



RFS4010 Series RF Switch

Installation Guide



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1 Introduction

The Motorola RFS4010 RF Switch is a member of Motorola's RFS Series Wireless Switch family. The RFS4010 RF Switch provides centralized Wireless LAN (WLAN) configuration and management by coalescing a network "intelligence" previously spread across physically distributed access points. The RFS4010 simplifies deployment of a Wired/Wireless 802.11 a/b/g/n network, for a SME/SMB. With the integrated Layer 2/Layer 3 Networking Services such as integrated Layer 2 Switching with PoE+ ports, Onboard DHCP Server, Security Services like Wired/Wireless Firewall, Wireless IDS/IPS, Onboard AAA Server and IPSEC VPN Gateway, and QoS mechanisms to support Voice & Video, the RFS4000 transforms the enterprise by delivering a SMART Branch. The RFS4010 RF Switch is the WLAN's point of management reducing wireless networking complexity by moving management out of the ceiling and into the wiring closet. The RFS4010 can adopt upto 6 Adaptive APs or Thin Access Points and does not require any additional licenses at this time, for AP adoption.

This document is written for the network device installer.

1.1 Package Contents

Inspect the package contents and report any missing or damaged items to your sales representative. The package should contain the following:

- RFS4010 RF Switch
- Console Cable
- *Installation Guide* (this document)
- Rubber Feet
- Power Supply Unit (Motorola Part Number: 50-14000-244R)

1.2 Document Conventions

The following graphical alerts are used in this document to indicate notable situations:



NOTE Tips, hints, or special requirements that you should take note of.



CAUTION Care is required. Disregarding a caution can result in data loss or equipment malfunction.



WARNING! Indicates a condition or procedure that could result in personal injury or equipment damage.

1.3 Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the system to its power source.
- Remove jewelry and watches before installing this equipment.
- Install the equipment in a rack or on a desktop with adequate dimensions and weight allowances.
- Verify the unit is grounded before connecting it to the power source.
- Verify any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit.
- Verify the electrical circuits have appropriate overload protection.
- Motorola strongly recommends the use of an Uninterruptible Power Supply (UPS) that supports the RFS4010 RF Switch power rating. Not using a UPS can result in data loss or equipment damage due to a power surge or power failure.
- Verify that the power connector and socket are accessible at all times during the operation of the equipment.
- Do not work with power circuits in dimly lit spaces.
- Do not install this equipment or work with its power circuits during thunderstorms or other weather conditions that could cause a power surge.
- Verify there is adequate ventilation around the device, and ambient temperatures meet equipment operation specifications.
- This product is designed for in building installation only and is not intended to be connected to exposed (outside plant) networks.

1.4 Site Preparation

- Consult your site survey and network analysis reports to determine specific equipment placement, port capacity, power drops, and so on.
- Assign installation responsibility to the appropriate personnel.
- Identify where all installed components are located.
- Verify appropriate rack mounting requirements, as required.
- Provide a sufficient number of power drops for your equipment.
- Ensure adequate, dust-free ventilation to all installed equipment.
- Identify and prepare Ethernet and console port connections.
- Verify that cable lengths are within the maximum allowable distances for optimal signal transmission.
- Verify that the RFS4010 RF Switch is powered through an Uninterruptible Power Supply (UPS).

2 Specifications

2.1 Physical Specifications

Width	304.8mm (12.0in)
Height	44.45mm (1.75 in) 1 RU
Depth	254mm (10.0 in)
Weight	2.15 Kg (4.75 lbs)
Operating Temperature	0°C - 40°C (32°F - 104°F)
Operating Humidity	5% - 85% RH, non-condensing
Operating Altitude	10,000 ft @ 28deg C < 15% Relative Humidity

2.2 Power Cord Specifications

A power supply is included, however a power cord is not supplied with the switch. Use only a correctly rated power cord certified (as appropriate) for the country of operation.

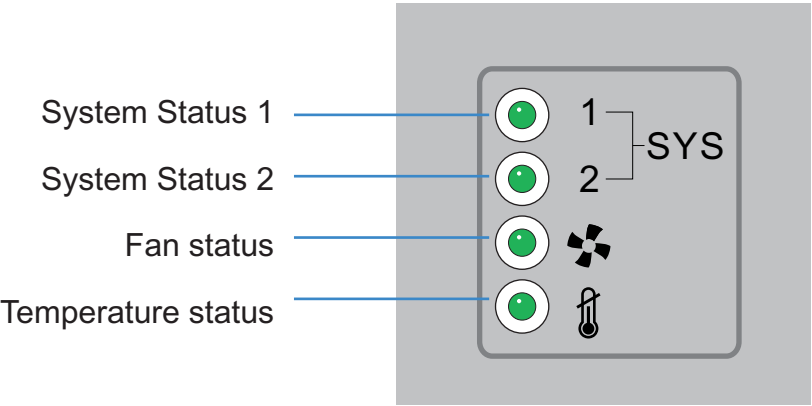
2.2.1 Power Protection

- **If possible, use a circuit dedicated to data processing equipment.** Commercial electrical contractors are familiar with wiring for data processing equipment and can help with the load balancing of these circuits.
- **Install surge protection.** Be sure to use a surge protection device between the electricity source and the RFS4010 RF Switch.
- **Install an Uninterruptible Power Supply (UPS).** A UPS provides continuous power during a power outage. Some UPS devices have integral surge protection. UPS equipment requires periodic maintenance to ensure reliability. A UPS of the proper capacity for the data processing equipment must be purchased.

3 LED Codes

The RFS4010 RF Switch has four vertically-stacked LEDs on its front panel. Each of the six Gigabit Ethernet Ports have two status LEDs. These LEDs display two colors (green & amber), and three lit states (solid, blinking, and off). The following tables decode the combinations of LED colors and states for the System Status LEDs and the Gigabit Ethernet LEDs.

3.1 System Status LEDs



3.1.1 Start Up / POST (Primary System or Redundant System)

System Status 1 LED	System Status 2 LED	Event
Off	Off	Power off
Green Blinking	Green Blinking	Power On Self Test (POST) running
Green Solid	Green Blinking	POST succeeded (Operating System Loading)
Green Solid	Off	POST succeeded (Normal Operation)
Amber Blinking	Off	POST Failure
Alternating Green Blinking & Amber Blinking	Alternating Green Blinking & Amber Blinking	System Boot Up Error



NOTE During switch start up, the Temperature status LED will be lit Solid Amber. This is normal behavior and does not indicate an error. At the completion of start up the Temperature Status LED will switch to Solid Green.

3.1.2 Switch Status (Primary System)

System Status 1 LED	System Status 2 LED	Event
Off	Off	Power off
Green Solid	Off	Redundancy Feature Enabled Primary System Normal Operation No Access Ports Adopted
Green Solid	Green Solid	Redundancy Feature Enabled Primary System Normal Operation Actively Adopting Access Ports
Green Solid	Amber Blinking	No Country Code configured on the switch or Access Port or Adaptive AP License and Country Code configured, but no APs adopted

3.1.3 Switch Status (Redundant System)

System Status 1 LED	System Status 2 LED	Event
Off	Off	Power off
Green Solid	Off	Redundant System Normal Operation
Green Blinking	Green Solid	Redundant System failed over and adopting ports
Green Blinking	Alternating Green Blinking & Amber Blinking	Redundant System not failed over.

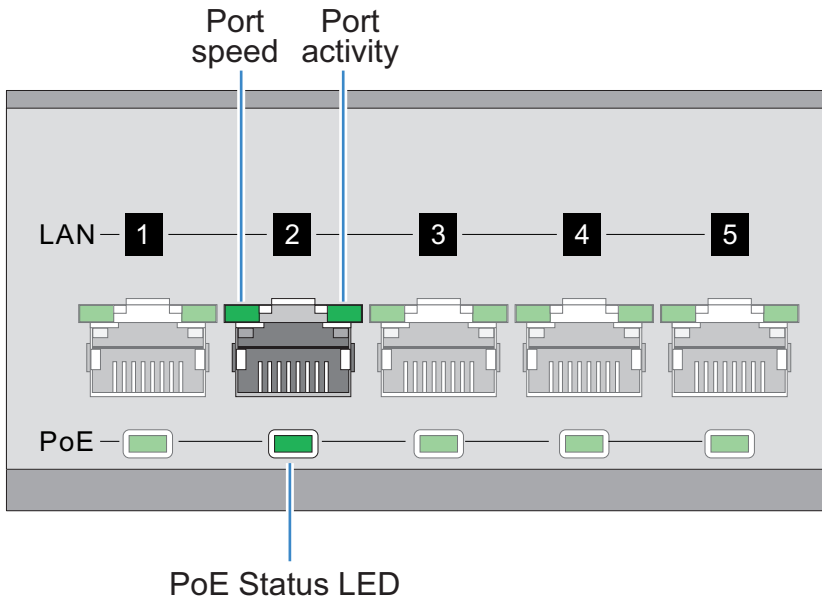
3.1.4 Fan LED

Fan LED	Event
Off	System Off / POST Start
Green Blinking	POST in Process
Green Solid	All System Fans Normal Operation
Amber Solid	Redundant Cooling Failure System Operational
Amber Blinking	System Cooling Failure <i>System will be held in reset until the issue is resolved</i>

3.1.5 Temperature Status LED

Temperature LED	Event
Off	System Off
Green Solid	Ambient Inlet Temperature is within specified operating limit
Amber Solid	Ambient Inlet Temperature is near the maximum operating temperature During switch start up this LED will be lit Solid Amber. This is normal behavior and does not indicate an error.
Amber Blinking	Ambient Inlet Temperature is above the maximum specified operating temperature <i>System will be held in reset until the issue is resolved</i>

3.2 RJ-45 Gigabit Ethernet LEDs



3.2.1 RJ-45 Port Speed LED

Port Speed LED	Event
Off	10 Mbps
Green Solid	100 Mbps
Green Blinking	1000 Mbps
Amber Blinking	Port Fault

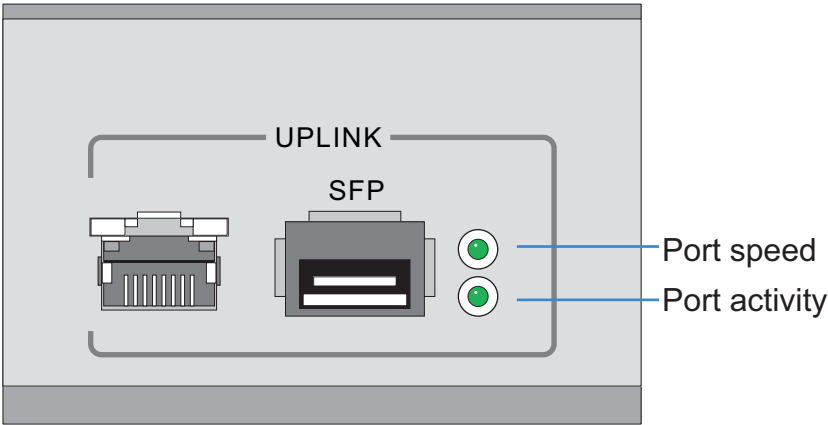
3.2.2 RJ-45 Port Activity LED

Port Status LED	Event
Off	No Link or Administratively shut down
Green Solid	Link present
Green Blinking	Activity: Transmit and Receive
Amber Blinking	Link Fault

3.2.3 PoE Status LED

PoE Status LED	Event
Off	PoE Disabled or Not in Use
Green Solid	PoE Enabled and Powering Port
Amber Solid	PoE Over-Limit
Amber Blinking	PoE Port Fault

3.3 SFP Gigabit Ethernet LEDs



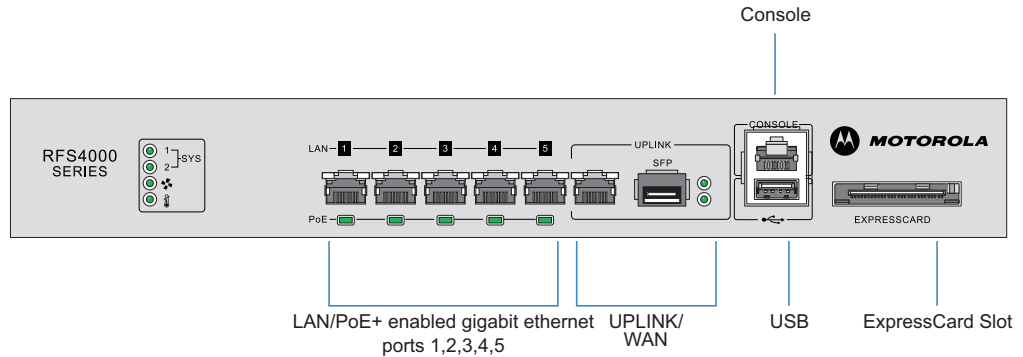
3.3.1 SFP Port Speed LED

Port Speed LED	Event
Green Blinking	1000 Mbps
Amber Blinking	Module or Tx/Rx Fault Loss

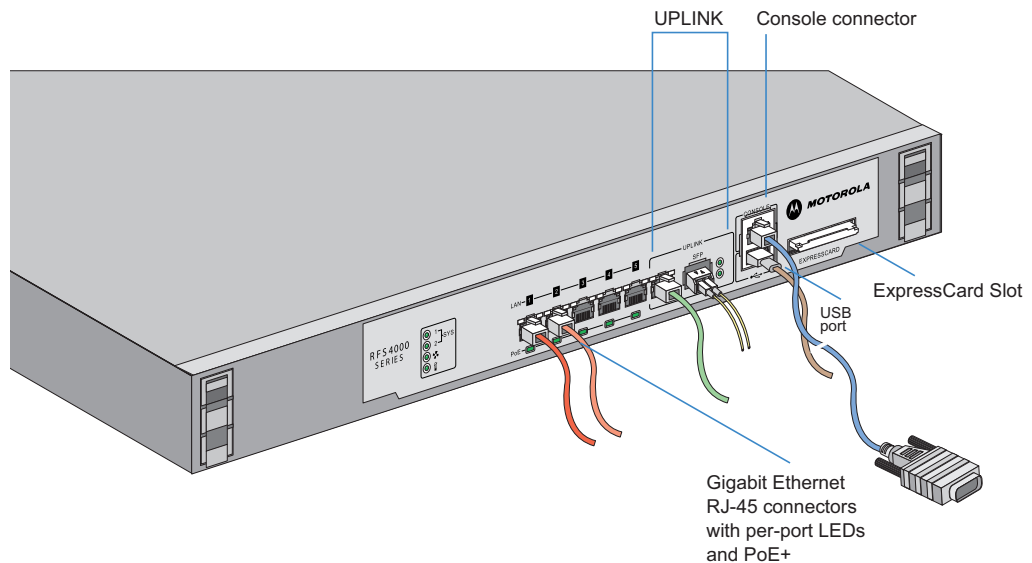
3.3.2 SFP Port Activity LED

Port Status LED	Event
Off	No Link or Administratively shut down
Green Solid	Link present / Operational
Amber Blinking	Module or Tx/Rx Fault Loss

4 Hardware Setup



4.1 Cabling Information



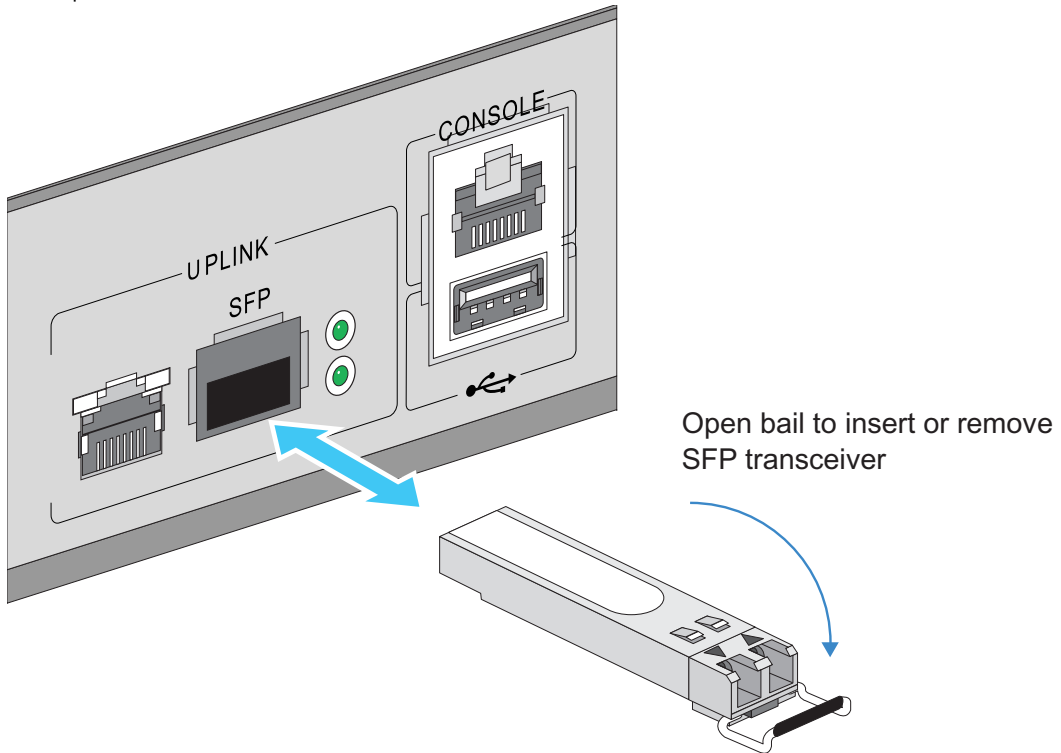
The RFS4010 RF Switch has five RJ-45 Gigabit Ethernet ports, one Gigabit SFP (fiber) port, one USB port, one Console connector and one ExpressCard slot. The above diagram shows each of those ports and the cables or devices attached to them. The sections that follow describe detailed connection and cabling information for each port. For software configuration, please see the RFS Series Wireless LAN Switches Wi-NG System Reference Guide available from the Motorola website.

4.2 Gigabit Ethernet on the RFS4010 RF Switch

The RFS4010 RF Switch has five RJ-45 Gigabit Ethernet ports and one 1 combo Gigabit (RJ45 + SFP) uplink port. Using the RJ-45 ports requires connecting a Category-6 Ethernet cable to the port. To use the Gigabit SFP port, first install the SFP Module (Motorola Part Number: *Fiber-3000-1S-WWR*).

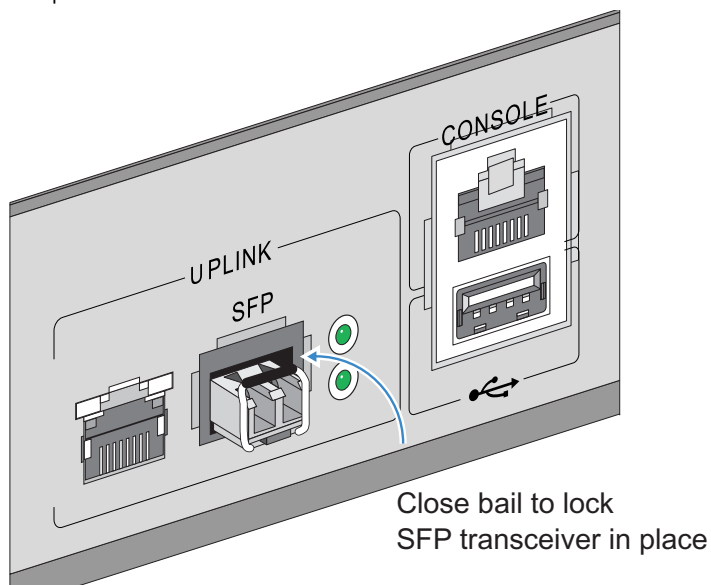
4.2.1 Installing Gigabit Ethernet SFPs

1. Open the bail on the transceiver.

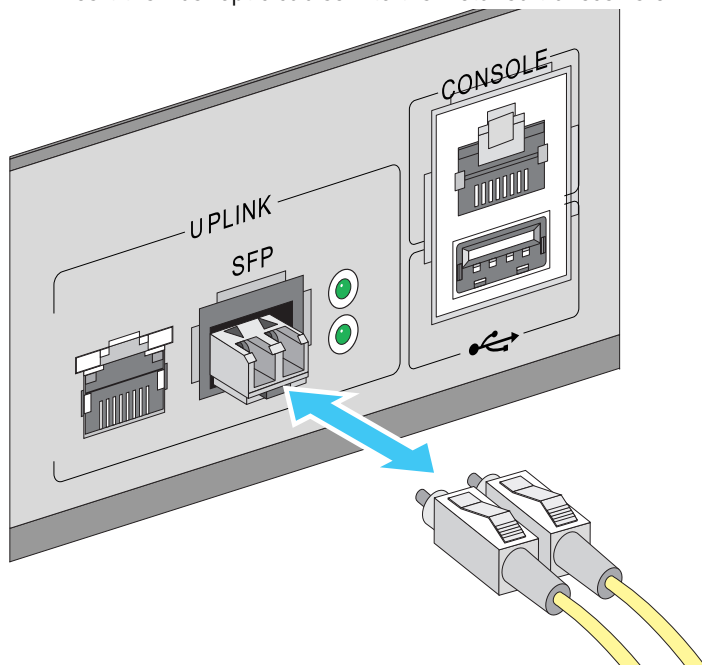


2. Insert the SFP transceiver into the corresponding port on the switch.

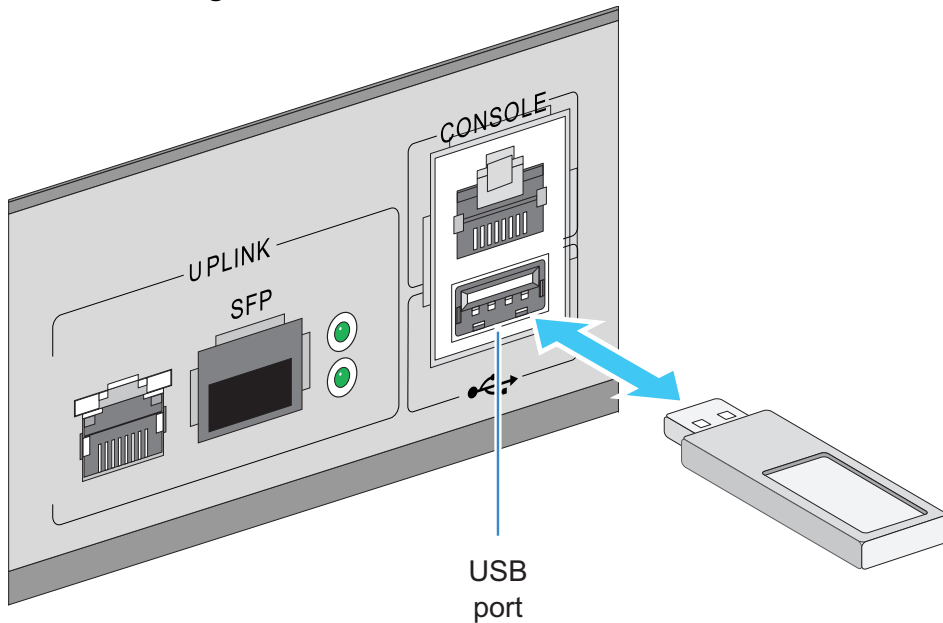
3. Once the SFP transceivers are properly seated in their ports, close the bails to lock the transceivers in place.



4. Insert the fiber optic cables into the installed transceivers.



4.3 Connecting USB Devices



The RFS4010 RF Switch contains one USB port for connecting USB flash storage devices to the switch. The switch can use the USB flash storage device for file transfers and firmware updates. Follow the setup instructions below to connect the devices to the switch and then access those devices through the Web UI or Command Line Interface.

1. Connect the USB flash drive to the USB .
2. Wait a few seconds for the drive to be recognized by the switch.
3. Follow the instructions in the RFS Series Wireless LAN Switches System Reference Guide or CLI Reference for more information on accessing USB storage devices from the switch for file transfers or firmware updates.

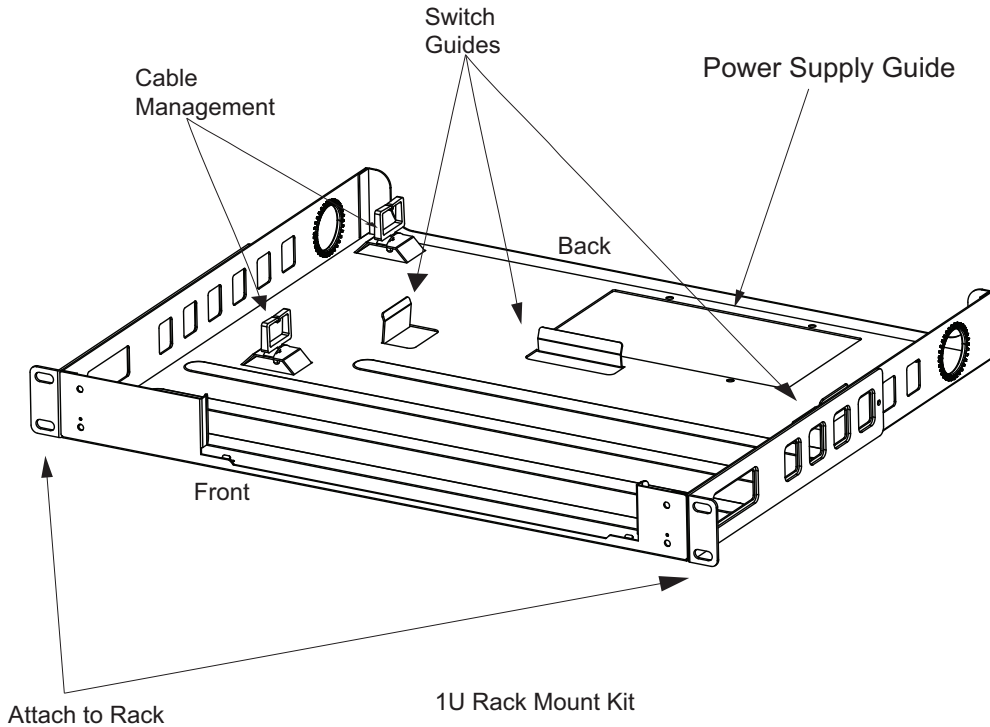


NOTE The switch supports USB flash devices formatted with FAT or VFAT (FAT32) filesystems only. If your flash storage device is formatted with another filesystem you will need to format your device with a FAT32 filesystem.

4.4 Rack Mount Instructions

To install the RFS4010 RF Switch in a rack:

1. Attach the switch to the 1U rack mount kit using the guides provided.

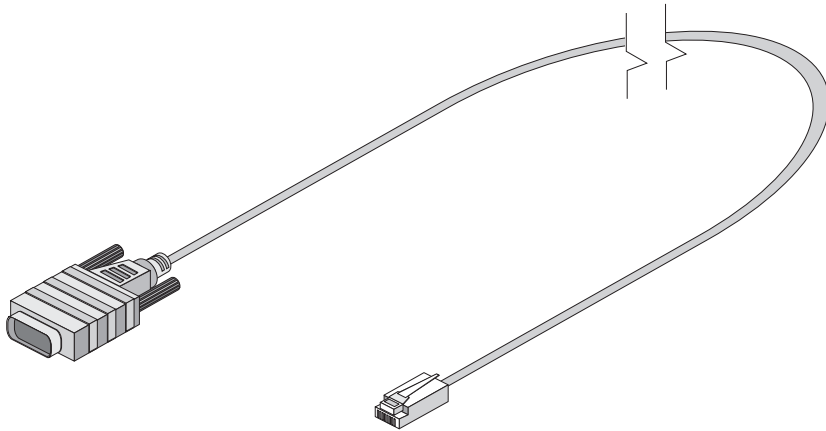


2. Place the power supply unit in the rack mount tray in the space provided.
3. Attach the mounting tray to the rack using screws appropriate for your rack's mounting holes.

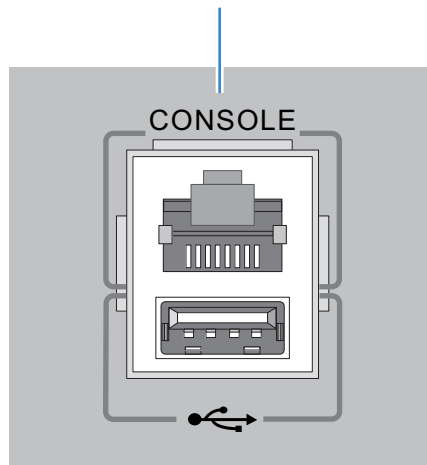
4.5 RFS4010 RF Switch Console Port Setup

To add the RFS4010 RF Switch to the network and prepare it for initial configuration:

1. Using the supplied console cable (pictured below), connect the RFS4010 RF Switch serial port to an RS-232 (DB-9) serial port on a separate computer (the “configuration computer”).



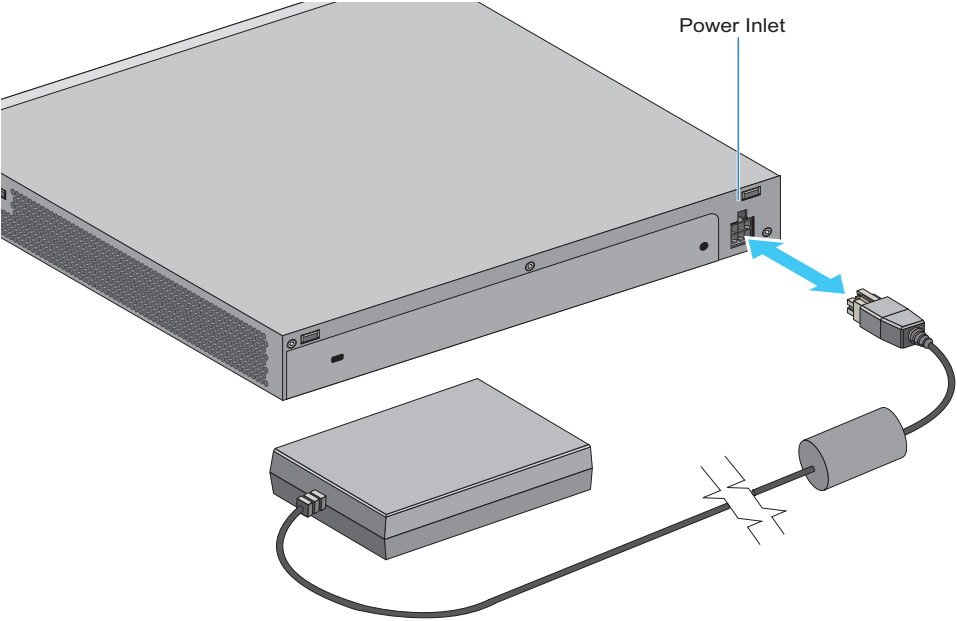
Console Port



2. On the configuration computer, configure a terminal emulation application (such as **HyperTerminal**) as follows:

Terminal Type	VT-100
Port	COM port
Terminal Settings	19200bps transfer rate 8 data bits no parity 1 stop bit no flow control no hardware compression

4.6 Supplying Power to the RFS4010 RF Switch

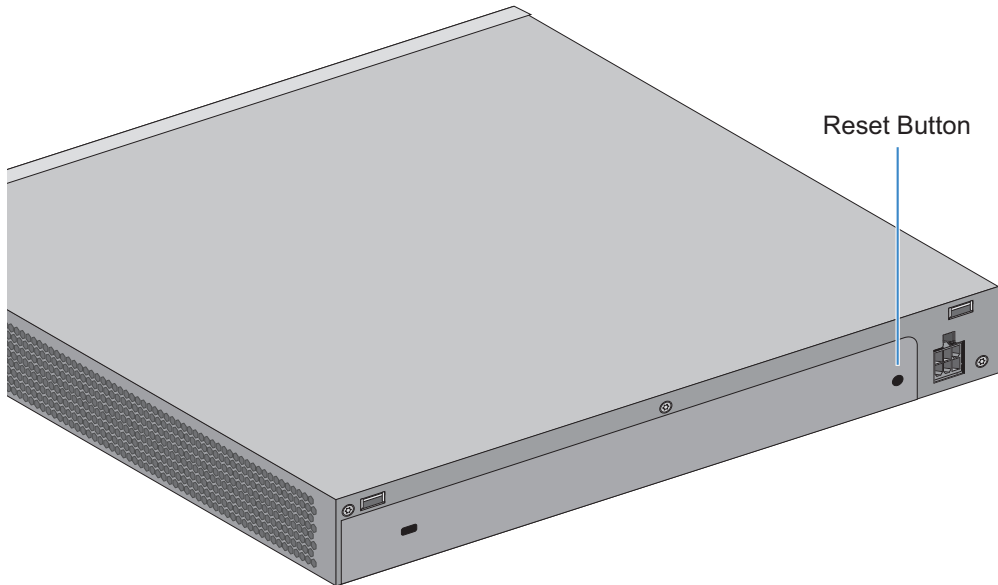


1. Plug the power supply (Motorola Part Number: 50-14000-244R) into the power inlet at the back of the RFS4010 RF Switch.
2. Plug the cord into a standard AC outlet with a voltage range of 100 to 240 VAC.



WARNING! An improper shutdown can render the RFS4010 RF Switch inoperable such that it could require service by Motorola Support. Do not remove AC power without first following the shutdown procedure. An abrupt loss of power can corrupt the information stored on the device.

4.7 Using the RFS4010 RF Switch Reset Button



The RFS4010 RF Switch has a reset button on the rear of the switch near the power connector.

To reset the switch to factory defaults:

1. Connect a computer to the Console Port as outlined in [Chapter 4.5, RFS4010 RF Switch Console Port Setup](#)
2. Reset the switch using the Web UI or the Command Line Interface.

3. As soon as the switch resets, depress the reset button on the rear of the switch and continue to hold it through the boot up process until the following message is displayed in the console:

```
Startup config will be RESET to factory default
loading linux image 2 .....
Welcome to RFS4000
```



CAUTION Using the switch reset button will reset all configuration information and settings on the switch to factory defaults. All previously configured information and settings will be lost. The country code will need to be set when the switch is rebooted before any Access Ports or Adaptive APs will be adopted.

4.8 Verifying the Installation

View the LEDs on the front panel of the RFS4010 RF Switch to ensure the device is functioning properly. The normal LED pattern follows this path:

- During the Power On Self Test (POST), the System 1 and System 2 LEDs both blink green.
- If the POST test fails, the System 1 LED will blink amber. If the POST test succeeds, the System 1 LED will be lit solid green.
- As the software is initialized, the System 2 LED will blink green.
- After the software has finished initializing, the System 1 LED will be lit solid green and the bottom System 2 LED will be off. The RFS4010 RF Switch is ready to be configured, as described in the RFS Series Wireless LAN Switches WiNG System Reference Guide.

Other LED codes indicate the presence (or absence) of different standby states, or errors. A guide to the RFS4010 RF Switch LEDs codes is provided in [Chapter 3, LED Codes](#).

5 Regulatory Information

This regulatory section applies to the RFS-4010. For more information refer to section 6, Part Numbers, Support, and Sales.

All Motorola devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required.

Local language translations are available at the following website: <http://support.symbol.com>

Any changes or modifications to Motorola equipment, not expressly approved by Motorola, could void the user's authority to operate the equipment.



WARNING! This product is designed and approved for in-building installation only and is not intended to be connected to exposed (outside plant) networks.

Power Supply

Use only a Motorola/Symbol approved power supply output rated at 48Vdc and minimum 2.5A. The power supply shall be Listed to UL/CSA 60950-1; and certified to IEC60950-1 and EN60950-1 with SELV outputs. Use of alternative power supply will invalidate any approval given to this device and may be dangerous.

Country Selection

Select only the country in which you are using the device. Any other selection will make the operation of this device illegal.



Laser Devices - Gigabit Ethernet SFP Option

Complies with 21CFR1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

EN60825-1:1994+ A1:2002 +A2:2001

IEC60825-1:1993+A1:1997+A2:2001

The laser classification is marked on the device.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose. The following statement is required to comply with US and international regulations:



CAUTION Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Radio Frequency Interference Requirements - FCC



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Radio Frequency Interference Requirements - Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



Marking and European Economic Area (EEA)

Statement of Compliance

Motorola hereby declares that this device is in compliance with all the applicable Directives, 2004/108/EC, 2006/95/EC. A Declaration of Conformity may be obtained from <http://www2.symbol.com/doc/>

Japan (VCCI) - Voluntary Control Council for Interference Class B ITE

この装置は、情報処理装置等電波障害自主規制協議会（V C C I）の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Korea Warning Statement for Class B ITE

기 종 별	사 용 자 안 내 문
B 급 기기 (가정용 방송통신기기)	이 기기는 가정용 (B 급) 으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적 으로 하며, 모든 지역에서 사용할 수 있습니다 .
Class B (Broadcasting Communication Device for Home Use)	This device obtained EMC registration mainly for home use (Class B) and may be used in all areas.

Turkish WEEE Statement of Compliance

EEE Yönetmeliğine Uygundur



Waste Electrical and Electronic Equipment (WEEE)

English: For EU Customers: All products at the end of their life must be returned to Symbol for recycling. For information on how to return product, please go to:
http://www.symbol.com/environmental_compliance.

Čeština: Pro zákazníky z EU: Všechny produkty je nutné po skončení jejich životnosti vrátit společnosti Symbol k recyklaci. Informace o způsobu vrácení produktu najdete na webové stránce: http://www.symbol.com/environmental_compliance.

Dansk: Til kunder i EU: Alle produkter skal returneres til Symbol til recirkulering, når de er udtjent. Læs oplysningerne om returnering af produkter på: http://www.symbol.com/environmental_compliance.

Deutsch: Für Kunden innerhalb der EU: Alle Produkte müssen am Ende ihrer Lebensdauer zum Recycling an Symbol zurückgesandt werden. Informationen zur Rücksendung von Produkten finden Sie unter http://www.symbol.com/environmental_compliance.

Eesti: EL klientidele: kõik tooted tuleb nende eluea lõppedes tagastada taaskasutamise eesmärgil Symbol'ile. Lisainformatsiooni saamiseks toote tagastamise kohta külastage palun aadressi: http://www.symbol.com/environmental_compliance.

Español: Para clientes en la Unión Europea: todos los productos deberán entregarse a Symbol al final de su ciclo de vida para que sean reciclados. Si desea más información sobre cómo devolver un producto, visite: http://www.symbol.com/environmental_compliance.

Ελληνικά: Για πελάτες στην Ε.Ε.: Όλα τα προϊόντα, στο τέλος της διάρκειας ζωής τους, πρέπει να επιστρέφονται στην Symbol για ανακύκλωση. Για περισσότερες πληροφορίες σχετικά με την επιστροφή ενός προϊόντος, επισκεφθείτε τη διεύθυνση http://www.symbol.com/environmental_compliance στο Διαδίκτυο.

Français : Clients de l'Union Européenne : Tous les produits en fin de cycle de vie doivent être retournés à Symbol pour recyclage. Pour de plus amples informations sur le retour de produits, consultez : http://www.symbol.com/environmental_compliance.

Italiano: per i clienti dell'UE: tutti i prodotti che sono giunti al termine del rispettivo ciclo di vita devono essere restituiti a Symbol al fine di consentire il riciclaggio. Per informazioni sulle modalità di restituzione, visitare il seguente sito Web: http://www.symbol.com/environmental_compliance.

Latviešu: ES klientiem: visi produkti pēc to kalpošanas mūža beigām ir jānogādā atpakaļ Symbol otrreizējai pārstrādei. Lai iegūtu informāciju par produktu nogādāšanu Symbol, lūdzu, skatiet: http://www.symbol.com/environmental_compliance.

Lietuvių: ES vartotojams: visi gaminiai, pasibaigus jų eksploatacijos laikui, turi būti grąžinti utilizuoti į kompaniją „Symbol“. Daugiau informacijos, kaip grąžinti gaminį, rasite: http://www.symbol.com/environmental_compliance.

Magyar: Az EU-ban vásárlóknak: Minden tönkrement termékét a Symbol vállalatához kell eljuttatni újrahaznosítás céljából. A termék visszajuttatásának módjával kapcsolatos tudnivalókért látogasson el a http://www.symbol.com/environmental_compliance weboldalra.

Malti: Għal klijenti fl-UE: il-prodotti kollha li jkunu waslu fl-aħħar tal-ħajja ta' l-użu tagħhom, iridu jiġu rritornati għand Symbol għar-riċiklaġġ. Għal aktar tagħrif dwar kif għandek tiritorna l-prodott, jekk jogħġbok żur: http://www.symbol.com/environmental_compliance.

Nederlands: Voor klanten in de EU: alle producten dienen aan het einde van hun levensduur naar Symbol te worden teruggezonden voor recycling. Raadpleeg http://www.symbol.com/environmental_compliance voor meer informatie over het terugzenden van producten.

Polski: Klienci z obszaru Unii Europejskiej: Produkty wycofane z eksploatacji należy zwrócić do firmy Symbol w celu ich utylizacji. Informacje na temat zwrotu produktów znajdują się na stronie internetowej http://www.symbol.com/environmental_compliance.

Português: Para clientes da UE: todos os produtos no fim de vida devem ser devolvidos à Symbol para reciclagem. Para obter informações sobre como devolver o produto, visite: http://www.symbol.com/environmental_compliance.

Slovenski: Za kupce v EU: vsi izdelki se morajo po poteku življenjske dobe vrniti podjetju Symbol za reciklažo. Za informacije o vračilu izdelka obiščite: http://www.symbol.com/environmental_compliance.

Slovenščina: Pre zákazníkov z krajín EU: Všetky výrobky musia byť po uplynutí doby ich životnosti vrátené spoločnosti Symbol na recykláciu. Bližšie informácie o vrátení výrobkov nájdete na: http://www.symbol.com/environmental_compliance.

Suomi: Asiakkaat Euroopan unionin alueella: Kaikki tuotteet on palautettava kierrätettäväksi Symbol-yhtiöön, kun tuotetta ei enää käytetä. Lisätietoja tuotteen palauttamisesta on osoitteessa http://www.symbol.com/environmental_compliance.

6 Part Numbers, Support, and Sales

Part Numbers

Description	Part Number
RFS4010 with Internal POE and Power Supply	RFS-4010-00010-WR
Rack Mount Kit	RFS-4010-MTKT1U-WR
Power Supply Unit	50-14000-244R

Motorola's Enterprise Mobility Support Center

If you have a problem with your equipment, contact Enterprise Mobility support for your region. Contact information is available by visiting <http://www.motorola.com/customersupport> and after selecting your region, click on the appropriate link under Support for Business.

When contacting Enterprise Mobility support, please provide the following information:

- *Serial number of the unit*
- *Model number or product name*
- *Software type and version number*

Motorola responds to calls by email, telephone or fax within the time limits set forth in support agreements. If you purchased your Enterprise Mobility business product from a Motorola business partner, contact that business partner for support.

Customer Support Web Sites

Motorola's Support Central Web site, located at <http://www.motorola.com/customersupport> provides information and online assistance including developer tools, software downloads, product manuals and online repair requests.

Manuals

<http://support.symbol.com/support/product/manuals.do>

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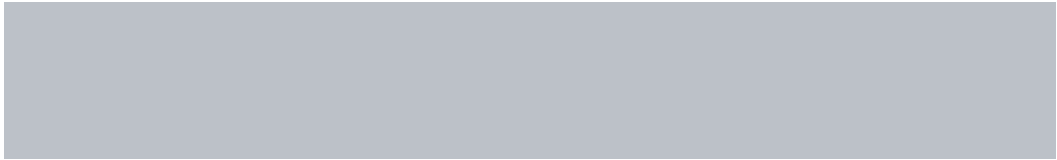
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8 RFS4010 China ROHS Compliance



部件名称 (Parts)	有毒有害物质或元素 					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	O	O	O	O	O	O
电路模块 (Circuit Modules)	X	O	O	O	O	O
电缆及电缆组件 (Cables and Cable Assemblies)	O	O	O	O	O	O
塑料和聚合物部件 (Plastic and Polymeric Parts)	O	O	O	O	O	O
光学和光学组件 (Optics and Optical Components)	O	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O

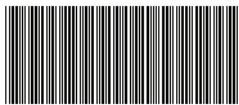
- O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
- X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

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This table was created to comply with China RoHS requirements for Motorola's RFS4010.



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