



Celestica™

DS3000 Installation Guide

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DS3000 Installation Guide

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Preface

This guide covers the installation and basic setup of the DS3000 Ethernet switch. Every effort has been made to ensure the accuracy and validity of this guide. Any updates of this guide are subject to change without notice.

Document Scope





This document is the installation guide for the DS3000 Ethernet switch. It introduces the general hardware design and characteristics as well as basic hardware removal and installation instructions. It may also provide help with diagnosing and resolving some hardware related issues.

Intended Audiences

- System architects
- Firmware engineers
- System application engineers

Document Conventions

The following table describes various types of notes used within this installation guide.

Type	Generalized Definition
 NOTE:	Provides supplemental information.
 CAUTION:	Indicates a situation that if not avoided, may result in equipment damage or minor to moderate injury.
 TIP:	Indicates information that helps you make better use of your system.
 WARNING:	Indicates a hazardous situation that if not avoided, could result in data loss or serious injury.

Type	Generalized Definition
ⓘ DANGER:	Indicates a hazardous situation that if not avoided, will result in death or serious injury.

Product Overview

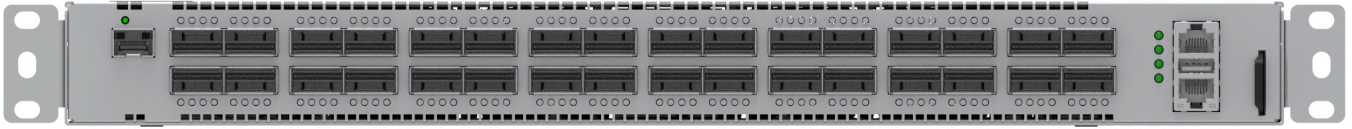
The DS3000 is an advanced distribution layer Ethernet switch for data center leaf and spine applications. Ideal use cases include campus, enterprise, and IP metropolitan networks.

Product Specifications

Type	DS3000
Depth	520 mm
Height	44 mm
Width	438 mm
Weight	10 Kg
Power Input (VAC)	90~264VAC(50~60Hz)
Power Consumption (W)	500 W
Operating Temperature (airflow front to back)	0° - 45°C
Operating Temperature (airflow back to front)	0° - 45°C
Operating Relative Humidity	5% - 90 %
Storage Temperature	-40° - 70°C
Storage Relative Humidity	5% - 95%

Front Panel

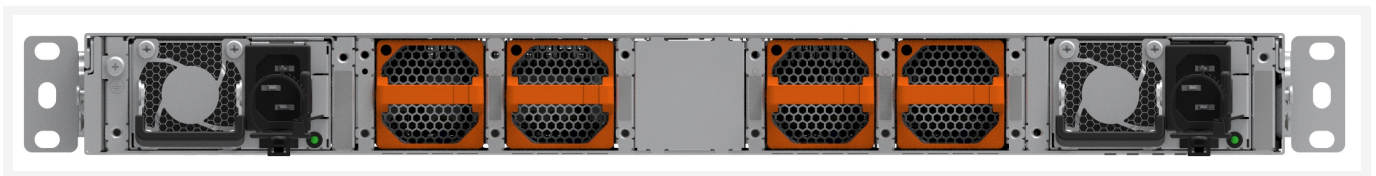
The front panel of the DS3000 is shown below:



The console port supports asynchronous mode. Set the data bit as 8, the stop bit as 1, the parity bit as none, the default baud rate as 115200bps.

Rear Panel

The rear panel of the DS3000 is shown below:



The back panel of DS3000 includes dual 500 W power supplies (providing redundancy), and four fans.

Port Description

DS3000 provides 32 QSFP28 ports, 1 SFP+ port and one RJ45 Ethernet port. The description is in the following:

Table 1. DS3000 Port Descriptions

Port mode	Spec
RJ45 port	<ul style="list-style-type: none"> 10/100/1000Mbps auto negotiation MDI/MDI-X cable mode auto negotiation
QSFP28	<ul style="list-style-type: none"> Support parallel multimode fiber OM3 and OM4 for short reach applications 100Gbase-SR4. Support long reach optics 100Gbase-LR4 (10 km) over single mode fiber. Support copper 100Gbase-CR4 connections. <ul style="list-style-type: none"> 1M 30AWG 3M 28AWG 5M 26AWG

- 100G Port mode change to 4x25G should not require switch device reboot.
- 100G Port mode should be use break out cable change to 4x25G mode.

SFP+

- Support parallel multimode fiber OM3 and OM4 for short reach applications 10Gbase-SR4.
- Support long reach optics 10Gbase-LR4 (10 km) over single mode fiber.
- Support copper 10Gbase-CR4 connections.
 - 1M 30AWG
 - 3M 28AWG
 - 5M 26AWG
 - 7M 24AWG

Status LEDs

The indicator LEDs on front panel of the DS3000 are 32 QSFP28 and 1 SFP+ port indicator LEDs, two power supply indicator LEDs and a system automatic diagnostic LED. They are described in the following table.

Table 2. Front Panel LED Identification

Indicator LED	Front Panel Identifier	LED Status	Description
PSU	P1/P2	Green On (solid)	PSUs operating normally
		Amber On (solid)	PSU fault exists
		Off	PSU not present / no power
Alarm	ALM	Green On (solid)	No alarm
		Amber On (solid)	Critical alarm
		Amber On	Major alarm: 4Hz

Indicator LED	Front Panel Identifier	LED Status	Description
		(blinking)	blinking / Minor alarm: 1Hz blinking
System	STAT	Green / Amber alternating (4Hz)	Default CPLD setting
		Green / Amber alternating (1Hz)	For systems running ONIE

Table 3.Rear Panel

Indicator LED	Rear panel sign	Status	Description
Fan module indicator LED	Fan1/FAN2/ FAN3 /FAN4	Green On steadily	Fan is present and its status is normal.
		Amber On steadily	Fan is present but its status is Alarm.
		Off	Fan Tray is not present.
ETHERNET port Activity LED (left)	NA	Green LED blink	The port is transmitting data.
		Off	There is no data transmitting on port.
ETHERNET port Link LED (right)	NA	On with amber LED	The port is configured at 10M/100M speed
		On with green LED	The port is configured at 1000M speed
		off	No connection or fail to connect.

Table 4. Description of Port Indicator LED

Indicator LED	Status	Description
Indicator LED of QSFP28 port	First Green Blinking	The port and the link are active in 100 GbE mode, and there is link activity.
	First Green On steadily	The port and the link are active in 100 GbE mode, but there is no link activity.
	All Amber Blinking	The port and the link are active in 4x10 GbE mode, and there is link activity.
	All Amber On steadily	The port and the link are active in 4x10 GbE mode, but there is no link activity.
	All Green Blinking	The port and the link are active in 4x25 GbE mode, and there is link activity.
	All Green On steadily	The port and the link are active in 4x25 GbE mode, but there is no link activity.
	Off	The port is not active
Indicator LED of SFP+ port	Green Blinking	The port and the link are active in 10 GbE mode, and there is link activity.
	Amber Blinking	The port and the link are active in 1 GbE mode, and there is link activity.
	Green On steadily	The port and the link are active in 10 GbE mode, but there is no link activity.
	Amber On steadily	The port and the link are active in 1 GbE mode, but there is no link activity.

90~264VAC(50~60Hz) 3.4A~7.1A

R

Hardware Overview

This section describes key hardware components of the DS3000 Ethernet switch.

NOTE:

The ESM, PSU, Fan Modules, HDD and DC-DC module are all hot-pluggable.

⚠ **WARNING:** Users should replace FRU drives one by one. Do not remove multiple FRU drives at the same time. A replacement drive or empty drive carrier must be installed prior to removing another drive.

⚠ **WARNING:** Replacing components is time-sensitive to avoid overheating the system. For the maximum time to replace a hardware component (remove and install) please refer to the following:

1. Canister replacement maximum time is 10 minutes.
2. PSU replacement maximum time is 10 minutes.
3. System fan module replacement maximum time is 10 minutes.
4. DC-DC module replacement maximum time is 10 minutes.
5. Drive replacement maximum time is 10 minutes.

Power Supply Unit (PSU)

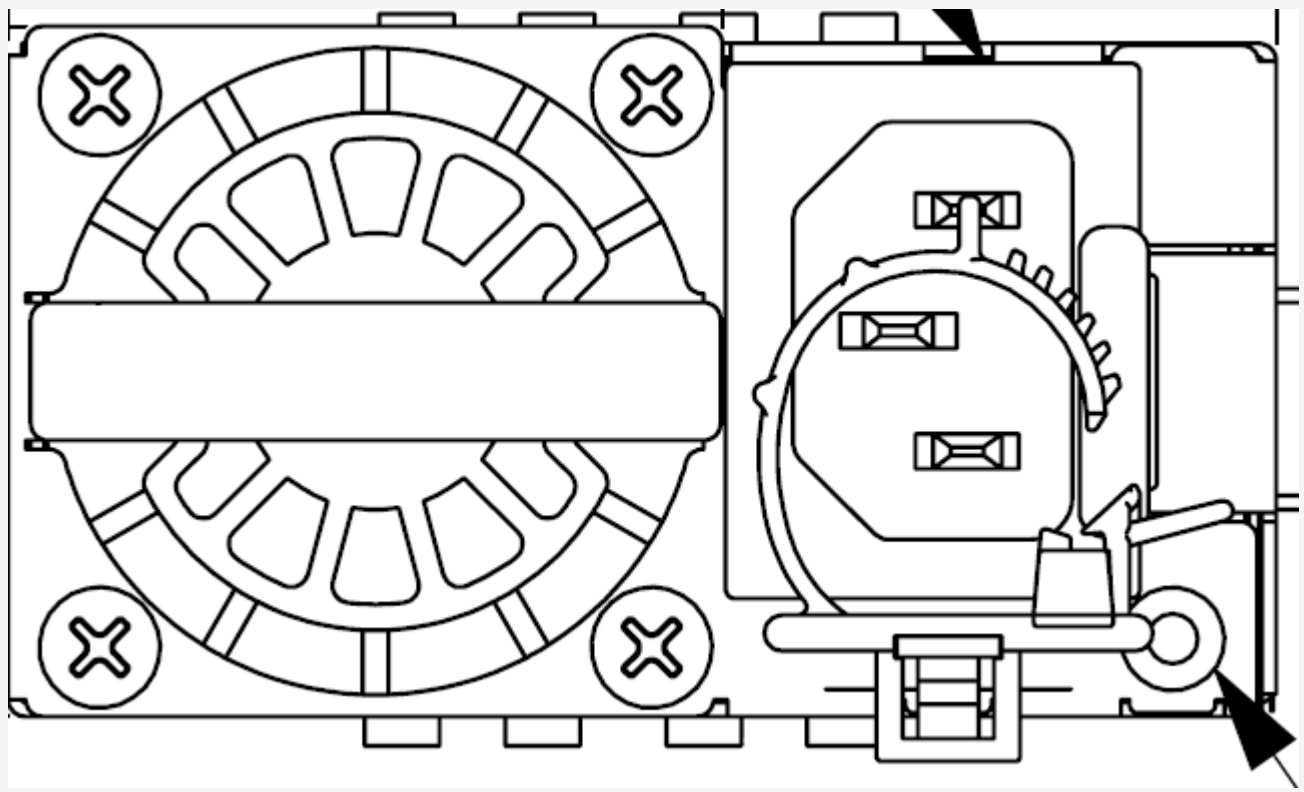
Overview

The DS3000 storage enclosure is powered by two 500 W redundant power supply units (PSUs) with the following features.

- Four 500 W
- 12 V +/- 5%
- 12 V and 5 V hot-swappable controllers
- Temperature sensor and VPD

Figure 1. PSU View

NOTE: The PSU model displayed in this document may vary from the actual product. This includes possible differences in efficiency, power output, connection type, LED(s) and location(s), and other specifications.



Power Supply Condition	LED State
Output on, normal operation	Green
No AC power to all power supplies	Off
AC present / Only VSB on (PSU off)	1 Hz Blink Green
AC cord unplugged or AC power lost; with a second power supply in parallel still with AC input power	Amber
Power supply warning events where the power supply continues to operate; high temp, high power, high current, slow fan, under voltage	1 Hz Blink Amber

Power supply critical event causing a shutdown; failure, over current protection (OCP), over voltage protection (OVP), fan failure

Amber

Power supply firmware updating

2 Hz Blink Green

AC Power Cord

The AC power sockets are located on the rear of the chassis. Contact Celestica if you want to use other types of power cords.

⚠ CAUTION: For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

⚠ CAUTION: Not all power cords have the same current ratings. Do not use the power cord provided with your equipment for any other products or use. Do not use household extension cords with your product.

⚠ CAUTION: This product is designed to work with power systems having a grounded neutral (grounded return for DC-powered products). To reduce the risk of electric shock, do not plug products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.

📌 NOTE:

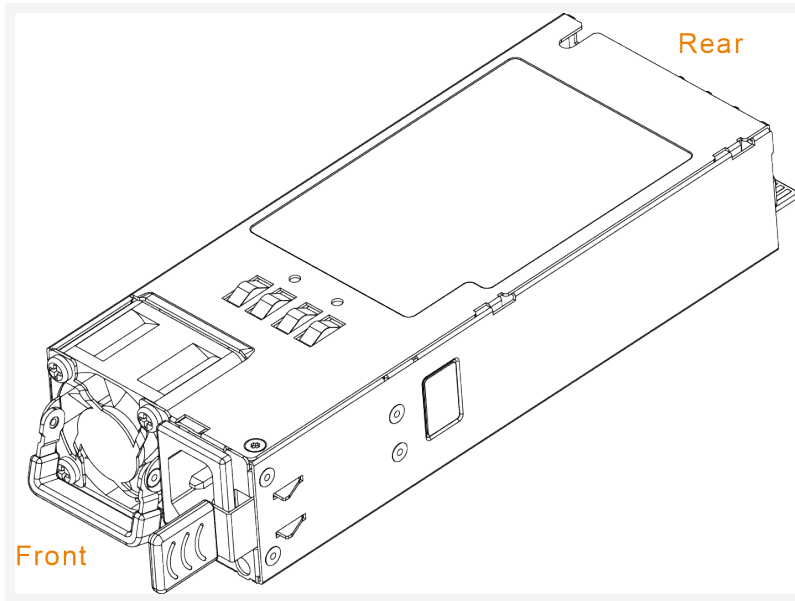
The product supports the use of titanium PSUs or platinum PSUs, but does not support mixed use.

Case 1: For a whole system initial power up, if the system is powered up with non-matching PSUs, the system will not function (allow data I/O) until a valid configuration is installed.

Case 2: If a PSU is replaced with a non-matching PSU while the system is functioning, the system will power off the newly inserted PSU and trigger an alarm mix log and the enclosure fault LED.

PSU Assembly

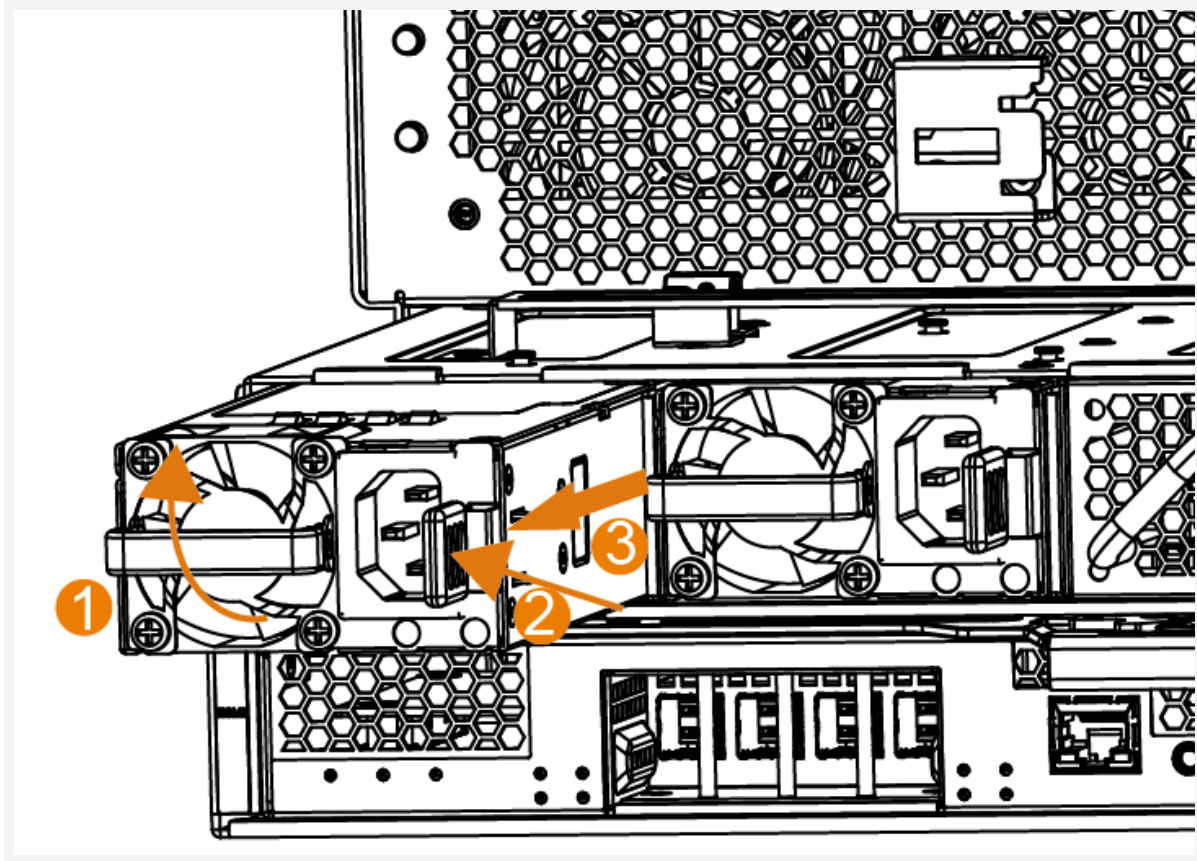
Figure 2. PSU Overview



PSU Removal

Procedure

- 1 Rotate handle 90 degrees as shown.

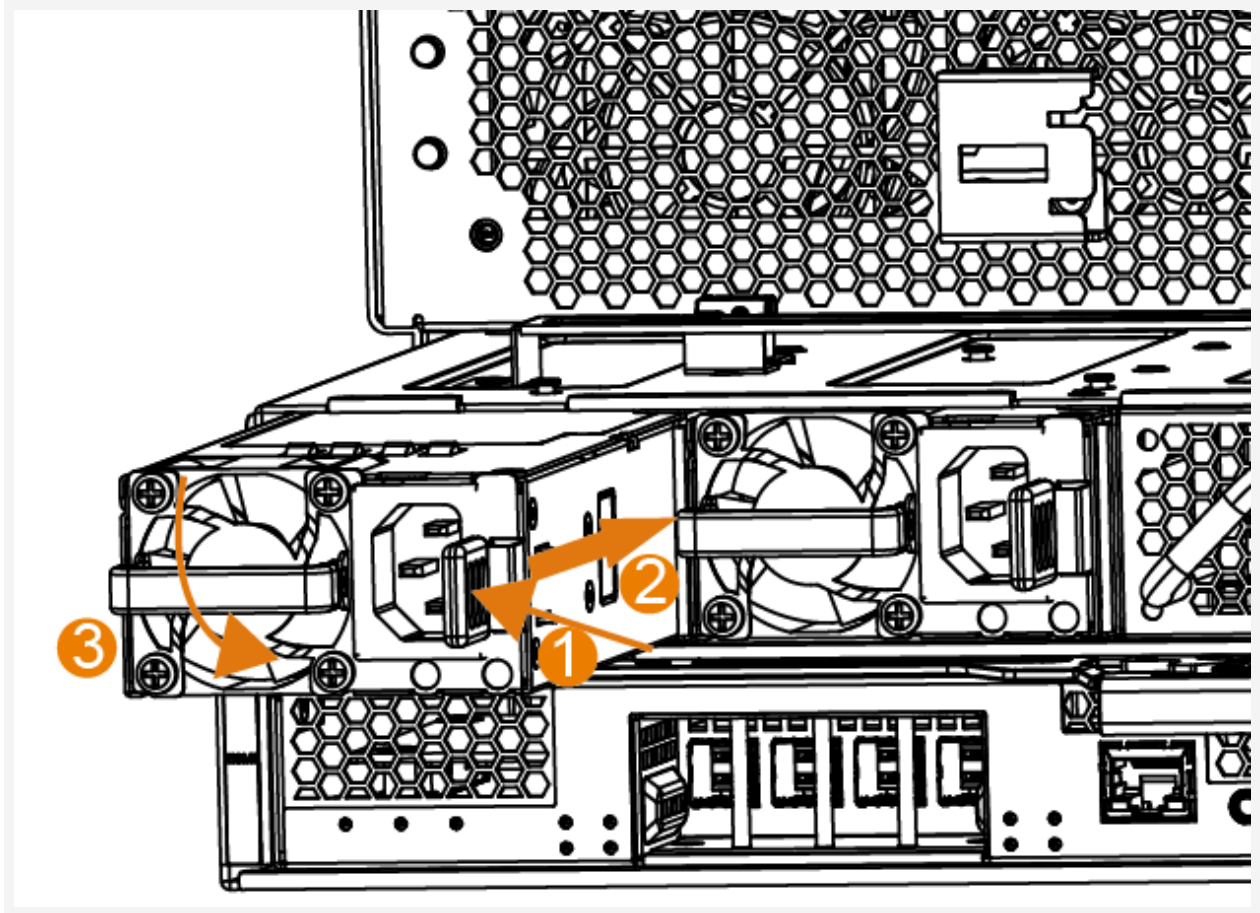


- 2 Press latch
- 3 While pressing latch, use handle to pull PSU from chassis.

PSU-Installation

Procedure

- 1 Rotate handle to a 90 degree angle as shown.



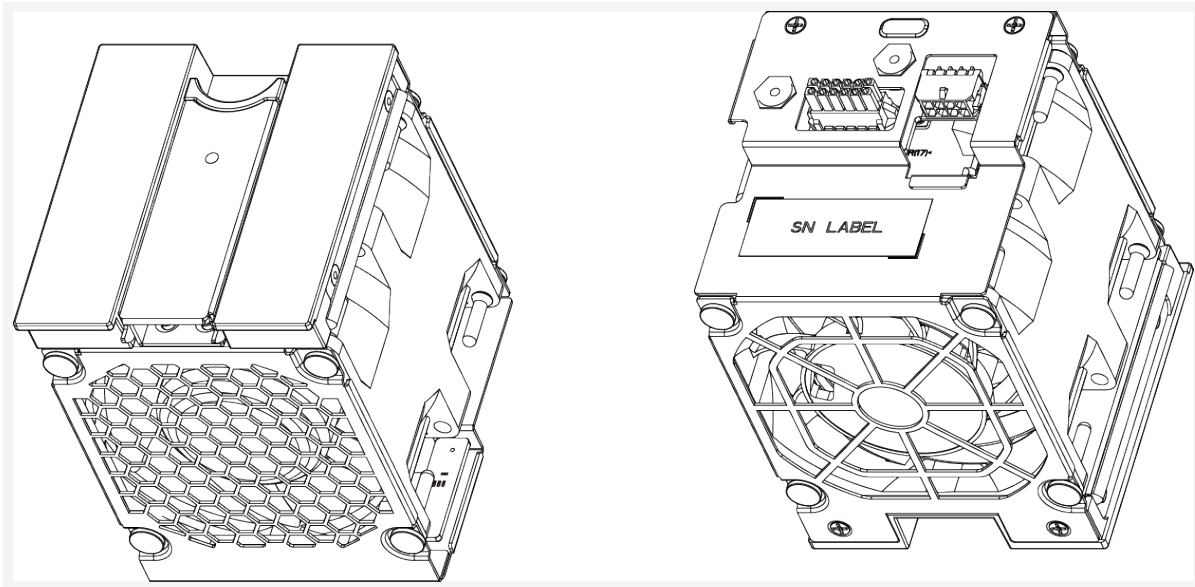
- 2 Press latch and handle to slide PSU into chassis.
- 3 Rotate handle 90 degrees to close.

Fan Module

Fan Overview

The DS3000 enclosure houses five (5) fan modules in the back of the chassis for drive cooling.

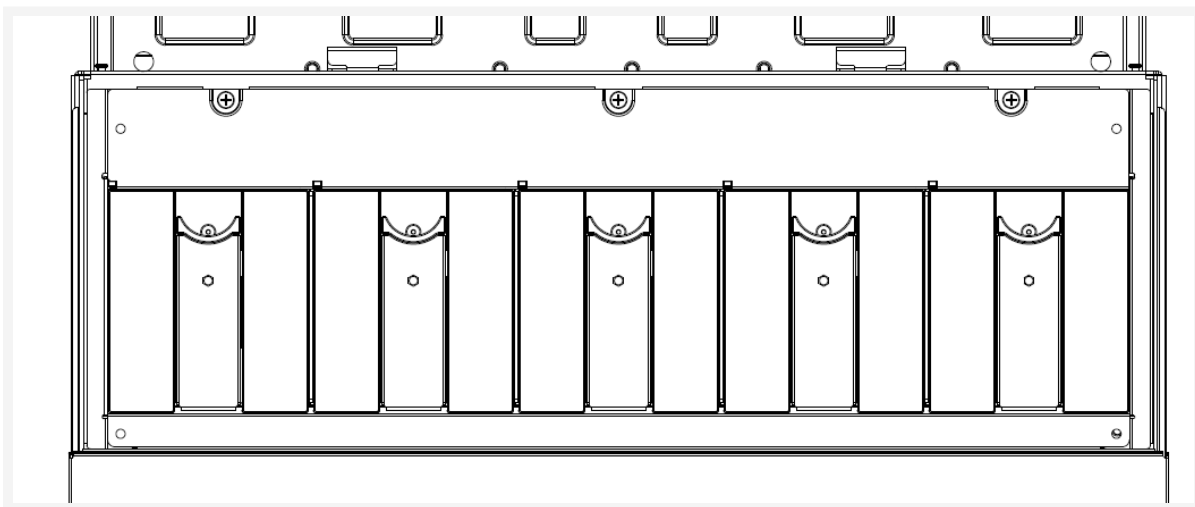
Figure 3. Fan Module - Front and Rear View



Fan Module LED

Each fan module includes one status LED.

Figure 4. Fan Module Assembly Top View



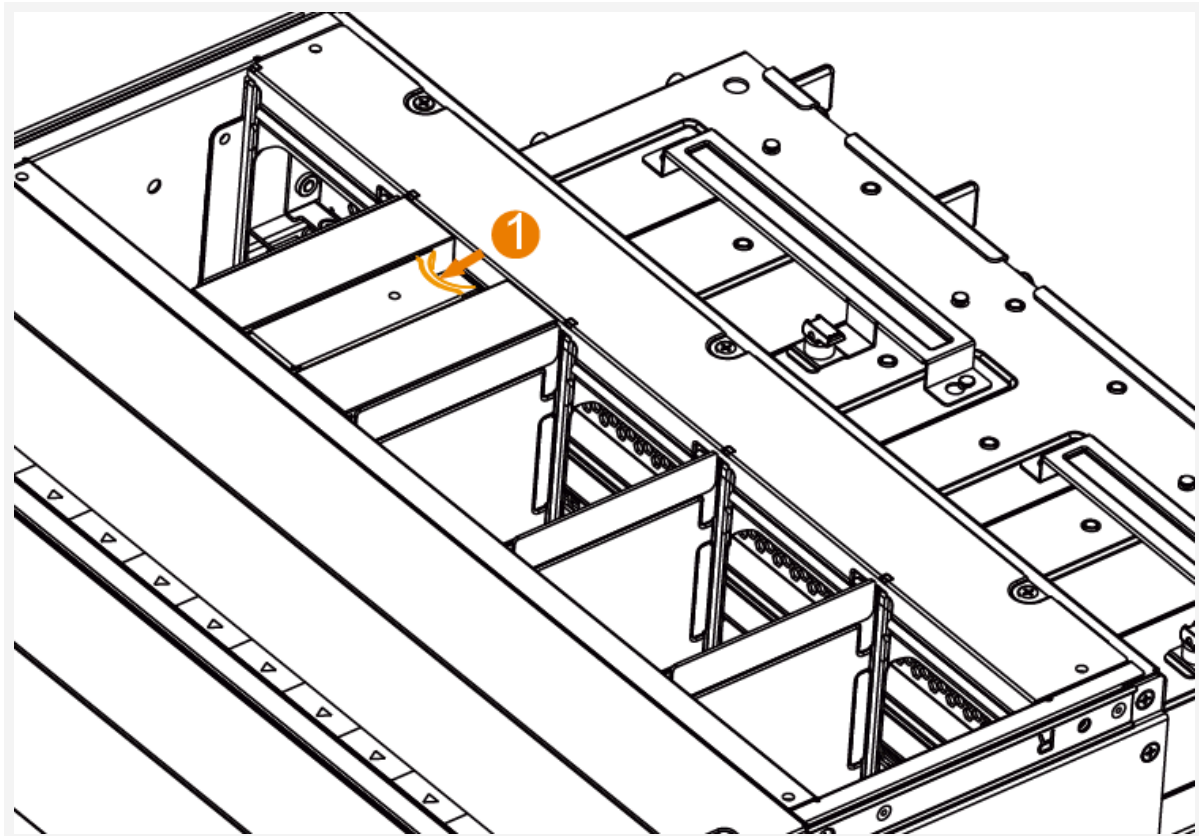
Fan Fault LED (Amber)

- ON -Fan fault
- OFF -Normal operation (or no power)

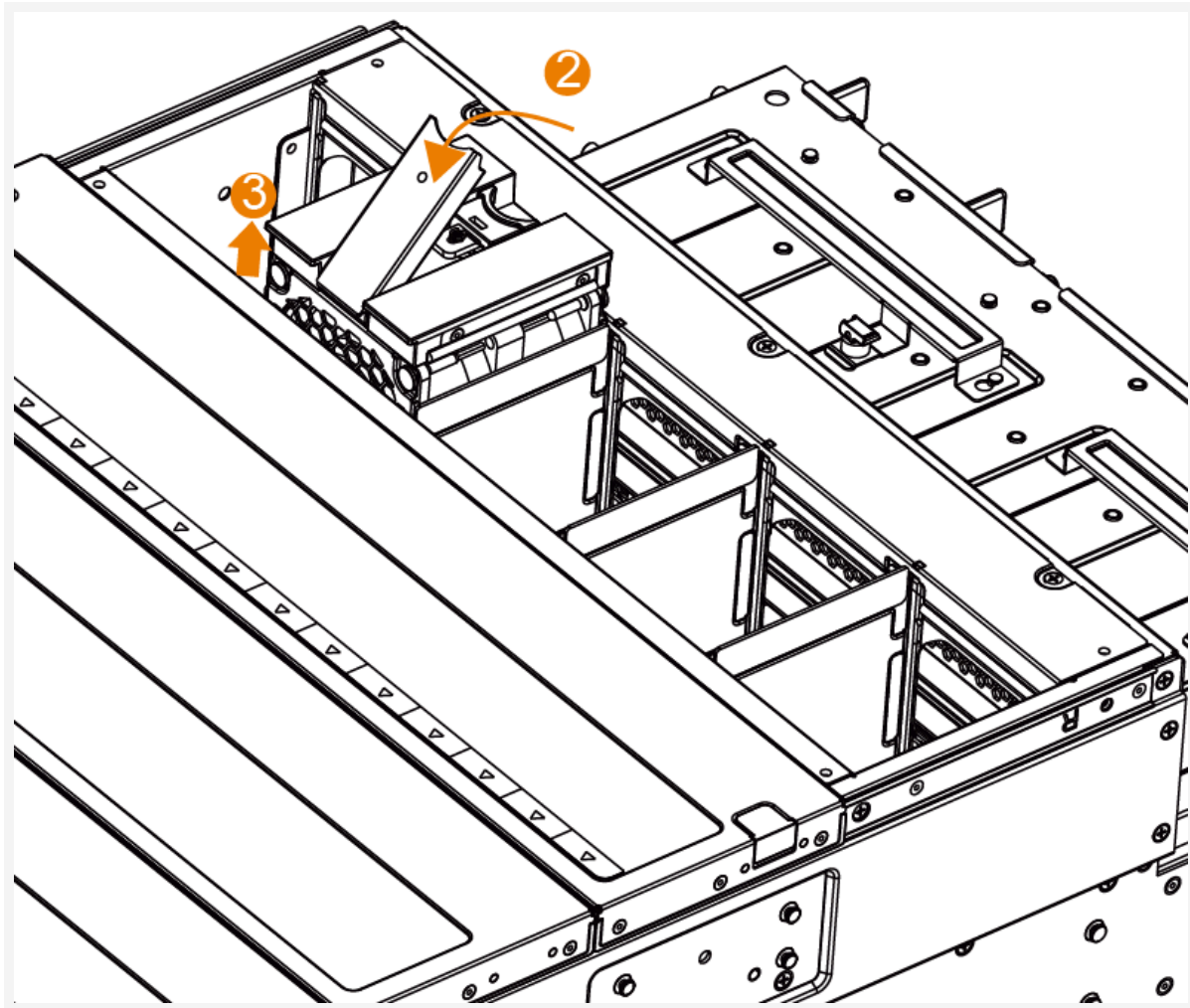
Fan Removal

Procedure

- 1 Press the latch to release the handle.



2 Rotate handle to disengage locking mechanism.

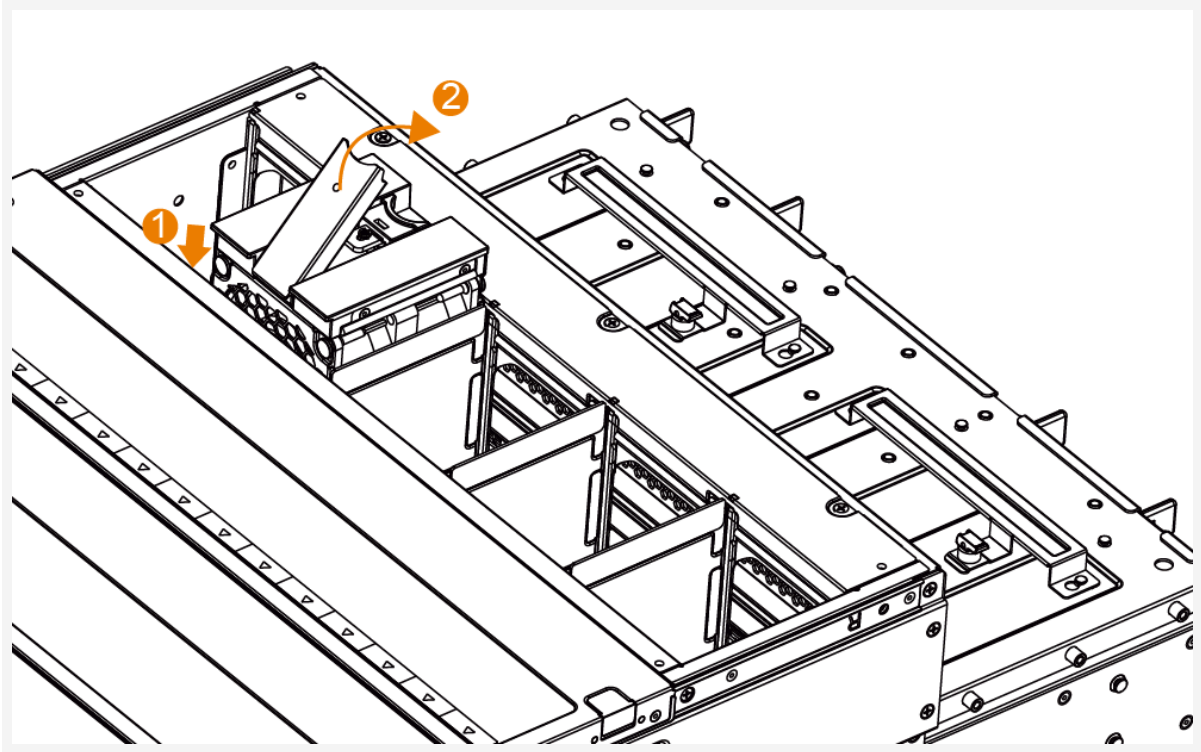


- 3 Use handle to pull fan module from chassis.

Fan Installation

Procedure

- 1 Ensure fan module is aligned with the chassis fan slot and slide into place.



- 2 Rotate handle into position. A 'click' may be audible when latch engages.

Safety Precautions

Read this section before beginning any procedure. For your safety and the protection the DS3000, please follow these precautions when setting up this device.

- Follow all cautions and instructions marked on the equipment.
- Ensure the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the chassis. Dangerous voltages, and/or moving parts may be present. Conductive external objects could produce a short circuit that could damage the equipment or cause electric shock, resulting in serious personal injury.
- In order to not exceed operational temperature guidelines, do not block or cover the openings of your product. Never place a product near a radiator or heat register. Failure to follow these guidelines may cause overheating and affect the reliability of the device.
- Do not operate products without the cover in place. Failure to take this precaution may result in improper cooling and system damage.
- When cleaning the product, please use a dust blower to remove the dirt. Never apply any cleanser containing ethanol or benzene.
- Do not drop the product or subject it to physical shock.
- Keep liquid away from the device.
- When shipping the product, pack it inside qualified packaging and ship on a pallet.
- Celestica does not assume any responsibility for problems caused by unauthorized repairs or replacement.
- When using a QSFP transceiver, do not stare directly at the fiber bore when the switch is connected to power. The laser may hurt and/or damage your eyes.
- Do not install, move or open the DS3000 or its modules when the device is connected to power. Doing so may damage equipment and cause serious burns to skin.
- Do not drop metal into the product. It may cause a short-circuit.
- Keep flammable items away from the product.
- Inspect and maintain the site and the device regularly. Failure to do so may reduce the lifespan of this device and possibly void the warranty.

Power

Depending on the type of power system your device has, the following symbols may be used.



On - Connects power to the system. This can be AC or DC power depending on product and model.



Off - Disconnects power to the system.



Standby - The power switch is in standby mode (low power).

⚠ CAUTION: Please check the input to ensure proper grounding of the power supply unit (PSU) before powering on the system.

⚠ CAUTION: Improper power supply system grounding, extreme fluctuation of the input source, and transients (spikes) can result in data errors, or even hardware damage.

⚠ CAUTION: The product may be equipped with multiple power supplies. To remove all hazardous voltages, disconnect all power cords.

⚠ CAUTION: This device is designed to work with power systems having a grounded neutral or a grounded return for direct current (DC) powered products. To reduce the risk of electric shock, do not plug the chassis into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.

⚠ CAUTION: The system may have more than one power supply cable. To reduce the risk of electrical shock, a trained service technician may need to disconnect all power supply cables before servicing the system.

NOTE:



This symbol is used when multiple power supplies are installed in a system. This warning label is typically found on the back of the device near the PSU.

Power Connection

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. For electrical power ratings on options, refer to the power rating label or the user documentation supplied with that option.

CAUTION: Not all power cords have the same current ratings. Do not use the power cord provided with your equipment for any other products or use. Only use the power cord(s) that came with your product to power it. Do not substitute. Do not use household extension cords with your product.

NOTE: For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

NOTE: To disconnect power, remove all power cords from unit.

ATTENTION: DÉBRANCHER LES TOUT CORDONS D'ALIMENTATION
POUR DÉCONNECTER L'UNITÉ DU SECTEUR.

WARNUNG: Wenn Sie das Gerät zwecks Wartungsarbeiten vom Netz trennen müssen, müssen Sie beide Netzteile abnehmen.

当心：如要切断电源，请将全部电源线都从机器上拔掉。

當心：如要切斷電源，請將全部電源線都從機器上拔掉

Installation Notice

To ensure the proper operation of DS3000 and your physical security, please read carefully the following installation guide.

- Read through the installation instruction carefully before operating on the system. Make sure the installation materials and tools are prepared. And make sure the installation site is well prepared.
- During the installation, users must use the brackets and screws provided in the accessory kit. Users should use the proper tools to perform the installation. Users should always wear anti-static uniform and ESD wrist straps. Users should use standard cables and connectors.
- After the installation, users should clean the site. Before powering on the switch, users should ensure the switch is well grounded. Users should maintain the switch regularly to extend the lifespan of the switch.
- Do not block or cover the openings of your product. Never place a product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your product.

⚠ CAUTION:

There is danger of explosion if batteries are mishandled or incorrectly replaced. On systems with replaceable batteries, replace only with the same manufacturer and type or equivalent type recommended by the manufacturer per the instructions provided in the product service manual. Do not disassemble batteries or attempt to recharge them outside the system.

Do not dispose of batteries in fire. Dispose of batteries properly in accordance with the manufacturer's instructions and local regulations. Note that on some CPU boards, there is a lithium battery molded into the real time clock. These batteries are not customer replaceable parts.

Electrostatic Discharge

Static electric discharges can cause damage to internal circuits, even the entire switch.

Please read and familiarize yourself with the following guidelines to avoid ESD damage.

- Ensure proper earth grounding of the device.
- Perform regular cleaning to reduce dust.
- Maintain proper temperature and humidity.
- Always wear an ESD wrist strap and anti-static uniform when in contact with circuit boards.

Anti-interference

All sources of interference, whether from the device/system itself or the outside environment, will affect operations in various ways, such as capacitive coupling, inductive coupling, electromagnetic radiation, common impedance (including the grounding system) and cables/lines (power cables, signal lines, and output lines).

Please read and familiarize yourself with the following requirements to prevent interference.

- Precautions should be taken to prevent power source interruptions.
- Provide the system with a dedicated grounding, rather than sharing the grounding with the electronic equipment or lightning protection devices.
- Keep away from high power radio transmitters, radar transmitters, and high frequency strong circuit devices.
- Provide electromagnetic shielding if necessary.

Chassis Installation

DS3000 is designed to be installed in a standard 19" square hole, four post rack. The bracket kit is only for 19 inch (483mm) wide, standard square hole racks, with a depth ranging from 22 inches ~ 33.5 inches (558mm ~ 850mm) as measured from rack post to rack post. This chapter covers the tools and procedures necessary to correctly and safely install the DS3000 Ethernet switch. Before beginning, create a clean, stable, and level work surface.

NOTE: The power distribution unit (PDU) location in the rack should avoid interference with the cable management accessory (CMA) and potential removal of field replaceable units (FRUs) from the rear of the chassis. A wider rack enclosure width is recommended along with suitable PDU and power cord plug orientation.

CAUTION: Use two or more people to mount chassis into rack.

Installation Tools

Gathering the following tools before starting the chassis installation is recommended.

- Phillips Head (PH#1 and PH#2) slotted screwdrivers
- Standard flat blade screwdriver
- Anti-static wrist strap
- Anti-static overalls
- Protective gloves

Rail Kit Assembly

There are several considerations to keep in mind when installing a rail kit in a server rack. Following these recommendations will ensure a successful installation.

Elevated Operating Ambient Temperature

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room temperature. Therefore, consideration should be given to installing the equipment in an environment where the chassis does not exceed the maximum ambient temperature (T_{ma}) specified.

Reduced Air Flow

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Open Rack Mounting

Care should be taken to prevent the rack frame from obstructing the ventilation openings. Be sure to check the chassis positioning after installation to avoid overheating.

Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring.

Reliable Grounding

Reliable grounding (earthing) of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

NOTE: Rack mounted equipment must not be used as a shelf or work space. Do not add weight to rack mounted equipment.

For safety, a rack should should always be loaded from the bottom up. That is, install the equipment that will be mounted in the lowest part of the rack first, then the next higher systems, etc.

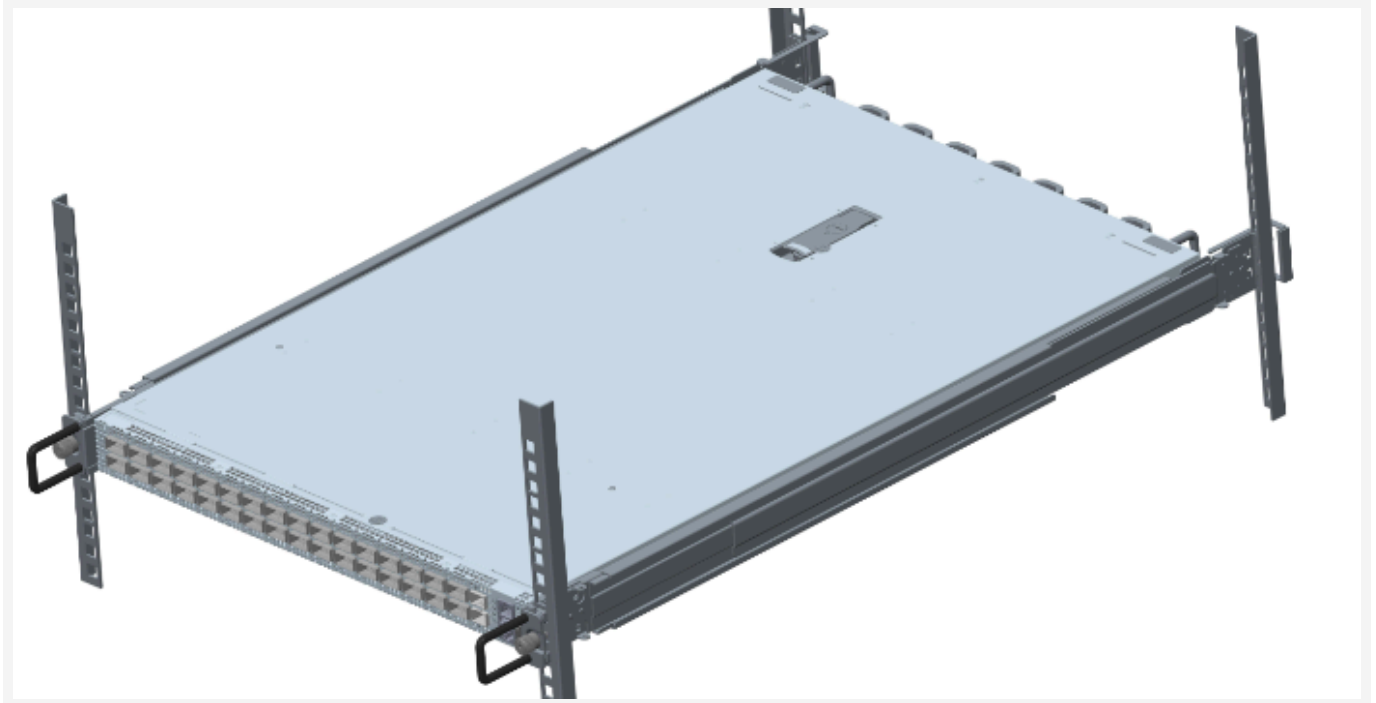
CAUTION: To prevent the rack from tipping during equipment installation, the anti-tilt bar on the rack must be deployed.

If a standard 19" rack is not available, DS3000 can be placed on a clean, stable, and level surface. Leave a clearance of 100mm (~4 inches) around the chassis for ventilation. Do not place anything on top of the chassis.

Installing the Chassis

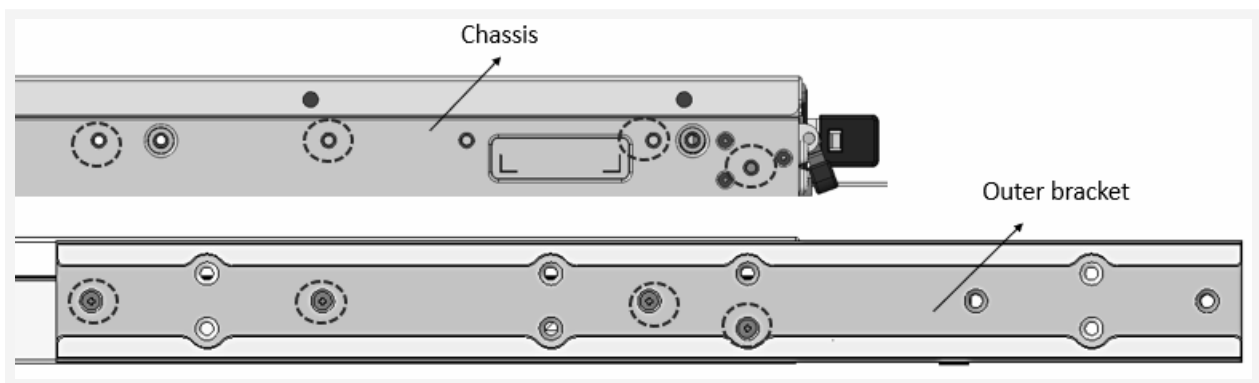
Context

NOTE: The following illustrations may display a different product. However, the installation process is universal to all Celestica rack-mountable products.



Procedure

- 1 Attach the two outer brackets with M4 screws provided in the accessory kit.
- 2 Align outer bracket with chassis holes (chassis left is same as right).



- 3 Lock outer bracket with M4 screw (PH#2 slotted screwdriver)

Figure 5. Secure Bracket to Chassis

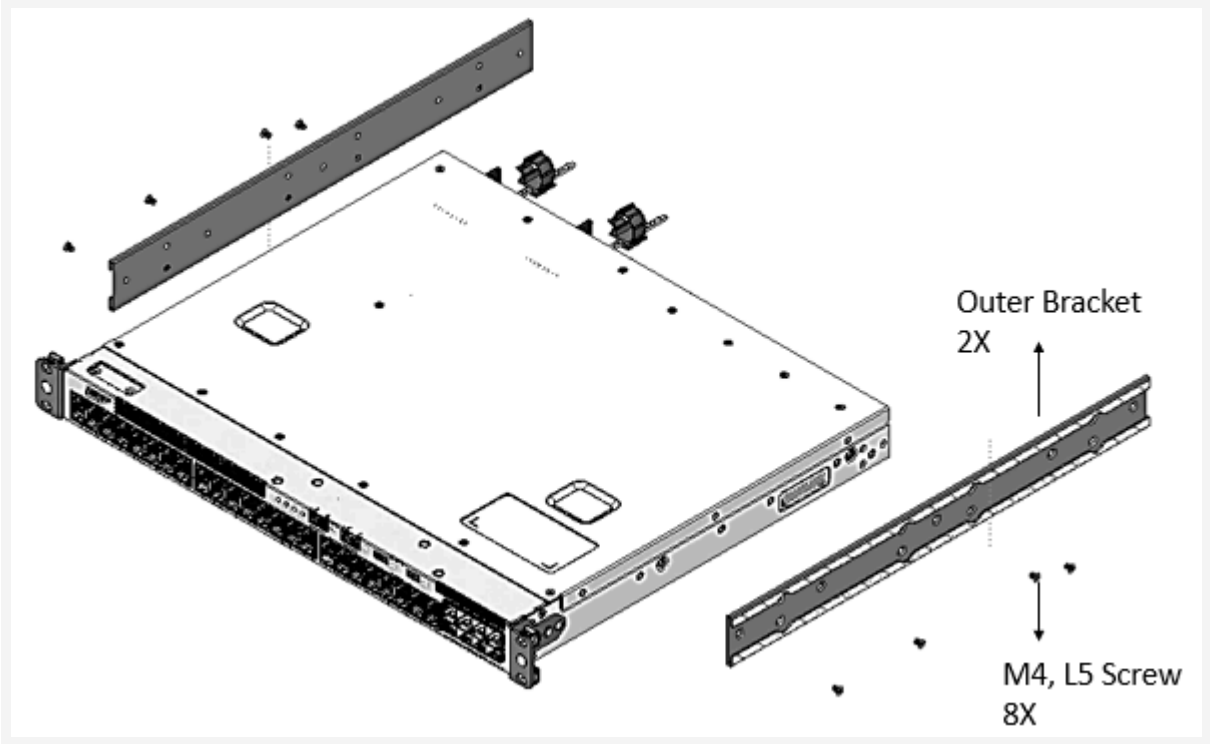
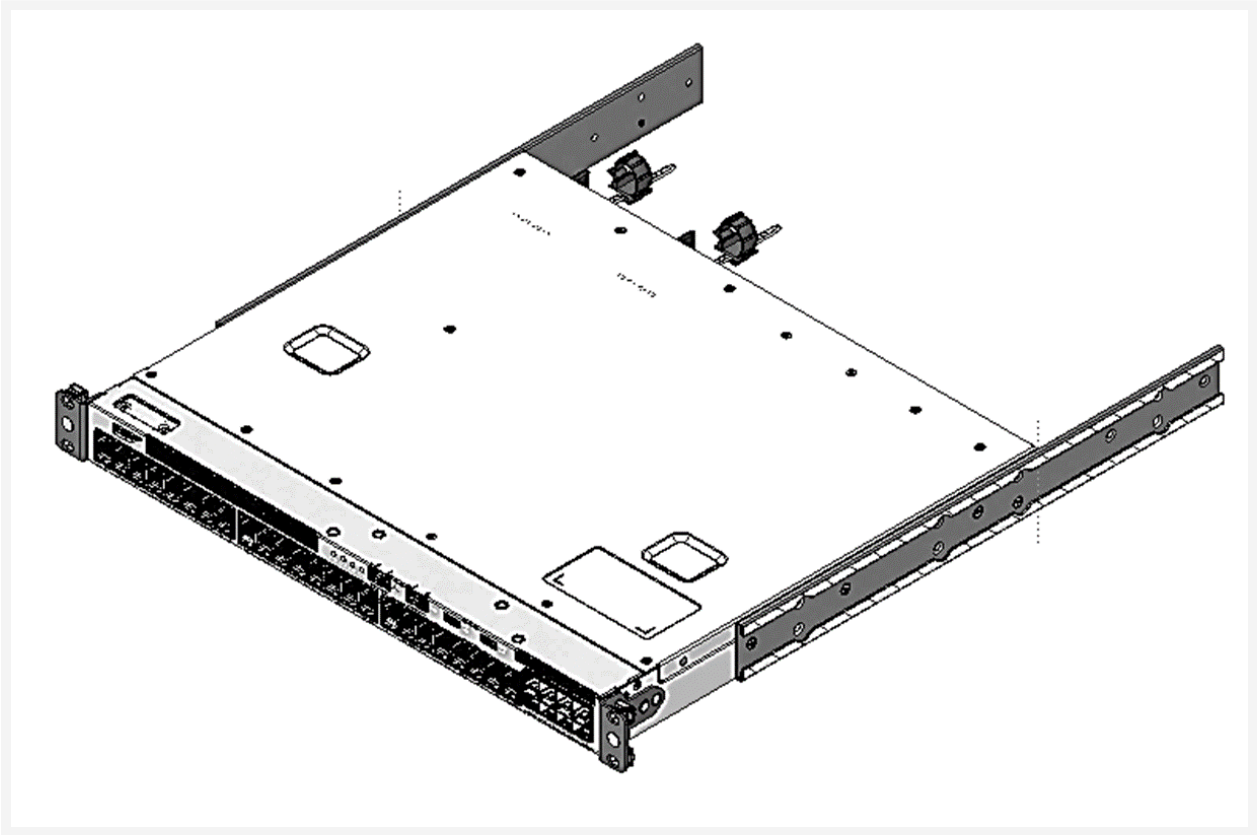


Figure 6. Inner Rail Bracket Installed to Chassis



- 4 Push the chassis with the outer bracket locked in step 1 above from the front side by one person, and push the inner bracket into the outer brackets (sleeve) slot on the chassis

from the rear side by another person at the same time, until guide pin (detail 1) and inner bracket guide pin (detail 3) fit in rack square holes. Then, lock them with M6 screws (PH#3 slotted screwdriver).

- 5 Press chassis and inner bracket until M6 screws fully lock.
- 6 Save enough space around the switch for good air circulation.

Contact Information

Celestica operates a customer service portal.

- Self-support resources (knowledge base, FAQ, common fixes, new firmware) are available.
- Our support teams are connected to the support portal and can receive notifications for requests.
- The portal also tracks and collects customer inputs for further improvements to our products and services.

Customers can register and request support (as well as search information in the knowledge base) at:<https://customersupport.celestica.com/csm>

In case there are any questions or issues using the customer portal visit:

<https://www.celestica.com/contact-us>. For immediate questions, please feel free to call your responsible account manager.