



Installing External Non-Cisco Modules

This section explains how the Cisco 1240 Connected Grid Router (CGR 1240 or router) provides support for a compatible, external non-Cisco wireless modules, installed on the router exterior and connected to the router integrated switch module. Wireless connections send data from the router to field devices, such as meters, sensors, and Intelligent Electronic Devices (IEDs), and from the router to the utility or data management center.

These topics are discussed:

- [External Non-Cisco Module Support, page 173](#)
- [Before Installing, page 174](#)
- [Install an External Non-Cisco Module, page 175](#)
- [Related Information, page 180](#)

External Non-Cisco Module Support

This section describes the support for, and requirements for, installing a non-Cisco module on the router.

Caveats

- Cisco does not provide technical support for issues related to non-Cisco products. You must contact the module supplier or your reseller to obtain technical support for the non-Cisco module.
- Installing a module that does not meet the requirements described in this section can negatively affect router performance.
- The router system software does not communicate with or interact with non-Cisco modules.
- A non-Cisco module that is installed on the router does not interact with the router chassis. Connecting a non-Cisco module to the router does not certify the module. Before installing the module, verify that it is certified for use in your environment.

External Non-Cisco Module Requirements

Non-Cisco modules installed on the router exterior must meet the following requirements:

- Compliance with Type 4X and IP67 standards.
- Support the router mounting boss dimensions (see [Figure 96 on page 177](#)).

Cable Requirements

Cables used for installing an external, non-Cisco module should meet the following criteria:

- Outdoor-rated
- UV-stabilized

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- Diameter of 0.20–0.35 inches (5.08–8.89 mm)

Caution: Cables must be a minimum of 0.20 in. in diameter to create an adequate seal within the cable glands. Using smaller cables could result in an inadequate seal and expose the router interior to environmental elements.

- **Power cable**—The cable that you provide to connect the module to the router 12V power connector must be wired so that Pin 3 (cable presence) and Pin 4 (ground) are connected to each other. If they are not connected, the module will not detect power from the router. Refer to [External Non-Cisco Module Support, page 173](#).

Online Installation and Removal

An external non-Cisco module can be installed or removed while the router is installed (usually on a pole top) and operating normally.

The module must be powered off until it is connected to a power source as part of the installation process described in this section. Power sources can include:

- Router Power over Ethernet (PoE) Ethernet port (see [Router Hardware Description, page 9](#))
- Router 12V power connector, illustrated and described in [Figure 98 on page 180](#)
- External-to-the-router power source

Power

The router interior features a 4-pin, Micro-Fit 3.0 connector, which provides 12 volts of power to an externally-connected module. See [Figure 98 on page 180](#) for an illustration of the power connector.

Before Installing

Read this section and [Installation Safety and Site Preparation, page 3](#) before following any installation procedures.

Prepare the Installation Site

The installation site must be prepared according to [Installation Safety and Site Preparation, page 3](#).

Preventing Electrostatic Discharge Damage

Many of the components discussed in this chapter are sensitive to electrostatic discharge (ESD) damage, which can occur when electronic cards or components are handled improperly, results in complete or intermittent failures.

To prevent ESD damage, follow these guidelines:

- Always use an ESD wrist or ankle strap and ensure that it makes good skin contact.
- Connect the equipment end of the strap to an unfinished chassis surface.
- Place the removed memory card on an antistatic surface or in a static shielding bag. If the card will be returned to the factory, immediately place it in a static shielding bag.
- Avoid contact between the card and clothing. The wrist strap protects the card from ESD voltages on the body only; ESD voltages on clothing can still cause damage.
- Do not remove the wrist strap until the installation is complete.

Cabling Guidelines

Follow these guidelines for using cables with the router:

- Position cables so that they do not place strain on the router connectors.
- Organize cables into bundles when necessary to avoid intertwining.
- Inspect cables to ensure adequate routing and bend radius.
- Install cable ties that comply with your site requirements.

Install an External Non-Cisco Module

This section provides information for connecting an external, non-Cisco module to the router. Some steps might require referring to the module documentation. This section includes these installation topics:

- [Tools and Materials You Supply, page 175](#)
- [Open and Close the Router Door, page 175](#)
- [Connect the Module to the Chassis, page 175](#)
- [Cabling Instructions, page 177](#)
- [Connect to the Network, page 178](#)
- [Connect to Power, page 179](#)

Tools and Materials You Supply

- **Wrench**—You must supply a 13-mm box-end wrench or socket set to remove port plugs from the cable ports and a 15/16-inch open-end wrench to install the cable glands on the cable ports.
- **Hardware**—You must provide any hardware as required in [Connect the Module to the Chassis, page 175](#).
- **Power Connector Adapter**—Depending on your module power cable, you might need to provide an adapter to connect the module to the router 4-pin Micro-Fit 3.0 power connector.

Caution: The housing for any power connector adapter that you supply must comply with the UL 94 V-1 flammability standard.

Open and Close the Router Door

You might be required to open the router door to install the module (see [Opening and Closing the Router Chassis, page 75](#)).

Connect the Module to the Chassis

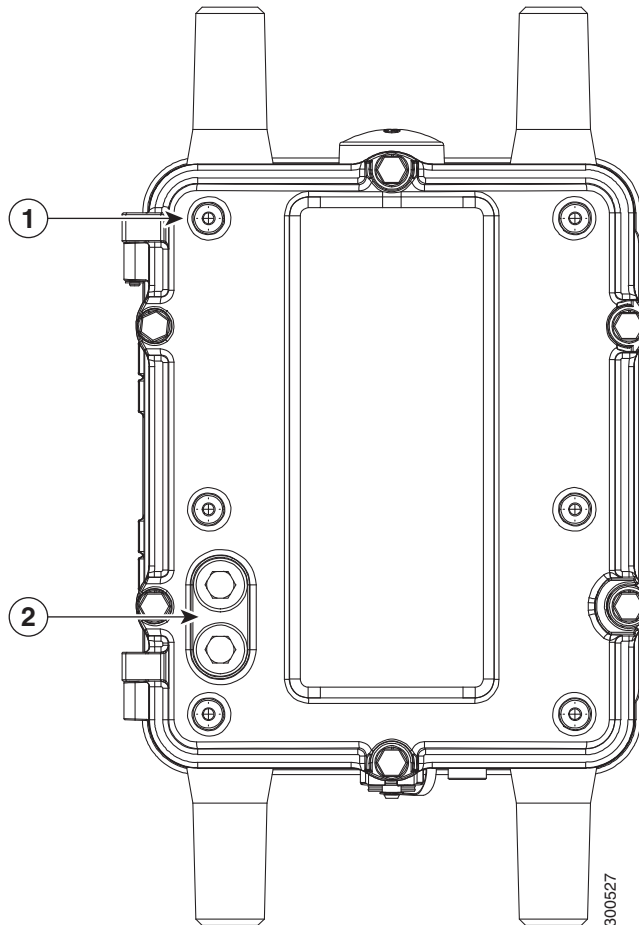
The router front door has these features for installing a module on the router exterior:

- Six mounting bosses for attaching a module to the router (see **1** in [Figure 95 on page 176](#))
- Two cable ports to thread power and Ethernet cables to the router interior (see **2** in [Figure 95 on page 176](#))

To attach the module to the mounting bosses, you must:

- Provide the hardware required to attach the module to the mounting bosses
- Follow the mounting instructions that support the module

Figure 95 Mounting Bosses and Cable Ports



Item	Description	Qty.
1	Mounting bosses (M8 x 1.25), for attaching non-Cisco module to the router.	6
2	Cable ports, for threading module cables to ports on the router interior.	2

Installation Options

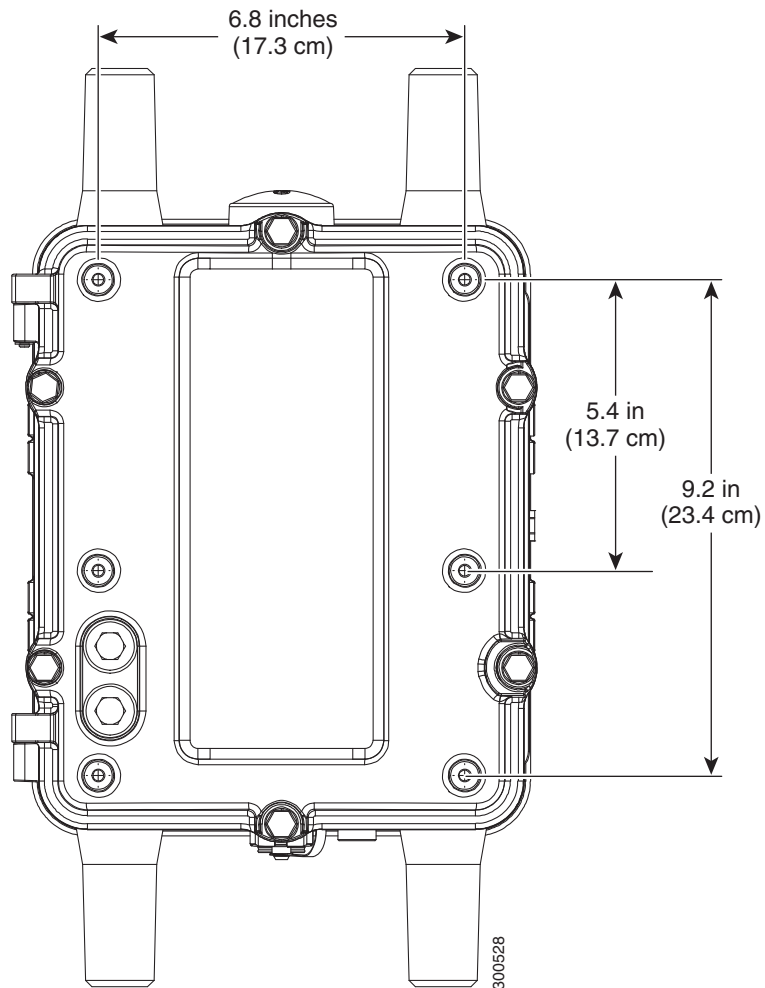
The layout of the six mounting bosses on the router front door supports two installation options:

- [External Cabling, page 177](#)
- [Internal Cabling, page 178](#)

The installation option you choose depends on the dimensions of the module you are attaching, and the cable location on the module.

[Figure 96 on page 177](#) shows all six mounting bosses on the router, and the corresponding dimensions.

Figure 96 Dimensions for Mounting External Non-Cisco Modules



Cabling Instructions

This section describes the two cabling procedures. Use the procedure that applies to your installation configuration:

- [External Cabling, page 177](#)
- [Internal Cabling, page 178](#)

External Cabling

Depending on the dimensions of the module, you might have to connect the module to the router in a way that the cables are exposed outside the router and the module.

With this configuration:

- Cables are exposed externally
- Use cable glands to thread cables through the cable ports
- Follow the cabling instructions in this section

Cisco Cable Glands

When you install the module in a configuration that uses external cabling from the module through the cable ports on the router door, you must provide cable glands for each cable port.

Cable glands:

- Create seal to protect the router interior from environmental elements
- Can be ordered from Cisco: CGR-IP67GLAND (one cable gland per kit)
- See [Cable Glands Description, page 97](#)

Caution: The cable glands must be used for all cables that are threaded through the router chassis cable ports to prevent exposing the router interior to environmental elements.

Outdoor Cable Requirements

Verify that the cables you use to connect the module to the router meet the cable requirements described in [Cable Requirements, page 97](#).

Connecting the Cable Glands

To connect the cable glands to a router cable port:

1. Use the 13-mm wrench to remove the port plugs from the cable ports on the router door.
2. Follow the steps in [Cable Glands Installation Steps, page 98](#) to:
 - Thread the Ethernet and power cables through the cable glands
 - Connect the cable glands to the cable ports on the router door

Internal Cabling

Depending on the module dimensions and the location of the module cables, you may be able to install the module directly over the cable ports and thread the module cables through the cable ports.

With this configuration:

- Cables are not exposed externally.
- Install an O-ring in each cable port to create an environment-proof seal.
- Follow the cabling instructions in this section.

Cisco O-Ring

When you install the module in a configuration that uses internal cabling from the module, through the cable ports on the router door, insert a rubber O-ring into each port to create an environmental-proof seal.

Caution: The O-ring must be used to prevent exposing the router interior to environmental elements.

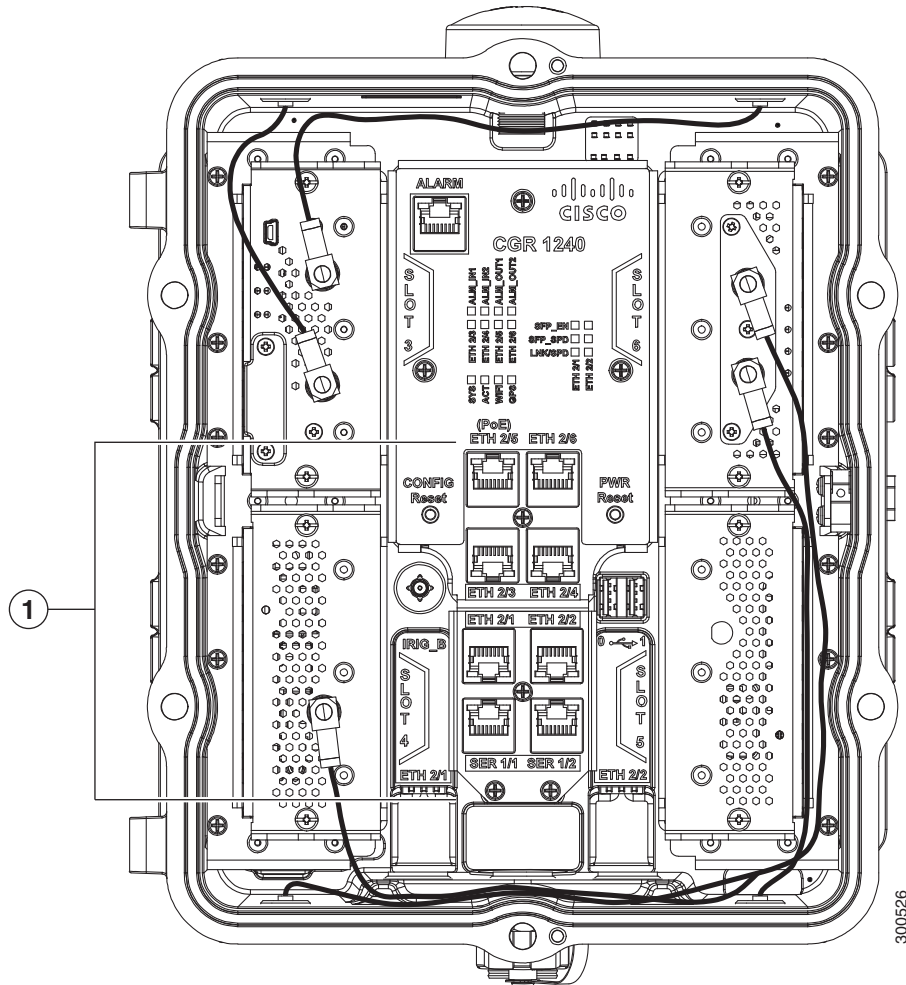
Connect to the Network

1. Verify that the module Ethernet cable is threaded through the router cable port, and that the cable port has cable glands or an O-ring installed.
2. Connect the module Ethernet cable to any of the Ethernet ports on the router interior. See location 1 in [Figure 97 on page 179](#) for router Ethernet port locations.

For detailed information about making router Ethernet connections, see [Connect to the Ethernet Backhaul Network, page 86](#).

3. After connecting the module network cable to the Ethernet port, use the wire ties on the router door (see location 1 in [Figure 98 on page 180](#)) to fix the cable to the door.

Figure 97 Router Ethernet Ports



Connect to Power

Note About Power over Ethernet (PoE)

If the module is connected to a PoE port on the router, you do not have to follow the steps in this section because the module is powered over Ethernet cable that you connected by following the steps in [Connect to the Network, page 178](#).

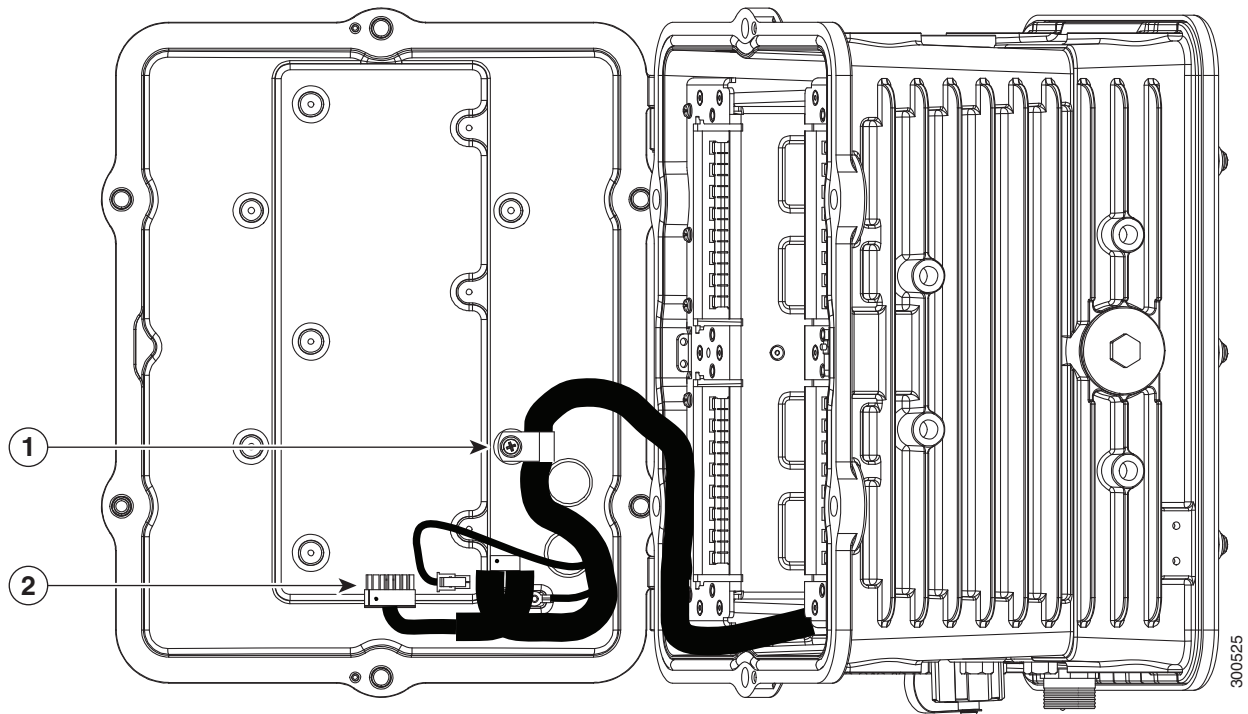
Note About Module Power Connector

Depending on your module power cable, you might need to provide an adapter to connect the module to a 4-pin Micro-Fit 3.0 power connector (see [Non-Cisco Module Power Connector, page 198](#)).

To connect the module to power:

1. Verify that the module power cable is threaded through the router cable port, and that the cable port has cable glands or an O-ring installed.
2. Connect the power cable to the Micro-Fit 3.0 power connector. See in 2 in [Figure 98 on page 180](#) for connector location.

Figure 98 Cable Harness and Power Connector



Related Information

This chapter describes installation procedures. For detailed, technical information about the router hardware, including connector and cable descriptions, specifications, and pinouts, see:

- [Router Hardware Description, page 9](#) describes all features of the router hardware, including the ports and cable glands.
- [Connector and Cable Specifications, page 195](#) includes the pinouts for the 12V power connector used to provide power to non-Cisco modules.