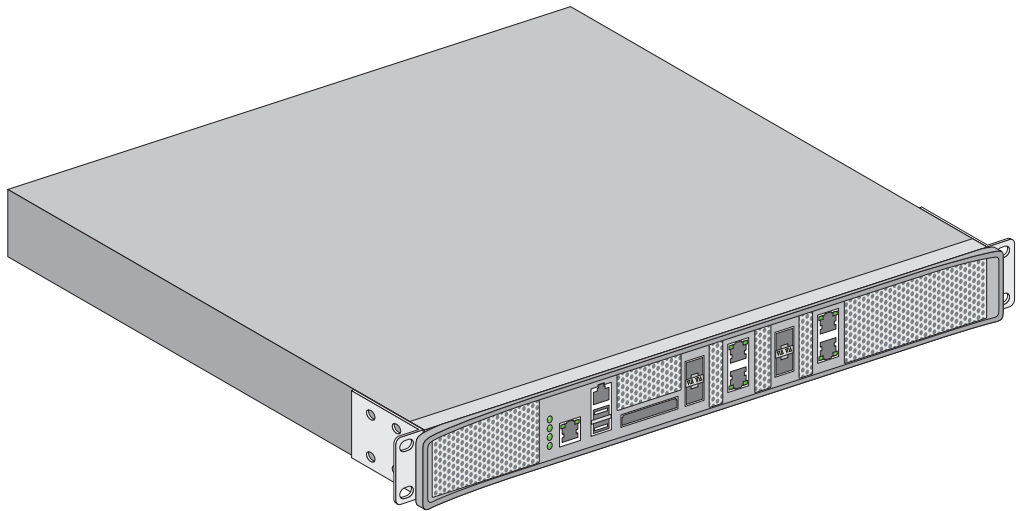




# RFS7000 Series RF Switch

## Installation Guide



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# 1 Introduction

The Motorola RFS7000 Series RF Switch is a high-performance member of Motorola's Wireless Switch family. The RFS7000 Series RF Switch provides centralized Wireless LAN (WLAN) configuration and management by coalescing a network "intelligence" previously spread across physically distributed access points. By replacing access points with simpler access ports (or "thin" access points), the RFS7000 Series RF Switch becomes a WLAN's single point of contact, thus reducing wireless networking complexity by moving management out of the ceiling and into the wiring closet. In addition, through the use of patented Virtual AP architecture, the RFS7000 Series RF Switch lets you create multiple WLANs without changing or adding to the existing wired network infrastructure.

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:

- RFS7010 RF Switch with Rack Brackets installed
- Console Cable
- *Installation Guide* (this document)
- China RoHS compliance document

## 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.

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

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

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## 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 with adequate dimensions and weight allowances.
- Verify the rack is anchored and cannot tip over or break away from its mountings.
- 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.
- Attach only approved power cords to the device.
- Motorola strongly recommends the use of an Uninterruptible Power Supply (UPS) that supports the RFS7000 Series 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.

## 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.
- 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 RFS7000 Series RF Switch is powered through an Uninterruptible Power Supply (UPS).

## 2 Specifications

### 2.1 Physical Specifications

<b>Width</b>	440mm (17.32 in)
<b>Height</b>	44.45mm (1.75 in)
<b>Depth</b>	390.8mm (15.38 in)
<b>Weight</b>	6.12 Kg (13.5 lbs)
<b>Operating Temperature</b>	0°C - 40°C
<b>Operating Humidity</b>	5% - 85% RH, non-condensing
<b>Operating Altitude</b>	3 km (10000 ft)

### 2.2 Power Cord Specifications

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

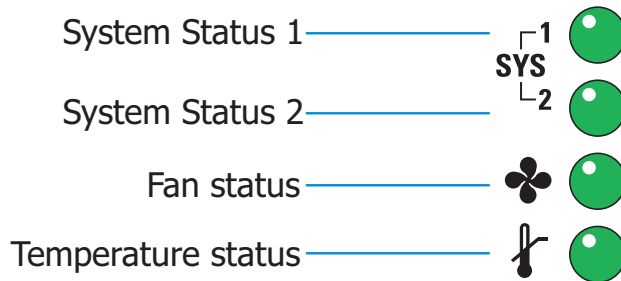
#### 2.2.1 Power Protection

- **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 RFS7000 Series 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 RFS7010 RF Switch has four vertically-stacked LEDs on its front panel. Each of the switch's 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	Boot Up Error: Device has an invalid checksum



**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	No Redundancy Feature Enabled
Green Solid	Green Solid	Redundancy Feature Enabled Actively Adopting Access Ports
Green Solid	Amber Blinking	No License to adopt Access Ports or No Country Code configured on the switch or 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	No Redundancy Feature Enabled
Green Blinking	Green Solid	Redundant System failed over and adopting ports
Green Blinking	Alternating Green Blinking & Amber Blinking	Redundant System not failed over.
Green Solid	Amber Blinking	No License to adopt Access Ports or No Country Code configured on the switch or License and Country Code configured, but no APs adopted

### 3.1.4 Fan LED

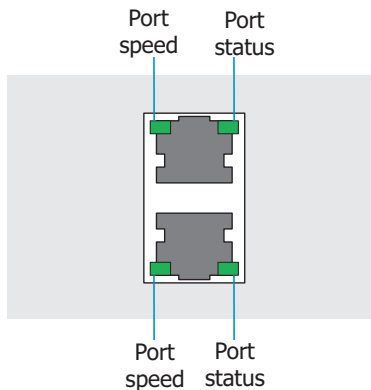
Fan LED	Event
Off	System Off / POST Start
Green Blinking	POST in Process
Green Solid	All System Fans Normal Operation

Fan LED	Event
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



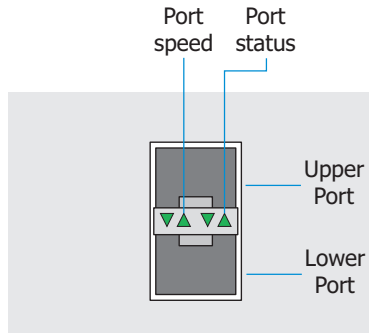
### 3.2.1 RJ-45 Port Speed LED

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 Status 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

### 3.3 SFP Gigabit Ethernet LEDs



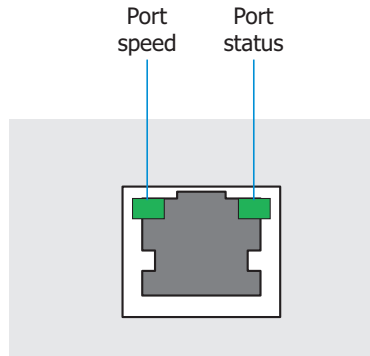
#### 3.3.1 SFP Port Speed LED

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

#### 3.3.2 SFP Port Status 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

## 3.4 Out of Band Management Port LEDs



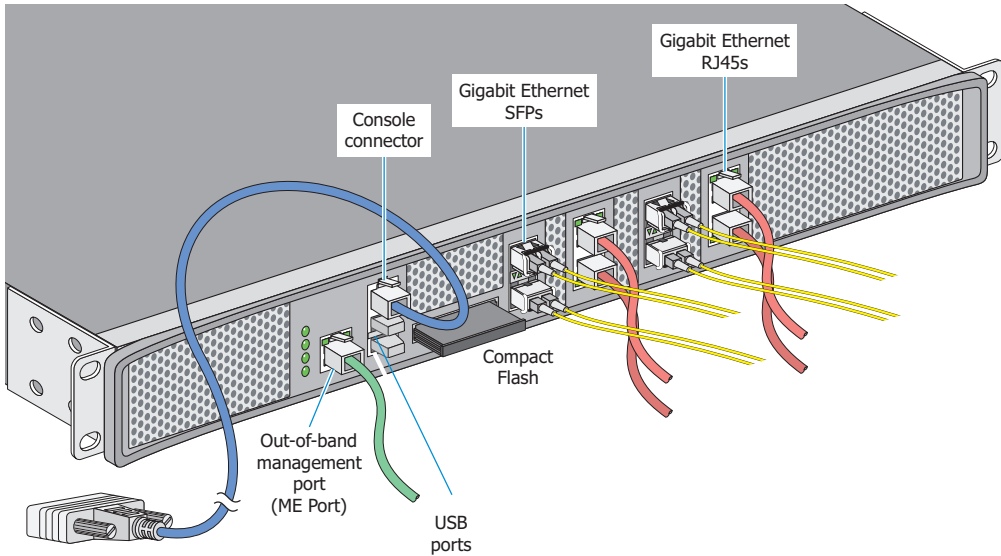
### 3.4.1 Out of Band Management Port Speed LED

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

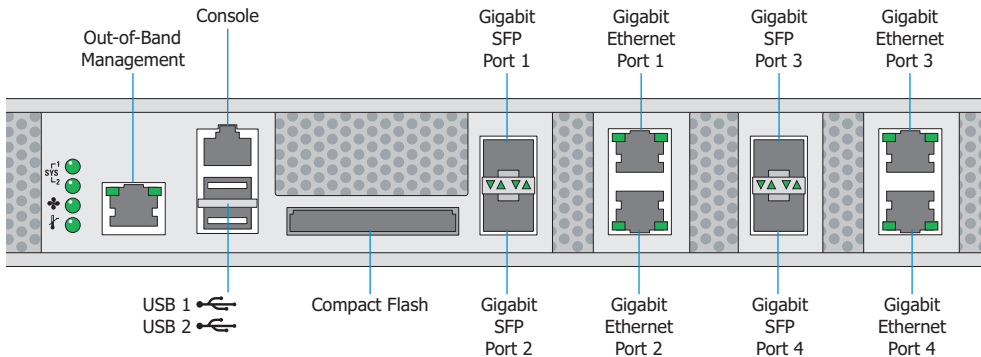
### 3.5 Out of Band Management Port Status LED

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

## 4 Hardware Setup

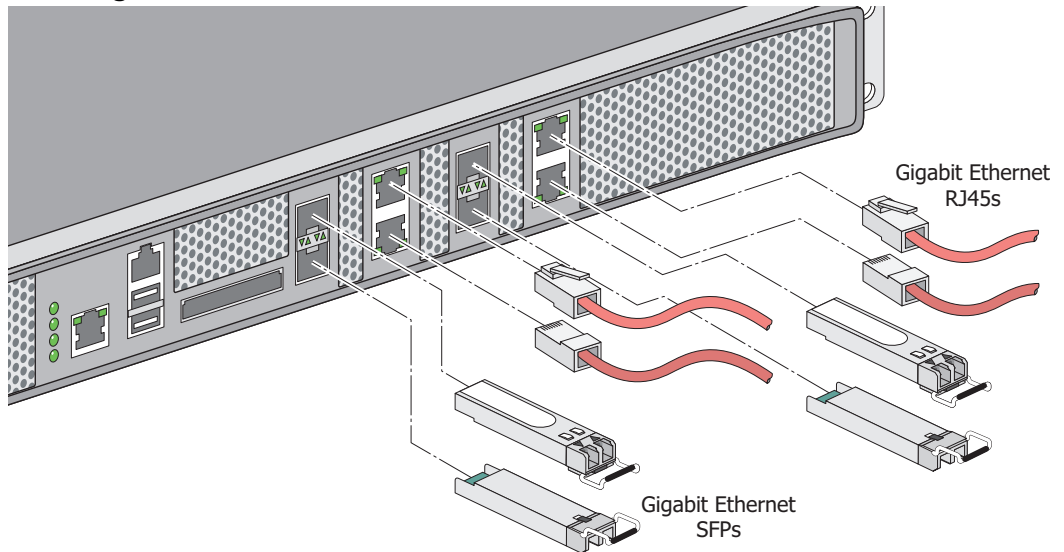


### 4.1 Cabling Information



The RFS7010 RF Switch has four RJ-45 Gigabit Ethernet ports, four Gigabit SFP (fiber) ports, one Out-of-band management port and one Console connector. 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 RFS7000 Series RF Switch System Reference Guide available from the Motorola website.

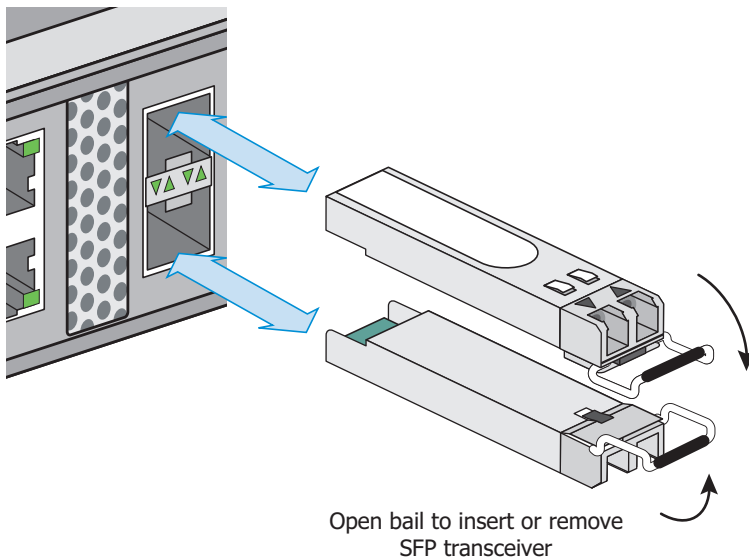
## 4.2 Gigabit Ethernet on the RFS7010 RF Switch



The RFS7010 RF Switch has four RJ-45 Gigabit Ethernet ports and four Gigabit SFP (fiber optic) ports. Using the RJ-45 ports requires connecting a Category-6 Ethernet cable to the port. To use the Gigabit SFP ports, first install the SFP Modules (Motorola Part Number: *Fiber-3000-1S-WWR*).

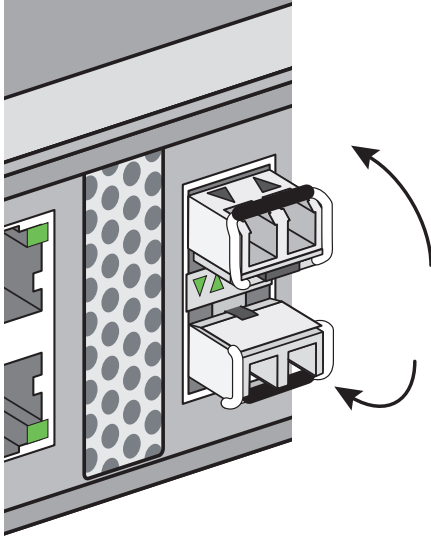
### **4.2.1 Installing Gigabit Ethernet SFPs**

1. Open the bail on the transceiver.

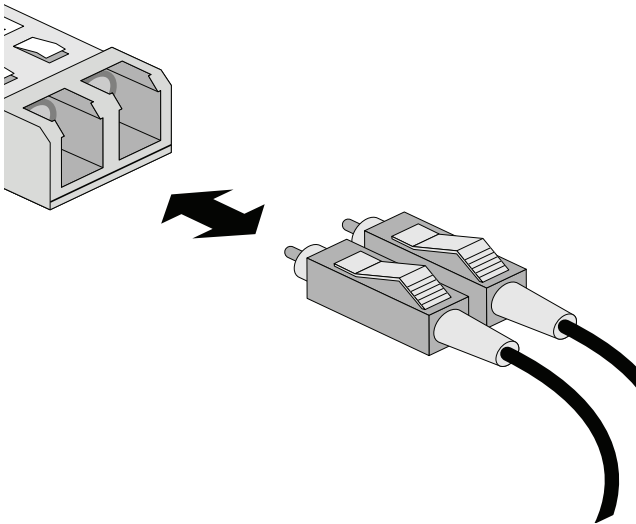


2. Insert each of the SFP transceivers into the corresponding ports on the switch.

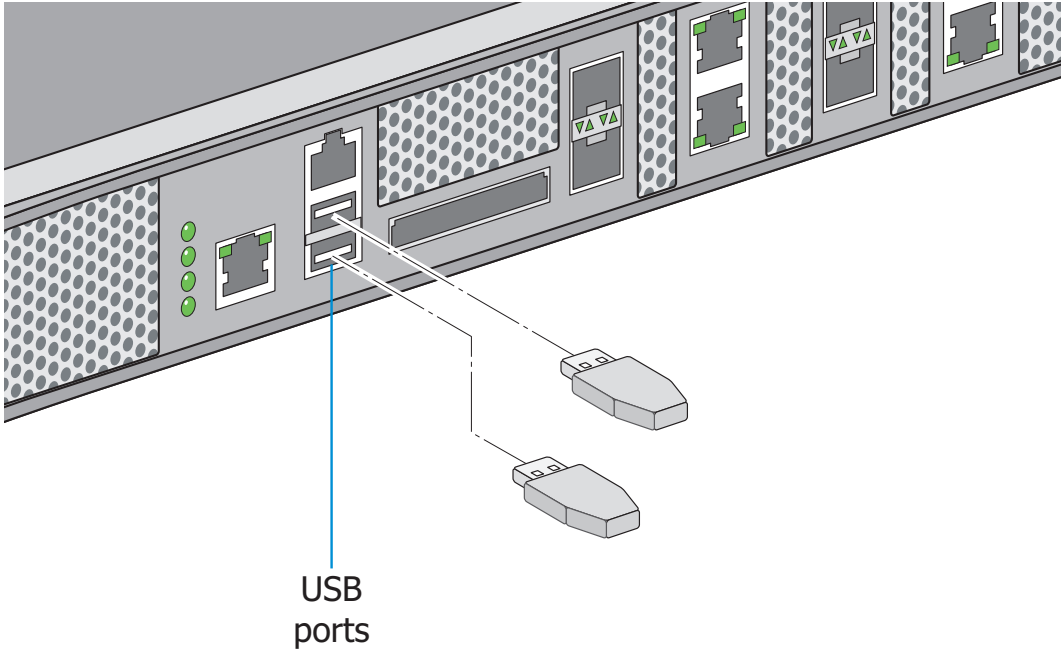
3. Once the SFP transceivers are properly seated in their ports, close the bails to lock the transceivers in place.



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



## 4.3 Connecting USB Devices



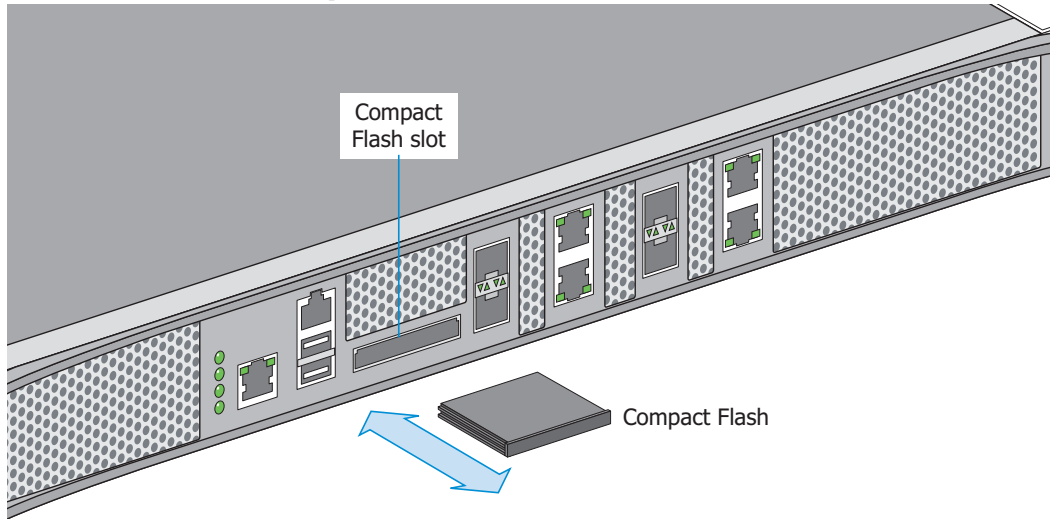
The RFS7010 RF Switch contains two USB ports for connecting USB flash storage devices to the switch. The switch can use the USB flash storage devices for file transfers and firmware updates. Follow the setup instructions below to connect the devices to the switch and then access those devices through the Web UI or Command Line Interface.

1. Connect the USB flash drive to either of the USB ports.
2. Wait a few seconds for the drive to be recognized by the switch.
3. Follow the instructions in the [RFS7000 Series RF Switch System Reference](#) 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

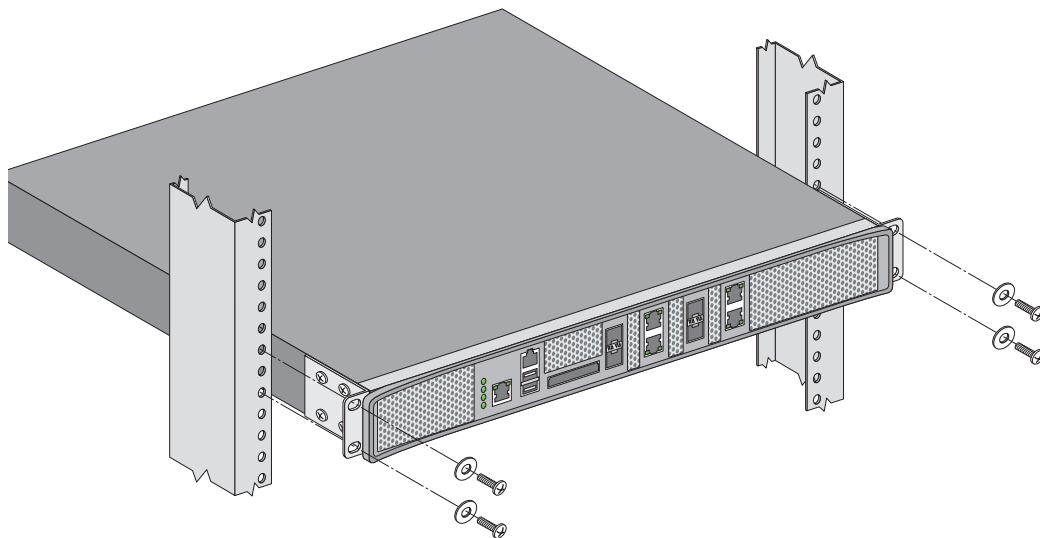
## 4.4 Installing a Compact Flash Card



The RFS7010 RF Switch contains a Compact Flash slot for file transfers, firmware updates and use by Motorola service technicians. Follow the setup instructions below to connect a Compact Flash Card to the switch and then access that card through the Web UI.

1. To use a Compact Flash card with the RFS 7010 insert the card into the Compact Flash slot.
2. Once the Compact Flash card has been inserted, follow the instructions in the RFS7000 Series RF Switch System Reference or CLI reference to use the Compact Flash card for file transfers or firmware updates.

## 4.5 Rack Mount Instructions



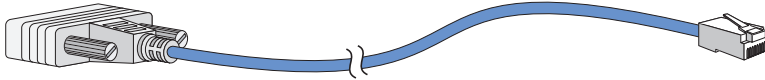
To install the RFS7000 Series RF Switch in a rack:

1. The rack mounting brackets are installed at the factory. No additional steps are needed.
2. Attach the brackets to the rack using screws appropriate for your rack's mounting holes.

## 4.6 RFS7000 Series RF Switch Console Port Setup

To add the RFS7000 Series RF Switch to the network and prepare it for initial configuration:

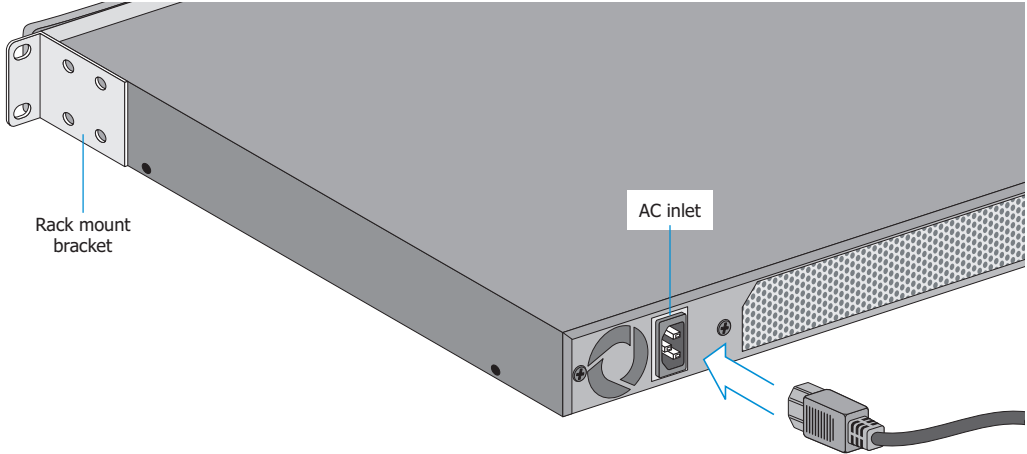
1. Using the supplied console cable (pictured below), connect the RFS7000 Series RF Switch serial port to an RS-232 (DB-9) serial port on a separate computer (the “configuration computer”).



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

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

## 4.7 Supplying Power to the RFS7000 Series RF Switch



1. Plug an approved AC power cord into the power connector at the back of the RFS7000 Series 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 RFS7000 Series 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.

## 4.8 Verifying the Installation

View the LEDs on the front panel of the RFS7010 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 RFS7000 Series RF Switch is ready to be configured, as described in the RFS7000 Series RF Switch System Reference.

Other LED codes indicate the presence (or absence) of different standby states, or errors. A guide to the RFS7000 Series RF Switch LEDs codes is provided in [Chapter 3, LED Codes](#).

## 5 Regulatory Information

This device is approved under the Symbol Technologies brand; Symbol Technologies, Inc., is the Enterprise Mobility business of Motorola, Inc (“Motorola”).

This regulatory section applies only to the RFS-7010. 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.

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

Local language translations are available at the following website: <http://www.motorola.com/services/manuals/>.



### **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** This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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### **Country Selection**

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

### **Radio Frequency Interference Requirements - FCC**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **Radio Frequency Interference Requirements - Canada**

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

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



**Marking and European Economic Area (EEA)**

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## Statement of Compliance

Motorola, Inc., hereby declares that this device is in compliance with all the applicable Directives, 89/336/EEC, 73/23/EEC. A Declaration of Conformity may be obtained from <http://www2.symbol.com/doc/>



### **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](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](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](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](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](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](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](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](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 consentirne il riciclaggio. Per informazioni sulle modalità di restituzione, visitare il seguente sito Web: [http://www.symbol.com/environmental\\_compliance](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](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 gaminius, rasite: [http://www.symbol.com/environmental\\_compliance](http://www.symbol.com/environmental_compliance).

**Magyar:** Az EU-ban vásárlóknak: Minden tönkrement terméket a Symbol vállalathoz kell eljuttatni újrahaznosítás céljából. A termék visszajuttatásának módjával kapcsolatos tudnivalókért látogasson el a [http://www.symbol.com/environmental\\_compliance](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 taġġir dwar kif għandek tirritorna l-prodott, jekk jogħġbok żur: [http://www.symbol.com/environmental\\_compliance](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](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](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](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](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](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](http://www.symbol.com/environmental_compliance).

## 6 Part Numbers, Support, and Sales

### Part Numbers

Description	Part Number
64-Port RFS-7000 RF Switch	RFS-7010-10030-WR
128-Port RFS-7000 RF Switch	RFS-7010-10010-WR
256-Port RFS-7000 RF Switch	RFS-7010-10020-WR
Zero Port RFS-7000 RF Switch	RFS-7010-100R0-WR
16-Port Upgrade Certificate	RFS-7010-UC-16-WR

### ***Motorola's Enterprise Mobility Support Center***

If you have a problem with your equipment, contact Enterprise Mobility support at [emb.support@motorola.com](mailto:emb.support@motorola.com).

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 Site***

Motorola's Support Central Web site, located at [www.symbol.com/support](http://www.symbol.com/support) provides information and online assistance including developer tools, software downloads, product manuals and online repair requests.

### **Downloads**

<http://symbol.com/downloads>

### **Manuals**

<http://symbol.com/manuals>

## General Information

Obtain additional information by contacting Motorola at:

1-800-722-6234, inside North America

+1-516-738-5200, in/outside North America

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## Product Sales and Product Information

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**72E-103890-01 Revision A**  
**January 2008**