



Storage Enclosure

Quick Start Guide

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About this Manual

This Manual is applicable to storage enclosure.

The Manual includes instructions for using and managing the product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version in the company website (<http://overseas.hikvision.com/en/>).

Please use this user manual under the guidance of professionals.

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Regulatory Information

FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC compliance: 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 not installed and used in accordance with the instruction manual, 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 own expense.

FCC Conditions

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement



This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the RE Directive 2014/53/EU, the EMC Directive 2014/30/EU, the LVD Directive 2014/35/EU, the RoHS Directive 2011/65/EU.



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info



2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info

Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

Applicable Models

This manual is applicable to DS-AJ7824D and DS-AJ7824S.

Table of Contents

Chapter 1 Security and Service	5
1.1 Security Information and Disclaimer.....	5
1.2 Security Symbols	6
Chapter 2 Working Environment and Installation	7
2.1 Environment of Equipment Room.....	7
2.1.1 Power Supply System	7
2.1.2 Working Environment Control.....	7
2.2 Installation and Initial Power-on	8
2.3 Installation Notes	8
2.4 Power on/off	8
Chapter 3 Hardware Installation	10
3.1 Structure Appearance	10
3.1.1 Front Panel	10
3.1.2 Rear Panel.....	11
3.2 Install Accessories	13
3.2.1 Installation Requirement.....	13
3.2.2 Install HDD.....	14
Chapter 4 Device Wiring.....	17
4.1 DS-AJ7824D	17
4.2 DS-AJ7824S.....	19
Chapter 5 Preventive and Cautionary Tips.....	20

Chapter 1 Security and Service

1.1 Security Information and Disclaimer

- In order to ensure the security of user and device, please obey the precautions in the user manual and the symbol in the device during the installation, operation and maintenance. Besides the content of attention, warning and danger in the use manual, you should also consider local regulations and specifications.
- The product is an industrially specialized equipment which has high voltage and current. It should be installed and maintained by qualified technician. Our company takes no responsibility for any consequences resulted from violating security requirement, criterion for design, local regulations and specifications.
- This manual may contain technical inaccuracies, discrepancies with product feature or operation, or literal errors. We update content of the manual according to the enhancement of our product. And we also regularly update the product and procedure in the manual. Without further notice, the updated contents are added to the new version.
- Special statement:
 - The product, as an A class product, may cause radio jamming. In this situation, you should take effective actions.
 - Using an unsuitable battery may result in explosion, please handle the exhausted battery according to the rules.
 - The product is only suitable to sell to region at an altitude below 2000 meters.

1.2 Security Symbols

	Attention Symbol: it represents potential risks. Ignoring the attention may result in device damage, data loss, performance degradation or some unpredictable results.
	Alarm Symbol: it represents moderate or low grade potential risks. If you cannot avoid, it may result in mild or moderate personal injury.
	Danger Symbol: it represents moderate or low grade potential risks. If you ignore or cannot avoid the risk, it may result in death or serious injury.
	Disk Plugging Alarm Symbol: it prompts you do not plug the disk.
	Electrostatic Protection Symbol: it prompts you to wear an anti-electrostatic wrist strap or gloves, to avoid electrostatic circuit board be damaged.

Chapter 2 Working Environment and Installation

Devices described in this manual should be installed in the standard equipment room.

2.1 Environment of Equipment Room

2.1.1 Power Supply System

The storage enclosure is sensitive to the change of a voltage, and an excessively high or low voltage, or a sudden change of the voltage may delete the data in the memory or even cause the damage of the components. To avoid of such damage, you must ensure the power supply is stable and grounded. You are recommended to use the UPS, or the multiple power supply if permitted.

Requirements:

- The voltage should be in the range of 110V to 220V (allowed range is between -4% to +4%), and the change must be in the range of 110V to 220V(allowed range is between -15% to +15%); Frequency: 50~60Hz+/-0.5Hz;
- Make correct neutral line and GND line connections, and the voltage between them must be less than 1V.
- Grounding for AC power supply system: ensure the GND line is properly connected. The grounding for the chassis is recommended.
- Grounding for DC power supply system: the chassis must be properly grounded.
- Connect all power cords before applying power to the redundant power supply module.
- The storage system supports management for some UPS models.

2.1.2 Working Environment Control

The over-high or over-low temperature and other unsatisfying installation and running environment factors may cause failures of device mechanical, and thus they affect the stable and reliable running of the device as well as the data safety on the disks. Please follow the measurements shown below to take proper measurements:

- Use an air conditioner to control the temperature and the humidity at least 2 or 3 days before installing the device.
- The floor in the equipment room must be capable of loading more than 600kg/m², and the height between the floor and the ceiling must be more than 2.7 m. The loading capability of the rack can be computed in 10 kg/U, e.g., for a 4U chassis, the required loading capability of the rack is 40 kg.

- Ensure adequate air ventilation of the rack.
- Close all the doors and windows to prevent the dust or use a dust-filtering ventilation device. The dust particulate ($\geq 5\mu\text{m}$) must be less than 18,000 particulate / $(\text{dm})^3$.
- In a conditions of non-working status of the device, the horizontal and vertical vibration acceleration value of the floor surface of equipment room must be lower than $0.5\text{m}/\text{S}^2$.
- The rack or surface on which the device is installed must be properly grounded, and ensure that each device is grounded as well. The resistance between the device casing and the ground must be less than 4Ω .

2.2 Installation and Initial Power-on

- The device shall be placed on the fixed flat surface. Tilting surface is not allowed.
- You can use the standard plate in the industrial cabinet or use the guide rail (not provided) to install the device to the rack. It is recommended to use the bolts to fix the device to the rack through the mounting screw holes on the rack.
- Connect all the power cords of the device to the power socket and wait for 12 hours before starting up. The temperature of the device and the equipment room must be consistent to prevent the damage caused by a huge temperature difference.
- If the device has been transported and stored for more than 10 days; perform the previous operation and then start up and run the device for 30 minutes without the hard disks. And then you shut down the device, insert the hard disks and start the device again.

2.3 Installation Notes

- The device is a high-precision equipment. Please keep stable and gentle when moving it.
- Installation and running environment must meet standards. Take regular investigations and records for the equipment room, or apply a remote monitoring for the working status of the device.
- Do not unplug the power cord when the device is running.
- In case of alarm beeper produced during the system running, please take immediate check and solution.

2.4 Power on/off

Step 1 If the storage enclosure is configured with redundant power supplies, please make all connections of the power.

Step 2 Power on storage enclosure and then power on storage system.

Step 3 Press the power switch on front panel.

If the unit fails to start up, please check all connections.

Step 4 Power off storage system and then power off storage enclosure.

You can also reboot the system in the storage system. You are recommended to operate reboot with the help of technical support.



In order to extend the device life, it is not recommended to turn off the device by using the power switch.

Chapter 3 Hardware Installation

3.1 Structure Appearance

The hardware system adopts rack-mounted chassis which provides LED indicators for the status of power, network and HDD.

3.1.1 Front Panel



Figure 3-1 Front Panel with Cover

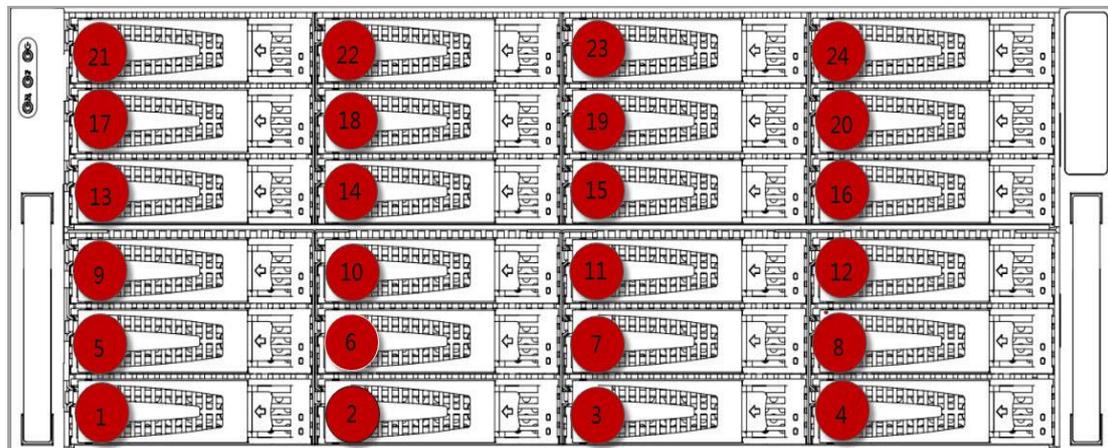


Figure 3-2 Front Panel without Cover

Hard disks of 3.5 inches are supported. Slot order obeys the principle of left to right and bottom to top, as shown above. The HDDs in bottom floor, from left to right, are HDD ① to ④. The HDDs in second floor, from left to right, are HDD ⑤ to ⑧. And so on.



Figure 3-3 Front Panel Buttons

-  : Power switch and green light power indicator. To turn on the system, press the button. And to turn off the system, press and hold the button for 4 seconds. And you can also force to power off the system by pressing and holding the button for 15 seconds. The indicator shows green when the system is running.
-  : Function button and blue light indicator for locating function.
-  : Mute button and red light alarm indicator for clearing beep alarm sound and indicating system alarm.

3.1.2 Rear Panel

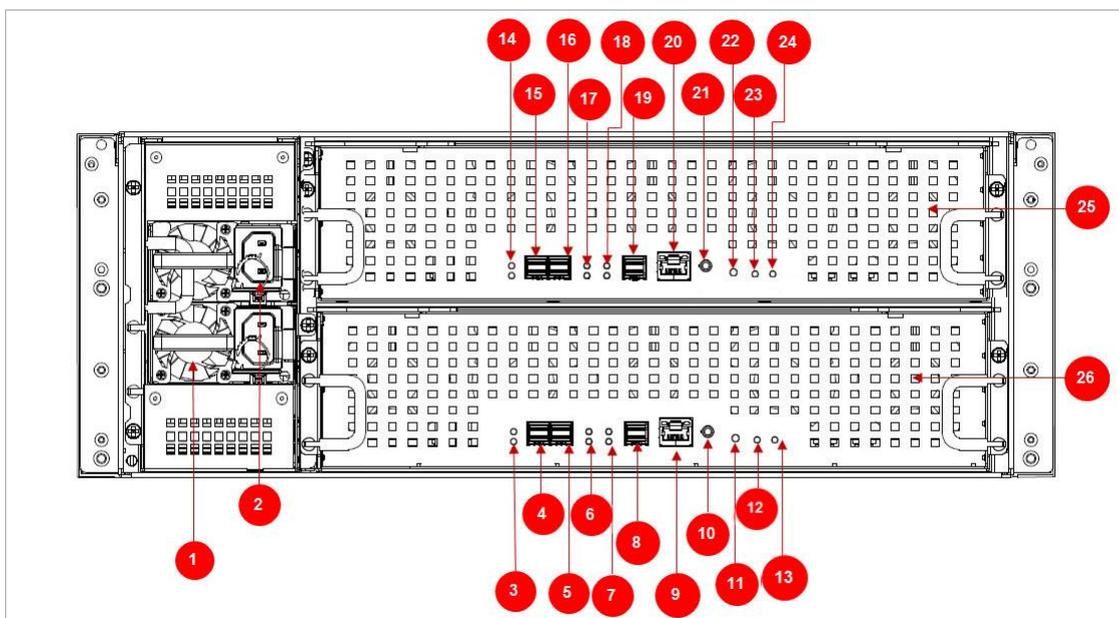


Figure 3-4 DS-AJ7824D Rear Panel

Table 3-1 Panel Description

No.	Description	No.	Description
1	Power module 1	14	SAS cable connection indicator
2	Power module 2	15	Host (Up1)
3	SAS cable connection indicator	16	Host (Up2)
4	Host (Up1)	17	SAS cable connection indicator
5	Host (Up2)	18	SAS cable connection indicator
6	SAS cable connection indicator	19	Exp (Down)
7	SAS cable connection indicator	20	Network management port
8	Exp (Down)	21	COM
9	Network management port	22	Fn button
10	COM	23	Fn indicator
11	Fn button	24	Power switch
12	Fn indicator	25	Controller 1
13	Power switch	26	Controller 2

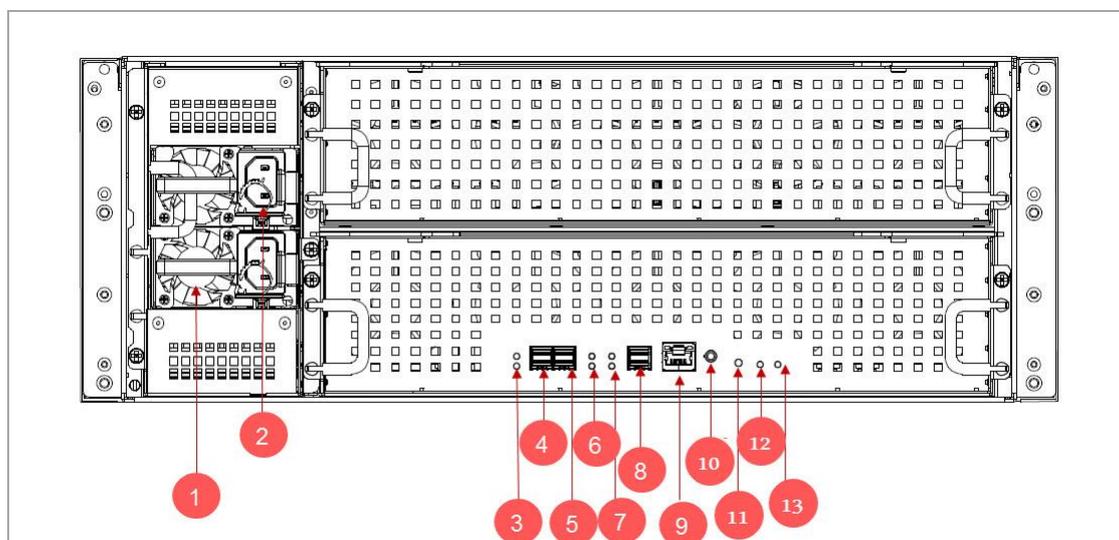


Figure 3-5 DS-AJ7824S Rear Panel

Table 3-2 Panel Description

No.	Description	No.	Description
1	Power module 1	8	Exp (Down)
2	Power module 2	9	Network management port
3	SAS cable connection indicator	10	COM
4	Host (Up1)	11	Fn button
5	Host (Up2)	12	Fn indicator
6	SAS cable connection indicator	13	Power switch
7	SAS cable connection indicator		

 **NOTE**

- **SAS cable connection indicator:**
 - Green: SAS cable connection is normal.
 - Unlit: No SAS cable is connected.
 - Red: SAS cable connection is abnormal.
- **Host (Up1)/host (Up2):** Connect the interface to upper level storage enclosure or storage system.
- **Exp (Down):** Connect the interface to lower level storage enclosure.
- **Fn indicator:** Used for locating storage enclosure.
- **Fn button:** Turn on/off Fn indicator.
- **Power module 1/power module 2:** Both the two power modules should be connected with power supply.
- **COM:** Serial port interface for viewing controller information and debugging.
- **Network management port:** You are not recommended to use the port.

3.2 Install Accessories

3.2.1 Installation Requirement

Before installation, please prepare the following equipment and accessories:

- Storage enclosure
- Storage system
- Power cord
- SAS cable

The following accessories are optional or user-provided:

- Gigabit Ethernet switch (second-layer switch, user-provided)
- Rack guide apparatus (optional)

Please check the following hardware connection

- Power cord connection: connect the power cord to 110V~220VAC power supply.
- Connect the SAS cable to storage system. The default interface is UP1.



before installing device, please wear a wrist strap and ensure it is correctly grounded.

3.2.2 Install HDD

Select HDD Model

It is recommended to adopt the certificated professional HDD models so as to ensure the stable running of the system and the reliable data storage. It is highly recommended to purchase the enterprise-class hard disks, e.g., Seagate Constellation™ ES, Western Digital WD RE3 and WD RE4 series hard disk.

The use of non-enterprise hard disks for establishing RAID may cause instability of the system running and thus lead to data damage. In case of hard disk failure, please replace it with the functioning one immediately so as to prevent the data loss or performance effect. Please refer to the List of Compatible HDD Models of our company for the recommended HDD models.



In order to avoid damages during transportation, it is recommended to package and transport the hard disks separately with the chassis of network storage system.

Install HDD

Follow the steps below to install HDDs. We use 24 slots device as an example to describe the following operations.

- Step 1 Use the panel key to unlock the front panel and then pull out the front panel.
- Step 2 Press the spring lock of the HDD on the left, draw the handle and then pull out the HDD bracket from the chassis along the guide apparatus.
- Step 3 Use four screws to secure the HDD (with the PCB side downward) to the bracket. In order to ensure the HDD pin holds the line with the rear of the plate, mount screws to the specific screw hole as shown.
- Step 4 Insert the HDD bracket (with the PCB side towards the left of the chassis) to the chassis and push it along the guide apparatus to the bottom. Then, press the securing handle to ensure the bracket has been seated into position and lock it.
- Step 5 Repeat the operating steps above till all HDDs have been installed.

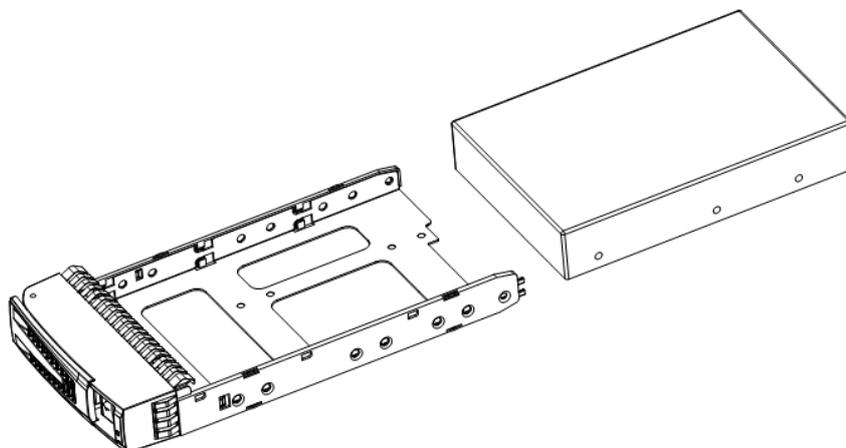


Figure 3-6 Split HDD Plate

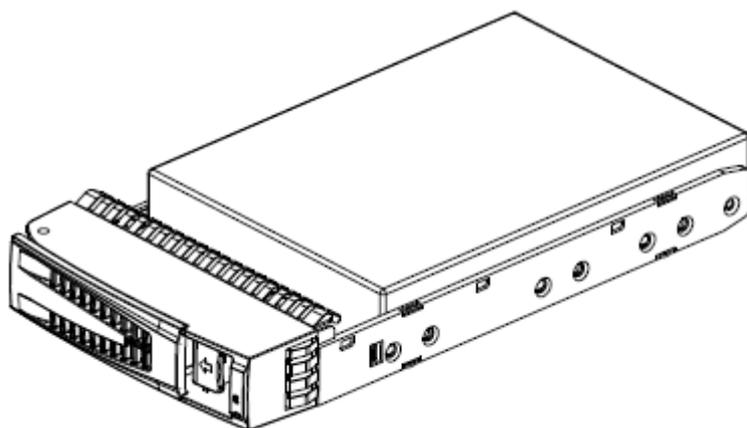


Figure 3-7 HDD Installation Diagram

Precautions during HDD Installation

When you plug or unplug the hard disks, please take the following precautions:

- After you have plugged the hard disk to its mounting bracket, please use the provided screws to fix the four edges of the mounting bracket.
- Make sure the HDD mounting bracket is steadily plugged to the chassis along the slot.
- When you unplug the hard disk, unplug it about 3cm away from the chassis and then make it stay about 30 seconds on the slot guide before totally unplug it from the chassis. Since the discs of the hard disk are still spinning at a high speed just after powering off, unplugging the hard disk immediately will damage the discs.
- The system supports disk hot swapping, yet the data storage safety is not ensured.

- Please avoid frequent plugging/unplugging of the hard disks during the system running so as to maintain long service life of the hard disks.
- Take regular check and examine of the working status of the hard disks every two months, or configure the system with auto check and examine task.



Please avoid unplugging a hard disk when it is writing/reading data so as to prevent data loss.

Chapter 4 Device Wiring

The SAS extension interfaces of storage enclosure are **Host (UP)** and **EXP (Down)**.

- **Host (UP)**: Connect **Host (UP)** to storage system or **EXP (Down)** of upper-level storage enclosure.
- **EXP (Down)**: Connect **EXP (Down)** to **Host (UP)** interface of the lower-level storage enclosure.

4.1 DS-AJ7824D

For storage system with STAT HDD, only one storage enclosure can be connected. Connect storage system and storage enclosure with SAS cable.

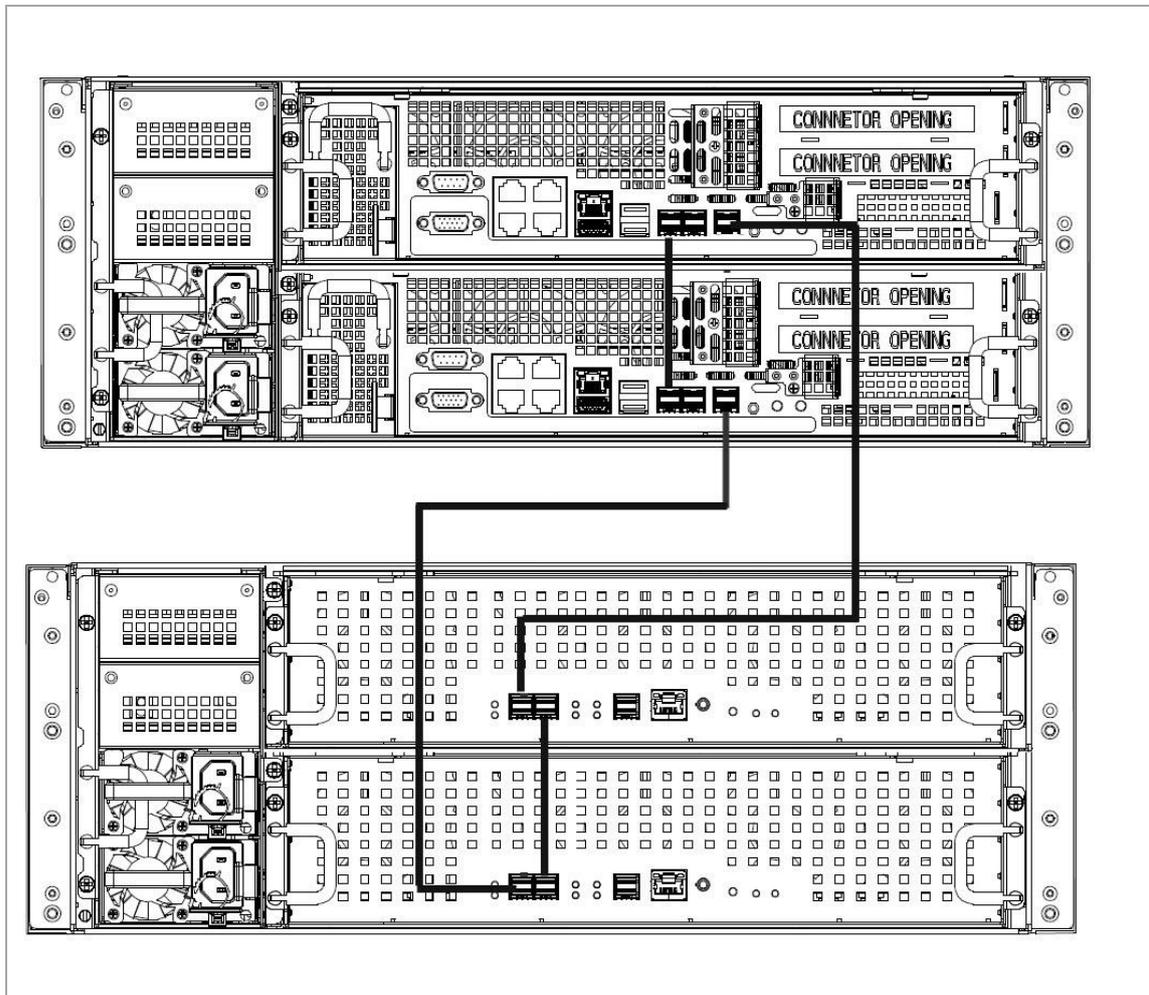


Figure 4-1 Wiring for STAT HDD

For storage system with SAS HDD, two storage enclosures can be connected.

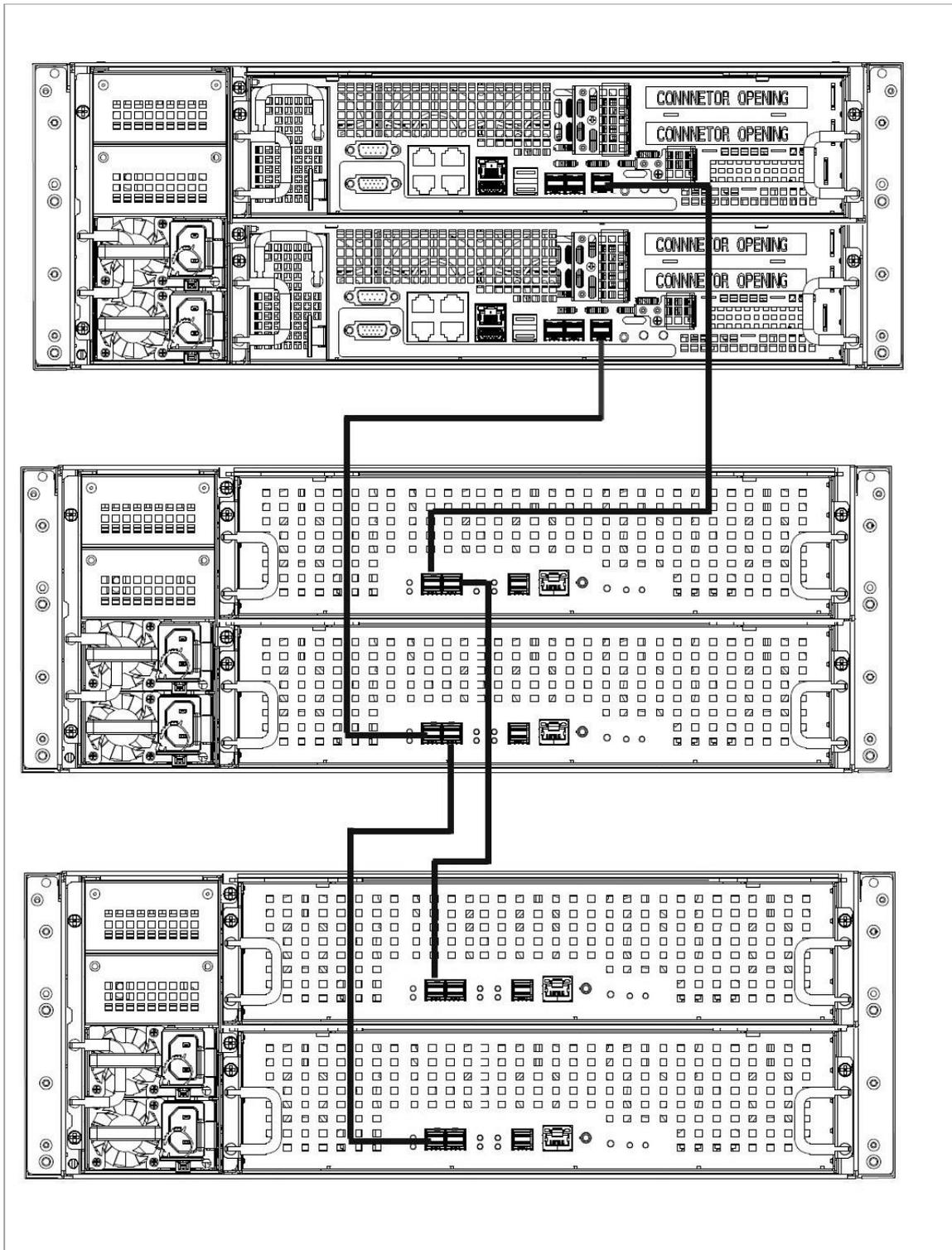


Figure 4-2 Wiring for SAS Interface

4.2 DS-AJ7824S

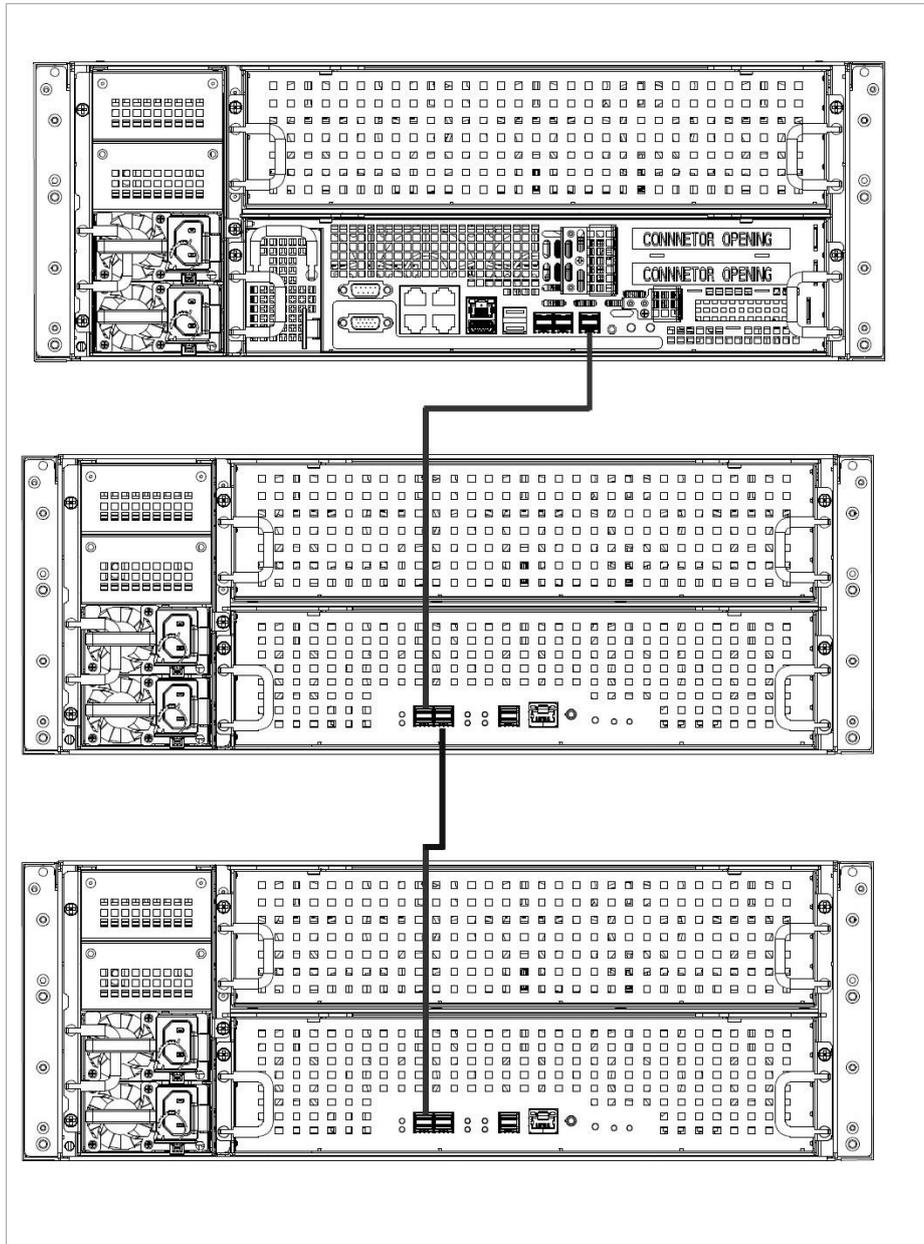


Figure 4-3 Wiring

Chapter 5 Preventive and Cautionary Tips

- Cut off storage enclosure power supply before plugging or unplugging power cord.
- When connecting storage system with enclosure, the more HDD the storage enclosure contains, the more time HDD detection takes.
- For details about supported storage enclosure and configuration, refer to user manual of storage system.
- If you are going to build iRAID with HDD from one storage enclosure, do not add HDD in storage enclosure and storage system to the same HDD resource pool.



See Far, Go Further