S5200F-ON Series

Setup Guide

DELL EMC

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

2018 - 10

Rev. A00

Contents

1

About this guide

This guide provides site preparation recommendations, step-by-step procedures for rack mounting and desk mounting, inserting modules, and connecting to a power source.

CAUTION: To avoid electrostatic discharge (ESD) damage, wear grounding wrist straps when handling this equipment.

WARNING: Only trained and qualified personnel can install this equipment. Read this guide before you install and power up this equipment. This equipment contains two power cords. Disconnect both power cords before servicing.

WARNING: This equipment contains optical transceivers, which comply with the limits of Class 1 laser radiation.

Figure 1. Class 1 laser product tag

WARNING: When no cable is connected, visible and invisible laser radiation may be emitted from the aperture of the optical transceiver ports. Avoid exposure to laser radiation and do not stare into open apertures.

Regulatory

- Marketing model S5232F-ON is represented by the regulatory model E21W and the regulatory type E21W005.
- Marketing model S5248F-ON is represented by the regulatory model E21W and the regulatory type E21W002.

- Marketing model S5296F-ON is represented by the regulatory model E26W and the regulatory type E26W001.

Topics:

Related documents

For more information about the S5200F-ON Series (S5232F-ON, S5248F-ON, and S5296F-ON) switch, see the following documents.

- *OS10 Enterprise Edition Release Notes*
- *OS10 Enterprise Edition User Guide*
- *S5200F-ON Series Installation Guide*
- *S5200F-ON Series Release Notes*
- *Open Networking Hardware Diagnostic Guide*

NOTE: For the most recent documentation, see the support site: www.dell.com/support.

Information symbols

This book uses the following information symbols:

NOTE: The Note icon signals important operational information.

CAUTION: The Caution icon signals information about situations that could result in equipment damage or loss of data.

WARNING: The Warning icon signals information about hardware handling that could result in injury.

WARNING: The ESD Warning icon requires that you take electrostatic precautions when handling the device.

2

Site preparations

The 5200F-ON Series (S5232F-ON, S5248F-ON, and S5296F-ON) switch is suitable for installation as part of a common bond network (CBN).

You can install the switch in:

- Network telecommunication facilities
- Data centers
- Other locations where the National Electric Code (NEC) applies

For more information about the S5200F-ON Series switch specifications, see Specifications.

NOTE: Install the switch into a rack or cabinet before installing any additional components such as cables or optics.

Topics:

Site selection

Install your equipment in restricted access areas. A restricted access area is one where service personnel can only gain access using a special tool, lock, key, or other means of security. The authority responsible for the location controls access to the restricted area.

Ensure that the area where you install your switch meets the following safety requirements:

- Near an adequate power source. Connect the switch to the appropriate branch circuit protection according to your local electrical codes.
- Environmental—switch location—continuous temperature range is from 0°C to 45°C (32°F to 113°F).
- Operating humidity is from 5 to 85 percent noncondensing, continuous.
- In a dry, clean, well-ventilated, and temperature-controlled room, away from heat sources such as hot cooling vents or direct sunlight
- Away from sources of severe electromagnetic noise
- Positioned in a rack or cabinet, or on a desktop with adequate space in the front, back, and sides for proper ventilation and access
- Install the switch in information technology rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

For more information about switch storage and environmental temperatures, see Specifications.

Cabinet placement

Install the S5200F-ON Series switch only in indoor cabinets designed for use in a controlled environment.

Do not install the switch in outside cabinets. For cabinet placement requirements, see Site selection.

The cabinet must meet minimum size requirements. Airflow must be in accordance with the Electronic Industries Alliance (EIA) standard. Ensure that there is a minimum of 5 inches (12.7 cm) between the intake and exhaust vents and the cabinet wall.

Rack mounting

When you prepare your equipment rack, ensure that the rack is grounded. Ground the equipment rack to the same ground point the power service in your area uses. The ground path must be permanent.

Switch ground

Dell EMC recommends grounding your switch. Use the S5200F-ON Series switch in a CBN.

Fans and airflow

Fan installation is completed as part of the Factory Install based on the stock keeping unit (SKU) type. The S5200F-ON Series switch has SKUs that support the following configurations:

- AC PSU with fan airflow from the I/O to the PSU—normal
- AC PSU with fan airflow from the PSU to the I/O—reverse
- DC fan unit with airflow from the I/O to the PSU—normal
- DC fan unit with fan airflow from the PSU to the I/O—reverse

Be sure to order the fans suitable to support your site's ventilation. Use a single type of airflow fan in your switch. Do not mix reverse and normal airflows in a single switch.

For proper ventilation, position the switch in an equipment rack or cabinet with a minimum of 5 inches (12.7 cm) of clearance around the exhaust vents. The fan speed varies based on internal temperature monitoring. The switch never intentionally turns off the fans.

Power

To connect the switch to the applicable power source, use the appropriate power cable. An AC power cable is included with the switch.

When installing AC or DC switches, follow the requirements of the National Electrical Code ANSI/NFPA 70, where applicable.

The switch is powered-up when the power cable is connected between the switch and the power source.

CAUTION: Always disconnect the power cable before you service the power supply slots. The switch has multiple power cables. Before servicing, ensure that all power cables are disconnected.

CAUTION: On the AC switch, use the power supply cable as the main disconnect device. Ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

NOTE: Module power is software controlled. You do not see module LEDs when the switch powers up in the open network install environment (ONIE).

Storing components

If you do not install your S5200F-ON Series switch and components immediately, properly store the switch and all components following these guidelines:

- Storage location temperature must remain constant. The storage range is from -40° to 70°C (-40° to 158°F).
- Store on a dry surface or floor, away from direct sunlight, heat, and air conditioning ducts.
- Store in a dust-free environment.

NOTE: ESD damage can occur when components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the switch and its accessories. After you remove the original packaging, place the S5200F-ON Series switch and its components on an anti-static surface.

3

S5200F-ON Series switch Installation

To install the S5200F-ON Series (S5232F-ON, S5248F-ON, and S5296F-ON) switch, complete the installation procedures in the order presented in this section.

Always handle the switch and its components with care. Avoid dropping the switch or any field replaceable units (FRUs).

NOTE: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the switch and its components. As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this switch.

Topics:

Unpack

NOTE: Before unpacking the switch, inspect the container and immediately report any evidence of damage.

When unpacking the S5200F-ON Series switch, ensure that the following items are included:

- One S5200F-ON Series switch
- One RJ-45 to DB-9 female cable
- S5296F-ON only: one USB extension cable; male to female
- Two sets of rail kits, no tools needed
- S5232F-ON, S5248F-ON, and S5296F-ON only: Ground lug kit
- Two PSUs
- Four fan units
- Two country- and region-specific AC power cables
- *S5200F-ON Series Set-up Guide*
- *Safety and Regulatory Information*
- *Warranty and Support Information*

1 Place the container on a clean, flat surface and cut all straps securing the container.
2 Open the container, or remove the container top.
3 Carefully remove the switch from the container and place it on a secure and clean surface.
4 Remove all packing material.
5 Inspect the product and accessories for damage.

Rack or cabinet installation

You may either place the switch on a rack shelf or mount the switch directly into a 19" wide, EIA-310- E-compliant rack. Rack mounting includes four-post, two-post, round threaded holes, or square holes. The ReadyRails system is provided for 1U front-rack and two-post installations.

The ReadyRails system includes two separately packaged rail assemblies. To begin installation, separate each rail assembly by sliding the inside rail out of the outside rail.

Do not use the ReadyRails system for the S5296F-ON switch. For the S5296F-ON switch installation instructions, see S5296F-ON four-post rack assembly.

⚠ **WARNING: This guide is a condensed reference. Read the safety instructions in your *Safety, Environmental, and Regulatory* information booklet before you begin.**

NOTE: The illustrations in this section are not intended to represent a specific switch.

NOTE: Do not the use the mounted ReadyRails as a shelf or a workplace.

Rack mount safety considerations

- Rack loading—Overloading or uneven loading of racks may result in shelf or rack failure, possibly damaging the equipment and causing personal injury. Stabilize racks in a permanent location before loading begins. Mount the components starting at the bottom of the rack, then work to the top. Do not exceed your rack's load rating.
- Power considerations—Connect only to the power source specified on the unit. When you install multiple electrical components in a rack, ensure that the total component power ratings do not exceed the circuit capabilities. Overloaded power sources and extension cables are fire and shock hazards.
- Elevated ambient temperature—If you install the switch in a closed rack assembly, the operating temperature of the rack environment may be greater than the room ambient temperature. Use care not to exceed the 45°C (113°F) maximum ambient temperature of the switch.
- Reduced airflow—Do not compromise the amount of airflow needed for safe operation of the equipment. Install the equipment in the rack so that the equipment constantly has the correct amount of airflow surrounding it.
- Reliable earthing—Maintain reliable earthing of rack-mounted equipment. Pay particular attention to the supply connections other than the direct connections to the branch circuit, for example: use of power strips.
- Do not mount the equipment with the fan panel facing in the downward position.

ReadyRails installation

For the S5248F-ON and S5232F-ON switches, you can install the ReadyRails system using the 1U tool-less square-hole method or one of three possible 1U threaded round-hole methods. The tooled installation methods include two-post flush mount, two-post center mount, or four-post threaded mount.

Do not use the ReadyRails system for the S5296F-ON switch. For the S5296F-ON switch installation instructions, see S5296F-ON four-post rack assembly.

To begin installation, separate each rail assembly by sliding the inside rail out of the outside rail.

NOTE: For more installation instructions, see the installation labels attached to the rail assembly.

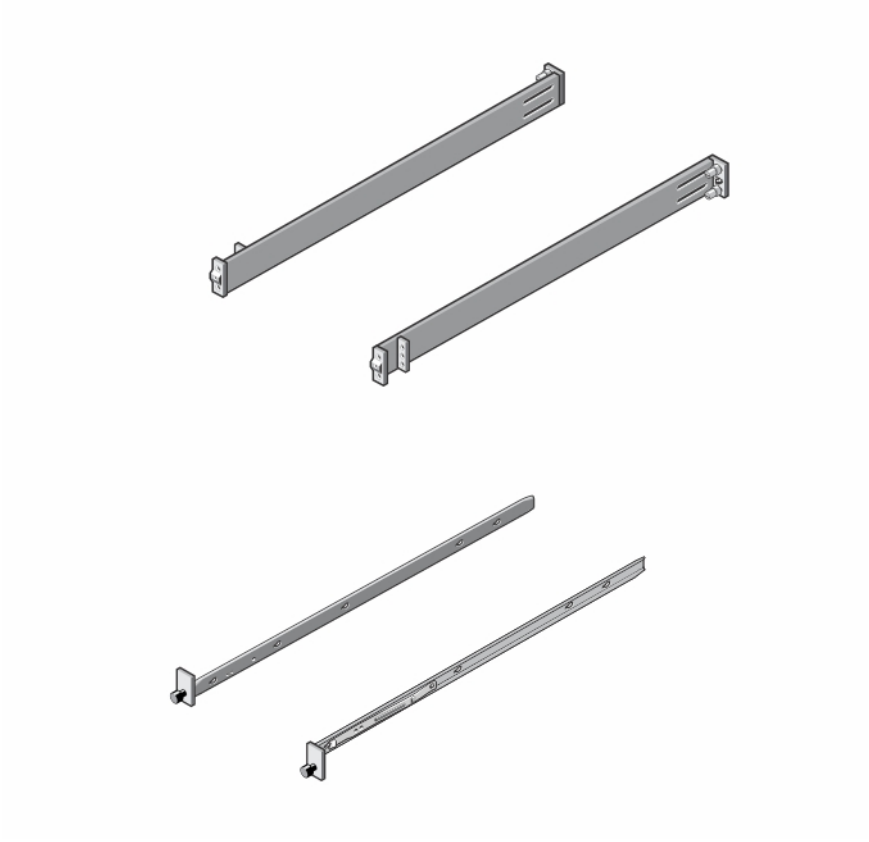

Figure 2. Separate rails

1U Tool-less mount installation

NOTE: For more installation instructions, see the installation labels attached to the rail assembly.

1 Face the ReadyRails flange ears facing outward. Place one rail between the left and right vertical posts. Align and seat the back flange rail pegs in the back vertical post flange.

The center extractions show how the pegs appear in both the square and nonthreaded round holes.

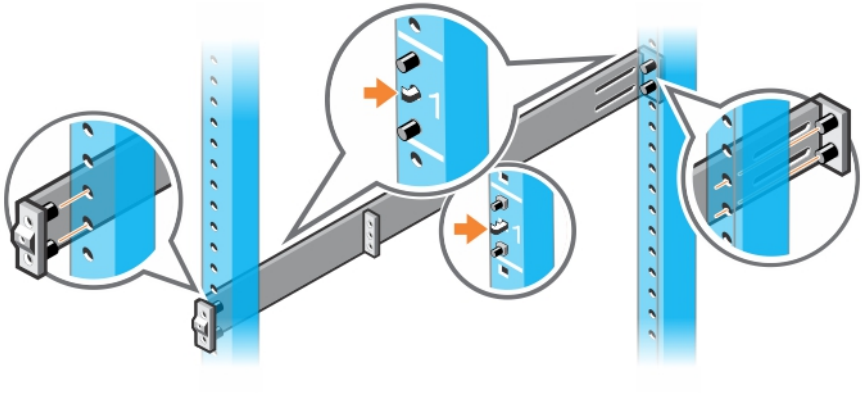

Figure 3. 1U tool-less installation

2 Align and seat the front flange pegs in the holes on the front side of the vertical post.

NOTE: Be sure that the rails click into place and are secure.

3 Repeat this procedure for the second rail.

4 To remove each rail, pull on the latch release button on each flange ear and unseat each rail.

Two-post flush-mount installation

NOTE: For more installation instructions, see the installation labels attached to the rail assembly.

1 For this configuration, remove the latch castings from the front side of each ReadyRails assembly, item 1.

To remove the two screws from each front flange ear on the switch side of the rail and remove each latch casting, use a Torx screwdriver. Retain the latch castings for future rack requirements. It is not necessary to remove the back flange castings.

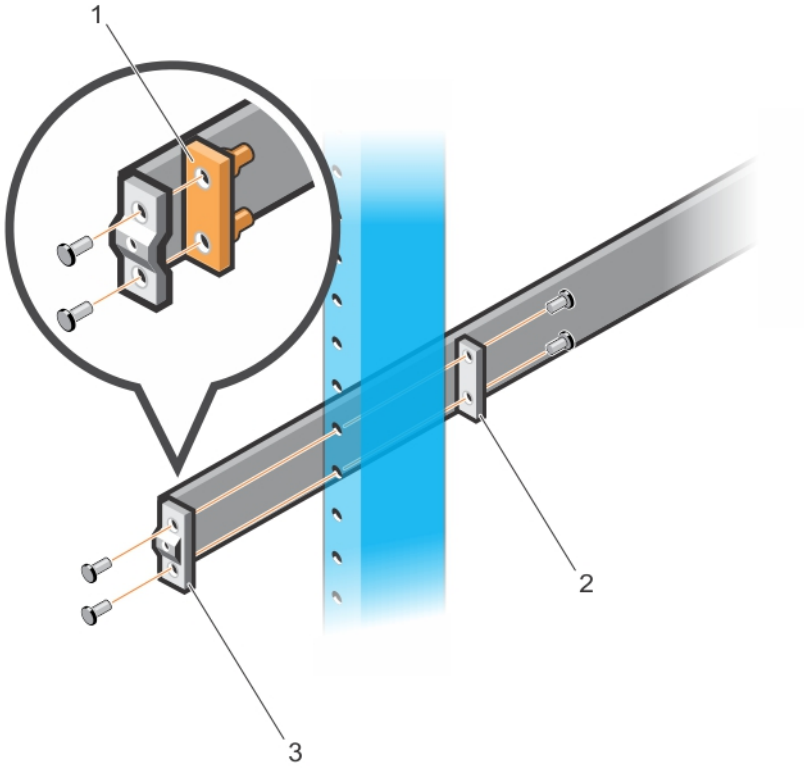

Figure 4. Two-post flush-mount installation

2 Attach one rail to the front post flange with two user-supplied screws, item 2.

3 Slide the plunger bracket forward against the vertical post and secure the plunger bracket to the post flange with two user-supplied screws, item 3.

4 Repeat this procedure for the second rail.

Two-post center-mount installation

NOTE: For more installation instructions, see the installation labels attached to the rail assembly.

1 Slide the plunger bracket rearward until it clicks into place and secure the bracket to the front post flange with two user-supplied screws, item 1.

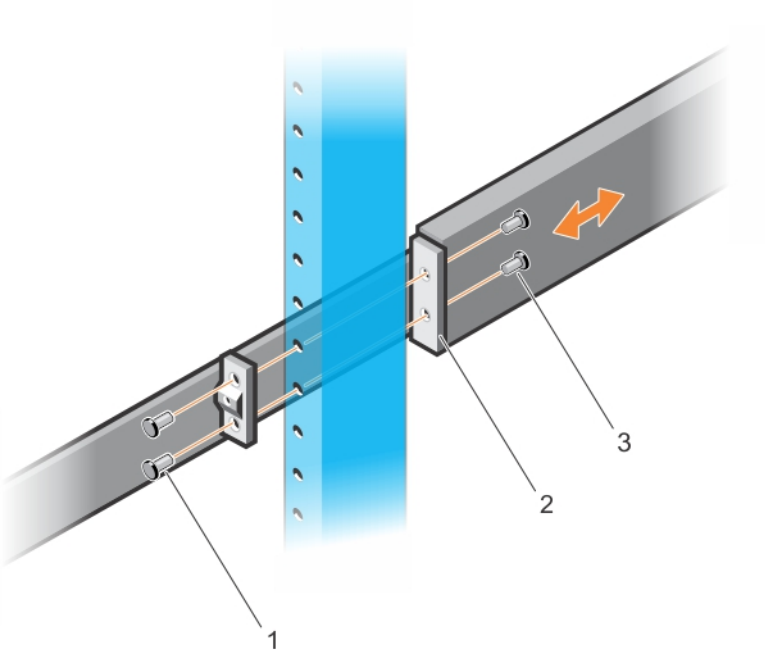

Figure 5. Two-post center-mount installation

2 Slide the back bracket towards the post. Secure it to the post flange with two user-supplied screws, items 2 and 3.

3 Repeat this procedure for the second rail.

Four-post threaded installation

NOTE: For more installation instructions, see the installation labels attached to the rail assembly.

1 Remove the latch castings from each end of the ReadyRails assemblies. To remove the two screws each latch casting, use a Torx driver.

Retain the latch castings for future rack requirements.

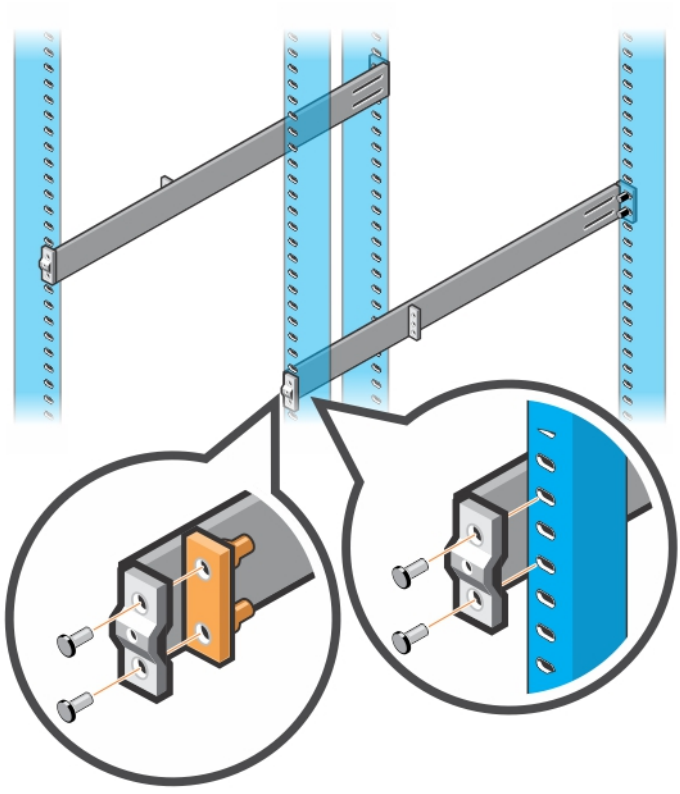

Figure 6. Four-post threaded installation

2 For each rail, attach the front and back flanges to the post flanges with two user-supplied screws at each end.

S5200F-ON Series switch installation

For the 1U two-post configurations for the S5248F-ON and S5232F-ON switches, slide the switch into the rails in the same manner as the four-post configurations.

For the S5296F-ON switch installation, see S5296F-ON four-post rack assembly.

1U front-rack installation

Configure the rails that are attached to the switch.

1 **NOTE: For more information, see the installation instruction labels on the rail.**

Attach the inner switch rails to the S5200F-ON Series switch.

Line up the rail with the mounting heads and attach the rail to the chassis. Slide the rail back until it locks into place. The following shows the detail of the front standoff with the locking tab:

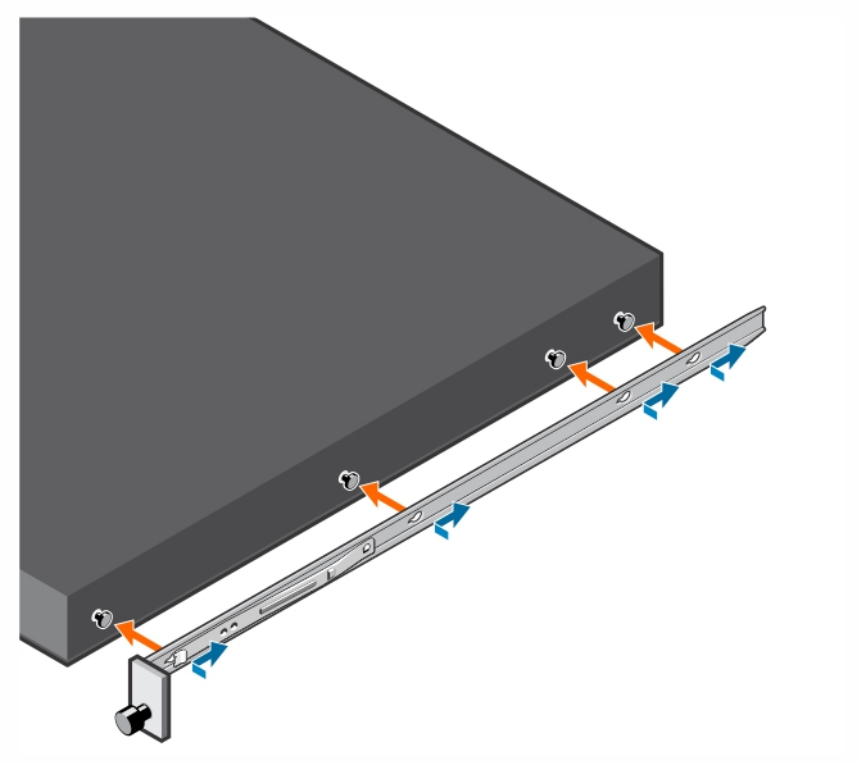

Figure 7. Switch rail attachment

2 After you install both rails, line them up on the ReadyRails. Slide the switch in until it is flush with the front of rack.

About three inches before you fully insert your switch, the rail locking feature engages to keep the switch from inadvertently sliding out and falling.

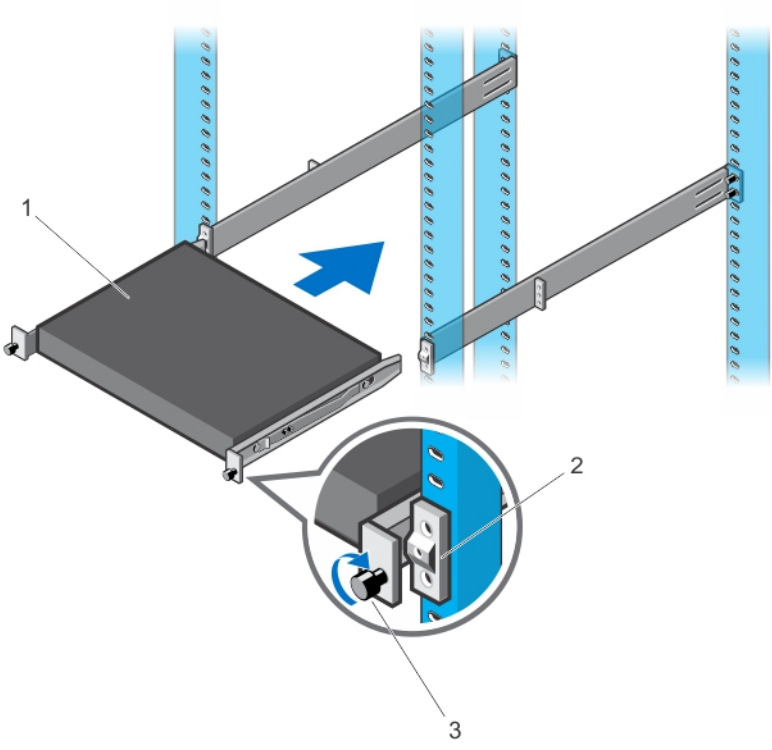

Figure 8. Front rack installation

NOTE: Do not the use the mounted Ready-Rails as a shelf or a workplace.

3 Tighten the two thumb screws and rack screws.

To remove the chassis from the rack or cabinet, press in the two side-release bars on the chassis at the same time and slide the chassis forward.

S5296F-ON four-post rack assembly

Due to the chassis weight, the S5296F-ON switch does not support a two-post rack installation; you must install the S5296F-ON in a four-post rack.

To install in a four-post rack, follow the instructions in your rack frame kit. In a four-post rack, the maximum distance between the front and back vertical posts is 36 inches (91.44 cm); the minimum distance is 24 inches (60.96).

CAUTION: Use two people, an equipment lift, or pallet jack when lifting or moving the chassis. Install the chassis into the rack before inserting the chassis components. Lift the chassis only from the bottom. Lifting by the chassis shelves or power supply openings might damage the chassis.

Four-post rack mount

Rack mounting safety considerations

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, take special precautions to ensure that the chassis remains stable. The following guidelines are provided to ensure your safety:

- If your chassis is the only unit in the rack, mount it at the bottom of the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack comes with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- If the chassis ships with blanks, remove the blanks from each slot before lifting the chassis.

WARNING: These instructions are a condensed reference. Read the safety instructions in your *Safety, Environmental, and Regulatory* information booklet before you begin.

NOTE: The illustrations in this document are not intended to represent a specific switch.

Rack mount safety considerations

- Rack loading—Overloading or uneven loading of racks may result in shelf or rack failure, possibly damaging the equipment and causing personal injury. Stabilize racks in a permanent location before loading begins. Mount the components starting at the bottom of the rack, then work to the top. Do not exceed your rack's load rating.

- Power considerations—Connect only to the power source specified on the unit. When you install multiple electrical components in a rack, ensure that the total component power ratings do not exceed the circuit capabilities. Overloaded power sources and extension cables present fire and shock hazards.
- Elevated ambient temperature—If you install the switch in a closed rack assembly, the operating temperature of the rack environment may be greater than the room ambient temperature. Use care not to exceed the 45°C (113°F) maximum ambient temperature of the switch.
- Reduced airflow—Do not compromise the amount of airflow needed for safe operation of the equipment. Install the equipment in the rack so that the equipment constantly has the correct amount of airflow surrounding it.
- Reliable earthing—Maintain reliable earthing of rack-mounted equipment. Pay particular attention to the supply connections other than the direct connections to the branch circuit, for example; use of power strips.
- Do not mount the equipment with the fan panel facing in the downward position.

Chassis installation and removal

1 Align the chassis with the rails and slide the chassis into the rack.

2 Tighten the screws on each side of the chassis's front panel, items 1 and 2.

3 To remove the chassis from the rack, loosen the screws and slide the chassis out of the rack.

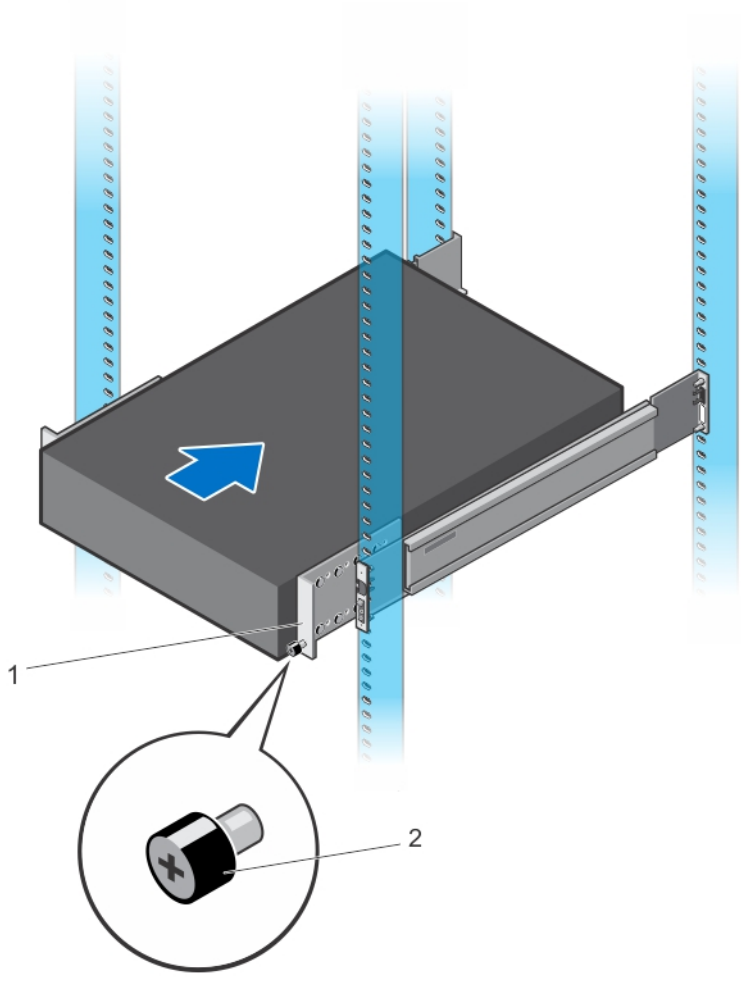

Figure 9. S5296F-ON installation

1	Extra screws to restrict front-back movement of the switch.	2	Main screw

Ground cable

Depending on the type of switch, to attach a ground cable to the switch, use one of the included M3 or M4 screws.

The switch ships with one of the following two configurations:

- One threaded hole using an included M3 screw
- Two threaded holes using one of the two included M4 screws.

In both configurations, the ground cable is not included. To properly ground the switch, Dell EMC recommends a one- or two-hole lug, M3 or M4 hole size. The grounding lugs must be a UL-recognized, crimp-type lug.

CAUTION: Grounding conductors *must* be made of copper. Do not use aluminum conductors.

NOTE: Coat the one-hole lug with an anti-oxidant compound before crimping. Also, bring any unplated mating surfaces to a shiny finish and coat with an anti-oxidant before mating. Plated mating surfaces must be clean and free from contamination.

NOTE: The rack installation ears are not suitable for grounding.

To connect the ground cable to the switch:

1 Cut your user-supplied ground cable to the desired length.

The cable length must facilitate proper operation of the fault interrupt circuits. Use the shortest cable route allowable.

2 Attach the ground cable using one of the following:

- Using one threaded M3 hole, attached the ground cable to the lug using an M3 screw with a captive internal tooth lock washer, as shown. Torque the screw to ±4–5 in-lbs.
- Using one of the two M4 threaded holes, attach the ground cable to the lug. Use an M4 screw with a captive internal tooth lock washer, as shown. Torque the screw to ±5–6 in-lbs.

3 Attach the other end of the ground cable to a suitable ground point such as the rack or cabinet.

The rack installation ears are not a suitable grounding point.

Optics installation

WARNING: When working with optical fibers, follow all warning labels and always wear eye protection. Never look directly into the end of a terminated or unterminated fiber or connector as it may cause eye damage.

1 Position the optic so it is in the correct position.

The optic has a key that prevents it from being inserted incorrectly.

2 Insert the optic into the port until it gently snaps into place.

NOTE: When you cable the ports, be sure not to interfere with the airflow from the small vent holes above and below the ports.

Optics removal

Remove an optic by pushing the tab on the optic and sliding the optic from the port.

When removing optics with direct attach cables (DACs) from the port, pull the release tab firmly and steadily. Before pulling the release tab, you may need to gently push the optic into the port to ensure that it is seated properly. Do not jerk or tug repeatedly on the tab.

Switch power-up

Supply power to the S5200F-ON Series switch after you mount it in a rack or cabinet.

Reinspect your switch before power up. Verify the following:

- The equipment is properly secured to the rack. Dell EMC recommends properly grounding the switch.
- The ambient temperature around the unit, which may be higher than the room temperature, is within the limits specified for the S5200F-ON Series switch, see Specifications.
- There is sufficient airflow around the unit.
- The input circuits are correctly sized for the loads and that you use sufficient overcurrent protection devices.
- All protective covers are in place.

CAUTION: Do not power up the switch if you did not install a fan module.

NOTE: A US AC power cable is included for powering up an AC power supply. You must order all other power cables separately.

NOTE: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the switch and its components.

Power up sequence

When the switch powers up, the fans immediately come on at high speed. The fan speed slows as the switch continues to boot up.

After switch installation

After you have securely installed and powered on the S5200F-ON Series switch:

- If you are using Dell EMC software, see switch documentation at www.dell.com/support.
- If you are using third-party software, see ONIE documentation at www.onie.org.

4

Specifications

This section lists the S5200F-ON Series switch specifications.

CAUTION: Operate the product at an ambient temperature not higher than 45°C (113°F).

CAUTION: Lithium Battery Caution: There is a danger of explosion if the battery is incorrectly replaced. Replace only with same or equivalent type of battery. Dispose of the batteries according to the manufacturer's instructions.

NOTE: For RoHS information, see Restricted Material Compliance.

Chassis physical design

Table 1. Chassis physical design

Parameter	Specifications
Height	S5232F-ON: 1.72 inches (43.6 mm)
	S5248F-ON: 1.72 inches (43.6 mm)
	S5296F-ON: 3.42 (87 mm)
Width	S5232F-ON: 17.1 inches (434 mm)
	S5248F-ON: 17.1 inches (434 mm)
	S5296F-ON: 16.6 inches (422 mm)
Depth	S5232F-ON: 18.1 inches (460 mm)
	S5248F-ON: 18.1 inches (460 mm)

Parameter	Specifications
	S5296F-ON: 20.1 inches (511 mm)
Chassis weight with factory-installed components	S5232F-ON: 21.6 lbs (9.8 kg)—PSUs and fans
	S5248F-ON: 21.4 lbs (9.7 kg)—PSUs and fans
	S5296F-ON: 33.3 lbs (15.1 kg)—PSUs and fans
Rack clearance required	Front: 5 inches (12.7 cm)
	Back: 5 inches (12.7 cm)

Table 2. Environmental parameters

Parameter	Specifications
Operating temperature	0° to 45°C (32°F to 113°F) continuously
	NOTE: Reduce maximum temperature by 1°C/125 meters (1°F/228 feet) above 950 meters (3,117 feet).
Operating humidity	5% to 85% (RH), non-condensing
Storage temperature	–40° to 70°C (–40° to 158°F)
Storage humidity	5% to 90%, non-condensing
Maximum thermal output	S5232F-ON: 635W = 2167 BTU/Hr
	S5248F-ON: 602W = 2054 BTU/Hr
	S5296F-ON: 835W = 2849 BTU/Hr
Maximum operational altitude	10,000 feet (3,048 meters)
Maximum non-operational altitude	39,370 feet (12,000 meters)

Parameter	Specifications
Shock	Dell EMC Spec SV0115

Table 3. AC power requirements

Parameter	Specifications
Power supply	S5232F-ON: 100–240 VAC 50/60 Hz
	S5248F-ON: 100–240 VAC 50/60 Hz
	S5296F-ON: 100–240 VAC 50/60 Hz
Maximum current draw per system	S5232F-ON: 7A@110VAC and 3.5A@220VAC
	S5248F-ON: 7A@110VAC and 3.5A@220VAC
	S5296F-ON: 10A@110VAC and 5A@220VAC
Maximum power consumption	S5232F-ON: 684W maximum
	S5248F-ON: 641W maximum
	S5296F-ON: 894W maximum
Typical power consumption	S5232F-ON: 479W typical
	S5248F-ON: 449W typical
	S5296F-ON: 626W typical

Table 4. DC power requirements

Parameter	Specifications
Minimum and maximum input voltage range	–40VDC minimum
Maximum current at full load with fan	S5232F-ON: 19.5A @40VDC

Parameter	Specifications
	S5248F-ON: 18.2A @40VDC
	S5296F-ON: 25.5A @40VDC

5

Support

The support site provides documents and tools to help you effectively use your equipment and mitigate network outages. Through the support site you can obtain technical information, access software upgrades and patches, download available management software, and manage your open cases. The support site provides integrated, secure access to these services.

To access the support site, go to www.dell.com/support/. To display information in your language, scroll down to the bottom of the web page and select your country from the drop-down menu.

- To obtain product-specific information, enter the 7-character service tag, known as a luggage tag, or 11-digit express service code of your switch and click **Submit**.

  To view the chassis service tag or express service code, pull out the tag or enter the `show chassis` command from the CLI.
- To receive more technical support, click **Contact Us**. On the Contact Information web page, click **Technical Support**.

To access switch documentation, go to www.dell.com/manuals/.

To search for drivers and downloads, go to www.dell.com/drivers/.

To participate in community blogs and forums, go to www.dell.com/community.