Router Hardware Description

This section describes the major hardware features of the Cisco 1120 Connected Grid Router and includes information about:

- The router chassis, internal components, connectors, ports, and hardware specifications

- How and when to use the router hardware features

This section does not describe how to install the router or make network connections.

- **Mounting**–For mounting instructions, see Mounting the Router, page 33 chapter.

- **Installing**–For instructions on how to install the router, including making network and power connections, see Connecting the Router to Power, page 43 and Making Network Connections, page 53.

These topics are discussed:

- Router Overview, page 11

- Hardware Features, page 14.

Router Overview

This section contains the following topics:

- Applications Overview, page 11

- Hardware Compliance, page 12

- Router Hardware Overview, page 12

Applications Overview

The Cisco 1120 Connected Grid Router is a ruggedized communication platform, designed for use inside substations or utility cabinets. This platform is built to meet the communication infrastructure needs of electric, gas, and water utilities.

The router provides an end-to-end communication network that enables increased power grid efficiency and reliability, reduced energy consumption, and reduced greenhouse gas emissions. The router also enables distributed intelligence for converged smart grid applications, including:

- Advanced Metering Infrastructure (AMI)

- Distribution Automation (DA)

- Integration of Distributed Energy Resources (DER)

- Remote workforce automation

The router provides reliable and secure real-time communication between network systems and the many devices that exist on the distribution grid, including meters, sensors, protection relays, Intelligent Electronic Devices (IEDs), plug-in electric vehicle (PEV) charging stations, and distributed solar farms. Network data is forwarded and processed over secure communication links between devices within the distribution grid for local decision processing.

Additionally, this data is sent to Supervisory Control and Data Acquisition (SCADA) systems and other management systems. The router supports physical connection to legacy distribution automation (DA) devices (over the serial port); the data from these devices can also be sent to central SCADA systems using protocol translation over the IP network.

Hardware Compliance

For a complete list of regulatory and compliance standards supported by the router, see the *Regulatory Compliance and Safety Information for the Cisco 1000 Series Routers* document on Cisco.com at: www.cisco.com/go/cgr1000-docs

Router Hardware Overview

The Cisco 1120 Connected Grid Router is a modular, ruggedized router that features:

2 – **Connected Grid Module Slots, page 19**	Ruggedized Connected Grid modules provide connectivity to network endpoints, such as smart meters and DA devices.
6 – Fast Ethernet Ports, page 23 2 – Gigabit Ethernet Ports, page 23	Ethernet connections to the backhaul network and other IP network devices.
2 – Integrated Serial Ports, page 25	RS232/RS485 serial ports for optional connections to existing or legacy equipment.
Console Port, page 26	A RJ-45 console port provides local access to the router for management and administration tasks.
SD Flash Memory Module, page 18	An external, default 2 GB SD Flash Memory Module stores the router configuration and data provides ease of managing router configurations.
USB Port, page 17	A Type A USB port for an optional connection to USB storage or other device, and provides power to the device.
Internal GPS Module, page 29	An integrated GPS can provide accurate time and location information to the system when used with an optional GPS antenna (ordered separately from Cisco).
WiFi Short-Range Access Point, page 30	An integrated 802.11b/g/n wireless access point provides short range wireless access to the router, when used with an optional WiFi antenna (ordered separately from Cisco). Wireless access enables local management over a WiFi connection to the router from outside the substation or utility box.
Mounting Features, page 15	Support for wall and DIN rail mounting.

Figure 1   Module Panel, Cisco 1120 Connected Grid Router
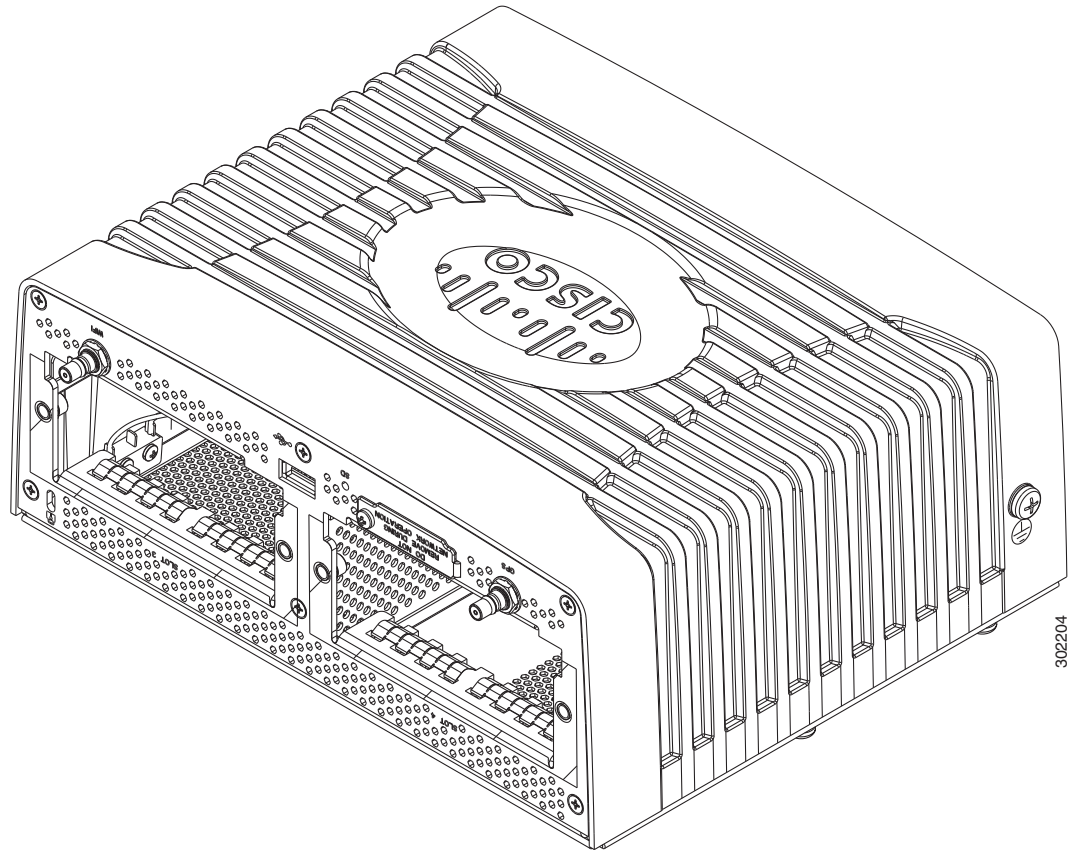
Figure 2   Port Panel, Cisco 1120 Connected Grid Router
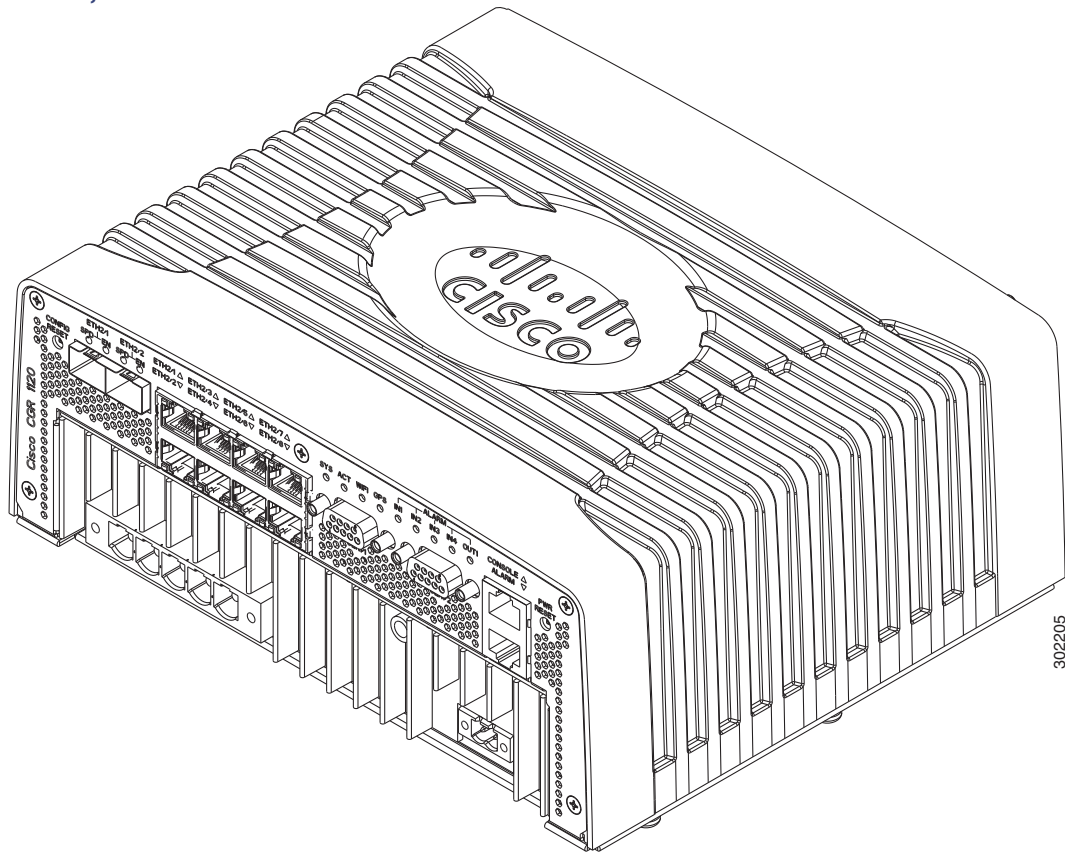
Hardware Features

This section illustrates and describes in detail the router hardware features, including mounting brackets, network ports, device ports, and module slots.

Chassis

The router chassis is ruggedized to withstand harsh indoor operating environments, such as power substations and utility boxes.

UV testing has not been performed on the unit. The chassis has TGIC (triglycidyl isocyanurate) powder coating, so UV will not harm the device. The antennas are a polycarbonate blend and are UV stabilized. The exact life of the device is unknown. However, the device is designed for approximately 10-15 years of life, and there are devices in the field for 10 years already.

Note: For a complete list of regulatory and compliance standards supported by the router, see the *Regulatory Compliance and Safety Information for the Cisco 1000 Series Routers* document on Cisco.com at: www.cisco.com/go/cgr1000-docs

| Specification	Description
Dimensions	9.25 cm x 22.9 cm x 20 cm (3.64 in. x 9.0 in. x 7.8 in.)
Weight	With 2 modules installed:
	8 pounds (3.6 kg)

Specification	Description
Operating temperature	–40° C to +60° C (–40° F to 140 °F)
	(IEEE 1613 Type test up to 85° C (185 °F) for 16 hours)
IP rating	IP30

Mounting Features

The router ships with a single mounting kit, which supports the following mounting options:

- Mounting on a DIN rail, which is a standard interior mounting option for substation devices and equipment. See Figure 3 on page 15.

- Mounting on a wall, using the mounting keyholes on the mounting bracket.

Figure 3   Mounting Features (Router Shown Mounted on a DIN Rail)
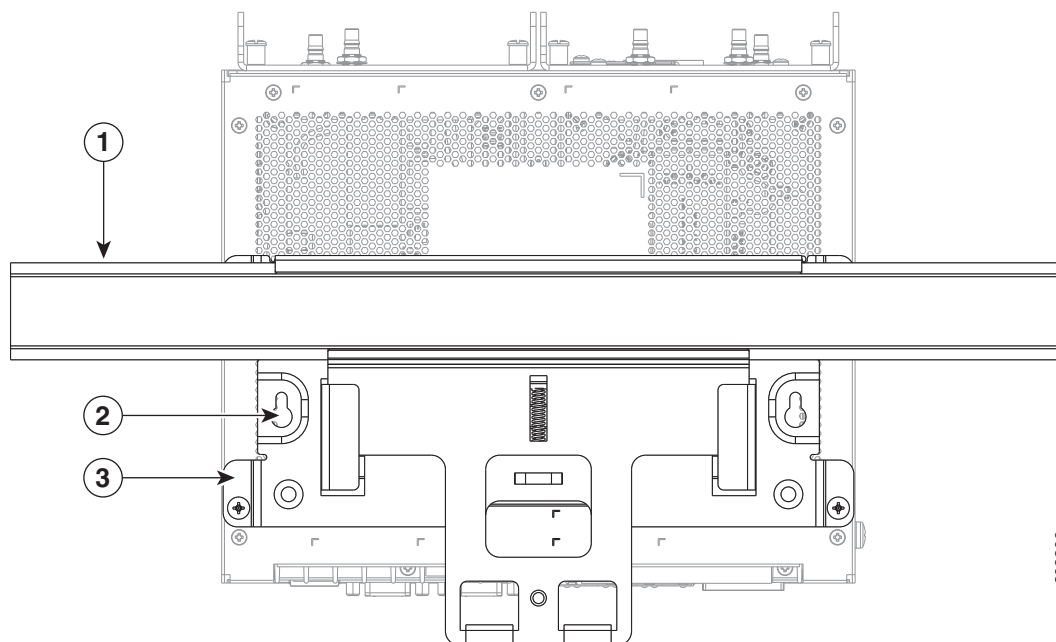
Item	Feature	Description
1	DIN rail	Standard rail type used for mounting industrial control equipment on an equipment rack.
2	Mounting keyhole (2)	Use the mounting keyholes on the mounting bracket to mount the router on a wall.
3	Mounting bracket	Included as part of the mounting kit. Use this bracket when mounting the router on a wall or DIN rail.

Mounting Procedures

For instructions on how to mount the router using the mounting bracket kit, see Mounting the Router, page 33.

Module Panel (Front Panel) Features

The module panel labels appear inverted when the router rests on its base (see). The label orientation is designed to be read when the router is installed on a DIN rail.
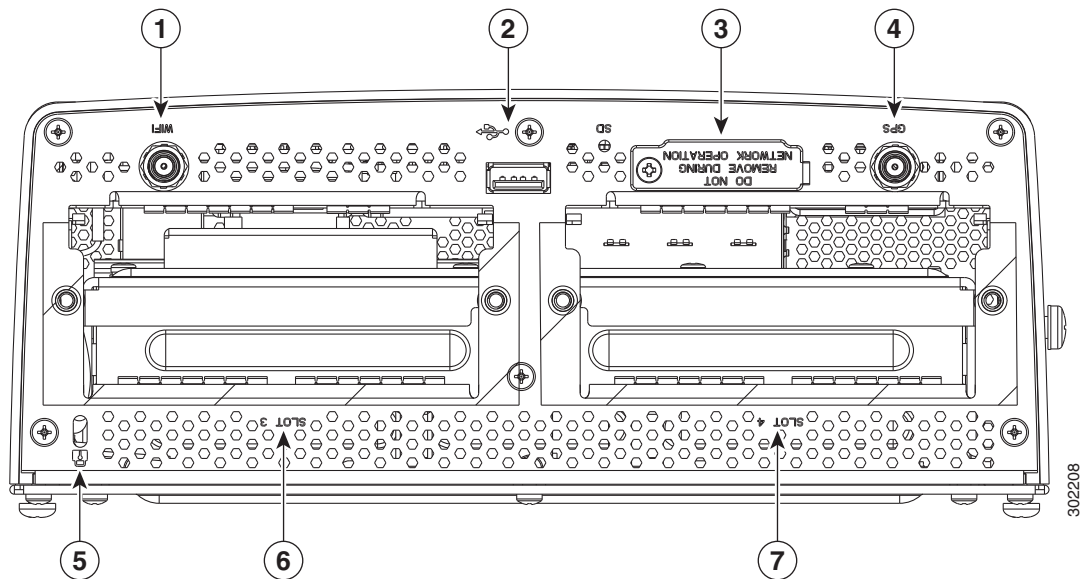
Figure 4   Module Panel (Front Panel) Features

Table 1   Module Panel (Front Panel) Features

Item	Feature	Description
1	WiFi antenna port	Install a WiFi antenna (ordered separately) in this port to support the router integrated WiFi Short-Range Access Point, page 30. For more information, see the WiFi Antenna Port, page 17.
2	USB port	Connect this USB port to a supported, external USB device. For more information, see the USB Port, page 17.
3	SD Flash Memory module slot	Contains an external flash memory card that stores the operating system software image. For more information, see the SD Flash Memory Module, page 18.
4	GPS antenna port	Install a GPS antenna (ordered separately) in this port for connectivity to the router GPS system. For more information, see the GPS Antenna Port, page 18.
5	Kensington-compatible security slot	Provides security for the router by supporting Kensington or Kensington-compatible locking security cables. For more information, see the Kensington-Compatible Security Slot, page 19.
6	CG Module slot 3	Install Cisco Connected Grid modules in the module slots. For more information, see the Connected Grid Module Slots, page 19.
7	CG Module slot 4	

This sections discusses:

- Front Panel LEDs, page 17

- WiFi Antenna Port, page 17

- USB Port, page 17

- SD Flash Memory Module, page 18

Hardware Features

- GPS Antenna Port, page 18

- Kensington-Compatible Security Slot, page 19

- Connected Grid Module Slots, page 19

Front Panel LEDs

For detailed descriptions of the LEDs that appear on the front panel, see Router LED Locations and States, page 83.

WiFi Antenna Port

A single WiFi antenna is installed directly in this port to support the router. For more information, see the WiFi Short-Range Access Point, page 30. You must order this antenna separately from the router. on page 16 displays the WiFi antenna port location.

Antennas

For more detailed information about supported antennas, including specifications and installation instructions, see these documents:

- About Connected Grid Antennas, page 71

- Connected Grid Antennas Installation Guide on Cisco.com

Specifications

Specification	Description
Connector type	Female QMA
Supported antenna	**Cisco Product ID (PID):** ANT-4G-DP-IN-TNC **Form factor:** Swivel-mount indoor dipole **Bands supported:** Cellular/PCS/AWS/MDS, WiMAX 2100/2300/2500/2600 and global GSM900/GSM1800/UMTS/LTE2600

USB Port

See on page 16 for the USB port location.

The router features one standard USB 2.0 port for connecting and powering an optional USB peripheral device.

The USB port operates at the following speeds:

- 1 Mbps

- 12 Mbps

- 480 Mbps

USB Connections

- Depending on the USB devices you connect to this port, you might require a USB extension cable to connect devices.

- To prevent a connected USB device accidental or unauthorized removal from the port, secure any connected USB device with a locking mechanism designed for this purpose. You must provide any locking device or mechanism.

Hardware Features

Specifications

Specification	Description
USB Port Type	Type A
USB Device Types Supported	USB 1.1, USB 2.0
Power Output	2.5W (+5V +/-5% @ 500mA) per port

SD Flash Memory Module

The router supports one Cisco Secure Digital (SD) flash memory module (SD card), which stores router software, configurations, and network data. For detailed information about the SD card, see the Using the SD Flash Memory Module chapter.

Supported SD Cards

These are the supported SD cards:

Size
2-GB flash memory module

Caution: You must use a supported Cisco SD card with the router. Using an unsupported card could impact SD card reliability and therefore router performance.

Caution: Do not remove the SD card from the router; removing the SD card will cause the router to stop operating.

Specifications

Specification	Description
Socket type	14 pin
Power (from router)	+3.3 V
Voltage ramp rate range	1 mS to 100 mS

GPS Antenna Port

See for the GPS antenna port location.

You can connect a single Connected Grid GPS antenna using the 15-foot cable that is integrated into the antenna. Mount the GPS antenna is mounted on the exterior of the substation or utility cabinet to enable connectivity between the router and the GPS system.

Supported Antennas

For more detailed information about supported antennas, including specifications and installation instructions, see these documents:

- About Connected Grid Antennas, page 71

- Connected Grid Antennas Installation Guide on Cisco.com

Hardware Features

## Specifications

Specification	Description
Connector type	Female QMA
Power consumption (from router)	3V (when GPS connectivity is active)
Supported antenna	**Cisco Product ID (PID):** ANT-GPS-OUT-TNC

Kensington-Compatible Security Slot

See for the Kensington-compatible security slot location.

The front panel features one Kensington-compatible security slot. Use this slot to secure the router at the installation location with a Kensington (or compatible) security cable.

Dimensions
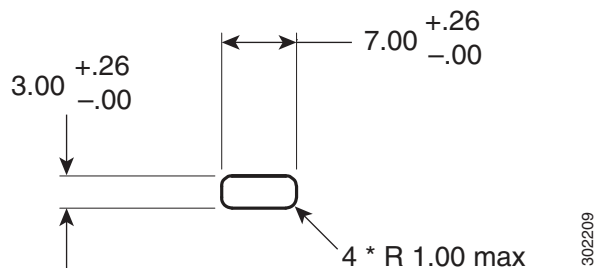
Connected Grid Module Slots

The router has two module slots to support up to two compatible Cisco Connected Grid modules that add NAN and LAN interfaces to the router.

- For more information about the Connected Grid modules for this router, see About Connected Grid Modules, page 65.

- For detailed installation instructions for installing Cisco Connected Grid modules in the router, see the corresponding installation and configuration guide for each module at: www.cisco.com/go/cg-modules

Module Numbering

The router uses module numbering to identify the integrated and modular router components. Some system software commands refer to the following module numbers.

- **Module 1** is the integrated router supervisor engine (located on the CPU motherboard)

- **Module 2** is the router integrated Ethernet switch module, which has six Fast Ethernet ports and two Gigabit Ethernet ports.

- **Module 3** and **Module 4** are external, Connected Grid modules installed in the router module slots with the corresponding numbers (see).

Cable Panel (Back Panel) Features
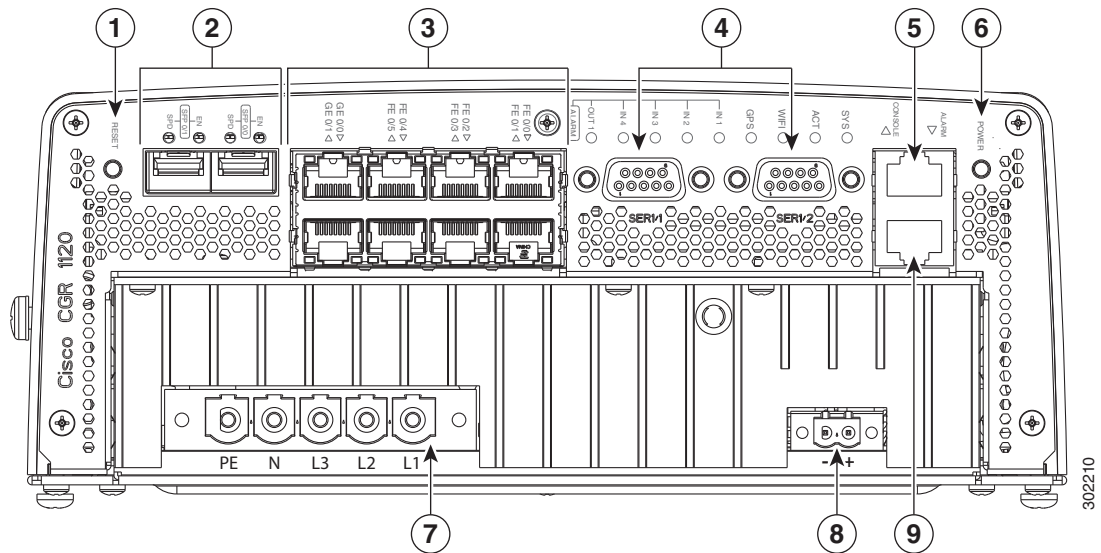
Figure 5   Cable Panel (Back Panel) Features

Table 2   Cable Panel (Back Panel) Features

Item	Feature	Description
1	CONFIG Reset button	Press for at least 5 seconds to return the router software configuration to the factory default, and power cycle the router. For information on how to use this feature, including a Caution statement, see the CONFIG Reset Button, page 21.
2	SFP ports	Install supported small-form-factor pluggable (SFP) modules in these two SFP ports, labeled ETH 2/1 and ETH 2/2. For more information and supported SFPs, see the Small Form-Factor Pluggable (SFP) Ports, page 22.
3	Ethernet ports: ■ 2-Gigabit Ethernet (10/100/1000 Mbps) ■ 6-Fast Ethernet (10/100 Mbps)	Make network connections using the Ethernet ports. For more information, see the Ethernet Ports, page 23. ■ Gigabit Ethernet (GE) ports—GE ports ETH 2/1 and ETH 2/2 are WAN ports for connectivity to a primary substation or a control center. ■ Fast Ethernet (FE) ports —FE ports ETH 2/3 to ETH2/8 are LAN ports for local network devices.
4	Serial ports	Connect the router to legacy devices using these two serial ports. For more information on these ports and supported devices, see the Serial Ports, page 25.
5	Console port	Connect a console or PC to the asynchronous console port to manage the router with a local connection.
6	PWR RESET button	Press the PWR RESET button for at least 5 seconds to power cycle the router. For more information on how to use this feature, see the PWR RESET Button, page 22.

Table 2   Cable Panel (Back Panel) Features

7	AC power connector	Connect the router to the AC power supply (included). For more information, see the AC Power Connector, page 27. **Note:** The mating connector shipped with the router is a 5-way screw terminal printed circuit board plug connector manufactured by Phoenix Contact (part number 1913604).
8	DC power connector	Connect an external backup battery unit (not included) to the router to serve as either the primary power source for the router or to serve as a backup source to the router when AC power, serving as primary source, fails. For more information, see the DC Power Connector—DC Input for External Batteries Connection, page 27. **Note:** The mating connector shipped with the router is a 2-way screw terminal printed circuit board plug connector manufactured by Phoenix Contact (part number 1912184).
9	Alarm port	Connect this alarm port to an alarm system to monitor external events and trigger alarms for external events. For more information, see the Alarm Port, page 28.

This section discusses:

- Back Panel LEDs, page 21

- CONFIG Reset Button, page 21

- PWR RESET Button, page 22

- Small Form-Factor Pluggable (SFP) Ports, page 22

- Ethernet Ports, page 23

- Combo Ports, page 24

- Serial Ports, page 25

- Console Port, page 26

- Power Connections, page 26

- Alarm Port, page 28

Back Panel LEDs

For detailed descriptions of the LEDs that appear on the back panel, see Router LED Locations and States, page 83.

CONFIG Reset Button

See Figure 5 on page 20 for the CONFIG Reset button location.

Caution: When you use the CONFIG Reset button to restore the router to the factory default software configuration, the current software configuration is permanently deleted from the router.

Press the CONFIG Reset button for at least 5 seconds to return the router software configuration to the factory default, and power cycle the router. Power cycling the router turns the router off, then immediately back on. The router will temporarily stop operating on the network during the power cycle, then resume operating when the power cycle process is complete.

PWR RESET Button

See for the PWR RESET button location.

Press the PWR RESET button for at least 5 seconds to power cycle the router. Power cycling the router turns the router off, then immediately back on. The router will temporarily stop operating on the network during the power cycle, then resume operating when power cycle process is complete.

Small Form-Factor Pluggable (SFP) Ports

The router features two fiber optical SFP ports that support optional Cisco rugged SFP modules for Gigabit Ethernet connections. The ports are labeled as follows (see):

■ ETH 2/1

■ ETH 2/2

Note: Interfaces ETH 2/1 and ETH 2/2 are also used by the Gigabit Ethernet ports. For more information about how these ports are used together, see the .

Hot Swapping SFP Modules

The SFP modules can be installed or removed while the router is on and operating normally.

Supported SFPs

Note: See the *Cisco 1000 Series Connected Grid Routers Release Notes* for the most recent information about supported hardware and software.

These are the supported SFP modules:

Cisco Product ID	Description
GLC-BX-D	1000BASE-BX10-D downstream bidirectional single fiber; with DOM
GLC-BX-U	1000BASE-BX10-U upstream bidirectional single fiber; with DOM
GLC-SX-MM-RGD	1000BASE-SX short wavelength; rugged
GLC-LX-SM-RGD	1000BASE-LX/LH long wavelength; rugged
GLC-FE-100LX-RGD	100BASE-LX10 SFP
GLC-FE-100FX-RGD	100BASE-FX SFP
GLC-ZX-SM-RGD	1000BASE-ZX extended distance; rugged

Hardware Features

Specifications

Specification	Description
Connector type	RJ-45
Copper Interface	Full-duplex 10BASE-T, 100BASE-TX, 1000BASE-T
Fiber	SFP modules: ■ 1000 Mbps 8B/10B coding ■ 100 Mbps 4B/5B coding.
Pinouts	See Connector and Cable Specifications, page 93.

Ethernet Ports

See Figure 5 on page 20 for Ethernet port locations

Ethernet Connections

The router supports the following Ethernet connection types:

■ 1000BASE-T—1000 Mbps full-duplex transmission over a Category 5 or higher shielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).

■ 100BASE-T—100 Mbps full-duplex transmission over a Category 5 or higher shielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).

■ 10BASE-T—10 Mbps full-duplex transmission over a Category 5 or higher shielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).

Fast Ethernet (FE) Ports

The router features six Fast Ethernet (FE) ports that can be connected to local network devices, such as IEDs, sensors, and reclosers. The ports are labeled as follows:

■ ETH 2/3

■ ETH 2/4

■ ETH 2/5

■ ETH 2/6

■ ETH 2/7

■ ETH 2/8

Hardware Features

Specifications

Specification	Description
Connector type	RJ-45
Cables	Category 5 or higher
Interface speed	10BASE-T and 100BASE-TX
IEEE standard	IEEE 802.3
Pinouts	See Connector and Cable Specifications, page 93

Gigabit Ethernet (GE) Ports

The router features two Gigabit Ethernet (GE) ports for a WAN connection to a primary substation or control center. The ports are labeled as follows:

- ETH 2/1

- ETH 2/2

Note: Interfaces ETH 2/1 and ETH 2/2 are also used by the SFP ports. For more information about how these ports are used together, see the Combo Ports, page 24.

The GE ports automatically detect the type of any connected cable (fiber or copper) and then switch to the corresponding mode (fiber or copper). When both cables types are connected to the router, the first cable that establishes a link is enabled.

Specifications

| Specification	Description
Connector type	RJ-45 (Copper mode)
Cables	Optical fiber Category 5, 5e, 6 shielded twisted pair (STP)
Interface speed	10BASE-TX, 100BASE-TX, 1000BASE-T
Pinouts	See Connector and Cable Specifications, page 93.

Combo Ports

The two Gigabit Ethernet ports and the two SFP ports are labeled identically (ETH 2/1 and ETH 2/2) because the SFP and GE interfaces share physical ports on the router. Only one instance of each interface (ETH 2/1 and ETH 2/2) can be in use at any time.

- **GE ports:** Copper GE connections

- **SFP modules:** Fiber optic GE connections

These ports automatically detect the type of any connected cable (fiber or copper) and then switch to the corresponding mode (fiber or copper).

Note: If connections are made to both interfaces of the same name (ETH 2/1 or ETH 2/2), the first connection that establishes a link is the only connection enabled.

Figure 6   GE Ports and SFP Ports Share Interfaces ETH 2/1 and ETH 2/2
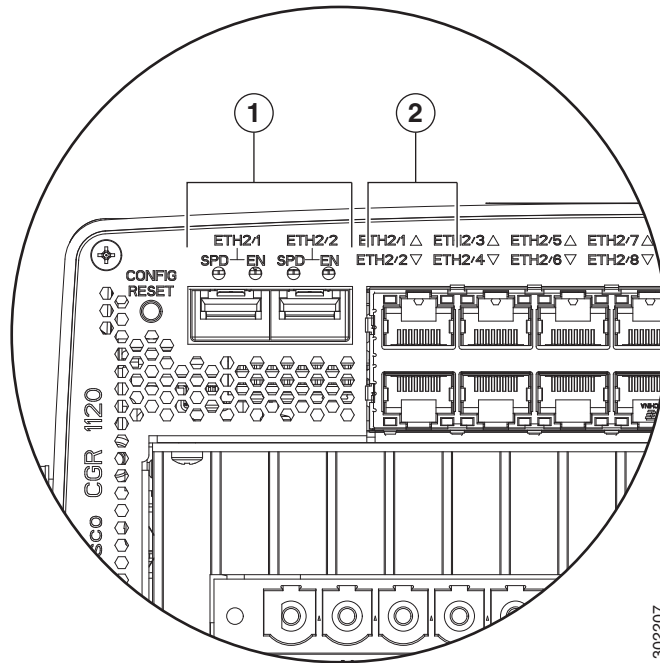
Items	Description	Gigabit Ethernet Connection Type
1	SFP module ports	Fiber optic
2	Gigabit Ethernet ports	Copper

Serial Ports

See for serial port locations.

The router has two serial ports that support the following modes (selected with system software commands):

- RS232

- RS485

The ports are labeled as follows:

- SER 1/1

- SER 1/2

Specifications

Specification	RS232	RS485
Connector type	DB-9	
Cable	You must order a serial transition cable for the signaling protocol.	
Signaling	Single-ended	Differential
Max. drivers	1	32
Max. receivers	1	256
Operating mode	Full duplex	Half duplex Full duplex
Network topology	Point-to-point	Multipoint
Max. distance (standard)	15 m	1200 m
Max speed (at 12 m/1200 m)	20 Kbps/1 Kbps	35 Mbms/100 Kbps
Pinouts	See Connector and Cable Specifications, page 93	

Console Port

See Figure 5 on page 20 for the console port location.

The router features a single asynchronous console port for connecting a console or PC directly to the router. To configure the router locally, using the command-line interface (CLI), you must establish a connection to the router with a terminal session.

Note: The router also supports wireless console connections with an internal WiFi short-range access point. For more information, see WiFi Short-Range Access Point, page 30.

Console Port Default Settings

The console port does not support hardware flow control. The default settings for the port are: 9600 baud, 8 data bits, no parity, and 1 stop bit.

Connecting to the Console Port

Detailed information about connecting to the console port is in Making Network Connections, page 53.

Specifications

Specification	Description
Connector type	RJ-45
Transceiver	RS-232
Cable type	EIA RJ-45
Pinout	See Connector and Cable Specifications, page 93.

Power Connections

- AC Power Connector, page 27

- DC Power Connector–DC Input for External Batteries Connection, page 27

- Power Specifications, page 27

Hardware Features

AC Power Connector

See Figure 5 on page 20 for the AC power connection location.

The AC power supply connector on the router cable-side (back) panel is the connection to the to AC power terminal block. The router supports single-phase and three-phase AC power input.

Note: The mating connector shipped with the router is a 5-way screw terminal printed circuit board plug connector manufactured by Phoenix Contact (part number 1913604).

For detailed information about the AC power supply, including how to connect the router to AC power, see Connecting the Router to Power, page 43.

DC Power Connector—DC Input for External Batteries Connection

See Figure 5 on page 20 for the external DC power input connector.

The router supports an external battery DC power connection. You must provide the battery connection or unit. The batteries can also serve as the primary power source for the router, if no AC source is used.

Note: The mating connector shipped with the router is a 2-way screw terminal printed circuit board plug connector manufactured by Phoenix Contact (part number 1912184).

For detailed information about the DC power input, including how to connect the router to a DC power input source, see Connecting the Router to Power, page 43.

Power Specifications

Specification	Description
DC Input Voltage	Nominal operating range: 10.6 to 52VDC Maximum operating range: 9 to 60VDC
AC Input Voltage	Three-phase ■ 208 to 415VAC 4W+ PE WYE Single-phase ■ 100 to 240VAC @ 50/60Hz
Circuit Breaker	AC ■ Single Phase: Single 10A circuit breaker ■ Three-phase: Three 10A ganged circuit breaker ■ AC voltage rating: 250VAC L-N (minimum) **Note:** We recommend that the circuit breaker be installed in close proximity to the router by a licensed electrician in accordance with local electrical standards. DC ■ DC rating: 60VDC minimum, 10A maximum
Output Power	40W
Cooling Type	Natural convection
Operating Temperature	-40 F to 140 C (-40 C to 60 C)
Lifetime	20 years, at 104 F (40 C)

Alarm Port

See for the alarm port location.

Attach the alarm port to an alarm system to monitor and trigger external alarm events. The router supports two alarm inputs and two alarm outputs.

The alarm-trigger setting determines when an alarm is sent to the attached alarm system.

The alarm port has a rating of 30V DC, 1A.

Input Alarm Trigger Settings

- **Open**—The **open** setting indicates that the normal router operating condition has an electrical current passing through the alarm circuits (DRY contact closed). If this electrical current is no longer detected (DRY contact open), an alarm is generated.

- **Closed**—The **closed** setting indicates that the normal router operating condition is that no electrical current is passing through the alarm circuits (DRY contact open). If an electrical current is detected (DRY contact closed), an alarm is generated.

Output Alarm Trigger Settings

- **Normally Open (NO)**—This setting depends on the pinout of the cable that is connected to the alarm port. See Connector and Cable Specifications, page 93.

- **Normally Closed (NC)**—This setting depends on the pinout of the cable that is connected to the alarm port. See Connector and Cable Specifications, page 93.

If interfaces fail or other non-fatal errors occur, the alarm port does not respond. Continue to use SNMP to manage these types of errors.

Note: Due to the RJ-45 pin spacing, the alarm port does not support AC signaling.

Specifications

Specification	Description
Connector type	RJ-45
Alarm input	8 volts @ 1 mA
Alarm output	30 volts @ 1 A

Internal Hardware Features

This section describes router hardware features that are integrated into the router and which are not visible from the router exterior. This section describes the following features:

- Memory, page 29

- Internal GPS Module, page 29

- WiFi Short-Range Access Point, page 30

- Real-Time Clock (RTC), page 31

- Temperature Sensor, page 31

Memory

This router supports the three types of memory described in this section.

- **SD Flash Memory Module**–See Using the SD Flash Memory Module, page 77 for information about the router SD card, which stores the router configuration and system data.

- **DDR2 SDRAM**–The router features 1 GB of double data rate (DDR2) SDRAM.

- **Boot Flash**–The router features 16 MB of boot flash memory, consisting of two 8 MB Serial Peripheral Interface (SPI) flash devices. The boot flash supports the Common Flash Interface (CFI) standard.

Internal GPS Module

The router has an internal Global Positioning System (GPS), which provides precise time and location information to the system.

GPS LED

You can view the GPS LED to determine the GPS state and whether or not it is successfully connected to a GPS satellite. For information on the GPS LED, see Router LED Locations and States, page 83.

Specifications

Specification	Description
Channels	12
Tracking sensitivity	-160 dBm
Acquisition sensitivity	-148 dBm
Fast TTFF (Cold start)	38 seconds
Error correction	Space Based Augmentation Systems (SBAS)

Related Commands

- Displaying GPS Current Time and Location for a Cisco CG-OS Router, page 29

- Displaying GPS Current Time and Location for a Cisco IOS Router, page 29

Displaying GPS Current Time and Location for a Cisco CG-OS Router

Use the commands in this section to see the GPS current time and location.

Use the **show gps time** command to display the current GPS time:

```
CGR1120# show gps time
8:46:9.923 UTC Fri Sep 11 2011
```

Use the **show gps location** command to display the GPS latitude and longitude:

```
CGR1120# show gps location
Latitude: 37.4090637
Longitude -121.9523598
```

Displaying GPS Current Time and Location for a Cisco IOS Router

Use the commands in this section to see the GPS current time and location.

Use the **show platform gps time** command to display the current GPS time:

```
CGR1120# show platform gps time
0:55:26.588 UTC Tue May 14 2013
```

Use the **show platform gps location** command to display the GPS latitude and longitude:

```
CGR1120# show platform gps location
Latitude: 37.4184227
Longitude -121.9190216
```

WiFi Short-Range Access Point

The router features an integrated, short-range WiFi access point to support a wireless connection to the router, over which you can administer the router. The router can be installed in a utility box or substation; the wireless connection enables you to manage the router from outside these enclosures.

The WiFi connection is available only when the system software is operating. If the system software is not operating, you cannot use the WiFi connection to connect to or administer the router.

- WiFi Default Settings, page 30

- Related Commands, page 30

WiFi Default Settings

These are the default WiFi interface identity settings for the Cisco CG-OS and Cisco IOS operating systems:

Cisco Operating System	Interface Identity
Cisco CG-OS	wifi 2/1
Cisco IOS	dot11Radio 2/1

Note: The CGR 1120 router WiFi interface is assigned to module 2 and cannot be changed.

For more information on the WiFi configuration and setting it, see the *Cisco 1000 Series Connected Grid Routers WiFi Software Configuration Guide* on Cisco.com, at: www.cisco.com/go/cgr1000-docs.

Related Commands

- Displaying WiFi Configuration Information for a Cisco CG-OS Router, page 30

- Displaying WiFi Configuration Information for a Cisco IOS Router, page 31

Displaying WiFi Configuration Information for a Cisco CG-OS Router

Note: For a CGR 1120 router using the Cisco CG-OS operating system, the WiFi interface is identified as 'wifi 2/1'.

To display WiFi configuration information, enter any or all of the following commands in privileged EXEC or user EXEC mode:

- **show interface wifi** *slot/port* **[associations | brief | description | statistics]**–Displays the status of the interface as up or down, the five second input and output rate and the number of input and output packets. Additionally, the Cisco CG-OS router displays hardware details such as radio type (802.11N, 2.4 GHz radio), MAC address and MTU setting.

- **show controller wifi** *slot/por*t–Displays serial number, software version, and configured frequency and power settings.

For detailed information about these commands, see the chapter "Configuring the WiFi Interface" in the *Cisco 1000 Series Connected Grid Routers WiFi Software Configuration Guide*, at www.cisco.com/go/cgr1000-docs.

Displaying WiFi Configuration Information for a Cisco IOS Router

Note: For a CGR 1120 router using the Cisco IOS operating system, the WiFi interface is identified as 'Dot11Radio 2/1'.

To display WiFi configuration information, enter any or all of the following commands in privileged EXEC or user EXEC mode:

- **show interface dot11Radio 2/1**—Displays the status of the interface as up or down, the five second input and output rate and the number of input and output packets. Also displays hardware details such as radio type (802.11N, 2.4 GHz radio), MAC address and MTU setting.

- **show controller dot11Radio 2/1**—Displays the serial number, software version, and configured frequency and power settings.

For detailed information on how to use these commands, see the *Cisco 1000 Series Connected Grid Routers WiFi Software Configuration Guide* on Cisco.com, at: www.cisco.com/go/cgr1000-docs.

Real-Time Clock (RTC)

The router features an integrated real-time clock (RTC) with battery backup that supplies the system software with accurate date and time information. The integrated router GPS compares the current RTC time with the time at which it last received a valid signal to ensure accurate timekeeping on the router.

When the router is powered on using the CONFIG Reset button, the RTC sets the router memory controller and clock frequency. For more information, see the .

RTC Battery

The RTC includes battery backup for the date and time when the router is not receiving any power.

Specifications

Specification	Description
Battery type	High-capacity lithium (550 mAh)
Battery life span	10 years
Supported interrupts	Time-of-day alarms (Range: 1/second – 1/month)
	Periodic rates (Range: 122 us – 500 ms)
	End-of-update-cycle notifications

Temperature Sensor

The router hardware features an internal temperature sensor used by the router software to monitor the system operating temperature. The router can be configured to generate alerts when the temperature falls outside of a user-defined temperature range. The router can also be configured to store historical temperature data.

For more information about monitoring and storing router temperature data, see the *Cisco 1000 Series Connected Grid Routers Software Configuration Guide Set*.

Hardware Features

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