



Hitachi TagmaStore®
Adaptable Modular Storage
and Workgroup Modular Storage
19-inch Rack Install Guide

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Source Documents for this Revision

- AMSFinal.doc (HDS source document)
- AMS install in rack final.zip
- Review from HDS technical personnel

Changes in this Revision

- Identified TagmaStore as a registered trademark.

Preface

This document describes how to install the Hitachi Adaptable Modular Storage/Workgroup Modular Storage in the Hitachi Data Systems 19-inch Global Rack. This document supplements the *Hitachi Data Systems 19-inch Rack Reference Guide* (MK-95DF665).

This document is intended for use by Hitachi Data Systems personnel, distributors, and Value-Added Resellers. This document assumes that the user is familiar with Hitachi TagmaStore Modular Storage.

For further information on the Hitachi storage arrays, please refer to the appropriate user's guide for the array (e.g., *Hitachi TagmaStore AMS/WMS Subsystem User and Reference Guide*, MK-95DF714). For further information on Hitachi Data Systems products and services, please contact your Hitachi Data Systems account team, or visit Hitachi Data Systems online at <http://www.hds.com>.

Note: The term "AMS/WMS" refers to the entire family of AMS/WMS subsystems unless otherwise noted.

Note: The use of all Hitachi Data Systems products is governed by the terms of your agreement(s) with Hitachi Data Systems.

Referenced Documents

- *Hitachi Data Systems Global 19-inch Rack Reference Guide* (MK-95DF665)

Comments

Please send us your comments on this document. Make sure to include the document title, number, and revision. Please refer to specific section(s) and paragraph(s) whenever possible.

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Chapter 1 Safety Information

This chapter contains safety information specific to the installation of a Hitachi TagmaStore® Adaptable Modular Storage/Workgroup Modular Storage disk arrays into the Hitachi Data Systems 19-inch rack. For the sake of brevity, Adaptable Modular Storage/Workgroup Modular Storage will be abbreviated as AMS/WMS subsystem in this manual.

Note: You should also read the safety information in the *Hitachi Data Systems Global 19-inch Rack Reference Guide* to make sure you are aware of all safety information related to installing Hitachi arrays in a rack.

Follow these safety guidelines carefully and follow them when performing maintenance on Storage within the rack.

1.1 General Safety

Before starting maintenance:

- Read and follow the safety guidelines and procedures in this manual, in the *Hitachi Data Systems Global 19-inch Rack Reference Guide*, and in the *Hitachi TagmaStore Adaptable Modular Storage 500™ User and Reference Guide*, as well as in the manuals for any other products that you install in the rack.
- Hazard warnings are provided in this manual and on the rack-mounted products to prevent or reduce the risk of personal injury and product damage. Table 1.1 lists and describes these hazard warnings.

Important: The user is responsible for reading and complying fully with these hazard warnings.

Table 1.1 Hazard Warnings

Warning	Description
DANGER	Indicates an imminently hazardous situation which, if not avoided, may result in death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in injury or damage to product.

1.2 Precautions for Using the Equipment

This section explains safety precautions for:

- Equipment
- Cables
- Air vents and airflow
- Blanking panels
- Inspecting and cleaning
- Working around rotating or moving parts

1.2.1 Equipment

WARNING: The rack allows many components to be mounted vertically. The weight and location of the components in the rack needs to be planned in order to place the center of mass as much as possible below the mid-point of the rack. To reduce the risk of danger to persons or equipment, please follow the safety guidelines and stabilize the rack as described in this manual.

WARNING: If installing a single (standalone) rack, make sure that the rack is level and has been stabilized before installing the components. If an unstable rack is loaded with components, it may become unbalanced and tip over.

1.2.2 Cables

- Make sure all cables are correctly and fully connected.
- Do not obstruct walkways when routing cables.
- Do not allow heavy material to be placed on cables. Do not place cables near any apparatus that generates heat. Do not step on or subject cables or connectors to shearing or pulling forces. If that happens, the cable jacket could be damaged and could break, resulting in an electric shock, fire, or loss of data.
- Make sure that electrical and signal cables are clean before connecting them. Any dirt on a connector should be removed before inserting the connector into a socket.
- When connecting devices to the power distribution units (PDUs), do not exceed 12 amps per bank of four (4) receptacles, and do not exceed 24 amps per PDU. Follow the guidelines for PDU load as listed in Table 2.3 for the AMS/WMS subsystem. The rack has multiple power supply cords, so disconnect all of them before servicing to avoid electric shock.

1.2.3 Air Vents and Airflow

The airflow of the Hitachi TagmaStore AMS/WMS subsystem, when mounted in this rack, is from front to back. The rack has no door in the front but has a ventilated door in the back which allows the subsystem to draw air through the front and exhaust air through the back. Do not block the front of mounted components or the rear-ventilated door.

1.2.4 Blanking Panels

If all the vertical mounting space is not occupied by rack mounted products, the empty space should be covered with blanking panels. Any empty gaps between the components can cause airflow changes that may adversely affect cooling within the rack.

1.2.5 Precautions for Inspection and Cleaning

If power to the storage subsystem or to the rack must be turned off, make sure to follow proper power-off procedures for the subsystem and for any other components in the rack before proceeding with maintenance.

1.2.6 Working Around Rotating or Moving Parts

- Tuck in any loose clothing so that it will not be caught by a rotating or moving part.
- Tie up long hair.
- Unless otherwise specifically instructed, do not supply power to any device with rotating or moving parts that are not properly covered.
- When instructed to supply power to any device with rotating or moving parts whose covers have been removed, work with another person who could immediately turn off the power in an emergency.

1.3 Precautions Regarding Power

For grounding requirements, see section 1.3.1. For information on preventing electric shock, see section 1.3.2.

- The 19-inch rack is wired for 220V with four PDUs:
 - Four (4) 30-amp PDUs come pre-installed in the rack.
 - Each PDU is rated for 200-240VAC, 50/60 Hz, 30 amps, derated 24 amps.
- To support Hitachi Storage power redundancy, one power cable from each storage unit should be connected to a PDU on the left side, and the other power cable to a PDU on the right side.
- When connecting a Hitachi storage subsystem or other device to the power distribution units (PDUs) in the rack, do not exceed 12 amps per bank of four (4) receptacles, and do not exceed 24 amps per PDU. Follow the guidelines for PDU load as specified in Table 2.3.

Caution: To reduce the risk of damage to equipment, verify that all AC voltage selector switches are set correctly to match your local AC line voltage (230V). If the AC voltage selector switch is not properly set, your components may be damaged when power is applied. The installation of rack and mounted components must comply with local and regional electrical regulations governing the installation of Information Technology Equipment by licensed electricians. For electrical power ratings on components, refer to their product rating label or to the relevant user documentation.

1.3.1 Grounding Requirements

All powered equipment should be properly grounded for operation and safety. Ground integrity should be maintained for each connection made in a reliably grounded outlet, such as with the PDUs in the rack.

WARNING: To reduce the risk of electric shock or damage to equipment, follow proper grounding procedures and do not tamper with the pre-installed power distribution units. The rack connects to a grounded (earth) power outlet.

1.3.2 Prevention of Electric Shock

To prevent electric shock, please read this manual thoroughly as well as any other related installation guide(s) for Hitachi TagmaStore AMS/WMS subsystem Storage subsystems.

1.4 Prevention of Electrostatic Discharge

To prevent electrostatic discharge, please read this manual thoroughly as well as any other related installation guide(s) for Hitachi TagmaStore AMS/WMS subsystem Storage subsystems.

1.5 Environmental Specifications

Table 1.2 lists the environmental specifications for the Hitachi TagmaStore AMS/WMS subsystem in the Hitachi Data Systems 19-inch rack. These environmental specifications must be observed to ensure the proper operating and storage environment for the array in the rack.

The following environmental conditions may damage or decrease the life of the AMS500 subsystem:

- Exposure to direct sunlight
- Rapid change in temperature and/or humidity (such as being near an air-conditioner)
- Proximity (near) to a device which generates electrical noise, such as the ungrounded motor of an air conditioner or washing machine
- Proximity (near) to a device that generates a strong magnetic field (Do not bring any magnet close to the rack or the Hitachi TagmaStore AMS/WMS subsystem.)
- Exposure to dust or dirt
- Vibration

CAUTION: To reduce the risk of damage to equipment during installation:

- Do not impede airflow to products already mounted in the rack.
- Do not exceed internal rack specifications listed in Table 1.2.

Table 1.2 Environmental Specifications for the AMS/WMS subsystem in the 19-inch Rack

Item	Specification	
Temperature	In operation (°C)	10 to 40
	In non-operation (°C)	-10 to 50
	In transport/storage (°C)	-30 to 60
	Temperature change rate (°C/h)	10 or less
Humidity	In operation (%)	8 to 80
	In non-operation (%)	8 to 90
	Maximum wet bulb temp. (°C)	29 (non condensing)
Altitude	In operation (m)	-300 to 3,000
	In non-operation (m)	-300 to 12,000

1.6 Tools Required

The following tools are required for securing products to the front vertical rail mounting holes:

- Adjustable wrench
- Cage nuts
- Cage nut tool
- Phillips screwdriver
- Screws
- Washers

The rack comes with all necessary screws, washers, cage nuts, and cage nut tool.

When installing equipment, make sure to:

- Install the front anti-tip stabilizing plate when installing or removing equipment to provide greater stability and safety.
- Mount the heavier equipment at the bottom of the rack first, prior to installing equipment in the upper half of the rack.
- Refer to the specific instructions included with the equipment you will mount.

Chapter 2 Mounting the TagmaStore AMS/WMS Subsystem into the Rack

This chapter provides configuration guidelines, illustrations, safety information, and specifications for installing the TagmaStore AMS/WMS subsystem into the 19-inch rack. Figure 2.1 shows an example of an AMS/WMS subsystem mounted in the rack.



Figure 2.1 Example of a TagmaStore AMS/WMS Subsystem Mounted in a Rack

2.1 Configuration Guidelines

Observe the following when placing the components into the rack:

- **Weight** – Mount the heaviest equipment at the bottom of the rack and the lightest equipment at the top.

Keep the center of mass at or below the 20 U line.

When mounting more than one AMS/WMS subsystem in a rack, it is important to spread the RKM-to-RKAJ ratio evenly and to avoid a top-heavy installation. Figure 2.2 shows an example of an RKM-to-RKAJ ratio.

- **Power** – Do not exceed the amperage of the PDUs. The PDUs provide 24 usable amps, and the RKM/RKAJ will use amperage differently based the number of AMS/WMS subsystem power supplies that are connected (one or two per module).
 - Spread the load evenly across an even number of PDUs. Plan connectivity accordingly for any anticipated future growth.
 - The rack is a 220V solution which provides the electrical requirement scalability needed for the AMS/WMS subsystem.
 - Do not exceed the 24 usable amps to a single PDU.

Note: If 110V is required, the following requirements must be met:

- 2 separate 16 amp circuits are required (referred to as “Circuit #1” and “Circuit #2” in this document).
 - Only 2 modules (1 RKM + 1RKA, or, 2 RKAJ) may be connected to these two circuits.
 - Connect only power supply #0 for the RKM/RKAJ or 2 RKAs to single 16 amp Circuit #1.
 - Connect only power supply #1 for the RKM/RKAJ or 2 RKAs to a separate, single 16 amp Circuit #2.
 - Connect no other power supplies or devices to these two 16 amp circuits.
- **Height** – The vertical mounting space is measured in EIA U increments (1U = 1.75 inches) for a total of 42Us.

2.2 Cautions and Warnings

Prior to installing the AMS/WMS subsystem into the rack, make sure you have read this entire manual. Pay careful attention to the following:

- Safety information (Chapter 1)
- Configuration Guidelines (section 2.1)

The RKM and RKAJ weigh about 44 kg and 42 kg, respectively. To reduce the risk of injury to persons or damage to equipment:

- Install the anti-tip stabilizing plate to provide added stability during installation.
- Obtain assistance to lift and stabilize the product during installation or removal, especially when the product is not yet fastened to the rails.
- Use stable mechanical lift equipment that can handle the weight and that can lift components to the highest levels of the rack (70-80 inches).
- If using a lift, do not move it away from the rack frame or lower the platform until the red line on the label affixed to the AMS/WMS subsystem has crossed the front of the rail kit. Otherwise, the AMS/WMS subsystem may fall.
- Install equipment with at least one other person.
- Remove all pluggable power supplies and modules to reduce total product weight before lifting it.
- Observe local occupational health and safety requirements and guidelines for manual material handling.
- The handles may be used when raising the AMS/WMS subsystem, but it is preferable to hold it by the front and rear portions made of sheet metal.
- Make sure that there are no scratches or flaws on the power cables. These defects may cause electric shock or a fire.
- A large leak current flows when more than one RKM/RKAJ is installed. Make sure the units are connected to a properly grounded power source to prevent electric shock.

2.2.1 Rack Configurations

Figure 2.2 shows an overview of the rack configurations for the AMS/WMS subsystem. The AMS/WMS subsystem may only require a single-rack or it may span two racks. The first rack contains the disk controller (RKM) and up to 12 disk units (RKAJ), and the secondary rack contains the remaining disk units.

Smallest	1 Full Rack	Spanning Racks
----------	-------------	----------------

Figure 2.2 Sample Configuration Types

Note: For EMEA, full single racks may be shipped with one 4U disk controller and up to 13 3 μ disk trays. For the Americas, racks may be configured with one disk controller and 12 or fewer disk units to allow room for additional SAN/NAS components.

2.2.2 Dimensions and Weight

Table 2.1 and Table 2.2 list the dimensions and weight of the RKM, RKAJ, and a full rack with one (1) RKM and twelve (12) RKAJ .

Table 2.1 Dimensions and Weight of RKM and RKAJ in one Rack

Item		Rack + RKM + (RKAJ×12)
Physical Specifications	Chassis size (W×D×H) (mm)	605×897×1,999
	Mass (kg)	684 approx.
	Required installation height (EIA unit)	Max. 40

Table 2.2 Dimensions and Weight of Maximum AMS/WMS Subsystem Configuration Spanning 2 Racks

Item		Rack + RKM + (RKAJ×12)
Physical Specifications	Chassis size (W×D×H) (mm)	[(605×897)]×1,999
	Mass (kg)	Max. 904 approx.
	Required installation height (EIA unit)	Max. 40

Note: Only the weight of a fully configured first rack is given here, but not the weight of a second rack.

2.2.3 Service Clearance, Floor Cutout, and Floor Load Rating Requirements

This section specifies the service clearance requirements for the TagmaStore AMS/WMS subsystem.

CAUTION: A service clearance is required for service work. Do not store any items in this area.

Notes:

- Actual clearances for installation should be decided after consulting with a construction specialist responsible for installation building. Clearances will vary depending on the size/layout of the system and building conditions.
- When multiple configurations of subsystems are arranged in a row, use the clearance values based on the maximum subsystem configuration.
- For efficient maintenance operations, it is recommended that the clearance area (c) be as large as possible.

2.2.3.1 Single Rack Configuration

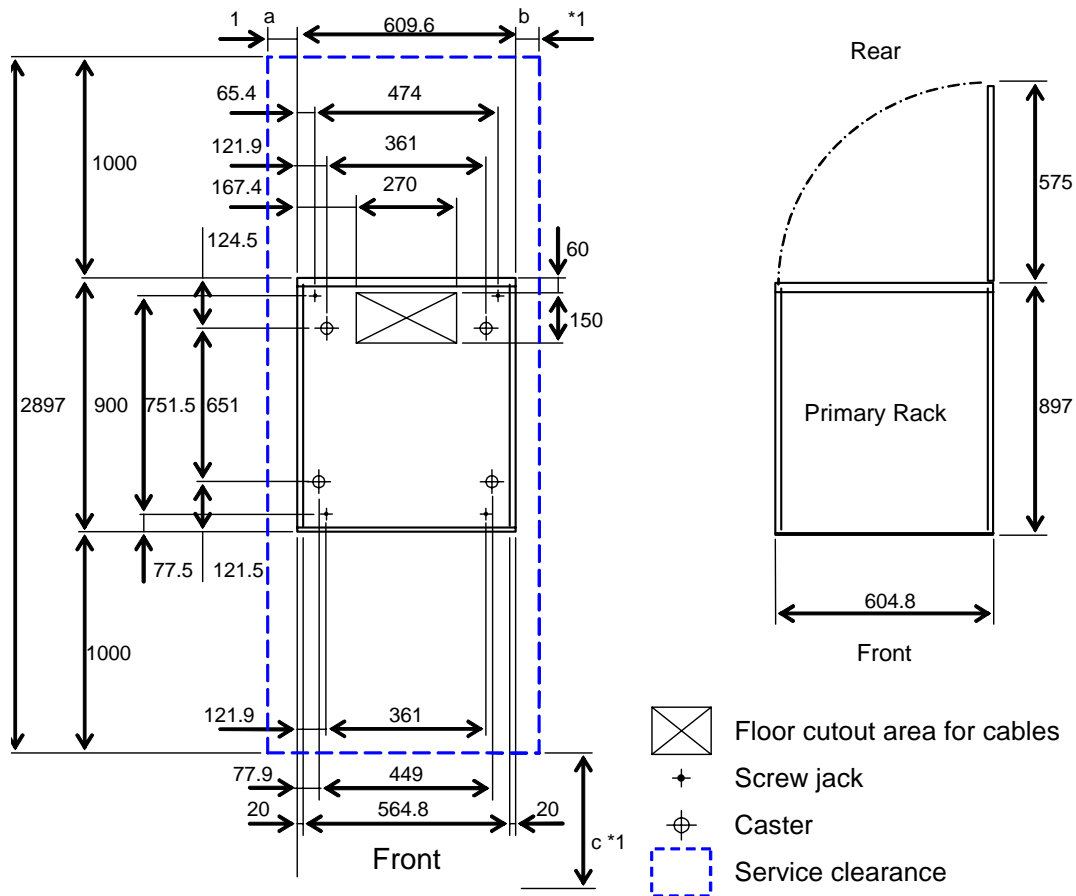


Figure 2.3 Service Clearance and Floor Cutout for Single-Rack Configuration (Unit : mm)

Note 1: Clearance (a+b) depends on the floor load rating and clearance (c).

Allow clearance of 100 mm on both sides of the subsystem when the kick plates are to be attached after installation. However, when subsystems of the same type are to be installed adjacent to each other, make sure that adequate clearance between the subsystems is provided.

Note: Basically, position the floor cutout in the center of the subsystem. The position may be off-center as long as the cutout allows smooth entrance of an external cable (check the relation between the positions of the cutout and the opening on the bottom plate of the subsystem) and it is within the allowable range.

2.2.3.2 Two Rack Configuration

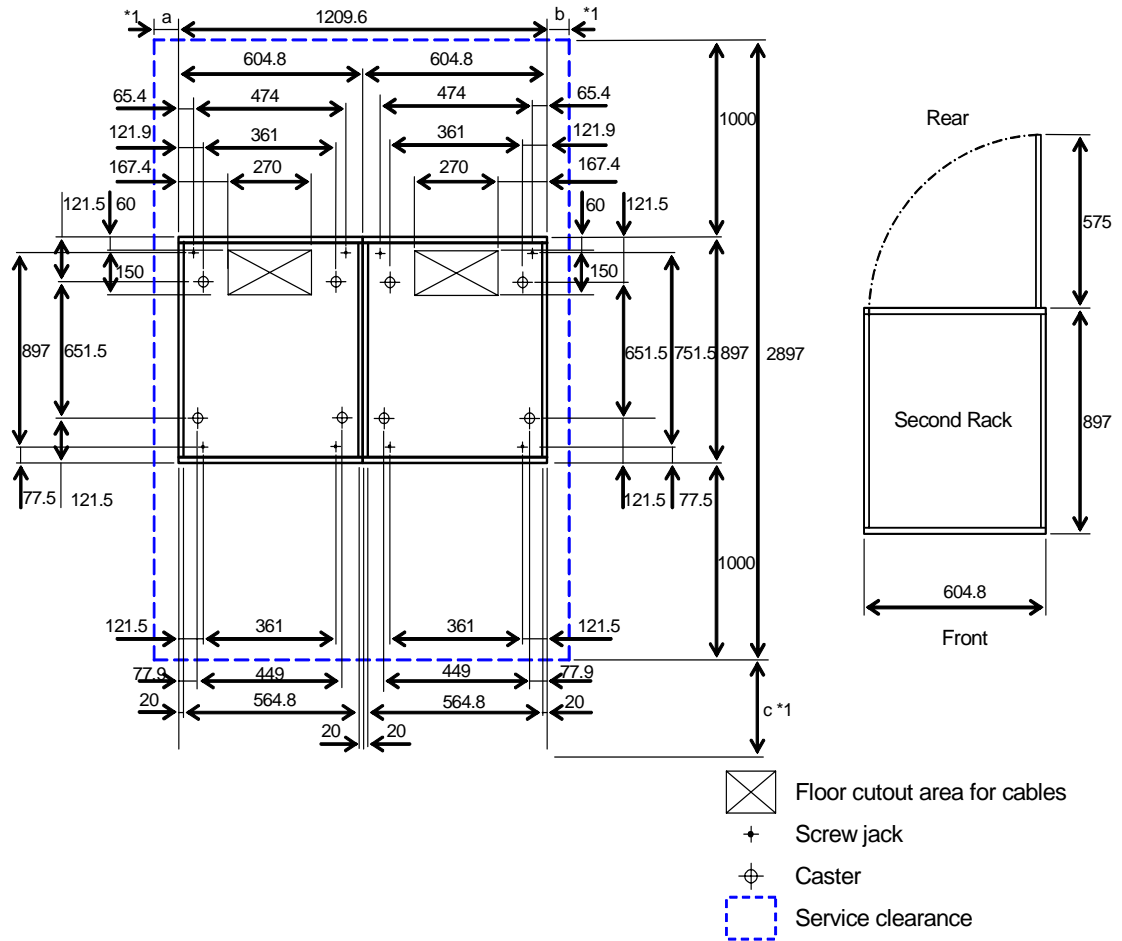


Figure 2.4 Service Clearance and Floor Cutouts for Twin-Rack Configuration (Unit: mm)

Note 1: Clearance (a+b) depends on the floor load rating and clearance (c).

2.2.3.3 Floor Load Rating

In the maximum configuration, the AMS/WMS subsystem can be configured with 1 RKM and 13 additional units (RKAs/RKAJATs). The total weight of the subsystem in this maximum configuration is approximately 726 kg.

2.3 Installing the AMS/WMS Subsystem in the Rack

Follow these steps when installing an AMS/WMS subsystem in the rack:

1. Read and follow all safety warnings and rules throughout this manual.
2. Make sure that the rack has been stabilized.
3. Install cage nuts for the AMS/WMS subsystem.
 - a) With the AMS/WMS subsystem fully supported, lift it up and align its chassis with the rail kits mounted on the rack. Slide the AMS/WMS subsystem all the way into the rack.
 - b) Secure the AMS/WMS subsystem to the rack with screws that will attach to corresponding cage nuts on the rack. (See Figure 2.5)
 - c) Connect any applicable cables (AMS/WMS subsystem interconnect cables, power cables, etc.) according to the installation manual included with the AMS/WMS subsystem RKM shipment. (See Figure 2.6)

For an AMS/WMS subsystem upgrade:

To avoid data loss, check procedures to determine whether an online upgrade can be done or if downtime needs to be scheduled.

1. Make sure that all components and equipment have been secured tightly to the rack with screws and cage nuts.
2. Install filler panels in the rack to cover unmounted space.

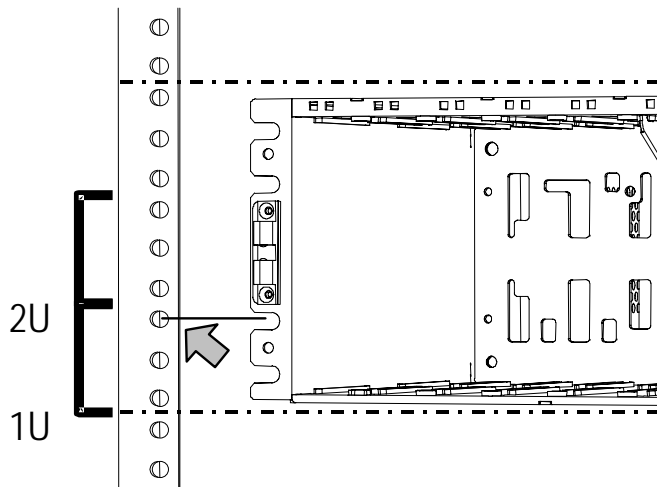


Figure 2.5 Installing the AMS/WMS Subsystem into the Rack

Note: Refer to the Hitachi Data Systems Global 19-inch Rack Reference Guide for further information.

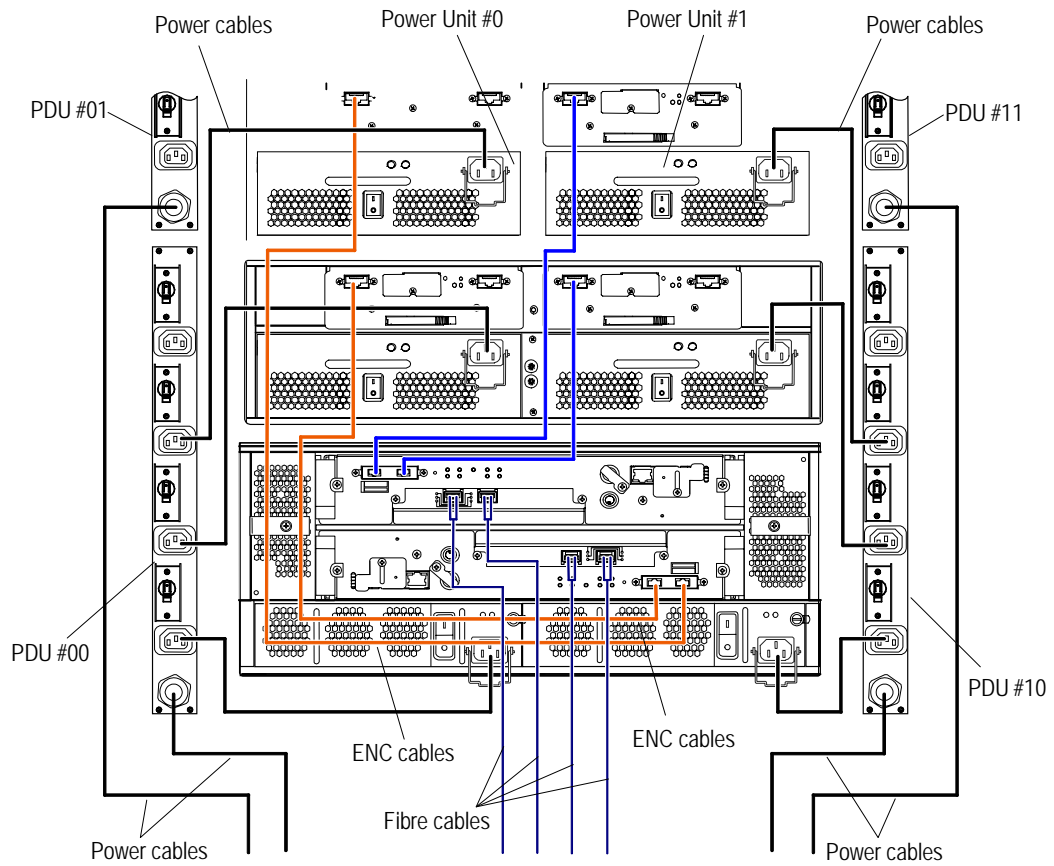


Figure 2.6 Sample Power Cable Connectivity of the AMS/WMS Subsystem in the Rack

2.4 Power Distribution, Connectivity, and Specifications

This section describes the power distribution and connectivity of the Hitachi TagmaStore AMS/WMS subsystem in the rack.

Refer to the Hitachi Data Systems 19- Inch Rack Reference Guide for information about the total power solution (PDUs, cables, receptacles, amperage, voltage, etc.). Note that the power solution explained in the Hitachi Data Systems Global 19-inch Rack Reference Guide is optimal.

Two separate circuits should be provided/configured/maintained within the rack to maximize the power redundancy of the Hitachi TagmaStore AMS/WMS subsystem (i.e., circuits on the left are different to the circuits on the right).

For the AMS/WMS subsystem, the general rule is to connect a maximum of one controller module and 5 disk expansion units or 7 RKA (disk expansion units) per 30 amp PDU. Figure 2.7 illustrates how to connect the AMS/WMS subsystem modules (and optional fan trays) to the PDUs in the rack. This configuration balances the amperage load across the PDUs as well as separates power on the left and right for redundancy purposes.

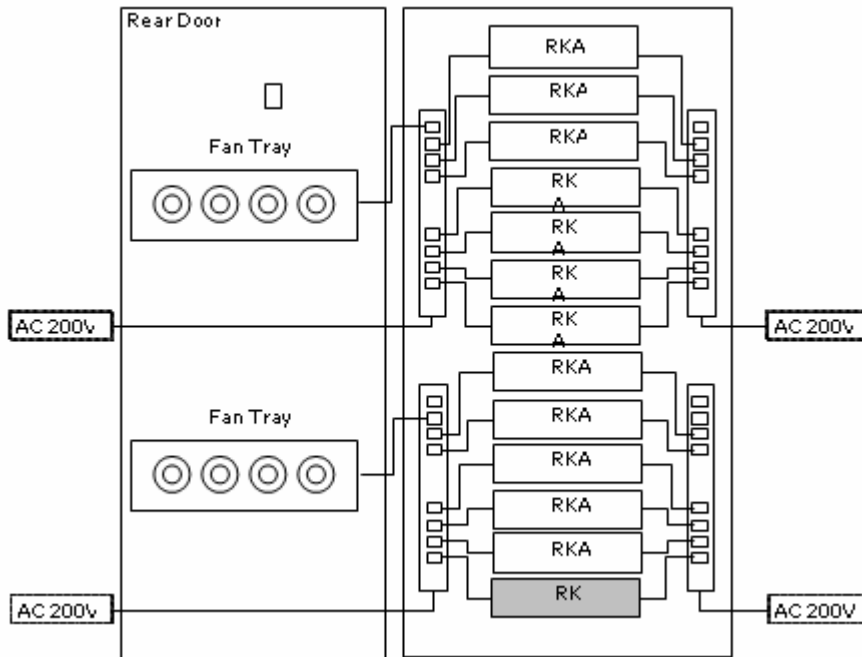


Figure 2.7 Example of an AMS/WMS Subsystem Installation in a Rack

2.5 Avoiding PDU Overload

Table 2.3 specifies the amperage requirements for the AMS/WMS subsystem.

Table 2.3 AMS/WMS Subsystem Amperage Requirements

		amps @ 240V	
		2 Power Supplies, Amperage per Power Supply	1 Power Supply
AMS/WMS subsystem	RKM	2.2	4.4
	RKAJ	1.6	3.2

If you connect only one power supply to the RKM, for example, it will use 4.4 amps. If both power supplies of the RKM are connected to power, then each power supply will use 2.2 amps.

CAUTION: Do not overload the 30-amp PDU (24 amps usable). This can occur if you are using only one PDU, or if one of two PDUs loses its source power. Distribute the load across multiple PDUs. A general rule of thumb is to connect one controller (RKM) and 5 disk expansion (RKAJ) units or 7 RKAJ units per 30 amp PDU.

Table 2.4 provides examples of different configurations, their amperage requirements, and the number of PDUs that should be used.

Table 2.4 AMS/WMS Subsystem Sample Configurations (continues on the next page)

Number of Combinations in a Rack		Total Amperage		Number of PDU's	
		2 PS	1 PS		
RKM	RKAJ	amps/PS	amps/PS	Recommended	Minimum
1	0	2.20	4.40	2	1
1	1	3.80	7.60	2	1
1	2	5.40	10.80	2	1
1	3	7.00	14.00	2	1
1	4	8.60	17.20	2	1
1	5	10.20	20.40	2	1
1	6	11.80	23.60	2	1
1	7	13.40	26.80	4	2
1	8	15.00	30.00	4	2
1	9	16.60	33.20	4	2
1	10	18.20	36.40	4	2

Table 2.4 AMS/WMS Subsystem Sample Configurations (continued)

Number of Combinations in a Rack		Total Amperage		Number of PDU's	
		2 PS	1 PS		
RKM	RKAJ	amps/PS	amps/PS	Recommended	Minimum
1	11	19.80	39.60	4	2
1	12	21.40	42.80	4	2
2	1	6.00	12.00	2	1
2	2	7.60	15.20	2	1
2	3	9.20	18.40	2	1
2	4	10.80	21.60	2	1
2	5	12.40	24.80	4	2
2	6	14.00	28.00	4	2
2	7	15.60	31.20	4	2
2	8	17.20	34.40	4	2
2	9	18.80	37.60	4	2
2	10	20.40	40.80	4	2
3	0	6.60	13.20	2	1
3	1	8.20	16.40	2	1
3	2	9.80	19.60	2	1
3	3	11.40	22.80	2	1
3	4	13.00	26.00	4	2
3	5	14.60	29.20	4	2
3	6	16.20	32.40	4	2
3	7	17.80	35.60	4	2
3	8	19.40	38.80	4	2
3	9	21.00	42.00	4	2

Notes:

- A general rule of thumb is to connect one controller (RKM) and 5 disk expansion (RKAJ) units or 7 RKAJ units per 30 amp PDU.
- Red text indicates configurations that are not recommended. You should distribute loads across multiple PDUs.

2.6 BTU Calculations

British Thermal Units (BTUs) are calculated by multiplying the volt-amperes (or watts) of a product with the constant 3.414. The BTUs produced by a configuration are used for determining the amount of heat produced by the configuration. Table 2.5 shows how the BTUs can be calculated for an AMS/WMS subsystem configuration.

Table 2.5 AMS/WMS Subsystem BTU Calculations

AMS/WMS Subsystem Module	Number of AMS/WMS Subsystem Modules	Number of Power Supplies Connected	Volts	Amps	VA or Watts	BTU/hr	BTU	RKM & RKAJ Combined with 1 Power Supply	RKM & RKAJ Combined with 2 Power Supplies
RKM	1	1	200	4.4	880	3.414	3004	5189	5189
		2	200	2.2	880	3.414	3004		
RKAJ	1	1	200	3.2	640	3.414	2185		
		2	200	1.6	640	3.414	2185		

VA = Volt-ampere

W = Watt

1VA = 1W

BTU/hr = Watts * 3.414

BTU = Watts*BTU/hr

Chapter 3 Troubleshooting

If you need technical assistance, please contact your Hitachi Data Systems representative, or call the appropriate Hitachi Data Systems Support Center for assistance.

3.1 Calling the Support Center

If you need to call the Hitachi Data Systems Support Center, make sure to provide as much information about the problem as possible, including the circumstances surrounding the error or failure and the exact content of any error messages displayed on the host system(s).

The worldwide Hitachi Data Systems Support Centers are:

- Hitachi Data Systems North America/Latin America
San Diego, California, USA
1-800-348-4357
- Hitachi Data Systems Europe
Contact Hitachi Data Systems Local Support
- Hitachi Data Systems Asia Pacific
North Ryde, Australia
011-61-2-9325-3300

Appendix A Product Codes

Use the following product codes when ordering the global rack and related components:

Table A.1 Rack Product Codes (APIA)

Pcode	Description	Bill of Materials (BOM)	
		Quantity	Item
7846401	19" Rack for HDS-APIA	1	Bag of 108 cage nuts, 108 screws, and 108 washers
		8	Cable Guide rings, mounted in rear
		4	30 amp PDU, with IEC 309 plug
		13	3U Blanking Panels, covering U1 ~ U39
		1	3U Vented Blanking Panel, covering U40 ~ U42
		4	Grommet caps covering top 4 holes in rack roof
		1	Stabilizer Kit
		1	Rear Door
		14	Left-Hand Support Rails, pre-installed
		14	Right-Hand Support Rails, pre-installed
		1	Grounding Kit, pre-installed
		1	Baying Kit
		32	2' power cords, 15 amps, 250V
		1	Cage nut tool
N/A	Features: Black coating HDS logo at top left of rack U markings on front & rear vertical rails UL, cUL, CE Safety Approval for rack with PDUs		

Table A.2 Rack Product Codes (EMEA)

Pcode	Description	Bill of Materials (BOM)	
		Quantity	Item
7846402	19" Rack for HDS-EMEA	1	(Same as the BOM for APIA Rack)

Table A.3 Rack Product Codes (US)

Pcode	Description	Bill of Materials (BOM)	
		Quantity	Item
7846400	19" Rack for HDS-US	1	(Same as the BOM for APIA Rack except for the PDU. The PDU used is a 30 amp PDU with a plug type L6-30P.)

Table A.4 Product Codes Common for Global Level

Pcode	Description	Bill of Materials (BOM)
7846403	30amp PDU, L6-30P (US)	Screws and related items required for mounting into the rack.
7846404	30amp PDU, IEC 309 (Asia-Pacific, EMEA)	Screws and related items required for mounting into the rack.
7846414	Rack Stabilizer Kit	Screws and related items required for mounting into the rack.
7846415	Rack Baying Kit ¹	Screws and related items required for mounting into the rack.
7846407	3U Blanking Panel	Screws, cage nuts and related items required for mounting into the rack.
7846408	3U Vented Blanking Panel	Screws, cage nuts and related items required for mounting into the rack.
7846410	Fan Tray	Screws, cage nuts and related items required for mounting into the rack.
7846411	Shelf	Screws, cage nuts and related items required for mounting into the rack.
7846412	Pull-out Shelf	Screws, cage nuts and related items required for mounting into the rack.
7846413	Pull-out Support Rails	Screws, cage nuts and related items required for mounting into the rack.
7846405	Support Rails (Kit)	1 left side rail (pcode: 0052684) 1 right side rail (pcode: 0052686) 1 cage nut tool Screws and related items needed for mounting into the rack
7846406	Universal Rails (Kit)	1 left side rail 1 right side rail 1 cage nut tool Screws, cage nuts and related items needed for mounting in 19" racks

Acronyms and Abbreviations

A	amperes
AC	alternating current
AMS	Adaptable Modular Storage
APIA	Asia Pacific, International Americas
BOM	bill of materials
BTU	British thermal unit
CE	Consumer Electronics
D	depth
DC	direct current
EIA	Electronic Industry Association
EMEA	Europe, Middle East, Africa
H	height
HDS	Hitachi Data Systems
Hz	Hertz
IEC	International Electrotechnical Commission
in	inches
kg	kilograms
lb(s)	pounds (weight)
mA	milliamperes
mm	millimeters
M	megaohms
NEMA	National Electrical Manufacturers Association
PDU	power distribution unit
PS	power supply
RK	rack
RKA	rack additional
U	standard EIA unit of measure in racks (one unit = 44.45 mm, 1.75 in)
UL	Underwriters Laboratories Incorporated
UPS	uninterruptible power supply
US	United States
V	volts
VAC	volts AC
W	width, watts

