



Celestica™

DS2000 Installation Guide

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DS2000 Installation Guide

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Preface

This guide covers the installation and basic setup of the DS2000 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 DS2000 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.

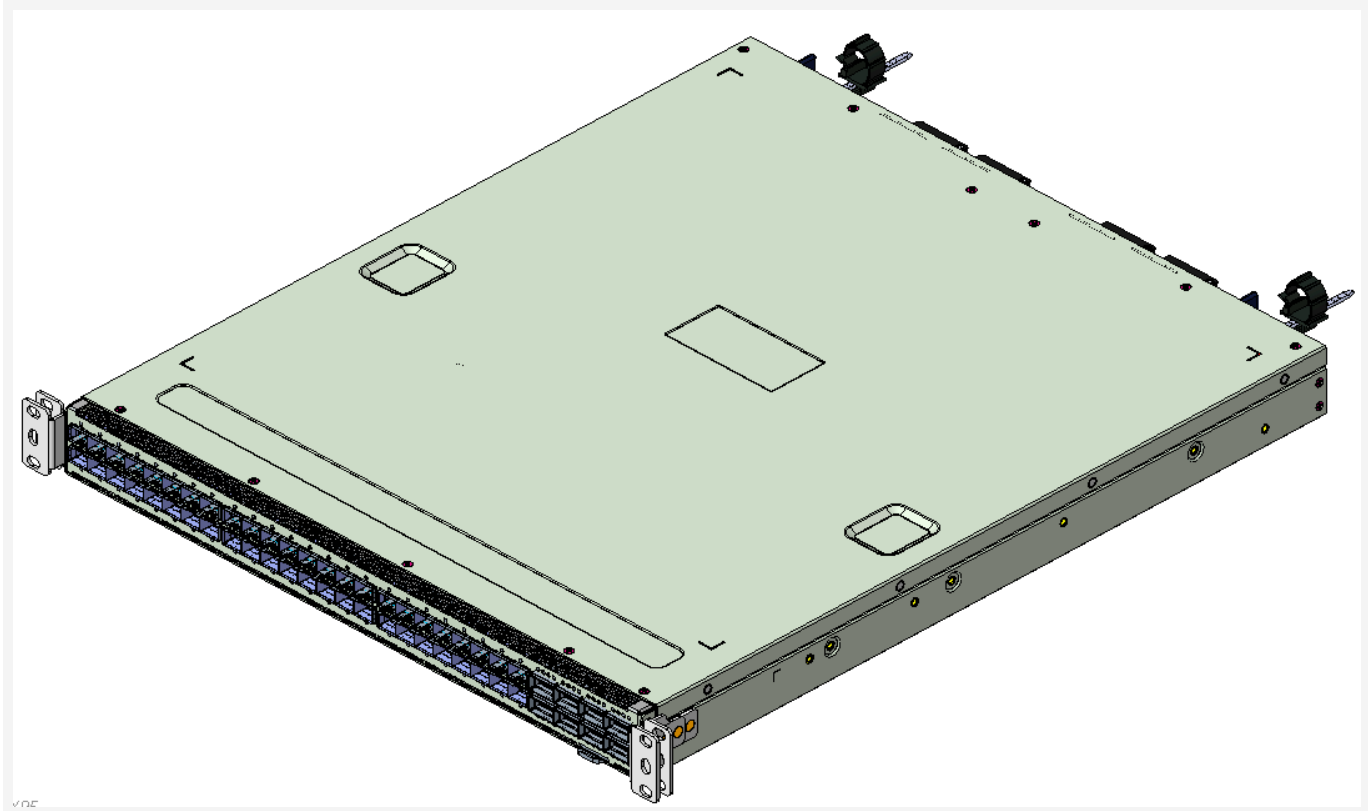
Type	Generalized Definition
 NOTE:	Provides supplemental information.
 CAUTION:	Indicates a situation that if not avoided, may result in equipment damage or minor to moderate injury.
 TIP:	Indicates information that helps you make better use of your system.
 WARNING:	Indicates a hazardous situation that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

DS2000 Product Overview

This document describes the general hardware design of the DS2000 switch.

DS2000 is a 48-port 10/25GbE and 8 port 100GbE switch in a compact 1U form factor that provides 2.0Tbps bandwidth, ideally suited for data center top of rack deployments and enterprise service aggregation.



Optimized for:

- 10/25GbE Data Center Top of Rack
- Enterprise Edge/Aggregation
- Open and Third-Party Network Operating Systems

Product Specifications

Type	DS2000
Depth	520 mm
Height	44 mm

Type	DS2000
Width	438 mm
Weight	9.1 Kg
Power Input (VAC)	~100 - 127 VAC & ~200 - 240 VAC (47-63Hz)
Power Consumption (W)	<350W
Operating Temperature (airflow front to back)	0° - 45° C @900m
Operating Temperature (airflow back to front)	0° - 45° C
Operating Relative Humidity	5% - 95%

Product Orientation

Figure 1. DS2000 Front Panel View

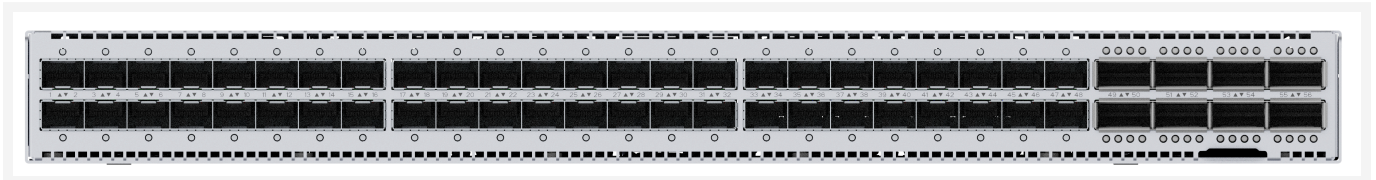


Figure 2. DS2000 Rear Panel View



NOTE: The user can perform local and telnet configuration through this port. The console port supports asynchronous mode, 8 data bits, 1 stop bit, no parity bit. The default baud rate is 115200 bps.

NOTE: The USB port supports data transmission only. It does not supply power.

Status LEDs

The front panel of the DS2000 has 48 SFP28 and 8 QSFP28 port indicator LEDs. These LEDs are described in the following tables.

Table 1.Port Indicator LEDs of QSFP28

LED State	Meaning
1st LED: Green/Amber	
Green on	Port link operating at max port speed
Green blinking	Port activity operating at max port speed
Amber on	Port link operating at lower speed
Amber blinking	Port activity operating at lower speed
Off	Port link down
All four LEDs are used when 4x25G or 4x10G mode is running on QSFP28 port	
Green on	4x25G link on QSFP28 port
Green blinking	4x25G activity on QSFP28 port
Amber on	4x10G link on QSFP28 port
Amber on	4x10G activity on QSFP28 port
Off	Port link down

Table 2.Port Indicator LEDs of SFP28

LED State	Meaning
One Port Link/ Activity status Green/Amber bi-colored LED is provided for each front panel port	
Green on	Port link operating at max port speed
Green blinking	Port activity operating at max port speed

LED State	Meaning
Amber on	Port link operating at lower speed
Amber blinking	Port activity operating at lower speed
Off	Port link down

After powering on, all the port LEDs will self-check (all colors blink in sequence), and then turn green.

After Software Development Kit (SDK)/Network Operating System (NOS) runs, each port's LEDs will function as listed in the following table:

Figure 3. Indicator LEDs of 48 SFP28 and 8 QSFP28 ports

MODE LED	SFP28		QSFP28			
	10G	25G	4*25G	4*10G	40G	100G
LED1	Yellow	Green	Green	Yellow	Yellow	Green
LED2			Green	Yellow		
LED3			Green	Yellow		
LED4			Green	Yellow		

Table 3. Front Panel Status LEDs

Indicator LED	Front Panel Sign	LED State	Meaning
Power	PWR	Green On	All PSUs operating normally
		Amber On	One or more PSUs absent or operating abnormally
Fan	FAN	Green On	All fans operating normally
		Amber On	One or more fans absent or operating abnormally

Indicator LED	Front Panel Sign	LED State	Meaning
		Off	No power to system
Alarm	ALM	Green On	No alarm
		Amber On	Critical alarm
		Amber 1Hz blinking	Minor alarm
		Amber 4Hz blinking	Major alarm
System	STAT	Green / Amber - Alternate blinking	Normal operation
		Off	No power to system

Table 4.Rear Panel Status LEDs

Indicator LED	Rear Panel Sign	LED State	Meaning
Fan module	FAN1 / FAN2 / FAN3 / FAN4	Green	All fans operating normally
		Amber	Fan(s) operating abnormally
		Off	Fan absent
PSU module	P-1 / P-2	Green	All PSUs operating normally
		Red	PSU error(s) detected
		Off	PSU is off

Table 5.Management Port Indicator LEDs

Indicator LED	Status	Description
ETHERNET Port (left)	Green blinking	Port transmits data
	Off	Port does not transmit data
ETHERNET Port (right)	Amber On	Port is configured at 10M/100M speed
	Green On	Port is configured at 1000M speed
	Off	No connection or failed to connect

Port Description

DS2000 provides 48 SFP28 ports, eight QSFP28 ports, one RJ45 Ethernet port, one Serial Console port and one USB port. Port types are described as follows:

Table 6.DS2000 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
Serial Console port	<ul style="list-style-type: none"> ▪ Supports a minimum 9600 and 115200 baud rates, eight data bits, one stop bit and no parity
USB port	<ul style="list-style-type: none"> ▪ USB2.0 host type A interface
QSFP28	<ul style="list-style-type: none"> ▪ Supports parallel multimode fiber OM3 and OM4 for short reach applications 100Gbase-SR4. ▪ Supports long reach optics 100Gbase-LR4 (10 km) over single mode fiber. ▪ Supports copper 100Gbase-CR4 connections. <ul style="list-style-type: none"> ▪ 1M 30AWG ▪ 3M 28AWG ▪ 5M 26AWG ▪ Does not require switch device reboot for 100G port mode

change to 4x25G .

- Uses break out cable for 100G port mode change to 4x25G mode.

SFP28

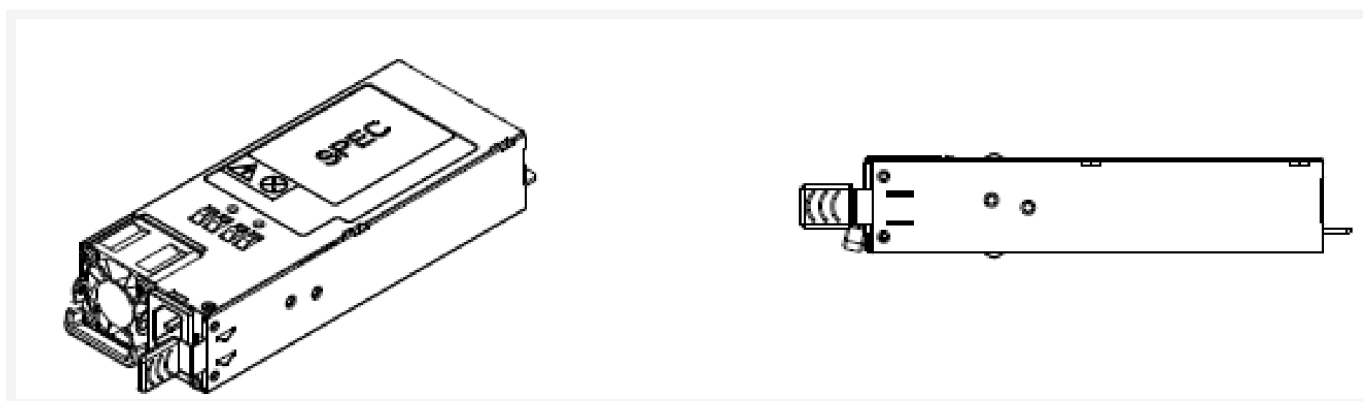
- Supports parallel multimode fiber OM3 and OM4 for short reach applications 10Gbase-SR4.
- Supports long reach optics 10Gbase-LR4 (10 km) over single mode fiber.
- Supports copper 10Gbase-CR4 connections.
 - 1M 30AWG
 - 3M 28AWG
 - 5M 26AWG

Power Supply Unit (PSU)

The DS2000 switch contains two 550W PSUs with the support of two airflow options: front-to-back (F2B) and back-to-front (B2F).

Each PSU's maximum output power is 550W with an input voltage of 90VAC~264VAC and an output voltage of 12 VDC +/- 5%. The PSU includes a fan and a handle at the back of the power supply to support hot plug pull-out and insertion.

Figure 4. PSU



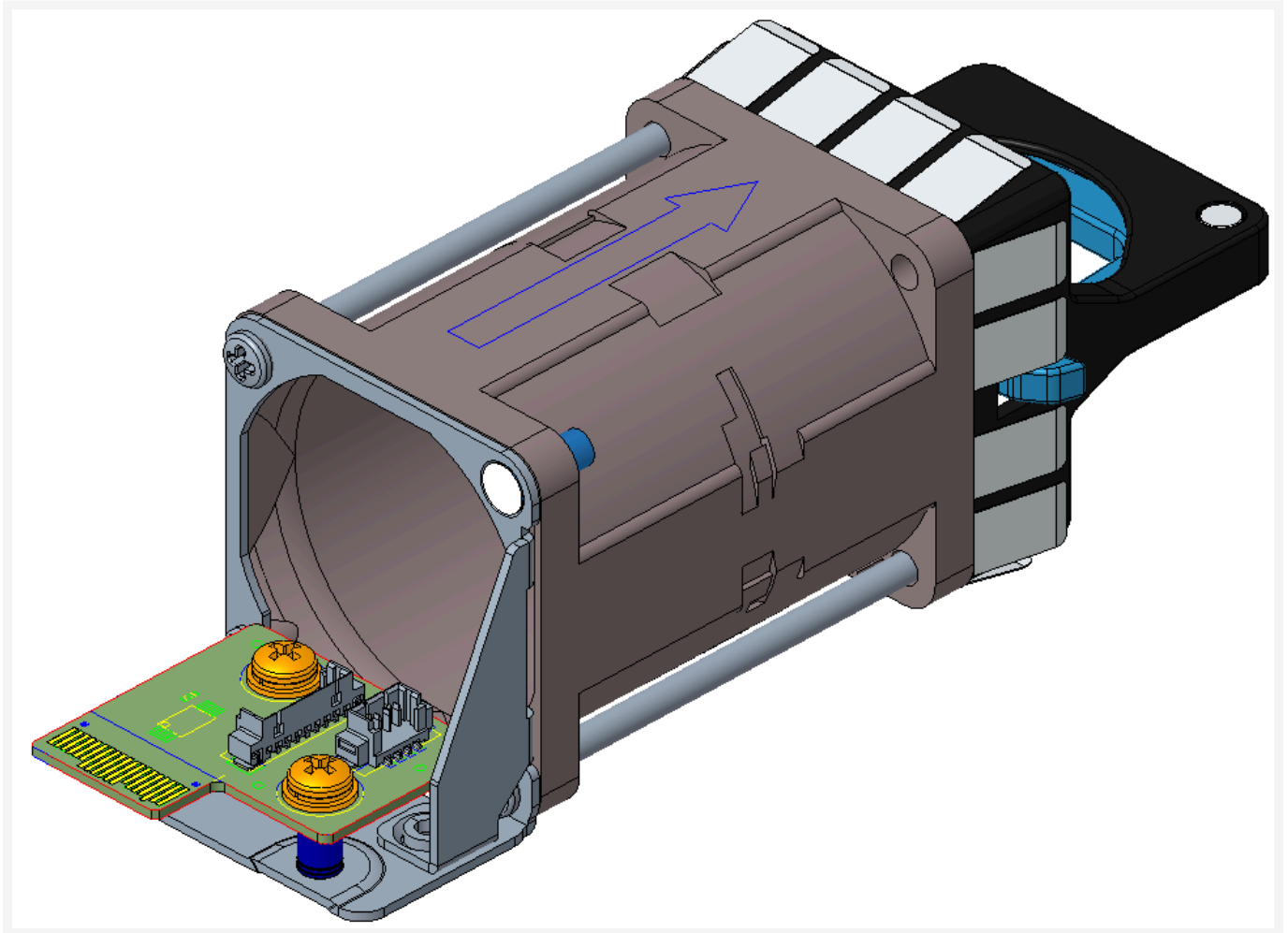
CAUTION: Different airflow power modules can not be mix used.

Fan Module

DS2000 switch contains four fan modules in the standard configuration. The rotation speed of the fan adjusts and adapts to the system temperature. It provides two airflow options: front-to-

back (F2B) and back-to-front (B2F).

Figure 5. Fan Module



⚠ CAUTION: Different airflow power modules can not be mix used.

Safety Precautions

Read this section before beginning any procedure. For your safety and the protection the DS2000, 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 DS2000 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

Environmental Requirements

Please read and familiarize yourself with the following requirements.

- The switch must be installed in a clean, dust-free environment. Otherwise, the device may be damaged by electrostatic adherence.
- Maintain the temperature @airflow front to back within 0° - 45° C @900m, temperature @airflow back to front with 0° - 45° C and the humidity within 5% - 95%.
- The device must work in the range of AC power input: ~100 - 127 VAC & ~200 - 240 VAC (47-63Hz).
- The device must be installed in a dry and cool place. Leave sufficient spacing around the device for good air circulation.
- The device must be well grounded in order to avoid electrostatic discharge (ESD) damage and physical human injury.
- Avoid direct sunlight and keep the chassis away from heat and strong electromagnetic interference sources.

Dust and Particles

Dust is harmful to the operation of the DS2000.

Dust may lead to electrostatic adherence, especially under low relative humidity, resulting in poor contact of metal connectors or contacts. Electrostatic adherence may result in reduced product lifespan and increased chance of communication failures. The recommended value for dust content and particle diameter in the site is shown below.

Table 7.Environmental Requirements: Dust

Max Diameter (µm)	0.5	1	3	5
Max Density (particles/m³)	1.4×10 ⁵	7×10 ⁵	2.4×10 ⁵	1.3×10 ⁵

Airborne salt, acid and sulfide are also harmful to the device. Such harmful gases will aggravate metal corrosion and the aging of some parts. The site should avoid harmful gases, such as SO2, H2S, NO2, NH3 and Cl2, etc. The table below details the threshold values.

Table 8.Environmental Requirements: Particles

Gas	Average (mg/m ³)	Max (mg/m ³)
SO ₂	0.2	1.5
H ₂ S	0.006	0.03
NO ₂	0.04	0.15
NH ₃	0.05	0.15
Cl ₂	0.01	0.3

Temperature and Humidity

Although DS2000 is designed to use multiple internal fans, the site should still maintain appropriate temperature and humidity. High-humidity conditions may cause increased electrical resistance and degradation of mechanical properties and corrosion of internal components. Extreme low relative humidity may cause the insulation spacer to contract, making the fastening screw insecure. Furthermore, in dry environments, static electricity is liable to be produced and cause harm to internal circuits. Temperature extremes may cause reduced reliability and premature aging of insulation materials, thus reducing the working lifespan of the switch.

Table 9.Environmental Requirements: Temperature and Humidity

Temperature (airflow front to back):		Relative Humidity	
Long-term condition	Short-term condition	Long-term condition	Short-term condition
5 ~ 40°C	0 ~ 45°C	40 ~ 60%	5 ~ 90%

Temperature (airflow back to front):		Relative Humidity	
Long-term condition	Short-term condition	Long-term condition	Short-term condition
5 ~ 40°C	0 ~ 45°C	40 ~ 60%	5 ~ 90%

NOTE: A sample of ambient temperature and humidity should be taken at 1.5m above the floor and 0.4m in front of the rack, with no protective panel covering the front and rear of the rack. Short term working conditions refer to a maximum of 48 hours of continued operation and an annual cumulative total of less than 15 days. Adverse operation conditions refer to the ambient temperature and relative humidity value that may occur during an air-conditioning system failure, and normal operation conditions should be recovered within 5 hours.

Environmental Requirements Tables

Table 10. Operating Environment Specifications

Temperature and Temperature Gradient		
Operating Reliability Requirement	Ambient	0 to 40° C
	Max Temperature Gradient	20° C per hour
Non-Operating Reliability Requirement	Ambient Non-Operating	-40 to 65 ° C

Regulatory Information

FCC (US)

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, 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 the user will be required to correct the interference at his/her own expense.

NOTE: Any modifications made to this device that are not approved by Celestica may void the authority granted to the user by the FCC to operate this equipment.

ICES-003 (Canada)

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

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

CE (European Community)

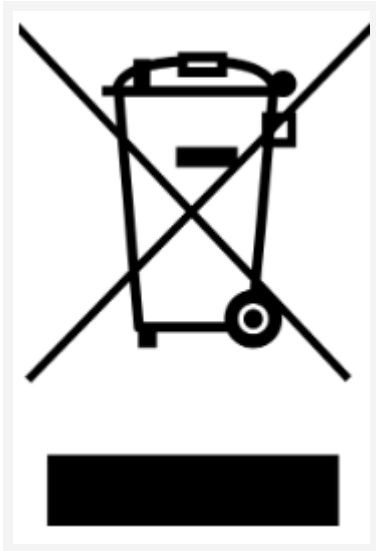
This product conforms to the following European Directive(s) and Standard(s): Application of Council Directive: 2014/35/EU, 2014/30/EU, 2011/65/EU.

Standards to which Conformity is declared: EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60950-1.

This is a Class A product.

In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Waste Electrical and Electronic Equipment (WEEE)



In accordance with European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE), the presence of the above symbol on the product or on its packaging indicates that this item must not be disposed of in the normal unsorted municipal waste stream. Instead, it is the user's responsibility to dispose of this product by returning it to a collection point designated for the recycling of electrical and electronic equipment waste. Separate collection of this waste helps to optimize the recovery and recycling of any reclaimable materials and also reduces the impact on human health and the environment.

For more information concerning the correct disposal of this product, please contact your local authority or the retailer where this product was purchased.

VCCI (Japan)

This is a 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 interference may occur, in which case, the user may be required to take corrective actions.

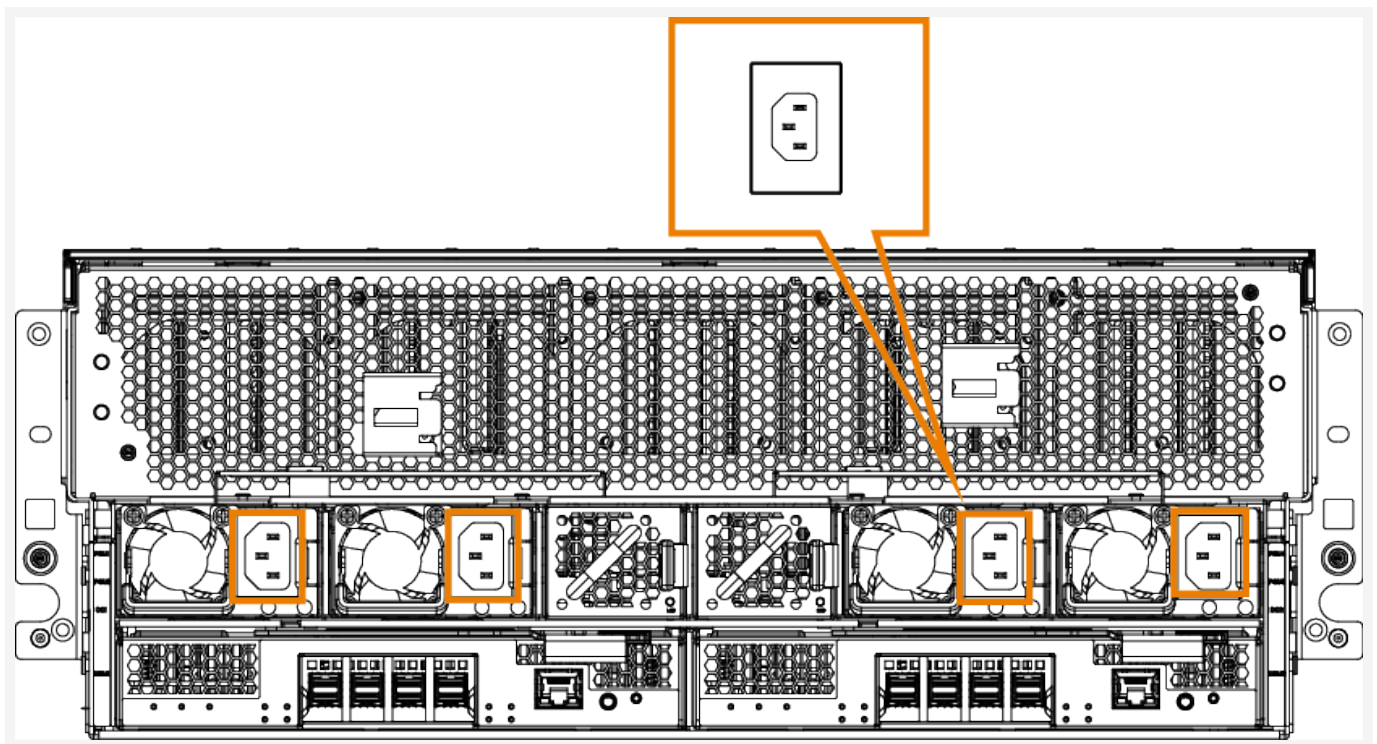
Cabling and Electricity Access

After the DS2000 switch is securely mounted into its rack, begin connecting the appropriate power and data cables in this order:

1. Connect power cables
2. Connect data cables

Connecting Power Cable(s)

Figure 6. Power Cable Sockets

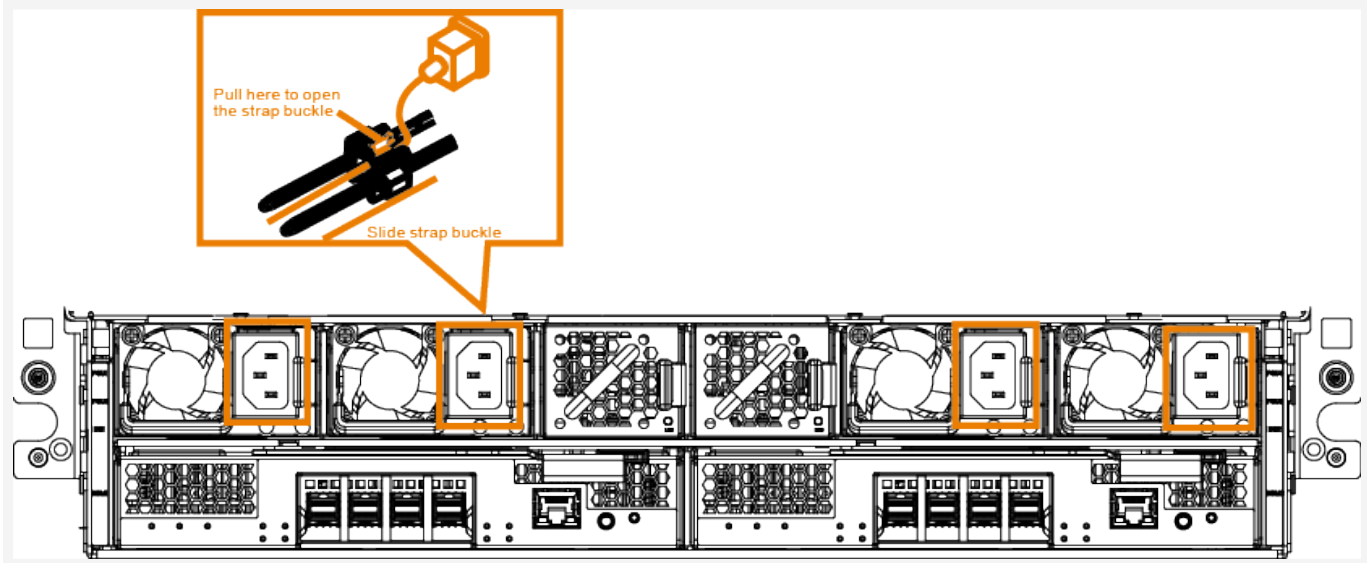


NOTE: After powering on the chassis check that all LEDs are lighting normally. If not, check the cable connections or go to [Troubleshooting Enclosure Startup Failure](#).

Connecting the Power Cable(s)

As shown in the illustration, power cables can be secured to the DS2000 by attaching the cable strap.

Figure 7. Securing the Power Cables



SAS Cabling to Host System

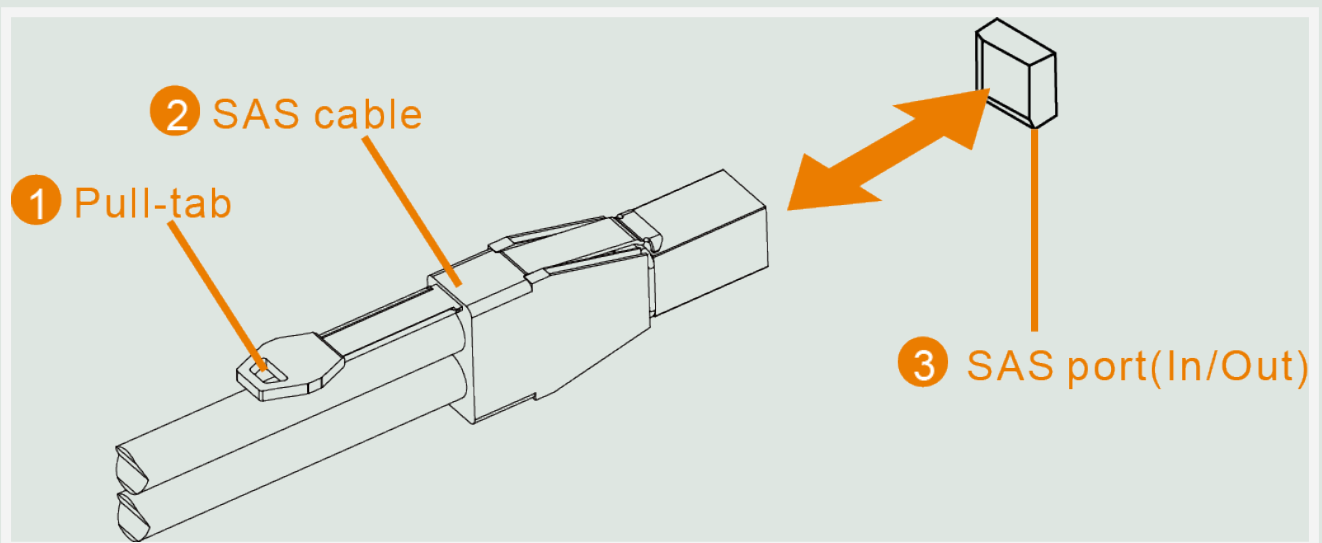
Context

The DS2000 switch is designed to connect to a host system.

Connect the SAS cable to the ESM Mini-SAS HD connector on the storage enclosure and to the RAID controller or HBA on the host system.

NOTE: Connectors on both ends of the SAS cable are universally keyed. You can connect either end of the cable to the ESM or the RAID controller.

TIP: To remove the SAS cable, pull the pull-tab to release the cable from the connector on the ESM and the host system. To connect the SAS cable, push straight into the ESM or host system and listen for a click.



Procedure

- 1 Connect the SAS cable to the ESM Mini-SAS HD connector on the storage enclosure and to the RAID controller or HBA on the host system. Push the cable into the connector until it clicks into place.
- 2 Check the LED indicators on the front panel of the enclosure.

Connecting to Additional Enclosures

Support Cabling

You can cable the storage enclosure to host systems and to more storage enclosures in two different configurations:

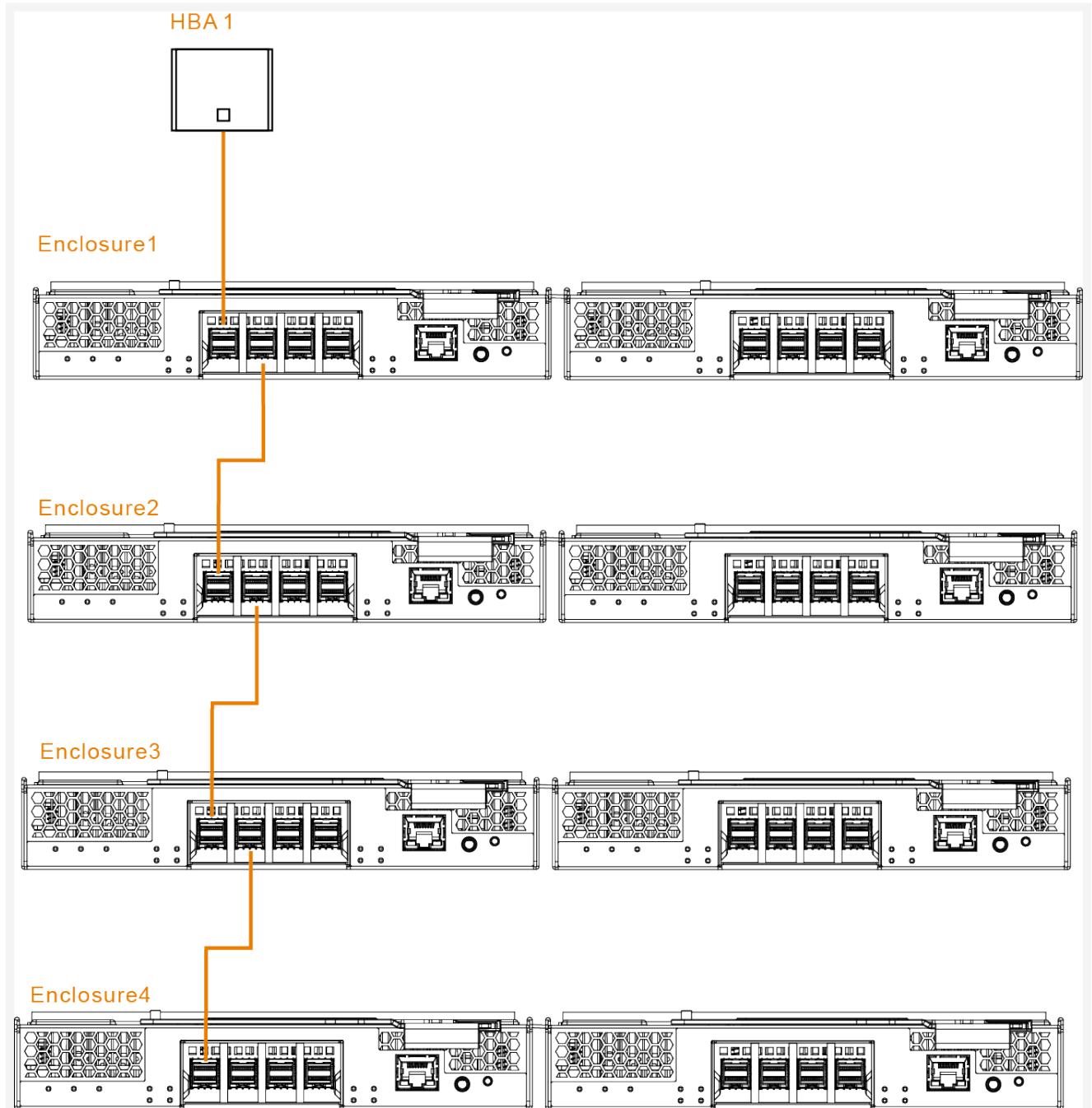
- Single port configuration

- Redundant configuration

Single Port Configuration

Single Port configuration the enclosures are daisy-chained with one of the ESMs connected to a single port on the controller card.

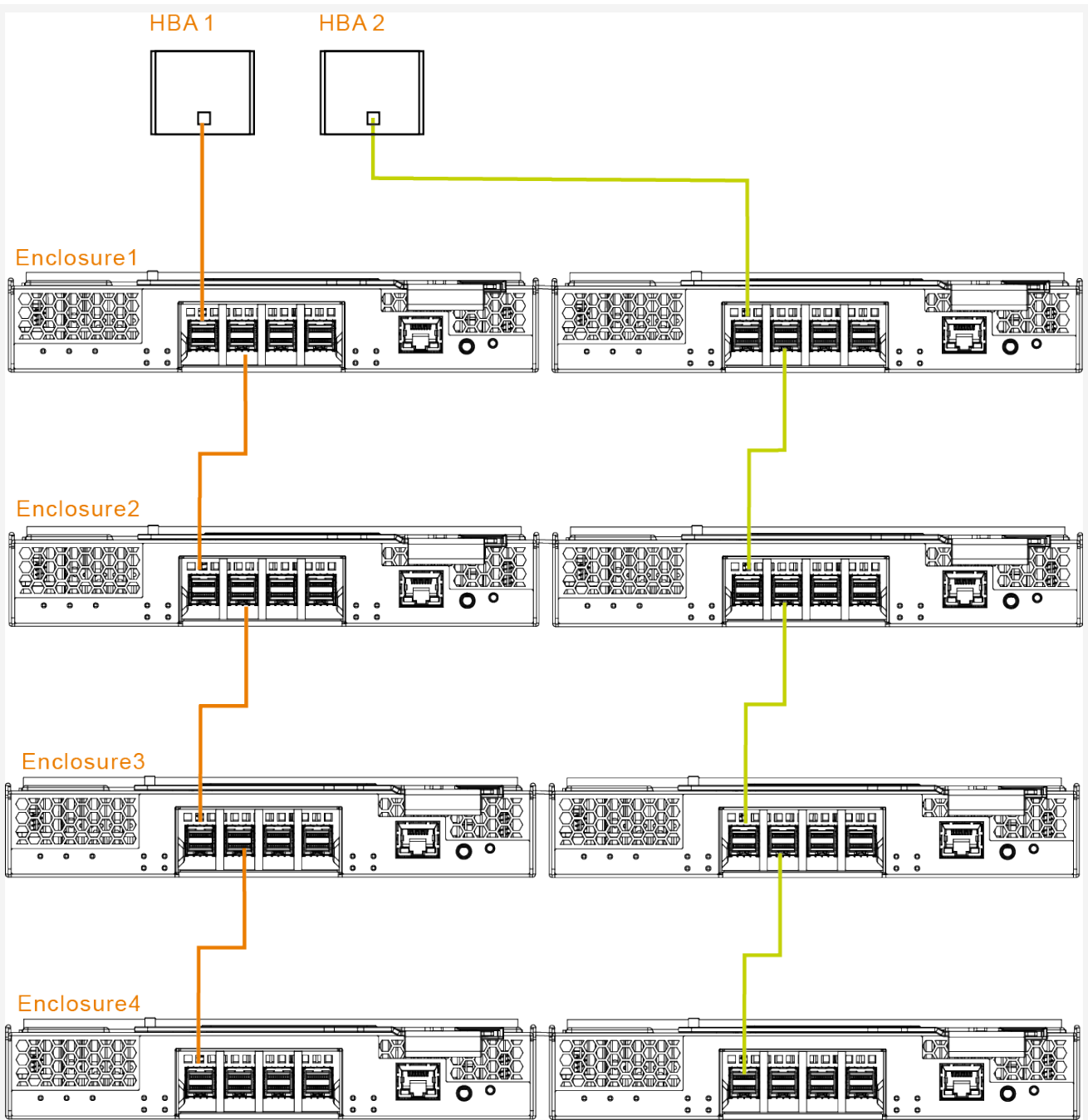
Figure 8. Enclosure 1 is connected to a host system's HBA and additional enclosures.



Redundant Configuration

In Redundant configuration, the enclosures are daisy-chained with both of the ESMs connected to both the ports on the controller card.

Figure 9. Enclosure 1 is connected to a host system via two HBAs plus additional enclosures. (Connecting to multiple host systems is possible.)



System Self Checks

After completing the cabling process and powering on the system, it is recommended to perform a few system self checks.

Figure 10. Device Name

Launch Terminal in Linux Host Server, input command `sg_scan -i` to scan enclosure, and get device name(E.g: /dev/sg1 /dev/sg4).

```
[root@shan0609 ~]# sg_scan -i
/dev/sg0: scsi0 channel=2 id=0 lun=0
        DELL PERC H310 2.12 [rmb=0 cmdq=1 pqual=0 pdev=0x0]
/dev/sg1: scsi3 channel=0 id=51 lun=0 enclosure
        CELESTIC TITAN-4U90 0330 [rmb=0 cmdq=1 pqual=0 pdev=0xd]
/dev/sg2: scsi3 channel=0 id=52 lun=0
        SEAGATE ST6000NM0034 E001 [rmb=0 cmdq=1 pqual=0 pdev=0x0]
/dev/sg3: scsi8 channel=0 id=0 lun=0 [em]
        TSSTcorp DVD-ROM SN-108DN D150 [rmb=1 cmdq=0 pqual=0 pdev=0x5]
/dev/sg4: scsi2 channel=0 id=18 lun=0 enclosure
        CELESTIC TITAN-4U90 0330 [rmb=0 cmdq=1 pqual=0 pdev=0xd]
/dev/sg5: scsi2 channel=0 id=19 lun=0
        SEAGATE ST6000NM0034 E001 [rmb=0 cmdq=1 pqual=0 pdev=0x0]
```

Figure 11. Supported Diagnostic Page

Use the following command to view the current firmware's diagnostic page:

```
sg_ses -p 0 /dev/sg*
```

```
[root@shan0609 ~]# sg_ses -p 0 /dev/sg1
CELESTIC TITAN-4U90 0330
Supported diagnostic pages:
Supported Diagnostic Pages [sdp] [0x0]
Configuration (SES) [cf] [0x1]
Enclosure Status/Control (SES) [ec,es] [0x2]
String In/Out (SES) [str] [0x4]
Threshold In/Out (SES) [th] [0x5]
Element Descriptor (SES) [ed] [0x7]
Additional Element Status (SES-2) [aes] [0xa]
Download Microcode (SES-2) [dm] [0xe]
<unknown> [0x13]
<unknown> [0x14]
<unknown> [0x15]
```

Figure 12. System Configuration

Get system configuration in enclosure with command `sg_ses -p 1 /dev/sg*`

```
[root@shan0609 ~]# sg_ses -p 1 /dev/sg1
CELESTIC TITAN-4U90 0330
Configuration diagnostic page:
number of secondary subenclosures: 0
generation code: 0x0
enclosure descriptor list
  Subenclosure identifier: 0 [primary]
    relative ES process id: 2, number of ES processes: 2
    number of type descriptor headers: 11
    enclosure logical identifier (hex): 500e0eca0663dc00
    enclosure vendor: CELESTIC product: TITAN-4U90 rev: 0330
    vendor-specific data:
      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
type descriptor header/text list
  Element type: Array device slot, subenclosure id: 0
    number of possible elements: 90
    text: Array Device Slot
  Element type: SAS connector, subenclosure id: 0
    number of possible elements: 8
    text: SAS Connector
  Element type: SAS expander, subenclosure id: 0
    number of possible elements: 6
    text: SAS Expander
  Element type: Power supply, subenclosure id: 0
    number of possible elements: 6
    text: Power Supply
  Element type: Cooling, subenclosure id: 0
    number of possible elements: 5
    text: Cooling
  Element type: Temperature sensor, subenclosure id: 0
    number of possible elements: 18
    text: Temperature Sensor
  Element type: Enclosure, subenclosure id: 0
    number of possible elements: 1
    text: Enclosure
  Element type: Enclosure services controller electronics, subenclosure id: 0
    number of possible elements: 2
    text: ESCE
  Element type: Voltage sensor, subenclosure id: 0
    number of possible elements: 16
    text: Voltage Sensor
  Element type: Current sensor, subenclosure id: 0
```

Figure 13. Element Details

Input command `sg_ses -p 2 /dev/sg*` to get more details information for elements in the enclosure, including array device, power supply, temperature sensor, ESCE, voltage sensor and others.

```
[root@shan0609 ~]# sg_ses -p 2 /dev/sg1
CELESTIC TITAN-4U90      0330
Primary enclosure logical identifier (hex): 500e0eca0663dc00
Enclosure Status diagnostic page:
INVOP=0, INFO=1, NON-CRIT=0, CRIT=0, UNRECOV=0
generation code: 0x0
status descriptor list
Element type: Array device slot, subenclosure id: 0 [ti=0]
Overall descriptor:
  Predicted failure=0, Disabled=0, Swap=0, status: Not installed
  OK=0, Reserved device=0, Hot spare=0, Cons check=0
  In crit array=0, In failed array=0, Rebuild/remap=0, R/R abort=0
  App client bypass A=0, Do not remove=0, Enc bypass A=0, Enc bypass B=0
  Ready to insert=0, RMV=0, Ident=0, Report=0
  App client bypass B=0, Fault sensed=0, Fault reqstd=0, Device off=0
  Bypassed A=0, Bypassed B=0, Dev bypassed A=0, Dev bypassed B=0
Element 0 descriptor:
  Predicted failure=0, Disabled=0, Swap=0, status: Not installed
  OK=0, Reserved device=0, Hot spare=0, Cons check=0
  In crit array=0, In failed array=0, Rebuild/remap=0, R/R abort=0
  App client bypass A=0, Do not remove=0, Enc bypass A=0, Enc bypass B=0
  Ready to insert=0, RMV=0, Ident=0, Report=0
  App client bypass B=0, Fault sensed=0, Fault reqstd=0, Device off=0
  Bypassed A=0, Bypassed B=0, Dev bypassed A=0, Dev bypassed B=0
Element 1 descriptor:
  Predicted failure=0, Disabled=0, Swap=0, status: Not installed
  OK=0, Reserved device=0, Hot spare=0, Cons check=0
  In crit array=0, In failed array=0, Rebuild/remap=0, R/R abort=0
  App client bypass A=0, Do not remove=0, Enc bypass A=0, Enc bypass B=0
  Ready to insert=0, RMV=0, Ident=0, Report=0
  App client bypass B=0, Fault sensed=0, Fault reqstd=0, Device off=0
  Bypassed A=0, Bypassed B=0, Dev bypassed A=0, Dev bypassed B=0
Element 2 descriptor:
  Predicted failure=0, Disabled=0, Swap=0, status: Not installed
  OK=0, Reserved device=0, Hot spare=0, Cons check=0
  In crit array=0, In failed array=0, Rebuild/remap=0, R/R abort=0
  App client bypass A=0, Do not remove=0, Enc bypass A=0, Enc bypass B=0
  Ready to insert=0, RMV=0, Ident=0, Report=0
  App client bypass B=0, Fault sensed=0, Fault reqstd=0, Device off=0
  Bypassed A=0, Bypassed B=0, Dev bypassed A=0, Dev bypassed B=0
Element 3 descriptor:
```

Chassis Installation

DS2000 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 DS2000 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.

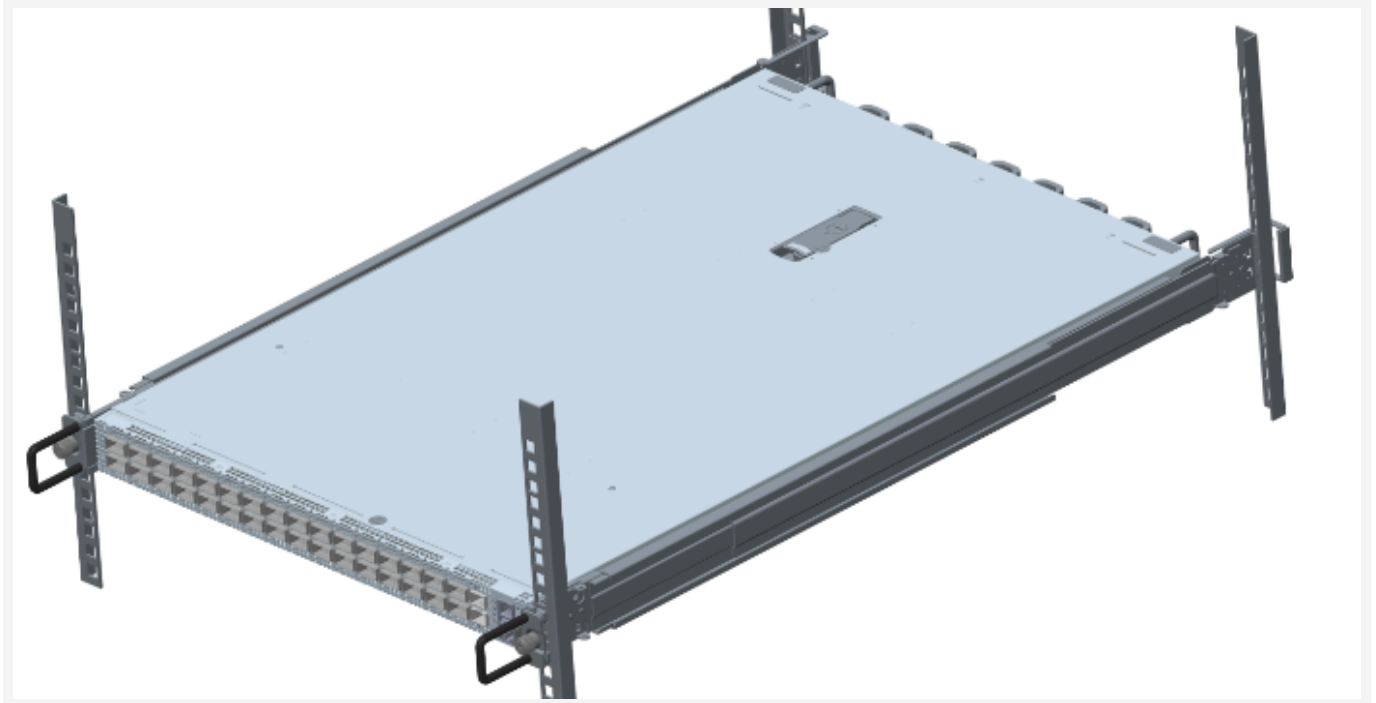
CAUTION: To prevent the rack from tipping during equipment installation, the anti-tilt bar on the rack must be deployed.

If a standard 19" rack is not available, DS2000 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

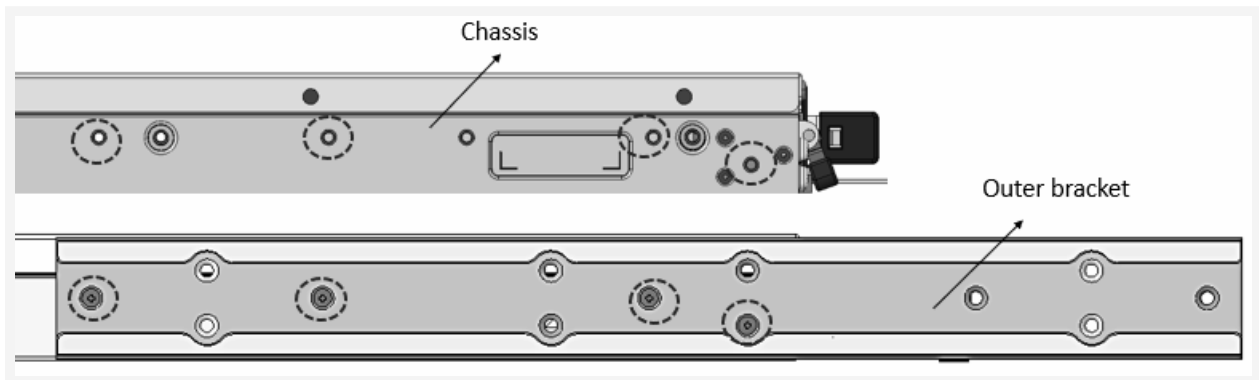
Context

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 14. Secure Bracket to Chassis

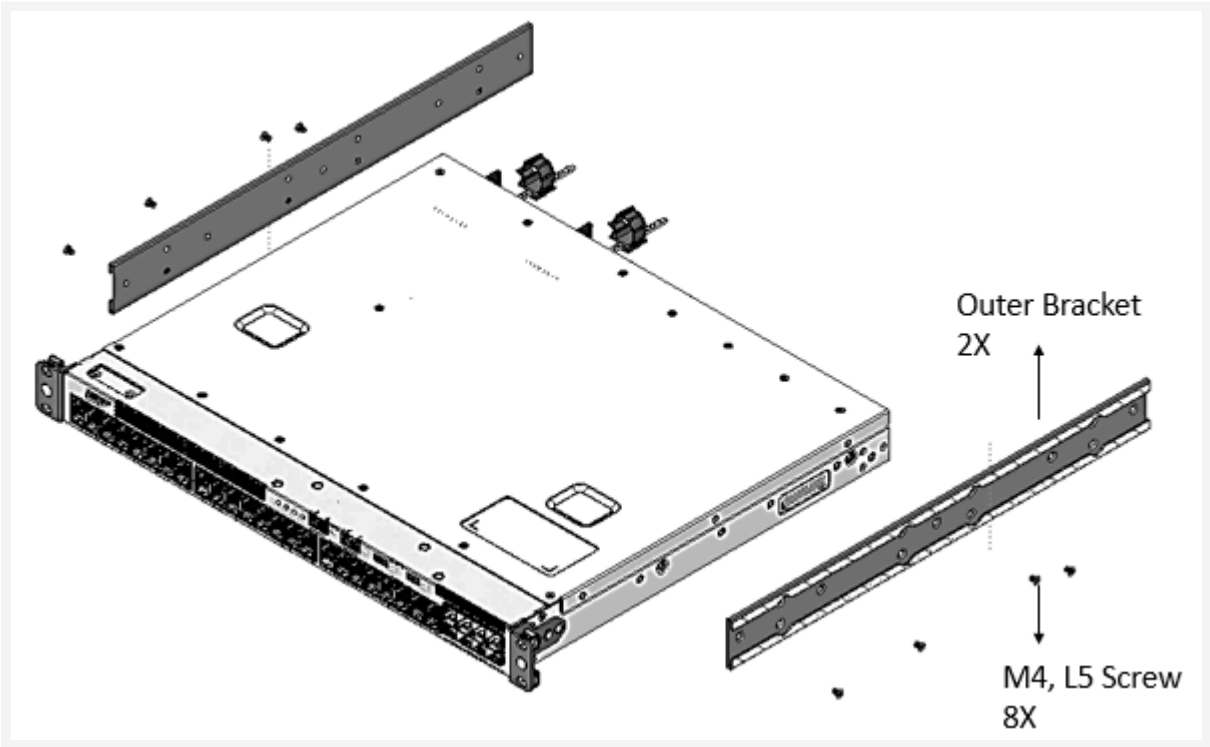
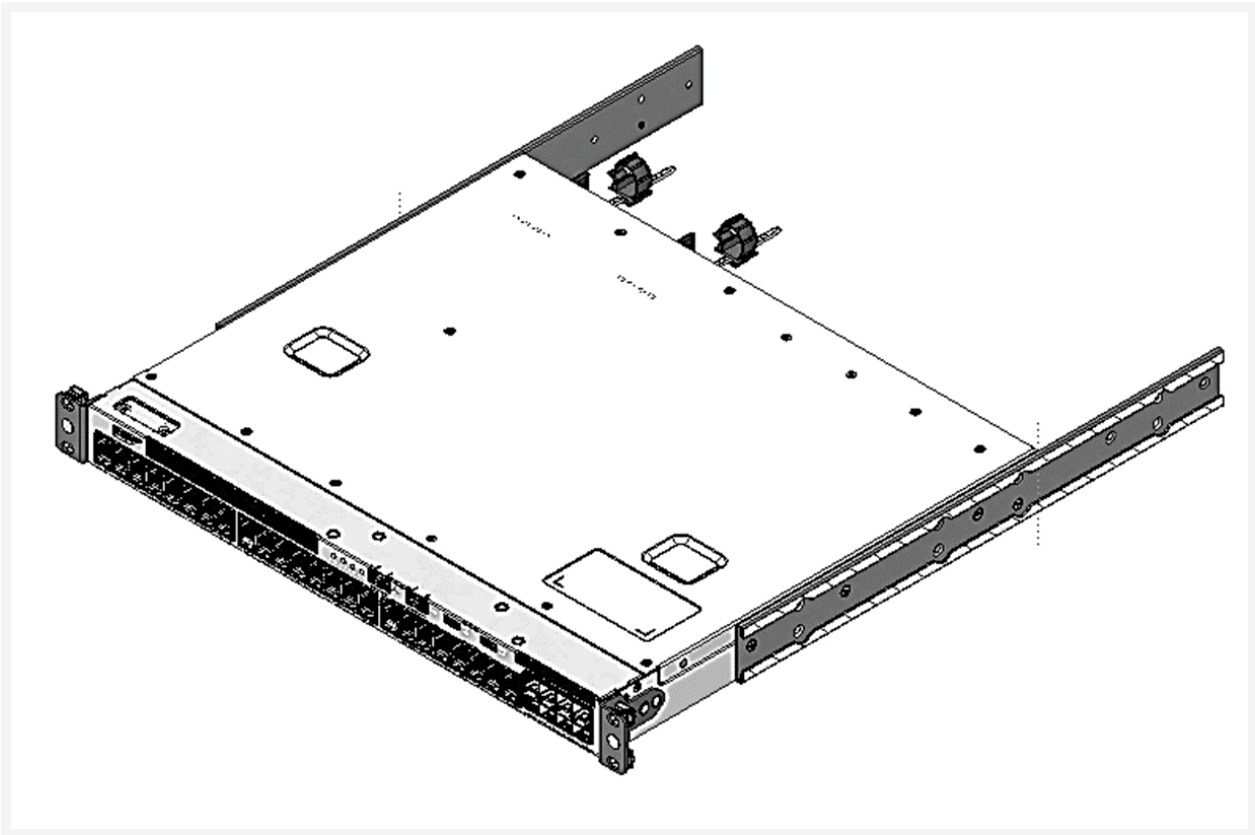


Figure 15. Inner Rail Bracket Installed to Chassis



- 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.