




# S4112-ON Series

Setup Guide

## 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.

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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.
- ⚠ 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.

Topics:

- [Related documents](#)
- [Information symbols](#)

## Related documents

For more information about the S4112-ON Series (S4112F-ON and S4112T-ON) switch, see the following documents.

- *OS10 Enterprise Edition Release Notes*
- *OS10 Enterprise Edition User Guide*
- *S4112-ON Series Installation Guide*
- *S4112-ON Series Release Notes*
- *Open Networking Hardware Diagnostic Guide*

 **NOTE:** For the most recent documentation, see Dell EMC support: [www.dell.com/support](http://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.

## Site preparations

The S4112-ON Series (S4112F-ON and S4112T-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 S4112-ON Series switch specifications, see [Specifications](#).

**i** **NOTE: Install the switch into a rack or cabinet before installing any optional components.**

Topics:

- [Site selection](#)
- [Cabinet placement](#)
- [Rack mounting](#)
- [Switch ground](#)
- [Fans and airflow](#)
- [Power](#)
- [Storing components](#)

### 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 5° to 40°C (50° to 104°F).
- Operating humidity is from 5 to 85 percent non-condensing, 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 S4112-ON Series switch only in indoor cabinets designed for use in a controlled environment.

Do not install the S4112-ON Series 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 S4112-ON Series switch in a CBN.

For more information, see [Ground cable](#).



## Fans and airflow

Fan installation is done as part of the factory install based on stock keeping unit (SKU) type. The S4112-ON Series switch has SKUs that support the following configurations:

- AC PSU with PSU fan and system fans normal airflow
- AC PSU with PSU fan and system fans reverse airflow
- DC PSU with PSU fan and system fans normal airflow
- DC PSU with PSU fan and system fans reverse airflow

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 cords. Before servicing, ensure all power cords 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.**

**ℹ NOTE: Module power is software controlled. You do not see module LEDs when the switch powers up in ONIE.**

## Storing components

If you do not install your S4112-ON Series switch and components immediately, properly store the switch and all optional components following these guidelines:

- Storage location temperature must remain constant. The storage range is from  $-40^{\circ}$  to  $65^{\circ}\text{C}$  ( $-40^{\circ}$  to  $149^{\circ}\text{F}$ ).
- 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 S4112-ON Series switch and its components on an anti-static surface.

# S4112-ON Series Installation

To install the S4112-ON Series (S4112F-ON and S4112T-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](#)
- [Ground cable](#)
- [Rack or cabinet installation](#)
- [Half-RU front-rack installation](#)
- [Switch installation](#)
- [DC power connections](#)
- [Optics installation](#)
- [Switch power-up](#)
- [After system installation](#)

## Unpack

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

When unpacking the S4112-ON Series switch, make sure that the following items are included:

- One S4112F-ON or S4112T-ON switch

- One RJ-45 to DB-9 female cable
  - AC power: two country- and region-specific AC power cords
  - DC power: two DC connectors
  - Ground lug kit (included in the accessories box)
  - *S4112-ON Series Setup 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.

## Ground cable

- ① **NOTE:** For an AC-powered switch, although the third conductor of the AC power cord provides a ground path, Dell EMC recommends grounding your switch with a dedicated ground wire.
- ① **NOTE:** For a DC-powered switch, the only way to safely ground your switch is to attach a dedicated ground wire. The ground lug kit ships in a plastic bag placed with the other accessories inside the shipping box. The ground lug bracket screws ship attached to the switch. Before you install the DC switch in the dual-tray, attach the ground lug and bracket to the switch using the included screws and then attach the DC ground wire to the ground lug.
- ① **NOTE:** The S4112-ON Series has a DC power source rated -40 to -72 VDC, 6A minimum, Tma=40C, and an altitude operation of 3048m. The power cable is 10AWG, 16A minimum, with a 72V minimum rating.

The ground cable is not included. To properly ground the chassis, Dell EMC recommends a one- or two-hole lug, 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.

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

Before you install the switch into the dual-tray:

- 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 Unscrew the two attached M4 screws and set aside.
- 3 Attach the ground lug and bracket to the switch using the M4 screws.
- 4 Using one of the two M4 threaded holes, attach the ground cable to the lug. Use the M4 screw with a captive internal tooth lock washer. Torque the screw to  $\pm 5-6$  in-lbs.
- 5 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.

## 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. The dual-tray mounting rails ship with the dual tray, not the switch.

**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 use the mounted rails 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 (113°F) 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 in the downward position.

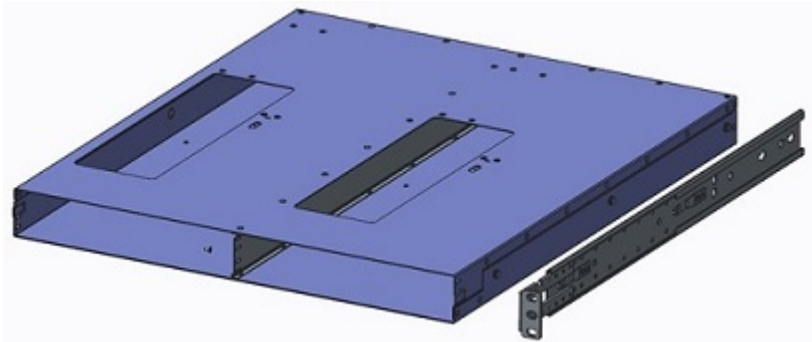
## Half-RU front-rack installation

The dual-tray mounting rails ship with the dual tray, not with the switch. You must supply eight rack-mount screws for this four-post installation.

**ⓘ | NOTE: Do not install the dual tray in a two-post rack.**

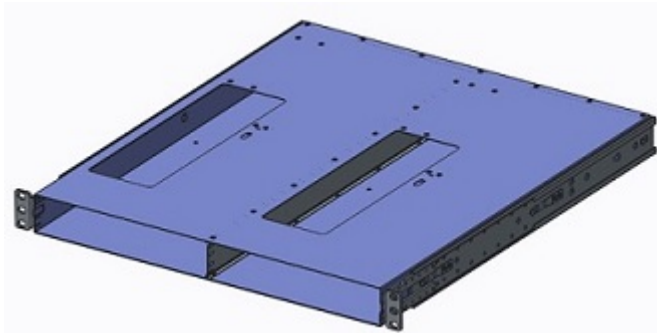
Installation instructions follow this order:

- 1 Attach the rails to the dual tray.
  - 2 Install the dual tray in the rack.
  - 3 Attach the ground cable to the switch.
  - 4 Install the switch in the dual tray.
- 
- 1 Remove the dual tray and the rails from the shipping packaging and place them on a clean anti-static surface.
  - 2 Line up the three holes on the inner switch rail with the dual-tray mounting heads.



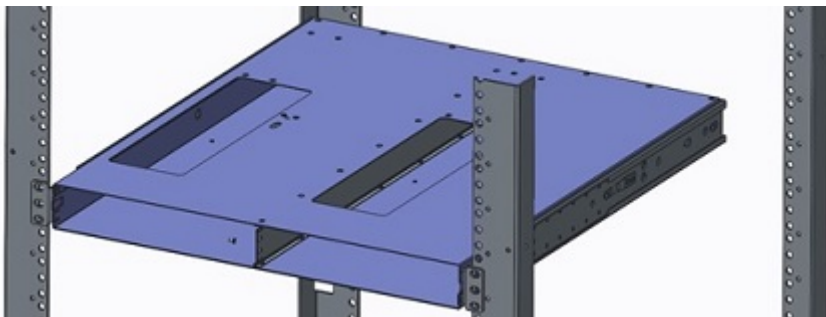
**Figure 2. Dual-tray and rack mounting rail**

- 3 Attach the rail to the dual tray. Slide the rail back until it locks into place.
- 4 Repeat with the other side.



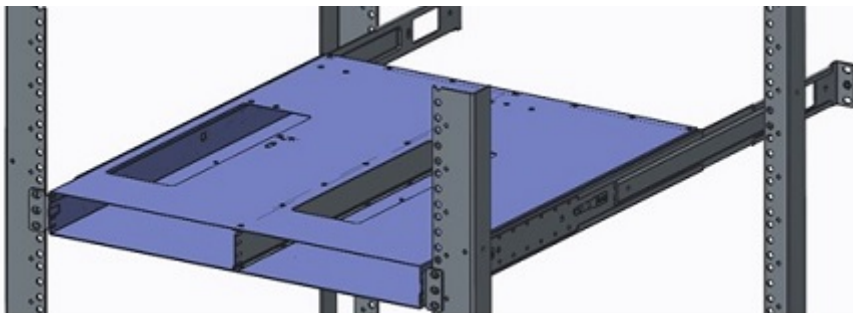
**Figure 3. Attach the dual-tray and rack mounting rails**

- 5 Install the dual tray inside the four-post rack. Rack mount screws are not included.
- 6 Attach the front dual-tray switch rails to the four-post rack from the front. Secure the dual tray to the rack using two user-supplied screws for each rack post.



**Figure 4. Attach the dual-tray front to the four-post rack front**

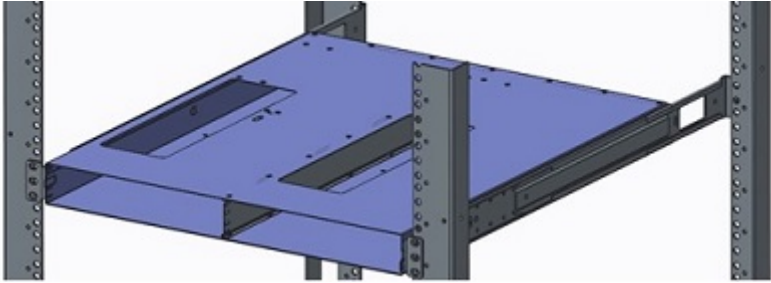
- 7 Attach the rear dual-tray switch rails to the four-post rack from the rear. Secure the dual tray to the rack using two user-supplied screws for each rack post.



**Figure 5. Attach the dual-tray rear to the four-post rack rear**

- 8 Tighten all mounting screws to securely mount the dual tray into the four-post rack.



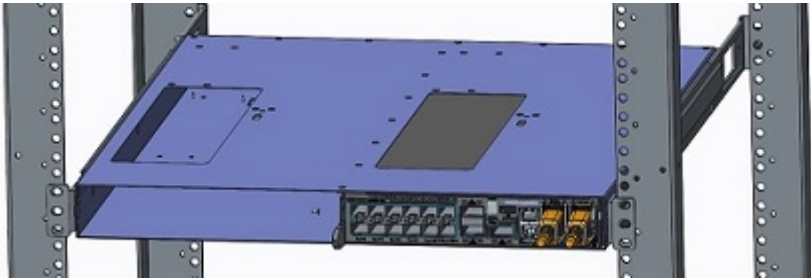


**Figure 6. Secure the dual-tray in the four-post rack**

## Switch installation

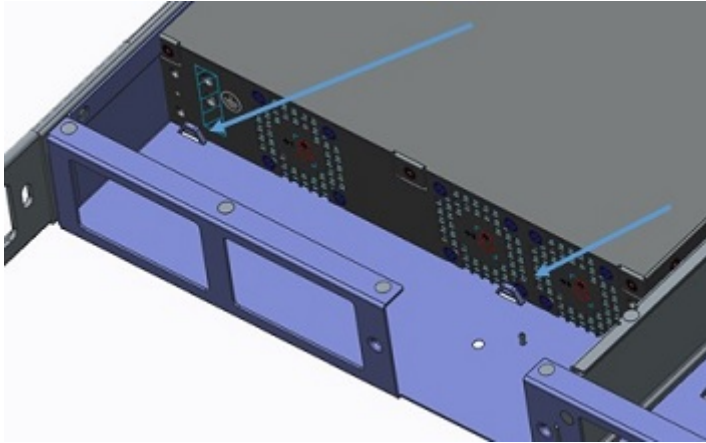
Install one or two half-RU switches in the four-post rack-mounted dual tray.

- 1 Install one switch into either dual-tray slot from the front.



**Figure 7. Install an S4112-ON Series switch**

The switch is fully inserted when it hits the stop feature on the dual tray. The front switch latch snaps the switch into place.

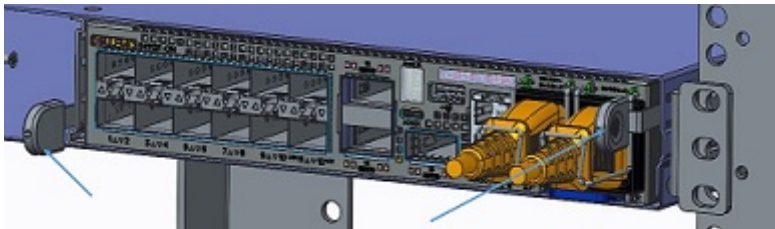


**Figure 8. Dual-tray stop feature**

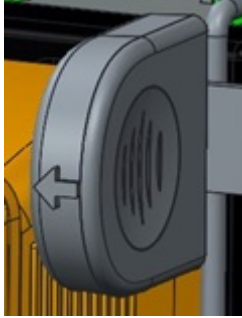
- 2 If you are installing two switches, insert the second switch in the open dual-tray slot.

## Switch removal

- 1 Remove a switch from the dual tray from the front of the four-post rack.
- 2 Push the front switch latches according to the latch arrows and pull out the switch.



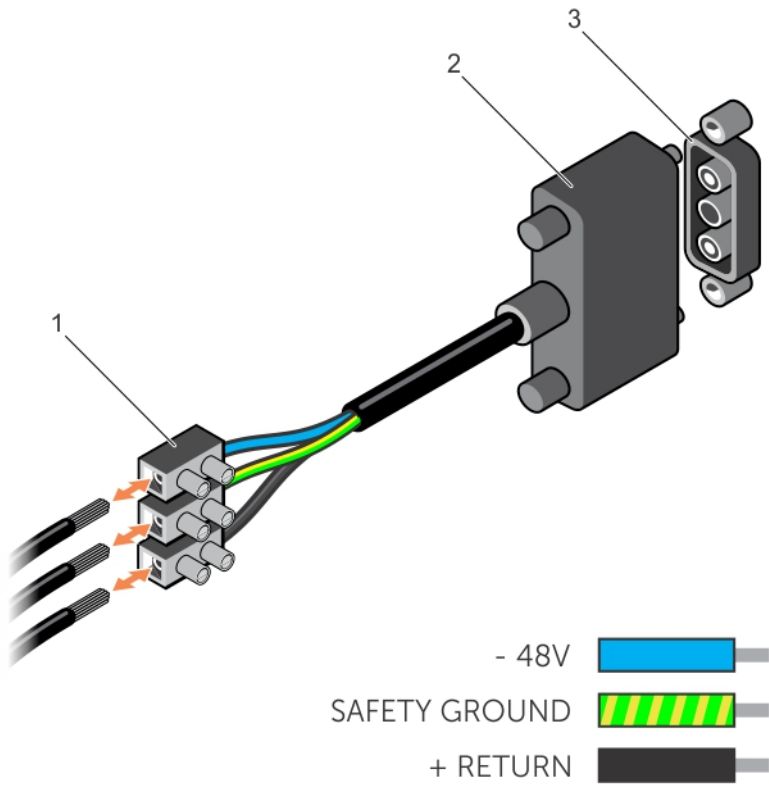
**Figure 9. S4112-ON Series release latches**



**Figure 10. S4112-ON Series release arrow**

## **DC power connections**

Each DC PSU comes with a connector cable. One cable is provided for each DC PSU.



**Figure 11. DC power connector and wiring block**

- |                 |                   |
|-----------------|-------------------|
| 1 Wiring block  | 2 Power connector |
| 3 PSU connector |                   |
- 1 Strip a 1/2 inch section of insulation from each of the power connector's wires, as shown.
  - 2 Insert each of the power connector's bare wire lengths into the wiring block. The blue wire is -48V, the black wire is the positive return, and the yellow/green wire is the ground wire, as shown.
  - 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.

**⚠ WARNING: Do not cross the wires.**

- 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.

**⚠ WARNING: 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, unscrew the thumb screws and pull the power connector from the DC PSU socket.**

## 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 S4112-ON Series (S4112F-ON and S4112T-ON) 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 S4112-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.
- Blank panels are installed if you do not install optional modules.

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

**i** **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 system installation

After you have securely installed and powered on the S4112-ON Series switch:

- If you are using Dell EMC software, see switch documentation at [www.dell.com/support](http://www.dell.com/support).
- If you need ONIE information, see ONIE documentation at [www.onie.org](http://www.onie.org).
- If you are using third-party software, see your third-party documentation.

# Specifications

This section lists the S4112-ON Series (S4112F-ON and S4112T-ON) 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.
- ℹ **NOTE:** For RoHS information, see [Restricted Material Compliance](#).

## Chassis physical design

**Table 1. Chassis physical design**

Parameter	Specifications
Height	1.75 inches (41.25 mm)
Width	8.2 inches (209 mm)
Depth	17.7 inches (450 mm)
Chassis weight with factory-installed components	S4112F-ON: 8.30 lbs, 3.76 kg (2 PSUs and 3 fans)
	S4112T-ON: 8.45 lbs, 3.81 kg (2 PSUs and 3 fans)
Rack clearance required	Front: 5 inches (12.7 cm)
	Back: 5 inches (12.7 cm)

**Table 2. Environmental parameters**

Parameter	Specifications
Operating temperature	5°C to 40°C (50°F to 104°F) continuously -5°C to 45°C (23°F to 113°F) short term  Short term is <math>\leq 1\%</math> of operational hours per year.  <div style="border-left: 1px solid black; padding-left: 10px;"> <span data-bbox="574 443 602 467" style="font-size: 1.2em; color: #0070C0;">i</span> <b data-bbox="624 443 981 563">NOTE: Reduce maximum temperature by 1°C/125 meters (1°F/228 feet) above 950 meters (3,117 feet).</b> </div>
Operating humidity	5% to 85% (RH), non-condensing, continuously 5% to 90% (RH), non-condensing, short term  Short term is <math>\leq 1\%</math> of operational hours per year.
Storage temperature	-40° to 65°C (-40° to 149°F )
Storage humidity	5% to 95%, non-condensing
Maximum thermal output	S4112F-ON: 180W, 614 BTU/hr  S4112T-ON: 200W, 682 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 3. AC power requirements**

<b>Parameter</b>	<b>Specifications</b>
Power supply	100–240 VAC 50/60 Hz
Maximum current draw per system	2A/1.7A at 100/120V AC 1A/0.8A at 200/240V AC
Maximum power consumption	S4112F-ON: 180 W S4112T-ON: 200 W
Typical power consumption	S4112F-ON: 90 W S4112T-ON: 120 W

**Table 4. DC power requirements**

<b>Parameter</b>	<b>Specifications</b>
Minimum and maximum input voltage range	–40V, –72V DC, 5A Max
Maximum input current	–40V/5A, –48V/4.2A, –72V/2.8A
Start up VDC	39.0 ± 1.5 V
Start off VDC	37.5 ±1.5 V

## 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/](http://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/](http://www.dell.com/manuals/).

To search for drivers and downloads, go to [www.dell.com/drivers/](http://www.dell.com/drivers/).

To participate in community blogs and forums, go to [www.dell.com/community](http://www.dell.com/community).