MAP-2100 Quick Start Guide

Thank you for purchasing a MAP-2100. This guide provides information on how to get started testing with the unit.

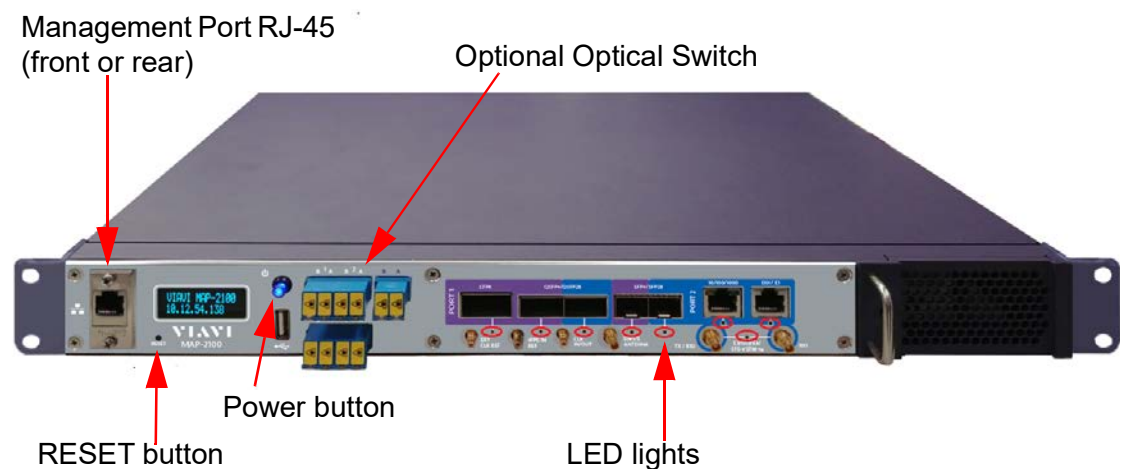## Unpacking and inspecting the components

When unpacking the components, verify that all the items you ordered are included in the package. Accessories may be shipped in a separate box.

Before using the unit for the first time, please inspect its components to verify that no damage occurred during shipping. Examine the connectors, ports, LEDs, and screen for damage. Be sure to check the top, bottom, and front panels. If you find damage, contact Viavi Customer Care at 1-844-GO-VIAVI (+1-844-468-4284) or at www.viavisolutions.com. Consider saving the box and packing materials for future use.

About MAP-2100

The MAP-2100 is a rack-mount test solution that facilitates the quick turn-up and troubleshooting of multiple services and network elements in the Metro and Core network.

MAP-2100 Front Panel

Management Port RJ-45 (front or rear)

Optional Optical Switch

RESET button

Power button

LED lights

Mechanical installation

You can install the MAP-2100 in an ANSI 19' or 23' rack, and ETSI 21' rack, or an IEC 19" rack. A distance of one unit (1.75" or 44.45 mm) is required for ventilation between units in the same bay. For environmental specifications see the *T-BERD/MTS/SC/MAP-2100 Getting Started Guide*.
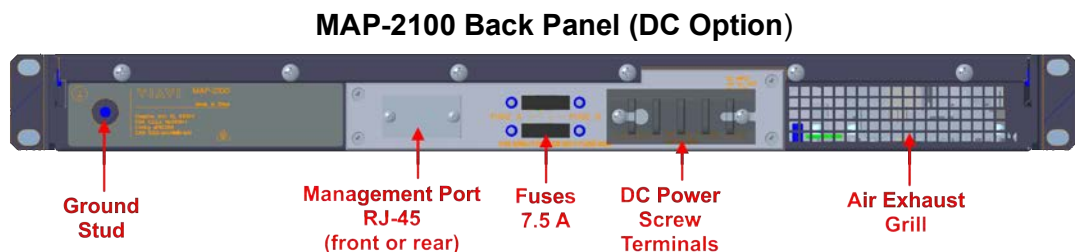
Powering the unit

Power is supplied to the instrument via the AC or DC input on the rear panel.

> **NOTE**
>
> The MAP-2100 has no user-serviceable internal fuse and must be returned to VIAVI for service if needed.

DC option

MAP-2100 Back Panel (DC Option)

Ground Stud — Management Port RJ-45 (front or rear) — Fuses 7.5 A — DC Power Screw Terminals — Air Exhaust Grill

To install the DC power version of the MAP-2100, you will need:

- One or two -48V DC supply inputs
- An Earth connection
- An IP Ethernet link (RJ45, 100 full duplex) for the management port
- A PC with an Ethernet port for accessing the user interface
- An ohmmeter
- Four mounting screws and nuts

The DC version of the MAP-2100 must be grounded to a protective ground (earth ground) via the grounding stud located on the rear panel.

Power supply specifications

The DC version of the MAP-2100 is powered from one or two -48V DC input ports that operate from a nominal supply voltage of -48V DC and range from -40V DC up to -60V DC. Use a minimum of 14 AWG conductors with compression terminations suitable for securing to the DC Power Screw Terminals on the rear panel. Each supply input must be able to individually support the equipment. Power consumption is 150 watts or less, and current consumption is 3.2 amps or less. An integral protection against power supply reversal is provided in the MAP-2100. The MAP-2100 has no "power on" switch.

To remove power from the unit, it is recommended to have an external switch or circuit breaker located near the equipment to turn off the local -48 V DC supply or supplies, or the fuses on the rear panel can be removed.

CAUTION

Do not connect live DC power feeds to the unit or install the fuses when the DC Power Screw Terminals are live. Doing so may create an arcing situation due to the in-rush current that will diminish the contacts of the fuses or screw terminals.

NOTE

The fuse used in the DC version of the MAP-2100 is a Littlefuse 7.5 A, Body Color=Black/White, 481 Series fuse.

Grounding requirements

The DC version of the MAP-2100 must be grounded to a protective ground (earth ground) via the stud located on the rear panel. The following procedure describes how to ground the MAP-2100 (DC option).

To ground the MAP-2100 (DC option)

1 Using a minimum 14 AWG copper conductor, coat the conductor's bare portion with antioxidant and terminate one end to a listed compression lug.

2 Attach the lugs to the studs using nuts and lock washers.

3 Attach the other end of the grounding conductor to either the rack or directly to CO ground.

4 If grounding a rack:

   a Bring the connection surfaces of the rack to a bright finish and coat with anti-oxidant.

   b Attach the conductor with a listed two-hole compression lug or a single-hole lug with star or lock washers.

   c Ensure the rack is connected to CO ground in the same manner.

5 Check the continuity with an ohmmeter (less than 1 Ohm).

Powering the instrument

The following procedure describes how to power the MAP-2100 (DC option.)

To power and turn on the MAP-2100 (DC Option)

> **NOTE**
>
> The MAP-2100 DC version must be permanently connected to the protective earth.
>
> The MAP-2100 must be grounded to a Common Bonding Network.
>
> MAP-2100 RTN terminals are in the configuration of an Isolated DC Return (DC-I), Common DC Return (DC-C), or both.
>
> Cables connected to the EXT REF CLK, 1PPS IN REF, CLK IN/OUT, GNSS ANTENNA, TX/RX2. and RX1 ports should be shielded and grounded at both ends.

1 Connect the Earth cable to the ground stud on the back of the unit as described in "To ground the MAP-2100 (DC option)" on page 3

2 Connect the IP interface to the **Management LAN (RJ45)** port on the front or rear of the unit.

3 Remove the clear protective cover over the DC Power Screw Terminals.

4 Switch off the local -48 V DC supply.

5 Connect one or two supply and return feeds to the -48V DC screw terminals on the back of the unit.

6 Re-install the clear protective cover over the DC Power Screw Terminals.

7 Switch on the local -48 V DC supply.

The power indicator button on the front of the unit should illuminate. The unit can then be activated by pressing the illuminated power button on the front panel.
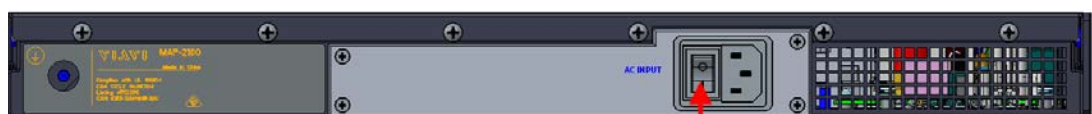
> **NOTE**
>
> If the MAP-2100 has been disconnected from main power for approximately 13 minutes, the next time power is provided the MAP-2100 will activate automatically.

AC option

MAP-2100 Back Panel (AC option)

Main Power Switch

To install and configure the AC power version of the MAP-2100 you will need:

- 110-120V AC, 60Hz or 220-240V AC, 50Hz power supply cord
- IP Ethernet link (RJ45, 100 full duplex) for the management port
- A PC with an Ethernet port for accessing the user interface

Power supply specifications

The AC version of the MAP-2100 is powered from an AC supply input that operates from a nominal supply voltage of 120-220V AC and ranges from 85V AC to 264V AC and 47Hz to 63Hz, auto-ranging. To remove power from the unit, turn off the power switch at the back of the unit and unplug the power cord.

Powering and turning on the unit

> **NOTE**
>
> For the AC power version of the MAP-2100, always use an AC power cable that includes an earth (safety) ground connection. The cable(s) connected to the EXT REF CLK, 1PPS IN REF, CLK IN/OUT, GNSS ANTENNA, TX/RX2, and RX1 port(s) should be shielded and grounded at both ends.

The following procedure describes how to power the unit and turn it on.

To power and turn on the MAP-2100 (AC option)

1   Connect the IP interface to the **Management LAN (RJ45)** port on the front of the unit.

2   Connect the AC power supply to the AC power input on the back of the unit and turn on the power switch. The **Pwr** indicator button on the front of the unit illuminates.

3   Activate the unit by pressing the illuminated power button on the front panel.

> **NOTE**
>
> If the MAP-2100 has been disconnected from main power for approximately 13 minutes, the next time power is provided the MAP-2100 will activate automatically.

Normal Power Down

To turn off the unit, momentarily press the power button on the front panel. The unit will save its settings and power itself down. The main switch and power connections on the rear of the unit should be left connected and **ON**.

Forced Power Down

In order to force the unit to power off, hold the power button on the front panel down for at least 4 seconds. When performing a forced power off, you will not retain your last active test or general settings of the instrument since the last normal power down.

Resetting MAP-2100

The instrument provides a reset function via front panel **RESET** button. This button is recessed and requires a small instrument like a paper clip in order to be activated. The primary function of this button is to enable a known configuration that will allow the user to remotely connect to the unit via network interface.

To reset the unit, you must first power it down, using either the normal front power switch or the rear switch for the full power off. Once the unit is powered off, depress the **RESET** button and turn on the unit. The **RESET** button must remain depressed until the unit displays **Resetting to Default Setups** on the front panel.

Following that message, the display will show **Select Net Type:** and alternate between DHCP and Static IP. Releasing the **RESET** button will select the displayed network type. At this point, quickly depressing and releasing the **RESET** button will toggle between the Dynamic IP (DHCP) and Static IP settings.

Resetting the defaults will perform the following functions:

1 Disable firewall feature (port 22 only) if enabled

2 Disables VNC password if enabled

3 Set DHCP mode or set static IP addresses to the following defaults:

- IP Address: 192.168.200.2
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.200.1
- DNS Address: 192.168.200.1

Setting a Static IP on MAP-2100

Perform the following steps to set a Static IP address on a MAP-2100.

1 Power down the MAP-2100, using either the normal front power switch or the rear switch for full power off.

2 Once the unit is powered off, depress the **RESET** button and turn on the unit. The **RESET** button must remain depressed until the unit displays **Resetting to Default Setups** on the front panel. Following that message, the display shows **Select Net Type**, alternating between DHCP and Static IP.

3 Release the **RESET** button to select the displayed network type. Quickly pressing and releasing the **RESET** button toggles between the Dynamic IP (DHCP) and Static IP settings.

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4   Set to Static IP. The unit is defaulted to 192.168.200.2.

5   On a PC, change the Ethernet (wired) Adapter Network Settings:

    a   Click Start > Settings > Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings

    b   In the list of Network Connections, select the connection you are using to connect to the MAP-2100 and double-click it.

    c   In the new window, click on the **Properties** button.

    d   Select **IP version 4 (TCP/IPv4)** and click **Properties**.

    e   In the Protocol Properties window, select **Use the following IP address**.

    f   Enter the static IP in the same subnet, for example:

        -    IP address: 192.168.200.2
        -    Subnet Mask: 255.255.255.0

6   Connect an RJ-45 cable from the MAP-2100 Management Port to your PC.

7   Using VNC, connect to 192.168.200.2.

8   On the MAP-2100, go to **System > Network**.

9   In the IPv4 menu, change the static IP and subnet mask to the desired IPv4 address to connect to the local network. This will disconnect the PC, however it is now possible to connect the MAP-2100 via RJ-45 to a LAN port.

Exploring MAP-2100

The connector panel of MAP-2100 provides the connectors used to attach the instrument to the circuit for testing. After selecting a test application, LEDs illuminate, indicating which connectors to use for your test. MAP-2100 has the same connection ports and LEDs as 5800-100G. For detailed information on connector specifications and LED lights, refer to "Exploring the T-BERD ⁄ MTS 5800" in the *T-BERD/MTS/SC/ MAP-2100 Getting Started Guide*.

The LCD display indicates the IP address, name of the instrument and boot progress.

Additional Documentation

For more detailed information on using T-BERD/MTS MAP-2100, please refer to the manuals on the USB memory stick, included in the shipment.

- *T-BERD/MTS/SC/MAP-2100 Getting Started Guide*
- *T-BERD/MTS/SC/MAP-2100 Ethernet, and Fiber Channel Testing Manual*
- *T-BERD/MTS/SC/MAP-2100 SONET/SDH, OTN and PDH Testing Manual*
- *T-BERD/MTS 5800/MAP-2100 GNSS and Timing Expansion Module User Manual*

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