S4200-ON Series Installation Guide

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DELL EMC

Notes, cautions, and warnings

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

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.

Contents

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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.

NOTE: 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.

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

Figure 1. Class 1 laser product tag

NOTE: 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 S4248FB-ON is represented by the regulatory model E22W and the regulatory Type E22W001.
- Marketing model S4248FBL-ON is represented by the regulatory model E22W and the regulatory Type E22W002.

Topics:

Related documents

For more information about the S4200-ON Series (S4248FB-ON and S4248FBL-ON), see the following documents:

- *OS10 Enterprise Edition Release Notes*
- *OS10 Enterprise Edition User Guide*
- *S4200-ON Series Set-up Guide*
- *Open Networking Hardware Diagnostic Guide*
- *S4200-ON Series Release Notes*

NOTE: For the most recent documentation, visit Dell EMC support: 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.

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

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

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S4200-ON series switch

The following sections describe the Dell EMC S4200-ON Series (S4248FB-ON and S4248FBL-ON).

Topics:

Introduction

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) is a one rack unit (RU) compact full-featured high-density 10/25/40/100GbE switch. The switch includes 40 small form-factor pluggable plus (SFP+) optics, six quad form-factor pluggable 28 (QSFP28) optics (100GbE, 4x25GbE, 40GbE, and 4x10GbE), and two QSFP+ optics for 40/100GbE aggregation and 1/10GbE top-of-rack (ToR) and end-of-row (EoR) applications.

The S4200-ON Series supports the following configurations:

- 48 x 10GbE + 6 x 100GbE
- 40 x 10GbE + 8 x 40GbE
- 48 x 10GbE + 12 x 50GbE
- 48 x 10GbE + 24 x 25GbE
- 72 x 10GbE
- 40 x 10GbE + 2 x 40GbE + 6 x 100GbE

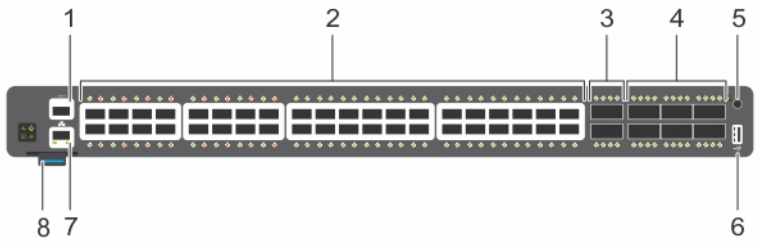

Figure 2. S4200-ON Series I/O-side view

1. RS-232 console port
2. 40 SFP+ optical ports
3. Two QSFP+ optical ports
4. Six QSFP28 optical ports
5. ESD Jack
6. USB Type A
7. Ethernet management port
8. Luggage tag

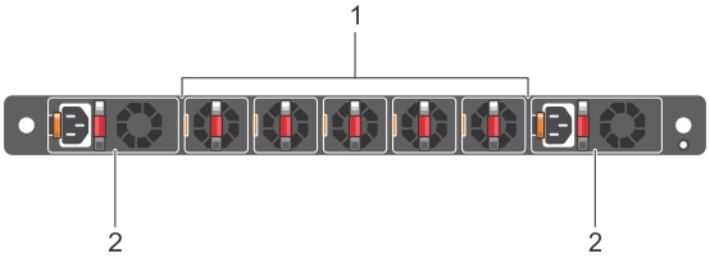

Figure 3. S4200-ON Series PSU-side view

1. Five hot-swappable fan units
2. Two hot-swappable PSUs with integrated fans

Features

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) offers the following features:

- Forty 1/10GbE fixed SFP+ ports
- Two QSFP+ ports supporting 40GbE or 4x10GbE breakout
- Six QSFP28 ports
- One RJ-45 console port
- One USB Type-A 2.0 port for additional file storage
- One ESD Jack
- TCAM: on-board Rangeley central processing unit (CPU) system with 32GB DDR III RAM, 64GB iSLC mSATA SSD
- Non-TCAM: on-board Rangeley CPU system with 8GB DDR III RAM, 16GB iSLC mSATA SSD
- Two hot-swappable redundant power supplies
- Five hot-swappable fans modules
- Standard 1U switch

Physical dimensions

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) has the following physical dimensions:

- 434 x 462 x 44 mm (W x D x H)
- 17.1 x 18.2 x 1.72 inches (W x D x H)
- PSU and fan module Handle: 1.57 inches (40 mm)

LED display

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) includes LED displays on the I/O side of the switch.

For more LED information, see your third-party operating software documentation.

LED behavior

The following S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch LED behavior displays during open networking installation environment (ONIE) operations:

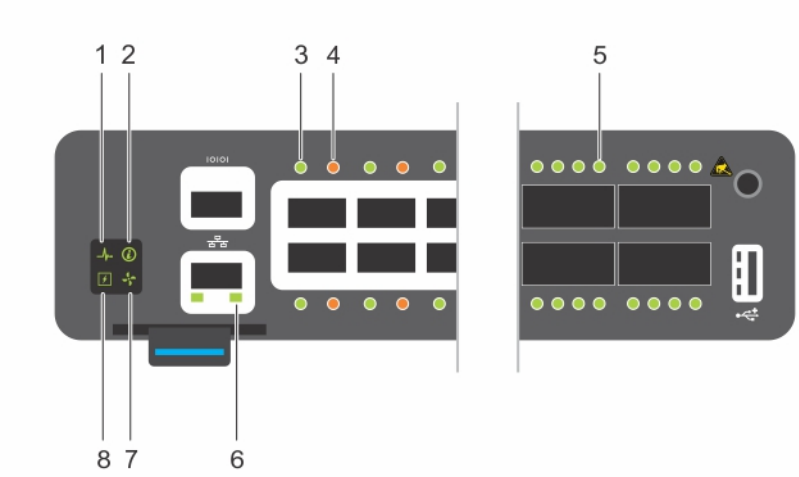

Figure 4. S4200-ON Series LEDs

1. System LED
2. Locator LED
3. Link Port LED
4. Activity Port LED
5. QSFP28 Port LED
6. RJ-45 Ethernet Port LED: Left is link; right is activity.
7. Fan LED
8. Power LED

Table 1. S4200-ON series LED behavior

LED	Description
System Status/Health LED	• Solid green—Normal Operation • Blinking green—Booting • Solid yellow—Critical system error • Blinking yellow—Noncritical system error, fan failure, or power supply failure
Power LED	• Off—No power • Solid green—Normal • Solid yellow—POST is in process • Blinking yellow—Power supply failed
FAN LED	• Solid green—Fan powered and running at the expected RPM • Blinking yellow—Fan failed, including incompatible airflow direction when you insert the PSU or fan trays with differing airflows • Off—No power
LOCATOR LED/System beacon	• Off—Locator function is disabled • Blinking blue—Locator function is enabled
RJ-45 Ethernet LED	• Off—no link and no activity detected • On—Activity on the port • Solid yellow—10MHz activity • Solid green—100MHz activity • Blinking green—1GHz activity

Table 2. Management Ethernet port LEDs

LED	Description
Link LED	• Off—No Link • Solid green—Link operating at a maximum speed, autonegotiated/forced or 1G • Solid yellow—Link operating at a lower speed, autonegotiated/forced or 10/100M
Activity LED	• Off—No Link • Flashing green—Port activity

Table 3. SFP+ port LEDs

LED	Description
Link LED	• Off—No Link • Solid green—Link operating at maximum speed, 10G • Solid yellow — Link operating at a lower speed, 1G • Flashing yellow, 1 second on/off—Port beacon
Activity LED	• Off—No Link • Flashing green—Port activity

NOTE: There are four LEDs for each QSFP+ and QSFP28 port. For each port, 100GbE or 40GbE uses only one LED, 2x50GbE uses two LEDs, and 4x25GbE or 4x10GbE uses all four LEDs.

Table 4. QSFP+ and QSFP28 port LEDs

LED	Description
Link/Activity LED	• Off—No Link • Flashing green—Port activity operating at maximum speed, 100G for QSFP28 ports or 40G for QSFP+ ports • Flashing yellow—Port activity operating at a lower speed • Flashing yellow, 1 second on/off—Port beacon
Link/Activity LED—4x25G mode or 4x10G mode	• Off—No Link • Flashing green—Port activity at 4x25G on a QSFP28 port or 4x10G on a QSFP+ port • Flashing yellow—Port activity at 4x10G on a QSFP28 port • Flashing yellow, 1 second on/off—Port beacon
Link/Activity LED—2x50G	• Of —No Link • Flashing yellow—Port activity at 2x50G on a QSFP28 port • Flashing yellow, 1 second on/off—Port beacon

Prerequisites

The following is a list of required and optional components for the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch:

NOTE: Detailed installation instructions for the S42400-ON Series are provided in Site Preparations and Install the S4200-ON Series.

- S4200-ON Series (S4248FB-ON or S4248FBL-ON) switch or multiple switches, if stacking
- AC country- and regional-specific cables to connect the AC power source to each of the switches' AC power supplies
- Mounting brackets for rack installation, included
- Screws for rack installation
- #1 and #2 Phillips screw drivers, not included

- Torx screwdriver, not included
- Ground cable screws, included
- Copper or fiber cables

Other optional components are:

- Ground cable and lug for the frame-end of the ground cable
- Extra power supply unit
- Extra fan module
- Extra mounting brackets if installing in a four-post rack or cabinet

S4200-ON configurations

You can order the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch in several different configurations.

- S4248FB–ON or S4248FBL-ON AC normal airflow: Forty 1/10GbE SFP+ ports, two 40GbE or 4x1/10GbE QSFP+, and six 100/40GbE or 4x25/10GbE or 2x50GbE QSFP28 ports, two AC power supplies, and five fan subsystems with airflow from the I/O side to the power supply side
- S4248FB–ON or S4248FBL-ON AC reverse airflow: Forty 1/10GbE SFP+ ports, two 40GbE or 4x1/10GbE QSFP+, and six 100/40GbE or 4x25/10GbE or 2x50GbE QSFP28 ports, two AC power supplies, and five fan subsystems with airflow from the power supply side to the I/O side
- Fan with airflow from the I/O side to the PSU side
- Fan with airflow from the PSU side to the I/O side
- AC Power supply with airflow from the I/O side to the PSU side—normal
- AC Power supply with airflow from the PSU side to the I/O side—reverse
- DC Power supply with airflow from the I/O side to the PSU side—normal
- DC Power supply with airflow from the PSU side to the I/O side—reverse

Luggage tag

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch has a pull-out tag, known as a luggage tag, on the I/O-side of the switch. The front of the luggage tag includes switch ID information. The back of the luggage tag includes a QRL that takes you to a Dell EMC How-To site where you can watch videos about racking the switch, replacing components, configuring port channels, and so on.

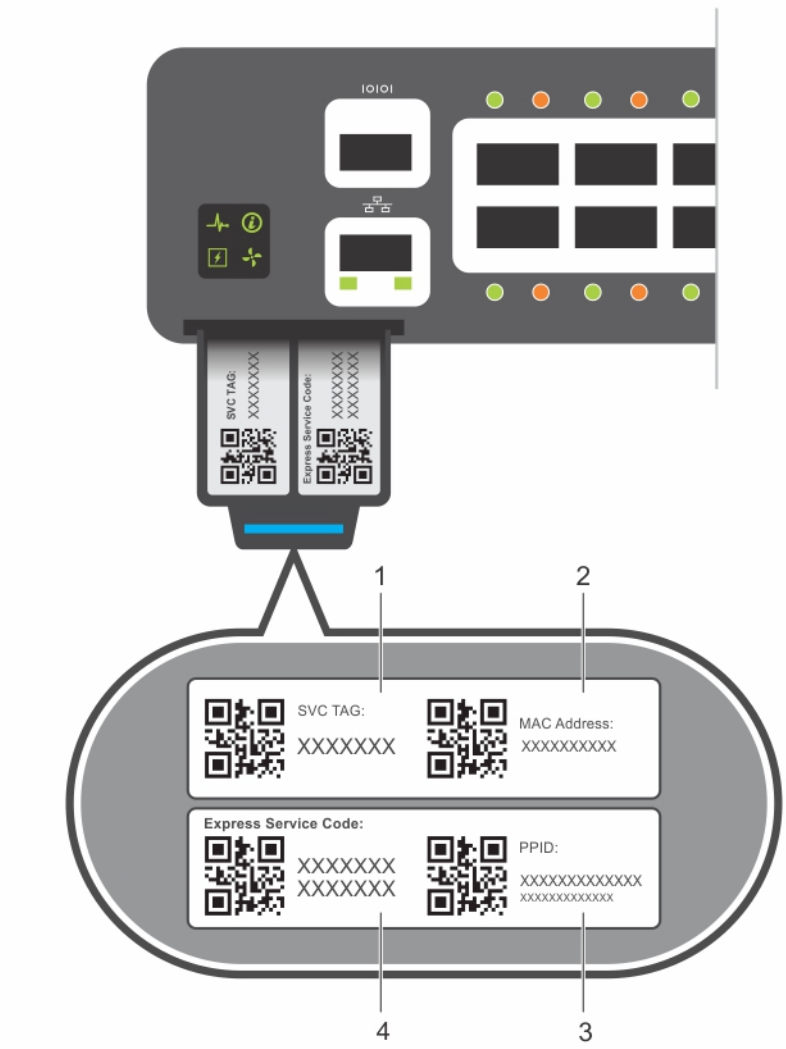

Figure 5. S4200-ON Series luggage tag

1. SVC Tag
2. MAC Address
3. PPID
4. Express Service Code

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Site preparations

The S4200-ON Series (S4248FB-ON and S4248FBL-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 switch specifications, see Specifications.

NOTE: Install the S4200-ON Series switch in a rack or cabinet before installing any optional components.

Topics:

Site selection

Install Dell EMC equipment in restricted access areas.

A restricted access area is one in which 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 S4200-ON Series 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.
- Switch environmental temperature range is from 0° to 45°C (32° to 113°F).
- Relative humidity is from 5 to 90 percent noncondensing.
- In a dry, clean, well-ventilated and temperature-controlled room, away from heat sources such as hot air vents or direct sunlight.
- Away from sources of severe electromagnetic noise.
- Inside the restricted access area, 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 S4200-ON Series (S4248FB-ON and S4248FBL-ON) 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 S4200-ON Series switch in a CBN.

Connect the grounding cables as described in S4200–ON Series Installation.

Fans and airflow

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch fans support two airflow options: normal and reverse.

Fan combinations

Installation of the fans is done as part of the factory install based on stock keeping unit (SKU) type. The S4200-ON Series has SKUs that support the following configurations:

- AC or DC PSU with fan airflow from the I/O to the PSU—the red indicator is the normal airflow.
- AC or DC PSU with fan airflow from the PSU to the I/O—the blue indicator is the reverse airflow.

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 S4200-ON Series 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. When you install two S4200-ON Series switches near each other, to permit proper airflow, position the two switches at least 5 inches (12.7 cm) apart. The fan speed varies based on internal temperature monitoring. The S4200-ON Series never intentionally turns off the fans.

For more information, see Fans.

Power

Use the appropriate power cord with the S4200-ON Series (S4248FB-ON and S4248FBL-ON) when connecting the switch to the power source. An AC power cord is included with each PSU.

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 cord is connected between the switch and the power source. For more information, see Power Supplies.

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

CAUTION: Use the power supply cord as the main disconnect device on the AC switch. 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 ONIE.

Component storage

If you do not install your S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch and components immediately, properly store the switch and all optional components by following these guidelines:

- Storage location temperature must remain constant. The storage range is from -40°C to 70°C (-40°F 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 S4200-ON Series switch and its accessories. After you remove the original packaging, place the S4200-ON Series switch and its components on an anti-static surface.

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NEBS compliance

For your switch to be network equipment building system (NEBS) compliant, you must follow the instructions detailed in this section.

To be NEBS compliant, orient your switch in the rack so that the air inlet is from the front aisle and the air exhaust is to the back aisle.

Topics:

Important information

WARNING: The SFP+, QSFP, QSFP28, console, Ethernet management, and universal serial bus (USB) ports are suitable for connection to intrabuilding or unexposed wiring or cabling only. You MUST NOT metallically connect the ports to interfaces that connect to the out side plant (OSP) or its wiring. Use these interfaces as intrabuilding interfaces only (Type-2 or Type-4 ports as described in GR-1089-CORE, Issue 6) and they require isolation from the exposed OSP cabling. Adding primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

WARNING: If you install and connect the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch to a commercial AC power source, you must connect the switch to an external special protection device (SPD).

To be NEBs compliant:

- Locate your switch in a restricted-access area were only trained personnel are allowed access.
- Install and connect your switch to the common bonding network (CBN).
- You can also install and connect your switch to the central office.
- Connect the battery returns of your switch as DC-I.
- Ground your switch using a copper ground conductor.
- Clean and coat all bare grounding connection points on your switch with an antioxidant solution before making connections.
- Bring all unplated ground connection surfaces on your switch to a bright finish and treat them with an antioxidant solution before making connections.
- To ensure electrical continuity, remove any nonconductive surfaces on your switch from the ground connection points and threaded holes used to secure the ground lugs.
- Use the two-hole, Listed, compression-type lug with an AWG 14 gauge wire for switch grounding.

NOTE: The S4200-ON Series can operate at -40.5 VDC to -60 VDC at a maximum current level of 15A.

NOTE: The S4200-ON Series is Earthquake Z4-compliant when you attach the ReadyRails to the frame using threaded hardware. Do not use tool-less installation method.

NEBS-compliant ground installation

Before you install the switch into a rack, install the ground (GND) lug assembly.

Your switch includes an assembled UL-certified GND lug with bracket, packaged separately. If any parts are missing, contact your Dell EMC sales representative.

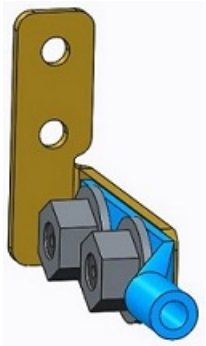

Figure 6. GND lug assembly

1. Remove the two installed M3 screws from the lower-left side of your switch.

   NOTE: Keep these screws.

2. Remove the bracket assembly from the shipping bag.
3. Clean the bracket and lug surfaces thoroughly and apply an anti-oxidant solution to the mating surfaces.
4. Attach the switch ground using the Ground cable instructions.
5. Using the two removed screws, attach the GND lug bracket assembly to your switch, as shown.
   Torque the M3 screws to ±4-5 in-lbs.

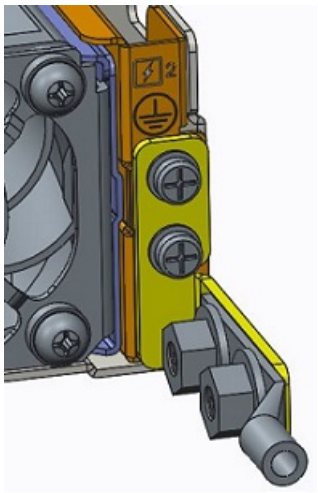

Figure 7. Attach the GND lug assembly

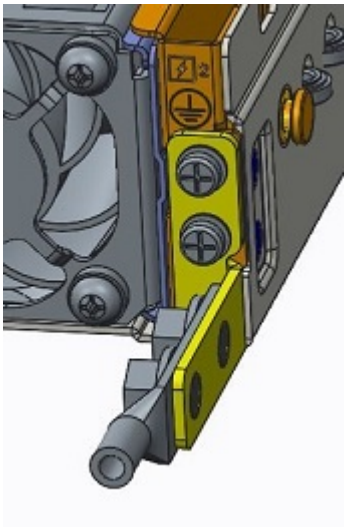

Figure 8. GND lug assembly attached

6. Install your switch into your rack using the Switch installation instructions.

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S4200-ON Series installation

To install the S4200-ON Series (S4248FB-ON and S4248FBL-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 its 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 S4200-ON Series 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 the switch

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

When unpacking the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch, make sure that the following items are included:

- One S4200-ON Series (S4248FB-ON or S4248FBL-ON) switch
- One RJ-45 to DB-9 female cable
- Two sets of rail kits, no tools required
- Two PSUs and power cords
- Five fan units
- Two country- and region-specific AC power cords
- *S4200-ON Series Set-up Guide*
- *Safety and Regulatory Information*
- *Warranty and Support Information*

Unpack

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.

CAUTION: Your switch is not NEBS Earthquake Z4-compliant if you use the 1U tool-less square-hole or two-post installation methods.

WARNING: This document 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 cords 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 maximum ambient temperature of the switch.
- Reduced air flow—Do not compromise the amount of airflow required 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 downward.

ReadyRails Installation

To easily configure your rack for installation of your S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch, use the ReadyRails rack mounting system provided.

You can install the ReadyRails system using the 1U tool-less square-hole method or one of three possible 1U threaded round-hole methods—2-post flush mount, 2-post center mount, or 4-post mount.

CAUTION: Your switch is not NEBS Earthquake Z4-compliant if you use the 1U tool-less square-hole installation method.

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.

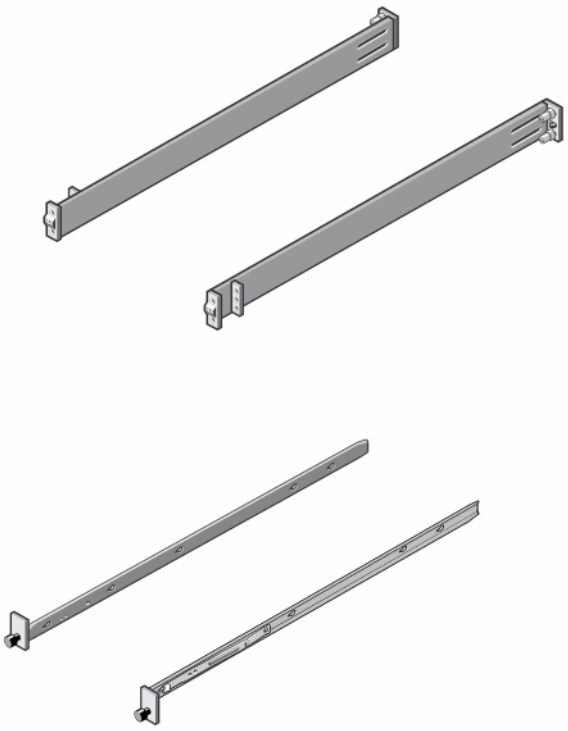

Figure 9. Separate rails

Tool-less non-threaded mount installation

CAUTION: Your switch is not NEBS Earthquake Z4-compliant if you this installation method.

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

1. With 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. In the following illustration, item 1 and its extractions show how the pegs appear in both the square and nonthreaded round holes.

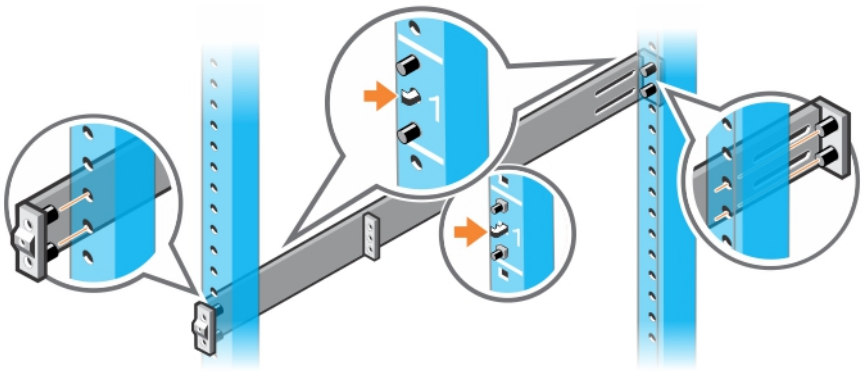

Figure 10. 1U tool-less nonthreaded square hole installation

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.

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

Two-post flush-mount installation

CAUTION: Your switch is not NEBS Earthquake Z4-compliant if you this installation method.

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

1. For this installation, remove the tool-less latch castings from the front side of each ReadyRails assembly, see item 1.

   Use a Torx screwdriver to remove the two screws from each front latch on the switch side of the rail. Remove the tool-less latch casting. Retain the castings for future rack requirements. Do not remove the back latch castings.

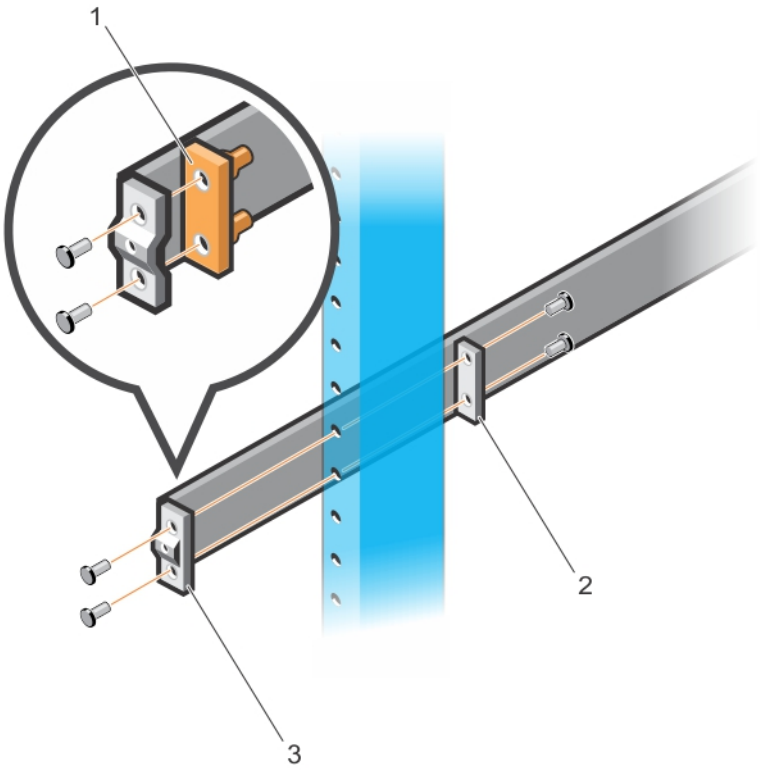

Figure 11. Two-post center-mount threaded round-hole installation

2. Slide the back bracket towards the post. Secure it with two user-supplied screws, see item 2.
3. Slide the front bracket forward against the front of the vertical post and secure it to the post flange with two user-supplied screws, see item 3.
4. Repeat this procedure for the second rail.

Two-post center-mount installation

CAUTION: Your switch is not NEBS Earthquake Z4-compliant if you this installation method.

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

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

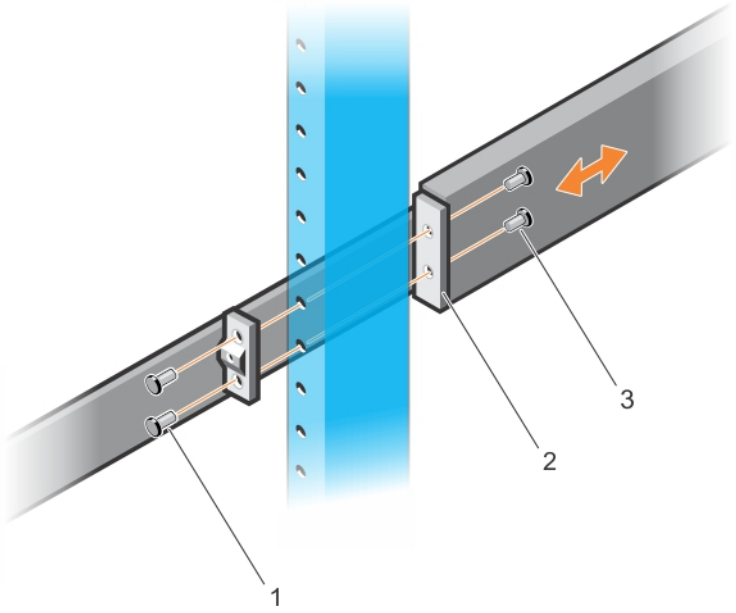

Figure 12. Two-post center-mount threaded round-hole installation

2. Slide the back bracket towards the post. Secure it to the post flange with two user-supplied screws, see items 2 and 3.
3. Repeat this procedure for the second rail.

Four-post threaded installation

NOTE: To be NEBS Earthquake Z4-compliant, you must remove the tool-less latch castings described in Step 1.

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

1. For this installation, remove the tool-less latch castings from the front side of each ReadyRails assembly, see item 1.
   Use a Torx screwdriver to remove the two screws from each front latch on the switch side of the rail. Remove the tool-less latch casting. Retain the castings for future rack requirements.

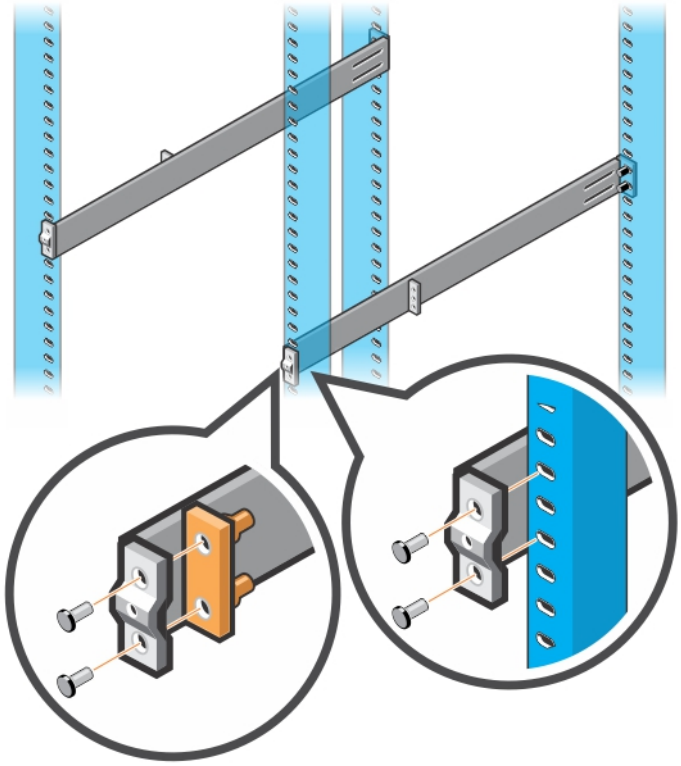

Figure 13. Four-post threaded round-hole installation

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

S4200-ON Series switch installation

You can mount the switch in the 1U front-rack or 1U two-post flush or center configurations. The following is an example of a front-rack configuration:

For the 1U two-post configurations, slide the switch into the rails in the same manner as the four-post configurations.

1U front-rack installation

Configure the rails that are attached to the switch.

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

   Attach the inner switch rails to the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch.

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

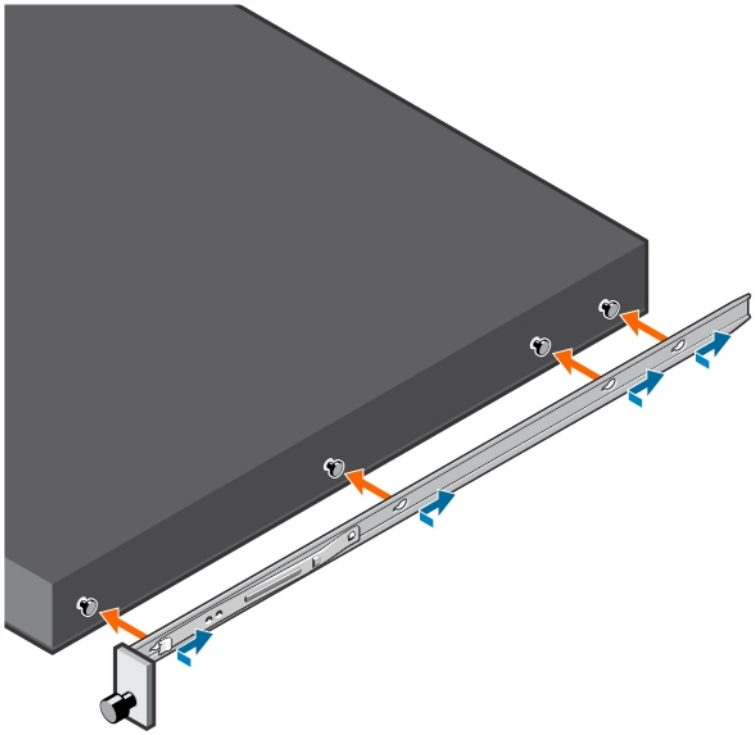

Figure 14. Attach switch rail

2. After installing both switch rails, line them up on the previously mounted ReadyRails and slide the switch in until it is flush with front of rack.

   To keep the switch from inadvertently sliding out of the rack and falling, about three inches before you fully insert your switch, the rail locking feature engages.

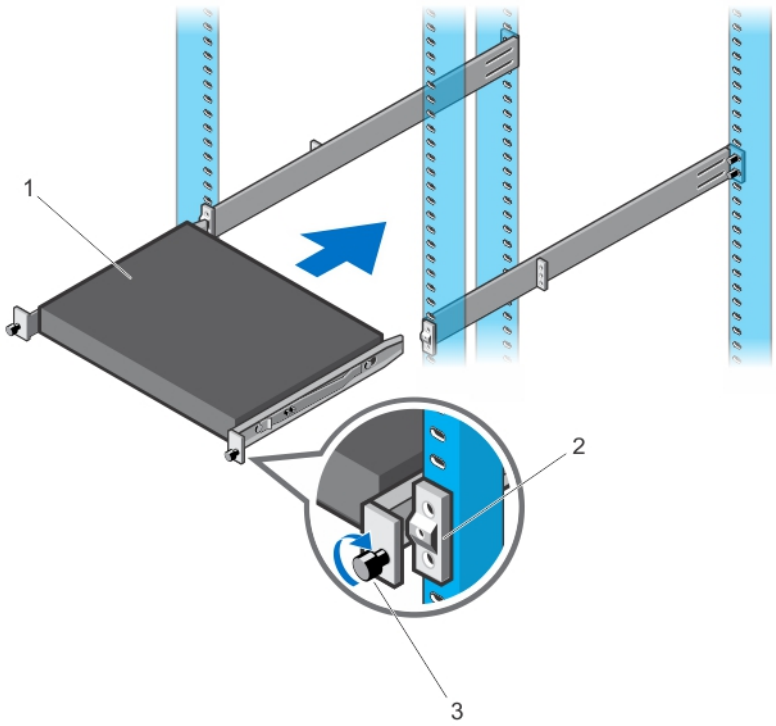

Figure 15. Front rack installation

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

Ground cable

NOTE: For AC-powered switches, although the third conductor of the AC power cord provides a ground path, Dell EMC recommends grounding your switch with a dedicated ground wire.

NOTE: For DC-powered switches, the only way to safely ground your switch is to attach a dedicated ground wire.

Depending on the type of switch, to attach a ground cable to the switch, you need M3 or M4 screws.

The switch ships with one of the following two configurations:

- One threaded hole using an M3 screw.
- Two threaded holes using one of the two 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 ground 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.

1. Cut the ground cable (not included) to the desired length. The cable length must facilitate proper operation of the fault interrupt circuits. Use the shortest cable route allowable.
2. To attach the ground cable, use 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. 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. 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

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch has 40 SFP+ optical ports, two QSFP+ optical ports, and six QSFP28 optical ports.

For a list of supported optics, see the S4200-ON Series data sheet at www.dell.com/support or contact your Dell EMC representative.

CAUTION: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4200-ON Series and its components.

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. Prior to 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 S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch after you mount it in a rack or cabinet.

Dell EMC recommends reinspecting your switch before powering 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 S4200–ON, 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.
- Blank panels are installed if you do not install optional modules.

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 S4200-ON Series 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

To configure your switch, after you have securely installed and powered on the S4200-ON Series switch, see your open network installation environment (ONIE)-compatible operating system documentation at http://onie.org. For more information about working with the ONIE environment, see your switch documentation at www.dell.com/support.

Switch replacement

The following steps describe removing and replacing a switch. For further assistance when replacing a switch, contact your Dell EMC support representative.

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

1. Back up the switch configuration to your back-up computer or laptop TFTP server.

   ```
   copy running-config tftp://hostip/filepath
   ```

   To establish a console connection to the switch CLI, assign an IP address on the switch network.
2. Disconnect the power source.
3. Label and remove all cables.
4. Remove the switch from the rack.

   At the same time, press in the two side-release bars on the switch and slide the switch forward.

   If you are using the fan trays or PSUs in the replacement switch, remove them from the switch.
5. Unpack the new switch.

   For more information, see Unpack.
6. Confirm that the software version of the replacement switch is the same as the previously installed switch.

   ```
   show os-version
   ```

   If the software versions do not match, upgrade the replacement switch software using the procedure included with the firmware download.
7. Copy the backed-up switch configuration to the new switch.

   ```
   copy tftp://hostip/filepath running-config
   ```
8. Install the new switch in your rack or cabinet.

   For detailed installation instructions, see S4200-ON Series installation.

   If you are using the fan trays or PSUs from the removed switch, reinsert them in the replacement switch.
9. Connect all the cables.
10. Power on the switch.

    For more information, see Switch power up.

6

Power supplies

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch ships with two AC or DC power supplies.

The S4200-ON Series switch supports AC or DC power supplies with two air-flow directions, normal and reverse. Normal is from the I/O to the PSU side. Reverse is from the PSU side to the I/O side. Two PSUs are required for full redundancy, but the switch can operate with a single PSU.

The PSUs are field replaceable. When running with full redundancy—two power supplies installed and running, you can remove and replace one PSU without disrupting traffic.

CAUTION: To prevent electrical shock, ensure that the S4200-ON Series switch is grounded properly. If you do not ground your equipment correctly, excessive emissions may result. Use a qualified electrician to ensure that the power cables meet your local electrical requirements.

NOTE: Connect the power supply to the appropriate branch circuit protection as defined by your local electrical codes and verify that the remote power source complies with the switch input power specifications.

NOTE: If you use a single PSU, install a blank plate in the other PSU slot. Use power supply 2 (PSU2) as the blank plate slot. To install the blank plate, use a #1 Philips screw driver.

NOTE: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4200-ON Series switch and its components.

Topics:

Components

The following power supply options are available for the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch:

- AC or DC power supply with integrated fan
- AC or DC power supply with integrated reverse flow fan

Power supply 1 (PSU1) is on the left side of the switch; power supply 2 (PSU2) is on the right side of the switch.

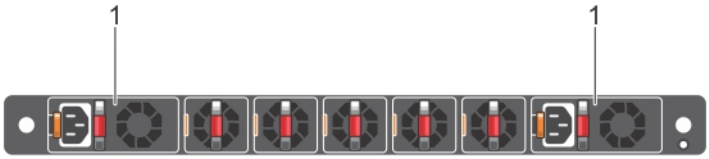

Figure 16. S4200-ON Series PSUs

1. PSUs

The PSUs have an integrated fan, which you cannot replace individually; if the fans integrated in a PSU fail, you must replace the entire PSU. However, you can replace the fan trays individually. For fan tray replacement procedures, see Fans.

WARNING: Prevent exposure and contact with hazardous voltages. Do not attempt to operate this switch with the safety cover removed.

CAUTION: Remove the power cable from the PSU before removing the PSU. Also, do not connect the power cable before you insert the PSU in the switch.

NOTE: To comply with the GR-1089 Lightning Criteria for Equipment Interfacing with AC Power Ports, use an external surge protection device (SPD) at the AC input of the router.

PSU LEDs

- Solid green—input is OK.
- Flashing yellow—there is a fault with the PSU.
- Flashing green, five times and off—there is a PSU mismatch.
- Flashing green—system update.
- Off—PSU is off.

AC or DC power supply installation

NOTE: The PSU slides into the slot smoothly. Do not force a PSU into a slot as this action may damage the PSU or the S4200-ON Series switch.

NOTE: Ensure that you correctly install the PSU. When you install the PSU correctly, the power connector is on the right side of the PSU.

NOTE: If you use a single PSU, install a blank plate in the other PSU slot. If you are only using one power supply, install the power supply in the first slot, PSU1. Install a blank plate in the second slot, PSU2.

1. Remove the PSU slot cover using a small #1 Phillips screwdriver.
2. Remove the PSU from the electro-static bag.
3. Insert the PSU into the switch PSU slot.

   Insert the exposed PCB edge connector first. The PSU slot is keyed so that the PSU can only be fully inserted in one orientation.

   When you install the PSU correctly, it snaps into place and is flushed with the back of the switch.

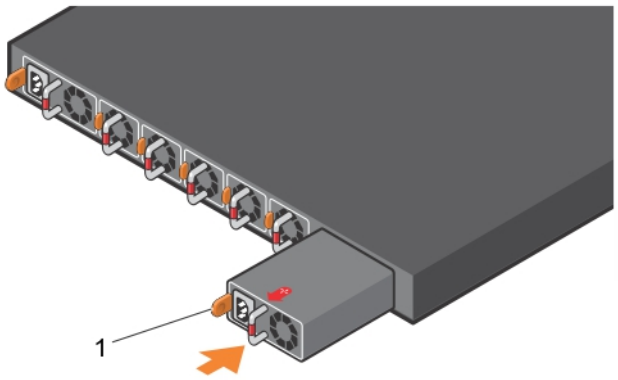

Figure 17. PSU installation

a. Orange release tab

4. Plug in the appropriate AC three-prongs cord from the switch PSU to the external power source.
5. Repeat steps 1 through 4 if you have a redundant PSU.

NOTE: The S4200-ON Series switch powers up when you connect the cables between the power supply and the power source.

AC or DC power supply replacement

CAUTION: Disconnect the power cord before removing the power supplies. Also, disconnect all power cords before servicing.

NOTE: The PSU slides into the slot smoothly. Do not force a PSU into a slot as this action may damage the PSU or the S4200-ON Series switch.

NOTE: If a PSU fails, you must replace the entire unit. There are no field serviceable components in the PSU. To request a hardware replacement, see Dell EMC support.

NOTE: If you use a single PSU, install a blank plate in the other PSU slot. If you are only using one power supply, install the power supply in the first slot, PSU1. Install a blank plate in the second slot, PSU2.

1. Disconnect the power cable from the PSU.
2. Use the grab handle to slide the PSU out of the power supply bay.
3. Use the grab handle on the replacement PSU to slide it into the power supply bay.
4. Attach the power cord to the replacement PSU.

   NOTE: The switch powers up when the cables are connected between the power supply and the power source.

Connect DC power supply to power source

Each DC powered switch comes with a set containing a prewired, 3-inch 8 AWG, power supply connector and a four-screw wiring block. One set is provided for each DC PSU.

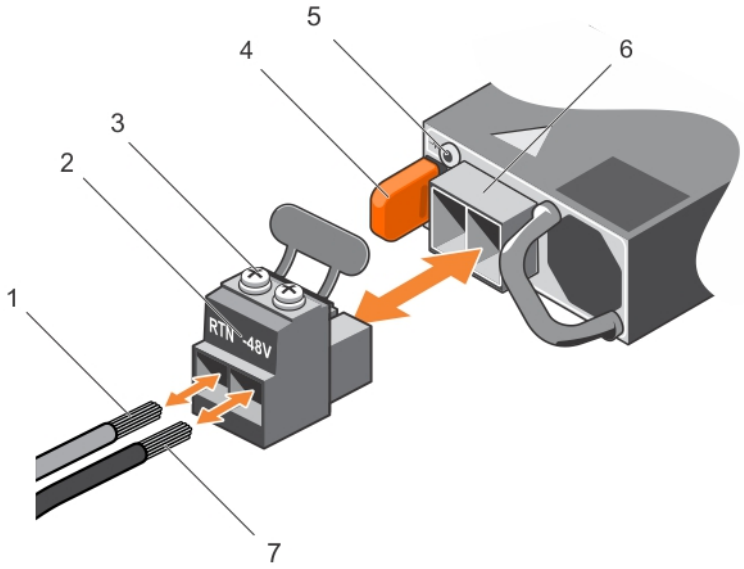

Figure 18. DC power connector and wiring block

1. DC wire RTN
2. DC power connector
3. Captive screws (2)
4. Orange tab
5. PSU status LED
6. DC power socket
7. DC wire –48V

1. Strip 0.5 inches of insulation from each of the power connector's wires, RTN and –48V.

2. Insert each of the power connector's bare wire lengths into the wiring block. Insert RTN into one hole and –48V into the other hole.
3. Use a flat-blade screwdriver to tighten the screws that secures the bare wires into the wiring block.
4. Secure the site's DC power source wires to the other side of the wiring block. See steps 1 and 3.

   NOTE: Do not cross the wires. In the wiring block, RTN aligns with RTN and –48V aligns with –48V.

5. Insert the DC power connector into the power socket of the DC PSU. Ensure that the connector pins firmly seat and you hear the click of the power connector's left and right levered clamps lock into place.

   NOTE: Never try to force the power connector into or out of the DC PSU power socket.

NOTE: To remove the power connector from a DC PSU, use the orange tab on the side of the connector. Doing so disengages the power connector's clamps. After engaging the orange tab, pull the power connector from the DC PSU socket.

7

Fans

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch comes from the factory with two PSUs and five fan modules installed in the switch. The fan modules and the power supplies, which have integrated fans, are hot-swappable.

In addition to the power supply modules, you can order and install fan modules separately.

The S4200-ON Series switch supports two airflow direction options—normal and reverse. All fans and PSUs *MUST* have the same airflow direction. If you mix the airflow direction, to avoid heat damage to the switch components, *you must correct the mixed airflow direction*.

- Airflow is from the I/O panel to the PSU—normal.
- Airflow is from the PSU to the I/O panel—reverse.

Environmental factors can decrease the amount of time required between fan replacements. Check the environmental factors regularly. An increase in temperature and particulate matter in the air might affect performance—for example, new equipment installation.

CAUTION: Check the fans at six-month intervals and replace them as necessary. Regularly monitor the speeds of the fans to accurately determine replacement intervals.

Topics:

Components

The following are the S4200-ON Series (S4248FB-ON and S4248FBL-ON) fan components.

- S4200-ON Series Fan module
- S4200-ON Series Fan module—Reverse flow

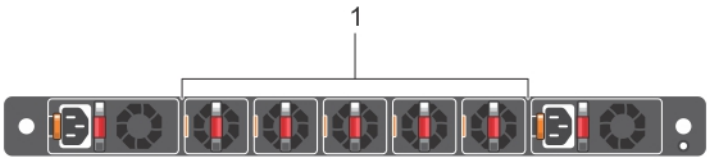

Figure 19. S4200-ON Series fan modules

1. Fan modules

Fan LEDs

- Solid green—Fan function is normal.
- Flashing yellow—There is a fan fault.
- Off—Fan is off.

Fan module installation

The fan modules in the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch are field replaceable.

There are five fans. Slot 3 is in the middle of the switch and slot 5 is on the right side of the switch.

CAUTION: DO NOT mix airflow directions. All fans must use the same airflow direction—reverse or normal. If you mix the airflow direction, to avoid overheating your switch, *you must correct the mixed airflow*.

1. Take the fan module out of the shipping box.
2. Slide the module into the bay.

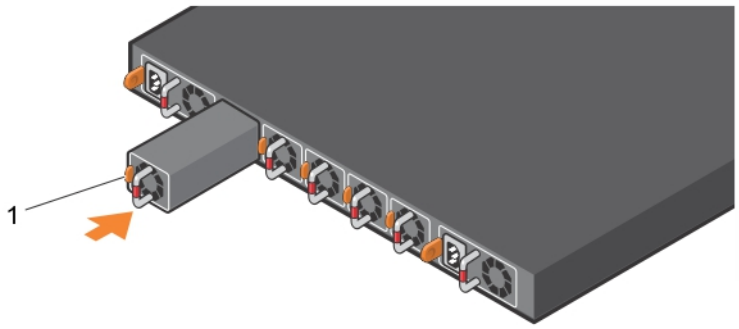

Figure 20. S4200-ON Series fan modules installation

a. Orange release tab

Fan module replacement

To request a hardware replacement, see Dell EMC support.

CAUTION: Complete the following steps within one minute or the switch temperature could rise above safe thresholds and the switch could shut down:

1. Slide the fan module out of the bay.
2. Slide the replacement module into the bay.

Fan air filter replacement

Environmental factors can decrease the amount of time required between air filter replacements. Check the environmental factors regularly. An increase in temperature and/or particulate matter in the air might affect performance.

CAUTION: Check the fan air filters at six-month intervals and replace them as necessary. To accurately determine air filter replacement intervals, regularly monitor the speeds of the cooling fans. An increase in overall fan speed may indicate a clogged filter.

You must replace the fan air filters with new filters; you cannot clean and reuse the old fan air filters. Replacement filter media must meet the requirements found in GR-63-CORE.

- Minimum dust arrestance of 65%, per ASHRAE Standard 52.1-1992. OR
- Minimum Efficiency Rating Value (MERV) of 2, per ANSI/ASHRAE Standard 52.2-2007.

CAUTION: For Network Equipment Building Systems (NEBS) compliance, use NEBS approved filters.

Use fan air filters with reverse blue-banded air flow systems—PSUs and fans. You can replace the air filters individually on each fan within the switch without powering down a PSU module or disrupting traffic.

The fan air filter media slides into the frame from the top. No tools are required.

1. Determine which filters to replace.

2. Unlatch and remove the first module that needs the filter replaced.
3. Slide the existing filter upwards to remove it from the module.
4. Replace the filter with a new filter of the same size.
5. Reinsert the fan module.
6. Repeat for the remaining modules that need the filter replaced.

8

Management ports

Besides the 10/100/1000Base-T RJ-45 ports, the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch provides several ports for management and storage.

NOTE: The output examples in this section are for reference only. Your output may vary.

Topics:

RS-232 console port access

The RS-232 console port is on the I/O-side of the switch.

NOTE: The S4200F-ON Series switches use the Silicon Labs CP2102 USB-B chip. To find the correct USB-B universal asynchronous receiver-transmitter (UART) driver, see https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers.

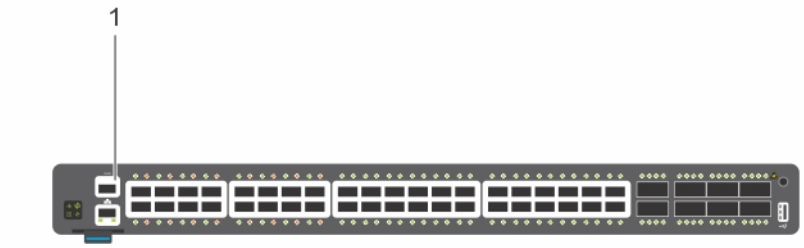

Figure 21. S4200-ON series RS-232 console port

CAUTION: Ensure that any equipment attached to the serial port can support the required 115200 baud rate.

NOTE: When connecting the RJ45 console to the patch panel or terminal server using Cat5e or Cat6 Ethernet cables, the maximum cable length is 100m. However, if the Ethernet cable is disconnected from the patch panel or terminal server but connected to the RJ45 console, the maximum cable length is 6m. If the cable is longer than 6m when disconnected from the panel or server, your switch may not boot.

NOTE: Before starting this procedure, ensure your PC has a 9-pin serial port. You must have a terminal emulation program already installed and running on your PC.

NOTE: If your PC's serial port cannot accept a female DB-9 connector, acquire a DB-9 male-to-male adaptor.

1. Install the provided RJ-45 connector side of the provided cable into the S4200-ON Series console port.
2. Install the DB-9 female side of the provided copper cable into your PC's serial port. Or install the DB-9 cable into other data terminal equipment (DTE) server hardware that you intend to use.
3. Keep the default terminal settings on the console as follows:
   - 115200 baud rate
   - No parity

- 8 data bits
- 1 stop bit
- No flow control

USB storage mount

USB storage does not automatically mount. The supported file system is FAT. To use USB storage, first mount the device using the following steps:

1. Create a mount directory for the USB.
   ```
   ONIE:/ # mkdir /mnt/usb
   ```
2. View the fixed disks using fdisk.
   ```
   ONIE:/mnt # fdisk -l
   ```
   For internal storage:

   ```
   Disk /dev/sda: 15.8 GB, 15829303296 bytes
   255 heads, 63 sectors/track, 1924 cylinders
   Units = cylinders of 16065 * 512 = 8225280 bytes

      Device Boot      Start         End      Blocks  Id System
   /dev/sda1               1        1925    15458303+ ee EFI GPT
   ```

   For USB storage:

   ```
   Disk /dev/sdb: 30.9 GB, 30942946304 bytes
   64 heads, 32 sectors/track, 29509 cylinders
   Units = cylinders of 2048 * 512 = 1048576 bytes

      Device Boot      Start         End      Blocks  Id System
   ```

3. Mount the device `/dev/sdb` to the `/mnt/usb` directory.
   ```
   ONIE:/ # mount -t vfat /dev/sdb /mnt/usb
   ```
   NOTE: The following message displays if the `/mnt/usb` directory is missing: `mount: mounting /dev/sdb on /mnt/usb failed: No such file or directory.`

   NOTE: The following message displays if the USB device is not seen: `mount: mounting /dev/sdb on /mnt/usb failed: No such device or address.`

4. OPTIONAL: Add a device to the file systems table using the `fstab` command and mount the file systems.
   ```
   ONIE:/ # vi /etc/fstab
   ```

   ```
   # FSTAB entry for the ONIE-BOOT partition mounted on /boot
   LABEL=ONIE-BOOT /mnt/onie-boot ext4    defaults,rw,errors=remount-ro 0       1
   /dev/sdb        /mnt/usb       vfat    defaults                      0       1

   ONIE:/ # mount -a
   ```

   The `mount -a` command mounts all the file systems as indicated in the `/etc/fstab` file.

Before you install an OS

After powering on the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch, it goes through a power-on self-test (POST).

POST runs every time the switch is initialized and checks the hardware components to determine if the switch is fully operational before booting. After POST, the switch uses the Grub bootloader.

To select an entry, use the up and down arrow keys. Press **Enter** to select an operating software (OS) or enter `e` to edit the commands before booting. Enter `c` for a command line. The selected entry runs automatically in the operating system.

Example of the Grub Bootloader

```
    GNU GRUB  version 2.02~beta2+e4a1fe391

 +----------------------------------------------------+
 |*ONIE: Install OS                                   |
 | ONIE: Rescue                                       |
 | ONIE: Uninstall OS                                 |
 | ONIE: Update ONIE                                  |
 | ONIE: Embed ONIE                                   |
 | EDA-DIAG                                           |
 |                                                    |
 |                                                    |
 |                                                    |
 |                                                    |
 |                                                    |
 |                                                    |
 +----------------------------------------------------+
```

Your switch comes with ONIE installed.

NOTE: To access ONIE, use the RJ-45 console port.

Example of ONIE

```
ONIE: Install OS
    For downloading and installing an OS from a URL
    Starts ONIE with ONIE Discovery Service
    (factory default boot)
ONIE: Rescue
    Starts ONIE without ONIE Discovery Service
    Useful for running Diagnostics manually
ONIE: Uninstall OS
    Restore to factory defaults erases any installed OS
ONIE: Update ONIE
    For downloading and updating ONIE from a URL
ONIE: Embed ONIE
    For downloading and updating ONIE from a URL and erases any installed OS
```

During the initial setup, the switch boots to ONIE Install. ONIE Install boots with ONIE Discovery to the console (`ONIE:`).

ONIE service discovery

ONIE attempts to locate the installer through several discovery methods, as shown. To download and run an installer, the ONIE Service Discovery feature uses the first successful method found.

1. Search locally attached storage devices for one of the ONIE default installer filenames—for example, the filename is: `onie self update` from the USB.
2. Query to the IPv4 and IPv6 link-local neighbors using HTTP for an installer.
3. Discover TFTP-based image from the DHCP server.

If none of the ONIE Service Discovery methods are successful, you can disable this using the `onie-discovery-stop` command.

You can install an operating system manually from HTTP, FTP, or TFTP using the `onie-nos-install <URL>` command.

NOTE: If you have a recovery USB plugged into your switch, remove it before installing the DIAG-OS using the `onie-nos-install` command.

The ONIE Install environment uses DHCP to assign an IP address to the management interface—eth0. If that fails, it uses the default IP address 192.168.3.10/255.255.255.0.

To display the IP address, use the `ifconfig eth0` command, as shown in the following example.

```
ONIE:/ # ifconfig eth0
eth0 Link encap:Ethernet HWaddr 90:B1:1C:F4:9C:76
       inet addr:10.11.53.33 Bcast:10.255.255.255 Mask:255.0.0.0
       inet6 addr: fe80::92b1:1cff:fef4:9c76/64 Scope:Link
       UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
       RX packets:18 errors:0 dropped:0 overruns:0 frame:0
       TX packets:24 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000
       RX bytes:1152 (1.1 KiB) TX bytes:6864 (6.7 KiB)
       Interrupt:21 Memory:ff300000-ff320000
```

To assign an IP address to the management interface, eth0, and verify network connectivity, use the `ifconfig eth0 <ip address>` command, as shown in the following example:

```
ONIE:/ # ifconfig eth0 10.11.53.33/16

Verify the network connection with ping.
ONIE:/ # ping 10.11.8.12
PING 10.11.8.12 (10.11.8.12): 56 data bytes
64 bytes from 10.11.8.12: seq=0 ttl=62 time=1.357 ms
64 bytes from 10.11.8.12: seq=1 ttl=62 time=0.577 ms
^C
```

9

Specifications

This section lists the S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch specifications.

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

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.

Topics:

Chassis physical design

Table 5. Chassis physical design

Parameter	Specifications
Height	1.72 inches (44 mm)
Width	17.1 inches (434 mm)
Depth	18.2 inches (462 mm) PSU/fan tray handle: 1.57 inches (40 mm)
Chassis weight with factory-installed components	22 lbs (2* PSUs) 9.98 kg (2* PSUs)
Rack clearance required	Front: 5 inches (12.7 cm) Back: 5 inches (12.7 cm)

Table 6. Environmental parameters

Parameter	Specifications
Operating temperature	0°C to 45°C (32°F to 113°F) continuously -5°C to 45°C (23°F to 113°F) short term Short term is </= 1% of operational hours per year.

Table 6. Environmental parameters (continued)

Parameter	Specifications
	NOTE: Reduce maximum temperature by 1°C/300 meters (1°F/547 feet) above 950 meters (3,117 feet).
Operating humidity	5% to 85% (RH), non-condensing, continuously 5% to 90% (RH), non-condensing, short term Short term is </= 1% of operational hours per year.
Storage temperature	–40° to 70°C (–40° to 158°F)
Storage humidity	5% to 95%, non-condensing
Maximum thermal output	600 W = 2047 BTU/Hr
Maximum operational altitude	10,000 feet (3,048 meters)
Maximum non-operational altitude	39,370 feet (12,000 meters)
Shock	Dell EMC Spec SV0115

Table 7. AC power requirements

Parameter	Specifications
Power supply	100–240 VAC 50/60 Hz
Maximum current draw per system	6A/5A at 100/120V AC 3A/2.5A at 200/240V AC
Maximum power consumption	600 Watts
Typical power consumption	300 Watts

Table 8. DC power requirements

Parameter	Specifications
Minimum and maximum input voltage range	–40.5, –60V DC, 15A Max
Maximum power consumption	600 Watts
Start up VDC	39.0 ± 1.5 V
Start off VDC	37.5 ± 1.5 v

IEEE standards

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch complies with the following IEEE standards:

- 802.1ab (LLDP)
- 802.1ax (Layer 2)
- 802.1d, 802.1w, 802.1s, 802.1x (Mgmt/Security), 802.3x (Layer 2)
- 802.3 (1000BASE-KX)
- 802.3ba (40GbE and 100GbE ports)

Agency compliance

The S4200-ON Series (S4248FB-ON and S4248FBL-ON) switch complies with the following safety and agency requirements:

USA Federal Communications Commission statement

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 designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance to the instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures necessary to correct the interference at their own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Dell EMC is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications in the equipment. Unauthorized changes or modification could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

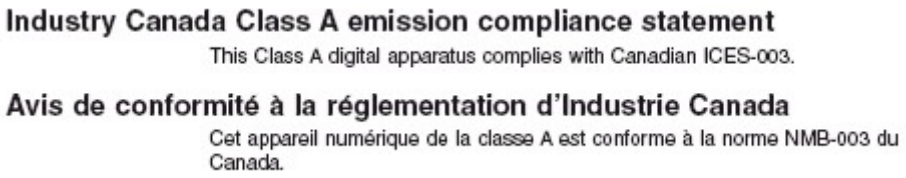

Figure 22. Canadian department of communication statement

European Union EMC directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/30/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Dell EMC cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of this product, including the fitting of non-Dell EMC option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 32/CISPR34 and EN55032 / EN55034 The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

NOTE: This is a Class A product. In a domestic environment, this device may cause radio interference, in which case, you may be required to take adequate measures.

European Community Contact

Dell EMC, EMEA - Central

Dahlienweg 19

66265 Heusweiler

Germany

Tel: +49 172 6802630

Email: EMEA Central Sales

Japan VCCI compliance for class A equipment

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Figure 23. Japan: VCCI compliance for class A equipment

This is Class A product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

NOTE: Use the AC power cords with Dell EMC equipment only. Do not use Dell EMC AC power cords with any unauthorized hardware.

本製品に同梱いたしております電源コードセットは、本製品専用です。本電源コードセットは、本製品以外の製品ならびに他の用途でご使用いただくことは出来ません。製品本体には同梱された電源コードセットを使用し、他製品の電源コードセットを使用しないで下さい。

Figure 24. Japan: warning label

Korean certification of compliance

A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Figure 25. Korean certification of compliance

	[equipment type]
품명(Product Name)	Ethernet Switch
모델명(Model)	[model number]
신청인(Applicant)	Dell Technologies
제조자(Manufacturer)	
제조년월(Manufacturing Date)	[date]
제조국(Country of Origin)	China

Figure 26. Korean package label

Electromagnetic compatibility

Emissions

- International: CISPR 32 Class A
- Australia/New Zealand: AS/NZS CISPR 32, Class A
- Canada: ICES-003, Issue-4, Class A
- Europe: EN55032, CISPR 32, Class A
- EN55032, Class A
- Japan: VCCI Class A
- Korea:KN32, Class A
- Taiwan, CNS13438, Class A
- USA: FCC CFR47 Part 15, Subpart B, Class A

Immunity

- EN 300 386 EMC for Network Equipment
- EN 55024
- EN 61000-3-2 Harmonic Current Emissions
- EN 61000-3-3 Voltage Fluctuations and Flicker
- EN 61000-4-2 ESD
- EN 61000-4-3 Radiated Immunity
- EN 61000-4-4 EFT
- EN 61000-4-5 Surge
- EN 61000-4-6 Low Frequency Conducted Immunity

Safety standards and compliance agency certifications

- CUS UL 60950-1, 2nd Edition
  - Meets or exceeds Hi Pot and Ground Continuity testing per UL 60950-1.
- CSA 60950-1-03, 2nd Edition
- EN 60950-1, 2nd Edition
- EN 60825-1, 1st Edition
- EN 60825-1 Safety of Laser Products—Part 1: Equipment Classification Requirements and User's Guide
- EN 60825-2 Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems
- FDA Regulation 21CFR 1040.10 and 1040.11
- IEC 60950-1, 2nd Ed, including all National Deviations and Group Differences
- IEC 62368-1

Product recycling and disposal

You must recycle or discard this switch according to applicable local and national regulations. Dell EMC encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Dell EMC offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products.

Waste Electrical and Electronic Equipment (WEEE) directive for recovery, recycle, and reuse of IT and telecommunications products

Dell EMC switches are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Figure 27. The European WEEE symbol

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE.

Dell EMC products, which fall within the scope of the WEEE, are labeled with the crossed-out wheelie-bin symbol, as shown above, as required by WEEE.

For information on Dell EMC product recycling offerings, see the WEEE Recycling instructions on the Support page. For more information, contact the Dell EMC Technical Assistance Center.

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Dell EMC support

The Dell EMC support site provides documents and tools to help you effectively use Dell 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 Dell EMC support site provides integrated, secure access to these services.

To access the Dell EMC 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 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 luggage 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 Dell EMC community blogs and forums, go to www.dell.com/community.