ioSafe 223 Hardware Guide

Powered by Synology DSM

Part Number: A8-7223-00 REV01 Hardware Guide, 223

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Did you purchase your 223 preloaded with Hard Drives?

Skip to "Initial Setup of Disk Station Manager" on page 13.

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Introduction

Congratulations on your purchase of the ioSafe 223 powered by Synology DSM. The ioSafe 223, based on Synology's DS223 motherboard, is designed as a powerful way to protect your private cloud networked data from loss due to natural disasters such as fires and floods. Please read this Quick Start Guide and the User's Guide carefully to understand how to operate this device both during normal operation and during a disaster event.

Important Note: The ioSafe 223 is based on the Synology DS223 Motherboard and Synology DSM OS. Certain configuration settings may require you to select "Synology DS223", "DS223" or "Synology" as an option.

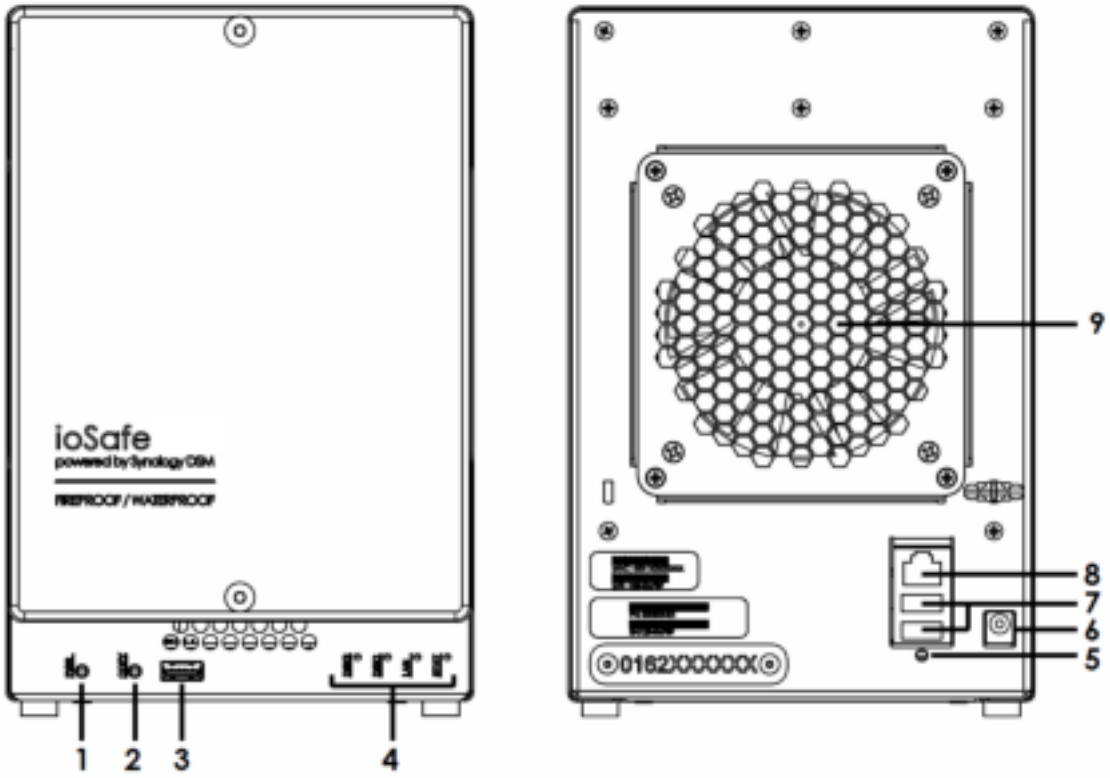
Before You Start

Before you start setting up ioSafe 223, please check the package contents to verify that you have received the items below. Please also read the safety instructions carefully before use to prevent your ioSafe 223 from any damage.

Package Contents

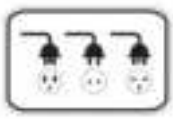
Main Unit x 1	AC Power Cord x1
	
	AC Power Adapter x1
	
	RJ-45 LAN cable x1
	
	Drive Screws x8
	
	Cord Retention Clip x1
	
	3mm Hex Tool x1
	
	Magnet x1
	
	Note: For storing the Hex Tool on the back of the device

ioSafe 223 at a Glance



No.	Article Name	Location	Description
1)	Power Button	Front Panel	1. Press to power on your ioSafe NAS. 2. To power off your ioSafe NAS, press and hold until you hear a beep sound and the Power LED starts flashing.
2)	Copy Button	Front Panel	Lights up when you connect a USB device (e.g. digital camera, USB storage device, etc.). Press the copy button to copy data from the connected USB device to internal drives.
3)	USB 2.0 Port	Front Panel	USB ports for adding additional external hard drives, USB printers, or other USB devices.
4)	LED Indicators	Front Panel	The LED indicators are used to display the status of the internal disk and the system. For more information, see "Appendix B: System modes and LED Indicat" on Page 19.
5)	RESET Button	Back Panel	1. Mode 1: Press and hold until you hear a beep sound to restore the IP address, DNS server, and password for the admin account to default. 2. Mode 2: Press and hold until you hear a beep, release the button immediately, then press and hold again within 10 seconds to reinstall DiskStation Manager (DSM).
6)	Power Port	Back Panel	Connect the AC adapter to this port.
7)	USB 3.2 Gen 1 Ports	Back Panel	Connect external drives or other USB devices to the ioSafe NAS here.
8)	LAN Port	Back Panel	The LAN port for connecting network (RJ-45) cable to the ioSafe 223.
9)	Fan	Back Panel	To maximize cooling, please do not block the fan exhaust. If the fan is malfunctioning, the system will beep.

Safety Instructions

	For optimized cooling during normal operation, keep out of from direct sunlight. During a high temperature event such as a fire, the internal HDD's are protected from data loss (1550°F, 30 minutes per ASTM E-119) when the Front Cover is properly installed on the device. Please contact ioSafe (http://iosafe.com) for assistance during any data recovery event.
	During normal operation, do not place the ioSafe product close to any liquid. During a flood or water exposure (10' depth, full immersion, 3 days) the internal HDDs are protected from data loss when the Waterproof Drive Cover is sufficiently tightened to the internal HDD chassis. Please contact ioSafe (http://iosafe.com) for assistance during any data recovery event.
	Before cleaning, properly shut down by pressing and holding the front power button then unplug the power cord. Wipe ioSafe product with moist cloth. Avoid chemical or aerosol cleaners for cleaning as they may affect the finish.
	The power cord must plug in to the right supply voltage. Make sure that the supplied AC voltage is correct and stable.
	To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.
	Observe electrostatic discharge (ESD) precautions during the entire installation process to eliminate possible ESD damage to the equipment. Wear an approved ESD wrist strap that is grounded when you handle an ESD-sensitive device.
	CAUTION: Risk of Explosion if battery is replaced by an incorrect type.
	Dispose of used batteries according to their instructions

Hard Drive Installation *(For Diskless Version Only)*

This section shows how to install hard drives into a 223

Did you purchase your 223 preloaded with Hard Drives?

Skip to "**Initial Setup of Disk Station Manager**" on **page 13**.

Tools and Parts for Hard Drive Installation

Needed:

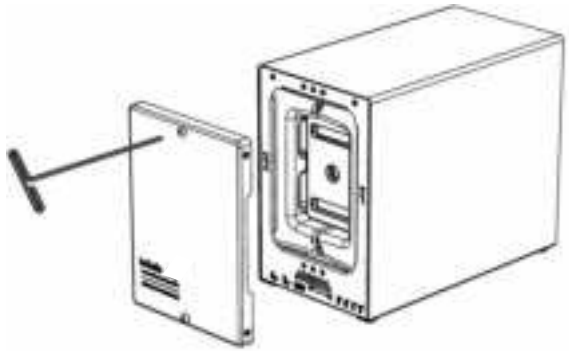
- A Phillips screwdriver
- 3mm Hex Tool (included with the ioSafe 223)
- At least one 3.5" SATA hard drive
  (Please visit **https://cdsg.com/hardware-compatibility** for compatible hard drive models.)

Note: For a RAID1 set, it is recommended that all installed drives be the same size to make the best use of hard disk capacity.

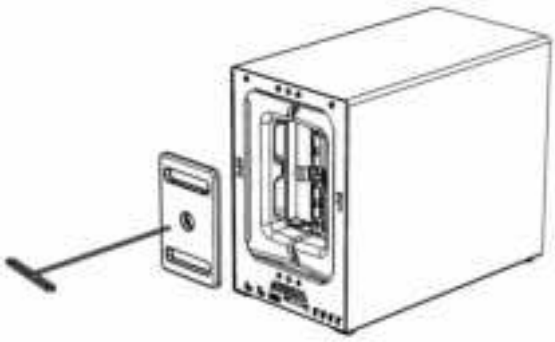
Warning: If you install a hard drive that contains data, the 223 will format the hard drive and erase all data. If you need the data in the future, please back it up before installation.

Install Hard Drives

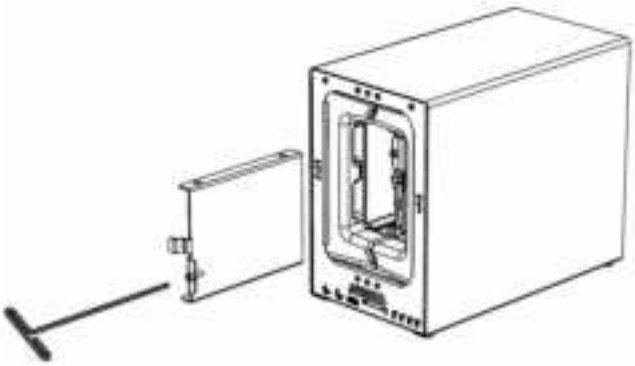
1 Remove the Front Cover using the included 3mm Hex Tool.
NOTE: All hex screws used in the 223 are designed to be captive to avoid accidental loss.



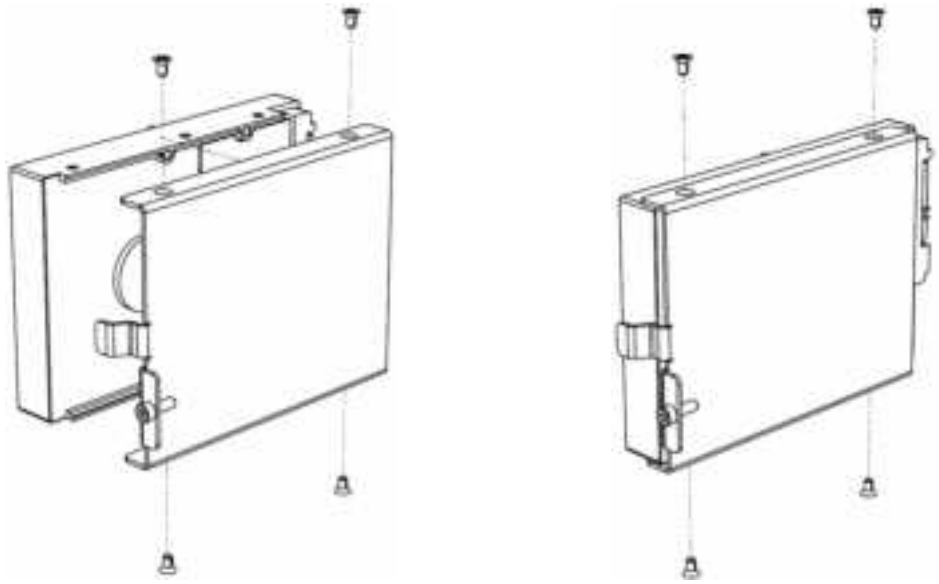
2 Remove Waterproof Drive Cover using the 3mm Hex Tool.



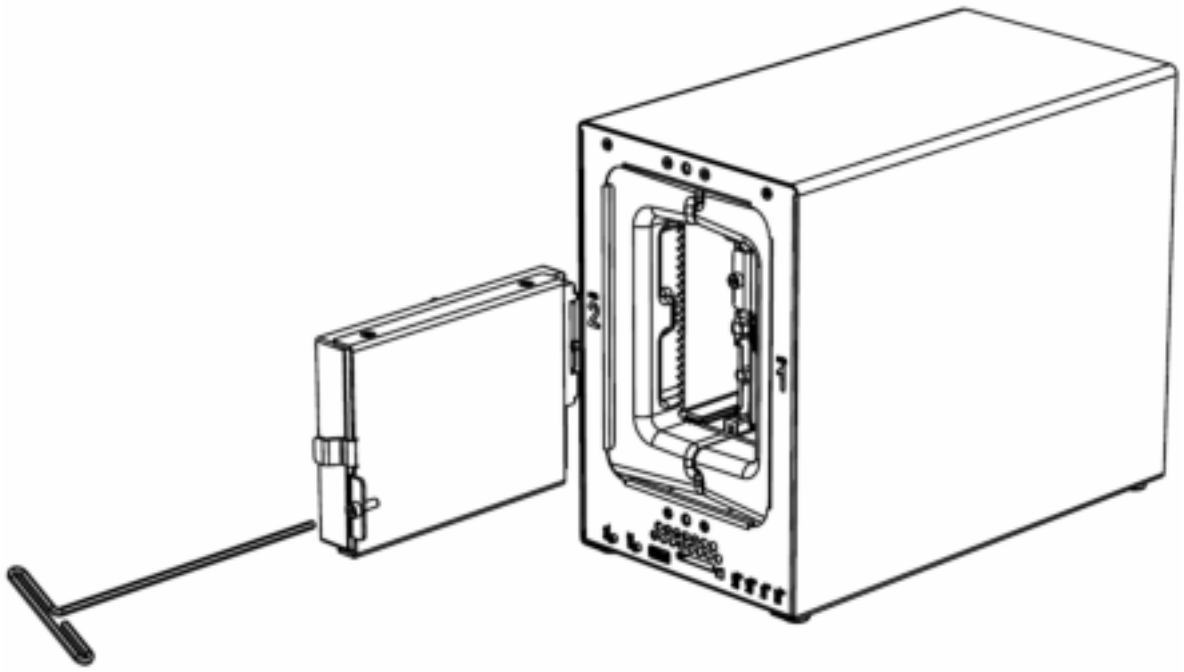
3 Remove both of the Drive Trays using the provided 3mm Hex Tool.



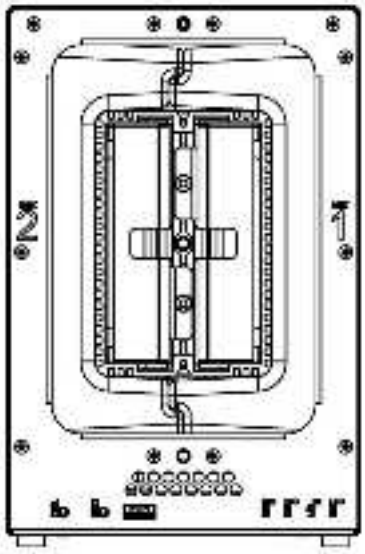
4 Install a compatible Hard Drive into each Drive Tray using (4x) Drive Screws and a Phillips screwdriver. (Please visit **https://cdsg.com/hardware-compatibility** for compatible hard drive models.)



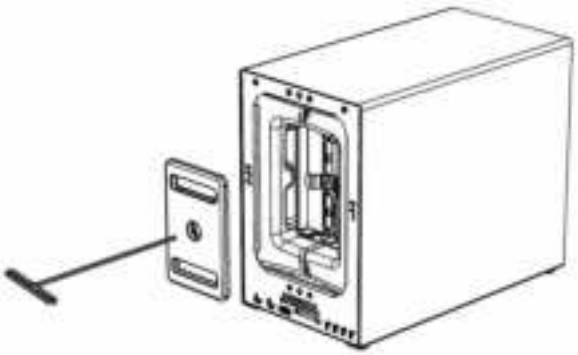
5 Insert the Hard Drives into the empty hard drive bay and tighten the screws using the 3mm Hex Tool
Note: Each Hard Drive will only fit in one orientation.



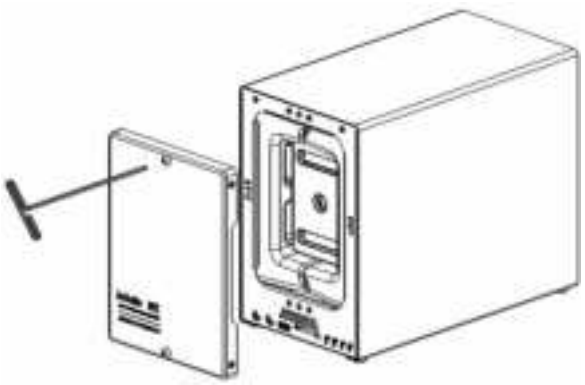
Note: If Drive replacement is required notice that Drive #2 is on the left and Drive #1 is on the right.

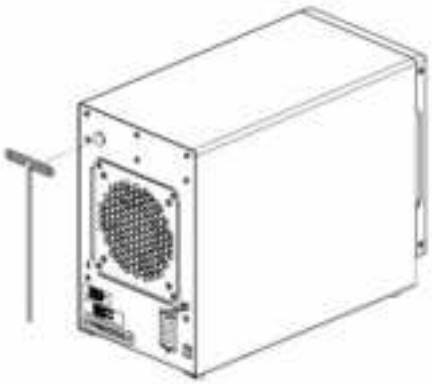


6 Replace the Waterproof Drive Cover and securely tighten using the supplied 3mm Hex Tool.
WARNING: BE SURE TO TIGHTEN THIS SCREW USING THE HEX TOOL. THE HEX TOOL IS DESIGNED TO FLEX SLIGHTLY WHEN THE SCREW IS SUFFICIENTLY TIGHT AND THE WATERPROOF GASKET IS COMPRESSED PROPERLY. AVOID USING TOOLS OTHER THAN THE SUPPLIED HEX TOOL AS YOU COULD UNDER TIGHTEN OR BREAK THE SCREW.



7 Install the Front Cover to finish the installation and protect the drives from fire. Store the hex tool on the back of the device using the supplied magnet for later use.



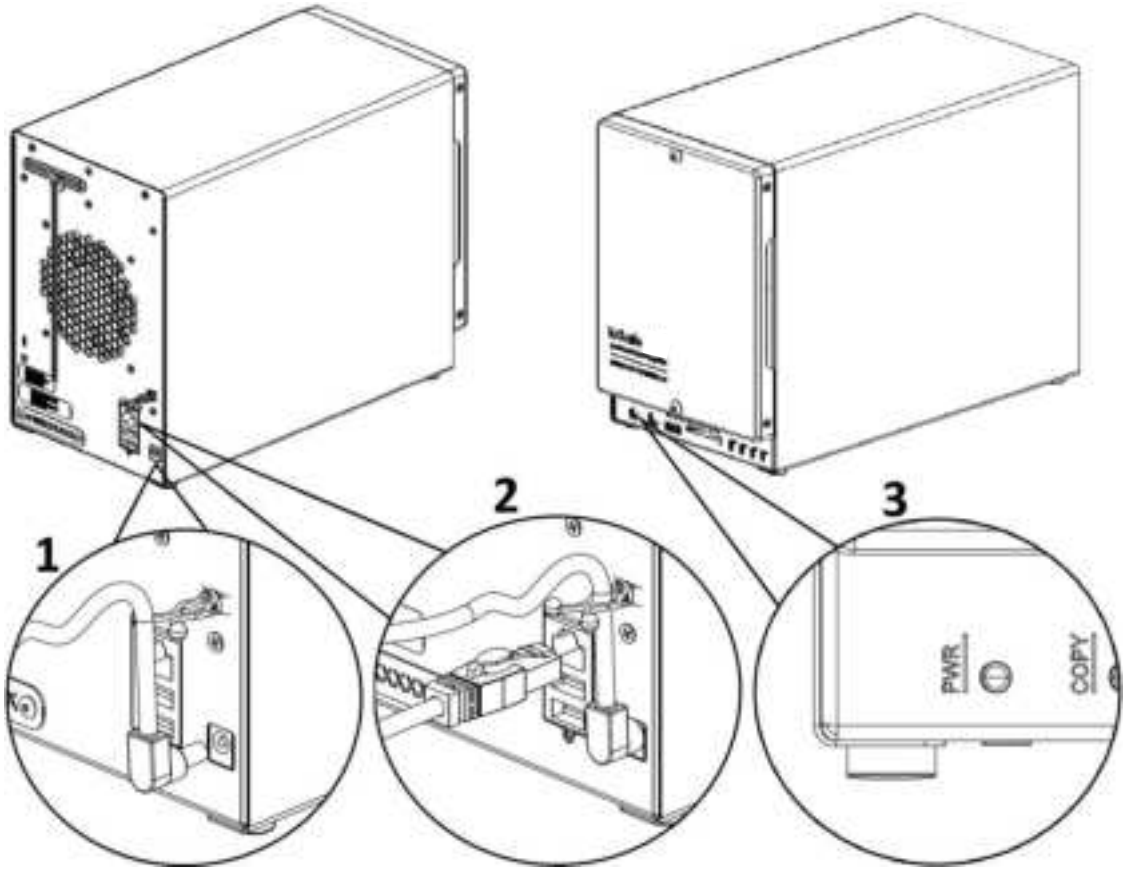


Connect the ioSafe 223 to your Network

1 Use the LAN cable to connect the ioSafe 223 to your switch/router/hub.

2 Connect the AC adapter to the power port of the ioSafe 223. Connect one end of the AC power cord to the AC power adapter, and the other to the power outlet. Insert the plastic cable holder into the slot to retain the power cord.

3 Press and hold the power button to turn on your DiskStation.



Your ioSafe 223 should now be online and detectable from a network computer.

Initial Setup of Disk Station Manager

After hardware setup is finished, please install Synology's DiskStation Manager (DSM). Synology's DiskStation Manager (DSM) is a browser-based operating system which provides tools to access and manage your ioSafe. When installation is complete, you will be able to log into DSM and start enjoying all the features of your ioSafe powered by Synology. To get started, please see the steps below.

Note: Before beginning the installation process below, make sure that the 223 is connected to your router/switch with the network cable and that the power cord plugged in and the 223 is powered on.

Connecting to the ioSafe using Web Assistant

Your ioSafe comes equipped with a built-in tool called Web Assistant that helps you download the latest version of DSM from the internet and install it on your ioSafe. Before installing DSM with Web Assistant, please check the following:

- Your computer and your ioSafe must be connected to the same local network.
- In order to download the latest version of DSM, Internet access must be available during installation.

After confirming, please follow the steps below:

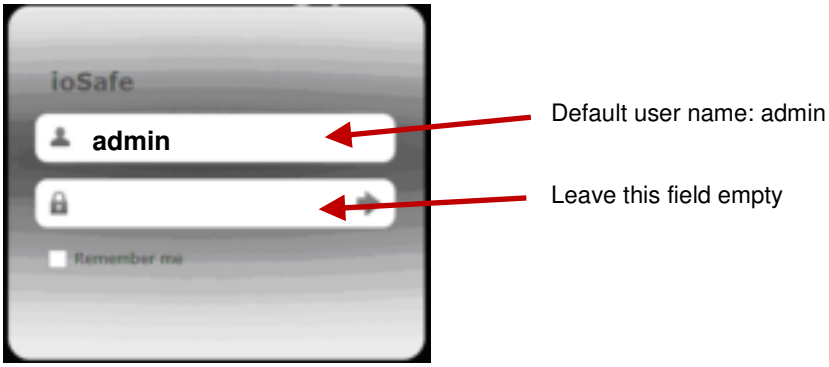
1. Power on your ioSafe.
2. Open a web browser on your computer connected to the same network as the ioSafe.
3. Enter either of the following into the address bar of your browser:
    a) **find.synology.com**
    b) **Diskstation:5000**

    Note: Web Assistant is optimized for Chrome and Firefox web browsers.
4. Web Assistant will be launched in your web browser. It will search for and find the DiskStation within the local network. The status of the DiskStation should be **Not installed**.

5 Click **Connect** to start the setup process. Follow the onscreen instructions to complete the setup process.

> ***Note:***
>
> 1. ioSafe uses an unmodified version of Synology's DSM. The software interface will sometimes refer to the Synology Product the ioSafe is based on; Synology DS223
> 2. Suggested browsers: Chrome, Firefox.
> 3. Both the 223 and the computer should be in the same local network.
> 4. Internet connection must be available during DSM installation with Web Assistant.

6 A web browser should open showing the 223 Login screen. Enter the 'admin' as the username and leave the password field blank as shown below.



Appendix

A

Specifications

Item	ioSafe 223
Fire Protection	Protects data from loss up to 1550°F for 1/2 hour per ASTM E119
Water Protection	Protects data from loss up to 10ft for 72 hours.
Internal HDD	3.5" / 2.5" SATA III / SATA II x 2
CPU	Realtek RTD1619B 4 Core 1.7GHz
RAM	2 GB DDR4 non-ECC
HDD Bays	2
Max. Capacity	16TB (2 x 8TB hard drives)
Hot Swappable HDD	Yes
External HDD Interface	• USB 3.2 Gen 1 x 2 • USB 2.0 x 1
LAN Port	1 Gigabit (RJ-45) x 1
USBCopy	Yes
Size (HxWxD)	231mm x 150mm x 305mm (9.1" x 5.9" x 12.0")
Weight	14 kg (31 lbs)
Supported Clients	• Windows XP onward • Mac OS X 10.7 onward • Ubuntu 12 onward
Max. User Accounts	2048
Max. Group Accounts	256
Max. Shared Folders	256
Max. Concurrent Connections	128
Max. Supported IP Cameras	8
File System	• EXT 4，EXT3, FAT, NTFS, HFS+ (External disk only)
Supported RAID Types	• Basic • JBOD • RAID 0 • RAID 1 • Synology Hybrid RAID (1-Disk Fault Tolerance)
Agency Certifications	• FCC Class B • CE Class B • BSMI Class B
HDD Hibernation	Yes
Scheduled Power On/Off	Yes
Wake on LAN/WAN	Yes
Power And Environment Requirements	• Line voltage: 100V to 240V AC • Frequency: 50/60Hz • Operating Temperature: 40 to 95˚F (5 to 35˚C) • Storage Temperature: -5 to 140˚F (-20 to 60˚C) • Relative Humidity: 5% to 95% RH • Maximum Operating Altitude: 6500 feet (2000 m)

Appendix

B

System modes and LED Indicators

System Modes definitions

There are 7 system modes in Synology NAS. The System modes and their definitions are as below:

System Mode	Definition
Powering on	Synology NAS is powering on when you press the power button or restarting when you run operations in DSM. During the boot up process, the device also performs hardware initialization, such as hardware reset or BIOS initialization.
Shutting down	Synology NAS is shutting down as a result of pressing the power button or operation in DSM.
	DSM is not ready for use. This could either be: Synology NAS is powered on, but DSM is not properly installed. Synology NAS is currently powering on and initializing services necessary for DSM to fully function. The attached UPS device has insufficient power; DSM stops all services to prevent data loss (enters safe mode).
DSM is ready for use	DSM is fully functioning, and users can sign in.
Hibernation	Synology NAS has been idle for a while and is now in Hibernation mode.
Application	Certain packages/services (e.g., USB Copy and Find me service) while in operation will control the actions of the LED. After the operation is complete, the LED indicator will return to its normal state.
Application	Synology NAS is powered off.

Identify System Modes

You can identify the system mode through the POWER and STATUS LED indicators. Please refer to the table below for more details.

System Mode	POWER LED	STATUS LED	
	Blue	Green	Orange
Powering On	Blinking	Off	Off
Shutting down	Blinking	Static	Off/Static[1]
DSM not ready	Static	Blinking	Off/Blinking[1]
DSM is ready for use	Static	Static	Off/Static[1]
Hibernation	Static	Off	Off/Static[1]
Application	Static	Switching	
Powering Off	Off	Off	Off

Notes:

1. If the STATUS LED remains static orange or continuously blinks orange, this indicates there are system errors such as fan failure, system overheating, or volume degrade. Please sign in to DSM for detailed information.

Transitions between System Modes

To better understand the transition between system modes, please refer to the examples below:

- **Powered on with no DSM installed:**

  Powered off > Powering on > DSM not ready

- **Powered on with DSM installed:**

  Powered off > Powering on > DSM not ready > DSM is ready for use

- **Entering hibernation then waking up from hibernation:**

  DSM is ready for use > In hibernation > DSM is ready for use

- **Shutdown:**

  DSM is ready for use > Shutting down > Powered off

- **Power failure with UPS attached:**

  DSM is ready for use > DSM not ready (due to power failure, DSM enters safe mode) > Shutting down > Powered off > Powering on (power has recovered, DSM will reboot) > DSM not ready > DSM is ready for use

LED Definitions

LED Indication	Color	Status	Description
STATUS	Green	Static	Volume normal
		Slow on/off cycle	HDD Hibernation (All the other LED indicators will be off)
	Orange	Blinking	Volume degraded or crashed
			No volume
			DSM not installed
LAN	Green	Static	Network connected
		Blinking	Network active
	Off		No network
Drive status	Green	Static	Drive is ready and idle
		Blinking	Drive is being accessed
	Orange[1]	Static	Locating drive
			Drive deactivated by user
			Port disabled[2]
			Drive health status is Critical or Failing
	Off		No internal disk
Copy	Green	Static	Device detected
		Blinking	Copying data
	Off		No device detected
Power	Blue	Static	Powered On
		Blinking	Booting up / Shutting down
	Off		Powered off

Notes:

1. When the drive LED indicator is orange, we recommend you sign in to DSM and go to Storage Manager > HDD/SSD for more information.
2. Please try to restart your Synology NAS or re-insert the drives, then run the HDD/SSD manufacturer's diagnostic tool to check the health status of the drives. If you can sign in to DSM, please run the built-in S.M.A.R.T. test to scan the drives. If the problem remains unresolved, please contact Synology Technical Support for help.