

# NEXSAN US316 Storage Expansion

## Quick Start Guide

This document provides installation steps to rack, cable, and power on a US316 Storage Expansion. For additional documentation please visit <https://www.nexsan.com/support/support-unity/>

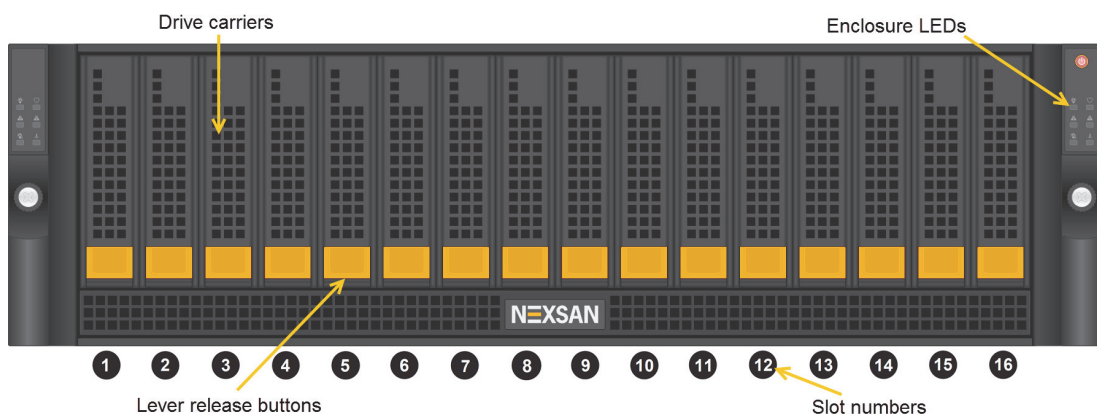
### Taking delivery

Check to ensure that no damage has been sustained to the packaging in transit. If any of the US316 Storage Expansion components appear damaged, please contact your reseller immediately.

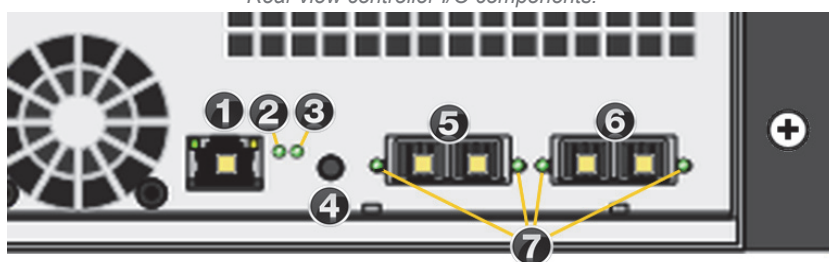
### Hardware overview

Here are some of the key components of the US316 Expansion:

Front view (bezel removed)



Rear view controller I/O components.



Item	Name	Description
1	LAN port	Not used with Unity Storage Expansions
2	Status LED	Green: Initialization successful Red: Initialization failure
3	Unit ID status LED	On/Off
4	BMC Reset button	Resets the base management controller
5	SAS IN ports	Serial Attached SCSI IN ports from the Unity Storage System
6	SAS OUT ports	SAS OUT ports to another storage unit
7	SAS link status LEDs (2 IN, 2x OUT)	Green: All four physical layers (PHY) of each port connected with consistent link speed (12 G or 6 G) Red: Single PHY degraded link speed or disconnected

## 1 Prepare for installation

- A Carefully read the safety notices on [page 4](#).
- B Ensure ahead of time that you have a suitable rack; see [Rack and enclosure specifications](#) on [page 4](#).
- C Ensure that you have a Phillips screwdriver.

- D Arrange for someone to assist you during installation.



**CAUTION:** Acclimate new disk drives to room temperature for two hours before you install them.


## 2 Unpack the US316

- A Remove all the components from the packaging. Reach under the chassis to pull it free from the foam insert. Do NOT lift out the US316 chassis from its packaging using the controller handles or attached rails.
- B Place the components on an anti-static surface until you are ready to use them.

### US316 Expansion package contents

- One US316 Expansion and front bezel
- Rack-mounting hardware:
  - 2 outer-rack rail assemblies (inner-chassis rails are already installed)
  - 4 mounting screws with 4 washers to attach outer-rack rails to the rack (1 on the front and 1 on the back for both the left and right rail assemblies)
- FASTTier, SSD, and HDD drives. Check that the components included in your shipment correspond to your packing slip.
- SAS cables (HD Mini SAS to HD Mini SAS)
- Two power cords
- One electrostatic discharge (ESD) wrist strap

## 3 Rack the US316 Expansion

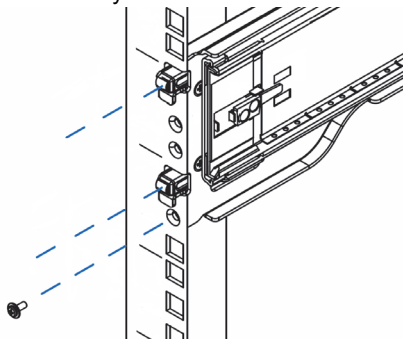
 **CAUTION:** Physical installation requires two people.

### ► Step 1: Remove the front bezel

- A Turn the key lock at the right end of the bezel to the unlock position.
- B Unhook the left end of the bezel from the chassis.

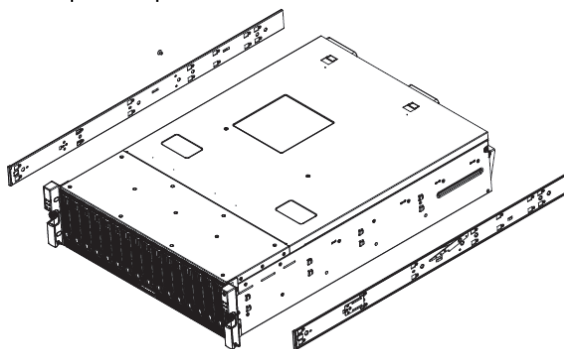
### ► Step 2: Install the outer-rack rails on the rack

- A Attach the **RIGHT** and **LEFT** outer-rack rails to the rack by inserting the hooks included on the rails into the holes provided on the rack. The hooks should be located in the **TOP** holes of the rack units selected.
- B Extend rail assemblies to fit the depth of the rack. Pull on the rear of the assembly until the hooks reach the back of the rack.
- C Screw the rail to the rack using the mounting screws provided. The screws should be secured in the **BOTTOM** hole on the front and back of each rail assembly.



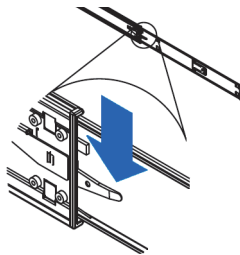
### ► Step 3: Install the inner rails on the chassis (if necessary)

- A Extend the inner rail toward the front of the rail assembly as far as possible, then depress the locking tab to pull it completely out.
- B Place the inner rail on the side of the chassis, aligning the hooks of the chassis with the rail extension holes.
- C Slide the extension toward the front of the chassis.
- D If desired, secure the chassis with screws.
- E Repeat steps A-D for the other inner rail.




### ► Step 4: Install the US316 on the rack

- A Lift the US316 chassis from each side—not from the front and back.
- B Line up the inner-chassis rails with the front of the outer-rack rails.
- C Slide the inner-chassis rails into the outer-rack rails, keeping the pressure even on both sides; you have to depress the locking tabs when inserting.



- D Push the US316 fully into the rack; you should hear the locking tabs click into position.
- E Tighten the thumbscrews that hold the front of the US316 to the rack.

### ► Step 5: Install the data drives

 **CAUTION:** Put on the ESD wrist strap before starting:

- A Slip the wrist loop over your hand (left or right), then tighten the loop against your wrist.
- B Attach the clip end of the anti-static wrist strap to a properly grounded metal surface.

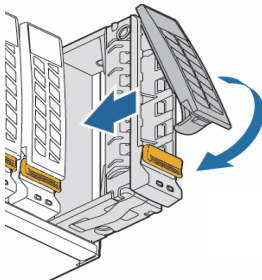
### Installation order

- A Install the FASTTier SSDs in the slot as indicated on the label on the drive.
- B Install the disk drives in any order in the remaining slots.

The half-populated drive configuration includes empty drive carriers for expansion.

### To install the drives

- A Slide the release button on the front of the drive carrier and open the handle.
- B Insert the drive carrier into the drive bay until the carrier contacts the backplane.
- C Close the drive carrier handle to lock the drive in place.
- D Repeat these steps for each drive.



## 4 Connect the US316 Expansion

### ► Step 1: Cross-connect the storage expansion to the storage system

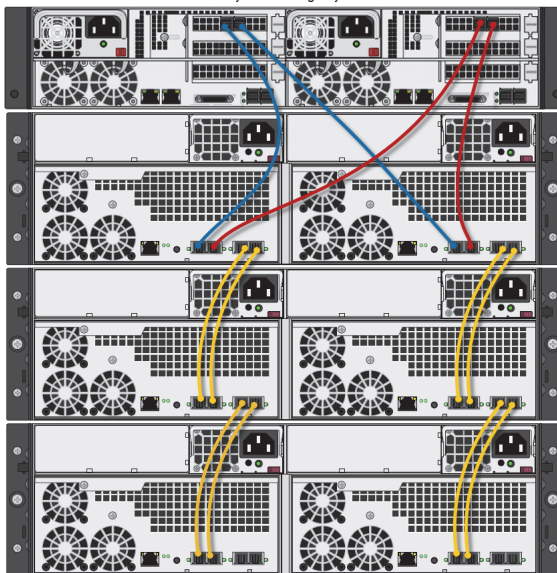
- A Cross-connect from the add-on SAS OUT ports on each storage system controller to the on-board SAS IN ports on the first storage expansion controllers, as shown.



**CAUTION:** Do not connect to the Unity Storage System from the on-board SAS ports on either the Unity Storage System.

- B Connect any additional storage expansions using the daisy chain method, as shown.

UNITY4400 cascaded to US316s



### ► Step 2: Connect the power cables

- A Plug the power cords into their respective power supplies on the rear of the US316 Expansion.
- B Plug the power cords connected to the power supply units into a high-quality strip that offers protection from electrical noise and power surges.





Use only the power cords supplied with the US316 Expansion. Do not use another type of cord or extension cords. For additional power cords, please contact your Nexsan sales or reseller.

**NOTE:** We strongly recommend that you also use an uninterruptible power supply (UPS).

## 5 Power on the US316 Expansion

Unity Storage Systems and Unity Storage Expansions are also hot-pluggable. Once in service, powering down is not normally required to add a Unity Storage Expansion.

### ► Step 1: Power on the US316

- A Press and hold the power button  located on the right front panel of the chassis until the power LED  lights up.

## 6 Monitor the US316 Expansion

This section describes the front panel LEDs that help you to monitor the Nexsan US316 Expansion.







### Control panel LEDs

The two control panels located on the front left and right sides of the US316 Expansion have several LEDs. These LEDs provide you with critical information related to the corresponding node.

If the Fan fail LED or Power fail LED illuminates, replace the component as described in the *Nexsan Unity Storage Expansion Reference Guide*.

## Drive carrier LEDs

Each drive carrier on the US316 Expansion has two LEDs. If a drive fails, replace the drive as described in the *Nexsan Unity Storage Expansion Reference Guide* at [www.nexsan.com/](http://www.nexsan.com/) (see Support > Unity > DocumentaUS424US424tion & Online Help).

LED	Indication
	<b>Power</b> Indicates power is being supplied to the system's power supply units. This LED is illuminated when the system is operating.
	<b>Heartbeat</b> This is a server board heartbeat LED and indicates that power is being supplied to the server board.
	<b>NIC1</b> Indicates network activity on the LAN1 port when flashing.
	<b>NIC2</b> Indicates network activity on the LAN2 port when flashing.
	<b>Power fail</b> Indicates a power supply module has failed. The second power supply module takes the load and keeps the system running, but the failed module should be replaced as soon as possible.  This LED should be off when the system is operating normally.
	<b>Fan fail</b> When flashing, this LED indicates a fan failure.  When lit continuously, this LED indicates an overheated condition, which may be caused by cables obstructing the airflow in the system or the room temperature being too high.  Check the routing of the cables and make sure that all fans are connected and operating normally. You should also check to make sure that the chassis covers are installed.

## Safety notices

- This equipment must be installed and operated in compliance with local laws and regulations.
- Ensure that the ambient temperature at the installation site is between 5°C (41°F) and 30°C (86°F). If the temperature at the site is not actively regulated, ensure that daily and seasonal temperature changes will not result in the ambient temperature going outside these limits.
- Always fully stabilize racks with wall anchors or stabilizing legs, or both, before mounting the Nexsan storage enclosure or any other components on the rack.
- Situate the rack so that full air flow at both the front and the rear of the Nexsan storage enclosure is possible.
- Ensure that the floor beneath the mounting rack has enough load-bearing capacity to support the rack and all mounted components.
- Always fully secure all rack-mounting hardware when installing the Nexsan storage enclosure in a rack. Insufficient rack-mount support may allow the enclosure to fall onto other rack-mounted hardware or onto the floor, potentially damaging equipment or causing injury.

## Rack and enclosure specifications

### Rail kit mounting

- 3U enclosure height
- The rack has square holes
- Maximum distances: 30" (800 mm)

### Enclosure dimensions

- Height: 5.25"/133 mm
- Width: 17.25"/438 mm
- Depth: 26.25"/667 mm

### Weight

- 54 lbs/24.5 kg (no drives installed)
- 75 lbs/34 kg (all drives installed)

### Power requirements

- Power supply: 1200W
- Input voltage: 100-240V
- Amperage: 12V (100A @ 240V), +5Vsb (6A @ 240V, 4A @ 100V)
- Input frequency: 50/60 Hz
- Power consumption: Varies, depending on the number and size of drives, running fans, and room temperature

# NEXSAN

**Part number:** P0450170 **Rev:** F **Release Date:** August 2019  
**Related Documentation:** Nexsan Unity Hardware Maintenance Guide, Nexsan Unity User Guide, Nexsan Unity Online Help, Nexsan Unity nxadmin CLI Reference Guide

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