Dell Storage Center

SCv2080 Storage System
Getting Started Guide

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.

Setting Up the Storage System

Consider the following best practices when setting up an SCv2080 storage system.

- Dell recommends that you use a dedicated SAN network for data transmission when using a Fibre Channel or iSCSI storage system.
- Complete the Worksheet to Record System Information in this guide before configuring the storage system.
- Always configure redundant data paths to provide alternate paths to and from the host server should one of the data paths become disabled.
- Before connecting any cables between the storage system and host server or expansion enclosure, physically label each port and connector.
- Always follow proper power-up and power-down procedures when cycling power across the network. Verify that critical network components are on separate power circuits.

NOTE: This product is intended for restricted access locations, such as a dedicated equipment room or equipment closet.

WARNING: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

Safety Warnings

Heavy weight warning

A fully configured SCv2080 storage system weighs up to 130 kg (287 lb). An unpopulated storage system weighs 62 kg (137 lb). Use appropriate lifting methods when installing the storage system.

High temperature warning

The operating temperature inside the drawers of a storage system can reach up to 60°C (140°F). Take

care when opening drawers and removing drive carriers.

Electrical disconnection

Indicates that all electrical supply connections to the storage system must be disconnected before proceeding.

Battery pack warning

Remove the battery pack before removing a storage controller from the storage system.

⚠ **WARNING: Installing an incompatible battery may increase the risk of fire or explosion. Observe the following precautions:**

- The battery should only be replaced with a battery that is the same or equivalent as the factory installed battery.
- Do not attempt to open or service the battery. Do not dispose of the battery in a fire or with household waste. Contact the local waste disposal agency for the location of the nearest battery deposit site.

Laser Radiation for Fibre Channel Storage Systems

⚠ **CAUTION: Class I laser radiation when open, avoid exposure to beam.**

⚠ **WARNING: Laser radiation, avoid direct exposure to beam.**

The unit is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 60825-1:2007.

Class I laser products are not considered to be hazardous. The laser system and unit are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance or prescribed service condition.

Worksheet to Record System Information

Use the following worksheet to record the information that is needed to install the SCv2080 storage system.

Storage Center Information

Gather and record the following information about the Storage Center network and the administrator user.

Table 1. Storage Center Network

Service Tag	_ _ _ _ _ _ _ _ _ _ _ _ _ _
Management IPv4 address (Storage Center management address)	_ _ _ . _ _ _ . _ _ _ . _ _ _
Left Controller IPv4 address (Controller 1 MGMT port)	_ _ _ . _ _ _ . _ _ _ . _ _ _
Right Controller IPv4 address (Controller 2 MGMT port)	_ _ _ . _ _ _ . _ _ _ . _ _ _
Subnet mask	_ _ _ . _ _ _ . _ _ _ . _ _ _
Gateway IPv4 address	_ _ _ . _ _ _ . _ _ _ . _ _ _
Domain name	_ _ _ _ _ _ _ _ _ _ _ _ _ _
DNS server address	_ _ _ . _ _ _ . _ _ _ . _ _ _
Secondary DNS server address	_ _ _ . _ _ _ . _ _ _ . _ _ _

Table 2. Storage Center Administrator

Password for the default Storage Center "Admin" user	_ _ _ _ _ _ _ _ _ _ _ _ _ _
Email address of the default Storage Center "Admin" user	_ _ _ _ _ _ _ _ _ _ _ _ _ _

iSCSI Fault Domain Information

For a storage system with iSCSI front-end ports, gather and record network information for the iSCSI fault domains. This information is needed to complete the **Discover and Configure Uninitialized SCv2000 Series Storage Centers** wizard.

> ![note icon] **NOTE: For a storage system deployed with two Ethernet switches, Dell recommends setting up each fault domain on separate subnets.**

See the *Dell Storage Center SCv2080 Storage System Deployment Guide* for information about setting up iSCSI fault domains.

Table 3. iSCSI Fault Domain 1

Target IPv4 address	___ . ___ . ___ . ___
Subnet mask	___ . ___ . ___ . ___
Gateway IPv4 address	___ . ___ . ___ . ___
IPv4 address for storage controller module 1: port 1	___ . ___ . ___ . ___
IPv4 address for storage controller module 2: port 1	___ . ___ . ___ . ___
(Four port I/O card only) IPv4 address for storage controller module 1: port 3	___ . ___ . ___ . ___
(Four port I/O card only) IPv4 address for storage controller module 2: port 3	___ . ___ . ___ . ___

Table 4. iSCSI Fault Domain 2

Target IPv4 address	___ . ___ . ___ . ___
Subnet mask	___ . ___ . ___ . ___
Gateway IPv4 address	___ . ___ . ___ . ___
IPv4 address for storage controller module 1: port 2	___ . ___ . ___ . ___
IPv4 address for storage controller module 2: port 2	___ . ___ . ___ . ___
(4-port I/O card only) IPv4 address for storage controller module 1: port 4	___ . ___ . ___ . ___

(4-port I/O card only) IPv4 address for storage controller   ___ . ___ . ___ . ___
module 2: port 4

Additional Storage Center Information

The Network Time Protocol (NTP) and Simple Mail Transfer Protocol (SMTP) server
information is optional. The proxy server information is also optional, but it may be
required to complete the **Discover and Configure Uninitialized SCv2000 Series
Storage Centers** wizard.

Table 5. NTP, SMTP, and Proxy Servers

NTP server IPv4 address	___ . ___ . ___ . ___
SMTP server IPv4 address	___ . ___ . ___ . ___
Backup SMTP server IPv4 address	___ . ___ . ___ . ___
SMTP server login ID	_____
SMTP server password	_____
Proxy server IPv4 address	___ . ___ . ___ . ___

Fibre Channel Zoning Information

For a storage system with Fibre Channel front-end ports, record the physical and
virtual WWNs of the Fibre Channel ports in Fault Domain 1 and Fault Domain 2. This
information is displayed on the **Review Front-End** page of the **Discover and
Configure Uninitialized SCv2000 Series Storage Centers** wizard. Use this
information to configure zoning on each Fibre Channel switch.

See the *Dell Storage Center SCv2080 Storage System Deployment Guide* for
information about setting up Fibre Channel zoning.

Table 6. Physical WWNs in Fault Domain 1

Physical WWN of storage controller 1: port 1	_____
Physical WWN of storage controller 2: port 1	_____

(4-port I/O card only) Physical WWN of storage controller 1: port 3	_____
(4-port I/O card only) Physical WWN of storage controller 2: port 3	_____

Table 7. Virtual WWNs in Fault Domain 1

Virtual WWN of storage controller 1: port 1	_____
Virtual WWN of storage controller 2: port 1	_____
(4-port I/O card only) Virtual WWN of storage controller 1: port 3	_____
(4-port I/O card only) Virtual WWN of storage controller 2: port 3	_____

Table 8. Physical WWNs in Fault Domain 2

Physical WWN of storage controller 1: port 2	_____
Physical WWN of storage controller 2: port 2	_____
(4-port I/O card only) Physical WWN of storage controller 1: port 4	_____
(4-port I/O card only) Physical WWN of storage controller 2: port 4	_____

Table 9. Virtual WWNs in Fault Domain 2

Virtual WWN of storage controller 1: port 2	_____
Virtual WWN of storage controller 2: port 2	_____
(4-port I/O card only) Virtual WWN of storage controller 1: port 4	_____
(4-port I/O card only) Virtual WWN of storage controller 2: port 4	_____

Locating Your Service Tag

Your storage system is identified by a unique service tag and Express Service Code.

You can find the service tag on the back of the storage system chassis. Dell uses this information to route support calls to the appropriate personnel.

Figure 1. Service Tag Location

Other Information You May Need

To install the storage system, you may need the following additional information.

> **NOTE: See the safety and regulatory information that shipped with your Storage Center components. Warranty information is included as a separate document.**

- The *Dell Storage Center SCv2080 Storage System Deployment Guide* provides information about cabling storage system hardware components and configuring a new storage system using the Dell Storage Manager Client.
- The *Dell Storage Manager Storage Center Administrator's Guide* describes how to use the Dell Storage Manager Client to manage a Storage Center.
- The *Dell Storage Manager Administrator's Guide* describes how to use Dell Storage Manager to manage multiple Storage Center systems.

Installation and Configuration

Before you begin installation, make sure that the site where you plan to install the storage system has 208 V power from an independent source or a rack power distribution unit with a UPS. (110 V power is not supported.)

In addition, verify that there is a 5U space in the lower 20U of the rack to install the storage system. If you plan to install the storage system above the lower 20U of a rack, a customer-provided mechanical lift must be used to avoid injury.

Safety Precautions

Always follow these safety precautions to avoid injury and damage to Storage Center equipment.

If equipment described in this section is used in a manner not specified by Dell, the protection provided by the equipment could be impaired. For your safety and protection, observe the rules described in the following sections.

> **NOTE: See the safety and regulatory information that shipped with each Storage Center component. Warranty information is included within this document or as a separate document.**

Installation Safety Precautions

Follow these safety precautions:

- Dell recommends that only individuals with rack-mounting experience install the SCv2080 in a rack.
- You need at least two people to lift the storage system chassis from the shipping box and three people to install it in the rack. The empty chassis weighs approximately 62 kg (137 lbs).
- Make sure the storage system is always fully grounded to prevent damage from electrostatic discharge.
- When handling the storage system hardware, use an electrostatic wrist guard (not included) or a similar form of protection.

The chassis must be mounted in a rack. The following safety requirements must be considered when the chassis is being mounted:

- The rack construction must be capable of supporting the total weight of the installed chassis. The design should incorporate stabilizing features suitable to

prevent the rack from tipping or being pushed over during installation or in normal use.

- To avoid danger of the rack toppling over, slide only one chassis out of the rack at a time.

- The storage system must be operated with low-pressure rear exhaust installation (back pressure created by rack doors and obstacles not to exceed 5 Pascals [0.5 mm water gauge]).

Unpacking Storage Center Equipment

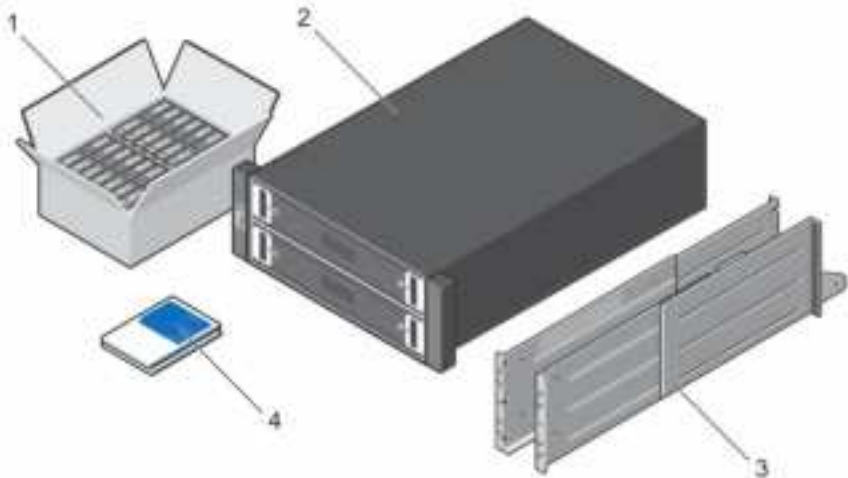Unpack the storage system and identify the items in your shipment.

Figure 2. SCv2080 Storage System Components

1.	Hard Drives	2.	Storage system
3.	Rack rails (2)	4.	Documentation

⚠ **WARNING: Two people using lift straps are required to lift the storage system to avoid injury.**

Installing the Storage System in a Rack

Install the SCv2080 storage system and other Storage Center system components in a rack.

NOTE: Mount the storage system in a manner that allows for expansion in the rack and prevents the rack from becoming top-heavy.

WARNING: If you plan to install the storage system above the lower 20U of a rack, a customer-provided mechanical lift must be used to avoid injury.

1. Determine where to mount the storage system in the rack and mark the location at the front and rear of the rack.

   NOTE: The storage system and expansion enclosures each require 5U of rack space for installation.

2. Position the rails at the marked locations and extend the rails to fit the rack.

3. Install the shelf and rails in the rack following the safety instructions and the rack installation instructions provided with your rail kit.

Figure 3. Attach the Mounting Rails to the Rack

4. Slide the storage system chassis onto the rails until the rear of the array passes through the rear hold-down brackets.
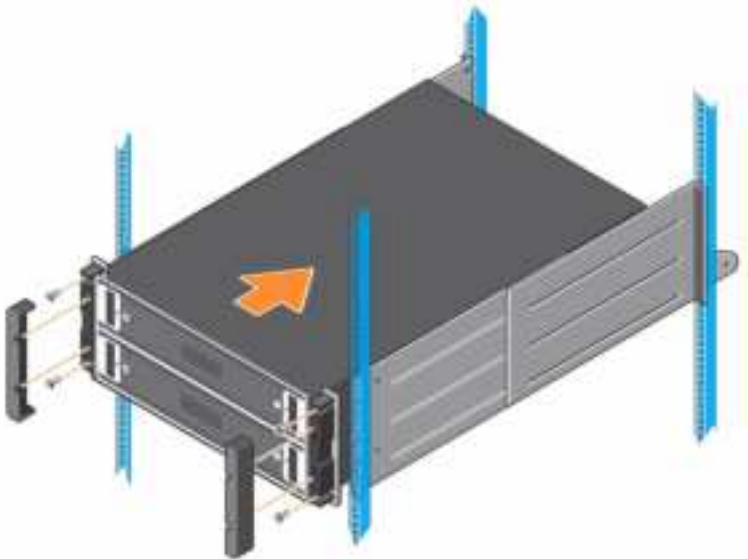
Figure 4. Mount the SCv2080 Storage System Chassis

5. Secure the storage system chassis to the rails using mounting screws and by bolting the rear hold-down brackets to the chassis.

6. Attach the plastic covers to the left and right side of the front of the storage system chassis.

For more information about installing the storage system, see the *Dell Storage Center SCv2080 Storage System Deployment Guide*.

7. If the Storage Center system includes an expansion enclosure, mount the expansion enclosure above the storage system. For more information about installing an expansion enclosure, see the Getting Started Guide included with the expansion enclosure.

Installing the Hard Drives

Hard drives are connected to the backplane of the drawers using Disk Drive in Carrier (DDIC) hard drive carriers.
The minimum number of drives for an SCv2080 storage system is 28, which is one full, front row in the top drawer and one full, front row in the bottom drawer.

Populate each row with identical drives. Do not mix types, speeds, or sizes in a single row.

1. Open the top drawer.

⚠ **CAUTION: If the storage system operates for too long (depending on altitude) with a drawer open, the storage system may overheat, causing a power failure and data loss. Such use may invalidate the warranty.**

   a. Push and hold both drawer latches toward the center of the drawer.
   b. Pull out the drawer all the way until it stops.

2. Populate the first row with 14 drives. Insert each disk drive in carrier (DDIC) into the drawer, one at a time.

⚠ **CAUTION: To maintain proper airflow, the drawers must be populated with drives in whole rows (there are three rows of 14 drives per drawer).**

   a. Hold the DDIC vertically and slide it most of the way into the slot.
   b. Using both hands, apply downward pressure firmly and equally across the DDIC.
   c. While maintaining downward pressure on the DDIC, slide the top plate toward the back of the drawer until it clicks in place.
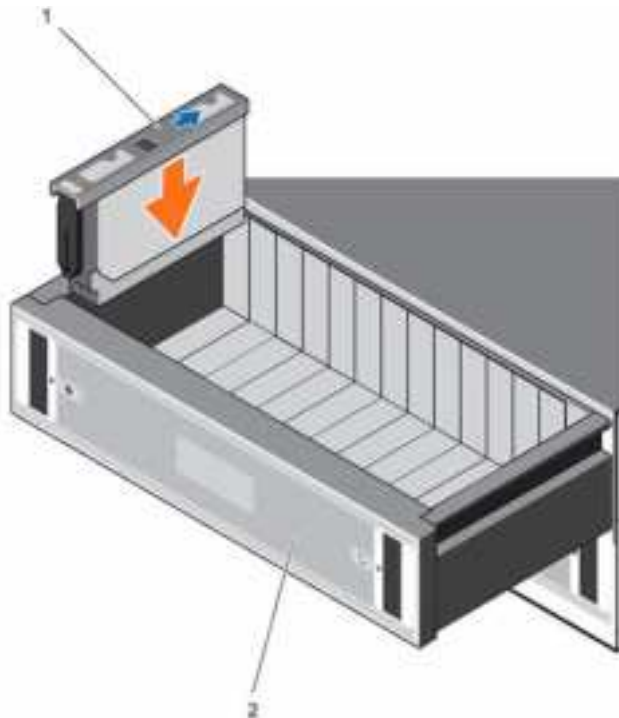
Figure 5. Installing DDIC in Drawer

1. DDIC	2. Top drawer

> ⚠ **CAUTION: If the DDIC fails to latch, do not use it and request a replacement from Dell Technical Support. If a faulty DDIC unlatches within a closed drawer, it can make the drawer unable to be opened.**

3. Close the drawer after inserting the DDICs.

   a. Locate the two lock-release buttons situated midway along the runners on each side of the drawer.

   b. Press the lock-release buttons inward and use your body to push the drawer toward the chassis until the locks disengage.

   c. Place your hands on the front bezel and continue to push the drawer inward until the bezel is flush with the chassis and the front drawer locks engage.

> ⚠ **WARNING: Keep fingers clear of the chassis as the drawer is closed.**

4. Repeat the previous steps for the bottom drawer, populating the first row with 14 drives.

5. To maintain proper airflow, populate the remaining rows in the following order:

   a. Top drawer middle row

   b. Bottom drawer middle row

   c. Top drawer back row

   d. Bottom drawer back row

Connecting the Power Cables

Connect the power cables to the storage system.

1. Before connecting the power cables, make sure that the power switches on the storage system are in the OFF position.

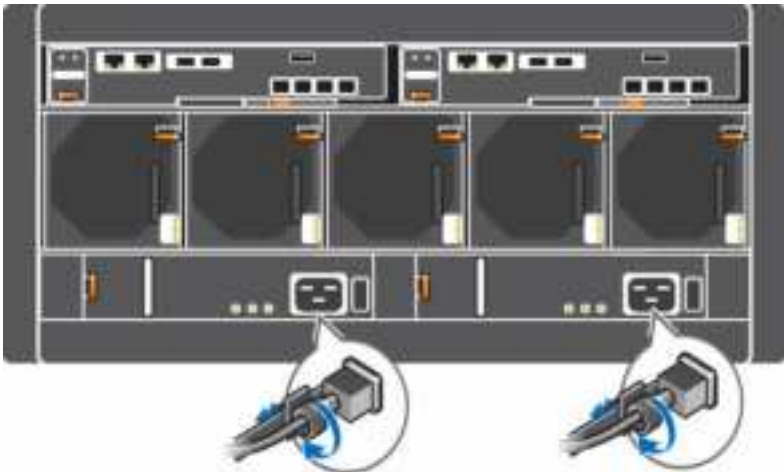2. Connect the power cables to the power supplies in the storage system chassis.

Figure 6. Power Cables

3. Secure each power cable to the storage system chassis using the strain relief fasteners.

4. Plug the other end of the power cables into a grounded electrical outlet or a separate power source such as an uninterrupted power supply (UPS) or a power distribution unit (PDU).

> ⚠️ **CAUTION: Be careful when closing the rear rack door to ensure that power cords have adequate space as some racks might not be sufficiently deep.**

NOM Information (Mexico Only)

The following information is provided on the device described in this document in compliance with the requirements of the official Mexican standards (NOM):

Importer	Dell Inc. de México, S.A. de C.V Paseo de la Reforma 2620-11 º Piso Col. Lomas Atlas 11950 México, D.F.
Model number	E11J
Supply voltage	200–240 VAC
Frequency	50/60 Hz
Current consumption	16 A

Technical Specifications

The technical specifications for the SCv2080 storage system are shown in the following tables.

Drives	
SAS hard drives	Up to 84 3.5-inch SAS hot-swappable hard drives (6.0 Gbps)

Storage Controllers	
Storage controllers	Two hot-swappable storage controllers with the following IO options: • Two 16 Gbps Fibre Channel ports • Four 8 Gbps Fibre Channel ports • Two 10 Gbps iSCSI ports • Four 1 Gbps iSCSI ports

Storage Controllers

- Four 12 Gbps SAS ports

Storage Connectivity

Configurations	Storage Center supports up to 168 drives on a single redundant-path SAS chain. The SCv2080 storage system supports one SC180.

Redundant Array of Independent Disks (RAID)

Controller	Two hot-swappable storage controllers
Management	RAID management using Dell Storage Manager Client 2016 R2

Back-Panel Ports Connectors (per Storage Controller)

Fibre Channel, iSCSI, or SAS connectors	Connection to a Fibre Channel fabric, a iSCSI network, or a direct connection to servers with SAS HBAs
Ethernet connectors	**MGMT**: 1 Gbps or 10 Gbps embedded Ethernet/iSCSI port that is typically used for Storage Center management **REPL**: 1 Gbps or 10 Gbps embedded iSCSI port that is typically used for replication to another Storage Center
SAS connectors	6 Gbps SAS connectors for SAS port redundancy and an additional expansion enclosure NOTE: SAS connectors are SFF-8086/SFF-8088 compliant.
USB Connector	One USB 3.0 connector used for Storage Center updates
Serial connector	NOTE: Not for customer use.

LED Indicators

Front panel	- One two-digit LCD indicator for Unit ID, error code, and unit location identifier

LED Indicators

	• One two-color LED indicator for power status
	• One single-color LED indicator for module fault status (enclosure as a whole)
	• One single-color LED indicator for logical fault status (drive, HBA, RAID controller, and so on)
	• One single-color LED indicator for drawer 1 fault status
	• One single-color LED indicator for drawer 2 fault status
Drawer	• One single-color LED indicator for sideplane card and power status
	• One single-color LED indicator for drawer fault status
	• One single-color LED indicator for logical fault status
	• One single-color LED indicator for cable fault status
	• Six single-color LED indicators for data transfer status
Disk Drive In Carrier (DDIC)	One single-color LED for drive fault status
6 Gb SAS IO module	14 one-color LED status indicators, four each for the three SAS ports and two for the module status
Cooling module	• One single-color LED indicator for module status
	• One single-color LED indicator for battery fault status (not currently used)
	• One single-color LED indicator for fan fault status
Power supply unit (PSU)	• One single-color LED indicator for PSU fault status
	• One single-color LED indicator for AC power fault status
	• One single-color LED indicator for power status

Power Supplies

AC power supply (per power supply)

Wattage	2.8 kW
Voltage	200–240 VAC (16 A)
Heat dissipation	191-147 W

Power Supplies

Input frequency	50/60 Hz
Max input power	1791 VA
Input current	7.4 A@241 VAC
Maximum inrush current	Under typical line conditions and over the entire system ambient operating range, the inrush current may reach 55 A per power supply for 10 ms or less

Available Hard Drive Power (per Slot)

Supported hard drive power consumption (continuous)	Up to 1.16 A at +5 V Up to 1.6 A at +12 V

I/O Card Power (per Slot)

Maximum power consumed by I/O card	11 W at +12 V
Maximum available power	100 W at +12 V
Minimum available power	1 W at +5 V (standby)

Physical

Height	22.23 cm (8.8 inches)
Width	48.26 cm (19 inches)
Depth (front mounting bracket to rear surface)	91.44 cm (36 inches)
Depth (front surface to rear surface)	96 cm (38 inches)

DELL

Physical

Weight (maximum configuration)	130.1 kg (287 lb)
Weight without drives	62.1 kg (137 lb)

Environmental

For additional information about environmental measurements for specific storage system configurations, see dell.com/environmental_datasheets.

Temperature

Operating	10°C to 35°C (50°F to 95°F) with a maximum temperature gradation of 20°C per hour **NOTE: Maximum temperature of 35°C is reduced by 1°C per 300 meter (1°F per 547 feet) above 950 meters (3,117 feet)**
Storage	−40°C to 65°C (−40°F to 149°F) at a maximum altitude of 12,000 m (39,370 ft)

Relative humidity

Operating	10% to 80% (noncondensing) with 29°C (84.2°F) maximum dew point
Storage	5% to 95% (noncondensing) with 33°C (91°F) maximum dew point

Maximum vibration

Operating	0.21 G at 5–500 Hz for 15 min
Storage	1.04 G at 2–200 Hz for 15 min

Maximum shock

Operating	Half-sine shock 5 G +/- 5% with a pulse duration of 10 ms +/- 10% (in operational orientations only)
Storage	· **Z-axis**: 30 g 10 ms half sine · **X- and Y-axes**: 20 g 10 ms half sine

Environmental

Altitude

Operating	0 m to 3048 m (0 ft to 10,000 ft)
Storage	−300 m to 12,000 m (−1000 ft to 39,370 ft)

Airborne Contaminant Level

Class	G2 or lower as defined by ISA-S71.04-1985