QSAN Official Document

XN2 Series

Hardware Manual

February 2025

ANNOUNCEMENT

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REGULATORY STATEMENTS

FCC Statement

This device has been shown to be in compliance with and was tested in accordance with the measurement procedures specified in the Standards and Specifications listed below.

Technical Standard: FCC Part 15 Class A

IC ICES-003

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.

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。VCC1-A

警告：這是甲類的資訊產品。在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

CE Statement

This device has been shown to be in compliance with and was tested in accordance with the measurement procedures specified in the Standards and Specifications listed below.

Technical Standard: EMC DIRECTIVE 2014/30/EU

(EN55032 / EN55035)

UL Statement

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:

1. Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
2. 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.
3. Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. Circuit Overloading - Careful 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 overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

CAUTION

The main purpose of the system left and right ears are for 19” rack use only. Do NOT use those ears to carry or transport the system.

The ITE is not intended to be installed and used in a home, school or public area accessible to the general population, and the thumbscrews should be tightened with a tool after both initial installation and subsequent access to the panel.

Warning: Always remove all power supply cords before service

This equipment intended for installation in restricted access locations.

- Access should only be allowed by qualified SERVICE PERSONS or by USERS who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.
- Recommended operation temperature: 0°C ~ 35°C (32°F ~ 95°F); operation rating (100-127 Vac, 50-60Hz, 10.0A; 200-240 Vac, 50-60Hz, 5.0A)

CAUTION

CAUTION: (English)

Risk of explosion if battery is replaced by incorrect type. Please replace the same or equivalent type battery use and dispose of used batteries according to the instructions.

ATTENTION: (French)

IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACEE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGEES CONFORMEMENT AUX INSTRUCTIONS.

VORSICHT: (German)

Explosionsgefahr bei unsachgemasem Austausch der Batterie. Entsorgung gebrauchter Batterien nach Anleitung.

ADVERTENCIA: (Spanish)

Las baterias pueden explotar si no se manipulan de forma apropiada. No desmonte ni tire las baterias al fuego. Siga las normativas locales al desechar las baterias agotadas.

警告: (Simplified Chinese)

电池如果更换不正确会有爆炸的危险，请依制造商说明处理用过之电池。

警告: (Traditional Chinese)

電池如果更換不正確會有爆炸的危險，請依製造商說明處理用過之電池。

CAUTION

Replacing incorrect type of battery will have the risk of explosion. Please replace the same or equivalent type battery use and dispose of used batteries according to the instructions.

CAUTION RESTRICTED ACCESS LOCATION

This system is intended for installation only in restricted access locations as defined where both these conditions apply:

- Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

Warning

- Electric shock hazard

The system may have one or more power supply unit (PSU) cords. To avoid serious injuries, it is recommended that all PSU power cords must be disconnected by trained service technicians before installing or replacing system components.

INFORMATION

QSAN provides limited warranty for QSAN-branded hardware products:

- System hardware and peripheral product (s): 3 years limited warranty from date of original purchase.
- Battery Backup Module or super capacitor module (applies for cache-to-flash module): 1-year limited warranty from date of original purchase.

For more detail warranty policy, please refer to QSAN official web site:

https://www.qsan.com/warranty

PREFACE

About This Manual

This manual provides technical guidance for designing and implementing QSAN XN2 series unified storage, and it is intended for use by system administrators, storage consultants, or anyone who has purchased these products and is familiar with servers and computer networks, network administration, storage system installation and configuration, storage area network management, and relevant protocols.

CAUTION

Do NOT attempt to service, change, disassemble or upgrade the equipment's components by yourself. Doing so may violate your warranty and expose you to electric shock. Refer all servicing to authorized service personnel. Please always follow the instructions in this owner's manual.

Related Documents

There are related documents which can be downloaded from the website.

- Quick Installation Guide
- QSM Software Manual
- Compatibility Matrix
- White Papers
- Application Notes

Technical Support

Do you have any questions or need help trouble-shooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

Information, Tip, and Caution

This manual uses the following symbols to draw attention to important safety and operational information.

INFORMATION

INFORMATION provides useful knowledge, definition, or terminology for reference.

TIP

TIP provides helpful suggestions for performing tasks more effectively.

CAUTION

CAUTION indicates that failure to take a specified action could result in damage to the system.

Conventions

The following table describes the typographic conventions used in this manual.

CONVENTIONS	DESCRIPTION
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click the **OK** button.
<*Italic*>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: copy <*source-file*> <*target-file*>.
[ ] square brackets	Indicates optional values. Example: [a | b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a | b } indicates that you must choose either a or b.
| vertical bar	Indicates that you have a choice between two or more options or arguments.
/ Slash	Indicates all options or arguments.
underline	Indicates the default value. Example: [a | b]

1. PRODUCT OVERVIEW

Thank you for purchasing QSAN Technology, Inc. products. XN2 series is next generation high-efficiency NAS system which is designed for composite enterprise applications for SMB users.

1.1. Introduction to XN2 Series

QSAN XN2 series is next generation network attached storages crafted for SMB and remote offices with flash-ready architecture to deliver uncompromising server-grade performance. Designed for a seamless experience, XN2 series for SMB maximize investment value through supreme performance, high I/O flexibility, and reliable multi-level security to fulfill modern enterprise needs for speed and scalability.

This manual will direct you step by step to familiarize you with the hardware components, how to install the system, carry out the initial configuration, and provide you with some quick maintenance guidelines.

INFORMATION

For how to use the QSM operating system, please refer to the QSM Software Manual.

The XN2216 and XN2212 models support LFF (Large Form Factor) 12-bay plus two M.2 slots in the controller, 19” rack mount 2U chassis. The XN2216 model has additional SFF (Small Form Factor) 4-bay on the rear.

Figure 1-1 XN2216 and XN2212 Form Factor

XN2204 model supports LFF (Large Form Factor) 4-bay plus two M.2 slots in the controller, 19” rack mount 1U chassis.

Figure 1-2 XN2204 Form Factor

The following tables provide detailed information about all XN2 series models.

Table 1-1 XN2 Series Models

MODEL NAME	CONTROLLER TYPE	FORM FACTOR, BAY COUNT, RACK UNIT
XN2216-8C **XN2216-4C**	Single Controller	LFF 12-bay + SFF 4-bay + M.2 2-slot 2U Chassis
XN2212-8C **XN2212-4C**	Single Controller	LFF 12-bay + M.2 2-slot 2U Chassis
XN2216-2C	Single Controller	LFF 12-bay + SFF 4-bay + M.2 2-slot 2U Chassis
XN2212-2C	Single Controller	LFF 12-bay + M.2 2-slot 2U Chassis
XN2204-4C **XN2204-2C**	Single Controller	LFF 4-bay + M.2 2-slot 1U Chassis

1.2. Hardware Specifications

For detailed hardware specifications, please refer to the XN2 Datasheet which can be downloaded from the website.

1.3. Package Contents

For detailed package contents, please refer to the Quick Installation Guide which can be downloaded from the website.

2. Overview of System Components

This chapter outlines the key hardware components or modules of the system. After reading this chapter, you will have a basic understanding of each part of the hardware and give you the ability to be able to successfully configure and operate your system.

2.1. XN2216 and XN2212 Front Panel

In this section, we will describe the system controls and indicators, disk drive numbering, and the disk drive LEDs in the front panel.

2.1.1. XN2216 and XN2212 System Controls and Indicators

The XN2216 and XN2212 model features a unique design: the system controls and indicators are located on the right ear. The system controls and indicators module integrate functional buttons and system state indicators, which can be easily operated and read by user.

Figure 2-1 XN2216 and XN2212 System Controls and Indicators

Table 2-1 XN2216 and XN2212 System Controls and Indicator Description

NUMBER	DESCRIPTION	DEFINITION
1	Enclosure Status LED	Enclosure Status LED indicates current health status of the system. • Solid Amber: 1. The storage folder / pool has reached its maximum capacity (100%). 2. The storage folder / pool is almost full (95%). 3. The system fan is out of function. 4. A bad sector has been detected on the hard drive. 5. One of the pools is in degraded read-only mode. 6. Hardware self-test error. Examples include PSU failed, abnormal voltage, critical high / low temperature, any cooling fan module failed or removed, any pool failure. • Blinking Amber (interval of 0.5 sec): Firmware is being upgraded, or RAID rebuilding is in process. • Off: The system is healthy.
2	Enclosure Access LED	Enclosure Access LED indicates the host interface connectivity. • Blinking Blue: The host interface activity is on-going. • Off: There is no host interface activity.
3	Enclosure Power Button / LED	Power Button • Press the button one time to turn ON the system power and keep pressing for 4 seconds to turn OFF the system power.

		Power LED • Solid White: Power is ON (at least one power supply unit is supplying power to the system). • Blinking White (interval of 0.5 sec): The system is in the stage of boot, shutdown, or not configured. • Off: The system is shutdown.
4	Disk Drive Status LED	• Solid Amber: ▪ When system is booting. ▪ There is disk drive error. • Blinking Amber (interval of 0.5 sec): The disk drive is rebuilding. • Blinking Amber (interval of 0.05 sec): Identify the disk drive. • Off: The disk drive is healthy.
5	Disk Drive Power LED	• Solid Blue: The disk drive is inserted and no data access. • Blinking Blue: The disk drive is accessing data. • Off: There is no disk drive inserted.
6	USB Port	The USB port can be plug in the LCM (LCD Module).
7	UID Button / LED	UID (Unique Identifier) button • Press the button to turn it ON and press it again to turn it OFF. UID (Unique Identifier) LED • Solid Blue: The system has been identified. • Off: The system has not been identified.

2.1.2. XN2216 and XN2212 System Disk Drive Numbering

Figures below illustrate the XN2216 and XN2212 system disk drive numbering. The disk drive numbering for LFF system starts from the top of first row in left column; this kind of disk drive numbering rule helps to balance the system weight distribution and enable easy management of disk drives zoning.

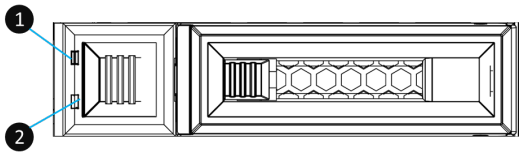
Figure 2-2 XN2216 and XN2212 Disk Drive Numbering

TIP

Please insert any one of the first four hard drives, the event log can be saved and displayed at the next system startup. Otherwise, the event log cannot be saved.

2.1.3. XN2216 and XN2212 Disk Drive LEDs

Please refer to the following for the definition of LED behavior.



LFF Disk Drive Tray

Figure 2-3 XN2216 and XN2212 Disk Drive Indicators

Table 2-2 XN2216 and XN2212 Disk Drive Indicator Description

NUMBER	DESCRIPTION	DEFINITION
1	Disk Drive Power LED	• Solid Blue: The disk drive is inserted and no data access. • Blinking Blue: The disk drive is accessing data. • Off: There is no disk drive inserted.
2	Disk Drive Status LED	• Solid Amber: ▪ When system is booting. ▪ There is disk drive error. • Blinking Amber (interval of 0.5 sec): The disk drive is rebuilding. • Blinking Amber (interval of 0.05 sec): Identify the disk drive. • Off: The disk drive is healthy.

2.2. XN2216 and XN2212 Rear Panel

In this section, we will describe the name and location of the key components and modules in the rear panel. The following content outlines the detail of the rear panel and components.

2.2.1. XN2216 and XN2212 Rear Panel Layout

Figures and the table below illustrate the system rear panel layout.

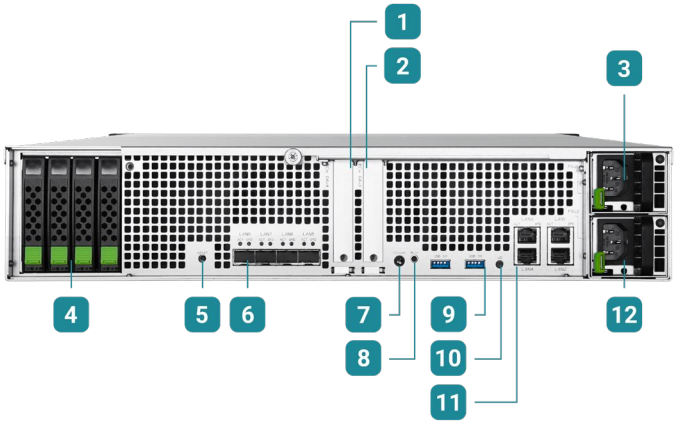


Figure 2-4 XN2216-8C and XN2216-4C Rear Panel Layout

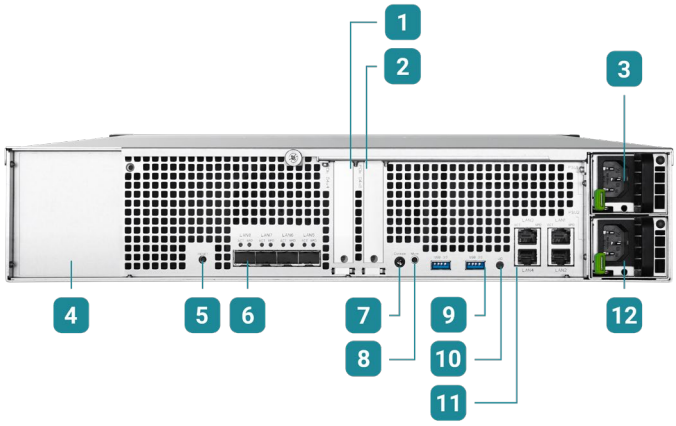


Figure 2-5 XN2212-8C and XN2212-4C Rear Panel Layout

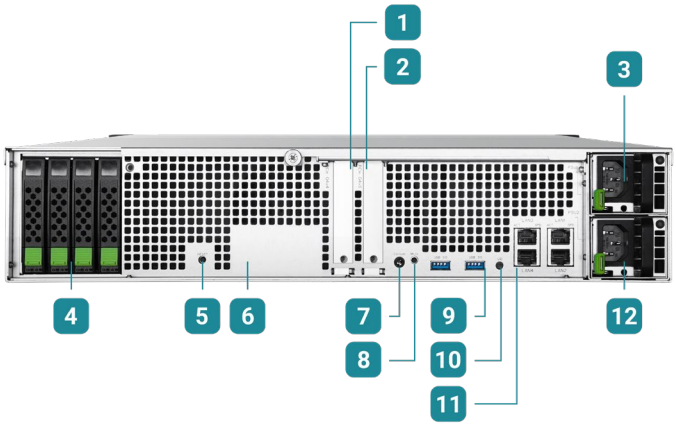


Figure 2-6 XN2216-2C Rear Panel Layout

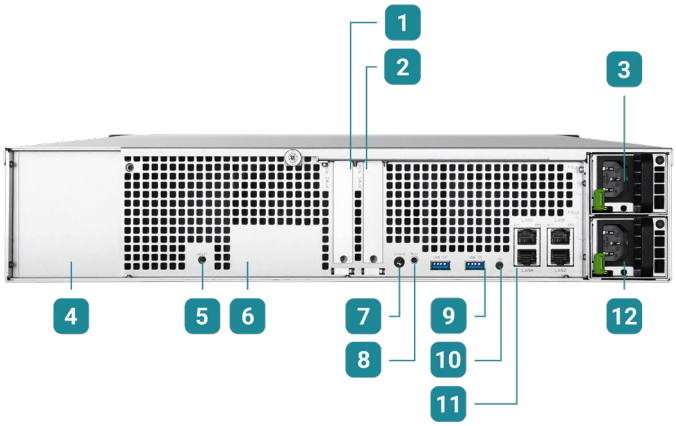


Figure 2-7 XN2212-2C Rear Panel Layout

Table 2-3 XN2216 and XN2212 Rear Panel Layout Description

ITEM NUMBER	DESCRIPTION
1	Host Card Slot 1 (host card is an optional part)
2	Host Card Slot 2 (host card is an optional part)
3	Power Supply Unit 1
4	2.5 NVMe U.2 SSD, the disk drive numbering is from right to left. (not supported in XN2212 model)
5	Reset to Factory Default Button[1]
6	10 GbE (SFP+) LAN Port (not supported in XN2216-2C and XN2212-2C model)
7	Console Port (3.5mm jack to RS232)[2]
8	Buzzer Mute Button
9	USB Port
10	UID (Unique Identifier) LED

11	2.5 GbE (RJ45) LAN Port
12	Power Supply Unit 2

[1] Press and hold the reset button on the rear panel for 3 seconds, you will hear a short beep for 1 second. The administrator password and all network settings will be reset, and the system configuration will result in:

- *Reset the **admin** password to default: 1234.*
- *All network settings are set to **DHCP**.*
- *All data services are enabled and set to default ports.*
- *The **VLAN** will be terminated.*
- *Vswitch will be deleted.*
- *Port trunking will be disabled.*
- *After the configurations are deleted, restart the system.*
- *Log out **QSAN Cloud**.*
- ***DNS** settings will be deleted.*
- ***DDNS** and **UPNP** settings will be deleted.*

[2] Console cable (NULL modem cable) connects from console port of the storage system to a RS 232 port on the management PC. The console settings are on the following: Baud rate: 115,200, 8 data bit, no parity, 1 stop bit, and no flow control; terminal type: vt100.

2.3. XN2204 Front Panel

In this section, we will describe the system controls and indicators, disk drive numbering, and the disk drive LEDs in the front panel.

2.3.1. XN2204 System Controls and Indicators

The XN2204 model features a unique design: the system controls and indicators are located on the right ear. The system controls and indicators module integrate functional buttons and system state indicators, which can be easily operated and read by user.

Figure 2-8 XN2204 System Controls and Indicators

Table 2-4 XN2204 System Controls and Indicator Description

NUMBER	DESCRIPTION	DEFINITION
1	USB Port	The USB port can be plug in the LCM (LCD Module).
2	Enclosure Status LED	Enclosure Status LED indicates current health status of the system. • Solid Amber: 1. The storage folder / pool has reached its maximum capacity (100%). 2. The storage folder / pool is almost full (95%). 3. The system fan is out of function. 4. A bad sector has been detected on the hard drive. 5. One of the pools is in degraded read-only mode. 6. Hardware self-test error. Examples include PSU failed, abnormal voltage, critical high / low temperature, any cooling fan module failed or removed, any pool failure. • Blinking Amber (interval of 0.5 sec): Firmware is being upgraded, or RAID rebuilding is in process. • Off: The system is healthy.
3	Enclosure Access LED	Enclosure Access LED indicates the host interface connectivity. • Blinking Blue: The host interface activity is on-going. • Off: There is no host interface activity.
4	Disk Drive Status LED	• Solid Amber: ▪ When system is booting.

		▪ There is disk drive error. • Blinking Amber (interval of 0.5 sec): The disk drive is rebuilding. • Blinking Amber (interval of 0.05 sec): Identify the disk drive. • Off: The disk drive is healthy.
5	Disk Drive Power LED	• Solid Blue: The disk drive is inserted and no data access. • Blinking Blue: The disk drive is accessing data. • Off: There is no disk drive inserted.
6	UID Button / LED	UID (Unique Identifier) button • Press the button to turn it ON and press it again to turn it OFF. UID (Unique Identifier) LED • Solid Blue: The system has been identified. • Off: The system has not been identified.
7	Enclosure Power Button / LED	Power Button • Press the button one time to turn ON the system power and keep pressing for 4 seconds to turn OFF the system power. Power LED • Solid White: Power is ON (at least one power supply unit is supplying power to the system). • Blinking White (interval of 0.5 sec): The system is in the stage of boot, shutdown, or not configured. • Off: The system is shutdown.

2.3.2. XN2204 Model System Disk Drive Numbering

Figures below illustrate the XN2 system disk drive numbering. The disk drive numbering starts from left to right.

Figure 2-9 XN2204 Disk Drive Numbering

TIP

Please insert any one of the first four hard drives, the event log can be saved and displayed at the next system startup. Otherwise, the event log cannot be saved.

2.3.3. XN2204 Disk Drive LEDs

The LED behavior is defined the same as for XN2216 and XN2212. Please refer to the section 2.1.3 XN2216 and XN2212 Disk Drive LEDs.

2.4. XN2204 Rear Panel

In this section, we will describe the name and location of the key components and modules in the rear panel. The following content outlines the detail of the rear panel and components.

2.4.1. XN2204 Rear Panel Layout

Figures and the table below illustrate the system rear panel layout.

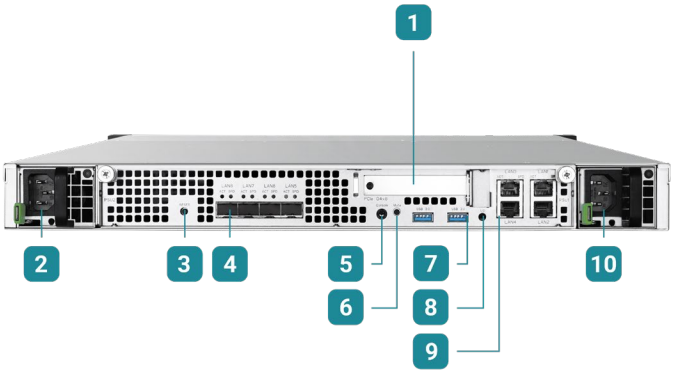


Figure 2-10 XN2204-4C Rear Panel Layout

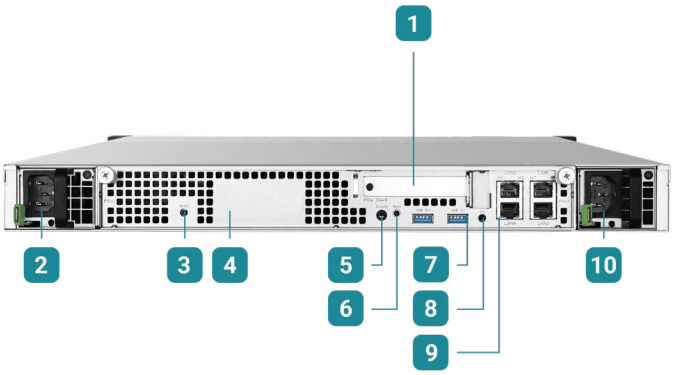


Figure 2-11 XN2204-2C Rear Panel Layout

Table 2-5 XN2204 Rear Panel Layout Description

ITEM NUMBER	DESCRIPTION
1	Host Card Slot 1 (host card is an optional part)
2	Power Supply Unit 2
3	Reset to Factory Default Button[1]
4	10 GbE (SFP+) LAN Port (not supported in XN2204-2C model)
5	Console Port (3.5mm jack to RS232)[2]
6	Buzzer Mute Button
7	USB Port

8	UID (Unique Identifier) LED
9	2.5 GbE (RJ45) LAN Port
10	Power Supply Unit 1

[1] Press and hold the reset button on the rear panel for 3 seconds, you will hear a short beep for 1 second. The administrator password and all network settings will be reset, and the system configuration will result in:

- *Reset the **admin** password to default: 1234.*
- *All network settings are set to **DHCP**.*
- *All data services are enabled and set to default ports.*
- *The **VLAN** will be terminated.*
- *Vswitch will be deleted.*
- *Port trunking will be disabled.*
- *After the configurations are deleted, restart the system.*
- *Log out **QSAN Cloud**.*
- ***DNS** settings will be deleted.*
- ***DDNS** and **UPNP** settings will be deleted.*

[2] Console cable (NULL modem cable) connects from console port of the storage system to a RS 232 port on the management PC. The console settings are on the following: Baud rate: 115,200, 8 data bit, no parity, 1 stop bit, and no flow control; terminal type: vt100.

3. INSTALL SYSTEM HARDWARE

This chapter will guide you through the installation process.

3.1. Basic System Installation

For basic system installation, please refer to the Quick Installation Guide which can be downloaded from the website. You can learn to install the disk drives, optional host cards, rail kits, and power on the storage system to discover and setup the system.

For more information about discovering your system and the initial configuration, please refer to the QSM Software Manual.

3.2. Connecting the USB LCM (Option)

If you purchased the USB LCM, please use the enclosed USB extension cable (A-male to A-female) to connect to the system. The Following procedures are for the USB LCM connection:

1. Connect the USB LCM to the female side of the USB extension cable.
2. Connect the male side of the USB extension cable to the USB port on the system front pillar.

4. SUPPORT AND OTHER RESOURCES

4.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis and register your product at https://www.qsan.com/business_partnership. We recommend registering your product in QSAN partner website for firmware updates, document download, and latest news in eDM. To contact QSAN Support, please use the following information.

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
- (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
- (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

Information to Collect

- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages or capture screenshots
- Product-specific reports and logs
- Add-on products or components installed
- Third-party products or components installed

Information for Technical Support

If the technical support requests you to download the Service Package, please navigate in the **QSM** -> **Control Panel** -> **System** -> **Maintenance** -> **Import/Export** -> **Export system diagnosis**

report, and then click the **Export** button to download. Then the system will automatically generate a zip file the default download location of your web browser.

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QSAN is committed to providing documentation that meets and exceeds your expectations. To help us improve the documentation, email any errors, suggestions, or comments to docsfeedback@qsan.com.

When submitting your feedback, include the document title, part number, revision, and publication date located on the front cover of the document.

APPENDIX

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Please read this document carefully before you use our product or open the package containing our product.

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