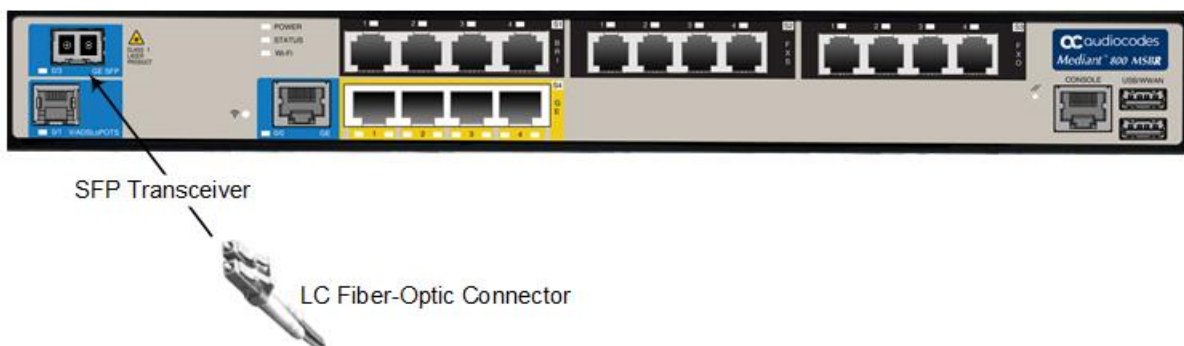
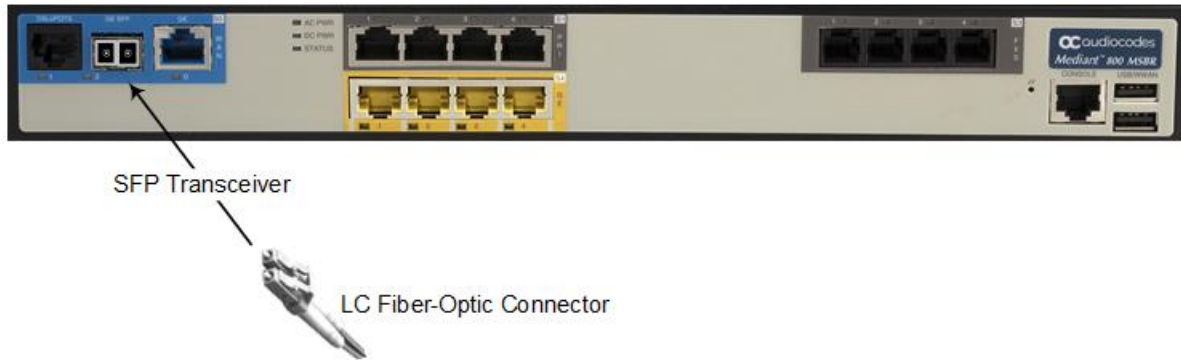


Figure 14: Cabling Fiber-Optic WAN GbE Port – Mediant 800C MSBR



### 5.2.3 SHDSL WAN Cabling

Each SHDSL port provides up to four wire-pairs, which can support up to two RJ-11 physical connectors.



#### Warnings:

- The device does **not** include primary telecom protection! When the **DSL** telephone lines are routed **outside the building**, additional protection - usually a 350V three-electrode Gas Discharge Tube (GDT) as described in ITU-T K.44 - **must** be provided at the entry point of the telecom wires into the building (usually on the main distribution frame / MDF), in conjunction with proper grounding. The center pin of the GDT (MDF grounding bar) must be connected to the equipotential grounding bus bar of the Telecommunication room.
- To protect against electrical shock and fire, use a minimum 26-AWG wire to connect the DSL ports.



SHDSL is applicable only to Mediant 800B MSBR.

SHDSL port specifications:

- Conforms to ITU G.991.2 Annexes A, B, E, F and G SHDSL
- Up to 5,696 Kbps over a single wire pair
- Up to 22,784 Kbps over four wire pairs bonding, according to SHDSL.bis (ITU G.991.2 Annexes F, G)
- EFM and ATM support
- Wetting current support on the CPE side, according to G991.2
- Supports both Central Office (CO) and CPE (wetting current on CO - excluded)
- TC-PAM 16/32 line code

Cable specification:

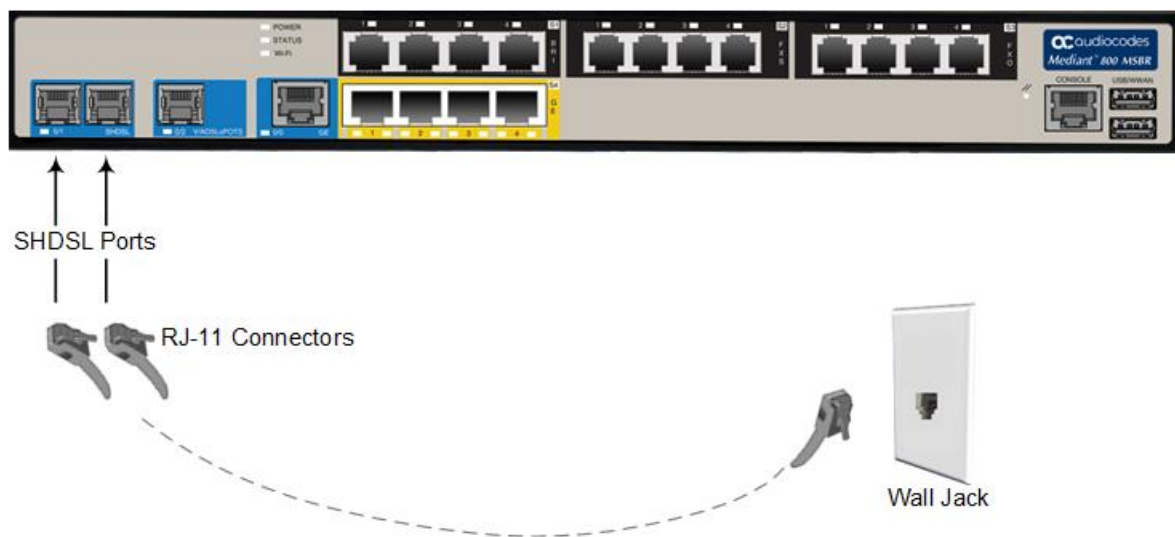
- **Cable:** 26-AWG min. wire
- **Connector:** RJ-11
- **Connector Pinouts:**

**Table 21: RJ-11 Connector Pinouts for SHDSL**

| Pin | Function             |                       |
|-----|----------------------|-----------------------|
|     | Left RJ-11 Connector | Right RJ-11 Connector |
| 2   | Pair 1 - Ring        | Pair 3 - Ring         |
| 3   | Pair 0 - Ring        | Pair 2 - Ring         |
| 4   | Pair 0 - Tip         | Pair 2 - Tip          |
| 5   | Pair 1 - Tip         | Pair 3 - Tip          |

**To connect the WAN SHDSL port:**

1. Connect an RJ-11 SHDSL cable(s) to the device's SHDSL WAN port(s), labeled **SHDSL**.

**Figure 15: Cabling the SHDSL WAN Port**

2. Connect the other end of the cable(s) to an RJ-11 wall jack.

## 5.2.4 ADSL/2+ and VDSL2 WAN Cabling

The ADSL/2+ and VDSL2 (xDSL) WAN port provides a single xDSL interface through its RJ-45 port. The specifications of the xDSL interface include the following:

- ADSL/2+:
  - RFC 2684 in Routed (IPoA) and Bridged (ETHoA) modes, supporting LLC-SNAP and VC-Multiplexed encapsulations over AAL5
  - ATM UNI 4.1 compliant
  - UBR, CBR, VBR classes of service
  - RFC 2364 PPPoA
  - RFC 2516 PPPoE over ATM
  - Up to 8 PVCs
- VDSL2:
  - ITU G.991.2 Annex E for Ethernet, also known as EFM or 2Base-TL, as defined in IEEE 802.3ah
  - 802.1q VLANs over EFM
  - PPPoE



### Warnings:

- The device does **not** include primary telecom protection! When the **DSL** telephone lines are routed **outside the building**, additional protection - usually a 350V three-electrode Gas Discharge Tube (GDT) as described in ITU-T K.44 - **must** be provided at the entry point of the telecom wires into the building (usually on the main distribution frame / MDF), in conjunction with proper grounding. The center pin of the GDT (MDF grounding bar) must be connected to the equipotential grounding bus bar of the Telecommunication room.
- To protect against electrical shock and fire, use a minimum 26-AWG wire to connect the DSL ports.

Cable specifications:

- **Cable:** 26-AWG min. wire
- **Connector:** RJ-11 or RJ-45
- **Connector Pinouts:**

**Table 22: RJ-11 Connector Pinouts for xDSL**

| Pin | Function   |
|-----|------------|
| 1   | Not used   |
| 2   | Not used   |
| 3   | CH0-P/Tip  |
| 4   | CH0-N/Ring |
| 5   | Not used   |
| 6   | Not used   |

**Table 23: RJ-45 Connector Pinouts for xDSL**

| Pin | Function   |
|-----|------------|
| 1   | Not used   |
| 2   | Not used   |
| 3   | Not used   |
| 4   | CH0-P/Tip  |
| 5   | CH0-N/Ring |
| 6   | Not used   |
| 7   | Not used   |
| 8   | Not used   |

**To connect the WAN xDSL WAN port:**

1. Connect an RJ-11 or RJ-45 cable connector to the device's xDSL WAN port. The port label depends on model:
  - Mediant 800B MSBR: **V/ADSLoISDN** or **ADSLoPOTS**
  - Mediant 800C MSBR: **DSLloISDN** or **DSLloPOTS**
2. Connect the other end of the cable to the DSL wall jack through an xDSL filter with splitter.

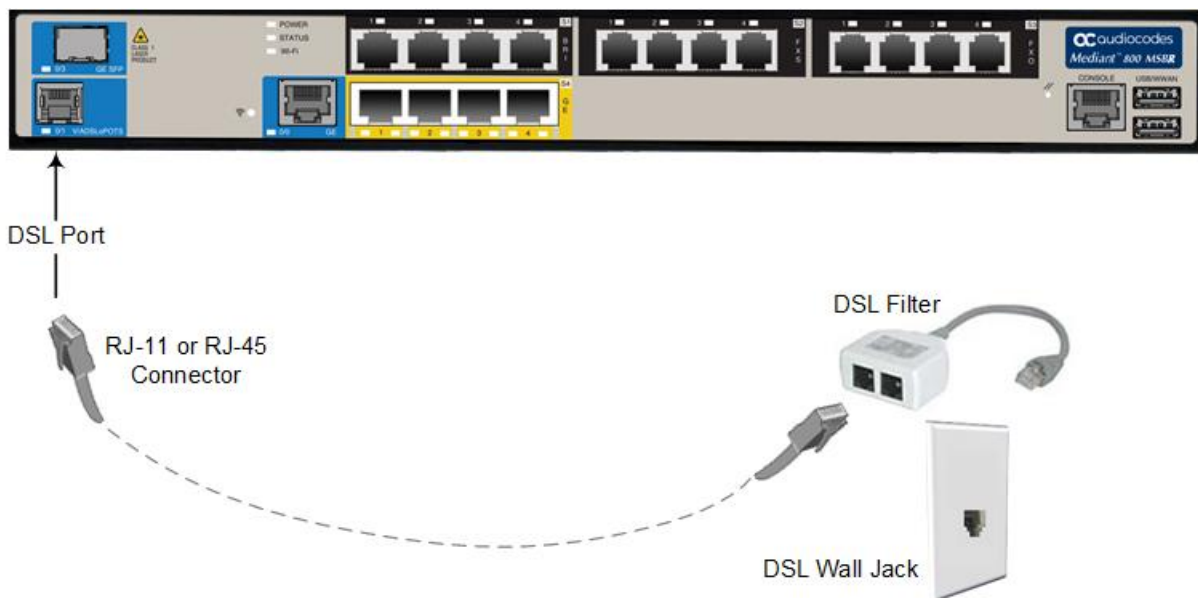
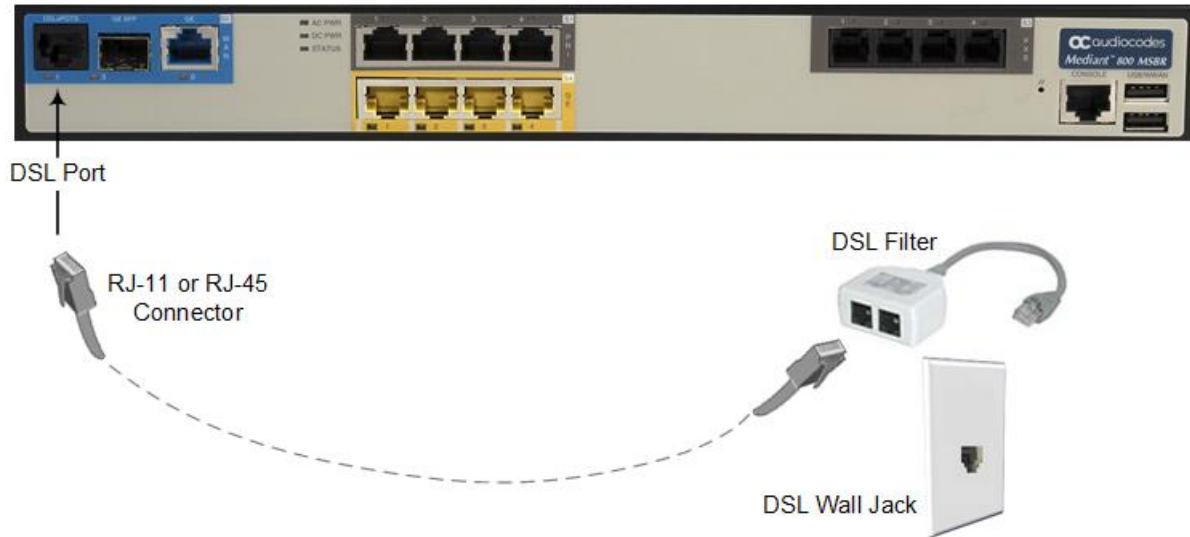
**Figure 16: Cabling xDSL WAN Port – Mediant 800B MSBR**

Figure 17: Cabling xDSL WAN Port – Mediant 800C MSBR



The xDSL filter/splitter should be provided by your service provider.

### 5.2.5 Integrated 4G LTE Cellular Modem

The device provides an optional integrated 4G Long-Term Evolution (LTE) cellular modem and a SIM card slot. The cellular WAN interface can be used as the primary WAN interface or as an optional WAN backup when the primary WAN (e.g., WAN Ethernet) fails. The cellular interface connection type is according to the modem technology. The integrated LTE acts as an Ethernet device, acquiring its network address using DHCP.

The LTE modem is a series of LTE Category 4 module, adopting standard PCI Express® Mini Card form factor (Mini PCIe). It delivers 150-Mbps downlink and 50-Mbps uplink data rates.

- **4G LTE:**
  - LTE FDD: 150 Mbps max. download / 50 Mbps max. upload
  - LTE TDD: 130 Mbps max. download / 35 Mbps max. upload
- **DC-HSPA+:** 42 Mbps max. download / 5.76 Mbps max. upload
- **UMTS:** 384 Kbps max. download / 384 Kbps max. upload
- **EDGE:** 236.8 Kbps max. download / 236.8 Kbps max. upload
- **GPRS:** 85.6 Kbps max. download / 85.6 Kbps max. upload

The LTE modem contains three variants for worldwide coverage, as listed in the following table:

Table 24: LTE Variant Types

| Type | Region        | Bands                                                                                                                                                            |
|------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E    | EMEA and Asia | <ul style="list-style-type: none"> <li>■ LTE FDD: B1/B3/B5/B7/B8/B20</li> <li>■ LTE TDD: B38/B40/B41</li> <li>■ WCDMA: B1/B5/B8</li> <li>■ GSM: B3/B8</li> </ul> |
| A    | North America | <ul style="list-style-type: none"> <li>■ LTE FDD: B2/B4/B12</li> <li>■ WCDMA: B2/B4/B5</li> </ul>                                                                |

| Type | Region                                  | Bands                                                                                                                                                                   |
|------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AU   | Australia-New Zealand and Latin America | <ul style="list-style-type: none"> <li>■ LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28</li> <li>■ LTE TDD: B40</li> <li>■ WCDMA: B1/B2/B5/B8</li> <li>■ GSM: B2/B3/B5/B8</li> </ul> |



- LTE is supported only by Mediant 800C MSBR.
- LTE cellular is a separate orderable item.
- The device's SIM slot supports mini-SIM card size. If you have a micro-SIM card, you can use a SIM card adapter to convert it to mini-SIM size.
- It is recommended to attach the antennas before mounting the device; you may have difficulty in attaching them once the device is mounted.
- For configuring LTE cellular WAN, refer to the document, *Mediant MSBR LAN-WAN Access CLI Configuration Guide Ver. 7.2*.
- The USB port is not provided when the device is ordered with LTE cellular support.


**Warning:**

- Only use the cellular antennas that are supplied with your device.
- Do not insert the SIM card into the SIM slot while the device is connected to powered; doing so may damage the SIM card or the device.
- Do not place the device near electrical equipment or appliances that transmit/radiate frequencies within the LTE frequency bands.

LTE connection requires the following items:

- Two cellular antennas (supplied unattached with the device)
- SIM card provided by your service provider

**To connect LTE cellular WAN:**

1. Power off the device.
2. Attach the two cellular antennas (supplied) to the antenna connectors, located on the rear panel, by hand screwing the antennas onto the connectors. Make sure that the antennas are securely fastened to the connectors.

**Figure 18: Connecting Cellular Antennas**

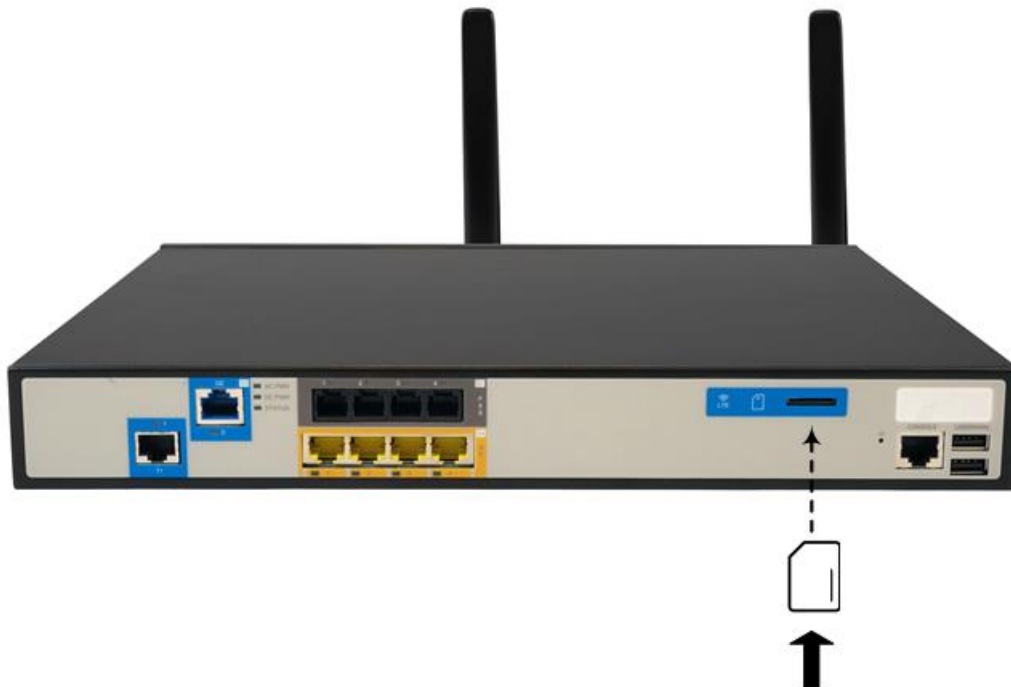




You must attach both antennas for LTE connectivity.

3. Orient the antennas as desired for optimal reception with the LTE network. The antennas can be orientated in the vertical and horizontal planes. For best performance, it is recommended that the antennas be perpendicular (90 degrees) to the floor. In other words, orient the antennas straight up.
4. Insert the SIM card (supplied by your service provider) into the SIM slot, located on the rear panel, by pushing it into the slot until you hear a clicking sound. Make sure that the orientation of the SIM card is as shown in the figure below, where the front of the card with the cut-off corner enters the slot first. (To remove the SIM card, push the SIM card to eject it out of the slot.)

**Figure 19: Inserting SIM Card into SIM Slot**



5. Mount the device in a location that receives the best LTE connection (signal).

## 5.3 Connecting to LAN

The device provides up to four Gigabit Ethernet (10/100/1000Base-T) LAN RJ-45, ports and eight RJ-45 10/100Base-TX (Fast Ethernet) LAN ports for connection to the LAN (e.g., computers, switches, and IP phones). These ports support half- and full-duplex modes, auto-negotiation, and straight or crossover cable detection.

Cable specification:

- **Cable:** Category 5e or Category 6 shielded twisted pair (STP) straight-through
- **Connector:** RJ-45
- **Connector Pinouts:**

**Table 25: RJ-45 Connector Pinouts for GbE/FE**

| Pin    | Signal Name                              |
|--------|------------------------------------------|
| 1      | Ethernet signal pair (10/100/1000Base-T) |
| 2      |                                          |
| 3      | Ethernet signal pair (10/100/1000Base-T) |
| 6      |                                          |
| 4      | Ethernet signal pair (1000Base-T)        |
| 5      |                                          |
| 7      | Ethernet signal pair (1000Base-T)        |
| 8      |                                          |
| Shield | Chassis ground                           |

**To connect the device to the LAN:**

1. Connect one end of the Ethernet cable to the RJ-45 port labeled **GE** (for Gigabit Ethernet ports) and/or **FE** (for Fast Ethernet ports).

**Figure 20: Cabling LAN Ports – Mediant 800B MSBR**

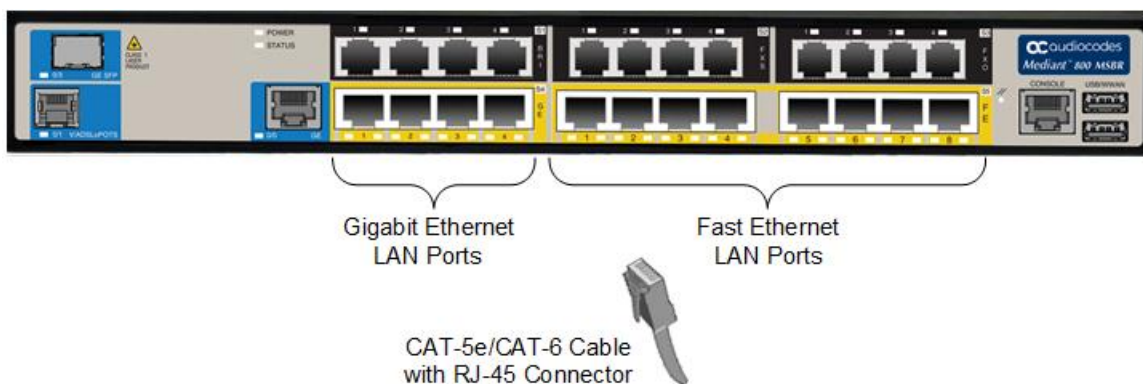
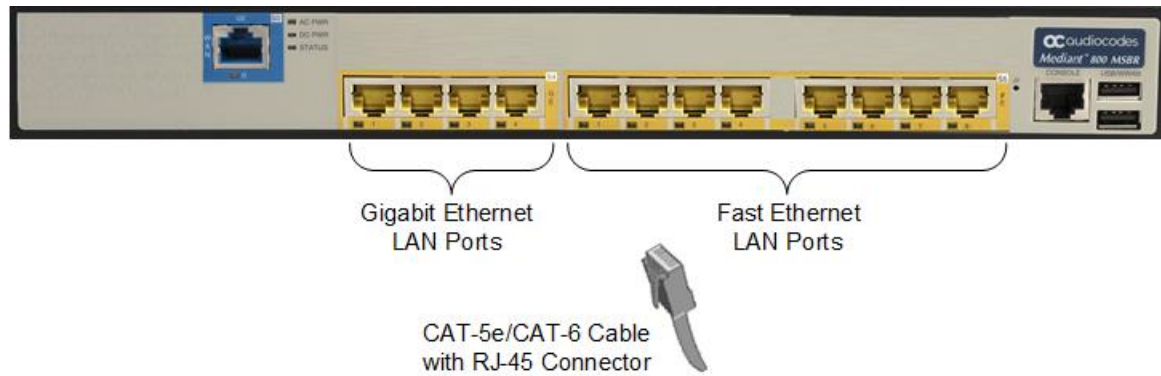


Figure 21: Cabling LAN Ports – Mediant 800C MSBR



2. Connect the other end of the cable to the Gigabit Ethernet network (for the **GE** ports) and/or Fast Ethernet network (for the **FE** ports).

## 5.4 Analog Interfaces

This section describes how to connect the device to analog equipment.

### 5.4.1 Connecting FXS Interfaces

The procedure below describes how to cable the device's FXS interfaces.



#### Warnings:

- The device is an **INDOOR** unit and therefore, must be installed only indoors.
- Ensure that the FXS ports are connected to the appropriate, external devices; otherwise, damage to the device may occur.
- FXS ports are considered TNV-2.



- FXS interface is a separate orderable item.
- FXS is the interface replacing the Exchange (i.e., the CO or the PBX) and connects to analog telephones, dial-up modems, and fax machines. The FXS is designed to supply line voltage and ringing current to these telephone devices. An FXS VoIP device interfaces between the analog telephone devices and the Internet.

Cable specification:

- **Cable:** Standard straight-through RJ-11 telephone cable
- **Connector:** RJ-11
- **Connector Pinouts:**

Figure 22: RJ-11 Connector Pinouts for FXS Interface

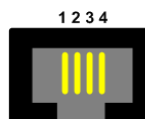


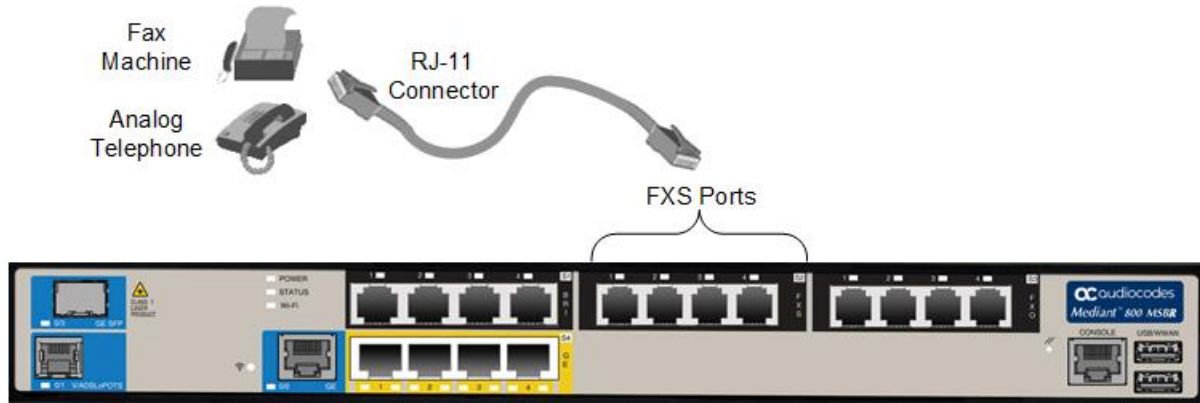
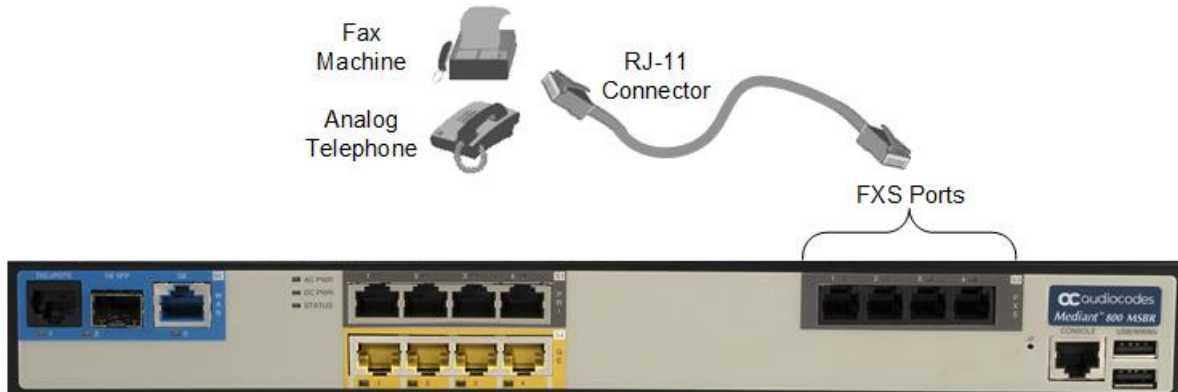
Table 26: RJ-11 Connector Pinouts

| Pin | Description   |
|-----|---------------|
| 1   | Not connected |
| 2   | Ring          |
| 3   | Tip           |

| Pin | Description   |
|-----|---------------|
| 4   | Not connected |

**To connect the FXS interfaces:**

1. Connect one end of an RJ-11 cable to the FXS port (labeled **FXS**).

**Figure 23: Connecting FXS Interfaces – Mediant 800B MSBR****Figure 24: Connecting FXS Interfaces – Mediant 800C MSBR**

2. Connect the other end of the cable to the required telephone interface (e.g., fax machine, dial-up modem, and analog POTS telephone).

**5.4.2 Connecting FXO interfaces**

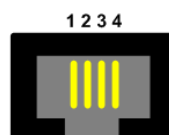
The procedure below describes how to cable the device's FXO interfaces.



- FXO interface is a separate orderable item.
- FXO is the interface replacing the analog telephone and connects to a Public Switched Telephone Network (PSTN) line from the Central Office (CO) or to a Private Branch Exchange (PBX). The FXO is designed to receive line voltage and ringing current, supplied from the CO or the PBX (like an analog telephone). An FXO VoIP device interfaces between the CO/PBX line and the Internet.

Cable specification:

- **Connector:** RJ-11
- **Connector Pinouts:**

**Figure 25: RJ-11 Connector Pinouts for FXO Interface**

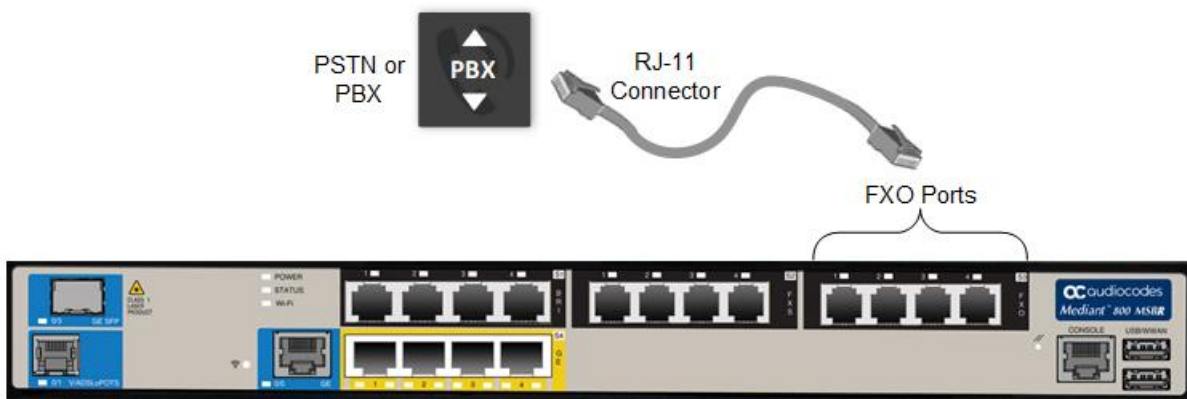
- 1 - Not connected
- 2 - Tip
- 3 - Ring
- 4 - Not connected

**Warnings:**

- The device does **not** include primary telecom protection! When the **FXO** telephone lines are routed **outside the building**, additional protection - usually a 350V three-electrode Gas Discharge Tube (GDT) as described in ITU-T K.44 - **must** be provided at the entry point of the telecom wires into the building (usually on the main distribution frame / MDF), in conjunction with proper grounding. The center pin of the GDT (MDF grounding bar) must be connected to the equipotential grounding bus bar of the Telecommunication room.
- To protect against electrical shock and fire, use a minimum 26-AWG wire to connect FXO ports to the PSTN.
- Ensure that the FXO ports are connected to the appropriate, external devices; otherwise, damage to the device may occur.
- FXO ports are considered TNV-3.

**To connect the FXO interfaces:**

1. Connect one end of an RJ-11 cable to the FXO port (labeled **FXO**).

**Figure 26: Connecting FXO Interfaces**

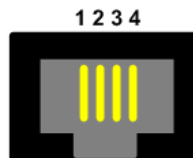
2. Connect the other end of the cable to the required telephone interface: (e.g., telephone exchange analog lines or PBX extensions).

### 5.4.3 Connecting the FXS Analog Lifeline

The device supports Analog Lifeline. If the device loses power, for example, due to a power outage or the unplugging of its power cable, it automatically routes calls from a POTS telephone ("lifeline" phone), connected to an FXS port, to the PSTN (instead of the IP network).

The Lifeline is provided by FXS Port # 1. This port connects to the analog POTS phone and the PSTN / PBX using an RJ-11 splitter cable (not supplied). The Lifeline splitter connects pins 1 and 4 to another source of an FXS port, and pins 2 and 3 to the POTS phone. The RJ-11 connector pinouts are shown in the figure below.

**Figure 27: RJ-11 Connector Pinouts for FXS Lifeline**



**Table 27: RJ-11 Connector Pinouts**

| Pin | Description   |
|-----|---------------|
| 1   | Not connected |
| 2   | Ring          |
| 3   | Tip           |
| 4   | Not connected |

#### To cable the FXS Lifeline:

1. Connect the lifeline splitter cable to FXS Port 1.
2. On the lifeline splitter cable, do the following:
  - a. Connect the analog telephone to Port A.
  - b. Connect an analog PSTN line to Port B.

**Figure 28: Cabling FXS Lifeline – Mediant 800B MSBR**

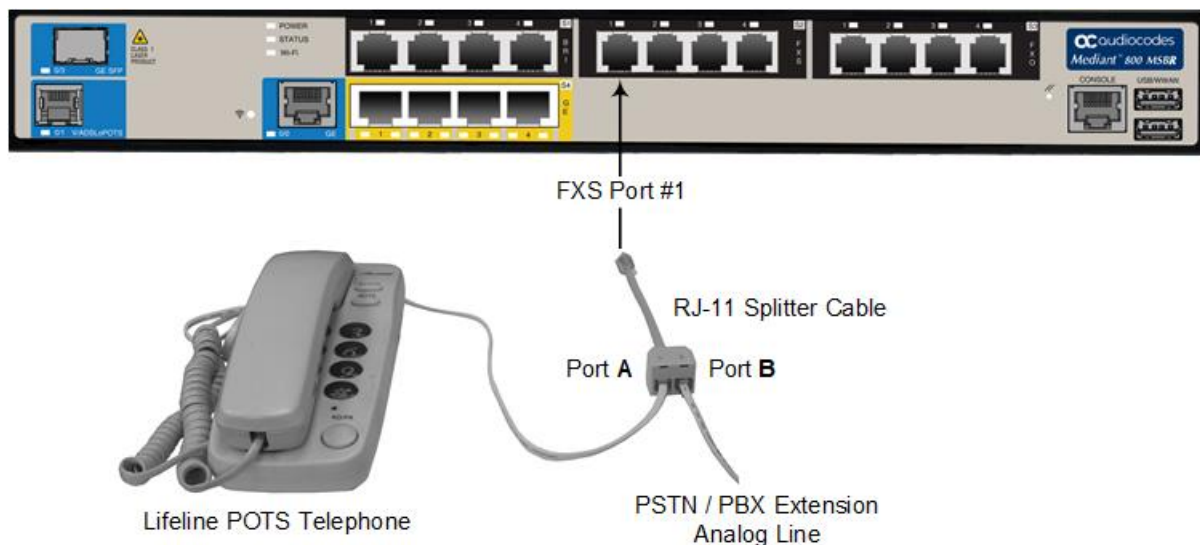
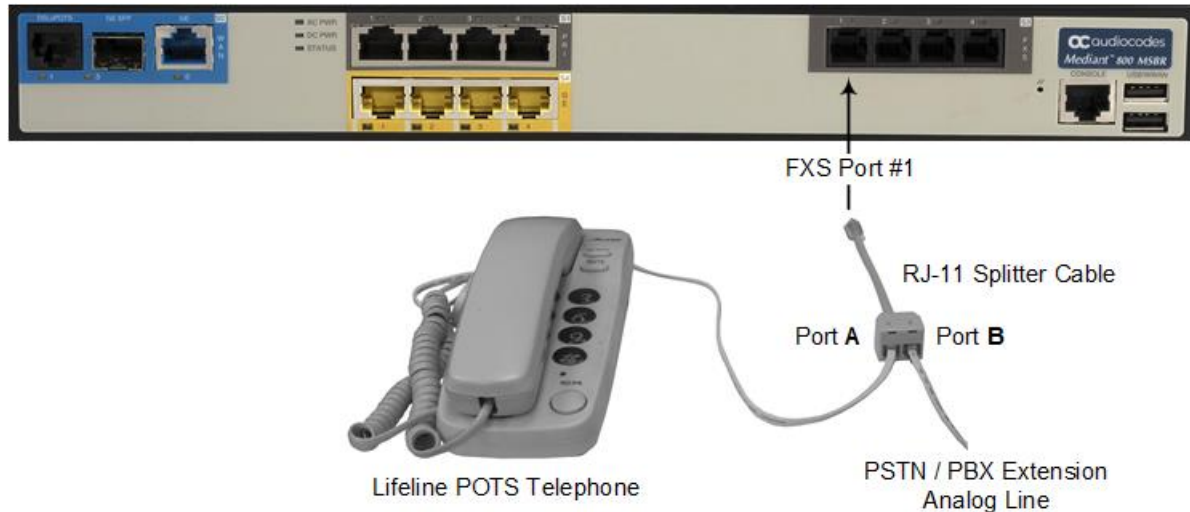


Figure 29: Cabling FXS Lifeline – Mediant 800C MSBR



- The lifeline splitter cable is a separate orderable item.
- Analog Lifeline cabling is applicable only if the device is ordered with FXS interfaces.
- The number of supported Lifelines depends on the device's hardware configuration. For the combined FXS/FXO configuration, one Lifeline is available; for the 12-FXS configuration, up to three Lifelines are available.

## 5.5 ISDN BRI Interfaces

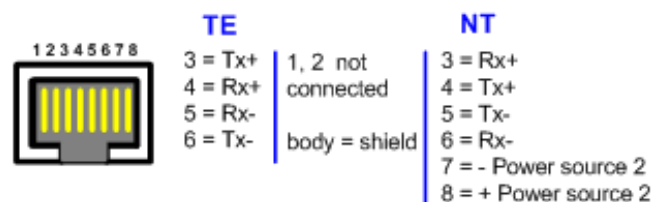
### 5.5.1 Connecting to BRI Lines

The device provides up to eight BRI S/T ports. These ports connect to ISDN terminal equipment such as ISDN telephones. Each BRI port can be configured either as termination equipment/user side (TE) or network termination/network side (NT). Up to eight terminal equipment (TE) devices can be connected per BRI S/T port, using an ISDN S-bus that provides eight ISDN ports. When configured as NT, the BRI port drives a nominal voltage of 38 V with limited current supply of up to 100 mA.

Cable specification:

- **Cable:** 26 AWG min. wire
- **Connector:** RJ-45
- **Connector Pinouts:**

Figure 30: RJ-45 Connector Pinouts for BRI Ports



#### Warning:

- BRI port cabling must be routed **only indoors** and must not exit the building.
- To protect against electrical shock and fire, use a 26 AWG min wire to connect the BRI ports to the PSTN.

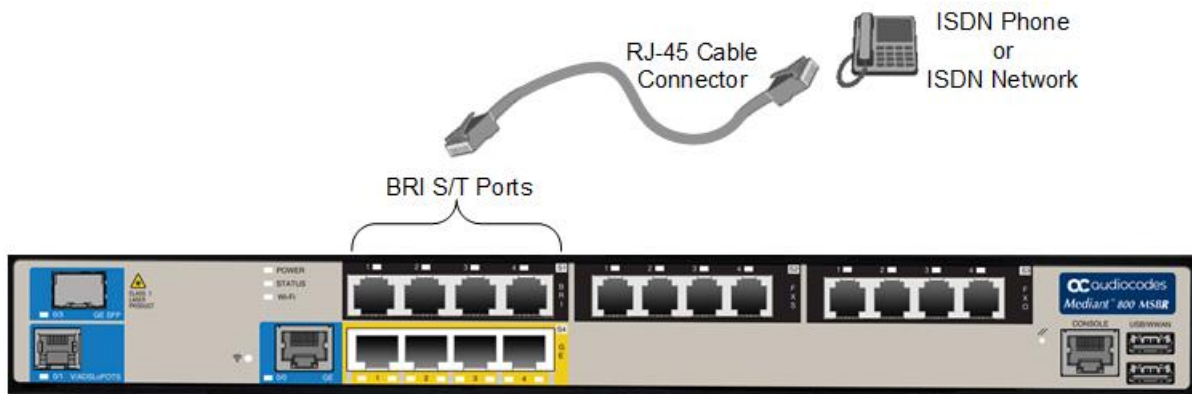


BRI interface is a separate orderable item.

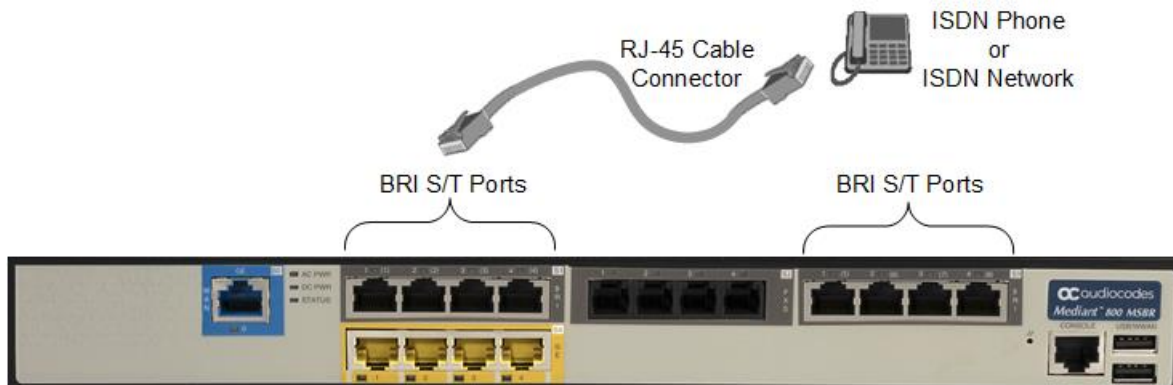
#### To connect the BRI ports:

1. Connect the BRI cable to the device's BRI RJ-45 port.
2. Connect the other end of the cable to your ISDN telephone or PBX/PSTN switch.

**Figure 31: Cabling BRI Ports – Mediant 800B MSBR**



**Figure 32: Cabling BRI Ports – Mediant 800C MSBR**



### 5.5.2 Connecting the PSTN Fallback for BRI Lines

The device supports PSTN Fallback for BRI lines. If the device loses power, for example, due to a power outage or the unplugging of its power cable, it automatically routes calls from the Tel side to the PSTN (instead of to the IP network).

PSTN Fallback is supported if the device houses one or more BRI modules, where each BRI module provides two or four spans.

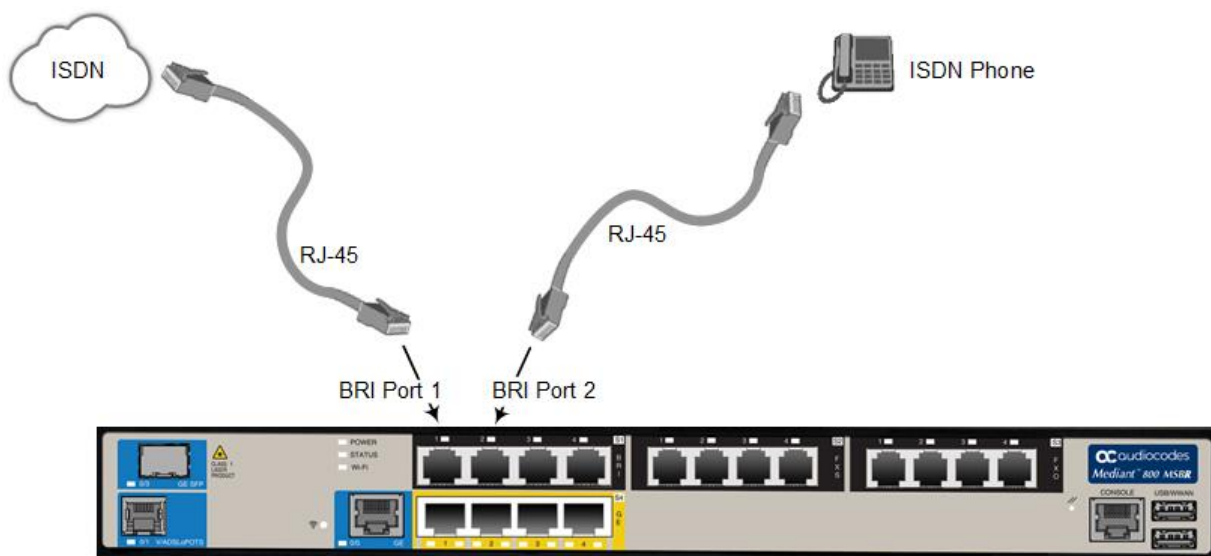
In the event of a PSTN fallback, the BRI module's metallic relay switch automatically connects line Port 1 to Port 2 of the BRI module.

For example, if a PBX trunk is connected to Port 1 and the PSTN network is connected to Port 2, when PSTN Fallback is activated, calls from the PBX are routed directly to the PSTN through Port 2.

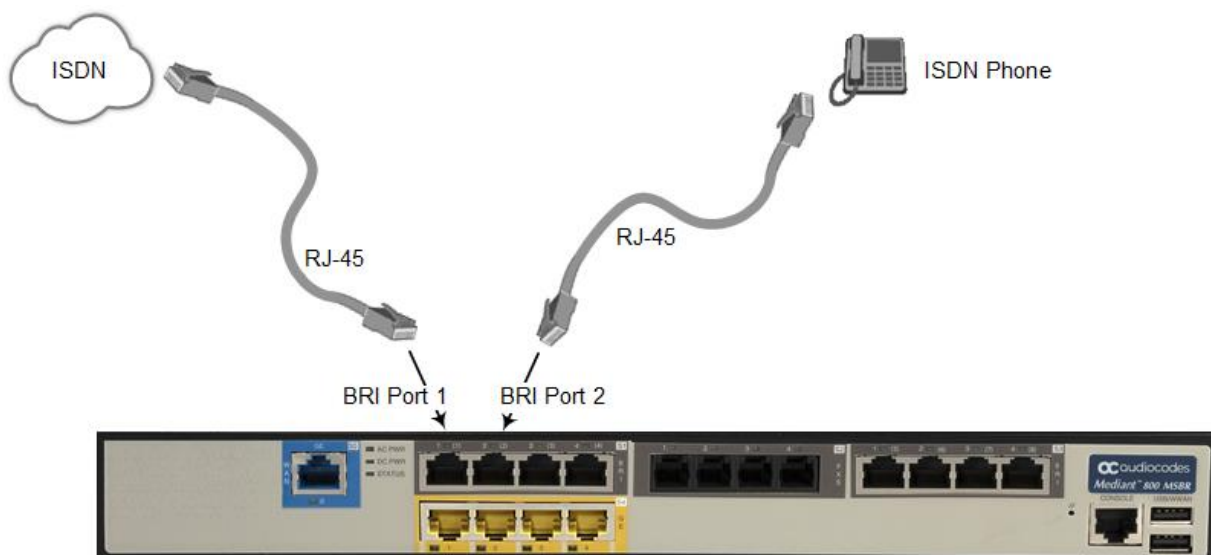
**To connect the BRI line interfaces for 1+1 PSTN Fallback:**

1. Connect Port 1 to a PBX.
2. On the same BRI module, connect Port 2 to the PSTN.

**Figure 33: Cabling BRI PSTN Fallback – Mediant 800B MSBR**



**Figure 34: Cabling BRI PSTN Fallback – Mediant 800C MSBR**





- BRI port cabling must be routed **only indoors** and must not exit the building.
- PSTN Fallback is supported only on the BRI module.
- PSTN Fallback is supported only between ports on the same BRI module.
- This PSTN Fallback feature has no relation to the PSTN Fallback Software Upgrade Key.

## 5.6 Connecting to ISDN PRI (E1/T1) Trunks

The procedure below describes how to cable the device's E1/T1 trunk.



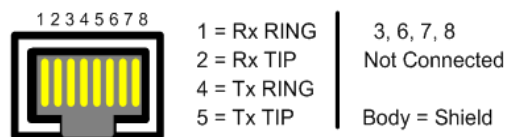
### Warning:

- PRI port cabling must be routed **only indoors** and must not exit the building.
- To protect against electrical shock and fire, use a 26 AWG min wire to connect T1 or E1 ports to the PSTN.
- To comply with EMC rules and regulations, use shielded twisted pair (STP) cables for E1 interfaces on the Mediant 800B MSBR model.

Cable specification:

- **Cable:** 26 AWG min. wire
- **Connector:** RJ-48c
- **Connector Pinouts:**

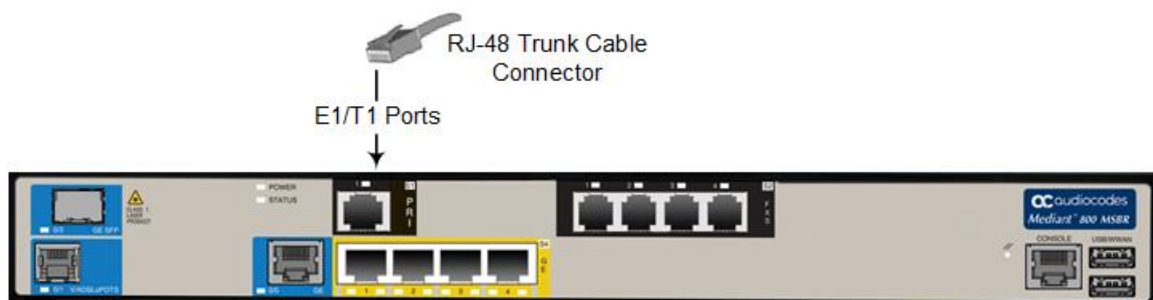
Figure 35: RJ-48c Connector Pinouts for E1/T1

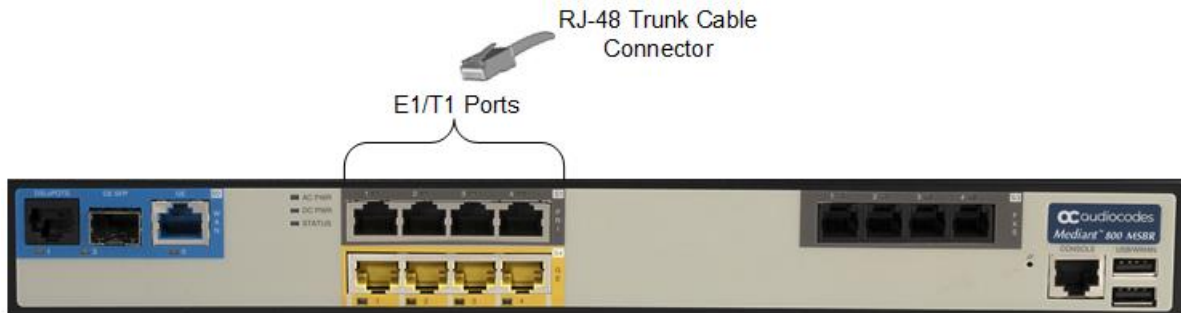


To connect the E1/T1 trunk interface:

1. Connect the E1/T1 trunk cable to the device's E1/T1 port located on the PRI module.

Figure 36: Cabling E1/T1 Ports – Mediant 800B MSBR



**Figure 37: Cabling E1/T1 Ports – Mediant 800C MSBR**

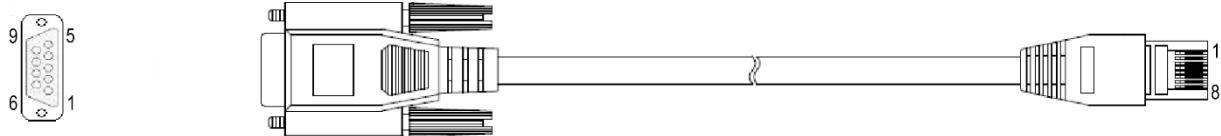
2. Connect the other end of the trunk cable to your PBX/PSTN switch.

## 5.7 Connecting the Serial Interface to a PC

The device provides an RS-232 serial interface port on its front panel for serial communication with a PC.

### Cable specifications:

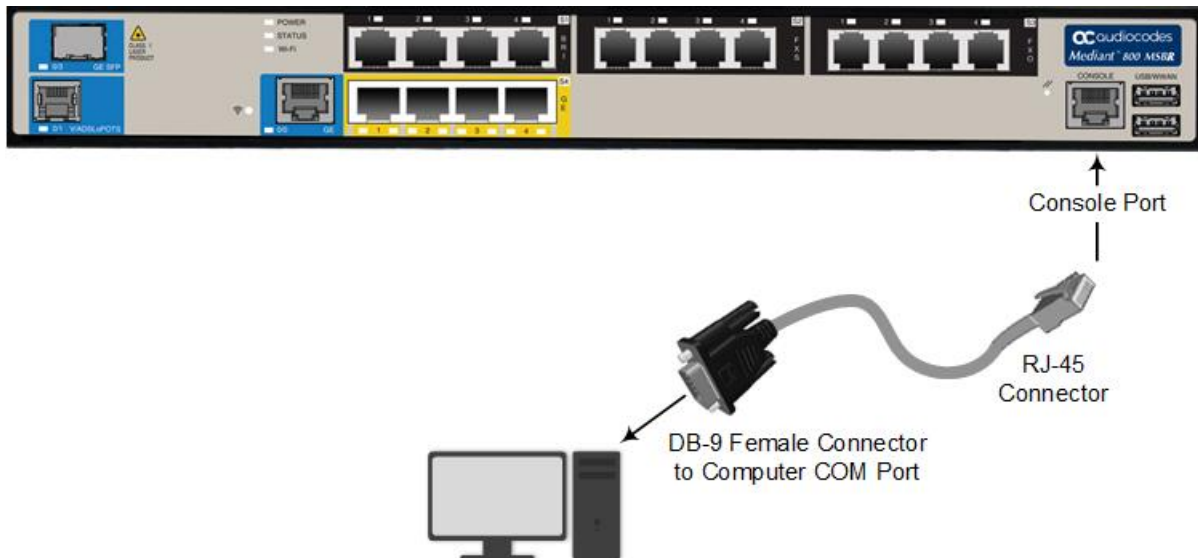
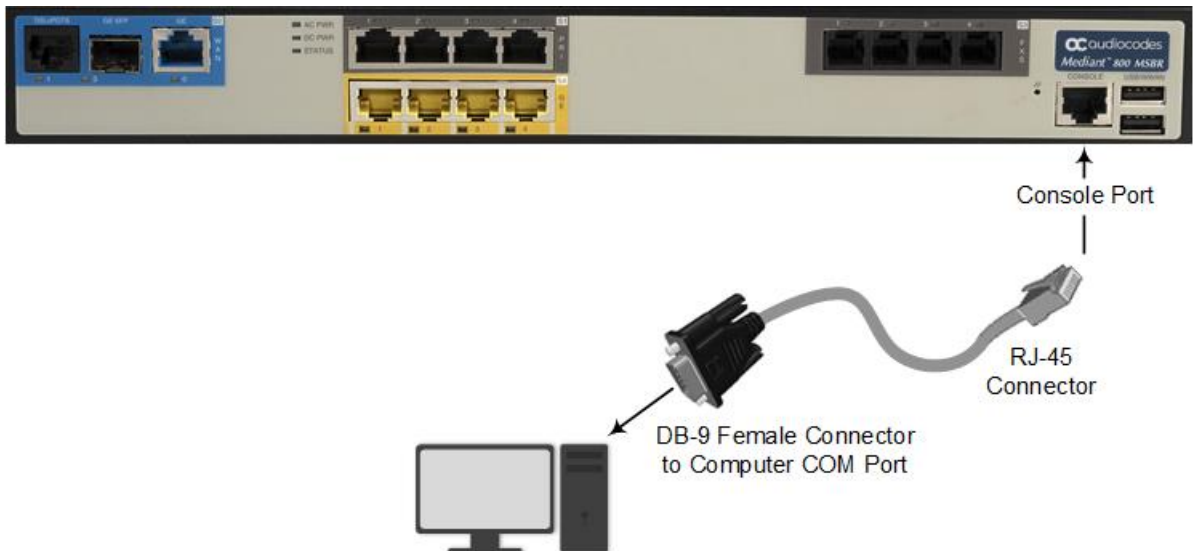
- **Port Type:** RJ-45
- **Cable:** RJ-45 to DB-9
- The serial cable adapter (not supplied) for connecting the RS-232 interface is shown below:

**Figure 38: RS-232 Cable Adapter****Table 28: RJ-45 to DB-9 Serial Cable Connector Pinouts**

| RJ-45 | DB-9 Female |
|-------|-------------|
| 1     | 8           |
| 2     | 6           |
| 3     | 2           |
| 4     | 5           |
| 5     | 5           |
| 6     | 3           |
| 7     | 4           |
| 8     | 7           |

**To connect the device's serial interface to a PC:**

1. Connect the RJ-45 cable connector to the device's serial port, labeled **CONSOLE**.
2. Connect the other end of the cable to the COM1 or COM2 RS-232 communication port on your PC.

**Figure 39: Cabling Serial Interface - Mediant 800B MSBR****Figure 40: Cabling Serial Interface - Mediant 800C MSBR**

## 5.8 Connecting a USB Storage Device

The device supports USB storage capabilities, using an external USB hard drive or flash disk (disk on key) connected to the device's USB port. The storage capabilities include the following:

- Saving network captures to the USB.
- Upgrading the device's firmware from the USB.
- Updating the device's configuration from the USB.
- Saving the current configuration to the USB.

**To connect the USB storage device:**

- Connect the USB storage device to one of the USB ports located on the front panel (labeled **USB/WWAN**).

**Figure 41: Connecting USB Storage Device – Mediant 800B MSBR**



**Figure 42: Connecting USB Storage Device – Mediant 800C MSBR**



Only a single USB storage (formatted to FAT/FAT32) operation is supported at any given time.

## 5.9 Connecting the OSN Server

The device may be ordered with an embedded, Open Network Solution (OSN) platform for hosting third-party services such as an IP PBX.



The OSN server platform is applicable only to Mediant 800C MSBR.

The available, orderable OSN server platforms are listed in the table below.

**Table 29: OSN Server Platforms**

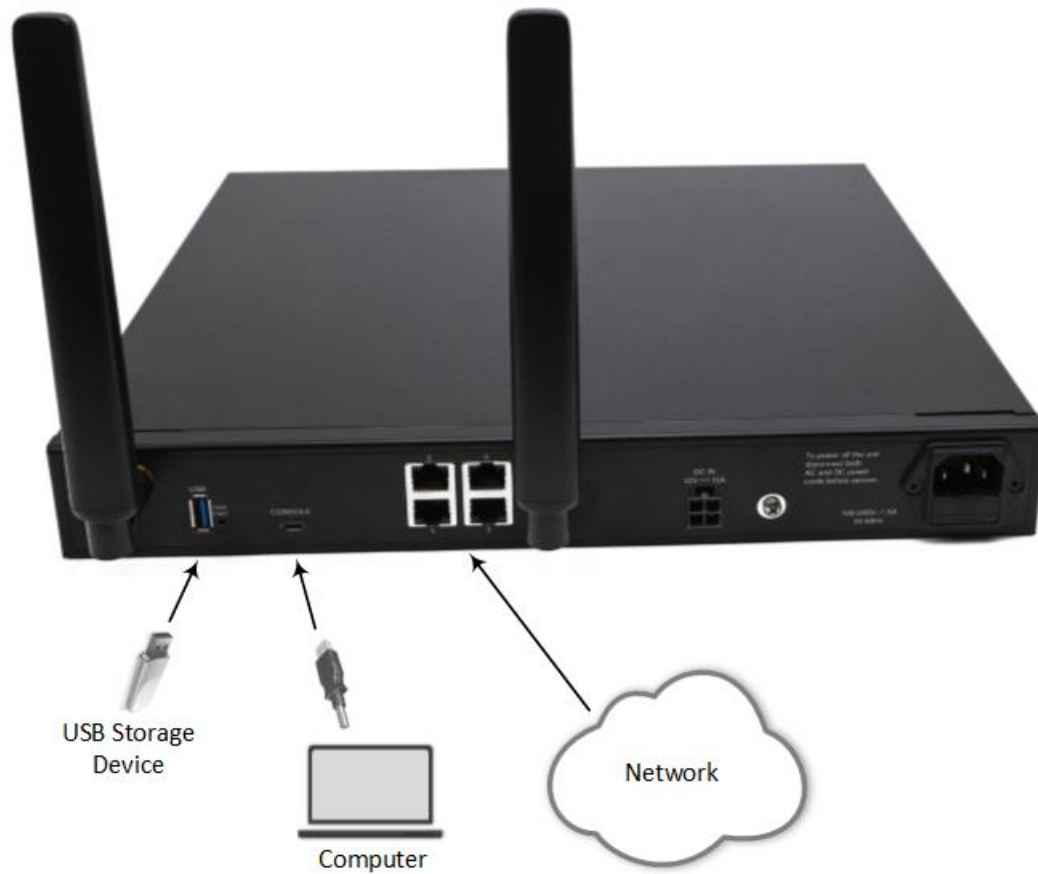
| OSN Platform  | CPU                                                       | Memory  | Storage  | Interfaces                                                                                                                                                                      |
|---------------|-----------------------------------------------------------|---------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OSN 8</b>  | (Denver) Intel Atom® Processor C3558 (4 cores @ 2.2 GHz)  | 8G RAM  | 32G eMMC | <ul style="list-style-type: none"> <li>■ 4 x Gigabit Ethernet NICs</li> <li>■ Internal Gigabit Ethernet port</li> <li>■ USB 2.0 port</li> <li>■ Console (USB-C) port</li> </ul> |
| <b>OSN 9</b>  | (Denver) Intel Atom® Processor C3758 (8 cores @ 2.2 GHz)  | 16G RAM | 64G eMMC |                                                                                                                                                                                 |
| <b>OSN 10</b> | (Denver) Intel Atom® Processor C3338R (2 cores @ 2.2 GHz) | 4G RAM  | 16G eMMC |                                                                                                                                                                                 |



- The OSN server platform is a customer ordered feature and thus, the OSN interface ports, located on the rear panel are available only when the device is purchased with the OSN server.
- The OSN server also provides an internal interface connection to the device's LAN switch. In other words, instead of using the Gigabit Ethernet port on the rear panel, you can use the LAN port #1 located on the front panel for connecting to the OSN server.
- The table above lists the currently available OSN platforms. This list may change without notice. To check for any updated information on available OSN platforms, contact your AudioCodes sales representative.

### To connect OSN server:

1. Perform the following cabling procedures on the OSN server, located on the rear panel:
  - a. Connect a USB storage device containing operating system installation files (Linux or Microsoft Windows) to the OSN's USB port, labelled **USB**.
  - b. Connect a terminal or computer to the OSN's USB (Type C) port, labelled **CONSOLE**.
  - c. Connect your network to the OSN's Gigabit Ethernet ports, labeled **GE**, using an RJ-45 Ethernet cable.

**Figure 43: Cabling OSN Server**

2. Connect the device to power.
3. Follow the operating system's installation instructions to install the operating system.

**To restart the OSN server:**

- Insert a sharp-pointed object (such as a drawing pin) into the Reset pinhole and then extract it after a second; the OSN server restarts.

## 5.10 Connecting to Power

The supported power type depends on the Mediant 800 hardware revision:

- **Mediant 800B MSBR:** Only AC power
- **Mediant 800C MSBR:** AC and DC redundant power. When both power supplies are used (AC and DC), the device is powered from the AC power source only. The DC source starts feeding the device only upon an AC power outage.



Mediant 800C MSBR:  IEC 60417-6042 (2010-11)



Mediant 800C MSBR:  IEC 60417-6172 (2012-09)



Mediant 800C MSBR: The device is always shipped with AC power support. DC power is also available if the device is ordered with DC support (AC/DC power adaptor is provided).

### 5.10.1 Connecting to AC Power

The device receives power from a standard alternating current (AC) electrical outlet. The connection is made using the supplied AC power cord.

**Table 30: AC Power Specifications**

| Physical Specification | Value                                                                                                                                                                                                                 |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage          | Single universal AC power supply 100 to 240V                                                                                                                                                                          |
| AC Input Frequency     | 50 to 60 Hz                                                                                                                                                                                                           |
| AC Input Current       | <ul style="list-style-type: none"> <li>■ <b>Mediant 800B MSBR:</b> 4 A max.</li> <li>■ <b>Mediant 800C MSBR:</b> 1.5 A (max.)</li> </ul>                                                                              |
| Max. Power Consumption | <ul style="list-style-type: none"> <li>■ <b>SBC Only (no PSTN):</b> 27W</li> <li>■ <b>Gateway (without OSN):</b> 60W*</li> </ul> <p>* Power consumption varies according to the assembled hardware configuration.</p> |



#### Warnings:

- The device must be connected to a socket-outlet providing a protective earthing connection.
- To avoid electric shock or fire, use only the AC power cord that is supplied by AudioCodes with the device.
- For replacing the power fuse, see Section 6 on page 55.



#### ご注意

本製品に添付の電源ケーブルは、Mediant 800 MSBR に専用設計されているため、汎用性はありません。本電源ケーブルを他の機器に使用されないよう、ご注意ください。

**To connect the device to the power supply:**

1. Connect the line socket of the AC power cord (supplied) to the device's AC power socket, located on the rear panel.

**Figure 44: Connecting to the Power Supply**

2. Connect the plug at the other end of the AC power cord to a standard electrical outlet.

Once you have cabled and powered-up the device, the **POWER** LED on the front panel lights up green. For a description of this LED, see Section 3.2.2.9 on page 17.

**5.10.2 Connecting to DC Power**

DC power is cabled using the AC/DC power adaptor (supplied) which is connected to a standard AC electrical wall outlet. Typically, the DC power source is used for power redundancy with the AC power source (see note below).



- DC power is applicable only to Mediant 800C MSBR.
- DC power support is a separate orderable item.
- When both power supplies are used (AC and DC), the device is powered from the AC power source only. The DC source starts feeding the device only upon an AC power outage.

**Table 31: DC Power Specifications**

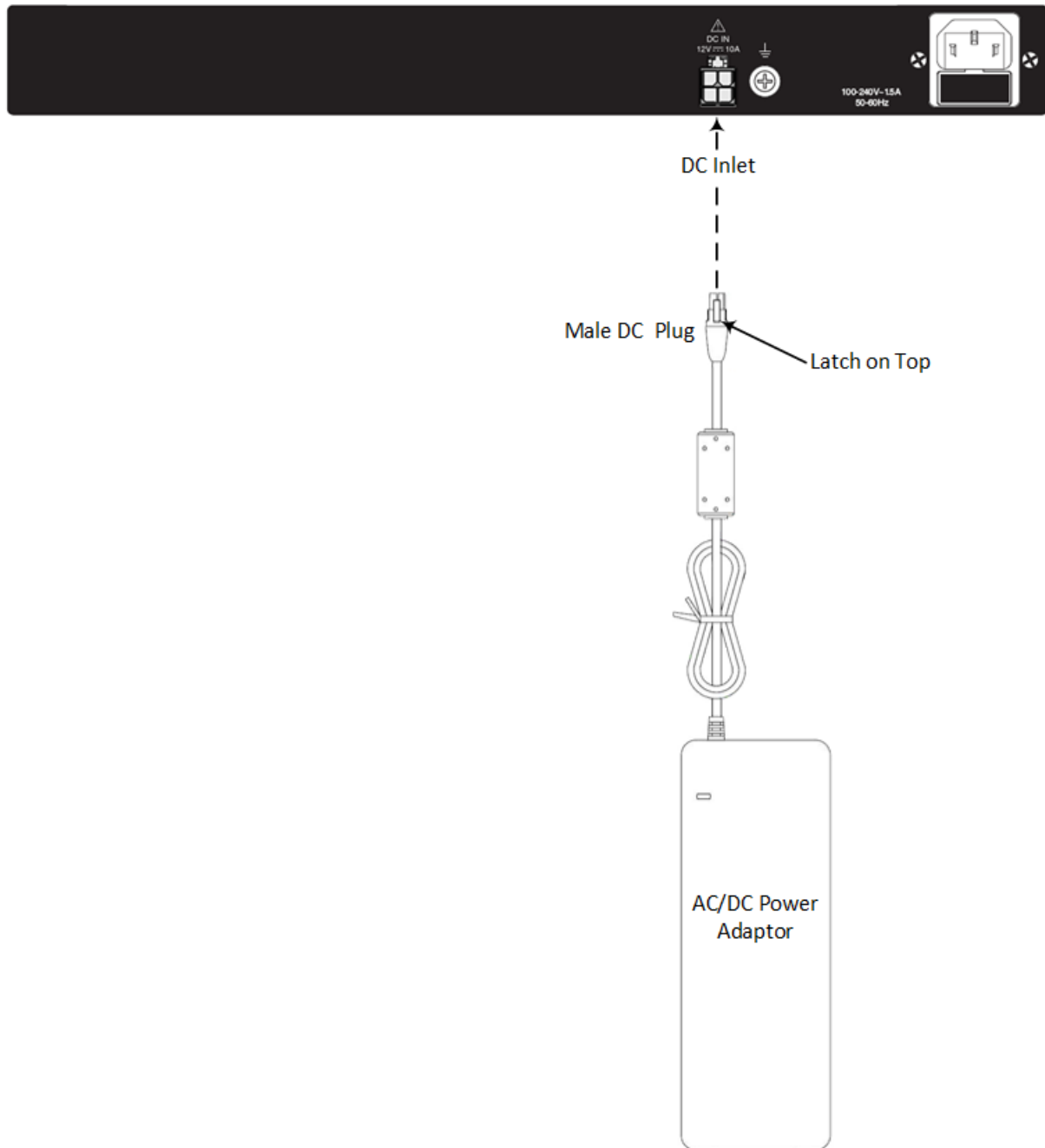
| Physical Specification | Value       |
|------------------------|-------------|
| Input Voltage          | 12VDC / 10A |



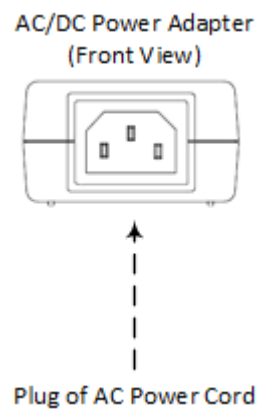
**Warning:** Use only the AC/DC power adaptor that is provided by AudioCodes when ordering DC power.

**To connect the device for DC power:**

1. Insert the male DC plug into the DC inlet connector located on the device's rear panel. When inserting the DC plug, make sure that the latch faces up (see figure below). Make sure that the latch snaps into the inlet, indicating that the terminal block has been firmly plugged in.

**Figure 45: Connecting DC Power Plug to DC Inlet**

2. Plug the female connector that is located on one end of the AC power cord (supplied), into the AC/DC power adaptor.

**Figure 46: Plugging AC Power Cord into AC/DC Adaptor**

3. Plug the other end of the AC power cord (supplied) into a standard electrical wall outlet. The device's **DC PWR** LED, located on the front panel, lights up green.

## 6 Maintenance

This section describes maintenance procedures.

### 6.1 Replacing the Power Fuse

The device contains a fuse that protects the device from excessive current. The fuse is located on the rear panel, below the power socket. To replace the fuse, use only one of the following fuses described in the table below:

**Table 32: Allowed Fuses for the Device**

| Manufacturer | Manufacturer Part Number |
|--------------|--------------------------|
| LITTEFUSE    | 215 06.3 (6.3A/250V)     |



For continuous protection, replace only with the same fuse type and rating fuse.

#### To replace the power fuse:

1. Unplug the power cord from the electrical outlet.
2. Using a small flathead screwdriver, gently pries open the fuse cavity as illustrated in the figure below:

**Figure 47: Opening the Fuse Cavity**



3. Carefully remove the fuse from the fuse cavity.

**Figure 48: Removing the Power Fuse**



4. Insert the new fuse securely into the fuse cavity until you hear a click sound.
5. Reconnect the power cord and verify that the **Power** LED is lit green.

## A Approved Laser SFPs

The table below lists the recommended SFPs, which can be ordered from AudioCodes. For installing the SFPs and for fiber-optic WAN cabling, see Section 5.2.2 on page 27.

**Table 33: Approved SFP Modules**

| Object / Part No.                 | Manufacturer / Trademark | Optional Types / Models                                                                                                                                                                                                                        | Technical Data                                                                                                               | Standard (Edition / Year)                                                                                                                          | Mark(s) of Conformity                                                 |
|-----------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Laser SFP Insert</b>           | Source Photonics         | <ul style="list-style-type: none"> <li>■ SPL-35-03-EBX-CDFM</li> <li>■ SPL-53-03-EBX-CDFM</li> <li>■ SPL-35-03-EBX-CDFM</li> <li>■ SPL-34-GB-BX-CDFM</li> <li>■ SPL-43-GB-BX-CDFN</li> <li>■ SP-GB-LX-CDFN</li> <li>■ SP-GB-SX-CDFB</li> </ul> | Class 1 <ul style="list-style-type: none"> <li>■ 1310 nm</li> <li>■ 1550 nm</li> <li>■ 1850 nm</li> <li>■ 1490 nm</li> </ul> | <ul style="list-style-type: none"> <li>■ EN60950-1:2006+A11</li> <li>■ EN60825-1:2007, EN60825-2:2004+A1</li> <li>■ UL60950-1</li> </ul>           | <ul style="list-style-type: none"> <li>■ UR</li> <li>■ TUV</li> </ul> |
| <b>Alternate Laser SFP Insert</b> | Neo Photonics            | <ul style="list-style-type: none"> <li>■ PT7320-51-1W+</li> <li>■ PTB3350-3331W-LC/PC+</li> <li>■ PTB3530-3331W-LC/PC+</li> <li>■ PTB3370-553CW-LC/PC+</li> <li>■ PTB3830-553CW-LC/PC+</li> <li>■ PT7320-51-1W+</li> </ul>                     | Class 1 <ul style="list-style-type: none"> <li>■ 1310 nm</li> <li>■ 1550 nm</li> <li>■ 1850 nm</li> <li>■ 1490 nm</li> </ul> | <ul style="list-style-type: none"> <li>■ EN60950-1:2006+A11</li> <li>■ EN60825-1:2007</li> <li>■ EN60825-2:2004+A1</li> <li>■ UL60950-1</li> </ul> | <ul style="list-style-type: none"> <li>■ UR</li> <li>■ TUV</li> </ul> |

## B Notice for Installing CentOS Version 4.7 on OSN

This appendix provides important information when installing CentOS Ver. 4.7 Linux Distribution on the OSN server:



The OSN server platform is applicable only to Mediant 800C MSBR.

- When installing CentOS, ensure that you type **linux irqpoll** at the **boot:** prompt.
- For CentOS to identify the OSN server's Gigabit Ethernet (GE) interfaces, do the following:
  1. Obtain the following files from AudioCodes:
    - ◆ Binary compiled CentOS 4.7 driver for Intel e1000e Ethernet controller on Mediant 800 MSBR (**e1000e.ko**)
    - ◆ Manual pages (**e1000e.7.gz**)
  2. Copy the files to the **/root** directory.
  3. Remove any old e1000e modules (if any) and install the new module and manual pages:

```
#> find /lib/modules/2.6.9-78.ELsmp -name e1000e.ko -exec
rm -rf {} \;
#> find /lib/modules/2.6.9-78.ELsmp -name e1000e.ko.gz -
exec rm -rf {} \;
#> install -D -m 644 /root/e1000e.ko /lib/modules/2.6.9-
78.ELsmp/kernel/drivers/net/e1000e/e1000e.ko
#> /sbin/depmod -a
#> echo "alias eth1 e1000e" >> /etc/modprobe.conf
#> echo "alias eth2 e1000e" >> /etc/modprobe.conf
#> install -D -m 644 /root/e1000e.7.gz
/usr/share/man/man7/e1000e.7.gz
#> man -c -P`cat > /dev/null` e1000e
#> modprobe e1000e
```

**Note:** The character **#>** depicts the CLI prompt and is not part of the command.

4. Restart networking, by running the following command:

```
#> service network restart
```

**Note:** The character **#>** depicts the CLI prompt (i.e., this is not part of the command).

The final result should be as follows:

```
Eth0 = r8169 (INTERNAL and not in use)
Eth1 = e1000e (GE LAN)
Eth2 = e1000e (GE LAN)
```

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