COMPAQ

AlphaServer GS60/140 and 8200/8400

Site Preparation Guide

Order Number: EK–T8030–SP. B01

This guide is intended for use by customer service engineers and customers in preparing a site for an AlphaServer GS60, GS140, 8200, or 8400 system.

Compaq Computer Corporation

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Warning! This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

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Contents

Preface

This manual describes both the Compaq AlphaServer GS60 and GS140 systems as well as the AlphaServer 8200 and 8400 systems. The AlphaServer 8200 and 8400 systems were introduced by Digital Equipment Corporation in 1995. Now Compaq Computer Corporation, with the introduction of the Alpha 21264 chip, is calling the latest offering Compaq AlphaServer Global Solutions (GS) systems.

The Compaq AlphaServer GS60 and GS140 systems offer all the robust features of the current 8200/8400 product plus the fastest processors in the industry, the Alpha 21264 (EV6), a new blue enclosure, and a Compaq AlphaServer brand name. The GS60 offers the same five-slot system bus with support for up to six CPUs, up to 12 Gbytes memory, and the same I/O options supported by the AlphaServer 8200. The GS140 has the same nine-slot system bus with support for up to 14 CPUs, up to 28 Gbytes memory, and the same I/O options as the AlphaServer 8400.

This manual was originally written to describe the DIGITAL AlphaServer 8200 and 8400 systems. Although the console displays in this book show an 8200 or 8400 system, the same examples and descriptions apply to the GS60 and GS140 systems. Only the identification line at the bottom of the display is different. A sample GS140 console display is shown in Example 1.

AlphaServer 8200 and 8400 systems can be upgraded to the new GS60 and GS140 systems, respectively, with simple to install CPU module upgrades and minimal operating system updates.

Example 1 Sample GS140 Console Display

```
F  E  D  C  B  A  9  8  7  6  5  4  3  2  1   0 NODE #
                      A  A  M  .  .  .  M  P   P TYP
                      o  o  +  .  .  .  + ++  ++ ST1
                      .  .  .  .  .  .  . EE  EB BPD
                      o  o  +  .  .  .  + ++  +- ST2
                      .  .  .  .  .  .  . EE  BE BPD
                      +  +  +  .  .  .  + ++  +- ST3
                      .  .  .  .  .  .  . EE  BE BPD

                         +  +  +  +  .  +  +  +  C0 PCI +
   +  .  .  .  .  .  +  .  .  .  .  .  .  .     C1 XMI +
   +  .  .  .  .  .  +  .  .  +  +  .  .  .     C4 XMI +
.  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  C5
.  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  C6
            .  .  .  .  .  .  .  .  .  .  .  +  C7 PCI +
                      .  .  .  .  .  .  +  +        EISA+

                      .  . A1  .  .  . A0  .  .  ILV
❶                     .  .1GB  .  .  .1GB  .  .  2GB
Compaq AlphaServer GS140 4-6/525 Console V5.3-1, 1-SEP-1998 03:49:54
SROM V1.1, OpenVMS PALcode V1.39-1, Digital UNIX PALcode V1.40-1
System Serial=NI84177052, OS=OpenVMS, 8:43:39 September 1, 1998
Configuring I/O adapters…
   .
   .
   .
P01>>>
```

❶ Indicates the type of system, the number of processors, the CMOS technology and speed, and the console firmware version.

Intended Audience

This manual is written for customer service engineers and customers preparing a site for AlphaServer GS60, GS140, 8200, or 8400 systems.

Document Structure

This manual uses a structured documentation design. Topics are organized into small sections for efficient reference. Topics begin with abstracts. You can quickly gain a comprehensive overview by reading only the abstracts. Next is an illustration or example, which also provides quick reference. Last in the structure are descriptive text and syntax definitions.

This manual has one chapter, as follows:

- **Chapter 1, Site Preparation,** provides pre-installation requirements and guidelines.

Conventions Used in This Document

Icons. Icons similar to those shown below are used in illustrations for designating part placement in the system described. A shaded area in the icon shows the location of the component or part being discussed.

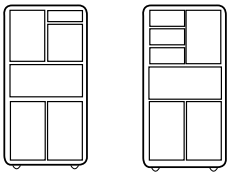

Table 1 AlphaServer GS60/140 and 8200/8400 Documentation

Title	Order Number
Hardware User Information and Installation	
Operations Manual	EK–T8030–OP
Site Preparation Guide	EK–T8030–SP
AlphaServer GS60/8200 Installation Guide	EK–T8230–IN
AlphaServer GS140/8400 Installation Guide	EK–T8430–IN
KFE72 Installation Guide	EK–KFE72–IN
AlphaServer GS60/140 8200/8400 Windows NT Administrator's Guide and Release Notes	EK–T8WNT–RN
Service Information Kit	QZ–00RAC–GC
Service Manual (hard copy)	EK–T8030–SV
Service Manual (diskette)	AK–QKNFB–CA AK–QUW7B–CA AK–QUW6B–CA
Reference Manuals	
System Technical Manual	EK–T8030–TM
System Technical Manual Supplement: CPU	EK–T8030–TS
System Technical Manual Supplement: Memory	EK–MS7CC–TS
DWLPA/DWLPB PCI Adapter Technical Manual	EK–DWLPA–TM

Table 1 AlphaServer GS60/140 and 8200/8400 Documentation (Continued)

Title	Order Number
Upgrade Manuals for All Systems	
KN7CC CPU Module Installation Card	EK–KN7CC–IN
KN7CD CPU Module Installation Card	EK–KN7CD–IN
KN7CE CPU Module Installation Card	EK–KN7CE–IN
KN7CF CPU Module Installation Card	EK–KN7CF–IN
KN7CG CPU Module Installation Card	EK–KN7CG–IN
MS7CC Memory Installation Card	EK–MS7CC–IN
KFTHA System I/O Module Installation Guide	EK–KFTHA–IN
KFTIA Integrated I/O Module Installation Guide	EK–KFTIA–IN
Upgrade Manuals: GS140/8400 Systems Only	
AlphaServer 8400 Upgrade Manual	EK–T8430–UI
BA654 DSSI Disk PIU Installation Guide	EK–BA654–IN
BA655 SCSI Disk and Tape PIU Installation Guide	EK–BA655–IN
DWLMA XMI PIU Installation Guide	EK–DWLMA–IN
DWLPA/DWLPB PCI PIU Installation Guide	EK–DWL84–IN
H7237 Battery PIU Installation Guide	EK–H7237–IN
H7263 Power Regulator Installation Card	EK–H7263–IN
KFMSB Adapter Installation Guide	EK–KFMSB–IN
KZMSA Adapter Installation Guide	EK–KXMSX–IN
RRDCD Installation Guide	EK–RRDRX–IN
Upgrade Manuals: GS60/8200 Systems Only	
DWLPA/DWLPB PCI Shelf Installation Guide	EK–DWL82–IN
H7266 Power Regulator Installation Card	EK–H7266–IN
H7267 Battery Backup Installation Card	EK–H7267–IN

Chapter 1

Site Preparation

This chapter provides site planning guidelines, cabinet sizes, space and environmental requirements, and system power requirements.

Sections include:

- Pre-Installation Checklist
- Cabinet Sizes
- Floor Space and Environmental Requirements
- Single-Phase AC Power Requirements
- Single-Phase AC Power Cable and Receptacles
- Power Requirements for the 8400 with Battery Backup
- AC Power Cable and Receptacles for the 8400 with Battery Backup

1.1 Pre-Installation Checklist

Check off tasks when completed before system delivery. To facilitate the installation process, it is recommended that the customer plan ahead and coordinate the site planning and scheduling details with Digital.

Planning the Site:

- ☐ Plan the physical layout of the system cabinet, expander cabinets, console terminal, and other system units.
- ☐ Plan to place all equipment away from heavy traffic centers leaving enough room for airflow and maintenance.
- ☐ Do not place systems on carpets.
- ☐ Obtain cabinet weights and dimensions to check against floor loading restrictions.
- ☐ Determine the correct power requirements for the system to be installed.
- ☐ Determine the sizes of circuit breakers and the number of branch circuits required.
- ☐ Determine number, type, and location of required AC power outlets.
- ☐ Check the compatibility of different power sources. This must be checked when multiple types of power distribution transformers, or power conditioning equipment is used.
- ☐ Determine system power consumption to calculate the input line power requirement.
- ☐ Establish a system grounding scheme for the installation.
- ☐ Determine environmental cooling requirements.
- ☐ Check the location and requirements of cabling for communication devices such as Ethernet.

Checking the Delivery Route:

- ☐ Check the height, width, and location of doors and passageways for adequate clearance.
- ☐ Check floor loading requirements along passageways.
- ☐ Check passageway restrictions such as corners, ramps, or obstructions.
- ☐ Check the size, capacity, and availability of elevators.

Table 1-1 lists the shipping dimensions for both 8400 and 8200 system and expander cabinets. These dimensions include the width of the shipping pallet, the height of the shipping boxes, and the weight of the packing materials.

Table 1-1 Shipping Dimensions and Weights

Cabinet	Height cm (in)	Width cm (in)	Depth cm (in)	Weight kg (lbs)[1]
8400 System	195 (76.8)	109.5 (43.1)	121 (47.5)	454–682 (1000–1500)[2]
8400 Expander	195 (76.8)	109.5 (43.1)	121 (47.5)	499–726 (1100–1600)[2]
8200 System	195 (76.8)	91.4 (36.0)	122 (47.9)	309–626 (680–1380)[3]
8200 Expander	195 (76.8)	91.4 (36.0)	122 (47.9)	309–626 (680–1380)[3]

[1] Weights are based on a fully configured cabinet.

[2] For systems with 4 batteries add 62 kg (137 lbs), for systems with 8 batteries add 124 kg (274 lbs), and for systems with 12 batteries add 186 kg (401 lbs).

[3] For 8200 systems with battery backup add 29 kg (64 lbs) per power supply.

For more information:

Site Environmental Preparation Guide

1.2 Cabinet Sizes

Include all cabinets and peripherals when laying out the installation site. A sample system could include a main cabinet, a maximum of two expander cabinets, and console devices. Figures 1-1 and 1-2 show samples of 8400 and 8200 systems.

Figure 1-1 8400 Sample System

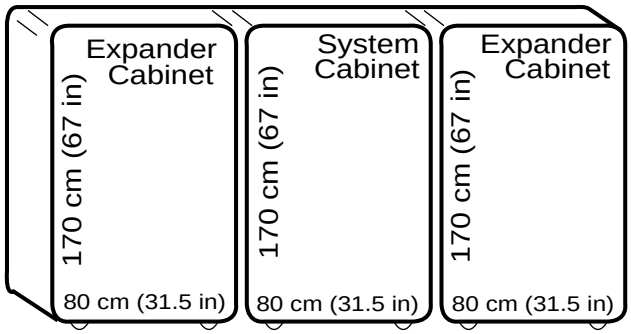

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Figure 1-2 8200 Sample System

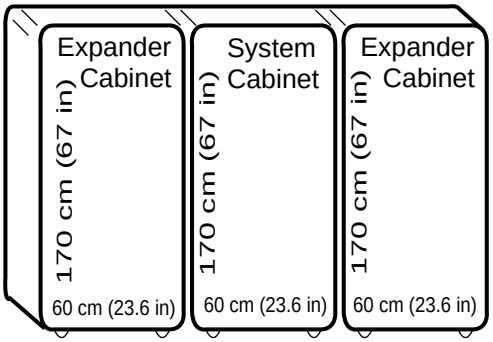

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Table 1-2 Cabinet Dimensions and Weights

Cabinet	Height cm (in)	Width cm (in)	Depth cm (in)	Weight kg (lbs)[1]
8400 System	170 (67)	80 (31.5)	87.5 (34.5)	408–635 (900–1400)[2]
8400 Expander	170 (67)	80 (31.5)	87.5 (34.5)	454–680 (1000–1500)[2]
8200 System	170 (67)	60 (23.6)	92.5 (36.4)	272–590 (600–1300)[3]
8200 Expander	170 (67)	60 (23.6)	92.5 (36.4)	272–590 (600–1300)[3]

1 Weights are based on a fully configured cabinet.

2 For systems with 4 batteries add 62 kg (137 lbs), for systems with 8 batteries add 124 kg (274 lbs), and for systems with 12 batteries add 186 kg (401 lbs).

3 For 8200 systems with battery backup add 29 kg (64 lbs) per power supply.

1.3 Floor Space and Environmental Requirements

Table 1-3 lists system environmental requirements. Space for front and rear are the minimum required for airflow and maintenance.

Figure 1-3 Sample 8400 Configuration

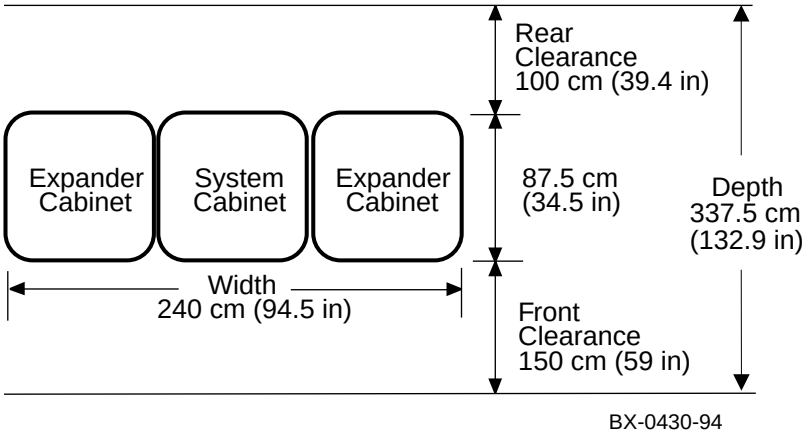


Figure 1-4 Sample 8200 Configuration

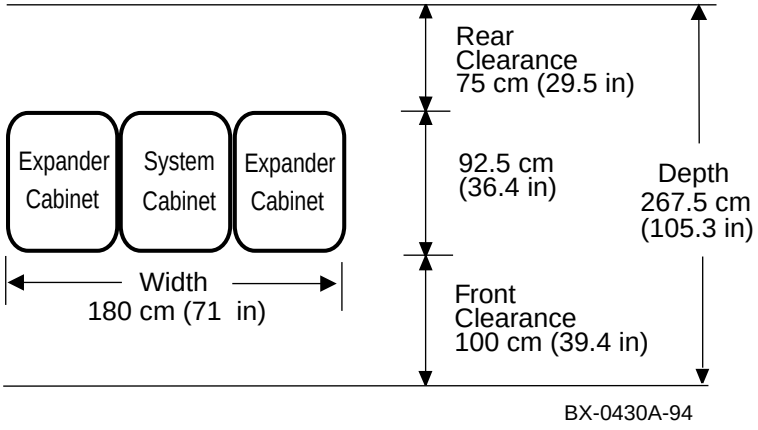


Table 1-3 Environmental Specifications

Environmental	Operating (8400)	Operating (8200)	Storage
Temperature[1]	15°–28° C (59°–82° F)	10°–35° C (50°–95° F)	−40°–66° C (−40°–151° F)
Relative humidity[1]	20–80%	10–90%	10–95%
Altitude	0–2.4 km (0–8000 ft)	0–2.4 km (0–8000 ft)	0–9.1 km (0–30,000 ft)

[1]Recommended operating temperature is 18°–24° C (65°–75° F) and 40–60% relative humidity.

The minimum amount of clearance space for the system front is 150 cm (59 in) and rear is 100 cm (39 in), as shown in Figure 1-3 for the 8400. For the 8200 these figures are 100 cm (40 in) for the front and 75 cm (30 in) for the rear. These clearances are needed for airflow and maintenance.

8400 Airflow

Air is taken in through the top and bottom of the cabinet by a dual wheel blower. The air circulates through the card cages and power regulators and is vented at the middle of the cabinet front and rear.

8200 Airflow

Air for the system cabinet to cool the TLSB card cage is brought in from the top and blown out at the back of the cabinet. Air to cool the options is brought in from the front of the cabinet and blown out the back. Air to cool the expander cabinet is brought in from the front and blown out the back.

NOTE: Do not place anything on top of the cabinets, since this restricts airflow. Inadequate airflow can cause the system to shut down.

For more information:

Site Environmental Preparation Guide

1.4 Single-Phase AC Power Requirements

Systems with single-phase AC input require a receptacle within 15 feet of the cabinet. The power system consists of an AC input box, a DC distribution box, power regulators, a cabinet control logic (CCL) module, and cables.

Figure 1-5 8400 Single-Phase Power

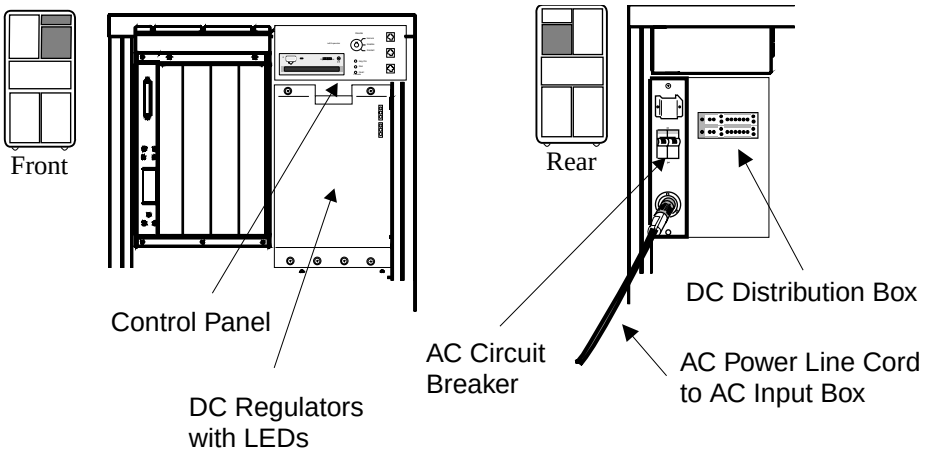


Figure 1-6 8200 Single-Phase Power

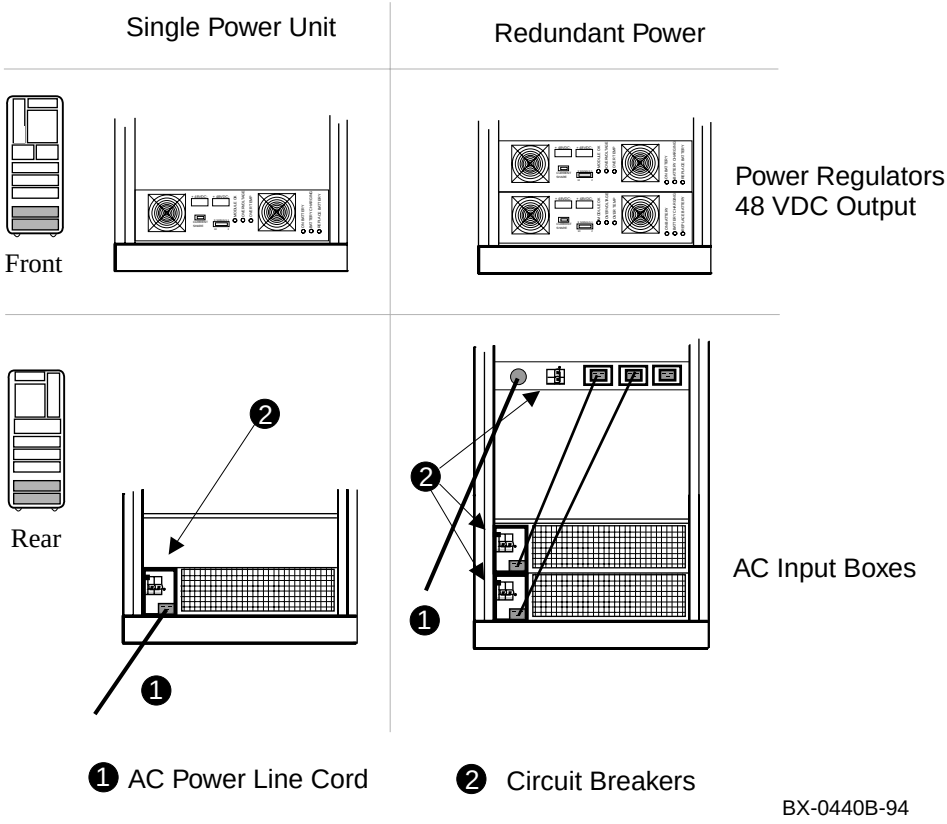


Table 1-4 AC Single-Phase Power Input Voltages

Country	Input Voltage (nominal)	Circuit Breaker Rating (amps)	Frequency Range (Hz)
North America	202–240 (208)	30	50–60
Europe/APA	202–240 (230)	32	50–60
Japan	202–240 (202)	30	50–60

Note: Each system and expander cabinet requires its own AC power connector.

Table 1-5 AC Single-Phase Power Requirements

System	Power (watts)	Heat Dissipation (BTU/hr)
8400 system cabinet only	1,000 minimum[1] 4,600 maximum[2]	3,400 minimum[1] 15,700 maximum[2]
8400 system with two expander cabinets	9,000 maximum[3]	30,600 maximum[2]
8200 system cabinet only	930 minimum[1] 2,647 maximum[4]	3,200 minimum[1] 9,100 maximum[4]
8200 system with two expander cabinets	6,234 maximum[5]	21,300 maximum[5]

[1] These figures are based on a minimum configuration consisting of one of each of the following: CPU module, memory module, KFTIA module, CD-ROM, and RZ28 disk drive.

[2] Based on a fully configured system containing four CPU modules, three memory modules, two system I/O modules, a PCI PIU with two PCIs in it, three BA655-AB, CD-ROM, and 36 RZ28 disk drives.

[3] Based on fully configured system cabinets (see note 2) and expander cabinets containing one DWLPA-AB, one DWLPA-BB, six KZPSZ-BB, five BA655-AB, and 60 RZ28 disk drives.

[4] Based on a fully configured system containing two power supplies, one CPU module, two memory modules, two system I/O modules, one CD-ROM, 16 RZ28 disk drives, two PCI shelves, and two StorageWorks shelves.

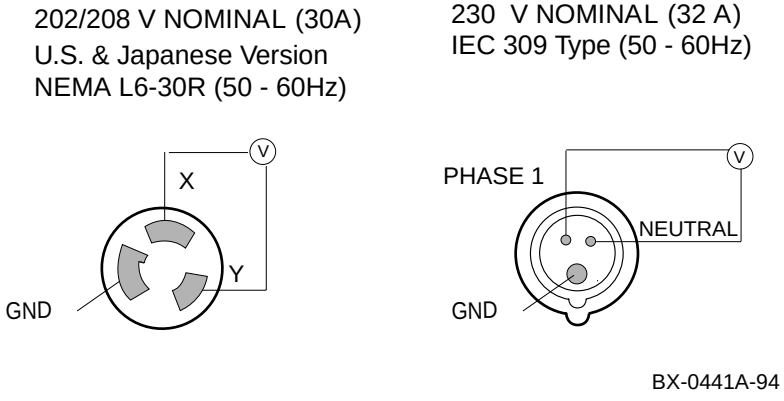
[5] Based on fully configured system cabinets (see note 2) and expander cabinets containing one PCI shelf, 14 StorageWorks shelves, and 84 RZ28 disk drives.

NOTE: AC power receptacles are also required for console terminals and printers.

1.5 Single-Phase AC Power Cable and Receptacles

The AC power cable is 4.5 m (15 ft) in length. There are two receptacles, one used in Europe and the other used in the rest of the world. AC power connectors are shown in Figure 1-7.

Figure 1-7 Single-Phase AC Power Receptacles



1.6 Power Requirements for the 8400 with Battery Backup

The battery backup power system requires three-phase AC input voltage. The receptacle must be within 15 feet of the system. The power system consists of an AC input box, a DC distribution box, power regulators, a cabinet control logic (CCL) module, 48V batteries, power distribution cables, and signal interconnect cables.

Figure 1-8 Power System Components

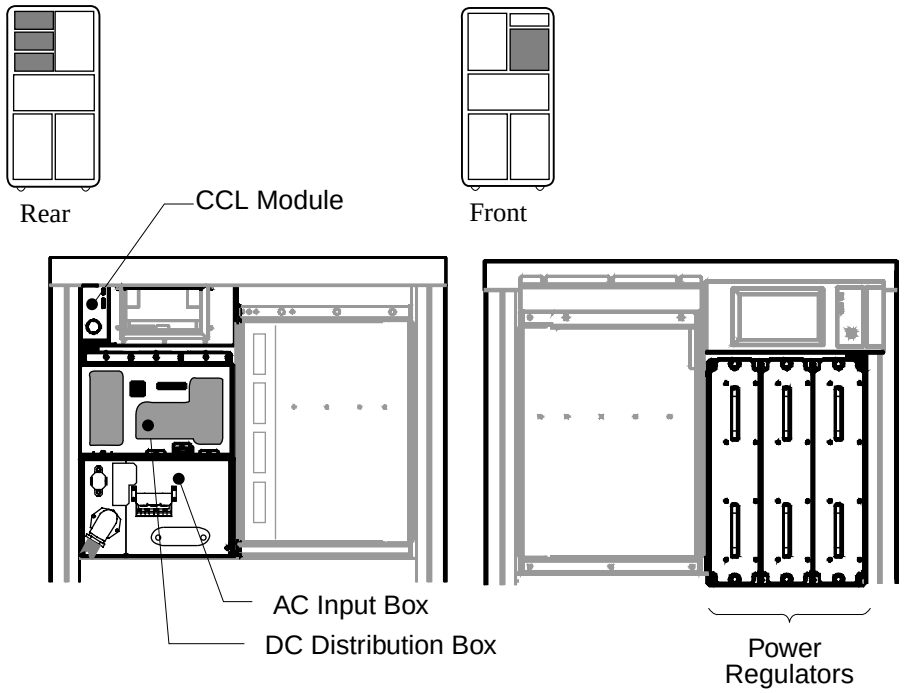


Table 1-6 Three-Phase AC Input Voltages

Country	Input Voltage	Circuit Breaker Rating (amps)[1]	Frequency Range (Hz)
Japan	202 Delta	30	50–60
North America	120/208 Wye	30	50–60
Europe/APA	380–415 Wye	16	50–60

[1]Each system and expander cabinet requires its own AC power connector.

Table 1-7 Three-Phase Power Requirements

Cabinet	Power (watts)	Heat Dissipation (BTU/hr)
System	1,000 minimum[1] 4,600 maximum[2]	3,400 minimum[1] 15,700 maximum[2]
System and two expander cabinets	9,000 maximum[3]	30,600 maximum[3]

[1] These figures are based on a minimum configuration consisting of one of each of the following: CPU module, memory module, KFTIA module, CD-ROM, and RZ28 disk drive.

[2] Based on a fully configured system containing four CPU modules, three memory modules, two system I/O modules, one DWLPA-AA, one DWLPA-BA, three BA655-AB, CD-ROM, and 36 RZ28 disk drives.

[3] Based on fully configured system cabinets (see note 2) and expander cabinets containing one DWLPA-AB, one DWLPA-BB, six KZPSZ-BB, five BA655-AB, and 60 RZ28 disk drives.

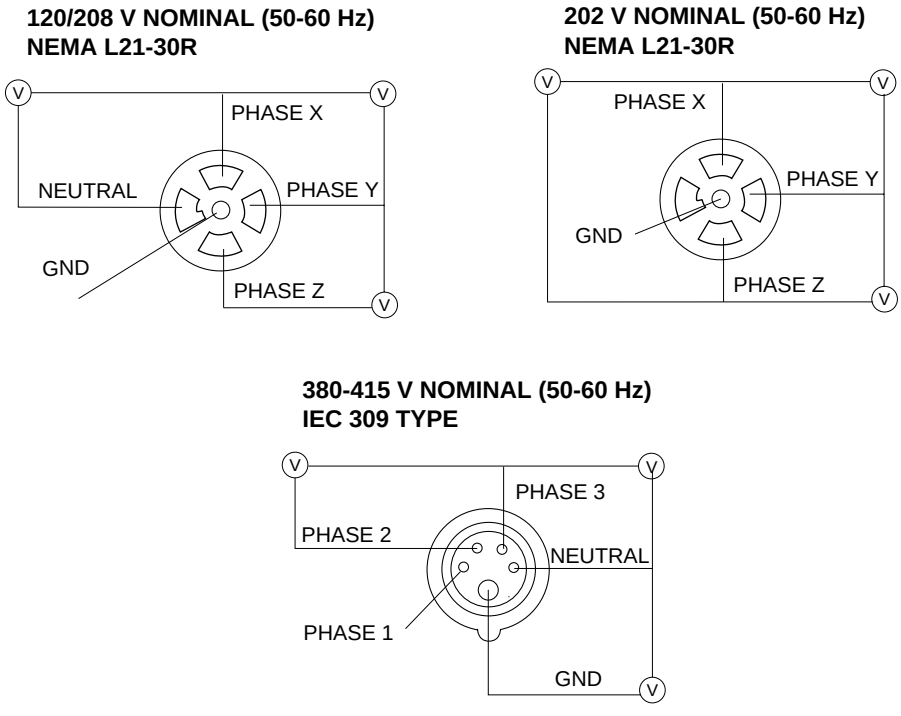
NOTE: AC power receptacles are also required for console terminals and printers.

1.7 AC Power Cable and Receptacles for the 8400 with Battery Backup

The AC power cable is 2.8 m (9 ft) in length. It consists of three-phase leads (X, Y, and Z) plus neutral (N) and ground (G). AC power connectors are shown in Figure 1-9.

NOTE: Neutral and ground lines must both be connected from the bulk three-phase power to complete the Wye configuration. Otherwise, power components may be damaged. Do not power up the system until power checks are completed.

Figure 1-9 AC Power Receptacles



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