



Product Overview

This chapter provides an overview of the features available for the Cisco 807 Integrated Services Routers (ISRs) and contains the following sections:

- [Product Overview, on page 1](#)

Product Overview

This chapter provides an overview of the features available for the device and contains the following sections:

Hardware Overview

This section covers the overview of the IR807.

SKU Information

[Table 1: Supported SKUs for Cisco IR807s, on page 1](#) lists the different SKUs available for the Cisco 807 Integrated Services Router. All SKUs support external antenna.

Table 1: Supported SKUs for Cisco IR807s

SKU ID	Description	Modem Type
IR807G-LTE-VZ-K9	North America (Verizon)	WP7601
IR807G-LTE-NA-K9	North America (AT&T)	WP7504
IR807G-LTE-GA-K9	EMEA	WP7502






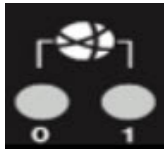

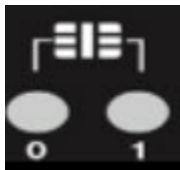
Note: The IR809G-LTE-VZ-K9 SKU has a single SIM card socket. The IR807G-LTE-NA-K9 and IR807G-LTE-GA-K9 are equipped with dual SIM card sockets. Graphics in this guide show the dual SIM SKUs.

Front Panel Icons and LEDs

The IR807 uses icons to show the different features of the device. [Table 2: Icons with LEDs, on page 2](#) shows Icons and their associated LEDs with descriptions. LEDs are visible from the top cover and from the

front panel. The LEDs allows easy visibility for wall and desk mounted installations regardless of chassis orientation. [Table 4: Icons only, on page 3](#) shows the Icons without associated LEDs and their descriptions.

Table 2: Icons with LEDs

Icon	Description/Activity	Icon	Description/Activity
	System - Power and System Status. Off — No power Green Steady on — Normal operation Green Flashing — Boot up phase or in ROM Monitor mode Amber Steady on — Power is OK but possible internal FPGA program failure		Alarm - Alarm Input Status Off — Normal operation Red - Alarm State on the Alarm Input
	VPN Off — No VPN tunnel Steady Green — At least one VPN tunnel is up		User Configurable LED
	GPS - GPS Status Off — GPS not configured Steady Green — GPS configured Slow Flash — GPS Acquiring in Standalone GPS Fast Flash — GPS Acquiring in Assisted GPS Slow Flash is defined as the LED will be on for 0.25 seconds and off for 0.75 seconds. Fast Flash is defined as the LED will be on for 0.25 seconds and off for 0.25 seconds.		RJ45 Fast Ethernet Ports -Link Status 0:1 Off — No link Steady Green — Link is up Flashing — Transmitting and Receiving data
	RSSI - Received Signal Strength Indication The RSSI LEDs are a 3 LED bar graph to indicate signal strength. Their functionality is described in the RSSI LED Table 3: RSSI LEDs, on page 3 .		SIM Slots - SIM0/SIM1 Off — No USIM Green — USIM installed and active




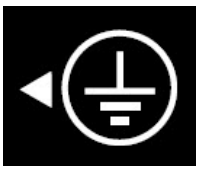

Icon	Description/Activity	Icon	Description/Activity
			WWAN - Wireless WAN Activity Off — Offline On — In Service Flash (on 200ms off 5 sec) — No Service Flash (on 1 sec off 1 sec) — Low Power Mode Flash (on 5 sec off 200ms) — Roaming Flash (on 400ms off 100ms) — Data Active

Table 3: RSSI LEDs

RSSI	RSSI (2)	RSSI (1)	RSSI (0)
	Green	Green	Green/Amber
< -110dBm	Off	Off	Off
-110 to -90dBm	Off	Off	On - Amber
-90 to -75dBm	Off	Off	On - Green
-75 to -60dBm	Off	On - Green	On - Green
> -60dBm	On - Green	On - Green	On - Green

Table 4: Icons only

Icon	Description	Icon	Description
	Console		USB 2.0 Type A Port for Storage and Networking
	Grounding point (located on side of device)		Reset Button










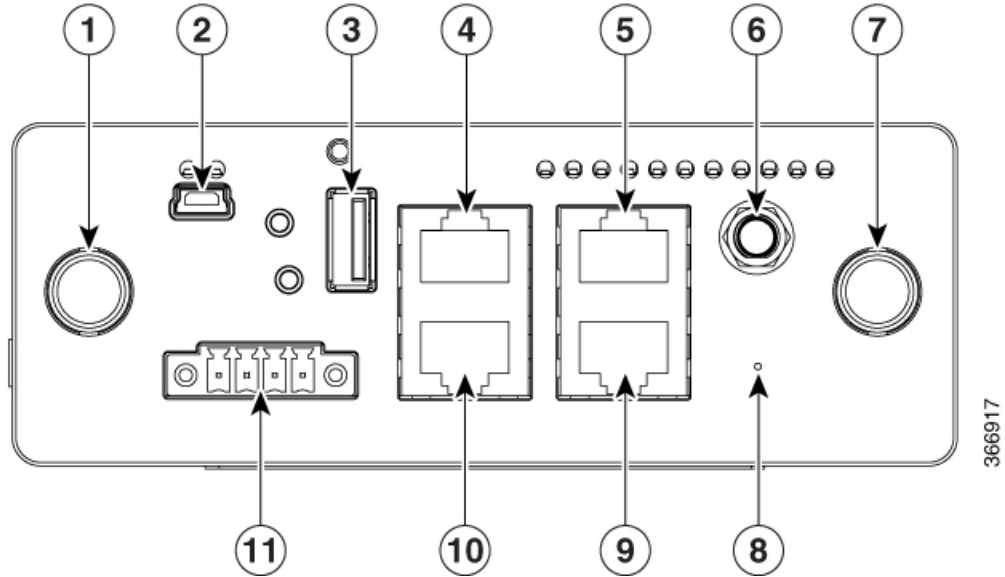
Icon	Description	Icon	Description
	DC Power Input (12V to 48V)		DC Power Return
	Alarm Common		Alarm IN
	Serial Ports		Fast Ethernet Ports
	Antenna 1 (TNC) Main		Antenna 1 (TNC) Div
	Warning		

Figure 1: Cisco IR807 Front Panel, on page 5 shows the front panel details of the Cisco IR807.

Figure 1: Cisco IR807 Front Panel

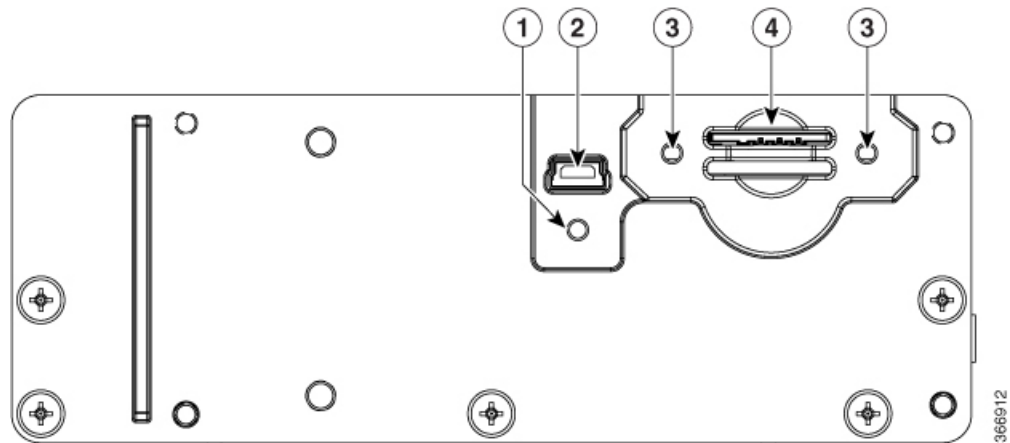


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1 Antenna 1 (TNC) MAIN	7 Antenna 2 (TNC) DIV
2 USB Console (Type B)	8 Reset Button
3 USB Type A	9 FE1 10/100 Base-T RJ-45
4 S0 (DTE)	10 S1 (DCE)
5 FE0 10/100 Base-T RJ-45	11 External DC Power Input and Alarm
6 GPS (SMA)	

Figure 2: Cisco IR807 Back Panel, on page 5 shows the back panels details of the Cisco IR807.

Figure 2: Cisco IR807 Back Panel



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1	Screw hole for protective cover over USB
2	USB Type B (under a protective cover) Reserved to be used with Modem for external provisioning.
3	Screw holes for protective cover over SIMs (one on each side)
4	SIM0 (bottom) and SIM1 (top) Slots

Memory

The Cisco IR807 uses flash memory and main memory. The flash memory contains the Cisco IOS software image and the boot flash contains the ROMMON boot code. All memory components are factory default and not upgradeable by the end user.

The following table shows the memory allocation.

Memory	Specification
Default and maximum DRAM	1GB
Default and maximum flash memory	4 GB eMMC

Antennas

The Cisco IR807 ships without antennas. All antennas are options that can be ordered separately.

There are two TNC connectors on the front side of the device. The TNC connectors are used to connect to the 4G modem. The SMA connector is for the GPS antenna.

NOTE: Before choosing your antenna type and installation scenario, read through the following information.

Supported Cisco Antennas and Cables

The following section lists the supported Antennas and Cables for the Cisco IR807. For detailed information about Cisco Antennas, please refer to the following guides:

Cisco Industrial Routers and Industrial Wireless Access Points Antenna Guide:

<http://www.cisco.com/c/en/us/td/docs/routers/connectedgrid/antennas/installing-combined/industrial-routers-and-industrial-wireless-antenna-guide.html>

Cisco Aironet Antennas and Accessories Reference Guide

http://www.cisco.com/c/en/us/products/collateral/wireless/aironet-antennas-accessories/product_data_sheet09186a008008883b.html

The following antennas and cables are available:

ANT-3-4G2G1-0

Description: Cisco Quinta 3 element 3-in-1 transportation antenna

- 2x 4G cellular, 1xGPS
- Color: Black radome
- RoHS compliant
- Environment: Outdoor

Electrical Specifications:

- Frequency ranges: 698 to 960 MHz and 1710 to 2700 MHz
- Typical gain (dBi): 698 to 960 MHz = 2.6 dBi, and 1710 to 2700 MHz = 4.6 dBi
- Efficiency: 60%
- Polarization: Linear and vertical
- Port impedance: 50 Ohms
- Voltage standing wave ratio (VSWR): < 2.1:1 (698 to 960 MHz) and < 2.0:1 (1710 to 2700 MHz)
- Radiation pattern: Omnidirectional
- Integrated RF cables: 2 ft, LMR-195 type, TNC (male)

GPS electrical specifications:

- Frequency range: 1575.42 MHz +/-1 MHz (GPS L1)
- Amplifier gain: 27dB +/-3dB
- Noise figure: 4dB max
- Port impedance: 50 Ohms
- Output VSWR: < 2.0:1
- Radiation pattern: RHCP
- DC voltage: 2.7–12V DC
- DC current: < 20 mA over -40 to 85°C temperature range
- Integrated RF cable: 17 ft, LMR-100 type, SMA(m)

Mechanical and environmental specifications:

- Mount style: Vehicular roof or similar; stud and nut mount
- Environment: Outdoor, vehicular roof, transportation ruggedized and qualified to subset of SAE1455 and MILSTD 810G
- Connectors: 2 x TNC(m) cellular and 1 x SMA(m) GPS
- Antenna dimensions: 7.1 in. diameter x 2.4 in. height (18.0 x 6.5 cm), excluding RF cables
- Weight: 1.48 lb (0.67 kg)
- Operating temperature range: -40 to 70°C
- Storage temperature: -40 to 85°C
- Maximum power: 10W
- Radome: Polycarbonate, UV, black
- Material substance compliance: ROHS compliant

ANT-4G-OMNI-OUT-N

Description: Cisco outdoor omnidirectional antenna for 2G, 3G, and 4G LTE cellular

- UV-stable radome
- Mast-mounting bracket
- Applicable for both 2G and 3G solutions
- Domestic LTE 700 band and global LTE 2600 band
- Domestic cellular and global GSM
- WiMAX 2300 and 2500

Electrical Specifications:

- Frequency ranges: 698 to 960 MHz, 1710 to 2170 MHz, and 2300 to 2700 MHz
- Nominal gain (dBi): 698 to 960 MHz = 1.5 dBi, and 1710 to 2700 MHz = 3.5 dBi

- 3 dB beam width (E plane): 698 to 960 MHz = 81 degrees, 1710 to 2170 MHz = 75 degrees, and 2300 to 2700 MHz = 100 degrees
- 3 dB beam width (H plane): 360 degrees, omnidirectional
- Polarization: vertical and linear
- Nominal impedance: 50 Ohms
- VSWR: < 2.5:1 (698 to 960 MHz) and < 2.0:1 (1710 to 2690 MHz)
- Radiation pattern: omnidirectional

Mechanical Specifications:

- Mount style: mast mount, upright position only
- Environment: outdoor
- Connector: N-type socket
- Antenna length (height): 9.8 x 1 in. (24.9 x 2.45 cm)
- Weight: 1.5 lb. (0.68 kg)
- Dimensions (H x Outside dimensions): 9.8 x 1 in. (248 x 24.5 mm)
- Operating temperature range: -22° to 158°F (-30° to 70°C)
- Storage temperature: -40° to 185°F (-40° to 85°C)
- Maximum power: 20W
- Radome: polycarbonate, UV, white
- Material substance compliance: ROHS compliant

ANT-4G-PNL-OUT-N

Description - Cisco multiband panel outdoor 4G LTE antenna:

- Supports 3G and 4G LTE solutions
- Multiband
- Wall mount and mast mount
- Indoor and outdoor
- Dual type-N socket connector

Electrical specifications:

- Frequency ranges: 698 to 960 MHz and 1710 to 2700 MHz
- VSWR: 2.0:1 maximum
- Gain: 5.5 to 10.5 dBi (698 to 960 MHz) and 6.5 to 9.0 dBi (1710 to 2700 MHz)
- 3-dB beam width (vertical plane): 55 to 70 degrees = 698 to 960 MHz, 53 to 98 degrees = 1710 to 2200 MHz, 60 to 70 degrees = 2200 to 2500 MHz, and 55 to 70 degrees = 2500 to 2700 MHz
- 3-dB beam width (horizontal plane): 55 to 70 degrees = 698 to 960 MHz and 50 to 90 degrees = 1710 to 2200 MHz
- F/B ratio: > 15 dB, typical 20 dB = 698 to 960 MHz, and > 17 dB, typical 23 dB = 1700 to 2700 MHz
- Isolation: > 30 dB
- Polarization: slant +/- 45 degrees
- Nominal impedance: 50 Ohms
- Radiation pattern: directional

Mechanical specifications:

- Mount style: wall or mast mount
- Environment: outdoor
- Connector: dual type N female (direct connect or dual 12 in (30 cm))

- Antenna length (height): 11.6" (2.95 cm)
- Temperature Range (Operating): -22 to 158-degrees F (-30 to 70° C)
- Storage temperature: -40 to +85° C
- Wind rating: 160 km/H
- IP rating: IP54
- Radome: polycarbonate, UV resistant, white
- Material substance compliance: ROHS compliant

ANT-4G-SR-OUT-TNC

Description - Cisco integrated 4G LTE low-profile outdoor saucer antenna:

- Applicable for both 3G and 4G LTE solutions
- Domestic LTE 700 band and global LTE 2600 band
- Domestic cellular and global GSM
- Weatherproof UV stable radome
- Performance optimized
- Excellent flame rating

Electrical specifications:

- Frequency ranges: 698 to 960 MHz and 1710 to 2700 MHz
- Peak gain with 1-ft cable: 1.5 dBi (698 to 960 MHz) and 3.7 dBi (1710 to 2700 MHz)
- Peak gain with 15-ft cable: 0.8 dBi (698 to 960 MHz) and 0.2 dBi (1710 to 2700 MHz)
- Average efficiency with 1-ft cable: 90% (698 to 960 MHz) and 82% (1710 to 2700 MHz)
- Average efficiency with 15-ft cable: 60% (698 to 960 MHz) and 40% (1710 to 2700 MHz)
- Nominal impedance: 50 Ohms
- VSWR (maximum): 2.0:1 (698 to 960 MHz) and 2.0:1 (1710 to 2700 MHz)

Mechanical specifications:

- H-plane 3 dB beam width: omnidirectional
- Polarization: linear and vertical
- Power: 3W
- Cable: 15-ft LMR 195
- RF connector: type N (f); TNC (plug) available
- Mount style: ceiling mount
- Radome: PC/ABS, UV stable, black
- Material substance compliance: RoHS compliant
- Operational temperature: -22° to 158°F (-30° to 70°C)
- Storage temperature: -40° to 185°F (-40° to 85°C)
- Environment: indoor
- Dimensions (H x Outside dimensions): 3.4 x 7.9 in. (87 x 200 mm)

ANT-4G-DP-IN-TNC

Description: Cisco indoor swivel-mount dipole antenna

- Low-profile blade style sheath
- Applicable for both 3G and 4G solutions
- Domestic LTE 700 and global LTE 2600 bands

- Domestic cellular and global GSM
- Conformance to RoHS
- Complete cellular and 4G data communications in a single antenna

Electrical Specifications:

- Operating frequency ranges: 698 to 806 MHz, 824 to 894 MHz, 880 to 960 MHz, 1710 to 1880 MHz, 1850 to 1990 MHz, 1920 to 2170MHz, 2100 to 2500 MHz and 2500 to 2690 MHz
- Peak gain: 0.5 dBi (698 to 960 MHz) and 2.2 dBi (1710 to 2700 MHz)
- Average efficiency: 55% (698 to 960 MHz) 73% (1710 to 2700 MHz)
- Maximum input power: 3 watts
- Voltage standing wave ratio (VSWR): < 2.5:1
- Characteristic impedance: 50 Ohms
- Polarization: linear

Mechanical Specifications:

- Type: dipole
- Antenna dimensions (L x W x D): 229 mm x 30.5 mm x 15 mm
- Mount style: direct mount
- Environment: indoor
- RF Connector: TNC (m)
- Antenna weight: 49 g
- Temperature rating: -31 to 158 degrees F (-35 to +70 degrees C)
- Material substance compliance: RoHS compliant

4G-LTE-ANTM-O-3-X

Description:

- Multiband low profile indoor or outdoor omnidirectional antenna (IP67 ingress protection)
- Ceiling mount, dual 4G LTE and standalone GPS

Electrical Specifications:

- Frequency range: 698 to 960 MHz and 1710 to 2700 MHz
- Gain: 2.5 dBi
- Maximum power: 3W
- Connector: SMA with TNC male adapters, and SMA for GPS
- VSWR: < 2.5:1
- Nominal impedance: 50 Ohms
- Polarization: linear vertical

Mechanical Specifications:

- Radome material: white, black, red, or blue ABS, UL-94 V0
- Cable: 4 ft RG174 VW-1 compliant
- Height and base diameter: 90 mm and 137 mm
- Temperature rating: -40° to 185°F (-40° to 85°C)
- Mounting: 5/8-inch lug with serrated face nut (5/8-inch diameter hole through mounting surface)
- Can be used with the following cable extensions: 4G-CAB-ULL-20 and 4G-CAB-ULL-50

4G-LTE-ANTM-0-3-X**Description:**

- Multiband low profile indoor or outdoor omnidirectional antenna (IP67 ingress protection)
- Ceiling mount, dual 4G LTE and standalone GPS

Electrical Specifications:

- Frequency range: 698 to 960 MHz and 1710 to 2700 MHz
- Gain: 2.5 dBi
- Maximum power: 3W
- Connector: SMA with TNC male adapters, and SMA for GPS
- VSWR: < 2.5:1
- Nominal impedance: 50 Ohms
- Polarization: linear vertical

Mechanical Specifications:

- Radome material: white, black, red, or blue ABS, UL-94 V0
- Cable: 4 ft RG174 VW-1 compliant
- Height and base diameter: 90 mm and 137 mm
- Temperature rating: -40° to 185°F (-40° to 85°C)
- Mounting: 5/8-inch lug with serrated face nut (5/8-inch diameter hole through mounting surface)
- Can be used with the following cable extensions: 4G-CAB-ULL-20 and 4G-CAB-ULL-50

4G-LTE-ANTM-D**Description:**

- Omnidirectional dipole antenna is designed for indoor use with Cisco 4G and Cisco 3G wireless Integrated Services Routers Generation 2 systems
- Articulating Joint —It can be rotated 360 degrees and is capable of maneuvering into three stop positions: 0 degrees, 45 degrees, and 90 degrees.
- Male threaded Neill-Concelman (TNC) Connector —It lets you directly mount the antenna to any Cisco 4G and Cisco 3G wireless Integrated Services Router (ISR) EHWIC with a TNC connector (Cisco 4G-LTE-ANTM-D Omnidirectional Dipole Antenna, TNC Connector, and Articulation Joint). The threads on the connector must comply with the ANSI 7/16-28 UNEF 2B thread specification.

Electrical Specifications:

- Frequency range:
 - 698–806 MHz
 - 824–894 MHz
 - 925–960 MHz
 - 1710–1885 MHz
 - 1920–1980 MHz
 - 2110–2170 MHz
 - 2500–2690 MHz
- Maximum input power: 3W
- Connector: TNC male
- VSWR: 2.5:1 or less

- Nominal impedance: 50 Ohms
- Maximum Peak Gain: 2 dBi

Mechanical Specifications:

- Antenna base and radome color: Cisco Raven Black
- Dimensions: 9 (L) x 1.2 (W) x 7/16 in (D) (229 x 30.5 x 11 mm)
- Temperature rating: -22° to 158°F (-30° to 70°C)

Antenna Extension 4G-AE015-R**Description:**

- Single-unit antenna extension base (15 ft [457.2 cm])

Electrical Specifications:

- Frequency range: 6 GHz
- Attenuation: less than 3 dB at or below 2.5 GHz
- Base connector: TNC socket
- Pigtail connector: TNC plug

Mechanical Specifications:

- Base material: Cisco gray UL94 V0 PC/ABS plastic
- Dimensions: 2.8 x 2.4 x 1.8 in. (7.1 x 6.1 x 4.6 cm)
- Weight: 6 oz. (0.17 kg)
- Cable: 15 ft. (457.2 cm) non-plenum rated Pro-Flex Plus 195

Antenna Extension 4G-AE010-R**Description:**

- Single-unit antenna extension base (10 ft. [304.8 cm], one cable included)

Electrical Specifications:

- Frequency range: 6 GHz
- Attenuation: less than 3 dB at or below 2.5 GHz
- Base connector: TNC socket
- Pigtail connector: TNC plug

Mechanical Specifications:

- Base material: UL 94 V0PC and ABS plastic
- Dimensions: 2.8 x 2.4 x 1.8 in. (7.1 x 6.1 x 4.6 cm)
- Weight: 6 oz. (0.17 kg)
- Cable: 10 ft. (304.8 cm) non-plenum rated Pro-Flex Plus 195

Modem Support

The Cisco IR807 uses the WP7502, WP7504, and WP7601 series modems. The software download page can be found here:

<https://software.cisco.com/download/navigator.html?mdfid=286288566&flowid=76082>

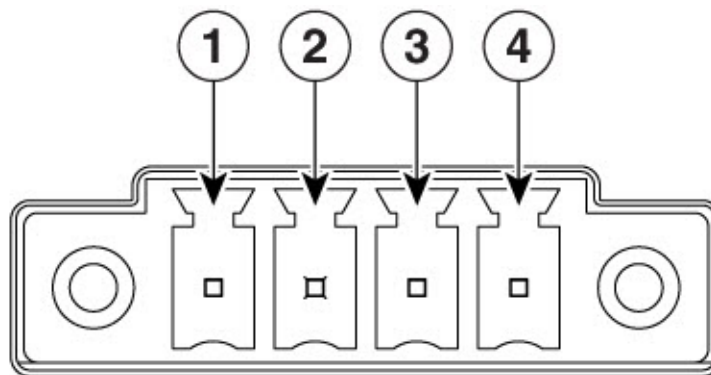
Region/Carrier	Modem Used	4G/LTE	3G UMTS/HSPA	2G GSM/GPRS/EDGE
US / Verizon	WP7601	700 MHz (band 13) 1700/2100 MHz (band 4 AWS)	N/A	N/A
North America/ AT&T	WP7504	700 MHz (band 17) 1900 MHz (band 2 PCS) 1700/2100 MHz (band 4 AWS) 1850-1915 (band 25) 814-849 (band 26)	850 MHz (band 5) 1900 MHz (band 2)	850 MHz 1900 MHz
EMEA	WP7502	800 MHz (band 20) 900 MHz (band 8) 1800 MHz (band 3) 2100 MHz (band 1) 2600 MHz (band 7)	850 MHz 900 MHz 1900 MHz 2100 MHz	850 MHz 900 MHz 1900 MHz 2100 MHz

Power Supply

The Cisco IR807 comes with an external DC power connector. The 4-pin power entry connector (receptacle) is mounted to the unit. The 4-pin power entry mating connector (plug) is attached to the receptacle. It is removed during installation and used to connect to the DC power source, then reattached to provide power to the unit.

Refer to [Figure 3: Power Connector Pin-Outs, on page 13](#) for the location and values of the power connector.

Figure 3: Power Connector Pin-Outs

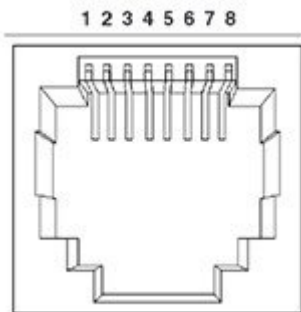


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Pin Number	Name	Description	Color
1	DC In +	DC Power Positive Input	Red
2	DC In -	DC Power Return	Black
3	ALM REF	Alarm Common	N/A
4	ALM IN	Alarm Input	N/A

RJ45 Ports

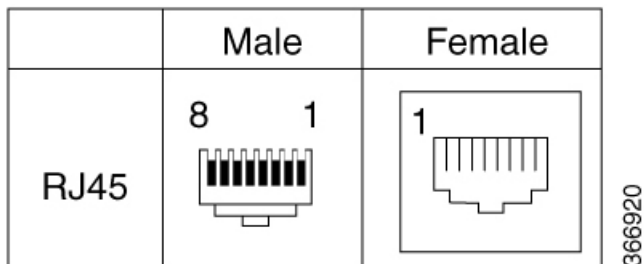
The IR807 supports two **ISOLATED** RS232 ports which conforms to EIA-561 standard. RS232 pin out is shown in the following figure applies to serial 0 and serial 1, but the directions of the DTE and DCE port are opposite.



The RS232 DTE pin out applies to both serial 0 and serial 1. This port is not shared with the Console port.

Note: The RS232 DTE pin out is different from the Cisco standard Console/Auxiliary port.

The following figure shows the characteristics of the S0 and S1 ports:



The following table shows the S0 and S1 Details

Pin Number	Description	Abbreviation	DTE	DCE
1	DCE Ready, Ring Indicator	DSR/RI	←	→
2	Received Line Signal Detector	DCD	←	→

Pin Number	Description	Abbreviation	DTE	DCE
3	DTE Ready	DTR	—>	<—
4	Signal Ground	COM		
5	Received Data	RxD	<—	—>
6	Transmitted Data	TxD	—>	<—
7	Clear To Send	CTS	<—	—>
8	Request To Send	RTS	—>	<—

Accessories

See the following table for a partial listing of IR807 Accessories.

Cisco Part Number	Accessory
PWR-IE50W-AC	DIN-rail mount AC/DC power supply - Input AC 100-240V/1.25A or Input DC 125-250V/1A, Output DC 24V/2.1A
IR807-DINRAIL(=)	Din rail kit and mounting screws for horizontal mounting
IR807-VM-DINRAIL(=)	Din rail kit and mounting screws for vertical mounting
IR807-WALLMNT(=)	Wall mount kit and mounting screws
CAB-CONSOLE-USB 37-1090-01	Cisco USB Type A Male to Mini B Male 6ft Console Cable

- Depending on your particular model of the router, there will be either a single hole or double hole grounding.
- 53-100629-01 - Contains Getting started with the Cisco 807 Integrated Services Router document, associated hardware, and the single hole grounding kit.
- 53-100797-01 - Contains Getting started with the Cisco 807 Integrated Services Router document, associated hardware, and the two hole grounding kit.

