Site and Hardware Planning Information

Thirteenth Edition (September 2001) Before using this information and the product it supports, read the information in "Appendix. Notices" on page 249. A reader's comment form is provided at the back of this publication. If the form has been removed, address comments to Publications Department, Internal Zip 9561, 11400 Burnet Road, Austin, Texas 78758-3493. To send comments electronically, use this commercial internet address: aix6kpub@austin.ibm.com. Any information that you supply may be used without incurring any obligation to you. ©International Business Machines Corporation 1995, 2001. All rights reserved.

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About This Book

This book provides information for technical personnel planning for the installation of a system.

Audience Description

This book is intended for use by technical personnel planning for the installation of a system.

This book assumes that the service technician has had training on systems and attached SSA disk drive subsystems.

MAPs that are common to all systems are contained in the Created by ActiveSystems 05-10-2000. Entity not defined.

Overview of Contents

This book provides information to help when you are planning to install a system. It contains the following chapters:

- Chapter 1, "Site Planning and Preparation Overview," provides a general overview of things to consider when doing site planning.
- Chapter 2, "Physical Characteristics of Systems," contains information about the physical and electrical characteristics of the systems.
- Chapter 3, "Physical Characteristics of Displays," contains information about the physical and electrical characteristics of many of the displays used with the systems.
- Chapters 4 through 9, "Physical Characteristics of Series XXXX," contains information about the physical and electrical characteristics of some associated products used with the systems.
- Chapter 10, "Power Cords and Electrical Needs," describes the electrical needs to be considered when planning for your installation.
- Chapter 11, "Cable Planning," provides guidance for planning cable paths and lengths that are required for the installation.
- Chapter 12, "Cable Labeling," provides guidance for labeling cables that are required for the installation.
- Chapter 13, "High Availability (HA) Clusters," provides information for installing a high-availability cluster systems.
- Chapter 14, "Additional Planning Considerations," provides guidance for additional planning steps that may be necessary.
- An index is provided at the back of this book.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Online Publications

RS/6000 and pSeries publications are available online. To access the online books, visit our Web site at: http://www.rs6000.ibm.com/resource/hardware_docs/

Related Publications

The following is a list of catalogs and overview publications that provide information on systems and related products.

- Adapters, Devices and Cable Information for Micro Channel Bus Systems, order number SA23-2764, gives information about adapters and devices and detailed information about cables and cabling used with Micro Channel Bus Systems.
- Adapters, Devices and Cable Information for Multiple Bus Systems, order number SA23-2778, gives
 information about adapters and devices and detailed information about cables and cabling used with
 Multiple Bus Systems.
- AIX Versions 3.2 and 4 Asynchronous Communications Guide, order number SC23-2488, provides information about asynchronous communications.
- Diagnostic Information for Micro Channel Bus Systems, order number SA23-2765 contains common diagnostic procedures, error codes, service request numbers, and failing function codes to help diagnose and repair system problems. This manual is intended for trained service technicians.
- Diagnostics Information for Multiple Bus Systems, order number SA23-2769 contains common diagnostic procedures, error codes, service request numbers, and failing function codes to help diagnose and repair system problems. This manual is intended for trained service technicians.
- The High Availability Cluster Multi-Processing for AIX, Version 4.3: Enhanced Scalability Installation and Administration Guide, order number SC23-4284, is needed for HACMP/ES planning information.
- The High Availability Cluster Multi-Processing for AIX, Version 4.3: Planning Guide, order number SC23-4277, is needed for HACMP/ES planning information.
- PCI Adapter Placement Reference order number SA23-2504. This publication has information regarding PCI adapter placement in your system unit.

Ordering Publications

To order copies of the publications referenced above contact your sales representative.

To order a copy of this publication contact your sales representative and use order number SA38-0508.

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AIX POWER GTO Enterprise Storage Server POWERserver Magstar Seascape

PowerPC Versatile Storage Server

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Data Integrity and Verification

These computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check our support websites for updated information and fixes applicable to the system and related software.

Chapter 1. Site Planning and Preparation Overview

Successful installation does not happen by accident: It takes planning. You are the most valuable resource in site planning because you know where and how your system, and devices attached to it, will be used.

Site preparation for the complete system is the responsibility of the customer. The primary task of your site planner is to ensure that each system is installed so that it can operate and be serviced efficiently.

This chapter provides the basic information you need to plan for your system installation. It provides an overview of each planning task, as well as valuable reference information useful throughout the performance of these tasks. Depending on the complexity of the system you ordered and your existing computing resource you may not need to perform all the steps noted here.

First, with the help of your systems engineer, sales representative, or with the help of those coordinating your installation, sit down and list the hardware for which you need to plan. Use the summary of your order to help you when making your list. This list is now your "To Do" list. You can use the "Planning Task Checklist" on page 2 to assist you.

While you are responsible for planning, vendors, contractors, and your sales representative are also available to help with any aspect of the planning. For some system units, a customer service representative will install your system unit and verify correct operation. Other system units such as the 7006, 7025, and 7026 models are customer-installed. If you are not sure, check with your sales representative.

The physical planning section of this publication is a resource which provides the physical characteristics of many system units, and associated products. For information on products not in this publication contact your sales representative or your authorized dealer.

Before proceeding with planning, you should ensure that the hardware and software you have chosen meets your needs. Your sales representative is available to answer questions.

This book is for hardware planning. However, since the system memory and disk storage needed are a function of the software to be used, some things to consider are listed below. Information on software products is generally in or with the software Licensed Program Product itself.

In assessing the adequacy of hardware and software, consider the following:

- Adequacy of available disk space and system memory for accommodating software, online documentation, and data (including future growth needs resulting from additional users, more data, and new applications).
- · Compatibility of all devices.
- Compatibility of software packages with each other and with the hardware configuration.
- Adequate redundancy or backup capabilities in hardware and software.
- Software portability to the new system, if necessary.
- · Prerequisites and corequisites of chosen software have been satisfied.
- · Data to be transferred to the new system.

Planning Task Checklist

This checklist provides a convenient way for you to document your planning progress.

Working with your sales representative, you should establish completion dates for each of the tasks. You may want to review your planning schedule periodically with your sales representative.

Target Date	Completion Date	Person Responsible	Planning Step
			Plan Your Office or Computer Room Layout (Physical Planning)
			Prepare for Power Cords and Electrical Needs
			Prepare for Cables and Cabling
			Create or Modify Communications Networks
			Perform Building Alterations, as Needed
			Prepare Maintenance, Recovery, and Security Plans
			Develop an Education Plan
			Order Supplies
			Prepare for System Delivery

CSU/CE Feature Installation

Attention: The following information indicates which features on various systems/models are intended to be installed by the customer and which features are to be installed by a Customer Engineer/Customer Service Representative (CE/CSR) as part of a Miscellaneous Equipment Specification (MES). This information is for systems/models available as of 09-2000.

Notes:

- 1. The acronym CSU means Customer Set-Up.
- 2. For a description of Feature Codes. See the Feature Code Descriptions below the following table.
- 3. The 7013 Model J30 was announced as CSU. U.S. practice has been for CE installation.

Machine Type	Model	System CSU ¹	Features/	Options ²
			CE Install	Customer Install
7006	(AII)	Yes	All Features	None
7007	(AII)	Yes	All Features	None
7008	(AII)	Yes	All Features	None
7009	(AII)	Yes	All Features	None
7010	(AII)	Yes	All Features	None
7011	(AII)	Yes	All Features	None
7012	(AII)	Yes	All Features	None
7013	(All) ³	No	All Features	None
7015	(AII)	No	All Features	None
7017	(AII)	No	All Features	None
7024	(AII)	Yes	FC 6309	All Other Features
7025	(AII)	Yes	FC 2856, 6309, 6549	All Other Features

Machine Type	Model	System CSU ¹	Features/	Options ²
			CE Install	Customer Install
7026	(All except B80)	No	All Other Features	FC 2901, 2908, 2909, 2911, 2913, 3071, 3072, 3074, 3078, 3079, 3083
7026	(B80)	Yes	FC 4361, 4362, 4365	All Other Features
7027	(All)	No	All Other Features	FC 2616, 3080, 3083, 3084, 3090, 6142, 6147, 3133, 3134, 3137, 3138, 6153, 6294, 6295
7043	(All)	Yes	FC 2856 & 6309	All Other Features
7044	(All)	Yes	FC 2856 & 6309 c.All Other Features	
7046	(All)	Yes	FC 2856 & 6309	All Other Features
7236	(All)	No	All Features	None
7248	(All)	Yes	FC 2856	All Other Features
7317	(All)	No	All Features	None
7318	(All)	No	All Features	None
7319	(All)	No	All Features	None

Feature Code	Feature Code Description
2616	Internal CD-ROM 2/4X/Tray Loading, 600KB/s
2856	PCI/Short/32bit/3.3 or 5V, 7250 Attach Adapter
2901	4.5GB F/W Ultra SCSI DASD Module
2908	9.1GB Ultra SCSI DASD Module
2909	18.2GB Ultra SCSI DASD Module
2911	9.1GB F/W Ultra SCSI DASD Module
2913	9.1GB F/W Ultra Module, 1" High
3071	4.5GB SSA DASD Module, 1" High
3072	9.1GB SSA DASD Module, 1.6" High
3074	9.1GB SSA DASD Module, Hot Swap
3078	9.1GB SSA DASD Module, 10K
3079	9.1GB SSA DASD Module, 10K
3080	4.5GB F/W SCSI DASD Module
3083	2.2GB F/W SCSI DASD Module
3084	4.5GB F/W SCSI DASD Module
3090	9.1GB F/W SCSI DASD Module
3133	Cable SCSI, 3M, to F/W MC SCSI Adapter (SE OR Diff)
3134	Cable SCSI, 6M, to F/W MC SCSI Adapter (SE OR Diff)
3137	Cable SCSI/DIFF, 12M, to F/W MC SCSI Adapter
3138	Cable SCSI/DIFF, 18M, to F/W MC SCSI Adapter
4361	1–Way 375MHz POWER3–II Processor Card
4362	2-Way 375MHz POWER3-II Processor Card
4365	2-Way 375MHz POWER3-II Processor Card (8MB L2/Processor)
6142	Internal 4mm 4/8GB Tape
6147	8mm 5/10GB VDAT Tape
6153	4mm Tape Drive + Autoloader, Horizontal
6294	Optional AC Power Supply for 7027 SCSI Drawers
6295	Optional bifurcated (Y-cable) Power Cord for 7027 SCSI Drawers
6309	Digital Trunk Quad Adapter, PCI/Long/32Bit/5V
6549	Additional Power Supply for 2nd and 3rd 6-Pks on Model F40

General Considerations

When determining the placement of your system, consider the following:

- · Adequate space for the devices.
- Working environment of personnel who will be using the devices (their comfort, ability to access the devices, supplies, and reference materials).
- Adequate space for maintaining and servicing the devices.
- · Physical security requirements necessary for the devices.
- · Weight of the devices.
- · Heat output of the devices.
- · Operating temperature requirements of the devices.
 - When using tape media, the maximum operating temperature is 16 to 32°C (60 to 90°F). The
 maximum operating wet bulb temperature is 23°C (73°F), unless other specified in the system
 specifications
- · Humidity requirements of the devices.
 - When using tape media, the humidity is 20 to 80%.
- · Air flow requirements of the devices.
- Air quality of the location where the devices will be used. (For example, excess dust could damage your system.)

Note: The system and devices are designed to operate in normal office environments. Dirty or other poor environments may damage the system or the devices. It is a customer responsibility to provide the proper operating environment.

- · Altitude limitations of the devices.
- · Noise emission levels of the devices.
- Any vibration of equipment near where the devices will be placed.
- · Paths of power cords.

The following pages contain the information you need to evaluate these considerations; simply turn to the page relating to the system units or devices you purchased.

Footprint Example

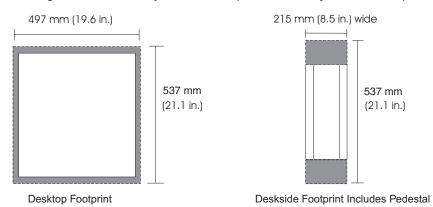
Footprint dimensions are shown in the table for systems or devices that they are appropriate. If you want to use full-sized footprints of the system units or devies, use the measurements provided to construct them out of folded newspaper or sheets of construction paper. You can then use them to plan a layout within the actual office space.

Each footprint represents a top view of the system unit or device. All dimensions given include air flow but not service accessibility.

This is an example to illustrate the use of a footprint. This illusration uses the 7006 Graphics Workstation Models 41T, 41W, 42T, and 42w for the example.

Footprint ¹	Width	Depth
Desktop	497mm (19.6 in)	537mm (21.1 in)
Deskside	215mm (8.5 in)	537mm (21.1 in)
Note 1. The amount of space nee	ded by the unit during normal operation is inc	dicated by the footprint dimensions.

The figure below visually shows the space for the system and required clearances.



5

Chapter 2. Physical Characteristics of Systems

This section gives the physical characteristics for systems. This information can help you with physical planning for the products you have ordered.

Note: The electrical and thermal information provided for systems does not include displays or a operators terminal (such as an ASCII terminal). Be sure to include display or terminal characteristics when planning the installation of system units.

7006 Graphics Workstation Models 41T, 41W, 42T, and 42W

Dimensions	Desl	ctop	Desl	cside				
Height	119 mm	4.7 in.	447 mm	17.6 in.				
Width ¹	447 mm	17.6 in.	215 mm	8.5 in.				
Depth	451 mm	17.8 in.	451 mm 17.8 in.					
Weight		12.7 kg	28 lbs.					
Electrical								
Power source loading (typical in kVA)		0.	170					
Voltage range (V ac)	1	00 to 127 or 200	to 240 (switchable)				
Frequency (hertz)		50 (or 60					
Thermal output (typical)		290	Btu/hr					
Power requirements (typical)		85 v	watts					
Power factor		0.5 t	0.7					
Inrush current ⁶	75 a	mps at 120 V ac,	150 amps at 240	V ac				
Maximum altitude		2135 m	(7000 ft.)					
Temperature Requirements	Opera			erating				
	16 to		10 to 43°C (50 to 110.5°F)					
	(60 to 9	90.5°F)	(50 to 1	10.5°F)				
Humidity Requirements	Opera	ating	Non-Op	erating				
(Noncondensing)	8 to	80%	8 to	80%				
Wet Bulb	23°C (7	73.5°F)	27°C (80.5°F)				
Noise Emissions ²	Opera	ating	Id	le				
L_{WAd}	5.2	bels	5.0	bels				
L _{pAm}	41 c	BA	38	dBA				
· L _{pA} > _m	36 0	BA	34	dBA				
Impulsive or prominent discrete tones	N	0	N	lo				
Clearances ³	Front	Back	Left	Right				
Install/Air Flow ^{4,5}	35mm(1.5 in)	51mm(2 in)	25mm(1 in)	25mm(1 in)				
Service	466mm(18 in)	N/A	N/A	N/A				
Footprint ⁴	Wid	dth	De	pth				
Desktop	497mm	(19.6 in)	537mm	(21.1 in)				
Deskside	215mm	(8.5 in)	537mm	(21.1 in)				

- 1. Deskside width measurement includes the optional vertical stand.
- 2. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 3. Left and right measurements apply only when the system is used in the desktop position.
- 4. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 5. When placed in the vertical position, the system requires 25mm (1 in) at the bottom and top for proper air flow. The necessary bottom clearance is provided by the optional vertical stand.
- 6. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7007 POWERportable N40

Dimensions			
Height		51 mm 2.0 in.	
Width		290 mm 11.8 in.	
Depth		216 mm 8.5 in.	
Weight		3.13 kg 6.9 lbs	
Electrical			
Voltage range (V ac)		90 to 240 (autosensing)	
Frequency (hertz)		50 or 60	
Power requirements		55 watts	
(typical)			
Temperature		Operating	
Requirements		5 to 35.5°C	
		(41 to 95.5°F)	
Humidity		Operating	
Requirements			
(Noncondensing)		8 to 80%	
Wet Bulb		23°C (73.5F)	
Noise Emissions*	Operating	Idle	
L _{WAd}	5.1 bels	4.8 bels	
Impulsive or	No	No	
prominent discrete			
tones			

Back

N/A

Left

N/A

Right

N/A

Clearances

Install/Air Flow

Front

N/A

*See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

7008 POWERstations[™] M20, and M2A

Dimensions					
Height		413 mm	16.1 in.		
Width		410 mm	nm 16.0 in.		
Depth		459 mm	17.9 in.		
Weight					
Minimum		23.5 kg	j 52 lbs.		
Maximum		23.5 kg	j 52 lbs.		
Electrical					
Power source loading		0.	22		
(typical in kVA)					
Voltage range (V ac)		100 to 127 or 200 t	to 240 (autoranging)		
Frequency (hertz)		50 (or 60		
Thermal output (typical)		550	Btu/hr		
Power requirements (typical)		160	watts		
Power factor		0.5.1	0 0.7		
Inrush current					
Maximum altitude		20 amps at 120 V ac, 40 amps at 240 V ac 2135 m (7000 ft.)			
			· · · ·		
Temperature		erating	Non-Op		
Requirements		o 32°C	10 to		
	(60 t	o 90°F)	(50 to 110°F)		
Humidity Requirements	Оре	erating	Non-Op	erating	
(Noncondensing)	8 to	80%	8 to 8	30%	
Wet Bulb	23°C	(73.5F)	27°C (8	80.5F)	
Noise Emissions ¹	Оре	erating	ldi	e	
L_WAd	5.0) bels	5.0 bels		
L_pAm	38	dBA	38 dBA		
<l<sub>pA>_m</l<sub>	38	dBA	38 dBA		
Impulsive or		No	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	N/A	152 mm(6 in)	76 mm(3 in)	76 mm(3 in)	
Service	Install so that it can b	e moved to an area prov	iding 760 mm (30 in) on	each side.	
Footprint ²	W	/idth	Dep	oth	
		m(22 in)	611 mm(
		for definitions of noise enduring normal operation i		nt dimensions.	

7009 Compact Server C10, and C20

Dimensions				
Height		394 mm	15.5 in.	
Width		191 mm	7.5 in.	
Width with pedestal		241 mm	9.5 in.	
Depth		432 mm	17.0 in.	
Weight				
Minimum		16 kg	35.0 lbs.	
Maximum		18 kg	39.5 lbs.	
Electrical				
Power source loading		0.2	232	
(maximum in kVA)				
Voltage range (V ac)			to 240 (switchable)	
Frequency (hertz)			or 60	
Thermal output (max)		,	12 Btu/hr	
Daniel ()			14 Btu/hr	
Power requirements (max)		, ,	50 watts	
Power factor			60 watts o 0.7	
Inrush current ³			t 120 V ac,	
iiiiuoii GuiiGiit"		•	at 240 V ac	
Maximum altitude		•	(7000 ft.)	
Temperature	Opera		Non-Op	
Requirements	16 to 3		10 to	
	(60 to 9	90°F)	(50 to ⁻	110°F)
Humidity Requirements	Opera	ting	Non-Op	erating
(Noncondensing)	8 to 8	0%	8 to 80%	
Wet Bulb	23°C (7	73°F)	27°C (80°F)	
Noise Emissions ¹	Opera	ting	ldl	е
L_{WAd}	5.7 b	els	5.3 k	els
L _{pAm}	NA.	1	N/	A
<l<sub>pA>_m</l<sub>	41 d	BA	38 dBA	
Impulsive or prominent	No)	No)
discrete tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	76 mm(3 in)	152 mm(6 in)	N/A	N/A
Service	Install so that it can be 457 mm (18 in) on the		oviding 457 mm (18 in	on the front and
Footprint ²	Wid		Dep	
	241 mm	9.5 in)	660 mm	(26 in)
See "Noise Emission No The amount of space ne Inrush currents occur only	eded by the unit during	normal operation is in	dicated by the footprint	

7010 Xstation 130

Footprint ²		dth (14.8 in)	Depth 685 mm(27 in)		
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
tones					
prominent discrete	14	•	'		
<l<sub>pA>_m Impulsive or</l<sub>	_	lo	No		
L _{pAm}	37 (39 dBA 36 dBA		
L _{WAd}		beis dBA	4.8 bels		
Noise Emissions ¹	•	ating bels	Idle		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
(Noncondensing)		80%	8 to 80%		
Humidity Requirements	Oper		Non-Operating		
Lumidity.	•	,	(50 to 110°F)		
Requirements	16 to		10 to	43°C	
Temperature	Operating		·	perating	
Maximum altitude		2135 m (7			
(peak) Power factor		0.5 to	0.7		
Power requirements		65 wa	atts		
(typical)					
Thermal output		222 Bt	u/hr		
Frequency (hertz)		50 or	60		
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Power source loading (maximum in kVA)		0.10	00		
Electrical					
Maximum		9.5 kg	21 lbs.		
Weight Minimum		7.7 kg	17 lbs.		
-			10.0		
Depth		380 mm	15.0 in.		
Width		375 mm	2.9 iii. 14.8 in.		
limensions leight		72 mm	2.9 in.		

7010 Xstation 140, and 150

Footprint ²	Wic 375 mm(Depth 685 mm(27 in)		
Install/Air Flow²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
tones					
prominent discrete		-	,		
Impulsive or	N.		No		
⊂ _{pAm} <l<sub>pA>_m</l<sub>	31 c		31 dBA		
−wad L _{pAm}	33 0		33 dBA		
L _{WAd}	4.7 k	•	4.7 bels		
Noise Emissions ¹	Opera	ating	le	dle	
Wet Bulb	23°C (73°F)	27°C (80°F)		
(Noncondensing)	8 to 8	80%	8 to 80%		
Humidity Requirements	Opera	ating	Non-Operating		
	(60 to		(50 to 110°F)		
Requirements	16 to		10 to 43°C		
Temperature	Operating		Non-Operating		
Maximum altitude		2135 m (m (7000 ft.)		
Power factor		0.5 to	0.5 to 0.7		
(peak)					
Power requirements		65 v			
Thermal output (max)		222 E			
Frequency (hertz)		50 0			
Voltage range (V ac)		100 to 125 or 200 to	o 240 (autoranging)		
Power source loading (maximum in kVA)		0.1	00		
Electrical					
Maximum		8.6 kg	19 lbs.		
Minimum		7.3 kg	16 lbs.		
Weight					
Depth		380 mm	15.0 in.		
Width		375 mm	14.8 in.		
Height		72 mm	2.9 in.		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7010 Xstation Model 160

Footprint ²		dth n(24 in)	Depth 612 mm(24 in)		
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	152 mm(6 in)	152 mm(6 in)	
Clearances	Front	Back	Left	Right	
tones					
prominent discrete	IN.		IN		
<l<sub>pA>_m Impulsive or</l<sub>		lo	No		
L _{pAm}		dBA	37 dBA 41 dBA		
L _{WAd}	_	dBA	4.3 dels 37 dBA		
Noise Emissions ¹		ating bels	Idle 4.3 bels		
Wet Bulb		(73°F)	27°C (80°F)		
(Noncondensing)		80%	8 to 80%		
Requirements					
Humidity	Oper	ating	Non-Operating		
•		90°F)	(50 to 110°F)		
Requirements		32°C	Non-Operating 10 to 43°C		
Temperature	Onor	rating	•	orating	
Power factor Maximum altitude		0.7 2135 m	-		
(peak)			45		
Power requirements		50 v	/atts		
Thermal output (max)		143 E	Btu/hr		
Frequency (hertz)		50 c	(0 0/		
Voltage range (V ac)		100 to 125 or 200 t	o 240 (autoranging)		
(maximum in kVA)		0.1	~ I		
Electrical Power source loading		0.1	21		
		4.5 kg			
Maximum		4.1 kg 4.5 kg	9 lbs.		
Weight Minimum		4.1 kg	10 lbs.		
`		300 111111	12.00 111.		
Depth		306 mm	12.00 in.		
Height Width		68 mm 306 mm	2.75 in. 12.00 in.		

7011 POWERstation and POWERserver® 220, and 230

Dimensions	Desktop	Desl	Deskside		
Height	84 mm	3.3 in.	432 mm	17.0 in.	
Width ¹	406 mm	16.0 in.	216 mm	8.5 in.	
Depth	419 mm	16.5 in.	419 mm	16.5 in.	
Weight					
Minimum		9.0 kg	20 lbs.		
Maximum		11.5 kg	1 25 lbs.		
Electrical		_			
Power source loading (typical in kVA)		0.	17		
Voltage range (V ac)		100 to 127 or 200 to 240 (autoranging)			
Frequency (hertz)			or 60		
Thermal output (typical)		340 Btu/hr			
Power requirements (typical)	100 watts				
Power factor	0.5 to 0.7				
Inrush current	50 amps at 120 V ac, 100 amps at 240 V ac				
Maximum altitude	2135 m (7000 ft.)				
	Ones				
Temperature Requirements	Oper 16 to		Non-Operating 10 to 43°C		
riequirements	(60 to		(50 to 110°F)		
	•				
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)	8 to	80%	8 to 80%		
Wet Bulb	23°C (27°C (80°F)		
Noise Emissions ²	Oper	-	Idle		
L _{WAd}	5.2	-	5.0 bels		
L _{pAm}	41 (40 dBA		
⊂ _{pAm} <l<sub>pA>_m</l<sub>	39 (38 dBA		
Impulsive or	N		No No		
prominent discrete	''		''	.0	
tones					
Clearances ³	Front	Back	Left	Right	
Install/ Air Flow ^{4,5}	35mm(1.5 in)	51mm(2 in)	25mm(1 in)	25mm(1 in)	
Service	466mm(18 in)	N/A	N/A	N/A	
	Wie	dth	Wi	dth	
Footprint	456mm(18 in)		508mm(20 in)		
Footprint ⁴ Desktop	456mm	n(18 in)	508mn	n(20 in)	

- 1. Deskside width measurement includes the optional vertical stand.
- 2. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 3. Left and right measurements apply only when the system is used in the desktop position.
- 4. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 5. When placed in the vertical position, the Model 220 requires 25 mm (1 in) at the bottom and top for proper air flow. The necessary bottom clearance is provided by the optional vertical stand.

7011 POWERstation and POWERserver 250

Dimensions	Des	sktop	Deskside		
Height	84 mm	3.3 in.	432 mm	17 in.	
Width ¹	406 mm	16 in.	216 mm	8.5 in.	
Depth	419 mm	16.5 in.	419 mm	16.5 in.	
Weight					
Minimum		9.0 kg	20 lbs.		
Maximum		11.5 kg	25 lbs.		
Electrical					
Power source loading (typical in kVA)		0.1	185		
Voltage range (V ac)		100 to 127 or 200 t	o 240 (autoranging)		
Frequency (hertz)		50 or 60			
Thermal output (typical)		410 E	Btu/hr		
Power requirements (typical)					
Power factor	0.5 to 0.7				
Inrush current	50 amps at 120 V ac, 100 amps at 240 V ac				
Maximum altitude	2135 m (7000 ft.)				
Temperature	Ope	rating	Non-Op	perating	
Requirements	16 to 32°C		10 to	43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity Requirements	Ope	rating	Non-Operating		
(Noncondensing)	8 to	80%	8 to	80%	
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ²	Ope	rating	Idle		
L_{WAd}	5.2	bels	5.0 bels		
L_pAm	41	dBA	40 dBA		
$\langle L_{pA}\rangle_{m}$	39	dBA	38 dBA		
Impulsive or	1	No	No		
prominent discrete tones					
Clearances ³	Front	Back	Left	Right	
Install/Air Flow ^{4,5}	35 mm(1.5 in)	51 mm(2 in)	25 mm(1 in)	25 mm(1 in)	
Service	466mm (18 in)	N/A	N/A	N/A	
Footprint ⁴	Wi	idth	De	pth	
Desktop	456mr	m(18 in)		n(20 in)	
Deskside		n(8.5 in)		n(20 in)	

- 2. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 3. Left and right measurements apply only when the Model 250 is used in the desktop position.
- 4. The amount of space needed by the unit during normal operation is indicated by on the footprint dimensions.
- 5. When placed in the vertical position, the Model 250 requires 25 mm (1 in) at the bottom and top for proper air flow. The necessary bottom clearance is provided by the optional vertical stand.

7012 POWERstation and POWERserver 34H, 355, 360, 365, 370, and 375

Dimensions	Desk	rtop	Deskside		
Height	162 mm	-	466 mm 18.3 in.		
Width (at pedestal	456 mm	18.0 in.	241 mr	n 9.5 in.	
for deskside)					
Depth	523 mm	20.6 in.	523 mm	20.6 in.	
Weight					
Minimum	12.7 kg	28 lbs.	12.7 kg	g 28 lbs.	
Maximum	15.4 kg	34 lbs.	15.4 kg	g 34 lbs.	
Electrical					
Power source loading		0.29	9		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or			
Thermal output		585 Bt	u/hr		
(typical)		330 21			
Power requirements		185 wa	atts		
(typical)					
Power factor		0.5 to	0.7		
Inrush current		49 amps at 120 V ac, 9	98 amps at 240 V ac		
Maximum altitude		2135 m (7	•		
Temperature	Opera	ating .	Non-Operating		
Requirements	16 to		10 to 43°C		
riequirements	(60 to		(50 to 110°F)		
	•				
Humidity	Opera	ating	Non-Operating		
Requirements	0 to 1	000/	0 to 000/		
(Noncondensing)	8 to 8		8 to 80%		
Wet Bulb	23°C (/3 ⁻ F)	27°C (80°F)		
Noise Emissions ¹	Opera	•	Idle		
L_{WAd}	5.7 k	pels	5.5 bels		
L _{pAm}	45 d		45 dBA(desktop)		
	N/		N/A (deskside)		
<l<sub>pA>_m</l<sub>	41 d		41 dBA (desktop)		
	38 d		38 dBA(deskside)		
Impulsive or	Ne	0	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	760 mm(30 in)	N/A	N/A	N/A	
Footprint ²	Wic	 ith	De	pth	
·				-	
Desktop	456 mm(18 in) 241 mm(9.5 in)		830 mm(33 in) 828 mm(32.6 in)		

7012 POWERserver Models 380, 390, and 39H

Dimensions	Desktop		Deskside		
Height	162 mm	n 6.4 in.	452 mm 17.8 in.		
Width (at pedestal	442 mm	17.4 in.	241 mm 9.5 in.		
for deskside)					
Depth	478 mm 18.8 in.		478 mm	18.8 in.	
Weight					
Minimum	18.1 kg	40 lbs.	18.1 kg	40 lbs.	
Maximum	21.8 kg	48 lbs.	21.8 kg	48 lbs.	
Electrical					
Power source loading		0.35	5		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or	60		
Thermal output		770 Bt	u/hr		
(typical)		005	-44-		
Power requirements (typical)		225 w	aus		
Power factor		0.5 to	0.7		
Inrush current ³		42 amps at 120 V ac, 4			
Maximum altitude		2135 m (7			
			·		
Temperature	Oper		Non-Operating 10 to 43°C		
Requirements	16 to 32°C (60 to 90°F)		(50 to 110°F)		
Harmat althor					
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)	8 to	80%	8 to 80%		
Wet Bulb	23°C		27°C (80°F)		
Noise Emissions ¹	Oper	ating	Idle		
L_{WAd}	5.5	•	5.3 bels		
L _{pAm}	41 dBA (desktop)	41 dBA (desktop)		
p,	38 dBA (d		38 dBA (deskside)		
<l<sub>pA>_m</l<sub>	41 dBA (41 dBA (desktop)		
p	38 dBA (d		38 dBA (deskside)		
Impulsive or	N	•	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	760 mm(30 in)	N/A	N/A	N/A	
Footprint ²	Wie	dth	De	pth	
Desktop	442mm((30.8 in)	
Deskside	241mm	•		(30.8 in)	

- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7012 Model 397

Dimensions	Desi	ktop	Deskside		
Height		n 6.4 in.	452 mm 17.8 in.		
Width (at pedestal for deskside)	442 mm	17.4 in.	241 mr	m 9.5 in.	
Depth	478 mm	478 mm 18.8 in.		n 18.8 in.	
Weight					
Minimum	18.1 kg	40 lbs.	18.1 kg	g 40 lbs.	
Maximum	21.8 kg	21.8 kg 48 lbs.		g 48 lbs.	
Electrical					
Power source loading		0.8	5		
(typical in kVA)					
/oltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 or	60		
Thermal output		770 B	tu/hr		
(typical)					
Power requirements		250 w	ratts		
(typical)		0.01			
Power factor	0.8 to				
Inrush current ³	20 amps at 120 V ac,		•		
Maximum altitude		2135 m (7000 ft.)			
Temperature	Operating			perating	
Requirements		32°C	10 to 43°C		
	(60 to	90°F)	(50 to 110°F)		
Humidity	Oper	ating	Non-Operating		
Requirements	0.1	200/	0.1.000/		
(Noncondensing)	8 to		8 to 80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	Oper	•	Idle		
L _{WAd}	• • • • • • • • • • • • • • • • • • • •	bels	5.5 bels		
-pAm	46 dBA (46 dBA (desktop)		
<l<sub>pA>_m</l<sub>	48 dBA (47 dBA (desktop)		
Impulsive or	N	0	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	760 mm(30 in)	N/A	N/A	N/A	
Footprint ²	Wie	dth	De	epth	
Desktop	442mm((17.4 in)	782mm	(30.8 in)	
Deskside	241mm	(9.5 in)		(30.8 in)	

- See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
 The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
 Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7012 Models G30, G40, and G02

Dimensions	G30 & G40		G	G02		
Height	450 mm	17.75 in.	450 mm	17.75 in.		
Width	173 mm	6.9 in.	173 mm	6.9 in.		
Width (at pedestal)	280 mm	11 in.	280 mm	11 in.		
Depth	613 mm	24.1 in.	613 mm	24.1 in.		
Weight	G30 &	G40	G	02		
Minimum	19 kg	19 kg 43 lbs.		43 kg		
Maximum	25 kg	55 lbs.	25 lbs.	55 lbs.		
Electrical	G30 &	G30 & G40		02		
Power source loading (typical in kVA)	0.4	5	0.	2		
Voltage range (V ac)	100 to 125	or 200 to	100 to 125	or 200 to		
	240 (auto	ranging)	240 (auto	oranging)		
Frequency (hertz)	50 or		•	r 60		
Thermal output (typical)	1380 E	Btu/hr	615 E	3tu/hr		
Power requirements (typical)	405 w	vatts	180 י	watts		
Power factor	0.8 to	1.0	0.8 to	o 1.0		
Inrush current ³	35 amps at	120 V ac	35 amps a	t 120 V ac		
	70 amps at 240 V ac		70 amps at 240 V ac			
Maximum altitude	2135 m (7	2135 m (7000 ft.)		2135 m (7000 ft.)		
Temperature Requirements	Opera		Non-Operating 10 to 43°C			
	16 to 3					
	(60 to 9	90 F)	(50 to 110°F)			
Humidity Requirements	Opera	ting	Non-Operating			
(Noncondensing)						
Without tape drive	8 to 8	80%	8 to 80%			
With tape drive	20 to	80%	20 to 80%			
Wet Bulb Requirements						
Without tape drive	27°C (8		27°C (80°F)			
With tape drive	23°C (7	73°F)	27°C (80°F)			
Noise Emissions ¹	Opera	iting	Id	le		
L_{WAd}	5.8 b	els	5.5	bels		
L _{pAm}	39 d	BA	37 dBA			
<l<sub>pA>_m</l<sub>	39 d	BA	37 (BA		
Impulsive or prominent discrete tones	No)	N	0		
Clearances	Front	Back	Left	Right		
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A		
Service	760 mm(30 in)	N/A	N/A	N/A		
Footprint ²	Wid 280mm			pth (36.1 in)		

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7013 POWERstation and POWERserver 52H

Dimensions					
Height	610 mm		24.0 in.		
Width	360 mm		14.2 in.		
Depth	675 mm 26.6 in.				
Weight					
Minimum	36.7 kg		81 lbs.		
Maximum		53.1 kg	117 lbs.		
Electrical					
Power source loading		0.	.4		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to	o 240 (autoranging)		
Frequency (hertz)		50 c	or 60		
Thermal output		975 E	Btu/hr		
(typical)					
Power requirements		285 \	watts		
(typical)					
Power factor		0.8 to	o 1.0		
Inrush current		22 amps at 120 V ac,	44 amps at 240 V ac		
Maximum altitude		2135 m ((7000 ft.)		
Temperature	Operating Non-Operati		erating		
Requirements	16 to 32°C		10 to 43°C		
	(60 to 90°F)		(50 to 110°F)		
Humidity	Operating		Non-Operating		
Requirements					
(Noncondensing)					
Without tape drive	8 to	80%	8 to 80%		
With tape drive	20 to 80%		20 to 80%		
Wet Bulb					
Requirements					
Without tape drive	27°C (80°F)		27°C (80°F)		
With tape drive	23°C	23°C (73°F) 27°C (80°F)		(80°F)	
Noise Emissions ¹	Оре	rating	ldle		
L_{WAd}	5.7 bels		5.5 bels		
L _{pAm}	N/A		N/A		
<l<sub>pA>_m</l<sub>	39 dBA		38 dBA		
Impulsive or	No		No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	N/A	152mm(6 in)	76mm(3 in)	76mm(3 in)	
Service Insta	all so that it can be	e moved to an area provi	ding 760 mm (30 in) on	each side.	
Footprint ²	Width		Depth		
	512mm(20.2 in)		828mm(32.6 in)		
See "Noise Emission No The amount of space ne				int dimensions.	

7013 POWERstation and POWERserver 550L

Dimensions					
Height		610 mm	24.0 in.		
Width		360 mm	14.2 in.		
Depth		675 mm	26.6 in.		
Weight					
Minimum		36.7 kg	81 lbs.		
Maximum		53.1 kg	117 lbs.		
Electrical					
Power source loading		(0.4		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200	to 240 (autoranging)		
Frequency (hertz)			or 60		
Thermal output			Btu/hr		
(typical)		070	Dta/Til		
Power requirements		285	watts		
(typical)		203			
Power factor		0.8	to 1.0		
Inrush current			c, 44 amps at 240 V ac		
Maximum altitude			(7000 ft.)		
Temperature		erating	Non-Op		
Requirements		to 32°C		43°C	
	(60	to 90°F)	(50 to	110°F)	
Humidity	Ор	Operating Nor		erating	
(Noncondensing)					
Without tape drive	8 1	o 80%	8 to 80%		
With tape drive	20	to 80%	20 to 80%		
Wet Bulb					
Requirements					
Without tape drive	27°0	C (80°F)	27°C (80°F)		
With tape drive	23°0	23°C (73°F) 27°C (80°F)		(80°F)	
Noise Emissions ¹	Ор	erating	Idle		
L_{WAd}	5.	5.7 bels 5.5 bels		bels	
L_pAm		N/A	N/A		
<l<sub>pA>_m</l<sub>	39	9 dBA	38 dBA		
Impulsive or		No	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	N/A	152 mm(6 in)	76 mm(3 in)	76 mm(3 in)	
Service	Install so that it can be	pe moved to an area prov	viding 760 mm (30 in) on	each side.	
Footprint ²	V	Vidth	Depth		
-	512m	m(20.2 in)	828mm(32.6 in)		
	on Notes" on page 199	for definitions of noise e		<u> </u>	

7013 POWERstation and POWERserver 570, and 580

Dimensions						
Height		610 mm	24.0 in.			
Width	360 mm		14.2 in.			
Depth		675 mm	26.6 in.			
Weight						
Minimum	36.7 kg		81 lbs.			
Maximum		53.1 kg	117 lbs.			
Electrical		<u> </u>				
Power source loading		0.	43			
(typical in kVA)						
Voltage range (V ac)		100 to 125 or 200 t	o 240 (autoranging)			
Frequency (hertz)			or 60			
Thermal output			Btu/hr			
(typical)		1430	Dtu/III			
Power requirements		125	watts			
(typical)		423	wans			
Power factor		0.8 t	n 1 0			
Inrush current						
Maximum altitude	34 amps at 120 V ac, 68 amps at 240 V ac 2135 m (7000 ft.)					
- Iviaxiiiiuiii ailiiluue		2100 111	(7000 it.)			
Temperature		erating	Non-Operating			
Requirements	16 to 32°C		10 to 43°C			
	(60 to 90°F)		(50 to 110°F)			
Humidity	Op	Operating		Non-Operating		
(Noncondensing)						
Without tape drive	8	to 80%	8 to 80%			
With tape drive	20	20 to 80%		20 to 80%		
Wet Bulb						
Requirements						
Without tape drive		27°C (80°F)		27°C (80°F)		
With tape drive	23°	23°C (73°F)		27°C (80°F)		
Noise Emissions ¹	•	Operating Idle				
L_{WAd}	5.7 bels		5.5 bels			
L_pAm	N/A		N/A			
$\langle L_{pA}\rangle_{m}$	39 dBA		38 dBA			
Impulsive or		No	No			
prominent discrete						
tones						
Clearances	Front	Back	Left	Right		
Install/Air Flow ²	N/A	152 mm(6 in)	76 mm(3 in)	76 mm(3 in)		
Service	Install so that it can	pe moved to an area provi	ding 760 mm (3 in) on 6	each side.		
Footprint ²	Width		Depth			
	512m	512mm(20.2 in)		828mm(32.6 in)		
		of for definitions of noise er during normal operation is		int dimensions.		

7013 Models 58H, 590, 59H, 591, and 595

Dimensions					
Height		610 mm	24 in.		
Width		360 mm		14.2 in.	
Depth		675 mm 26.6 in.			
Weight					
Minimum		36.7 kg	81 lbs.		
Maximum		53.1 kg	117 lbs.		
Electrical					
Power source loading		C	0.5		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200	to 240 (autoranging)		
Frequency (hertz)			or 60		
Thermal output			Btu/hr		
(typical)		. 0=0			
Power requirements		550	watts		
(typical)					
Power factor		0.81	to 1.0		
Inrush current		34 amps at 120 V ac	, 68 amps at 240 V ac		
Maximum altitude		2135 m (7000 ft.)			
Temperature	On	erating	Non-Operating		
Requirements		16 to 32°C 10 to 43°C			
		to 90°F)	(50 to 110°F)		
Humidity	Ор	Operating		Non-Operating	
(Noncondensing)		-		_	
Without tape media	8	to 80%	8 to 80%		
With tape media	20	to 80%	20 to 80%		
Wet Bulb					
Requirements					
Without tape media	27°	C (80°F)	27°C (80°F)		
With tape media	23°	23°C (73°F)		27°C (80°F)	
Noise Emissions ¹	Ор	erating	Idle		
L_WAd	5	5.8 bels		5.3 bels	
L _{pAm}		N/A		N/A	
<l<sub>pA>_m</l<sub>	3	39 dBA		38 dBA	
Impulsive or		No		No	
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	N/A	152 mm(6 in)	76 mm(3 in)	76 mm(3 in)	
Service	Install so that it can	be moved to an area prov	iding 760 mm (3 in) on e	ach side.	
Footprint ²	Width 512mm(20.2 in)		Depth		
•			828mm(32.6 in)		
See "Noise Emissic	on Notes" on page 199	9 for definitions of noise e	missions positions.		

7013 Models J30, J40, and J01

Dimensions	J30 & J40 J01		01		
Height	610 mm 24 in. 610 mm		24 in.		
Vidth	360 mm 14.2 in.		360 mm	14.2 in.	
Depth	750 mm 29.5 in.		750 mm	29.5 in.	
Veight	J30 & J40		J	01	
Minimum	67 kg	148 lbs.	67 kg	148 lbs.	
Maximum	84 kg	185 lbs.	84 kg	185 lbs.	
Electrical	J30 8	& J40	J	01	
Power source loading	0	.9	0	.6	
typical in kVA)					
/oltage range (V ac)	100 to 125	5 or 200 to	100 to 12	5 or 200 to	
	240 (aut	oranging)	240 (aut	oranging)	
requency (hertz)	50 (or 60	50 (or 60	
Thermal output (typical)	2765	Btu/hr	1843	Btu/hr	
Power requirements (typical)	810	watts	540 watts		
Power factor	0.8 t	o 1.0	0.8 to 1.0		
nrush current ³	35 amps a	at 120 V ac	35 amps at 120 V ac		
	70 amps at 240 V ac 70 amps at 240				
Maximum altitude	2500 m	(8202 ft.)	2500 m (8202 ft.)		
Temperature Requirements		ating	Non-Operating		
		32°C	5 to 50°C		
	(50 to	90°F)	(41 to	122°F)	
Humidity (Noncondensing)	-	rating	Non-Operating		
Without tape drive		80%	5 to 95%		
With tape drive	20 to	80%	20 to 80%		
Wet Bulb Requirements					
Without tape drive		(75°F)	28°C (82°F)		
With tape drive	23°C	(73°F)	27°C (80°F)		
Noise Emissions ^{1,4}	Operating		ldle		
-WAd	5.8	5.8 bels		5.5 bels	
-pAm	N/A		N/A		
<l<sub>pA>_m</l<sub>	NA		NA		
Impulsive or prominent discrete	N	No		No	
tones					
Clearances	Front	Back	Left	Right	
nstall/Air Flow ²	500mm(20 in)	500mm(20 in)	500mm(20 in)	500mm(20 in	
Service	500mm(20 in)	N/A	N/A	N/A	
Footprint ²	Width		Depth		
	1630mi	m(64 in)	1750mm(70 in)		

^{1.} See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

^{3.} Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7013 Model J50

	1630mm(64 in) Notes" on page 199 for definitions of noise 6		1750mm(70 in)		
Service Footprint ²	500mm(20 in) N/A Width		N/A N/A Depth		
Install/Air Flow ²	500mm(20 in)	500mm(20 in)	500mm(20 in)	500mm(20 in)	
Clearances	Front	Back	Left	Right	
Impulsive or prominent discrete tones	No			lo	
L _{pAm} <l<sub>pA>_m</l<sub>	IV.		IV/A		
-WAd		/A	5.5 bels N/A		
Noise Emissions ^{1,4}	=	ating bels	Idle 5.5 bels		
Requirements		a di sa sa			
Wet Bulb	23°C	(73°F)	27°C (80°F)		
With tape drive	20 to	80%	8 to 80%		
Requirements (Noncondensing) Without tape drive	8 to	80%	8 to 80%		
Humidity Requirements	Oper	ating	Non-Operating (Power Off)		
Requirements		32°C 90°F)	10 to 43°C 50 to 109°F)		
Temperature	-	ating	Non-Operating (Power Off)		
Maximum altitude			(8202 ft.)		
Inrush current			, 70 amps at 240 V ac		
(typical) Power factor		0 8 t	o 1.0		
Power requirements		540	watts		
(typical)		1043	Dta/III		
Thermal output			Btu/hr		
Voltage range (V ac) Frequency (hertz)			to 240 (autoranging) or 60		
(typical in kVA)		100 1- 105 - 000	- 040 (t :)		
Power source loading		0	.6		
Electrical					
Maximum		84 kg	185 lbs.		
Minimum		67 kg	148 lbs.		
Depth		750 mm	29.5 in.		
Width		360 mm	14.2 in.		
Height		610 mm	24 in.		

- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
 4. The values for <L_{pA}>_m not available at the time of publishing.

7014 Model S00 Rack

Dimensions				
Height		1577 mm	62.0 in.	
Width		650 mm	25.5 in.	
Depth		1019 mm	40.1 in.	
Weight ¹				
Base Rack		159 kg	349 lbs.	
Full Rack		594 kg	1309 lbs.	
Electrical ²		(sum specific	ed values for	
		drawers or end	losures in rack)	
DC Rack				
Power source loading maximum in kVA ³		8.	.4	
Voltage range (V dc) AC Rack		-40 to -60		
Power source loading maximum in kVA (per PDB) ⁴	4.8			
Voltage range (V ac)		200 to 240		
Frequency (hertz)		50 c	or 60	
Humidity Requirements		(see specifications for	drawers or enclosures)	
Noise Emissions		(see specifications for	drawers or enclosures)	
Clearances	Front	Back	Left	Right
Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow.			
Service	915mm(36 in)	915mm(36 in)	915mm(36 in)	915mm(36 in)

Notes:

- 1. Configuration dependent, base weight plus the weight of the drawers mounted in the rack. The rack can support up to a maximum of 13.6 kg (30) lbs/EIA (Unit)
- 2. The total rack power should be derived from the sum of the power used by the drawrers in the rack.

S00 Rack Weight Distribution and Floor Loading

The S00 rack can get very heavy when several drawers are present. The following tables show the necessary weight distribution distances for the S00 rack when loaded.

Rack	System	Width (2)	Depth (2)	Weight Distribu	tion Distance (3)	
	Weight (1) Ibs(kg)	in(mm)	in(mm)	Front & Back in(mm)	Left & Right in(mm)	
7014-S00 (4)	1309 (594)	25.5 (650)	35 (889)	22 (559), 19.2 (487.7)	18 (457.2)	
7014-S00 (5)	1309 (594)	25.5 (650)	35 (889)	22 (559), 19.2 (487.7)	0.0 (0.0)	
7014-S00 (6)	1309 (594)	25.5 (650)	35 (889)	22 (559), 19.2 (487.7)	13 (330.2)	

The following notes are for both the weight distribution distance table and the floor loading table.

Notes:

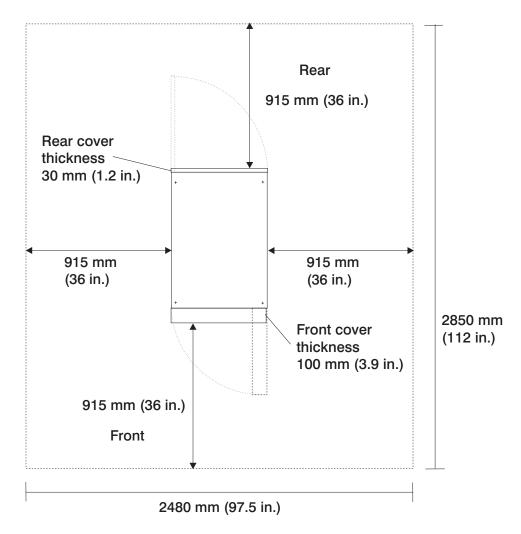
- 1. Maximum weight of fully populated rack, units are lbs with kg in parenthesis.
- 2. Dimensions without covers, units are inches with mm in parenthesis.
- 3. The weight distribution distance in all four directions is the area around the rack perimeter (minus covers) necessary to distribute the weight beyond the perimeter of the rack. Weight distribution areas cannot overlap with adjacent computer equipment weight distribution areas. Units are inches with mm in parenthesis.
- 4. Weight distribution distance is 1/2 the service clearance values shown in the figure plus cover thickness.
- 5. No left and right weight distribution distance.
- 6. Left and right weight distribution distance required for a 70 lb/ft2 raised floor loading objective.

The S00 rack can get very heavy when several drawers are present. The following tables show the necessary floor loading for the S00 rack when loaded.

Rack	Floor Loading				
	Raised kg/m2	Non-Raised kg/m2	Raised Ib/ft2	Non-Raised lb/ft2	
7014-S00 (4)	304	260.2	62.3	53.3	
7014-S00 (5)	561.5	517.5	115	106	
7014-S00 (6)	840	296	70	61	
See notelist above.					

S00 Rack Service Clearances

The amount of space needed by the unit during service operation is indicated by the lines on the footprint. For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack.



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The footprint shows the radius of the swinging doors on the I/O rack. The illustration shows the minimum space required.

7014 Rack

Model T00 Rack

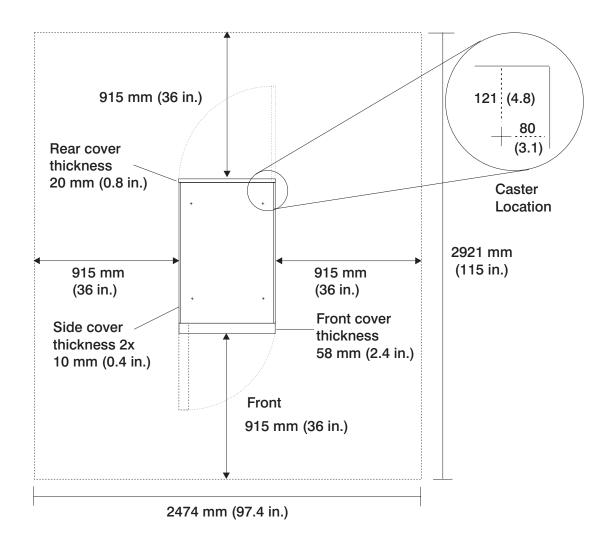
Dimensions					
Height		1804 mr	m 71.0 in.		
Capacity		36 EI	A Units		
With PDP - DC only		1926 mm 75.8 in.			
Width without side		623 mn	n 24.5 in.		
panels					
With side panels			n 25.4 in.		
Depth with rear door only		1042 mr	m 41.0 in.		
Depth with rear door and RS/6000 style		1098 mr	m 43.3 in.		
front door					
pSeries (sculptured)		1147 mr	m 45.2 in.		
style front door					
Weight					
Base Rack		244 kg	535 lbs		
Full Rack ¹		_	1795 lbs		
	See "T00 an	nd T42 Rack Weight Distr		g" on page 34.	
Electrical ²	(sum specified values for				
		· · · · · · · · · · · · · · · · · · ·	closures in rack)		
DC Rack			,		
Power source loading maximum in kVA ³		8	3.4		
Voltage range (V dc) AC Rack		-40	to -60		
Power source loading maximum in kVA (per PDB) ⁴		4	1.8		
Voltage range (V ac)		200	to 240		
Frequency (hertz)		50	or 60		
Temperature Requirements		(see specifications for	drawers or enclosures)		
Humidity Requirements		(see specifications for	drawers or enclosures)		
Noise Emissions		(see specifications for	drawers or enclosures)		
Clearances	Front	Back	Left	Right	
Install/Air Flow	Rack airflow requirements are a function of the number and type of drawers installed (see note 5). Please refer to the individual drawer specifications.				

- 1. Configuration dependent, base rack weight plus the weight of the drawers mounted in the rack. The rack can support up to a maximum weight of 35 lbs/EIA (Unit).
- 2. The total rack power should be derived from the sum of the power used by the drawers in the rack.
- 3. The Power Distribution Panel (PDP) on the DC powered rack can hold up to eighteen (nine per power source) 48 volt 20 to 50 amp circuit breakers (configuration dependent). Each power source supports up to 8.4 kVA.
- 4. Each AC Power Distribution Bus (PDB) can supply 4.8 kVA. A rack can have up to four PDB's as required by the drawers mounted in the rack.
- 5. All rack installations require careful site and facilities planning designed to both address the cumulative drawer heat output and provide the airflow volumes rates necessary to comply with drawer temperature requirements.

Model T42 Rack

Dimensions	
Height	2015 mm 79.3 in.
Capacity	42 EIA Units
With PDP - DC only	Not applicable
Width without side panels	623 mm 24.5 in.
With side panels	644 mm 25.4 in.
Depth with rear door only	1042 mm 41.0 in.
Depth with rear door and	1098 mm 43.3 in.
RS/6000 style front door	
pSeries (sculptured) style	1147 mm 45.2 in.
front door	
Weight	
Base Rack	261 kg 575 lbs.
Full Rack¹	930 kg 2045 lbs
	See "T00 and T42 Rack Weight Distribution and Floor Loading" on page 34.
Service Clearance	Recommended minimum vertical service clearance from floor is 2439 mm or 8 feet.
All Other Specifications	For all other technical information see the table for "Model T00 Rack" on page 29.

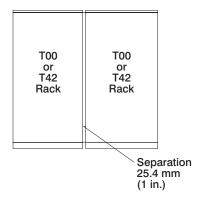
T00 and T42 Service Clearances and Caster Location
The service clearances and caster locations are shown in the following illustration:



Note:

- Rack units are large and heavy and are not easily moved. Because maintenance activities
 require access at both the front and back, extra room needs to be allowed. The footprint shows
 the radius of the swinging doors on the I/O rack. The illustration shows the minimum space
 required.
- 2. The amount of space needed by the unit during service operation is indicated by the lines on the footprint. For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack.

T00 and T42 Racks Multiple Attachment



T00 racks or T42 racks can be bolted together in a multiple rack arrangement as shown above. A kit is available including the bolts, spacers, and decorative trim pieces to cover the 25.4mm (1 in.) space. For service clearances use the service clearances as shown in the table for the "Model T00 Rack" on page 29.

T00 and T42 Rack Weight Distribution and Floor Loading

The T00 and T42 racks can get very heavy when several drawers are present. The following tables show the necessary weight distribution distances for the T00 and T42 racks when loaded.

Rack	System	Width (2)	Depth (2)	Weight Distribut	ion Distance (3)
	Weight (1) Ibs(kg)	in(mm)	in(mm)	Front & Back in(mm)	Left & Right in(mm)
7014-T00 (4)	1795 (816)	24.5 (623)	40.2 (1021)	20.3 (515.6), 18.8 (477.5)	18.4 (467.4)
7014-T00 (5)	1795 (816)	24.5 (623)	40.2 (1021)	20.3 (515.6), 18.8 (477.5)	0.0 (0.0)
7014-T00 (6)	1795 (816)	24.5 (623)	40.2 (1021)	20.3 (515.6), 18.8 (477.5)	22 (559)
7014-T42 (4)	2045 (930)	24.5 (623)	40.2 (1021)	20.3 (515.6), 18.8 (477.5)	18.4 (467.4)
7014-T42 (5)	2045 (930)	24.5 (623)	40.2 (1021)	20.3 (515.6), 18.8 (477.5)	0.0 (0.0)
7014-T42 (6)	2045 (930)	24.5 (623)	40.2 (1021)	20.3 (515.6), 18.8 (477.5)	27 (686)

The following notes are for both the weight distribution distance table and the floor loading table.

Notes:

- 1. Maximum weight of fully populated rack, units are lbs with kg in parenthesis.
- Dimensions without covers, units are inches with mm in parenthesis.
- The weight distribution distance in all four directions is the area around the rack perimeter (minus covers) necessary to distribute the weight beyond the perimeter of the rack. Weight distribution areas cannot overlap with adjacent computer equipment weight distribution areas. Units are inches with mm in parenthesis.
- 4. Weight distribution distance is 1/2 the service clearance values shown in the figure plus cover thickness.
- 5. No left and right weight distribution distance.
- Left and right weight distribution distance required for a 70 lb/ft2 raised floor loading objective.

The T00 and T42 racks can get very heavy when several drawers are present. The following tables show the necessary floor loading for the T00 and T42 racks when loaded.

Rack	Floor Loading					
	Raised kg/m2	Non-Raised kg/m2	Raised lb/ft2	Non-Raised lb/ft2		
7014-T00 (4)	366.7	322.7	75	66		
7014-T00 (5)	734.5	690.6	150.4	141.4		
7014-T00 (6)	341	297	70	61		
7014-T42 (4)	403	359	82.5	73.5		
7014-T42 (5)	825	781	169	160		
7014-T42 (6)	341.4	297.5	70	61		
	See notes above.					

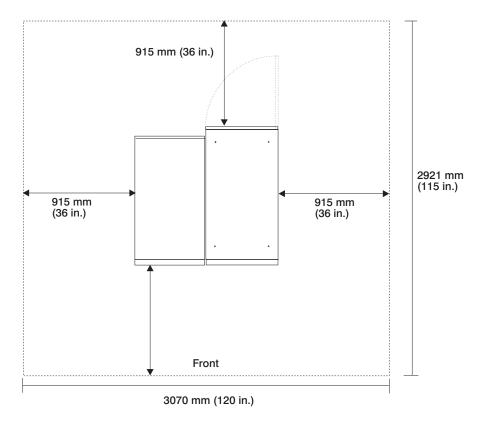
Service Clearances for S80 or S85 System With T00 Style I/O Rack

The amount of space needed by the units during service is indicated by large box of the footprint.

For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack.

Note: If you are planning to install an S80 or S85 in an SP System environment, see SP Planning Volume 1, Hardware and Physical Environment (GA22-7280) for system planning information.

Rack Configuration for AC Systems or -48v DC Systems



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The footprint shows the radius of the swinging doors on the I/O rack. The illustrations show the minimum space required.

7015 POWERserver 970B, and 980B

Dimensions				
Height		1578 mm	62.0 in.	
Width		650 mm	25.5 in.	
Depth		921 mm	36.0 in.	
Weight				
Minimum		205kg	450 lbs.	
Maximum		441kg	970 lbs.	
Electrical ⁵	Maximum Entry		Max	imum
	Configurati	on	Config	juration
Power source loading (max)	1.0		2	2.4
Voltage range (V ac)	200 to 240 or -4	l8V dc	200 to 240	or -48V dc
Frequency (hertz)	50 or 60		50 (or 60
Thermal output (max)	2165 Btu/h	nr	4100	Btu/hr
Power requirements (max)	634 watts		1200	watts
Power factor⁴	0.5 to 0.7		0.5 1	to 0.7
Inrush current ⁶	125 amps	;	125	amps
Maximum altitude	2135 m (7000) ft.)	2135 m	(7000 ft.)
Temperature Requirements	Operating]	Non-Operating	
	10 to 40°C		10 to	52°C
	(50 to 104°	F)	(50 to	125°F)
Humidity (Noncondensing)	Operating	3	Non-O	perating
Without tape drive	8 to 80%		8 to	80%
With tape drive	20 to 80%		20 to	80%
Wet Bulb Requirements				
Without tape drive	27°C (80°F	=)	27°C	(80°F)
With tape drive	23°C (73°F	-)	27°C	(80°F)
Noise Emissions ^{1,2}	Operating]	lo	dle
L _{WAd}	6.4 bels		6.2	bels
L _{pAm}	N/A		N	I/A
<l<sub>pA>_m</l<sub>	49 dBA		47	dBA
Impulsive or prominent discrete tones	No			No
Clearances ³	Front	Back	Left	Right
Install/Air Flow	Maintenance of a prope	er service clear	ance should allow p	proper air flow
Service	(See service clearances for the "7015 System Rack R00" on page 40)			

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for the 7015 system unit is based on the following configuration: a processor drawer with eight memory cards and eight I/O cards, a SCSI device drawer with four SCSI devices, the second eight I/O slots with eight asynchronous cards, two SCSI disk drawers with four SCSI devices each, and a Battery Back up Unit. Noise emissions data for the SCSI disk drawer is therefore included in the data.
- 3. For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack. For five to six racks placed side by side, the left and right clearances need to be increased to 1525 mm (60 in). Having more than six racks side by side is not recommended. See "7015 System Rack R00" on page 40 for additional clearance information.
- 4. Power factor is 0.7 to 0.9 without a Battery Back up Unit.
- 5. The figures for power source loading, thermal output, and power requirement represent maximums. Please work with your sales or service representative to determine the typical figures for your configuration.
- 6. Inrush currents occur only at initial application of power, no inrush occurs during normal use.

7015 POWERserver 990

Dimensions				
Height		1578 mm	62.0 in.	
Width		650 mm	25.5 in.	
Depth	921 mm		36.0 in.	
Weight				
Minimum		205 kg	450 lbs.	
Maximum		441 kg	970 lbs.	
Electrical ⁵	Maximu	ım Entry	Maxi	mum
	Config	uration	Config	uration
Power source loading (max)	1	.0	2	.4
Voltage range (V ac)	200 to 240	or -48V dc	200 to 240	or -48V dc
Frequency (hertz)	50 (or 60	50 (or 60
Thermal output (max)	2165	Btu/hr	4100	Btu/hr
Power requirements (max)	634	watts	1200	watts
Power factor ⁴	0.5 1	to 0.7	0.5 to 0.7	
Inrush current ⁶	125	amps	125 amps	
Maximum altitude	2135 m	(7000 ft.)	2135 m (7000 ft.)	
Temperature Requirements	Орег	rating	Non-O	perating
		32°C		43°C
	(60 to	90°F)	(50 to	110°F)
Humidity (Noncondensing)	•	rating	Non-Operating	
Without tape drive		80%	8 to 80%	
With tape drive	20 to	80%	20 to	80%
Wet Bulb Requirements	23°C	(73°F)	27°C (80°F)	
Noise Emissions ^{1,2}	Oper	rating	lo	lle
L_WAd	6.4	bels	6.2	bels
L_pAm	N	I/A	N	/A
<l<sub>pA>_m</l<sub>	49 dBA		47	dBA
Impulsive or prominent discrete tones	No		N	lo
Clearances ³	Front	Back	Left	Right
Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow			
Service	(See service clearances for the "7015 System Rack R00" on page 40)			

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for the 7015 system unit is based on the following configuration: a Processor Drawer with eight memory cards and eight I/O cards, a SCSI Device Drawer with four SCSI devices, the second eight I/O slots with eight asynchronous cards, two SCSI Disk Drawers with four SCSI devices each, and a Battery Back up Unit. Noise emissions data for the SCSI Disk Drawer is therefore included in the data.
- 3. For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack. For five to six racks placed side by side, the left and right clearances need to be increased to 1525 mm (60 in). Having more than six racks side by side is not recommended. See "7015 System Rack R00" on page 40 for additional clearance information.
- 4. Power factor is 0.7 to 0.9 without a Battery Back up Unit.
- 5. The figures for power source loading, thermal output, and power requirement represent maximums. Please work with your sales or service representative to determine the typical figures for your configuration.
- 6. Inrush currents occur only at initial application of power, no inrush occurs during normal use.

7015 SCSI Disk and Device Drawers

Dimensions		
Height	171 mm	6.7 in.
		(4 EIA units)
Width	443 mm	17.4 in.
Depth	686 mm	27.0 in.
Weight		
Minimum	25 kg	55 lbs.
Maximum	48 kg	105 lbs.
Electrical		
Power source loading	0	.34
(typical in kVA)		
Voltage range (V ac)	200	to 240
Frequency (hertz)	50	or 60
Thermal output	580	Btu/hr
(typical)		
Power requirements	170	watts
(typical)		
Power factor		to 0.7
Inrush current*		amps
Maximum altitude	2135 m	(7000 ft.)
Temperature	Operating	Non-Operating
Requirements	10 to 40°C	10 to 52°C
	(50 to 104°F)	(50 to 125°F)
Humidity	Operating	Non-Operating
(Noncondensing)		
Without tape drive	8 to 80%	8 to 80%
With tape drive	20 to 80%	20 to 80%
Wet Bulb		
Requirements		
Without tape drive	27°C (80°F)	27°C (80°F)
With tape drive	23°C (73°F)	27°C (80°F)
Noise Emissions		
Data included with calculations for	or the 7015 POWERservers.	
* Inrush currents occur only at in	tial application of power, no inrush or	ccurs during normal power off-on cycle.

1/2-Inch 9-Track Tape Drive Drawer

Dimensions		
Height	222 mm	8.75 in.
		(6 EIA units)
Width	483 mm	19.00 in.
Depth	679 mm	26.75 in.
Weight		
Minimum	48.2 kg	106 lbs.
Maximum	48.2 kg	106 lbs.
Electrical		
Power source loading	C	0.2
(typical in kVA)		
Voltage range (V ac)	100 to 125 or 200	to 240 (selectable)
Frequency (hertz)	50	or 60
Thermal output	410	Btu/hr
(typical)		
Power requirements	120	watts
(typical)		
Power factor		to 0.7
Maximum altitude	2135 m	(7000 ft.)
Temperature	Operating	Non-Operating
Requirements	16 to 32°C	10 to 43°C
	(60 to 90°F)	(50 to 110°F)
Humidity Requirements	Operating	Non-Operating
(Noncondensing)	20 to 80%	20 to 80%
Wet Bulb	23°C (73°F)	27°C (80°F)

7015 System Rack R00

Dimensions					
Height		1578 mm	62.0 in.		
Width		650 mm	25.5 in.		
Depth with Std. Door		921 mm	36.0 in.		
Depth with SMP Door		1060 mm	41.8 in.		
Weight 1					
Base Rack		130 kg	286 lbs.		
Full rack		594 kg	1309 lbs.		
Electrical ²		(sum specifi	ed values for		
		drawers or end	losures in rack)		
DC Rack					
Power source loading maximum in kVA ³		8	.4		
Voltage range (V dc)		-40 t	o -60		
AC Rack					
Power source loading maximum in kVA (per PDB) ⁴		4	.8		
Voltage range (V ac)		200 t	o 240		
Frequency (hertz)	50 or 60				
Noise Emissions	(see specifications for drawers or enclosures)				
Clearances	Front	Back	Left	Right	
Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow.				
Service	915mm(36 in)	915mm(36 in)	915mm(36 in)	915mm(36 in)	

Notes:

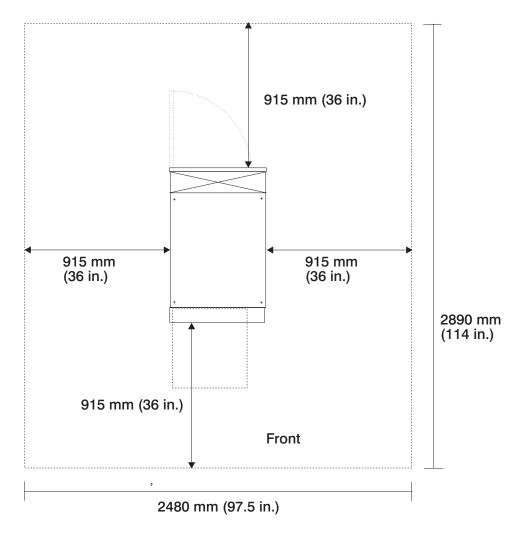
1. Configuation dependent, base rack weight plus the weight of the drawers mounted in the rack. The rack can support up to a maximum of 13.6 kg (30) lbs/EIA (Unit).

2. The total rack power should be derived from the sum of the power used by the drawers in the rack.

R00 Rack Service Clearances

The amount of space needed by the unit during normal operation is indicated by broken lines on the footprint.

For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack. For five to six racks placed side by side, the left and right clearances need to be increased to 1525 mm (60 in). Having more than six racks side by side is not recommended.



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The footprint shows the radius of the swinging door on the rear of the rack and a drawer in the extended position. The illustration shows the minimum space required.

7015 Models R10, R20, and R21 CPU Drawers

Dimensions Height Width Depth Weight Minimum (Configuration dependant) Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements (Noncondensing) Without tape drive Wet Bulb Requirements	Operatin 10 to 40' (50 to 104'	200 : 50 (850) 250 watts (280 watts : 0.85; 20 a 2135 m	10.5 in. 17.5 in. 24.0 in. 65 lbs. 9KVA to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.) Non-Ope 10 to 4	erating
Width Depth Weight Minimum (Configuration dependant) Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements (Noncondensing) Without tape drive Wet Bulb	10 to 40°	610.0 mm 30.3 kg 0.29 200 f 50 6 850 250 watts (280 watts (280 x 2135 m	17.5 in. 24.0 in. 65 lbs. 9KVA to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Weight Minimum (Configuration dependant) Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements (Noncondensing) Without tape drive Wet Bulb	10 to 40°	610.0 mm 30.3 kg 0.29 200 f 50 6 850 250 watts (280 watts (280 x 2135 m	24.0 in. 65 lbs. 9KVA to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Minimum (Configuration dependant) Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements (Noncondensing) Without tape drive Wet Bulb	10 to 40°	0.29 200 ± 50 ± 850 250 watts (280 watts ± 0.85 20 ± 2135 m	9KVA to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Minimum (Configuration dependant) Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements (Noncondensing) Without tape drive Wet Bulb	10 to 40°	0.29 200 ± 50 ± 850 250 watts (280 watts ± 0.85 20 ± 2135 m	9KVA to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
(Configuration dependant) Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	0.29 200 ± 50 ± 850 250 watts (280 watts ± 0.85 20 ± 2135 m	9KVA to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	200 : 50 (850) 250 watts (280 watts : 0.85; 20 a 2135 m	to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Electrical Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	200 : 50 (850) 250 watts (280 watts : 0.85; 20 a 2135 m	to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Power source loading (typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	200 : 50 (850) 250 watts (280 watts : 0.85; 20 a 2135 m	to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	rating
(typical in kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	200 : 50 (850) 250 watts (280 watts : 0.85; 20 a 2135 m	to 240 or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	erating
Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	250 watts (280 watts (280 watts (2135 m	or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	rating
Frequency (hertz) Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	250 watts (280 watts (280 watts (2135 m	or 60 Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	rating
Thermal output (typical) Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	250 watts (280 watts (280 watts (200 a 2135 m	Btu/hr (Model R10) (Model R20) 5 min amps (7000 ft.)	rating
(typical) Power requirements (typical) Power factor Inrush current³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive Wet Bulb	10 to 40°	250 watts (280 watts (0.85 20 a 2135 m	(Model R10) (Model R20) 5 min amps (7000 ft.)	rating
Power requirements (typical) Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	280 watts 0.85 20 a 2135 m	(Model R20) 5 min amps (7000 ft.)	rating
(typical) Power factor Inrush current³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	280 watts 0.85 20 a 2135 m	(Model R20) 5 min amps (7000 ft.)	rating
Power factor Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	0.88 20 a 2135 m ng °C	5 min amps (7000 ft.) Non-Ope	rating
Inrush current ³ Maximum altitude Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	20 a 2135 m ng °C	amps (7000 ft.) Non-Ope	rating
Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	2135 m ng °C	(7000 ft.) Non-Ope	rating
Temperature Requirements Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	ng °C	Non-Ope	rating
Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb	10 to 40°	°C		rating
Humidity (Noncondensing) Without tape drive With tape drive Wet Bulb			10 to 4	
(Noncondensing) Without tape drive With tape drive Wet Bulb	(E0 to 10)		10 10 4	·0°C
(Noncondensing) Without tape drive With tape drive Wet Bulb	(50 to 104	4°F)	(50 to 10	04°F)
Without tape drive With tape drive Wet Bulb	Operatir	ng	Non-Ope	rating
With tape drive Wet Bulb				
Wet Bulb	8 to 80°	%	8 to 80	0%
	20 to 80)%	20 to 8	30%
Poquiromonte				
nequilellellis				
Without tape drive	27°C (80°	^o F)	27°C (8	80°F)
With tape drive	23°C (73°		27°C (8	
Noise Emissions ^{1,2}	Operatir	ng	Idle	•
L _{WAd}	6.4 bels	•	6.2 be	els
L-pAm	N/A		N/A	\
<l<sub>pA>_m</l<sub>	49 dBA	A	47 dE	
Impulsive or	No.		No	
prominent discrete	110		110	
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow	Maintenance of a proper s	service clearance sh	ould allow proper air flow.	-
Service (See service clearances for	or the R00 System F	Rack)	

- See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
 Noise emissions data for Models R10 and R20 CPU Drawers are based on a processor drawer mounted in a R00 System Rack.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7015 Model R24

Dimensions						
Height		445.5 mm	17.5 in.			
Width		445.5 mm	17.5 in.			
Depth		710.0 mm	28.0 in.			
		7 10.0 11111	20.0 III.			
Weight						
Minimum		51.3 kg	112 lbs.			
(Configuration						
dependent)						
Electrical						
Power source loading		0.	685			
(typical in kVA)						
Voltage range (V ac)		200 to 240 or -48V dc				
Frequency (hertz)		50 or 60				
Thermal output		2100 Btu/hr				
(typical)						
Power requirements		615	watts			
(typical)						
Power factor		0.8 to 1.0				
Inrush current ³	68 amps					
Maximum altitude			(7000 ft.)			
Temperature	Operatir		Non-Op	erating		
Requirements	10 to 40°		10 to			
100	(50 to 104		(50 to 1			
Humidity	Operatir	าต	Non-Op	erating		
(Noncondensing)	•	•	- -	•		
Without tape drive	8 to 80°	%	8 to 8	30%		
With tape drive	20 to 80	%	20 to	80%		
Wet Bulb						
Requirements						
Without tape drive	27°C (80°	°F)	27°C (80°F)		
With tape drive	23°C (73°	•	27°C (
Noise Emissions ^{1,2}	Operatir		ldl	e		
L _{WAd}	6.4 bels		6.2 k			
	N/A	,	N/A			
L _{pAm} <l<sub>pA>_m</l<sub>	49 dBA	7	47 dBA			
Impulsive or	No No	•	47 G No			
prominent discrete	110			J		
tones						
Clearances	Front	Back	Left	Right		
Install/Air Flow	Maintenance of a proper s	ervice clearance sh	ould allow proper air flow.			
Service	(See service clearances for	or the R00 System F	 Rack)			
	(

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for the Model R24 CPU Media Enclosure are based on the following configuration: the enclosure is mounted in a R00 System Rack with three 2.0GB SCSI Disk drives are installed, two SCSI Disk Drawers with three 2.41GB disk drives installed, a power distribution unit is installed in the rack and the system is operating in a nominal environment of 25°C (78 °F)
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7015 Model R30, R40, and R50

Dimensions						
Height		267.0 mm	10.5 in.			
Width		445.5 mm	17.5 in.			
Depth		925.0 mm	36.4 in.			
Weight						
Minimum		59.7 kg	132 lbs.			
Configuration						
dependent)						
Electrical						
Power source loading		0.8	3			
(typical in kVA)						
Voltage range (V ac)		200 to 240 or -48V dc				
Frequency (hertz)		50 oi	60			
Thermal output		2457 E	Btu/hr			
(typical)						
Power requirements		720 v	vatts			
(typical)						
Power factor	0.8 to 1.0					
Inrush current ³	45 amps at 240 V ac					
		90 amps at 2				
	redundant power option					
Maximum altitude		2135 m (7000 ft.)			
Temperature	Opera			g (Power Off)		
Requirements	10 to			40°C		
	(50 to 104°F) (50 to 104°F)			·		
Humidity	Opera	iting	Non-Operatin	g (Power Off)		
(Noncondensing)	0 to 0	200/	0 to	000/		
Without tape drive	8 to 8			80%		
With tape drive	20 to	80%	8 10	80%		
Wet Bulb Requirements						
Without tape drive	27°C (00°E/	27°€	(80°F)		
With tape drive	27°C ((80°F)		
	,	,		. ,		
Noise Emissions ^{1,2,4}	Opera	•		le		
L _{WAd}	6.4 b			bels		
pAm	N/A			/A		
<l<sub>pA>_m</l<sub>	49 d			dBA		
Impulsive or	No)	N	lo		
prominent discrete						
tones						
	Event	Back	Left	Right		
Clearances	Front	- Duoix				
Clearances	Maintenance of a prope			-		

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for the Models R30, R40, and R50 CPU Media Enclosure are based on the following configuration: the enclosure is mounted in a R00 System Rack and a power distribution unit is installed in the rack and the system is operating in a nominal environment of 25°C (78 °F)
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

Enterprise Server Models S70, and S7A (7017, 7013, 7015)

System Rack

Dimensions						
Height		1577 mm		62.0 in.		
Width		567 mm		22.3 in.		
Depth	1041 mm			40.9 in.		
Weight						
Minimum		400 kg		880 lbs.		
(Configuration						
dependant)						
Electrical						
Power source loading			1.887KVA			
(maximum in kVA)						
Voltage range (V ac)			200 to 240			
Frequency (hertz)			50 - 60			
Thermal output		5796 Btu/hr				
(Maximum)			1000			
Power requirements (Maximum)			1698 watts			
Power factor			0.9			
Inrush current ³			0.9 102 amps			
Maximum altitude		2.	135 m (7000 ft)		
			100 111 (7000 11	<u>, </u>		
Temperature	Operating				Operating	
Requirements ^{4,5}	10 to 37.8°C				o 60°C	
	(50 to 100°F)			(34 (o 140°F)	
Humidity	Operating			Non-0	Operating	
Noncondensing	8 to 80%				to 80%	
Wet Bulb	23°C (73°F)			23°0	C (73°F)	
Requirements ⁶						
Noise Emissions ^{1,2}	Operating				ldle	
L_{WAd}	7.0 bels			7.	0 bels	
L_{pAm}	N/A				N/A	
<l<sub>pA>_m</l<sub>	N/A				N/A	
Impulsive or prominen	No				No	
discrete tones						
Clearances	Front	Back		Left		Right
Install/Air Flow	Maintenance of a proper servi	ice clearar	nce should allo	w proper air flo	ow.	
Service	See "Service Clearances for S	System in a	an S70, S7A, d	or S80 I/O Rac	ck" on page	e 52.
1 See "Noise Emissic	on Notes" on page 100 for defin	aitions of n	oico omissions	nocitions		

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for Models S70 and S7A are based on a system with the doors closed.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. The use of the PCI SSA Multi-Initiater/RAID EL in the Model S70 I/O Drawer limits the system usage to a 28°C (82°F) environment maximum.
- 5. The upper limit of the dry bulb temperature must be derated 1 degree C per 137M (450 ft.) above 1295M (4250
- 6. The upper limit of the wet bulb temperature must be derated 1 degree C per 274M (882 ft.) elevation above 1370M (4500 ft.)

Enterprise Server Model S80 (7017)

The S80 can be used with a T00 or T42 style I/O rack, see "Model T00 Rack" on page 29. The rack can be ordered by feature code with your system.

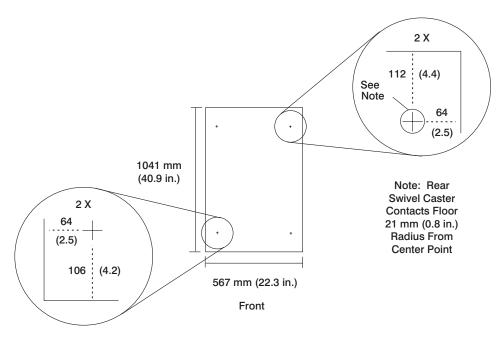
System Rack

		Service Clearances			
Install/Air Flow Service	<u>.</u>	oroper service cleara 	<u> </u>	<u> </u>	
Clearances	Front Maintananae of a r	Back	Left	Right	
Impulsive or prominent discrete tones		one		one	
$\langle L_{pA} \rangle_m$		dBA		dBA	
L _{pAm}	N	/A	N/A		
L _{WAd}	6.9	bels	6.8	bels	
Noise Emissions ^{1,2}	Oper	ating	lo	lle	
Wet Bulb Requirements ⁶	23°C	(73°F)	23°C (73°F)		
Noncondensing		80%	8 to 80%		
Humidity	Oper	ating	Non-Operating		
	(50 to	(50 to 100°F)		140°F)	
		37.8°C	1 1 to 60°C		
Temperature Requirements ^{4,5}	Oper	ating	Non-Operating		
Maximum altitude		2135 m (7000 ft.)		
Inrush current ³	43 amps				
Power factor		0.92 to	0.98		
Power requirements (Maximum)		2023	watts		
Thermal output (Maximum)		6904 Btu/hr			
Frequency (hertz)	50 - 60				
Voltage range (V ac)		200 to	240		
(maximum in kVA)		0			
Electrical Power source loading		2.129	KVΔ		
Minimum (Configuration dependant)		400 kg	880 lbs.		
Weight		400 1	000 11		
Depth	1041 mm		40.9 in.		
Width		567 mm	22.3 in.		
Height		1577 mm	62.0 in.		
Dimensions		4 = = =	00.0		

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for Model S80 are based on a system with the doors closed.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. The use of the PCI SSA Multi-Initiater/RAID EL in the Model S7A and S80 I/O Drawer 10 EIA limits the system usage to a 28°C (82°F) environment maximum.
- 5. The upper limit of the dry bulb temperature must be derated 1 degree C per 137M (450 ft.) above 1295M (4250
- 6. The upper limit of the wet bulb temperature must be derated 1 degree C per 274M (882 ft.) elevation above 1370M (4500 ft.)

S80 Rack Caster Location

The following figure shows the caster locations for the S80 rack. For complete specifications on S80 System rack, see "Enterprise Server Model S80 (7017)" on page 46.



Front Caster Location

7017 Model S85

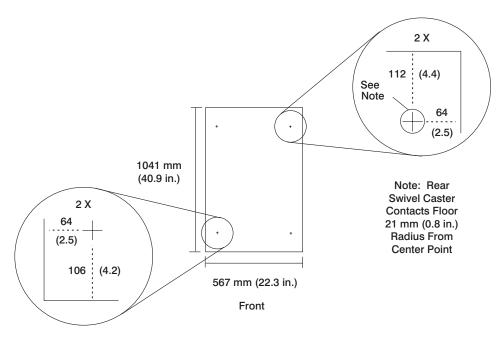
The S85 can be used with a T00 or T42 style I/O rack, see "Model T00 Rack" on page 29. The rack can be ordered by feature code with your system.

Dimensions					
Height		1577 mm	62.0 in.		
Width		565 mm	22.2 in.		
Depth		1200 mm	47.2 in.		
Weight					
Minimum (Configuration dependant)	400 kg		880 lbs.		
Electrical					
Power source loading		2.12	9KVA		
(maximum in kVA)					
Voltage range (V ac)	200 to 240				
Frequency (hertz)	50 - 60				
Thermal output (Maximum)	6904 Btu/hr				
Power requirements (Maximum)	2023 watts				
Power factor	0.92 to 0.98				
Inrush current ³	43 amps				
Maximum altitude		2135 m	(7000 ft.)		
Temperature Requirements ^{4,5}	Operating		Non-Operating		
	10 to 37.8°C			60°C	
	(50 to 100°F)		(34 to 140°F)		
Humidity	Operating			perating	
Noncondensing		80%	8 to 80%		
Wet Bulb Requirements ⁶	23°C	(73°F)	23°C (73°F)		
Noise Emissions ^{1,2}	Oper	ating	lo	lle	
L _{WAd}	6.9	bels	6.8	bels	
L _{pAm}	N	N/A		/A	
$\langle L_{pA} \rangle_{m}$		dBA		dBA	
Impulsive or prominent discrete tones	None		None		
Clearances	Front	Back	Left	Right	
Install/Air Flow	Maintenance of a	proper service clear	ance should allow p	proper air flow.	
Service	See "Service Clear on page 35.	rances for S80 or S	85 System With T00	Style I/O Rack"	
4 O "N: F: N: N: N	1006 15 11				

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for Model S85 are based on a system with the doors closed.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. The use of the PCI SSA Multi-Initiater/RAID EL in the Model S80 and S85 I/O Drawer 10 EIA limits the system usage to a 28°C (82°F) environment maximum.
- 5. The upper limit of the dry bulb temperature must be derated 1 degree C per 137M (450 ft.) above 1295M (4250
- 6. The upper limit of the wet bulb temperature must be derated 1 degree C per 274M (882 ft.) elevation above 1370M (4500 ft.)

S85 Rack Caster Location

The following figure shows the caster locations for the S85 rack. For complete specifications on S85 System rack, see "7017 Model S85" on page 48.



S70 SCSI I/O Drawer 7 EIA

Dimensions					
Height		306.2 mm 12.1	1 in.		
Width		442.4 mm 17.4	4 in.		
Depth		748.2 mm 29.5	5 in.		
Weight					
Minimum configuration		43 kg 95 lbs	3.		
Maximum configuration		61 kg 135 lb	S.		
Electrical	AC		DC		
Power source loading	0.4		0.4		
typical in kVA)					
Power source loading	1.0		1.0		
(maximum in kVA)					
Voltage range	200 to 240 V ac	;	40 to 60	VDC	
Frequency (hertz)	50 / 60		N.A		
Thermal output (typical)	1228 Btu/hr		1365 Bt	u/hr	
Thermal output (maximum)	3071 Btu/hr		3412 Bt	u/hr	
Power requirements (typical)	360 watts		400 wa	atts	
Power requirements (maximum)	900 watts		1000 watts		
Power factor	0.9		N/A		
Inrush current ³	120 amps		300 amps		
Maximum altitude	2135 m (7000 ft.)	2135 m (7000 ft.)		
Temperature Requirements⁴	Operating		Non-Oper		
	10 to 40°C⁴		10 to 5		
	(50 to 104°F)		(50 to 125.6°F)		
Humidity (Noncondensing)	Operating		Non-Operating		
Without tape drive	8 to 80%		8 to 80%		
With tape drive	20 to 80%		20 to 80%		
Wet Bulb Requirements					
Without tape drive	27°C (80°F)		27°C (80°F)		
With tape drive	23°C (73°F)		27°C (80°F)		
Noise Emissions ^{1,2}	Operating		Idle		
L _{WAd}	5.9 bels		5.8 bels		
L-pAm	N/A		N/A		
·L _{pA} > _m	39 dBA		38 dB	A	
Impulsive or prominent discrete tones	No		No		
Clearances	Front I	Back	Left	Right	
Install/Air Flow	Maintenance of a proper se	ervice clearance s	hould allow prope	er air flow.	
Service	(See "Service Clearances for System in an S70, S7A, or S80 I/O Rack" on page 52)				

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for the Model S70 SCSI I/O Drawer 7 EIA are based on the I/O drawer mounted in a rack. See "S70, S7A and S80 I/O Rack" on page 51.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. Use of the PCI SSA Multi-Initiator/RAID EL in this S70 I/O Drawer limits the system usage to a 28°C (82°F) environment maximum.

S70, S7A and S80 I/O Rack

Dimensions					
Height		1577 mm	62.0 in.		
Width		650 mm	25.5 in.		
Depth		1019 mm	40.1 in.		
Weight ¹ (Base Rack)		159 kg	349 lbs.		
Electrical		(see specifications for	drawers or enclosures)		
Temperature Requirements		(see specifications for	drawers or enclosures)		
Humidity Requirements	(see specifications for drawers or enclosures)				
Noise Emissions	(see specifications for drawers or enclosures)				
Clearances	Front	Back	Left	Right	
Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow.				
Service	See "Service Clearances for System in an S70, S7A, or S80 I/O Rack" on page 52.				
1. Configuration depe	endent, base weight plus	s weight of drawers.			

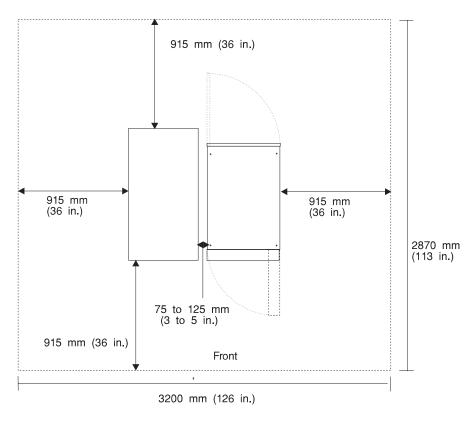
Service Clearances for System in an S70, S7A, or S80 I/O Rack

The amount of space needed by the units during service is indicated by large box of the footprint. See "S70, S7A and S80 I/O Rack" on page 51.

For multiple racks placed side by side, the left and right service clearances apply only to the leftmost and rightmost rack.

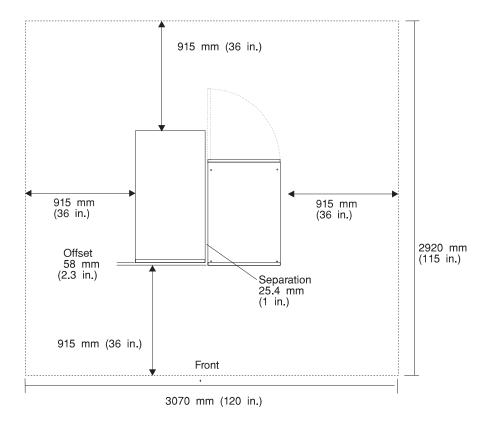
Note: If you are planning to install an S70, S7A or S80 in an SP System environment, see SP Planning Volume 1, Hardware and Physical Environment (GA22-7280) for system planning information.

Rack Configuration (AC Systems)



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The footprint shows the radius of the swinging doors on the I/O rack. The illustrations show the minimum space required.

Rack Configuration (-48v DC Systems)



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The footprint shows the radius of the swinging doors on the I/O rack. The illustrations show the minimum space required.

7020 Entry Workstation Model 40P

Dimensions	ns Desktop		Deskside			
Height	124 mm	4.9 in.	477 mm	18.8 in.		
Width ¹	454 mm	17.9 in.	215 mm	8.5 in.		
Depth	447 mm	17.6 in.	447 mm	17.6 in.		
Weight						
Minimum configuration		12 kg	26 lbs.			
Maximum configuration	14.5 kg 32 lbs.					
Electrical						
Power source loading		0.	52			
(typical in kVA)						
Voltage range (V ac)		100 to 127 or 200	to 240 (switchable)			
Frequency (hertz)		50 0	or 60			
Thermal output (typical)		290 I	Stu/hr			
Power requirements (typical)		185	watts			
Power factor		0.5 t	o 0.7			
Inrush current ⁶		23 amps at 120 V	ac and at 240 V ac			
Maximum altitude		2135 m	(7000 ft.)			
Temperature Requirements	Operating		Non-O _l	perating		
		32°C	10 to 43°C			
	(60 to	(60 to 90°F)		(50 to 110°F)		
Humidity Requirements	Ope	rating	Non-O _l	perating		
(Noncondensing)		80%	8 to 80%			
Wet Bulb	23°C	(73°F)	27°C (80°F)			
Noise Emissions ²	Оре	rating	ldle			
L_{WAd}	5.1	bels	4.8 bels			
L _{pAm}	43 dBA		43 dBA			
<l<sub>pA>_m</l<sub>	40 dBA		40 dBA			
Impulsive or prominent discrete tones	No		N	lo		
			1.0	D: 11		
Clearances ³	Front	Back	Left	Right		
Install/Air Flow ^{4,5}	35mm(1.5 in)	51mm(2 in)	25mm(1 in)	25mm(1 in)		
Service	466mm(18 in)	N/A	N/A	N/A		
Footprint ⁴	W	idth	Depth			
Desktop	505mm	(19.9 in)	550mm(21.6 in)			
Deskside	215mn	n(8.5 in)	550mm	(21.6 in)		

- 1. Deskside width measurement includes the optional vertical stand.
- 2. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 3. Left and right measurements apply only when the system is used in the desktop position.
- 4. The amount of space needed by the unit during normal operation is indicated by the footprint dimentions.
- 5. When placed in the vertical position, the system requires 25 mm (1 in) at the bottom and top for proper air flow. The necessary bottom clearance is provided by the optional vertical stand.
- 6. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7024 Entry Deskside PowerPC Server E Series

Footprint ³	Wic 365mm(pth (23.7 in)		
Service	466mm(18 in)	N/A	N/A	N/A		
Install/Air Flow ³	76mm(3 in)	76mm(3 in)	25mm(1 in)	25mm(1 in)		
Clearances	Front	Back	Left	Right		
prominent discrete tones	NO			-		
Impulsive or	N		No No			
L _{pA} <l<sub>pA>_m</l<sub>	36 d		34 dBA			
L _{pAm}	41 d		3.0 bels 38 dBA			
L _{WAd}	5.2 k	-	5.0 bels			
Noise Emissions ²	Opera	·	Idle			
Wet Bulb	23°C (27°C (80°F)			
(Noncondensing)	8 to 8	30%	8 to 80%			
Humidity Requirements	Opera	ating	Non-Operating			
•	(60 to	90°F)	(50 to 110°F)			
Requirements	16 to	_	10 to 43°C			
Temperature	Opera		Non-Operating			
Maximum altitude	2135 m (7000 ft.)					
Inrush current4	0.5 to 07 75 amps at 120 V ac, 150 amps at 240 V ac					
(typical) Power factor		0.5	to 07			
Power requirements		110	watts			
(typical)						
Thermal output		375 I	Btu/hr			
Frequency (hertz)		50 c	or 60			
Voltage range (V ac)		100 to 127 or 200	to 240 (switchable)			
(typical in kVA)		0.17				
Electrical Power source loading		0	17			
Maximum		25 kg	55 lbs.			
Weight						
Depth		450 mm	17.7 in.			
Width ¹		315 mm	mm 12.4 in.			
Height		648 mm	25.5 in.			

- 1. Width measurement includes the optional vertical stand.
- 2. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 3. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 4. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7025 Deskside 6F0 Series

Dimensions					
Height		610 mm	-		
Width		483 mm			
Depth		728 mm	28.7 in.		
Weight					
Minimum configuration		70 kg 1	55 lbs.		
Maximum configuration		95 kg 2	209 lbs.		
Electrical					
Power source loading typical in kVA		0.4	42		
Power source loading maximum in kVA		0.0	63		
Voltage range (V ac)		100 to 127 or 200 to	o 240 (autoranging))	
Frequency (hertz)		50 c	r 60		
Thermal output (typical)		1365	Btu/hr		
Thermal output (maximum)		2048	Btu/hr		
Power requirements (typical)		400 v	watts		
Power requirements (maximum)		600 \	watts		
Power factor		0.9	95		
Inrush current ³		90 a	mps		
Maximum altitude4		2135 m ((7000 ft.)		
Temperature Requirements	Oper	Operating ⁴		perating	
	10 to	38°C	10 to 43°C		
	(50 to	(50 to 100°F)		110°F)	
Humidity Requirements	Oper	ating ⁴	Non-Operating		
(Noncondensing)	8 to	80%	8 to 80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	Орег	rating	Idle		
L _{WAd}	6.1	bels	5.9 bels		
L_pAm	N	I/A	N/A		
<l<sub>pA>_m</l<sub>	43	dBA	40 dBA		
Impulsive or prominent discrete tones	1	10	N	lo	
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)	
Service	Install so that it can be moved to an area providing 457 mm (18 in.) on the front and 457 mm (18 in) on the left side.				
Footprint ²	Wi	dth	De	pth	
	585mr	n(23 in)		(37.7 in)	

- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. A)Dry bulb temperature derating at high altitude: Upper limit temperature must be derated 1.0 deg C per 137 m of elevation beyond 1295 m above sea level. (1 deg F per 250 ft above 4250 feet). B) Wet bulb temperature derating at high altitude: Upper limit temperature must be derated 1 deg C per 274 m of elevation beyond 1372m above sea level (1 deg F per 500 ft above 4500 feet).

7025 Deskside 6F1 Series

Footprint ²	==:	Width 585mm(23 in)		Depth 956mm(37.7 in)		
Service		in be moved to an a (18 in) on the left si		nm (18 in.) on the		
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)		
Clearances	Front	Back	Left	Right		
Impulsive or prominent discrete tones	s 1	No		No		
<l<sub>pA>_m</l<sub>	43	43 dBA		40 dBA		
L _{pAm}	N	N/A		N/A		
L _{WAd}	•	6.1 bels		5.9 bels		
Noise Emissions ¹	Ope	Operating		Idle		
Wet Bulb	23°C	23°C (73°F)		27°C (80°F)		
(Noncondensing)		8 to 80%		8 to 80%		
Humidity Requirements	Oper	Operating ⁴		Non-Operating		
	(50 to	(50 to 100°F)		(50 to 110°F)		
Temperature Requirements	10 to	Operating ⁴ 10 to 38°C		Non-Operating 10 to 43°C		
		2135 m (7000 ft.)				
Inrush current ³ Maximum altitude ⁴		70 amps				
Power factor		0.95				
Power requirements (maximum)		840 watts				
Power requirements (typical)		560 watts				
Thermal output (maximum)		2867 Btu/hr				
Thermal output (typical)		1920 Btu/hr				
Frequency (hertz)		50 c	or 60			
Voltage range (V ac)		100 to 127 or 200 t	o 240 (autoranging)			
Power source loading maximum in k'	VA	0.	86			
Electrical Power source loading typical in kVA		0.	59			
Maximum configuration		95 kg 2	155 lbs.			
Weight Minimum configuration		70 kg 1	EE Ibo			
<u>'</u>		/20 111111 20./ 111.				
Depth		483 mm 19.0 in. 728 mm 28.7 in.				
Width			-			
Height		610 mm	24.0 in.			

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. A)Dry bulb temperature derating at high altitude: Upper limit temperature must be derated 1.0 deg C per 137 m of elevation beyond 1295 m above sea level. (1 deg F per 250 ft above 4250 feet). B) Wet bulb temperature derating at high altitude: Upper limit temperature must be derated 1 deg C per 274 m of elevation beyond 1372m above sea level (1 deg F per 500 ft above 4500 feet).

7025 Deskside F30 Series

Dimensions						
Height		620 mm	24.3 in.			
Width		245 mm	n 9.6 in.			
Width with Pedestal	350 mm 13.7 in.					
Depth		695 mm 27.3 in.				
Depth with Pedestal		745 mm	29.3 in.			
Weight						
Minimum		30 kg	65 lbs.			
configuration						
Maximum		50 kg 1	110 lbs.			
configuration						
Electrical						
Power source loading		0.9	56			
(maximum in kVA)						
Voltage range (V ac)			o 240 (autoranging)			
Frequency (hertz)			or 60			
Thermal output		1535	Btu/hr			
(maximum)		450	watta			
Power requirements (maximum)	450 watts					
Power factor		0	Q			
Inrush current ³	0.8 30 amps at 120 V ac, 60 amps at 240 V ac					
Maximum altitude	2135 m (7000 ft.)					
			· ,			
Temperature		Operating 16 to 32°C		Non-Operating 10 to 43°C		
Requirements		90°F)		110°F)		
	`	,	•	•		
Humidity Requirements	Oper	rating	Non-O	perating		
(Noncondensing)	8 to	80%	8 to	80%		
Wet Bulb	8 to 80% 23°C (73°F)		8 to 80% 27°C (80°F)			
Noise Emissions ¹	Operating 5.8 bels		Idle 5.5 bels			
L _{WAd}	N/A		N/A			
L _{pAm}	41 dBA		38 dBA			
<l<sub>pA>_m Impulsive or</l<sub>	No		No No			
prominent discrete	1'	NO .	'	NO		
tones						
Clearances	Front	Back	Left	Right		
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)		
Service	(18 in) on the left side.	moved to an area provi	aing 457mm (18 in.) on	the front and 457 mm		
Footprint ²	Wi	dth	De	Depth		
•	350mm(13.7 in)			(38.4 in)		

- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7025 Deskside F40 Series

Dimensions					
Height	620 mm 24.3 in.				
Width	245 mm 9.6 in.				
Width with Pedestal	350 mm 13.7 in.				
Depth	695 mm 27.3 in.				
Depth with Pedestal	745 mm 29.3 in.				
Weight					
Minimum configuration		30 kg	65 lbs.		
Maximum configuration		50 kg 1	I10 lbs.		
Electrical					
Power source loading typical in kVA		0.4	41		
Power source loading maximum in kVA		0.	56		
Voltage range (V ac)		100 to 127 or 200 t	o 240 (autoranging))	
Frequency (hertz)		50 or 60			
Thermal output (typical)		1125	Btu/hr		
Thermal output (maximum)		1535 Btu/hr			
Power requirements (typical)		330 watts			
Power requirements (maximum)	450 watts				
Power factor	0.8 - 0.96				
Inrush current ³	30 amps at 120 V ac, 60 amps at 240 V ac				
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements	Operating		Non-Operating		
	16 to 32°C (60 to 90°F)		10 to 43°C (50 to 110°F)		
	,				
Humidity Requirements	Operating		Non-Operating		
(Noncondensing)	8 to 80%		8 to 80%		
Wet Bulb	23°C (73°F)		27°C (80°F)		
Noise Emissions ¹	Operating		Idle		
L _{WAd}	5.8 bels		5.5 bels		
L _{pAm}	N/A		N/A		
<l<sub>pA>_m</l<sub>	41 dBA		38 dBA		
Impulsive or prominent discrete tones	No		No		
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)	
Service	Install so that it can be moved to an area providing 457 mm (18 in.) on front and 457 mm (18 in) on the left side.				
Footprint ²	Width 350mm(13.7 in)		Depth 975mm(38.4 in)		
 See "Noise Emission Notes" on pag The amount of space needed by the Inrush currents occur only at initial a 	e unit during normal	operation is indicate	ed by the footprint d		

7025 Deskside F50 Series

Dimensions					
Height	620 mm 24.3 in.				
Width		245 mm	9.6 in.		
Width with Pedestal		350 mm	13.7 in.		
Depth	695 mm 27.3 in.				
Depth with Pedestal		745 mm	29.3 in.		
Weight					
Minimum configuration		30 kg (65 lbs.		
Maximum configuration		55 kg 1	20 lbs.		
Electrical					
Power source loading typical in kVA		0.8	52		
Power source loading maximum in kVA		0.8			
Voltage range (V ac)		100 to 127 or 200 to	o 240 (autoranging)		
Frequency (hertz)		50 o	r 60		
Thermal output (typical)		975 Btu/hr			
Thermal output (maximum)		2050 Btu/hr			
Power requirements (typical)	285 watts				
Power requirements (maximum)	600 watts				
Power factor	0.8 - 0.96				
Inrush current ³	50 amps				
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements	Operating		-	Non-Operating 10 to 43°C	
		16 to 32°C			
	(60 to	90°F)	(50 to	110°F)	
Humidity Requirements	Operating		Non-Operating		
(Noncondensing)	8 to 80%		8 to 80%		
Wet Bulb	23°C (73°F)		27°C (80°F)		
Noise Emissions ¹	Operating		Idle		
L _{WAd}	5.8 bels		5.5 bels		
L _{pAm}	N/A		N/A		
<l<sub>pA>_m</l<sub>	41 dBA		38 dBA		
Impulsive or prominent discrete tones	No		No		
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)	
Service	Install so that it can be moved to an area providing 457 mm (18 in.) on t front and 457 mm (18 in) on the left side.				
Factoriot?	Width		Depth		
Footprint ²	350mm(13.7 in)		975mm(38.4 in)		

3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7025 Deskside F80 Series

Footprint ²	Width 585mm(23 in)			pth (37.7 in)
Service		n be moved to an a (18 in) on the left si		nm (18 in.) on the
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)
Clearances	Front	Back	Left	Right
Impulsive or prominent discrete tones	43 dBA No		_	lo
L _{pAm} <l<sub>pA>_m</l<sub>		N/A		/A dBA
L _{WAd}			5.9 bels N/A	
Noise Emissions ¹	-	r ating bels	Idle	
		. ,	, ,	
Wet Bulb		(73°F)	27°C (80°F)	
Humidity Requirements (Noncondensing)	-	ating⁴ 80%	Non-Operating 8 to 80%	
Uidika Banainan anta		·	•	
		100°F)		110°F)
Temperature Requirements	. •		•	perating 43°C
Maximum altitude ⁴		2135 m	(7000 ft.)	
Inrush current ³		70 amps		
Power factor		0.95		
Power requirements (maximum)		840	watts	
Power requirements (typical)		560	watts	
Thermal output (maximum)		2867		
Thermal output (typical)			Btu/hr	
Frequency (hertz)		50 0	, ,	•
Voltage range (V ac)	1	100 to 127 or 200 t		1
Power source loading typical in kVA Power source loading maximum in kVA		0.s 0.s		
Electrical		_		
Maximum configuration		95 kg 2	209 IDS.	
Minimum configuration		70 kg 1		
Weight				
Depth		728 mm 28.7 in.		
Width	483 mm 19.0 in.			
Height	610 mm 24.0 in.			

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. A)Dry bulb temperature derating at high altitude: Upper limit temperature must be derated 1.0 deg C per 137 m of elevation beyond 1295 m above sea level. (1 deg F per 250 ft above 4250 feet). B) Wet bulb temperature derating at high altitude: Upper limit temperature must be derated 1 deg C per 274 m of elevation beyond 1372m above sea level (1 deg F per 500 ft above 4500 feet).

7026 Model 6H0 CEC Drawer

The Model 6H0 includes two drawers. They are the Central Electronics Complex (CEC) Drawer with an I/O Drawer. For technical information on the I/O Drawer see "I/O Drawer 5 EIA" on page 72.

Dimensions			
Height	218 mm 8.58 in. 5 (EIA Units)		
Width	445 mm 17.5 in.		
Depth	820 mm 32.3 in.		
Weight			
Minimum configuration	41 kg 9	90 lbs.	
Maximum configuration	52 kg 1	15 lbs.	
Electrical			
Power source loading typical in kVA	0.2	24	
Power source loading maximum in kVA	0.3	37	
Voltage range (V ac)	200 to	240	
Frequency (hertz)	50 o	r 60	
Thermal output (typical)	768 E	Btu/hr	
Thermal output (maximum)	1195 E	Btu/hr	
Power requirements (typical)	225 v		
Power requirements (maximum)	350 v		
Power factor	0.9		
nrush current ¹	40 a		
Maximum altitude ²	2135 m ((7000 ft.)	
Temperature Requirements ²	Operating	Non-Operating	
	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 125.6°F)	
Humidity Noncondensing	Operating	Non-Operating	
Without tape drive	8 to 80%	8 to 80%	
With tape drive	20 to 80%	8 to 80%	
Wet Bulb Requirements			
Without tape drive	27°C (80.6°F)	27°C (80.6°F)	
With tape drive	23°C (73°F)	27°C (80.6°F)	
Noise Emissions ³	Operating	ldle	
With H80 CEC Drawer only			
-WAd	5.8 bels	5.8 bels	
-pAm	N/A	N/A	
<l<sub>pA>_m</l<sub>	45 dBA	45 dBA	
mpulsive or prominent discrete tones	No	No	
Noise Emissions ³	Operating	Idle	
With H80 and Primary I/O Drawer			
-WAd	6.2 bels	6.2 bels	
-pAm	N/A	N/A	
<l<sub>pA>_m</l<sub>	48 dBA	48 dBA	
mpulsive or prominent discrete tones	No	No	
Install/Air Flow Clearance	Maintenance of proper service clearances should allow proper air flow.		
instan/An i now clearance			

- 1. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 2. For altitudes above 915 meters, the maximum temperature limit is derated by 1 degree C for every 137 meters of elevation above 915 meters.
- 3. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

7026 Model 6H1 CEC Drawer

The Model 6H1 includes two drawers. They are the Central Electronics Complex (CEC) Drawer with an I/O Drawer. For technical information on the I/O Drawer see "I/O Drawer 5 EIA" on page 72.

Dimensions			
Height	218 mm 8.58 in. 5 (EIA Units)		
Width	445 mm 17.5 in.		
Depth	820 mm		
	0_0		
Weight	44 len (20.16-	
Minimum configuration	41 kg 9		
Maximum configuration	52 kg 1	15 IDS.	
Electrical			
Power source loading typical in kVA	0.3		
Power source loading maximum in kVA	0.4	48	
Voltage range (V ac)	200 to	240	
Frequency (hertz)	50 o	r 60	
Thermal output (typical)	1025	Btu/hr	
Thermal output (maximum)	1536 I	Btu/hr	
Power requirements (typical)	300 v	watts	
Power requirements (maximum)	450 v	watts	
Power factor	0.9	95	
Inrush current ¹	40 a	mps	
Maximum altitude ²	2135 m ((7000 ft.)	
Temperature Requirements ²	Operating	Non-Operating	
•	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 125.6°F)	
Humidity Noncondensing	Operating	Non-Operating	
Without tape drive	8 to 80%	8 to 80%	
With tape drive	20 to 80%	8 to 80%	
Wet Bulb Requirements			
Without tape drive	27°C (80.6°F)	27°C (80.6°F)	
With tape drive	23°C (73°F)	27°C (80.6°F)	
Noise Emissions ³	Operating	ldle	
With H80 CEC Drawer only			
L _{WAd}	5.8 bels	5.8 bels	
L _{pAm}	N/A	N/A	
$\langle L_{pA} \rangle_m$	45 dBA	45 dBA	
Impulsive or prominent discrete tones	No	No	
Noise Emissions ³	Operating	Idle	
With H80 and Primary I/O Drawer			
L _{WAd}	6.2 bels	6.2 bels	
L_pAm	N/A	N/A	
$\langle L_{pA}\rangle_{m}$	48 dBA	48 dBA	
Impulsive or prominent discrete tones	No	No	
Install/Air Flow Clearance	Maintenance of proper service clearances should allow proper air flow.		
Service Clearance	(See service clearances for the 7014 T00 Rack)		

- 1. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 2. For altitudes above 915 meters, the maximum temperature limit is derated by 1 degree C for every 137 meters of elevation above 915 meters.
- 3. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

7026 Model 6M1 CEC Drawer

The RS/6000 Enterprise Server Model M80 and @server pSeries 660 Model 6M1systems are multiprocessor, multibus systems packaged in two to five drawers. The processors and memory are packaged in an 8 EIA-unit central electronics complex (CEC) drawer, and the optional DASD and I/O devices are in 5 EIA-unit I/O drawers. The basic system consists of one CEC drawer and one I/O drawer in the same rack. The system is expanded by adding up to three additional I/O drawers in a minimum of two racks. For technical information on the I/O Drawer see "I/O Drawer 5 EIA" on page 72.

Dimensions			
Height	355.6 mm	14.0 in.	
Width	445.5 mm	17.5 in.	
Depth	825.5 mm	32.5 in.	
Weight			
Minimum	69.7 kg	158 lbs.	
Maximum	74.6 kg	169 lbs.	

Electrical	
Power source loading typical in kVA	0.45
Power source loading maximum in kVA	0.69
Voltage range (V ac)	200 to 240
Frequency (hertz)	50 or 60
Thermal output (typical)	M80: 1265 Btu/hr
	6M1: 1450 Btu/hr
Thermal output (maximum)	M80: 1877 Btu/hr
	6M1: 2218 Btu/hr
Power requirements (typical)	M80: 370 watts
	6M1: 425 watts
Power requirements (maximum)	M80: 550 watts
	6M1: 650 watts
Power factor	0.95
Inrush current	34 amps
Maximum altitude	2135 m (7000 ft.)

Temperature Requirements	Operating	Non-Operating (Power Off)
	10 to 40°C	10 to 52°C
	(50 to 104°F)	(50 to 125°F)
Humidity (Noncondensing)	Operating	Non-Operating (Power Off)
Without tape drive	8 to 80%	8 to 80%
With tape drive	20 to 80%	8 to 80%
Wet Bulb Requirements		
Without tape drive	27°C (80°F)	27°C (80°F)
With tape drive	27°C (80°F)	27°C (80°F)
Noise Emissions ^{1,2}	Operating	Idle
With M80 CEC drawer only	-	
L _{WAd}	6.4 bels	6.4 bels
L_pAm	N/A	N/A
<l<sub>pA>_m</l<sub>	48 dBA	48 dBA
Impulsive or prominent	No	No
discrete tones		
Noise Emissions ^{1,2}	Operating	Idle
With M80 and Primary I/O Drawer		
L_{WAd}	6.5 bels	6.5 bels
L _{pAm}	N/A	N/A
<l<sub>pA>_m</l<sub>	49 dBA	49 dBA
Impulsive or prominent	No	No
discrete tones		

Clearances	Front	Back	Left	Right	
------------	-------	------	------	-------	--

Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow.
Service	(See service clearances for the 7014 Series Model T00 Rack)

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data are based on the following configuration: the drawer is mounted in a 7014 Series Model T00 Rack, a power distribution unit is installed in the rack, and the system is operating in a normal environment of 25 °C (78 °F).
- 3. Inrush currents occur only at initial application of power; no inrush occurs during normal power off-on cycle.

7026 Model B80

Dimensions			
Height	217 mm 8.6 in.		
	5 EI	A Units	
Width	482.0	mm 19 in.	
Depth	617 m	m 24.3 in.	
Weight			
Minimum configuration	36.5 kg	g 80.3 lbs.	
Maximum configuration	45.0 kg	g 99.3 lbs.	
Electrical			
Power source loading (maximum in	(0.46	
kVA)			
Power source loading (typical in kVA)		0.29	
Voltage range (V ac)	100 to 127 or 200	to 240 (autoranging)	
Frequency (hertz)		0 / 60	
Voltage range (V dc)		–48	
Thermal output (maximum)	1536 Btu/hr		
Thermal output (typical)		4 Btu/hr	
Power requirements (maximum)	450 watts		
Power requirements (typical)	300 watts		
Power factor - US, World Trade, Japan	0.98		
Inrush current ²	30 amps		
Maximum altitude ³ , ⁴	2135 m	n (7000 ft.)	
Temperature Requirements ³	Operating	Non-Operating	
	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 126°F)	
Humidity Requirements ⁴	Operating	Non-Operating	
(Noncondensing)	8 to 80%	8 to 80%	
Wet Bulb	27°C (80°F)	27°C (80°F)	
Noise Emissions ^{1,5}	Operating Idle		
L _{WAd}	6.1 bels	5.9 bels	
L _{pAm}	N/A N/A		
<l<sub>pA>_m</l<sub>	46 dBA 44 dBA		
Clearances	Front Back	Left Right	
Install/Air Flow	Maintance of proper service clear	arance should allow proper air flow.	
Service S	See service clearances for the 7014 T00 Rack		
	00.6 1.6	s positions. See noise emissions note	

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions. See noise emissions note
- 2. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 3. The upper limit of the dry bulb temperature must be derated 1 degree C per 137m (450 ft.) above 915m (3000
- 4. The upper limit of the wet bulb temperature must be derated 1 degree C per 274m (900 ft.) above 305m (1000
- 5. Levels are for a single system installed in a T00 32 EIA rack with the center of the unit approximately 1500 mm (59 in.) off the floor.

7026 Model H10 Drawer

Service	(See service clearances	for the "7015	System Rack R00" o	on page 40)
Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow.			
Clearances	Front	Back	Left	Right
mpulsive or prominent discrete tones	No No			
L _{pAm} <l<sub>pA>_m</l<sub>	39 dBA		38 d	
L _{WAd}	5.9 beis N/A		5.6 L N/	
	Operating 5.9 bels		5.8 b	-
Noise Emissions ^{1,2}	,		ldl	•
With tape drive	23°C (73°F)		27°C (
Without tape drive	27°C (80°F)		27°C (80°F)
Wet Bulb Requirements	20 10 00 /0		20 10	00 /0
With tape drive	20 to 80%		20 to	
Humidity (Noncondensing) Without tape drive	Operating 8 to 80%		Non-Ope 8 to 8	-
Humidity (Noncondensing)	`	,		
	(50 to 104°F)	(50 to 12	
Temperature Requirements	Operating 10 to 40°C		Non-Ope 10 to 9	
Maximum altitude	2135 m (7000 ft.)			
Inrush current ³	0.8 - 0.96 60 amps at 240 V ac			
Power factor				
Power requirements (typical) Power requirements (maximum)			watts	
Power requirements (typical)			Btu/hr watts	
Thermal output (typical) Thermal output (maximum)				
Frequency (hertz)			or 60 Btu/hr	
Voltage range (V ac)			to 240	
(maximum in kVA)		000	t- 040	
Power source loading		0	.56	
(typical in kVA)				
Power source loading		0	.41	
Electrical				
Maximum configuration		57 kg	126 lbs.	
Minimum configuration		_	92 lbs.	
Weight				
Depth		748.2 m	m 29.5 in.	
Width	442.4 mm 17.4 in.			
Height	306.2 mm 12.1 in.			

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data for the Model H10 CPU Drawer is based on the processor drawer mounted in a "7015" System Rack R00" on page 40.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7026 Model H50 (Enterprise Server)

0.50		
350 mm 13.8 in.		
443 mr	m 17.5 in.	
844 mr	m 33.2 in.	
71 kg	157 lbs.	
89 kg	195 lbs.	
	0.4	
C	0.63	
200 to 240	(autoranging)	
50	or 60	
1296	6 Btu/hr	
2460) Btu/hr	
380) watts	
600) watts	
0.8 - 0.96		
50 amps		
915 m (3000 ft.)		
Operating	Non-Operating	
	10 to 43°C	
(50 to 104°F)	(50 to 110°F)	
Operating	Non-Operating	
- 15 - 5 - 7 - 7	8 to 80%	
23°C (73°F)	27°C (80°F)	
Operating	Idle	
6.2 bels	5.9 bels	
N/A N/A		
43 dBA 40 dBA		
No No		
Front Back	Left Right	
Maintence of proper service clearances should allow proper air flow.		
(See service clearances for the "7015 System Rack R00" on page 40)		
	71 kg 89 kg 200 to 240 200 to 240 50 1296 2460 380 600 0.8 50 915 m Operating 10 to 40°C (50 to 104°F) Operating 8 to 80% 23°C (73°F) Operating 6.2 bels N/A 43 dBA No Front Back Maintence of proper service clearance	

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 3. For altitudes above 915 meters, the maximum temperature limit is derated by 1 degree C for every 137 meters of elevation above 915 meters.

7026 Model H70 (Enterprise Server)

Dimensions			
Height	350 m	m 13.8 in.	
-	8 (El	IA Units)	
Width	443 m	m 17.4 in.	
Depth	875 m	m 34.2 in.	
Weight			
Minimum configuration	71 kg	157 lbs.	
Maximum configuration	89 kg	195 lbs.	
Electrical			
Power source loading typical ¹ in kVA	(0.46	
Power source loading maximum ¹ in kVA	0	0.691	
Voltage range (V ac)	200	to 240	
Frequency (hertz)	50	or 60	
Thermal output (typical)	148	5 Btu/hr	
Thermal output (maximum)	2818	8 Btu/hr	
Power requirements (typical)	434 watts		
Power requirements (maximum)	650 watts		
Power factor	0.9 - 0.98		
Inrush current ²	50 amps		
Maximum altitude ³	915 m (3000 ft.)		
Temperature Requirements ³	Operating	Non-Operating	
	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 125.6°F)	
Humidity Requirements	Operating	Non-Operating	
(Noncondensing)	8 to 80%	8 to 80%	
Wet Bulb	27°C (80.6°F)	27°C (80.6°F)	
Noise Emissions ⁴	Operating	ldle	
L _{WAd}	6.2 bels	5.9 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	43 dBA	40 dBA	
Impulsive or prominent discrete tones	No No		
Clearances	Front Back	Left Right	
Install/Air Flow	Maintence of proper service clearances should allow proper air flow.		
Service	(See service clearances for the "7015 System Rack R00" on page 40)		

- 1. The power source loading is calculated using the power factor = 0.94.
- 2. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 3. For altitudes above 915 meters, the maximum temperature limit is derated by 1 degree C for every 137 meters of elevation above 915 meters.
- 4. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

7026 Model H80 CEC Drawer

The Model H80 includes two drawers. They are the Central Electronics Complex (CEC) Drawer with an I/O Drawer. For technical information on the I/O Drawer see "I/O Drawer 5 EIA" on page 72.

Dimensions					
Height	218 mm 8.58 in. 5 (EIA Units)				
Width	445 mm 17.5 in.				
Depth	820 mm	32.3 in.			
Weight					
Minimum configuration	41 kg	90 lbs.			
Maximum configuration	52 kg 1	15 lbs.			
Electrical					
Power source loading typical in kVA	0.5	32			
Power source loading maximum in kVA	0.4	48			
Voltage range (V ac)	200 to	o 240			
Frequency (hertz)	50 o	r 60			
Thermal output (typical)	1025	Btu/hr			
Thermal output (maximum)	1536	Btu/hr			
Power requirements (typical)	300 v	watts			
Power requirements (maximum)	450 v	watts			
Power factor	2.0	95			
Inrush current ¹	40 a	mps			
Maximum altitude ²	2135 m ((7000 ft.)			
Temperature Requirements ²	Operating	Non-Operating			
	10 to 40°C	10 to 52°C			
	(50 to 104°F)	(50 to 125.6°F)			
Humidity Noncondensing	Operating	Non-Operating			
Without tape drive	8 to 80%	8 to 80%			
With tape drive	20 to 80%	8 to 80%			
Wet Bulb Requirements					
Without tape drive	27°C (80.6°F)	27°C (80.6°F)			
With tape drive	23°C (73°F)	27°C (80.6°F)			
Noise Emissions ³	Operating	ldle			
With H80 CEC Drawer only					
L _{WAd}	5.8 bels	5.8 bels			
L_pAm	N/A	N/A			
$\langle L_{pA} \rangle_m$	45 dBA	45 dBA			
Impulsive or prominent discrete tones	No	No			
Noise Emissions ³	Operating	Idle			
With H80 and Primary I/O Drawer					
L _{WAd}	6.2 bels	6.2 bels			
L_pAm	N/A	N/A			
$\langle L_{pA}\rangle_{m}$	48 dBA	48 dBA			
Impulsive or prominent discrete tones	No	No			
Install/Air Flow Clearance	Maintenance of proper service clearar	nces should allow proper air flow.			
Service Clearance	(See service clearances for the 7014	T00 Rack)			

- 1. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 2. For altitudes above 915 meters, the maximum temperature limit is derated by 1 degree C for every 137 meters of elevation above 915 meters.
- 3. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

7026 Model M80 CEC Drawer

The Model M80 includes two drawers. They are the Central Electronics Complex (CEC) Drawer with an I/O Drawer. For technical information on the I/O Drawer see "I/O Drawer 5 EIA" on page 72.

Service Clearance	(See service clearances for the 7014	T00 Rack)
Install/Air Flow Clearance	Maintenance of a proper service clea	rance should allow proper air flow.
Impulsive or prominent discrete tones	No	No
<l<sub>pA>_m</l<sub>	49 dBA	49 dBA
-pAm	N/A	N/A
-WAd	6.5 bels	6.5 bels
With M80 and Primary I/O Drawer		
Noise Emissions ^{1,2}	Operating	Idle
mpulsive or prominent discrete tones	No	No
-pAm <l<sub>pA>_m</l<sub>	48 dBA	48 dBA
−WAd −pAm	N/A	N/A
Nith M80 CEC Drawer only -wad	6.4 bels	6.4 bels
Noise Emissions ^{1,2}	Operating	ldle
With tape drive	27°C (80°F)	27°C (80°F)
Without tape drive	27°C (80°F)	27°C (80°F)
Wet Bulb Requirements		
With tape drive	20 to 80%	8 to 80%
Without tape drive	8 to 80%	8 to 80%
Humidity (Noncondensing)	Operating	Non-Operating (Power Off)
	(50 to 104°F)	(50 to 125°F)
Temperature Requirements	Operating 10 to 40°C	Non-Operating (Power Off) 10 to 52°C
nrush current³ Maximum altitude		amps (7000 ft.)
		.95
Power requirements (maximum) Power factor		watts
Power requirements (typical)		watts
Thermal output (maximum)		Btu/hr
Thermal output (typical)		Btu/hr
Frequency (hertz)		or 60
Voltage range (V ac)		to 240
Power source loading maximum in kVA		0.6
Power source loading typical in kVA		.39
Electrical		
Maximum	74.6 kg	169 lbs.
Minimum	69.7 kg	158 lbs.
Weight		
Depth	825.5 mm	32.5 in.
Width	445.5 mm	17.5 in.
Height	355.6 mm	14.0 in.

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Noise emissions data are based on the following configuration: a drawer is in a T00 Rack and a power distribution unit is installed in the rack and the system is operating in a normal environment of 25 °C (78 °F)
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

I/O Drawer 5 EIA

This I/O Drawer is used with several of the System CEC Drawers. It is used as primary and secondary I/O Drawer for those systems.

Dimensions					
Height	218.0 mm 8.6 in.				
Width		nm 17.5 in.			
Depth		nm 32.3 in.			
·	020.0 11				
Weight					
Minimum configuration		g 90 lbs.			
Maximum configuration	52 kg	g 115 lbs.			
Electrical					
Power source loading (typical in kVA)	(0.23			
Power source loading (maximum in	(0.54			
kVA)					
Voltage range	200 to	240 V ac			
Frequency (hertz)	50	0 / 60			
Thermal output (typical)	750) Btu/hr			
Thermal output (maximum)	175	0 Btu/hr			
Power requirements (typical)	220	0 watts			
Power requirements (maximum)	518	5 watts			
Power factor		0.95			
Inrush current ³	41	amps			
Maximum altitude	2135 n	n (7000 ft.)			
Temperature Requirements	Operating	Non-Operating			
	10 to 40°C	10 to 52°C			
	(50 to 104°F)	(50 to 125.6°F)			
Humidity (Noncondensing)	Operating	Non-Operating			
Without tape drive	8 to 80%	8 to 80%			
With tape drive	20 to 80%	20 to 80%			
Wet Bulb Requirements					
Without tape drive	27°C (80°F)	27°C (80°F)			
With tape drive	23°C (73°F)	27°C (80°F)			
Noise Emissions ^{1,2}	Operating	Idle			
L _{WAd}	5.8 bels	5.8 bels			
L _{pAm}	N/A	N/A			
<l<sub>pA>_m</l<sub>	45 dBA	45 dBA			
Impulsive or prominent discrete tones	No	No			
Clearances	Front Back	Left Right			
Install/Air Flow	Maintenance of a proper service clea	arance should allow proper air flow.			
Service	(See "Service Clearances for System in an S70, S7A, or S80 I/O Rack" on page 52)				
	ge 199 for definitions of noise emission the following configuration: the drawer application of power, no inrush occurs	r is mounted in a T00 Rack and a			

7027 Model HSC

Dimensions					
Height	307 mm	12.1 in.			
		7 (EIA units)			
Width	445 mm	17.5 in.			
Depth	748 mm	29.5 in.			
Weight					
Empty	35 kg	75 lbs.			
Maximum	80 kg	175 lbs.			
Configuration	_				
Electrical					
Power source loading	0.18 plus 0.027 for ea	ach additional disk drive			
(kVA)					
Voltage range (V ac)	100 to 127	or 200 to 240			
Frequency (hertz)	50	or 60			
Thermal output	580 plus 89 for eacl	h additional disk drive			
(Btus/hr)	·				
Power requirements	170 plus 27 for each additional disk drive				
(watts)					
Power factor	0.95				
Maximum altitude	2135m	(7000 ft.)			
Temperature	Operating	Non-Operating			
Requirements	10 to 40°C	1 to 52°C			
	(50 to 110°F)	(34 to 125°F)			
Humidity	Operating	Non-Operating			
Requirements					
(Noncondensing)	8% to 80%	8% to 80%			
Wet Bulb	23°C (73°F)	27°C (80°F)			
Noise Emissions*	Operating	Idle			
L _{WAd}	5.8 bels	5.5 bels			
L _{pAm}	N/A	N/A			
<l<sub>pA>_m</l<sub>	48 dBA	47.5 dBA			
Impulsive or	No	No			
prominent					
discrete tones					
* See "Noise Emission Notes"	on page 199 for definitions of emissions	s positions.			

7028 Models 6C1 and 6E1

The Model 6C1 is a rack-mounted server system and the Model 6E1 is a deskside tower system. The units are either a 1-way or 2-way system. The system can accommodate two processor cards, one memory card with 16 DIMMs, and 5 PCI adapters. It supports six hot-swap DASD bays and one floppy drive.

Dimensions	Rack (Model 6C1) Tower (Model 6E1				
Height	215 mm 8.5 in.	426 mm (16.8 in.)			
	5 EIA Units				
Width	426 mm 16.8 in.	215 mm (8.5 in.)			
Depth	617 mm 24 in.	617 mm (24 in.)			
Weight					
Minimum configuration	35.5 kg	g 78 lbs.			
Maximum configuration	43.1 kg	94.8 lbs.			
Electrical					
Power source loading (maximum in kVA)	0.	.46			
Power source loading (typical in kVA)	0.	.31			
Voltage range (V ac)	100 to 127 or 200	to 240 (autoranging)			
Frequency (hertz)	50	/ 60			
Voltage range (V dc)	Not su	ipported			
Thermal output (maximum)	1536	Btu/hr			
Thermal output (typical)	1024	Btu/hr			
Power requirements (maximum)	450 watts				
Power requirements (typical)	300 watts				
Power factor - US, World Trade, Japan	0.98				
Inrush current ²		amps			
Maximum altitude ³ , ⁴	2135 m (7000 ft.)				
Temperature Requirements ³	Operating	Non-Operating			
	10 to 40°C	10 to 52°C			
	(50 to 104°F)	(50 to 126°F)			
Humidity Requirements ⁴	Operating	Non-Operating			
(Noncondensing)	8 to 80%	8 to 80%			
Wet Bulb	27°C (80°F)	27°C (80°F)			
Model 6E1 Noise Emissions ¹ , ⁵	Operating	ldle			
L_WAd	6.1 bels	6.1 bels			
<l<sub>pA>_m</l<sub>	42 dBA 41 dBA				
Model 6C1 Noise Emissions ^{1,5}	Operating	ldle			
L_{WAd}	6.4 bels 6.1 bels				
<l<sub>pA>_m</l<sub>	44 dBA 41 dBA				
Install/Air Flow	Maintance of proper service clea	rance should allow proper air flow.			
Service Se	e service clearances for the 7014 1	Γ00 Rack			

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions. See noise emissions note
- 2. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 3. The upper limit of the dry bulb temperature must be derated 1 degree C per 137 m (450 ft.) above 915 m (3000 ft.).
- 4. The upper limit of the wet bulb temperature must be derated 1 degree C per 274 m (900 ft.) above 305 m (1000
- 5. Levels are for a single system installed in a T00 32 EIA rack with the center of the unit approximately 1500 mm (59 in.) off the floor.

7030 POWERstations 3AT, 3BT, and 3CT

Dimensions	Des	ktop	Desi	side
Height	162 mm	6.4 in.	452 mm	17.8 in.
Width	442 mm	17.4 in.	280 mm	11.0 in.
(at pedestal for				
deskside)				
Depth	478 mm	18.5 in.	478 mm	18.8 in.
Weight				
Minimum		18.1 kg 4	10 lbs.	
Maximum		21.8 kg 4		
Electrical				
Power source loading		0.35	5	
(typical in kVA)				
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)	
Frequency (hertz)		50 or		
Thermal output		770 Bt		
(typical)		7,0 50		
Power requirements		225 w	atts	
(typical)		220 W		
Power factor		0.5 to	0.7	
Inrush current ³		42 amps at 120 V ac, 4		
Maximum altitude		2135 m (7	•	
		<u>_</u>		
Temperature		rating	-	erating
Requirements		32°C		43°C
	(60 to	90°F)	(50 to	110°F)
Humidity	Ope	rating	Non-Op	erating
Requirements				
(Noncondensing)		80%		80%
Wet Bulb	23°C	(73°F)	27°C	(80°F)
Noise Emissions ¹	•	rating		le
L _{WAd}		bels		bels
L_{pAm}		dBA		desktop)
	38	dBA	-	deskside)
$\langle L_{pA}\rangle_{m}$	41	dBA	41 dBA (desktop)
	38	dBA	38 dBA (deskside)
Impulsive or	N	lo .	N	o
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm (6 in.)	152 mm (6 in.)	N/A	N/A
Service	760 mm (30 in.)	N/A	N/A	N/A
	Wi	dth	De	pth
Footprint ²	•••		Depth 782 mm (30.8 in.)	
Footprint ² Desktop	442 mm	(17.4 in.)	782 mm	(30.8 in.)

- See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
 The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

Dimensions	Des	sktop	Des	kside	
Height	165 mm	6.5 in.	450 mm	17.7 in.	
Width	420 mm	16.5 in.	165 mm	6.5 in.	
Width⁴			235 mm	9.25 in.	
Depth	460 mm	18.0 in.	460 mm	18.0 in.	
Weight					
Minimum configuration		14.5 kg	32 lbs.		
Maximum configuration		18.2 kg	40 lbs.		
Electrical					
Power source loading (typical in kVA)		0	.2		
Power source loading (maximum in kVA)		0	.4		
Voltage range (V ac) - US and World Trade		100 to 127 or 200	to 240 (switchable)		
Voltage range (V ac) - Japan		100 to 127 or 200 t	o 240 (autoranging)	
Frequency (hertz)		50 c	or 60		
Thermal output (typical)		425 E	3tu/hr		
Thermal output (maximum)		850 E	3tu/hr		
Power requirements (typical)		125	watts		
Power requirements (maximum)	250 watts				
Power factor - US and World Trade		0	.6		
Power factor - Japan		0.	98		
Inrush current ³	less	than 70 amps at 12	20 V ac and at 240	V ac	
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements		Operating Non-Oper			
		32°C		to 43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity Requirements	=	rating	-	perating	
(Noncondensing)		80%	8 to 80%		
Wet Bulb	23°C	(73°F)	27°C	(80°F)	
Noise Emissions ¹	-	rating		lle	
L _{WAd}		bels		bels	
L _{pAm}		dBA		dBA	
<l<sub>pA>_m</l<sub>	_	dBA	_	dBA	
Impulsive or prominent discrete tones	Γ	No .	<u> </u>	lo	
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	76mm(3 in)	76mm(3 in)	50mm(2 in)	
Service		in be taken to an are 18 in) on the left side		n(18 in) on the	
Footprint ²	Wi	idth	Wi	dth	
Desktop	520mm	(20.5 in)	610mr	n(24 in)	
	318mm(12.5 in) 610mm(24 in)				

- In amount of space needed by the unit during normal operation is indicated by the footprint dimensions.Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. Width measurement includes the optional verticle stand.

Dimensions	Des	ktop	Deskside		
Height	165 mm	6.5 in.	450 mm	17.7 in.	
Width	420 mm	16.5 in.	165 mm	6.5 in.	
Width⁴			235 mm	9.25 in.	
Depth	460 mm	18.0 in.	460 mm	18.0 in.	
Weight					
Minimum configuration		14.5 kg	32 lbs.		
Maximum configuration		18.2 kg	1 40 lbs.		
Electrical					
Power source loading (typical in kVA)		0	.2		
Power source loading (maximum in		0	.4		
kVA)					
Voltage range (V ac)					
- US, World Trade, and Japan		100 to 127 or 200 t		1	
Frequency (hertz)			or 60		
Thermal output (typical)		_	Btu/hr		
Thermal output (maximum)		850 E	Btu/hr		
Power requirements (typical)			watts		
Power requirements (maximum)			watts		
Power factor - US, World Trade, Japan	0.98				
Inrush current ³	less	than 70 amps at 12		V ac	
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements	Operating			Non-Operating	
	16 to 32°C		10 to 43°C		
	(60 to 90°F) (50 to 110°F)				
Humidity Requirements	-	rating	-	perating	
(Noncondensing)		80%	8 to 80%		
Wet Bulb	23°C	(73°F)	27°C	(80°F)	
Noise Emissions ¹	-	ating		lle	
L _{WAd}	_	bels		bels	
L _{pAm}	_	dBA		dBA	
<l<sub>pA>_m</l<sub>		dBA		dBA	
Impulsive or prominent discrete tones	N	lo	N	lo	
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	76mm(3 in)	50mm(2 in)	50mm(2 in)	
Service		n be taken to an are		n(18 in) on the	
Footprint ²	Wi	dth	De	pth	
Desktop	520mm	(20.5 in)		(24.0 in)	
Deskside		(12.5 in)		(24.0 in)	
 See "Noise Emission Notes" on page The amount of space needed by the Inrush currents occur only at initial a Width measurement includes the op 	e unit during normal application of power,	operation is indicate no inrush occurs de	ed by the footprint d		

Dimensions	Desktop			Deskside	
Height	165 mm	6.5 in.	450 mm	17.7 in.	
Nidth	420 mm	16.5 in.	165 mm	6.5 in.	
Nidth⁴			235 mm	9.25 in.	
Depth	460 mm	18.0in.	460 mm	18.0 in.	
Veight					
Minimum configuration			j 32 lbs.		
Maximum configuration		18.2 kg	1 40 lbs.		
Electrical					
Power source loading (typical in kVA)		0	.2		
Power source loading (maximum in kVA)		0	.4		
Voltage range (V ac) - US and World Trade		100 to 127 or 200	to 240 (switchable)		
Voltage range (V ac) - Japan		100 to 127 or 200 t	to 240 (autoranging)	
Frequency (hertz)		50 (or 60		
Thermal output (typical)		425	Btu/hr		
Thermal output (maximum)		850	Btu/hr		
Power requirements (typical)	125 watts				
Power requirements (maximum)	250 watts				
Power factor - US and World Trade	0.6				
Power factor - Japan	0.98				
Inrush current ³	less	than 70 amps at 12	20 V ac and at 240	V ac	
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements	Operating Non-Operating				
•		32°C		43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity Requirements	Oper	ating	Non-O	perating	
(Noncondensing)	8 to	80%	8 to 80%		
Wet Bulb	23°C	(73°F)	27°C	(80°F)	
Noise Emissions ¹	Oper	ating	lo	lle	
-WAd	5.2	bels	5.0	bels	
_pAm	Ukn	dBA	Unk	dBA	
· <l<sub>pA>_m</l<sub>	39	dBA	38	dBA	
Impulsive or prominent discrete tones	٨	lo	N	lo	
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	76mm(3 in)	50mm(2 in)	50mm(2 in)	
Service	Install so that it can be taken to an area providing 457mm(18 in) on the front and 457mm(18 in) on the left side.				
Footprint ²	Wi	dth	De	pth	
Desktop	520mm	(20.5 in)		(24.0 in)	
Deskside		(12.5 in)	610mm		

- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
- 4. Width measurement includes the optional verticle stand.

Dimensions					
Height			24.0 in.		
Width	222 mm 8.7 in.				
Width with Pedestal			13.4 in.		
Depth		713 mm	28.1 in.		
Weight					
Minimum configuration		•	80 lbs.		
Maximum configuration		45 kg	97 lbs.		
Electrical					
Power source loading		0.	41		
(maximum in kVA)					
Voltage range (V ac)		100 to 127 or 200 t	o 240 (autoranging)		
Frequency (hertz)		50 t	o 60		
Thermal output (typical)		883 I	Btu/hr		
Thermal output (maximum)		_	Btu/hr		
Power requirements (typical)			watts		
Power requirements (maximum)			watts		
Power factor	0.89 to 0.98				
Inrush current ³	16 amps at 120 V ac, 21 amps at 240 V ac				
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements	Operating		Non-Operating		
	16 to 32°C		10 to 43°C		
	(60 to	90°F)	(50 to	110°F)	
Humidity Requirements	•	rating	Non-Operating		
(Noncondensing)		80%	8 to 80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	Oper	ating	ld	le	
L_{WAd}		bels	5.4 bels		
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>	0.	dBA	36 dBA		
Impulsive or prominent discrete tones	N	lo	N	0	
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)	
Service	Install so that it can be moved to an area providing 457mm (18 in.) on the front and 457 mm (18 in) on the left side.				
Footprint ²	Width Depth			oth	
•	324mm	(12.7 in)	940mm(
 See "Noise Emission Notes" on pag The amount of space needed by the Inrush currents occur only at initial a 	e unit during normal	operation is indicate	ed by the footprint di		

		(9.25 in)		(26.25 in)	
Service Footprint ²	Install so that it can be taken to an area providing 457mm(18 in) on the front and 457mm(18 in) on the left side. Width Depth				
nstall/Air Flow ²	76mm(3 in)	76mm(3 in)	0mm(0 in)	0mm(0 in)	
Clearances	Front	Back	Left	Right	
mpulsive or prominent discrete tones	1	No		No	
<pre>class</pre>		dBA	37 dBA		
−WAd −pAm		/A	N/A		
Noise Emissions ¹ -WAd	-	rating bels	Idle 5.4 bels		
		· · · ·	, ,		
(Noncondensing) Wet Bulb		80% (73°F)	8 to 80% 27°C (80°F)		
Humidity Requirements	•	rating	Non-Operating Power off		
	•	90°F)	(50 to 110°F)		
- -	16 to	32°C	10 to 43°C		
Temperature Requirements	Operating Non-Operating Power			ing Power off	
Maximum altitude	2135 m (7000 ft.)				
nrush current ³	less than 60 amps at 120 V ac and at 240 V ac				
Power factor - US, World Trade, Japan	0.98				
Power requirements (typical)		400 v			
Thermal output (maximum) Power requirements (typical)		1368 l 220 v			
Thermal output (typical)		752 E			
Frequency (hertz)		50 to			
Voltage range (V ac) - US, World Trade, and Japan		100 to 127 or 200 to	o 240 (autoranging)	
Power source loading (maximum in kVA)		0.4	40		
Power source loading (typical in kVA)		0.2			
Electrical					
Maximum configuration		17.7 kg 20.4 kg			
Weight Minimum configuration		4771	00 lb-		
Depth		515 mm	20.25 in.		
Width⁴		235 mm	-		
Width		200 mm 7.9 in.			
leight		490 mm	19.25 in.		

4. Width measurement With feet extended.

Dimensions					
Height	610 mm 24.0 in.				
Width	222 mm 8.7 in.				
Width with Pedestal			13.4 in.		
Depth		713 mm	28.1 in.		
Weight					
Minimum configuration		J	80 lbs.		
Maximum configuration		45 kg	97 lbs.		
Electrical					
Power source loading		0.	47		
(maximum in kVA)					
Voltage range (V ac)		100 to 127 or 200 t	o 240 (autoranging)		
Frequency (hertz)			o 60		
Thermal output (typical)		_	Btu/hr		
Thermal output (maximum)			Btu/hr		
Power requirements (typical)		_	watts		
Power requirements (maximum)	445 watts				
Power factor	0.92 to 0.99				
Inrush current ³ Maximum altitude	30 amps at 120 V ac, 32 amps at 240 V ac				
Maximum altitude	2135 m (7000 ft.)				
Temperature Requirements	Operating		Non-Operating		
	16 to (60 to		10 to 43°C (50 to 110°F)		
	•		<u> </u>	·	
Humidity Requirements	Oper	•	Non-Op	-	
(Noncondensing)	8 to		8 to 80%		
Wet Bulb	23°C ((73°F)	27°C (80°F)		
Noise Emissions ¹	Oper		ld		
L_{WAd}	5.5		5.4 bels		
L _{pAm}	N/		N/A		
<l<sub>pA>_m</l<sub>	37 (36 dBA		
Impulsive or prominent discrete tones	N	0	N	0	
Clearances	Front Back		Left	Right	
Install/Air Flow ²	76mm(3 in)	152mm(6 in)	51mm(2 in)	51mm(2 in)	
Service	Install so that it can be moved to an area providing 457mm (18 in.) on the front and 457 mm (18 in) on the left side.				
Footprint ²	Width Depth				
•	324mm(940mm(36.6 in)		
 See "Noise Emission Notes" on page The amount of space needed by the Inrush currents occur only at initial and 	e unit during normal	operation is indicate	ed by the footprint d		

7046 Model B50

Dimensions						
Height		00 mn	n 3.5 in.			
neigni			\ Units			
Width			m 17.6 in.			
Depth			m 29.6 in.			
		751.0 111	111 29.0 111.			
Weight						
Minimum		14.5 kç	g 32 lbs.			
configuration		45.04				
Maximum		15.9 kg 35 lbs.				
configuration						
Electrical						
Power source loading		0.	147			
(maximum in kVA)						
Voltage range (V ac)		100 to 127 or 200	to 240 (autoranging)			
Frequency (hertz)		50	or 60			
Thermal output		478	Btu/hr			
(maximum)						
Power requirements		140	watts			
(maximum)		•				
Power factor - US,		0.95				
World Trade, Japan Inrush current ²		40				
			amps			
Maximum altitude		2135 M	(7000 ft.)			
Temperature		erating		perating		
Requirements ³		o 40°C		52°C		
	(50 to	o 104°F)	(50 to	(50 to 126°F)		
Humidity Requirements ⁴	Оре	erating	Non-Operating			
(Noncondensing)	8 to	o 80%	8 to	80%		
Wet Bulb	27°C	C (80°F)	27°C	(80°F)		
Noise Emissions ¹	Ope	erating	lc	ile		
L _{WAd}	5.2	2 bels	4.7	bels		
L _{pAm}		N/A	N	I/A		
<l<sub>pA>_m</l<sub>	35	dBA	30	dBA		
Impulsive or		No	N	l o		
prominent discrete						
tones						
Clearances	Front	Back	Left	Right		
Install/Air Flow	76mm(3 in)	76mm(3 in)	50mm(2 in)	50mm(2 in)		
Service	Install so that it can b in) on the left side.	e taken to an area provid	ding 457mm(18 in) on th	e front and 457mm(18		
See "Noise Emission 4.	on Notes" on page 199	for definitions of noise e	missions positions. See	noise emissions note		
 Inrush currents occ The upper limit of t ft.). 	he dry bulb temperatur	ation of power, no inrush e must be derated 1 deg re must be derated 1 deg	ree C per 137m (450 ft.) above 915m (3000		

ft.).

7248 Model 43P

Dimensions	Desk	top	Desi	kside		
Height	160 mm	6.3 in.	420 mm	16.5 in.		
Width¹	420 mm	16.5 in.	160 mm	6.3 in.		
Depth	454 mm	17.7 in.	454 mm	17.7 in.		
Weight						
Minimum		13.2 kg	g 29 lbs.			
Maximum		15.9 kg 35 lbs.				
Electrical						
Power source loading		0.	23			
(typical in kVA)						
Voltage range (V ac)		100 to 127 or 200	to 240 (switchable)			
Frequency (hertz)		50 (or 60			
Thermal output (maximum)		510 I	Btu/hr			
Thermal output (minimum)		225 I	Btu/hr			
Power requirements (maximum)		150	watts			
Power factor		0.5 t	0.7			
Inrush current ⁶	23	amps at 120 V ac	, 23 amps at 240 V	ac		
Maximum altitude		2135 m	(7000 ft.)			
Temperature Requirements	Opera		Non-Operating			
	16 to 3		10 to 43°C			
	(60 to	90°F)	(50 to 110°F)			
Humidity Requirements	Opera	•	Non-Operating			
(Noncondensing)	8 to 8		8 to 80%			
Wet Bulb	23°C (73°F)	27°C (80°F)			
Noise Emissions ¹	Opera	ating	Idle			
L _{WAd}	5.2 b	els	5.0 bels			
L _{pAm}	41 d	BA	38 dBA			
$\langle L_{pA} \rangle_{m}$	36 d	BA	34	dBA		
Impulsive or prominent discrete tones	No)	No			
Clearances ³	Front	Back	Left	Right		
Install/Air Flow ⁴⁵	35mm(1.5 in)	51mm(2 in)	25mm(1 in)	25mm(1 in		
Service	466mm(18 in)	N/A	N/A	N/A		
Footprint ⁴	Wid	lth	De	pth		
-	470mm(18.5 in)		(21.1 in)		
Desktop	•	8.3 in)	537mm(21.1 in)			

- 4. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 5. When placed in the vertical position, the system requires 25 mm (1 in) at the bottom and top for proper air flow. The necessary bottom clearance is provided by the optional vertical stand.
- 6. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

7317 Model D10

Dimensions					
Height		464 mm	18.3	in.	
Width		490 mm	19.3	in.	
Depth with device		289 mm	11.4	in.	
nandles					
Weight					
Minimum		31.8 kg	70 lk		
Maximum		45.4 kg 100 lbs.			
Electrical					
Power source loading			N/A		
typical in kVA)			40.4		
/oltage range (V dc)			-40 to -65		
Thermal output		360 Btu/hr			
(typical)		600 Dtu/hr			
Thermal output (maximum)		600 Btu/hr			
Power requirements			106 watte		
(typical)	106 watts				
Power requirements	176 watts				
(maximum)	170 watts				
Maximum altitude	0 to 2133 m (0 to 7000 ft.)				
operating) class c			(,		
Temperature	Operat	ina		Non-Operatin	a
Requirements	10 to 40			10 to 52°C	9
Class C	(50 to 10		(50 to 125°F)		
Humidity	Operat	ing			
Requirements)	•	· ·			
(Noncondensing)	8 to 80)%			
Wet Bulb	27°C (8	0°F)			
Requirements					
Noise Emissions ¹	Operat	ing		Idle	
-WAd	6.0 be	els		6.0 bels	
-pAm	N/A dE	3A		N/A dBA	
<l<sub>pA>_m</l<sub>	47 dB	A		47 dBA	
mpulsive or	None	e		None	
prominent discrete					
tones					
Clearances	Front	Back	Let	t	Right
Install/Air Flow ²	150mm(6 in)	0	0		0
Service ³	500mm(20 in)	0	0		0
Footprint ²	Widt 490mm(19		Depth		
	49011111(18	III)		440mm(17.3 ii	'/
 See "Noise Emission The amount of space All service is perform 	needed by the unit duri	ng normal oper			ensions.

7317 Model F3L

Dimensions	w/o N	ledia	with	Media	
Height	746 mm	29.4 in.	823 mm	32.4 in.	
Width	440 mm	17.3 in.	440 mm	17.3 in.	
Depth with device handles	289 mm	11.4 in.	289 mm	11.4 in.	
Weight	w/o N	ledia	with Media		
Minimum	45.5 kg	100 lbs.	50 kg	110 lbs.	
Maximum	72.6 kg	160 lbs.	72.6 kg	160 lbs.	
Electrical					
Power source loading (typical in kVA)			N/A		
Voltage range (V dc)		-40			
Thermal output			770 Btu/hr		
(typical)					
Thermal output		1	100 Btu/hr		
(maximum)					
Power requirements (typical)		2	225 watts		
Power requirements		,	322 watts		
(maximum)	322 Walls				
Maximum altitude		0 to 2133	3 m (0 to 7000 ft.)		
(operating)	0 to 2100 m (0 to 7000 tt.)				
	0	- 41	No. o		
Temperature Requirements	Opera 10 to		Non-Operating 10 to 52°C		
Class C	(50 to		(50 to 125°F)		
Humidity	Opera			perating	
(Noncondensing)	Орен	ating	Non-O ₁	Jerating	
with tape	8 to	80%			
without tape	20 to				
Wet Bulb	28°C (
Requirements	20 0 (02 1)			
Noise Emissions ¹	Opera		lo	lle	
L _{WAd}	6.0 1	oels	6.0	bels	
-pAm	N/	A	N/A	dBA	
<l<sub>pA>_m</l<sub>	47 c	IBA	47 dBA		
Impulsive or prominen	N	0	N	lo	
discrete tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	150mm(6 in)	0	0	0	
Service ³	500mm(20 in)	0	0	0	
Footprint ²	Width 440mm(17.3 in)		Depth 440mm(17.3 in)		

- See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
 The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. All service is performed at the front of the machine.

Chapter 3. Physical Characteristics of Displays

This section gives the physical characteristics for some of the displays that can be used with the systems. The following information can help you plan for your displays. You only have to do physical planning for the displays you have ordered.

POWERdisplay 17 and POWERdisplay 20

POWERdisplay 17 with a maximum viewable image size of 409 mm (16.1 inches) measured diagonally.

POWERdisplay 20 with a maximum viewable image size of 486 mm (19.1 inches) measured diagonally

Service	Install so that air vents	are not blocked.				
Clearances	Front	Back	Left	Right		
L _{WAd}	3.5	bels	3.5 bels			
Noise Emissions*	Oper	ating	ldle			
(Noncondensing)	8 to	80 %	8 to 80 %			
Humidity Requirements	Oper	rating	Non-Operating			
		104°F)		140°F)		
Temperature Requirements		rating 40°C		perating 60°C		
Maximum altitude		3048 m (10,000 ft.)			
Power factor			.7			
(typical)		140	walls			
(typical) Power requirements		140	watts			
Thermal output		480 E	3tu/hr			
Frequency (hertz)		50 or 60				
Voltage range (V ac)		100 to 120 or 200 to 240 (autoranging)				
Power source loading (typical in kVA)		.38				
Electrical		_	20			
POWERdisplay 20		30.0 kg	66.3 lbs			
Weight POWERdisplay 17		22.5 kg	49.5 lbs			
Depth		505 mm	19.9 in			
Width		480 mm	18.9 in			
Height		474 mm	18.6 in			
POWERdisplay 20		100 11111	.,.,			
Depth		450 mm	17.7 in			
Height Width		414 mm 404 mm	16.3 in 15.9 in			
POWERdisplay 17		44.4	40.0 in			

6091 Color Display Model 19i

6091 Color Display Model 19i with a maximum viewable image size of 439 mm (17.3 inches) measured diagonally.

Dimensions						
Height		485 mm	19.1 in			
Width		480 mm	18.9 in			
Depth		506 mm	19.9 in			
Weight		34 kg	75 lbs			
Electrical						
Power source loading		.38				
(typical in kVA)						
Voltage range (V ac)		100 to 120 or 200 to 240 (autoranging)				
Frequency (hertz)		50 or 60				
Thermal output (typical)		480 Btu/hr				
Power requirements	185 watts					
(typical)						
Power factor		0.7				
Maximum altitude		2135 m	(7000 ft.)			
Temperature	Oper	9	Non-Operating			
Requirements	10 to 40°C		1 to 60°C			
	(50 to	104°F)	(35 to 140°F)			
Humidity Requirements	Oper	ating	Non-Operating			
(Noncondensing)	8 to 8	80 %	8 to 80 %			
Noise Emissions*	Oper	ating	Idle			
L _{WAd}	3.5	bels	3.5 bels			
Clearances	Front	Back	Left	Right		
Service	Install so that air vents	are not blocked.				
* See "Noise Emission	Notes" on page 199 for	definitions of noise em	issions positions.			

9516 TFT LCD Color Monitor

9516 TFT LCD Color Monitor with a maximum viewable image size of 408 mm (16.1 inches) measured diagonally.

Dimensions						
Height (Display only)		431 mm		.0 in		
(Display with		511 mm	21	.1 in		
Tilt/Swivel)						
Width		408 mm	_	.1 in		
Depth		250 mm	9.	8 in		
Weight		9.9 kg	21.	8 lbs		
Electrical						
Voltage range (V ac)			100 to 240			
Frequency (hertz)	50 or 60					
Thermal output		188 Btu/hr				
(maximum)						
Power requirements						
(in active mode VESA Standby)	18 watts					
(in enegry saving mode VESA off)		8 watts				
Maximum altitude		21	35 m (7000 ft.)			
Temperature	Operating			Non-Ope	erating	
Requirements	10 to 40°C	;		10 to 4		
	(50 to 104°F	=)		(50 to 1	10°F)	
Humidity Requirements	Operating			Non-Ope	erating	
(Noncondensing)	5 to 80 %		5 to 80 %		0 %	
Noise Emissions*	Operating		Idle		9	
L_WAd	4.5 bels			N/A bels		
Clearances	Front	Back	L	.eft	Right	
Service	Install so that air vents are n	ot blocked.				
* See "Noise Emission	Notes" on page 199 for defini	itions of nois	e emissions posi	tions.		

P50 15" Display, P70 17" Display, P200 and P201 20" Displays

P50 15" display with a maximum viewable image size of 345 mm (13.6 inches) measured diagonally. P70 17" display with a maximum viewable image size of 403 mm (15.9 inches) measured diagonally. P200 20" display with a maximum viewable image size of 486 mm (19.1 inches) measured diagonally. P201 20" display with a maximum viewable image size of 486 mm (19.1 inches) measured diagonally.

Dimensions					
P50 display					
Height		374 mm	14.7 in		
Width		368 mm	14.5 in		
Depth		390 mm	15.3 in		
P70 display					
Height		414 mm	16.3 in		
Width		406 mm	15.9 in		
Depth		453 mm	17.8 in		
P200 and P201		400 111111	17.0 111		
display					
Height		474 mm	18.6 in		
Width		474 mm	18.6 in		
Depth		505 mm	19.9 in		
<u> </u>		505 11111	19.9 111		
Weight		44.0 1	00.0 !!		
P50		14.0 kg	30.8 lbs		
P70		23.0 kg	50.6 lbs		
P200		30.0 kg	66.3 lbs		
P201		31.5 kg	69.4 lbs		
Electrical					
Power source loading		.3	8		
(typical in kVA)					
Voltage range (V ac)		100 to 120 or 200 to	o 240 (autoranging)		
Frequency (hertz)		50 o	r 60		
Thermal output		480 E	Btu/hr		
(typical) Power requirements	D50-110	watte P70-140 watte P	2200=140 watts, P201=1	50 watte	
(typical)	1 30=110	watts, 1 70–140 watts 1	200-140 Watts, 1 201-1	oo watts	
Power factor		3.0	35		
Maximum altitude		3048 m (⁻	10000 ft.)		
Temperature	Oper	ating	Non-Op	erating	
Requirements	10 to	40°C	0 to 6	60°C	
	(50 to	104°F)	(32 to 1	40°F)	
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)	8 to 8	80 %	5 to 90 %		
Noise Emissions*	Oper	ating	ldle		
L _{WAd}	3.5	bels	3.5 bels		
Clearances	Front	Back	Left	Right	
	152mm (6 in)	152mm (6 in)	152mm (6 in)	152mm (6 in)	
Service	Install so that air vents	are not blocked.			
* See "Noise Emission	Notes" on page 199 for	definitions of noise emis	sions positions		

P72 17" Display, P92 19" Display, and P202 21" Display

P72 17" display with a maximum viewable image size of 407 mm (16.0 inches) measured diagonally. P92 19" display with a maximum viewable image size of 456 mm (17.9 inches) measured diagonally. P202 21" display with a maximum viewable image size of 503 mm (19.8 inches) measured diagonally.

P72 display					
Height		441 mm	17.4 in		
Nidth		408 mm	16.1 in		
Depth		434 mm	17.1 in		
P92 display					
Height		478 mm	18.8 in		
Nidth		462 mm	18.2 in		
Depth		476 mm	18.7 in		
P202 display					
Height		513 mm	20.2 in		
Nidth		498 mm	19.6 in		
Depth		500 mm	19.7 in		
P72		19.2 kg	43.2 lbs		
92		25.0 kg	56.3 lbs		
P202		31.0 kg	70.0 lbs		
Electrical					
Voltage range (V ac)		100 to	o 240		
Frequency (hertz)		50 o	r 60		
Power requirements	F	P72=120 watts, P92=140	0 watts, P202=160 watts	3	
typical) Vaximum altitude		3048 m (10000 ft \		
			· · · · · · · · · · · · · · · · · · ·		
Temperature		rating	Non-Operating		
Requirements		40°C	0 to 60°C		
	(50 to	104°F)	(32 to 140°F)		
Humidity	Oper	rating	Non-Operating		
Requirements	40.1	00.0/			
Noncondensing)	10 to	80 %	5 to 9	95 %	
Noise Emissions*	=	rating	ldle		
-WAd	4.5	bels	4.5	bels	
Clearances	Front	Back	Left	Right	
	152mm (6 in)	152mm (6 in)	152mm (6 in)	152mm (6 in)	
Service	Install so that air vents	are not blocked			

P76 17" Display, and P260 21" Display

P76 17" Max. Viewable Image Size 326.7 x 242.5 mm how do you get the one measurement? Use **Diagonal measurement!**

P260 21" Max. Viewable Image Size 403.8 x 302.2 mm how do you get the one measurement? **Use** Diagonal measurement!

Requirements (Noncondensing)	10 to	80 %	5 to 95 %		
Humidity	Opera	ating	Non-Operating		
. roquii omento	(32 to		(-40 to 140°F)		
Temperature Requirements	Opera 0 to 4	•	Non-Operating -40 to 60°C		
Maximum altitude		3048 m (10000 ft.)		
Power requirements (typical)		P76=110 watts,	P260=160 watts		
Frequency (hertz)		50 0	or 60		
Electrical Voltage range (V ac)		100 t	to 240		
P260		31.0 kg	70.0 lbs		
Weight P76		19.2 kg	43.2 lbs		
Depth		509 11111	19.9 in		
Width		498 mm 509 mm	19.6 in		
Height		504 mm	19.7 in		
P260 Display					
Depth		430 mm	16.8 in		
Width		406 mm	15.9 in		
P76 display Height		416 mm	16.3 in		

3153 Display Station

the 3153 is an ASCII display station that attaches to a system that supports ASCII displays. It operates on a serial communications port with a choice of RS232C or RS422A communications interface. For additional information see *3153 Marketing Reference Guide*, order number G520–9415

Dimensions			
Display with			
Tilt/Swivel ¹			
Height	330 ı	mm	13.0 in
Width	318 ו	mm	12.5 in
Depth	340 ı	mm	13.4 in
Keyboard			
Height	38 n		1.5 in
Width	451 ı		17.8 in
Depth	158 ו	mm 	6.3 in
Weight			
Display with	7.7	kg	16.9 lbs
Tilt/Swivel			
Keyboard	0.9	kg	2.0 lbs
Electrical			
Voltage range (V ac)		100 to	240
Frequency (hertz)		50 oi	r 60
Thermal Output		222 B	tu/hr
Power requirements (typical) ²		41 w	atts
Power requirements (maximum)		65 w	atts
Maximum altitude		3048 m (1	0000 ft.)
Temperature	Operating		Power Off, Shipping, Storage
Requirements	10 to 40°C		0 to 50°C
	(50 to 104°F)		(-32 to 122°F)
Humidity Requirements	Operating		Power Off, Shipping, Storage
(Noncondensing)	30 to 80 %		10 to 95 %
Noise Emissions ^{3 4}	Operating		Idle
L _{WAd}	4.8 bels or less		-
Service	Install so that air vents are not block	ked.	

- 1. The display tilt/swivel stand has a $+15^{\circ}$ to -3° of tilt, $+/-135^{\circ}$ of swivel and is not detachable from the display.
- 2. Power consumption is reduced to less than 15 watts when power management feature is enabled.
- 3. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 4. The noise emission level stated is the declared (upper limit) A-weighted sound power level, in Bels, for a random sample of monitors.

Chapter 4. Physical Characteristics of the 2100 Series

This section gives the physical characteristics for the 21xx series of external devices. The following information can help you plan for your external devices. You only have to do physical planning for the devices you have ordered. Footprints are not drawn to scale.

Where a footprint is shown, the figure represents a top view of the device.

2101, 2102, and 2103 Fibre Channel RAID Storage Subsystem

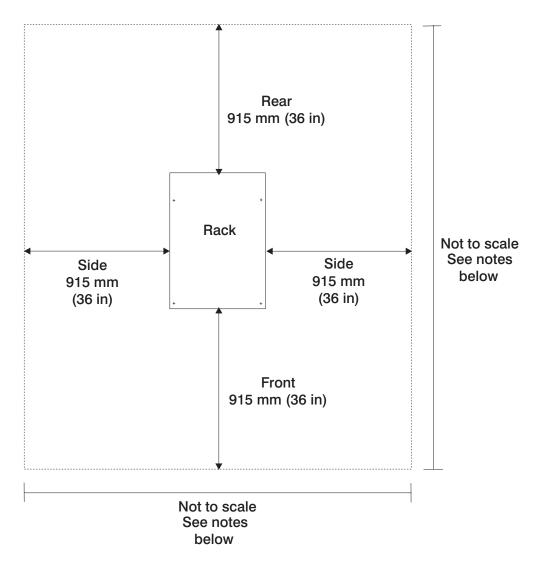
For more information on the 2101, 2102, and 2103 Fibre Channel Disk SubSystem, see note below.

2101 Model 100 Seascape[™] Solution Rack

Dimensions						
Height		1580 mm	62.0 in.			
Width		650 mm	25.5 in.			
Depth		1030 mm	36.0 in.			
			40.5 in.			
Weight (empty)		160 kg	352 lbs.			
Electrical						
Power source loading:						
Maximum operating		2.7 kVA				
Voltage range (V ac)		200 to 240				
Frequency (hertz)		50 or 60				
Thermal output		9250	Btu/hr			
(Maximum)						
Maximum altitude	2135 m (7000 ft.)					
Temperature	Operating		Non-Op	perating		
Requirements	10 to 40°C		10 to 52°C			
	(50 to	104°F)	(50 to 125°F)			
Humidity	Oper	ating	Non-Operating			
Requirements						
(Noncondensing)	8% to		8% to 80%			
Wet Bulb	27°C ((80°F)	27°C (80°F)			
Noise Emissions*	Oper	•	Idle			
L_WAd	6.6		NA bels			
L_{pAm}	N/	'A	N/A			
<l<sub>pA>_m</l<sub>	NA	dBA	NA dBA			
Impulsive or	N/	'A	N/A			
prominent discrete						
tones						
Clearances	Front	Back	Left	Right		
Install/Air Flow	Maintenance of a prope	er service clearance sh	ould allow proper air flow	<i>J</i> .		
Service	915mm(36 in)	915mm(36 in)	915mm(36 in)	915mm(36 in)		
* See "Noise Emission I	Notes" on page 199 for	definitions of noise em	issions nositions			

2101 Model 100 Service Clearances

Note: For more information, using the web, see URL http://www.ibm.com/storage/fcss.



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The illustration shows the minimum space required.

For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack. For five to six racks placed side by side, the left and right clearances need to be increased to 1525 mm (60 in). Having more than six racks side by side is not recommended.

2102 Model F10 Fibre Channel RAID Storage Server

For more information on the 2102 Model F10 Fibre Channel RAID Storage Server see page 96.

Dimensions			
Height	175 mm	6.88 in.	
		(4 EIA units)
Width	445 mm	17.5 in.	
Depth	635 mm	25.0 in.	
Weight	36 kg	79 lbs.	
Electrical			
Power source loading:			
Maximum operating		0.329 kVA	
Voltage range (V ac)	100 to	125 or 200 to 240	
Frequency (hertz)		50 or 60	
Thermal output		731 Btu/hr	
(Maximum)			
Power Requirements		214 watts	
Inrush current	4 a	mps. at 120 Vac	
Maximum altitude	21	135 m (7000 ft.)	
Temperature Requirements	(see specifications for rack on page "210	01 Model 100 Seascape	[™] Solution Rack" on page 95)
Humidity Requirements	(see specifications for rack on page "210	01 Model 100 Seascape	[™] Solution Rack" on page 95)
Noise Emissions	(see specifications for rack on page "210	01 Model 100 Seascape	™ Solution Rack" on page 95)
Clearances	(see specifications for rack on page "210	01 Model 100 Seascape	[™] Solution Rack" on page 95)

2102 Model D00 Expandable Storage Unit

For more information on the 2102 Model D00 Expandable Storage Unit see page 96.

Dimensions			
	100	5.2 in.	
Height	132 mm	* ·= ····	
NAC 101	400	(3 EIA units)	
Width	480 mm	18.9 in.	
Depth	575 mm	22.6 in.	
Weight			
Minimum	31 kg	69 lbs.	
Maximum	42 kg	92 lbs.	
Electrical			
Power source loading (typical in kVA)		0.39	
Voltage range (V ac)	100 to 1	125 or 200 to 240	
Frequency (hertz)		50 or 60	
Thermal output	1	315 Btu/hr	
(typical)			
Power requirements (typical)		385 watts	
Inrush current	2	2.52 amps	
Maximum altitude	213	5 m (7000 ft.)	
Temperature Requirements	(see specifications for rack on page "2101	Model 100 Seascape [™] Solution Rack" o	n page 95)
Humidity Requirements	(see specifications for rack on page "2101	Model 100 Seascape [™] Solution Rack" o	n page 95)
Noise Emissions	(see specifications for rack on page "2101	Model 100 Seascape [™] Solution Rack" o	n page 95)
Clearances	(see specifications for rack on page "2101	Model 100 Seascape [™] Solution Rack" o	n page 95)

2103 Model H07 Fibre Channel Storage Hub

For more information on the 2103 Model H07 Fiber Channel Storage Hub see page 96.

Dimensions						
Height	44 mm		1.7 in.			
		(I EIA unit)			
Width	219 mm		8.6 in.			
Depth	367 mm		14.4 in.			
Weight	4 kg		8 lbs.			
Electrical						
Voltage range (V ac)		100 to 240				
Frequency (hertz)		50 or 60				
Power requirements (typical)		30 watts				
Inrush current	1	amp at 120 Va	ıC			
Maximum altitude	2	35 m (7000 ft	.)			
Temperature Requirements	(see specifications for rack on page "210	01 Model 100	Seascape™	Solution	Rack" on	page 95)
Humidity Requirements	(see specifications for rack on page "210	01 Model 100	Seascape [™]	Solution	Rack" on	page 95)
Noise Emissions	(see specifications for rack on page "210	01 Model 100	Seascape [™]	Solution	Rack" on	page 95)
Clearances	(see specifications for rack on page "210	01 Model 100	Seascape [™]	Solution	Rack" on	page 95)

2104 Model DL1 Expandable Storage Plus

Dimensions				
Height		128 mm	5 in.	
			(3 EIA units)	
Width		445 mm	17.5 in.	
Depth		552 mm	21.7 in.	
Weight ¹				
Minimum		21 kg	47 lbs.	
Maximum		32 kg	71 lbs.	
Electrical (For each drawer)				
Power source loading		N	I/A	
Power factor	not less than 0.97 at 25% maximum load			
Voltage range (V ac)		100 1	to 240	
Frequency (hertz)		50 1	to 60	
Thermal output (Maximum) ¹	921 Btu/hr			
Power Requirements (Maximum)	270 watts			
Inrush current	71 amps			
Maximum altitude	2133 m (7000 ft.)			
Temperature Requirements ²	Oper	ating	Non-Op	erating
		40°C	10 to 52°C	
	(50 to	104°F)	(50 to 1	125°F)
Humidity Requirements	Oper	ating	Non-Operating	
(Noncondensing)	8% to	80%	8% to 80%	
Wet Bulb	27°C	(80°F)	27°C (80°F)	
Noise Emissions ³	Oper	ating	ldle	
L_WAd	6.15	bels	6.1 k	oels
L_pAm	N	/A	N/A	A
$\langle L_{pA}\rangle_{m}$	N	/A	N/A	
Impulsive or prominent discrete tones	N/A		N/.	A
Clearances	Front	Back	Left	Right
Install/Air Flow ¹	1140 mm(45 in)	810 mm (32 in)	N/A	N/A
Service	1140 mm(45 in)	810 mm (32 in)	When mounted in a rack	

- 1. Each 2104 rack-mounted unit requires an air flow of 1.1 cubic meters/minute (40 Cubic feet per minute (CFM)). When racks containing many 2104 units are to be installed together, the following requirements must be met to ensure that the 2104 units are adequately cooled:
 - · The airflow is in at the front of the rack and out at the back. To avoid moving exhaust air to the intake of another piece of equipment, racks should be positioned in alternate rows, back-to-back and front-to-front.
 - · The front of racks should be positioned on floor-tile seams, with a full line of perforated tiles immediately in front of the racks.
 - · Where racks are in rows front-to-front or back-to-back, there should be a gap of at least 1220 mm (48 in) separating the rows.
 - To ensure proper air flow within each rack, the rack filler plates must be installed in unused positions. Also, all the gaps in the front of the racks must be sealed, including the gaps between the 2104 units.
- 2. The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.
- 3. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

2104 Model DU3 Expandable Storage Plus

Dimensions					
Height		128 mm	5 in.		
			(3 EIA units)		
Width		447 mm	17.6 in.		
Depth		563 mm	22.2 in.		
Weight ¹					
Minimum		22 kg	49 lbs.		
Maximum		36 kg	80 lbs.		
Electrical (For each drawer)					
Power source loading		N	I/A		
Voltage range (V ac)	100 to 240				
Frequency (hertz)		50	to 60		
Thermal output (Maximum)	1126 Btu/hr				
Power Requirements (Maximum)	330 watts				
Power factor	not less than 0.95 at 50% maximum load				
Inrush current	40 amps				
Maximum altitude	2133 m (7000 ft.)				
Temperature Requirements ²	Oper	ating	Non-Operating		
		10 to 40°C		10 to 52°C	
	(50 to	104°F)	(50 to 125°F)		
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)		80%	8% to 80%		
Wet Bulb	27°C	(80°F)	27°C (80°F)		
Noise Emissions ¹	Oper	ating	ldle		
L _{WAd}	6.5	bels	6.1 bels		
L _{pAm}	N	/A	N/A		
<l<sub>pA>_m</l<sub>		/A	N/A		
Impulsive or prominent discrete tones	N	/A	N/A		
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	1140 mm(45 in)	810 mm (32 in)	N/A	N/A	
Service	1140 mm(45 in)	810 mm (32 in)	When mounted in a rack		

^{1.} See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

^{2.} The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

2104 Model TL1 Expandable Storage Plus

L _{pAm} <l<sub>pA>_m</l<sub>	N/A N/A			I/A No	
L _{WAd}	N/A			I/A	
	6.6 bels			bels	
Noise Emissions ¹	Operating			lle	
Wet Bulb	27°C (80°F)		27°C	(80°F)	
Requirements (Noncondensing)	8 to 80%		8 to	80%	
Humidity	Operating		Non-O	perating	
(See note)	(50 to 104°F)		(50 to	125°F)	
Requirements	10 to 40°C			52°C	
Temperature	Operating		· ,	perating	
(Maximum) Maximum altitude		2133 m (7000 ft.)			
Thermal output		921 [3tu/hr		
Frequency (hertz)			or 60		
Voltage range (V ac)			264		
Power factor	not le	ess than 0.97 at	25% of maximum load		
Power source loading		N	/A		
Electrical			120 150.		
Maximum		43.5 kg 54.5 kg	120 lbs.		
Weight Minimum		40 E ka	96 lbs.		
Depth		594 mm	23.5 in.		
Width (at pedestal)		281 mm	11.0 in.		
Height		529 mm	21.0 in.		

Clearances	Front	Back	Left	Right	
Install/Air Flow ²	stall/Air Flow ² 152 mm(6 in) 152 r		N/A	N/A	
Service	1000 mm(39 in)	1000 mm(39 in)	1000 mm(39 in)	1000 mm(39 in)	

Footprint ²	Width	Depth
	281mm(11 in)	898mm(35.5 in)

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

Note: The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

2104 Model TU3 Expandable Storage Plus

Footprint ²		dth n(11 in)	Depth 898mm(35.5 in)		
Service	1000 mm(39 in)	1000 mm(39 in)	1000 mm(39 in)	1000 mm(39 in)	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
Impulsive or prominent discrete tones					
L _{pAm} <l<sub>pA>_m</l<sub>		/A /A		No	
L _{WAd}		/A /A		I/A I/A	
	***	bels		bels	
Noise Emissions ¹	Oper	rating	lo	dle	
Wet Bulb		(80°F)		(80°F)	
Humidity Requirements (Noncondensing)	•	ating 80%	Non-Operating 8 to 80%		
(See note)	·	104°F)	(50 to 125°F)		
Temperature Requirements	Operating 10 to 40°C		Non-Operating 10 to 52°C		
Maximum altitude	2133 m (7000 ft.)				
Power Requirements (Maximum) Power factor	330 watts not less than 0.95 at 50% of maximum load				
(Maximum)		200			
Thermal output			Btu/hr		
Voltage range (V ac) Frequency (hertz)			o 240 or 60		
Electrical Power source loading		• •	/A		
Maximum		52 kg	114 lbs.		
Weight Minimum		39 kg	86 lbs.		
Depth		585 mm	23.0 in.		
Width (at pedestal)		281 mm	11.0 in.		
Dimensions Height		539 mm	21.2 in.		

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

Note: The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

2105 Model B09 Versatile Storage Server[™]

Dimensions					
Height		1780 mm	70.0 in.		
Width		840 mm	33.0 in.		
Depth		1305 mm	51.0 in.		
Weight		746 kg	1640 lbs.		
Electrical					
Power source loading	3.4 kVA				
Power factor		0.9			
Voltage range (V ac)		200 to	480		
Frequency (hertz)		50 or	60		
Thermal output		11600 Btu/hr			
(Maximum)					
Maximum altitude		2135 m (7000 ft.)			
Temperature	Oper	ating	Non-O	perating	
Requirements	10 to	38°C	10 to 43°C		
(See note)	(50 to	90°F)	(50 to 110°F)		
Humidity	Oper	ating	Non-O	perating	
Requirements	2.1	000/	2.1	000/	
(Noncondensing)		80%	8 to 80%		
Wet Bulb	23°C (73°F) 27°C (80°F)		(80°F)		
Noise Emissions ¹		Opera	ting		
L _{WAd}		7.6 bels			
Clearances	Front	Back	Left	Right	
Service	1145 mm(45 in)	810 mm (32 in)	N/A	N/A	

^{1.} See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

Note: The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

2105 Models E10, F10, E20 and F20 Enterprise Storage Server™s

For more information on the 2105 Models E10, F10, E20, F20 and E20 or F20 with the expansion enclosure, see note 1 below.

Dimensions						
Height		1915 mm	75.3 in.			
Width E10, F10, E20, F20		1383 mm	54.4 in.			
E20 or F20 with Expansion Enclosure		2938 mm	115.7 in	115.7 in		
Depth		909 mm	35.8 in.			
Weight various configurations	See table on n	age "2105 Enterprise Sto	rage Server Clearance	es" on page 106		
various coringulations	Occ table on p	age 2100 Enterprise Oto				
Power source loading		3.5 k	VA			
for Max. E10, F20 Power source loading for Max. E20, F20		5 kVA				
Voltage low range (V ac)		200 to 240				
high range (V ac)	380 to 480					
Frequency (hertz)	50 or 60					
Thermal output		11000 Btu/hr				
(Maximum) E10, F10						
Thermal output		16000 E	Btu/hr			
(Maximum) E20, F20						
Power factor		0.9				
Maximum altitude		2135 m (7	'000 ft.)			
Temperature	Oper	ating	Non-O	perating		
Requirements ²		32°C	10 to 43°C			
	(60 to	90°F)	(50 to	110°F)		
Humidity Requirements	Oper	ating	Non-Operating			
(Noncondensing)	20 to	80%	8 to	80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)			
Noise Emissions ³		Opera	ting			
L _{WAd} All Models		7.5 to 7.7	5 bels			
Clearances	Front	Back	Left	Right		
Service⁴ and Floor loading	1145 mm (45 in)	1145 mm (45 in)	Note ⁴	Note ⁴		

- 1. For more information see Enterprise Storage Server Introduction and Planning Guide Order Number GC26-7294.
- 2. The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.
- 3. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 4. Floor loading at 342 kg/m (70 lbs/sqft). See .

2105 Enterprise Storage Server Clearances

For more information on the 2105 Models E10, F10, E20, F20 see the table on page "2105 Models E10, F10, E20 and F20 Enterprise Storage Server[™]s" on page 105.

Service Clearances are 1145 mm (45 in) Front and 1145 mm (45 in) Back.

The following table shows service clearances, floor loading, and side clearance requirements.

Configuration and Weight kg (lbs.)			Floor Loading See notes 1 and 3)		ances (both ee note 4
	Front mm (in)	Rear mm (in)	kg/sq m (lbs/sq ft)	mm	inches
Model E10 of F10	1145 (45)	1145 (45)	522 (107)	0	0
980 (2160)			488 (100)	76	3
			440 (90)	178	7
			342 (70)	559	22
Models E20 and F20	1145 (45)	1145 (45)	610 (125)	0	0
1175 (2590)			488 (100)	229	9
			440 (90)	356	14
			342 (70)	762	30
Models E20 and F20 with Expansion Enclosure	1145 (45)	1145 (45)	586 (120)	0	0
2495 (5500)			488 (100)	406	16
			440 (90)	686	27
			342 (70)	See notes 2 and 5	See notes 2 and 5

Notes:

- 1. It is recommended that the Enterprise Storage Server (ESS) be installed on a floor with a minimum of 342 kilograms per sqare meter (kg/sq m) (70 pounds per square foot (lbs/sq ft)) strength.
- 2. If you install a Model E20 or F20 with an expansion enclosure, the minimum floor strength must be 440 kg/sq m (90 lbs/sq ft). At 342 (kg/sq m) (70 (lbs/sq ft)), the side clearance exceeds the 762 mm (30 in.) maximum allowed. Consult a structual engineer if you are unsure about correct placement and clearances of these machines for floor loading distribution. You need to install a 28 mm (11 in) spacer between a Model E20 or a Model F20 and an expansion enclosure.
- 3. Floor loadings are calculated for maximum weight of the storage server.
- 4. Side clearances are for both sides of an ESS expansion enclosure. Clearances on both sides are dedicated to the ESS. Adjoining expansion enclosures must have their own floor loading clearance.
- 5. Multiple expansion enclosures are bolted together using 28 mm (11 in) spacers. Move the side cover of the E20 or F20 to the side of the expansion enclosure.

2108 Model G07 Storage Area Network Data Gateway

Dimensions			
Height	89 mm	3.5 in.	
		2 EIA	
Width	425 mm	16.73 in.	
Depth	280 mm	11.0 in.	
Weight			
Minimum	4.1 kg	9.0 lbs.	
Maximum	4.1 kg	9.0 lbs.	
Electrical			
Power source loading			
in active mode			
(typical in kVA)	0.	2	
Voltage range (V ac)	100 to 127 or 200 to	o 240 (autoranging)	
Frequency (hertz)	50 o	r 60	
Thermal output	205 B	8tu/hr	
(typical)			
Power requirements	60 w	vatts	
(typical)			
Power factor	0.65 120Vac - 0.53 240 Vac		
Maximum altitude	2135 m (7000 ft.)	
Temperature	Operating	Non-Operating	
Requirements 1	10 to 40°C	10 to 43°C	
	(50 to 104°F)	(50 to 110°F)	
Humidity	Operating	Non-Operating	
Requirements			
(Noncondensing)	8 to 80%	8 to 80%	
Wet Bulb	23°C (73°F)	27°C (80°F)	
Noise Emissions ²	Operating	Idle	
L_{WAd}	6.2 bels	N/A bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	45 dBA	N/A dBA	
Impulsive or	No	No	
prominent discrete tones			
Install/Air Flow.	When mounted in an enclosed rack, provision must be made to allow for a minimum of 24 cubic feet per minute of air flow to the exterior ofthe rack.		

2109 SAN Fiber Channel Switch

Model S08

Dimensions			
Height — Rack Mount	43.4 mm	1.71 in.	
Height — Table Top	47.2 mm	1.86 in.	
Width	428.6 mm	16.88 in.	
Depth	450 mm	17.72 in.	
Weight			
Single Power Supply	6.36 kg	14.0 lbs.	
Dual Power Supply	7.73 kg	17.0 lbs.	
Electrical			
Voltage range (V ac)	10	0 to 240	
Frequency (hertz)	5	0 or 60	
Maximum altitude	3000 r	m (9,800 ft.)	
Temperature	Operating	Non-Operating	
Requirements	10 to 40°C	−35 to 60°C	
	(50 to 104°F)	(-31 to 147°F)	
Humidity	Operating	Non-Operating	
Requirements			
	5 to 80% Noncondensing @ 40°C		

Model S16

Dimensions			
Height — Rack Mount	87.3 mm	3.44 in.	
Height — Table Top	91.2 mm	3.59 in.	
Width	428.6 mm	16.88 in.	
Depth	450 mm	17.72 in.	
Weight			
Single Power Supply	11.59 kg	25.5 lbs.	
Dual Power Supply	12.94 kg	28.5 lbs.	
Electrical			
Voltage range (V ac)	1	00 to 240	
Frequency (hertz)		50 or 60	
Maximum altitude	3000	m (9,800 ft.)	
Temperature	Operating	Non-Operating	
Requirements	10 to 40°C	−35 to 60°C	
	(50 to 104°F)	(-31 to 147°F)	
Humidity	Operating	Non-Operating	
Requirements	5 to 80% No	ncondensing@ 40°C	

Chapter 5. Physical Characteristics of the 3000 Series

This section gives the physical characteristics for the 30xx series of external devices. The following information can help you plan for your external devices. You only have to do physical planning for the devices you have ordered. Footprints are not drawn to scale.

3490E Enhanced Magnetic Tape Subsystem C11 and C22

			. ,	
Install so that it can be move	ed to an area p	roviding 7	60 mm (30 in) on	each side.
Front	Back		Left	Right
6.4 bels	6.4 bels 6.3 bels		pels	
6.1 bels			5.8 k	pels
Operating			ldi	e
25.6°C (78°F	=)		25.6°C	(78°F)
20 to 80 %			20 to	80 %
Operating			Non-Op	erating
(60 to 90°F)	(50 to 110°F)		I10°F)
Operating			Non-Op	erating
	0.90			
	0.57			
	118 kg		260 lbs	
	90 kg		198 lbs	
	885 mm		34.9 in	
	479 mm		18.6 in	
	622 mm		24.5 in	
	16 to 32°C (60 to 90°F) Operating 20 to 80 % 25.6°C (78°F) Operating 6.1 bels 6.4 bels	## A79 mm 885 mm 90 kg	479 mm 885 mm 90 kg 118 kg 0.57 0.90 Operating 16 to 32°C (60 to 90°F) Operating 20 to 80 % 25.6°C (78°F) Operating 6.1 bels 6.4 bels Front Back	18.6 in 34.9 in 34.9 in 34.9 in 34.9 in 34.9 in 90 kg

3490E Enhanced Magnetic Tape Subsystem E01 and E11

Dimensions E01 (Table	Гор)					
Height		268 mm	10.8 in			
Width		220 mm	8.8 in			
Depth		801 mm	32.0 in			
Dimensions E01 (Rack I	/lounted)					
Height		336 mm	13.5 in			
Width		220 mm	8.8 in			
Depth		758 mm	30.3 in			
Weight						
E01		25.9 kg	57 lbs			
E11		36.0 kg	80 lbs			
Electrical						
Power source loading						
(typical in kVA)						
E01		0.	39)		
E11		0.	39			
Thermal Output (max)		540 E	3tu/hr			
Temperature	Opera	ating	Non-O	perating		
Requirements	16 to			40°C		
	(60 to	90°F)	(50 to	104°F)		
Humidity Requirements	Opera	ating	Non-O	perating		
(Noncondensing)	8 to 8	30 %	8 to	80 %		
Wet Bulb	27°C (8	80.6°F)	27°C ((80.6°F)		
Noise Emissions*	Opera	ating	lo	dle		
E01	58 d	IBA	53 dBA			
E11	58 d	IBA	53	dBA		
Clearances	Front	Back	Left	Right		
Service In	stall so that it can be	moved to an area provi	ding 760 mm (30 in) or	each side.		
* See "Noise Emission No	otes" on page 199 for	definitions of noise emis	ssions positions.			

3514 Models 212, and 213

Dimensions					
Height		610 mm	24 in		
Width					
Enclosure		260 mm	10.3 in		
Base		345 mm	13.5 in		
Depth		800 mm	31.5 in		
Weight					
Minimum		58 kg	128 lbs		
Maximum		64 kg	140 lbs		
Electrical					
Power source loading		.3	33		
(typical in kVA)					
Voltage range (V ac)		100 to 127 or 200 t	to 240 (autoranging)		
Frequency (hertz)		50 c	or 60		
Thermal output		1024	Btu/hr		
(typical)					
Power requirements		300	watts		
(typical)					
Power factor			91		
Maximum altitude		2135 m	(7000 ft.)		
Temperature		ating	Non-Op		
Requirements**		32°C	10 to		
	(50 to	90°F)	(50 to	110°F)	
Noise Emissions*	Oper	ating	ld	le	
L_{WAd}		bels	5.5	bels	
L_pAm	N	/A	N/	'A	
<l<sub>pA>_m</l<sub>	38 (dBA	36 (BA .	
Impulsive noise or	N	o	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	1 mm(40 in)	50 mm(2 in)	25 mm(1 in)	25 mm(1 in)	
	•	le service access to fror to slide unit forward for	nt and rear of unit. Reco	mmended clearance	

3570 Models B00, and C00

Dimensions	Horiz	ontal	Vert	ical	
Height	112 mm	4.4 in.	320 mm	12.6 in.	
Width	320 mm	12.6 in.	112 mm	4.4 in.	
Depth	338 mm	13.3 in.	338 mm 13.3 in.		
Weight					
Minimum	8.4 kg 1		8.4 kg 1	8.5 lbs.	
Maximum (with stand)	8.5 kg 1	8.7 lbs.	8.5 kg 1	8.7 lbs.	
Electrical					
Power source loading		0.00	6		
typical in kVA)					
/oltage range (V ac)		100 to 127 or 200 to	240 (autoranging)		
requency (hertz)		50 or	60		
Thermal output		205 Bt	u/hr		
typical)					
Power requirements		60 wa	atts		
typical)					
Power factor		0.99 (100 V ac) or	0.95 (200 V ac)		
nrush current		30 amps at 100 V ac, 4	ac, 40 amps at 220 V ac		
Maximum altitude		2135 m (7	000 ft.)		
emperature	Opera	ating	Non-Op	erating	
Requirements	16 to	32°C	10 to 43°C		
	(61 to 90°F)		(50 to 109°F)		
lumidity	Operating		Non-Op	erating	
Requirements			0.4.000/		
Noncondensing)	8 to		8 to 80%		
Wet Bulb	26°C(79°F)	27°C(81°F)		
loise Emissions ¹	Opera	•	ldle		
-WAd	5.5		5.5 bels		
-pAm	N/	'A	N/A		
<l<sub>pA>_m</l<sub>	37d	BA	37d	BA	
mpulsive noise	No	ne	None		
Prominent discrete	No	ne	None		
ones					
Clearances	Front	Back	Left	Right	
nstall Air Flow ²	76 mm (3 in)	76 mm (3 in)	None	None	
Service No	additional clearance	is needed for service.			
See "Noise Emission No. Air flow is 25 CFM	otes" on page 199 fo	or definitions of noise emi	ssions positions.		

3570 Models B01, and C01

Dimensions					
Height		217 mm	8.5 in.		
Height (with stand)		242.4 mm	9.5 in.		
Width		483 mm	19.0 in.		
Depth		771 mm	30.4 in.		
Weight					
Maximum		35.0 kg	77.1 lbs		
Maximum (with stand)		39.8 kg	87.7 lbs		
Electrical					
Power source loading		0.0	7		
(typical in kVA)					
Voltage range (V ac)		100 to 127 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or	60		
Thermal output (typical)		239 B	tu/hr		
Power requirements (typical)		70 w	atts		
Power factor		0.99 (100 V ac) or	0.95 (200 V ac)		
Inrush current		30 amps at 120 V ac,	· · · · · · · · · · · · · · · · · · ·		
Maximum altitude	2135 m				
Temperature	Oper	ating	Non-Operating		
Requirements	16 to		10 to 43°C		
	(61 to	90°F)	(50 to 109°F)		
Humidity	Oper	ating	Non-O _l	perating	
Requirements					
(Noncondensing)	8 to		8 to 80%		
Wet Bulb	26°C(79°F)	27°C(81°F)		
Noise Emissions ¹	Oper	ating	Idle		
L_{WAd}	5.7	bels	5.3 bels		
L_pAm	N/	'A	N/A		
$\langle L_{pA}\rangle_{m}$	410	IBA	360	dBA	
Impulsive noise	No	ne	None		
Prominent discrete tones	None		None		
Clearances	Front	Back	Left	Right	
Install Air Flow ²	76 mm (3 in)	76 mm (3 in)	None	None	
Service	No additional clearance	is needed for service.			
See "Noise Emission Air flow is 25 CFM	Notes" on page 199 fo	or definitions of noise em	issions positions.		

3570 Model B02, and C02

Service	No additional clearance	• • • • • • • • • • • • • • • • • • • •	140116	140116	
Clearances nstall/Air Flow ³	76 mm (3 in)	76 mm (3 in)	Left None	Right	
Clearance	Ercut	Dock	1 044	Dieba	
Prominent discrete	No	ne	None		
mpulsive noise	No		No	one	
<l<sub>pA>_m</l<sub>		IBA	38dBA		
-pAm	N	/A	N	I/A	
-WAd	5.8			bels	
Noise Emissions ²	Oper	ating	Idle		
Wet Bulb	26°C(79°F)	27°C(81°F)		
(Noncondensing)	8 to		8 to 80%		
Requirements					
Humidity	Oper	ating	Non-O _l	perating	
	(61 to	90°F)	(50 to 109°F)		
Requirements	16 to	32°C	10 to	43°C	
Temperature	Oper	ating	Non-Operating		
Maximum altitude		2135 m (7	7000 ft.)		
nrush current1		30 amps at 120 V ac,	40 amps at 240 V ac		
Power factor		0.99 (100 V ac) or	0.95 (200 V ac)		
(typical)					
Power requirements		130 w	ratts		
(typical)		444 D	IU/TII		
Thermal output		444 B			
Frequency (hertz)		50 or			
Voltage range (V ac)		100 to 127 or 200 to	240 (autoranging)		
typical in kVA)		0.1	J		
Electrical Power source loading		0.1	9		
Maximum (with stand)		44.8 kg	98.7 lbs		
Maximum		40.0 kg	88.2 lbs		
Weight					
Depth		771 mm			
<i>N</i> idth		483 mm	19.0 in.		
Height (with stand)		242.4 mm	9.5 in.		
-leight		217 mm	8.5 in.		

3. Air flow is 50 CFM.

3570 Models B11, and C11

Dimensions					
Height		217 mm	8.5 in.		
			(5EIA units)		
Width		444 mm	17.5 in.		
Depth		714 mm	28.1 in.		
Weight					
Maximum		24.0 kg	52.8 lbs		
Electrical					
Power source loading		0	0.07		
(typical in kVA)					
Voltage range (V ac)		100 to 127 or 200	to 240 (autoranging)		
Frequency (hertz)		50	or 60		
Thermal output		239	Btu/hr		
(typical)					
Power requirements		70	watts		
(typical)			/		
Power factor			or 0.95 (200 V ac)		
Inrush current		•	c, 40 amps at 240 V ac		
Maximum altitude		2135 m	(7000 ft.)		
Temperature	Opera	iting	Non-Operating		
Requirements	16 to		10 to 43°C		
	(61 to	90°F)	(50 to 109°F)		
Humidity	Opera	iting	Non-Operating		
Requirements					
(Noncondensing)	8 to 8		8 to 80%		
Wet Bulb	26°C(7	⁷ 9°F)	27°C(81°F)		
Noise Emissions*	Opera	iting	Idle		
L _{WAd}	5.5b	els	5.1bels		
L _{pAm}	N/A	A	N/A		
<l<sub>pA>_m</l<sub>	39 d	BA	34 dE		
Impulsive noise	Nor	ne	None		
Prominent discrete	Nor	ne	Non	е	
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	Maintenance of a prope	r service clearance sh	ould allow proper air flow.		
Service	See service clearances	for the "7015 System	Rack R00" on page 40.		
* See "Noise Emission	Notes" on page 199 for o	definitions of noise em	issions positions		
	Training on page 100 for t		.cc.co positiono.		

3570 Models B12, and C12

Dimensions					
Height		217 mm	8.5 in.		
			(5EIA units)		
Width		444 mm	17.5 in.		
Depth		714 mm	28.1 in.		
Weight					
Maximum		29.0 kg	63.9 lbs		
Electrical					
Power source loading		0	.13		
(typical in kVA)					
Voltage range (V ac)		100 to 127 or 200	to 240 (autoranging)		
Frequency (hertz)		50	or 60		
Thermal output		444	Btu/hr		
(typical)					
Power requirements		130	watts		
(typical)					
Power factor		0.99 (100 V ac) or 0.95 (200 V ac)			
Inrush current ¹		30 amps at 120 V ac	c, 40 amps at 240 V ac		
Maximum altitude		2135 m (7000 ft.)			
Temperature	Opera	ting	Non-Ope		
Requirements	16 to 3	2°C	10 to 4	3°C	
	(61 to 9	(61 to 90°F)		09°F)	
Humidity	Opera	ting	Non-Ope	rating	
Requirements					
(Noncondensing)	8 to 8		8 to 80%		
Wet Bulb	26°C(7	9°F)	27°C(81°F)		
Noise Emissions ²	Opera	•	Idle		
LWAd	5.6be		5.3bels		
L _{pAm}	N/A		N/A		
<l<sub>pA>_m</l<sub>	41 dE		36 dBA		
Impulsive noise	Non	e	Non	е	
Prominent discrete	Non	е	None		
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	Maintenance of a proper	service clearance sh	ould allow proper air flow.		
Service	See service clearances f	or the "7015 System	Rack R00" on page 40.		
	each line cord. This model				

Dimensions					
Height		991 mm	39 in.		
Width		355 mm			
Depth		836 mm	37.9 in.		
Weight					
Maximum		71 kg	157 lbs		
Electrical					
Power source loading			0.175		
(typical in kVA)					
Voltage range (V ac)		100 to 1	27 or 200 to 240		
requency (hertz)			50 or 60		
Thermal output		6	00 Btu/hr		
(typical)					
Power requirements		1	175 watts		
(typical)					
Power factor			0.99		
Maximum altitude		2135	135 m (7000 ft.)		
Temperature		Operating	Non	-Operating	
Requirements		6 to 32°C	•	0 to 43°C	
	(6	60 to 90°F)	(50 to 110°F)		
Humidity	(Operating	Non	-Operating	
Requirements					
(Noncondensing)		8 to 80%	8 to 80%		
Wet Bulb	2	26°C(79°F)	27°C(80°F)		
Noise Emissions*	(Operating		Idle	
-WAd		6.6 bels	5.6 bels		
pAm		N/A	N/A		
<l<sub>pA>_m</l<sub>		47dBA	34dBA		
Impulsive noise	Yes		Yes		
Prominent discrete		No	No		
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	
Service	Install so that it ca	n he moved to an area r	providing 760 mm (30 in)	on each side.	
00.1.00		ii bo iiiovod to dii diod p	,, o , , a , , , , , , , , , , , , , , ,		

Dimensions						
Height		1029 mm	40.5 in.	40.5 in.		
Width		1009 mm	39.7 in.			
Depth		861 mm		33.9 in.		
Weight						
Maximum		127 kg	280 lbs			
Electrical						
Power source loading		0.3	28			
(typical in kVA)						
Voltage range (V ac)		100 to 127 c	r 200 to 240			
Frequency (hertz)		50 c	r 60			
Thermal output		850 E	Btu/hr			
(typical)						
Power requirements		250	watts			
(typical)						
Power factor		0.89				
Maximum altitude	2135 m (7000 ft.)					
Temperature	Oper	•	Non-Operating			
Requirements	16 to		10 to 43°C			
	(60 to	90°F)	(50 to 110°F)			
Humidity	Oper	ating	Non-Operating			
Requirements						
(Noncondensing)	8 to		8 to 80%			
Wet Bulb	26°C(79°F)	27°C(80°F)			
Noise Emissions*	Oper	ating	lo	dle		
L_{WAd}	6.7	bels	5.9	bels		
L_pAm	N/	/A	N	I/A		
<l<sub>pA>_m</l<sub>	47d	IBA	340	dBA		
Impulsive noise	Ye	es	Yes			
Prominent discrete	N	0	N	No		
tones						
Clearances	Front	Back	Left	Right		
Install/Air Flow	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)		
Service	Install so that it can be	moved to an area provi	ding 760 mm (30 in) on	each side.		
* See "Noise Emission	Notes" on page 199 for	definitions of noise emis	ssions positions.			
	· -					

Dimensions					
Height		1029 mm	40.5 in.		
Width		1009 mm	39.7 in. 33.9 in.		
Depth		861 mm			
Weight					
Maximum		132 kg 290 lbs			
Electrical					
Power source loading		0	.45		
(typical in kVA)					
Voltage range (V ac)			or 200 to 240		
Frequency (hertz)		50	or 60		
Thermal output (typical)		1200	Btu/hr		
Power requirements (typical)		350 watts			
Power factor	0.78				
Maximum altitude		2135 m (7000 ft.)			
Temperature	Opera	•	Non-Operating		
Requirements	16 to 32°C (60 to 90°F)		10 to 43°C (50 to 110°F)		
	(60 to	90°F)	(30 to 110 F)		
Humidity Requirements	Opera	ating	Non-Operating		
(Noncondensing)	8 to 8	30%	8 to 80%		
Wet Bulb	26°C(79°F)	27°C(80°F)		
Noise Emissions*	Opera	ating	lo	ldle	
L_{WAd}	6.8 k		6.2 bels		
L_pAm	N/		N/A		
<l<sub>pA>_m</l<sub>	47d		34dBA		
Impulsive noise	Ye	-	Yes		
Prominent discrete tones	No No			lo	
Clearances	Front	Back	Left	Right	
Install/Air Flow	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	
Service	Install so that it can be	moved to an area prov	riding 760 mm (30 in) on	each side.	
* See "Noise Emission	Notes" on page 199 for	definitions of noise emi	issions positions.		
	1111 111 111 111 111				

Dimensions					
Height		1480 mm	58.3 in.		
Width		1009 mm	39.7 in.		
Depth		861 mm	33.9 in.		
Weight					
Maximum		195 kg	428 lbs		
Electrical					
Power source loading		0.	45		
(typical in kVA)					
Voltage range (V ac)		100 to 127 d	or 200 to 240		
Frequency (hertz)		50 c	or 60		
Thermal output		1200	Btu/hr		
(typical)					
Power requirements		350	watts		
(typical)					
Power factor		0.78			
Maximum altitude		2135 m	(7000 ft.)		
Temperature		ating	Non-O _l	perating	
Requirements		32°C			
	(60 to	90°F)	(50 to 110°F)		
Humidity	Oper	ating	Non-Operating		
Requirements					
(Noncondensing)		80%	8 to 80%		
Wet Bulb	26°C((79°F)	27°C(80°F)		
Noise Emissions*		ating		dle	
L_{WAd}		bels		bels	
L _{pAm}		/A		I/A	
<l<sub>pA>_m</l<sub>	470	iBA	340	dBA	
Impulsive noise	Ye	es	Yes		
Prominent discrete	N	lo	1	No	
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	
Service	Install so that it can be	moved to an area provi	iding 760 mm (30 in) on	each side.	
* See "Noise Emission	Notes" on page 199 for	definitions of noise emis	ssions positions.		
	<u>. </u>		<u> </u>		

Dimensions						
Height		1480 mm	58.3 in.			
Width		1009 mm	39.7 in. 33.9 in.			
Depth		861 mm				
Weight						
Maximum		203 kg	446 lbs			
Electrical						
Power source loading		0	.45			
(typical in kVA)						
Voltage range (V ac)		100 to 127	or 200 to 240			
Frequency (hertz)		50	or 60			
Thermal output		1200	Btu/hr			
(typical)						
Power requirements		350 watts				
(typical) Power factor		0	70			
Maximum altitude	0.78					
Maximum annude		2135 m (7000 ft.)				
Temperature	Opera	ating	Non-O	perating		
Requirements	16 to 32°C		10 to 43°C			
	(60 to	90°F)	(50 to 110°F)			
Humidity	Opera	ating	Non-O	perating		
Requirements	0.1.	200/	0.1	000/		
(Noncondensing)	8 to 8		8 to 80%			
Wet Bulb	26°C(/9°F)	27°C(80°F)			
Noise Emissions*	Opera	•		lle		
L _{WAd}	6.8 k		6.2 bels			
L _{pAm}	N/.		N/A			
<l<sub>pA>_m</l<sub>	47d		34dBA			
Impulsive noise	Ye	-	Yes			
Prominent discrete tones	N	No No				
Clearances	Front	Back	Left	Right		
Install/Air Flow	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)		
Service	Install so that it can be	moved to an area prov	riding 760 mm (30 in) on	each side.		
* See "Noise Emission	Notes" on page 199 for	definitions of noise emi	ssions positions.			
			•			

3590 Magstar Tape System

3590 Magstar Tape System Models B11 and B1A

Dimensions	B11 Rack		B1A Library		
Height	522 mm 20.6 in.		262 mm 10.5 in.		
Width	230 mm 9.1 in. 221 mm 8.8 in.		230 mm 9.1 in. 221 mm 8.8 in.	230 mm 9.1 in. 221 mm 8.8 in.	221 mm 8.8 in.
Depth	988 mm 39.0 in.		750 mm 29.8 in.		
Weight					
	49.5 kg 109 lbs.		28.6 kg 63 lbs.		
Electrical					
Power source loading		0.3			
(typical in kVA)					
Thermal output		1024 Btu/hr			
(typical)					
Temperature Requirements					
(media in use)		16 to 32°C			
		(60 to 90°F)			
Humidity Requirements					
(Noncondensing)		20 to 80%			
Wet Bulb		23°C (73°F)			

3590 Magstar Tape System Model C12 Frame

Dimensions		
Height	1803 mm 71.0 in.	
Width	724 mm 28.5 in.	
Depth	775 mm 30.5 in.	
Weight		
	400 kg 880 lbs.	
Electrical		
Power source loading	1.2	
(typical in kVA)		
Thermal output	7830 Btu/hr *	
(typical)		
Temperature Requirements		
(media in use)	16 to 32°C	
	(60 to 90°F)	
Humidity Requirements		
(Noncondensing)	20 to 80%	
Wet Bulb	26°C (79°F)	

Note: * Includes four B1A or E1A drives and associated cables

3590 Magstar Tape System Models E11 and E1A

Dimensions	E11 Rack		E1A Library
Height	522 mm 20.6 in.		262 mm 10.5 in.
Width	230 mm 9.1 in.		221 mm 8.8 in.
Depth	988 mm 39.0 in.		750 mm 29.8 in.
Weight			
	46.7 kg 103.0 lbs.		30.0 kg 66.0 lbs.
Electrical			
Power source loading		0.225	
(typical in kVA)			
Thermal output		770 Btu/hr	
(typical)			
Temperature Requirements			
(media in use)		16 to 32°C	
		(60 to 90°F)	
Humidity Requirements			
(Noncondensing)		20 to 80%	
Wet Bulb		25°C (78°F)	

3995 Model 063

Dimensions				
Height		681 mm	26.8 in.	
Width		375 mm	14.8 in.	
Depth		805 mm	31.7 in.	
Weight				
Minimum		93 kg	205 lbs N/A	
Maximum		N/A		
Electrical				
Power source loading		0.1	16	
(typical in kVA)				
Voltage range (V ac)		100 to 127 or 200	to 240 (selectable)	
Frequency (hertz)		50 o	r 60	
Thermal output (typical)		350 E	Btu/hr	
Power requirements (typical)		100 v	watts	
Power factor	0		.63	
Maximum altitude		2135 m (7000 ft.)	
Temperature		Opera	ating	
Requirements		10 to		
		(50 to	100°F)	
Humidity	Opera	ating	Non-Op	erating
Requirements				
(Noncondensing)	8 to 8		8 to 80%	
Wet Bulb	23°C(73°F)	27°C(80°F)	
Noise Emissions*	Opera	•	ldle	
L_{WAd}	6.0 k	pels	5.5 bels	
L _{pAm}	N/	•	N/A	
<l<sub>pA>_m</l<sub>	43 c		37 dBA	
Impulsive noise	Ye	-	No	
Prominent discrete tones	No		No	
Clearances	Front	Back	Left	Right
Install/Air Flow	1020mm(40 in)	1020mm(40 in)	559mm(22 in)	559mm(22 in)
Install/Air Flow				
	Install so that it can be	moved to an area provide	ding 760 mm(30 in) on	each side.

3995 Model 163

	1800 mm	70.9 in.		
		27.3 in.		
943 mm		37.1 in.		
	•	900 lbs		
	N/A	N/A		
	0.	25		
	200 t	to 240		
	50 (or 60		
	750	Btu/hr		
	220 watts			
	0.89			
10 amps				
2135 m (7000 ft.)				
•	•	-	erating	
			43°C	
(60 to	90°F)	10 to	43°C	
Opera	ating	Non-Operating		
8 to 9	80%	8 to 80%		
23°C(73°F)	27°C(80°F)		
Opera	ating	ldle		
6.5 k	pels	5.5 bels		
N/	A	N/A		
46 d	IBA	42 dBA		
Ye	es	No		
N	0	No		
Front	Back	Left	Right	
1020mm(40 in)	1020mm(40 in)	559mm(22 in)	559mm(22 in)	
Install so that it can be	moved to an area prov	iding 760 mm(30 in) on	each side.	
	16 to (60 to Opera 8 to 8 23°C(** Opera 6.5 th N/ 46 co Yes No Front 1020mm(40 in)	692 mm 943 mm 408 kg N/A 0.200 ft 50 ct 750 ct 220 0.10 at 2135 m Operating 16 to 32°C (60 to 90°F) Operating 8 to 80% 23°C(73°F) Operating 6.5 bels N/A 46 dBA Yes No Front Back 1020mm(40 in) 1020mm(40 in)	692 mm 27.3 in. 943 mm 37.1 in. 408 kg 900 lbs N/A 0.25 200 to 240 50 or 60 750 Btu/hr 220 watts 0.89 10 amps 2135 m (7000 ft.) Operating 16 to 32°C 10 to (60 to 90°F) 10 to Operating Non-Operating Non-Opera	

3995 Model A63

Service		moved to an area provi				
Install/Air Flow	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)		
Clearances	Front	Back	Left	Right		
Prominent discrete tones	N	0	No			
Impulsive noise	Ye		Yes			
<l<sub>pA>_m</l<sub>	47d		34dBA			
L _{pAm}	N/		N/A			
L _{WAd}	6.4		5.1 bels			
Noise Emissions*	Oper	•	Idle			
	,	•	· ,			
(Noncondensing) Wet Bulb	8 to 23°C(8 to 80% 27°C(80°F)			
Requirements	0.4-	000/	9 to 909/			
Humidity	Oper	ating	Non-Operating			
	(60 to	90°F)	(50 to 110°F)			
Requirements	16 to		10 to 43°C			
Temperature	Oper	ating	Non-Op	perating		
Maximum altitude		2135 m	(7000 ft.)			
Power factor		0.6 (100-127 V ac) or 0.55 (200-240 V ac)				
(typical)						
Power requirements		60 v	vatts			
(typical)		250 1	J.C./TII			
Thermal output			Stu/hr			
Frequency (hertz)			or 60			
Voltage range (V ac)		100 to 127 o	or 200 to 240			
Power source loading (typical in kVA)		0.	11			
Electrical		0.	11			
Et 1.2 1						
Maximum		N/A	N/A			
Minimum		32.2 kg	75.5 lbs			
Weight						
Depth		711 mm	28.00 in.			
Width		220 mm	8.70 in.			
Height		492 mm	19.38 in.			

Dimensions					
Height		457 mm	18.0 in.		
Width		216 mm	8.5 in.		
Depth		737 mm	29.0 in.		
Weight					
Minimum (w/o cartridges)		28.0 kg	61 lbs		
Maximum (with 20 cartridges)		34.1 kg	75 lbs		
Typical weight of cartridge		0.32 kg	0.7 lbs		
Electrical					
Power source loading		0	14		
(typical in kVA) @		0.			
Voltage range (V ac)		100 to 127 d	or 200 to 240		
Frequency (hertz)		50 c	or 60		
Thermal output		275 E	Btu/hr		
(typical)					
Power requirements (typical)	80 watts				
Maximum altitude		2135 m	(7000 ft.)		
Temperature	Opera	•	-	perating	
Requirements	10 to 3		10 to 52°C		
	(50 to 10	00.4°F)	(50 to 125.6°F)		
Humidity Requirements	Opera	ting	Non-Operating		
(Noncondensing)	8 to 8	80%	8 to 80%		
Wet Bulb	25.8°C(7	'8.4°F)	27°C(80°F)		
Noise Emissions*	Opera	ting	Idle		
-WAd	6 be		5.5 bels		
-pAm	N/A		N/A		
<l<sub>pA>_m</l<sub>	N//		N/A		
Impulsive noise	Ye		Yes		
Prominent discrete tones	No		N	lo	
Clearances	Front	Back	Left	Right	
Install/Air flow	leave open for operator panel	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)	
Service	Install so that it can be i	moved to an area provi	iding 760 mm (30 in) on	each side.	
* See "Noise Emission	Notes" on page 199 for o	lefinitions of noise emis	ssions positions		
	Trocos on page 199 lor c	TOTAL OF THE SECOND	colorio positionis.		

Dimensions				
Height		991 mm	39.0 in.	
Width		355 mm	14.0 in.	
Width (with	464 mm		18.3 in.	
stabilizers)		707	00.0	
Depth		737 mm	29.0 in.	
Weight				
Minimum (w/o		69 kg	152 lbs	
cartridges)				
Maximum (with 52		85.6 kg	188.4 lbs	
cartridges)		0.00 kg	0.7 lbs	
Typical weight of cartridge		0.32 kg	U.7 IDS	
Electrical				
Power source loading		0.	16	
(typical in kVA) @ 120 V ac				
Voltage range (V ac)		100 to 127 o	r 200 to 240	
Frequency (hertz)		50 o	r 60	
Thermal output		310 E	Btu/hr	
(typical)				
Power requirements		90 w	<i>r</i> atts	
(typical) Maximum altitude		0105	77000 # \	
		2135 m (7000 11.)	
Temperature	Opera			perating
Requirements	10 to 3			52°C
	(50 to 10	00.4°F)	(50 to	25.6°F)
Humidity Requirements	Opera	ating	Non-Op	perating
(Noncondensing)	8 to 8	30%	8 to	80%
Wet Bulb	25.8°C(7	78.4°F)	27°C(80°F)	
Noise Emissions*	Opera	ating	lo	lle
L _{WAd}	6 be	-	5.5	bels
-pAm	N/A	A	N/A	
<l<sub>pA>_m</l<sub>	N/A	A	N/A	
mpulsive noise	Ye	s	Yes	
Prominent discrete	No	0	N	lo
tones				
Clearances	Front	Back	Left	Right
Install/Air flow	leave open for operator panel	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)
	Install so that it can be	moved to an area provi	ding 760 mm (20 in) on	each side
Service	ilistali so tilat it call be	illoved to all alea provi	ung 700 mm (30 m) on	each side.

Dimensions						
Height		1029 mm	40.5 in.			
Width		813 mm		32.0 in.		
Depth		762 mm		30.0 in.		
Weight						
Minimum (w/o		125 kg	275 lbs			
cartridges)		_				
Maximum (with 104	158 kg		348 lbs			
cartridges)			. – "			
Typical weight of		0.32 kg		0.7 lbs		
cartridge						
Electrical						
Power source loading	0.17					
(typical in kVA) @ 120 V ac						
Voltage range (V ac)	100 to 127 or 200 to 240					
Frequency (hertz)		50 (or 60			
Thermal output	340 Btu/hr					
typical)						
Power requirements	100 watts					
(typical)						
Maximum altitude	2135 m (7000 ft.)					
Temperature	Operating		Non-Operating			
Requirements		10 to 38°C		10 to 52°C		
	(50 to 100.4°F)		(50 to 125.6°F)			
Humidity Requirements	Operating		Non-Operating			
(Noncondensing)	8 to 80%		8 to 80%			
Wet Bulb	25.8°C(78.4°F)		27°C(80°F)			
Noise Emissions*	Operating		Idle			
-WAd	6 bels		5.5 bels			
¬pAm	N/A		N/A			
· <l<sub>pA>_m</l<sub>	N/A		N/A			
mpulsive noise	Yes		Yes			
Prominent discrete ones	No		No			
Clearances	Front	Back	Left	Right		
nstall/Air flow	leave open for operator panel	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)		
Service	Install so that it can be moved to an area providing 760 mm (30 in) on each side.					
See Indise Emission	Notes" on page 199 for o	iennitions of noise emi	ssions positions.			

Dimensions						
Height		1029 mm	40.5 in.			
Width		813 mm	32.0 in.			
Depth		762 mm		30.0 in.		
Weight						
Minimum (w/o	125 kg		275 lbs			
cartridges)						
Maximum (with 156	175 kg		384 lbs			
cartridges) Typical weight of		0.00 les		0.7 lbo		
cartridge		0.32 kg		0.7 lbs		
-						
Electrical	0.04					
Power source loading	0.31					
(typical in kVA) @ 120 V ac						
Voltage range (V ac)	100 to 127 or 200 to 240					
Frequency (hertz)	50 or 60					
Thermal output	475 Btu/hr					
(typical)						
Power requirements	140 watts					
(typical)						
Maximum altitude	2135 m (7000 ft.)					
Temperature	Operating 10 to 38°C		Non-Operating			
Requirements			10 to 52°C			
	(50 to 100.4°F)		(50 to 125.6°F)			
Humidity Requirements	Operating		Non-Operating			
(Noncondensing)	8 to 80%		8 to 80%			
Wet Bulb	25.8°C(78.4°F)		27°C(80°F)			
Noise Emissions*	Opera	Operating Idle		lle		
L _{WAd}	6 bels		5.5 bels			
L _{pAm}	N/A		N/A			
<l<sub>pA>_m</l<sub>	N/A		N/A			
Impulsive noise	Yes		Yes			
Prominent discrete tones	No		No			
Clearances	Front	Back	Left	Right		
Install/Air flow	leave open for operator panel	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)		
Service	Install so that it can be	moved to an area prov	iding 760 mm (30 in) on	each side.		
* See "Noise Emission	Notes" on page 199 for o	definitions of noise emi	ssions positions			
230 21111001011						

Dimensions						
Height		1480 mm	58.3 in.			
Width		813 mm	32.0 in.			
Depth		762 mm	30.0 in.			
Weight						
Minimum (w/o		193 kg				
cartridges)		-				
Maximum (with 258	275 kg		606 lbs			
cartridges)	0.00 1		0.7 lba			
Typical weight of cartridge		0.32 kg		0.7 lbs		
Electrical		0.54				
Power source loading (typical in kVA) @	0.31					
120 V ac						
Voltage range (V ac)	100 to 127 or 200 to 240					
Frequency (hertz)	50 or 60					
Thermal output	475 Btu/hr					
(typical)	- 					
Power requirements	140 watts					
(typical)						
Maximum altitude	2135 m (7000 ft.)					
Temperature	Operating		Non-Operating			
Requirements	10 to 38°C		10 to 52°C			
	(50 to 10	00.4°F)	(50 to 125.6°F)			
Humidity Requirements	Operating		Non-Operating			
(Noncondensing)	8 to 80%		8 to 80%			
Wet Bulb	25.8°C(78.4°F)		27°C(80°F)			
Noise Emissions*	Operating		Idle			
L_WAd	6 bels		5.5 bels			
L _{pAm}	N/A		N/A			
<l<sub>pA>_m</l<sub>	N/A		N/A			
Impulsive noise	Yes		Yes			
Prominent discrete tones	No		No			
Clearances	Front	Back	Left	Right		
Install/Air flow	leave open for operator panel	76 mm (3 in)	76 mm (3 in)	76 mm (3 in)		
Service	Install so that it can be r	moved to an area prov	iding 760 mm (30 in) on	each side.		
* See "Noise Emission	Notes" on page 199 for o	definitions of noise emi	ssions positions			
230 140100 E1111031011		ionination of Holde Citil	colorio positionis.			

Chapter 6. Physical Characteristics of the 7100 Series

This section gives the physical characteristics for the 71xx series of external devices. The following information can help you plan for your external devices. You only have to do physical planning for the devices you have ordered. Footprints are not drawn to scale.

Where a footprint is shown, the figure represents a top view of the device.

7131 Model 105 SCSI Multi-Storage Tower

16.0 in. 7.8 in. 19.0 in.	
-	
19.0 in.	
34 lbs.	
44 lbs.	
0.96	
240 (selectable)	
60	
u/hr	
atts	
000 ft.)	
Non-Operating	
10 to	43°C
(50 to	110°F)
Non-Operating	
20 to 80%	
27°C (80°F)	
ldle	
5.6 bels	
N/A	
46 dBA	
N	lo
Left	Right
25 mm(1 in)	25 mm(1 in)
N/A	25 mm(1 in)
Depth	
790mm	n(31 in)
	De

7131 Model 405 SSA Multi-Storage Tower

Dimensions					
Height		407 mm	16.0 in.		
Width (at pedestal)		197 mm	7.8 in.		
Depth		483 mm	19.0 in.		
Weight			-		
Minimum		15.4 kg	34 lbs.		
Maximum		18.0 kg	40 lbs.		
Electrical					
Power source loading		0.5	39		
(typical in kVA)					
Voltage range (V ac)			5 or 200 to		
- "		240 (sel	•		
Frequency (hertz)			or 60		
Thermal output (max)			Btu/hr		
Power requirements		230	watts		
(max) Power factor		0	5		
Maximum altitude					
	2135 m (7000 ft.)				
Temperature	Operating		Non-Operating 10 to 43°C		
Requirements	16 to 32°C (60 to 90°F)		(50 to 110°F)		
	•	•	•	·	
Humidity Requirements	Oper	ating	Non-Op	erating	
(Noncondensing)	20 to	80%	20 to	80%	
Wet Bulb		(73°F)	27°C		
				` '	
Noise Emissions ¹	•	ating	idle		
L _{WAd} (5 devices)		bels	5.6 bels N/A		
L _{pAm}		/A			
<l<sub>pA>_m</l<sub>		dBA Io	46 dBA No		
Impulsive or prominent discrete	IN	10	IN	0	
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	25 mm(1 in)	25 mm(1 in)	
Service	152 mm(6 in)	N/A	N/A	25mm(1in)	
Footprint ²	Wi	dth	Dei	oth	
p	250mm(9.8 in)		Depth 790mm(31 in)		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7133 Models 010 and 020 Rack-Mounted SSA Subsystem

Dimensions			
Height	171 mm	6.7 in.	
		(4 EIA units)	
Width	444 mm	17.5 in.	
Depth	665 mm	26.2 in.	
Weight			
Minimum	36 kg	79 lbs.	
Maximum	50 kg	110 lbs.	
Electrical			
Power source loading:			
Maximum start-up	0	0.657 kVA	
Maximum operating	0).499 kVA	
Maximum idling	(0.45 kVA	
Power factor	grea	ter than 0.95	
Voltage range (V ac)	1	00 to 240	
Voltage optional (V dc)	2	40 to 375	
Frequency (hertz)	50 or 60		
DC Power Supply -48 V dc	-	40 to -60	
(Model 020 only)			
Thermal output (Maximum)		u/hr (See note 1)	
Maximum altitude	2135	5 m (7000 ft.)	
Temperature Requirements	Operating	Non-Operating	
(See note 2)	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 125°F)	
Humidity Requirements	Operating	Non-Operating	
(Noncondensing)	8% to 80%	8% to 80%	
Wet Bulb	27°C (80°F)	27°C (80°F)	
Noise Emissions*	Operating	ldle	
L _{WAd}	6.15 bels	6.1 bels	
L _{pAm}	N/A	N/A	
$\langle L_{pA}\rangle_{m}$	48 dBA	45 dBA	
Impulsive or prominent discrete tones	No	No	

- * See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 1. Each 7133 rack-mounted unit requires an air flow of 2.46 cubic meters/minute (87 CFM). When racks containing many 7133 units are to be installed together, the following requirements must be met to ensure that the 7133 units are adequately cooled:
 - · The airflow is in at the front of the rack and out at the back. To avoid moving exhaust air to the intake of another piece of equipment, racks should be positioned in alternate rows, back-to-back and front-to-front.
 - · The front of racks should be positioned on floor-tile seams, with a full line of perforated tiles immediately in front of the racks. Each perforated tile should have an air flow of at least 11.34 m³/min (400 CFM). The underfloor temperature must be at most 15°C (60°F).
 - · Where racks are in rows front-to-front or back-to-back, there should be a gap of at least 1220 mm (48 in) separating the rows.
 - To ensure proper air flow within each rack, the rack filler plates must be installed in unused positions. Also, all the gaps in the front of the racks must be sealed, including the gaps between the 7133 units.
- 2. The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

7133 Model D40 Rack-Mounted SSA Subsystem

Dimensions				
Height	171 mm	6.7 in.		
		(4 EIA units)		
Width	444 mm	17.5 in.		
Depth	665 mm	26.2 in.		
Weight				
Minimum	36 kg	79 lbs.		
Maximum	50 kg	110 lbs.		
Electrical				
Power source loading:				
Maximum start-up	0.756	S kVA		
Maximum operating	0.636	S kVA		
Maximum idling	0.532 kVA			
Power factor	greater than 0.95			
Voltage range (V ac)	88 to 264			
Voltage optional (V dc)	N/A			
Frequency (hertz)		o 60		
Thermal output (Maximum)		(See note 1)		
Maximum altitude	2133 m ((7000 ft.)		
Temperature Requirements	Operating	Non-Operating		
(See note 2)	10 to 40°C	10 to 40°C		
	(50 to 104°F)	(50 to 104°F)		
Humidity Requirements	Operating	Non-Operating		
(Noncondensing)	8% to 80%	8% to 80%		
Wet Bulb	27°C (80°F)	27°C (80°F)		
Noise Emissions*	Operating	Idle		
L _{WAd}	6.15 bels	6.1 bels		
L_pAm	N/A	N/A		
$\langle L_{pA}\rangle_{m}$	N/A	N/A		
Impulsive or prominent discrete tones	N/A	N/A		

^{*} See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

- 1. Each 7133 rack-mounted unit requires an air flow of 2.46 cubic meters/minute (87 CFM). When racks containing many 7133 units are to be installed together, the following requirements must be met to ensure that the 7133 units are adequately cooled:
 - The airflow is in at the front of the rack and out at the back. To avoid moving exhaust air to the intake of another piece of equipment, racks should be positioned in alternate rows, back-to-back and front-to-front.
 - The front of racks should be positioned on floor-tile seams, with a full line of perforated tiles immediately in front of the racks. Each perforated tile should have an air flow of at least 11.34 m³/min (400 CFM). The underfloor temperature must be at most 15°C (60°F).
 - · Where racks are in rows front-to-front or back-to-back, there should be a gap of at least 1220 mm (48 in) separating the rows.
 - To ensure proper air flow within each rack, the rack filler plates must be installed in unused positions. Also, all the gaps in the front of the racks must be sealed, including the gaps between the 7133 units.
- 2. The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

7133 Model T40 Deskside SSA Subsystem

Dimensions				
Height		610 mm	24.0 in.	
Width (at pedestal)		210 mm	8.3 in.	
Depth		820 mm	32.3 in.	
Weight				
Minimum		58.5 kg	129 lbs.	
Maximum		72.5 kg	160 lbs.	
Electrical				
Power source loading:				
Maximum start-up		0.75	6 kVA	
Maximum operating		0.63	6 kVA	
Maximum idling			2 kVA	
Power factor		greater	than 0.95	
Voltage range (V ac)		88 to	o 264	
Frequency (hertz)		50 (or 60	
Thermal output	1880 Btu/hr			
(Maximum)				
Maximum altitude	2133 m (7000 ft.)			
Temperature	Opera			perating
Requirements	10 to			40°C
(See note)	(50 to 1	104°F)	(50 to	104°F)
Humidity Requirements	Opera	ating	Non-O	perating
(Noncondensing)	8 to 8	30%	8 tc	80%
Wet Bulb	27°C ((80°F)
Noise Emissions ¹	Opera	•	=	dle
L _{WAd}	6.6 b		6.5 bels	
L _{pAm}	N/A	· =	N/A	
<l<sub>pA>_m</l<sub>	N/A		N/A	
Impulsive or	No)	I	No
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow *	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A

Note: * The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

7133 Models 500 and 600 Deskside SSA Subsystem

Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Clearances	Front	Back	Left	Right
tones				
prominent discrete	,			
Impulsive or		lo		lo
∟ _{pAm} <l<sub>pA>_m</l<sub>		.59 dBA		.56 dBA
⊢WAd L _{pAm}		/A		/A
L_{WAd}	0	6.8 bels	O .	6.6 bels
110.00 E11110010110	•	Max.		Max.
Noise Emissions ¹	Oner	ating	le le	lle
Wet Bulb		(73°F)		(80°F)
(Noncondensing)	8 to	80%	8 to	80%
Humidity Requirements	Oper	rating	Non-O _l	perating
(See note)	· · · · · · · · · · · · · · · · · · ·	90°F)	•	110°F)
Requirements		32°C		43°C
Temperature		rating	-	perating
viaximum ailituue		2135 111 (<u> </u>	
(Maximum) Maximum altitude		2135 m (7000 ft \	
Thermal output		2074 I	Stu/hr	
Frequency (hertz)		50 o		
Voltage range (V ac)		100 to	-	
Power factor		greater th		
Maximum idling		0.45		
Maximum operating		0.499		
Maximum start-up		0.657		
Power source loading:				
Electrical				
Maximum		72.5 kg	160 lbs.	
Minimum		58.5 kg	129 lbs.	
Weight				
Depth		820 mm	32.3 in.	
Width (at pedestal)		210 mm	8.3 in.	
Height		610 mm	24.0 in.	

Note: The recommended operating temperature is 22°C (72°F) or lower. At lower temperatures, the risk of failure in the unit is reduced. If the operating temperature is above 22°C (72°F) for long periods of time, the unit will be exposed to a greater risk of failure from external causes.

^{2.} The amount of space needed by the unit during normal operation is indicated by broken lines on the footprint.

7134 Model 010 High-Density SCSI Disk Subsystem

Dimensions			
Height	171 mm	6.7 in.	
		(4EIA units)	
Width	444 mm	17.4 in.	
Depth	665 mm	26.2 in.	
Weight			
Minimum	69 kg	31.5 lbs.	
Maximum	129 kg	58.5 lbs.	
Electrical			
Power source loading	0.021 plus 0.024 for	each 2GB Disk Drive, or	
(kVA)	0.028 for each	1 4.5GB Disk Drive	
Voltage range (V ac)	100 to 125 or 200	0 to 240 (autoranging)	
Frequency (hertz)	50	or 60	
Thermal output (max)	68 Btu/hr plus 77 Btu/hr for each 2GB Disk Drive, or 90 Btu/hr for each 4.5 GB Disk Drive		
Power requirements	20 watts plus 22.5 watts	for each 2GB Disk Drive, or	
•	26.5 watts for ea	ach 4.5GB Disk Drive	
Power factor	0.95 minimum		
Maximum altitude	2135 r	m (7000 ft.)	
Temperature	Operating	Non-Operating	
Requirements	10 to 40°C	10 to 52°C	
	(50 to 110°F)	(50 to 125°F)	
Humidity	Operating	Non-Operating	
Requirements			
(Noncondensing)	8% to 80%	8% to 80%	
Wet Bulb	27°C (80°F)	27°C (80°F)	
Noise Emissions*	Operating	Idle	
L _{WAd}	5.8 bels	5.6 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	46 dBA	46 dBA	
Impulsive or	No	No	
prominent discrete tones			
* See "Noise Emission Notes"	on page 199 for definitions of noise er	missions positions.	

7135 RAIDiant Array

prominent discrete tones		
Impulsive or	No	No
<l<sub>pA>_m</l<sub>	48 dBA	47.5 dBA
L _{pAm}	N/A	N/A
L _{WAd}	6.35 bels	6.05 bels
Noise Emissions*	Operating	Idle
Wet Bulb	23°C (73°F)	27°C (80°F)
(Noncondensing)	8% to 80%	8% to 80%
Requirements	- 13	· · · · · · · · · · · · · · · · · · ·
Humidity	Operating	Non-Operating
	(50 to 110°F)	(34 to 125°F)
Requirements	10 to 40°C	1 to 52°C
Temperature	Operating	Non-Operating
Maximum altitude	2135	m (7000 ft.)
Power factor		0.95
Power requirements	190 watts plus 2	7 watts each disk drive
Thermal output	648 Btu/hr plus 9	2 Btu/hr each disk drive
Frequency (hertz)		0 or 60
(kVA) Voltage range (V ac)	100 to 125 or 20	0 to 240 (autoranging)
Power source loading	0.2 plus 0.03	for each disk drive
Electrical		
Configuration	3	
Maximum	128.5 kg	283 lbs.
Empty	50.0 kg	110 lbs.
Weight		
Depth	665 mm	26.2 in.
Width	444 mm	17.4 in.
units)		(,
Height (disk drive	171 mm	6.7 in. (4 EIA units)
Dimensions Height (control unit)	82 mm	3.4 in. (2 EIA units)

7135 RAIDiant Array Deskside Mini-Rack

Service	1 m(39.4 in)	1 m(39.4 in)	N/A	1 m(39.4 in)	
Install/Air Flow	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
ones					
prominent discrete					
^{►∟_{pA}>_m mpulsive or}		lo	No		
- _{pAm} <l<sub>pA>_m</l<sub>	N.		0 dBA		
	N.		N/A		
L _{WAd}		/A	-	bels	
Noise Emissions ^{2,3}	Oper	ating	Idle		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
(Noncondensing)	20% to	o 80%	8% to 80%		
Requirements	-	•		. •	
Humidity	Oper	ating	Non-C	perating	
	(60 to	90°F)	(50 to	o 110°F)	
Requirements	16 to	32°C	10 to 43°C		
Temperature	Operating		Non-Operating		
Maximum altitude		2135 m (7	000 ft.)		
Power factor	0.0		5		
(max)					
Power requirements		190 watts plus 27 watts			
Thermal output (max)		648 Btu/hr plus 92 Btu/h			
Frequency (hertz)		50 or			
(kVA) Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Power source loading		0.2 plus 0.03 for 6	each disk drive		
Electrical ^{1,3}					
Configuration					
Maximum		177.0 kg	390 lbs.		
Empty		54.5 kg	120 lbs.		
Weight					
Depth		750 mm	29.5 in.		
Width		560 mm	23.1 in.		
-leight		610 mm	24.0 in.		

^{1.} The Mini-Rack has a 10A fuse, these values indicate the maximum values for the Mini-Rack with installed devices. The actual values depend on which devices are installed.

^{2.} See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.

^{3.} Dependant on the devices installed in the 7135 Mini-Rack.

7137 Disk Array Subsystem Models 412, 413, 414, and 415

Dimensions		
Height	610 mm	24.0 in.
Width		
Enclosure	210 mm	8.3 in.
Base	310 mm	12.2 in.
Depth	820 mm	32.3 in.
Weight		
Empty	49 kg	109 lbs.
Maximum	54 kg	119 lbs.
Configuration	_	
Electrical		
Power source loading		0.33
(kVA)		
Voltage range (V ac)		125 or 200 to 240
Frequency (hertz)		50 or 60
Thermal output	1	050 Btu/hr
Power requirements	;	308 watts
Power factor		0.9
Maximum altitude	213	4m (7000 ft.)
Temperature	Operating	Non-Operating
Requirements	10 to 40°C	1 to 52°C
	(50 to 110°F)	(34 to 125°F)
Humidity	Operating	Non-Operating
Requirements		
(Noncondensing)	8% to 80%	8% to 80%
Wet Bulb	23°C (73°F)	27°C (80°F)
Noise Emissions*	Operating	Idle
L _{WAd}	5.9 bels	5.8 bels
L _{pAm}	N/A	N/A
·L _{pA} > _m	37 dBA	37 dBA
(4.5GB)	43 dBA	No
Impulsive or	No	
prominent discrete		
tones		
* See "Noise Emission Notes"	on page 199 for definitions of noise	emissions positions.
	1 0	I TOTAL TOTAL

7137 Disk Array Subsystem Models 512, 513, 514, and 515

Dimensions		
Dimensions	170	7.0 in
Height	178 mm	7.0 in.
Width	400	10.0 in
Enclosure	483 mm	19.0 in.
Depth	716 mm	28.2 in.
Weight		
Empty	32 kg	70 lbs.
Maximum	35 kg	76 lbs.
Configuration		
Electrical		
Power source loading		0.33
(kVA)		
Voltage range (V ac)	100 to 12	25 or 200 to 240
Frequency (hertz)	Ę	50 or 60
Thermal output	10	050 Btu/hr
Power requirements	3	08 watts
Power factor		0.9
Maximum altitude	2134	lm (7000 ft.)
Temperature	Operating	Non-Operating
Requirements	10 to 40°C	1 to 52°C
•	(50 to 110°F)	(34 to 125°F)
Humidity	Operating	Non-Operating
Requirements	3	3
(Noncondensing)	8% to 80%	8% to 80%
Wet Bulb	23°C (73°F)	27°C (80°F)
Noise Emissions ^{1,2}	Operating	ldle
L_{WAd}	5.9 bels	5.8 bels
L _{pAm}	N/A	N/A
<l<sub>pA>_m</l<sub>	39 dBA	38 dBA
(4.5GB)	44 dBA	(See Note 2)
Impulsive or	No	No
	-	-
prominent discrete		

Chapter 7. Physical Characteristics of the 7200 Series

This section gives the physical characteristics for the 72xx series of external devices. The following information can help you plan for your external devices. This section also gives the physical characteristics for the 4869 Model 002 5 1/4-inch 1.2MB external diskette drive. You only have to do physical planning for the devices you have ordered. Footprints are not drawn to scale.

Where a footprint is shown, the figure represents a top view of the device.

7202 Model 900 Expansion Rack

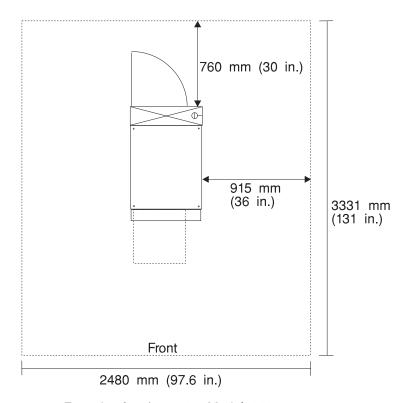
Dimensions					
Height		1578 mm	62.0 in.		
Width		650 mm	25.5 in.		
Depth		921 mm	36.0 in.		
Weight					
Minimum		136 kg	300 lbs.		
Maximum		470 kg	1035 lbs.		
Electrical ¹					
Power source loading		0.0	004		
(typical in kVA)					
Voltage range (V ac)		200 to 240	or -48V dc		
Frequency (hertz)		50 c	or 60		
Thermal output (typical)		15 B	tu/hr		
Power requirements (typical)	4 watts				
Power factor	0.5 to 0.7				
Maximum altitude		2135 m	(7000 ft.)		
Temperature Requirements		ating		perating	
		40°C		52°C	
	(50 to	104°F)	(50 to	125°F)	
Humidity Requirements	•	ating	•	erating	
(Noncondensing)		80%		80%	
Wet Bulb	27°C	(80°F)	27°C (80°F)		
Noise Emissions ²³		ating		lle	
L _{WAd}		bels		bels	
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>		48 dBA 46 dE			
Impulsive or prominent discrete tones	No		e tones No No		lo
Clearances	Front	Back	Left	Right	
Install/Air Flow	Maintenance of a p	proper service clear	ance should allow p	roper air flow.	
Service	1650 mm(65 in)	760 mm(30 in)	915 mm(36 in)	915 mm(36 ir	
1. No features installed					

- 1. No features installed.
- 2. See "Noise Emission Notes" on page 199 for definitions of emissions positions.
- 3. Noise emissions data for the 7202 Model 900 is based on the following configuration:
 - two 9334 Model 10 Drawers with two disk drives in each and
 - two 9334 Model 10 Drawers with three disk drives in each.

7202 Model 900 Service Clearances

The amount of space needed by the unit during normal operation is indicated by broken lines on the footprint.

For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack. For five to six racks placed side by side, the left and right clearances need to be increased to 1525 mm (60 in). Having more than six racks side by side is not recommended.



Footprint for the 7202 Model 900

0

Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, extra room needs to be allowed. The footprint shows the radius of the swinging door on the rear of the rack and a drawer in the extended position. The illustration shows the minimum space required.

7203 Model 001 External Portable Disk Drive

Dimensions					
Height		160 mm	6.3 in.		
Width		280 mm	11.0 in.		
Depth		345 mm	13.6 in.		
Weight					
Minimum		6.12 kg 13.5 lbs.(v	·		
Maximum		10.3 kg 22.6 lbs.(with a 3	55 or 670MB module)		
Electrical					
Power source loading		0.08	3		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or	60		
Thermal output		155 Bt	u/hr		
(typical)					
Power requirements		45 wa	tts		
(typical)					
Power factor		0.5 to			
Maximum altitude		2135 m (7	000 ft.)		
Temperature		ating	Non-Operating		
Requirements	16 to 32°C			43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity	Oper	ating	Non-Operating		
Requirements					
(Noncondensing)	8 to		8 to 80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	Oper	ating	ldle		
L_{WAd}	5.8	bels	5.6 bels		
L_pAm	N	/A	N/A		
<l<sub>pA>_m</l<sub>	42 (dBA	41 dBA		
Impulsive or	N	0	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth	Depth		
	280mn	n(11 in)	649mm	(25.6 in)	

7204 Model 010 1GB External Disk Drive

Dimensions					
Height		79 mm	3.13 in.		
Width		280 mm	11.0 in.		
Depth		287 mm	11.3 in.		
Weight					
Minimum		3.9 kg	8.45 lbs.		
Maximum		3.9 kg	8.45 lbs.		
Electrical					
Power source loading		0.0	7		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 or			
Thermal output (typical)		110 B	tu/hr		
Power requirements	32		atts		
(typical)					
Power factor			0.7		
Maximum altitude	2135		7000 ft.)		
Temperature	Operating		Non-Operating		
Requirements	16 to		10 to 43°C		
	(60 to	90°F)	(50 to	110°F)	
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)	8 to	80%	8 to	80%	
Wet Bulb	23°C ((73°F)	27°C (80°F)		
Noise Emissions ¹	Oper	ating	Idle		
-WAd	5.3	bels	5.3 bels		
_pAm	N	'A	N/A		
<l<sub>pA>_m</l<sub>	45 (dBA	44 dBA		
Impulsive or	N	0	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm (6 in)	152 mm (6 in)	N/A	N/A	
Service	152 mm (6 in)	N/A	N/A	N/A	
Footprint ²	Wie			pth	
	280mm	mm(11 in) 591mm(23.3 in)		(23.3 in)	

7204 Models 112, 113, 114, 317, and 325 External Disk Drives

Dimensions					
Height		60 mm	2.36 in.		
Width		250 mm	9.84 in.		
Depth		275 mm	10.8 in.		
Weight					
Minimum		3.3 kg	7.3 lbs.		
Maximum		3.3 kg	7.3 lbs.		
Electrical					
Power source loading		0.02			
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to 2			
Frequency (hertz)		50 or 6	60		
Thermal output (typical)		225 Btu	ı/hr		
Power requirements		46 wat	tts		
(typical)					
Power factor	0.5 to 0.7				
Maximum altitude	2135 m (7000 ft.)				
Temperature	Operating		Non-Operating		
Requirements	16 to 32°C		10 to 43°C		
	(60 to	90°F)	(50 to	110°F)	
Humidity	Oper	rating	Non-Operating		
Requirements					
(Noncondensing)		80%	8 to 80% 27°C (80°F)		
Wet Bulb	23°C	(73°F)	27°C	(80°F)	
Noise Emissions ¹	•	ating		dle	
L _{WAd}		bels	5.3 bels		
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>		dBA	44 dBA		
Impulsive or	N	lo	ſ	No	
prominent discrete tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm (6 in)	152 mm (6 in)	N/A	N/A	
Service	152 mm (6 in)	N/A	N/A	N/A	
Footprint ²	Wi	dth	De	epth	
		Width Depth 60mm(9.84 in) 580mm(22.8 in)			

7204 Models 118 and 418 18.0GB External Disk Drives

Dimensions				
Height		55 mm	2.2 in.	
Width		250 mm	9.8 in.	
Depth		275 mm	10.8 in.	
Weight				
Minimum		3.5 kg	7.8 lbs.	
Maximum		3.5 kg	7.8 lbs.	
Electrical				
Power source loading		0.05 @ 1	20 V ac	
(typical in kVA)				
Voltage range (V ac)		100 to 125 or 200 to		
Frequency (hertz)		50 oi		
Thermal output (typical)		95 Bt	u/nr	
Power requirements	28 watts			
(typical)		20 11		
Power factor		0.4 to	0.6	
Inrush Current ³		51 amps at 120 Vac,	99 amps at 208 Vac	
Maximum altitude	3048 m (10000 ft.)			
Temperature	Oper	ating	Non-O _l	perating
Requirements	10 to	40°C	10 to	52°C
	(50 to 104°F)		(50 to	126°F)
Humidity	Oper	ating	Non-O _l	perating
Requirements	/		0.4.000/	
(Noncondensing)		80%		80%
Wet Bulb	23°C	(73°F)	27°C	(81°F)
Noise Emissions ¹	•	ating	Idle	
L_{WAd}		bels	5.48 bels	
L _{pAm}		/A	N/A	
<l<sub>pA>_m</l<sub>		dBA	38.9 dBA	
Impulsive or	N	0	N	lo
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²		dth		pth
	250mm	(9.8 in)	575mm	(22.6 in)

- 2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
- 3. Inrush currents occur only at initial application of power, no inrush occurs during a normal power off-on cycle.

7204 Models 139, and 339 9.1GB External Disk Drives

Dimensions					
Height		55 mm	2.2 in.		
Width		250 mm	9.8 in.		
Depth		275 mm	10.8 in.		
Weight					
Minimum		3.5 kg	7.8 lbs.		
Maximum		3.5 kg	7.8 lbs.		
Electrical					
Power source loading		0.05 @ 12	0 V ac		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 or			
Thermal output		95 Btu	/hr		
(typical)	00				
Power requirements (typical)	28 watts				
(typical) Power factor	0.4 to 0.6				
Inrush Current ³	51 amps at 120 Vac, 99 amps at 208 Vac				
Maximum altitude	3048 m (10000 ft.)				
	3046 III (10000 II.)				
Temperature		rating		perating	
Requirements		40°C		52°C	
	(50 to 104°F)		(50 to	126°F)	
Humidity	Oper	ating	Non-O	perating	
Requirements	00.4	000/	8 to 80%		
(Noncondensing)		80%			
Wet Bulb	23°C	(73°F)	27°C	(81°F)	
Noise Emissions ¹	-	ating	Idle		
L _{WAd}		bels	5.48 bels		
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>		dBA	38.9 dBA		
Impulsive or	N	lo	N	lo	
prominent discrete tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth		pth	
	250mm	n(9.8 in)	575mm(22.6 in)		

- 3. Inrush currents occur only at initial application of power, no inrush occurs during a normal power off-on cycle.

7204 Models 215 and 315 External Disk Drives

Dimensions		70	0.40 %		
Height Midth		79 mm	3.13 in.		
Width Depth		280 mm 287 mm	11.0 in. 11.3 in.		
		207 111111	11.3 III.		
Veight Minimum		4.2 kg	9.25 lbs.		
Maximum		4.2 kg 4.2 kg	9.25 lbs.		
		4.2 kg	9.23 103.		
Electrical		0.0	7		
Power source loading		0.0	1		
(typical in kVA) Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or			
Thermal output		110 Bi			
(typical)		110 5			
Power requirements (typical)	32 v		atts		
Power factor	0.5 t		0.7		
Maximum altitude		2135 m (7			
Temperature	Oper	Non-O	perating		
Requirements	16 to 32°C			43°C	
	(60 to 90°F)		(50 to	110°F)	
Humidity	Oper	ating	Non-O	perating	
Requirements					
(Noncondensing)		80%		80%	
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹		ating		lle	
-WAd		bels	5.3 bels		
pAm		/A	N/A		
$\langle L_{pA}\rangle_{m}$	_	dBA	44 dBA		
Impulsive or	N	lo	No		
prominent discrete					
tones	_	_			
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm (6 in)	152 mm (6 in)	N/A	N/A	
Service	152 mm (6 in)	N/A	N/A	N/A	
Footprint ²		dth	Depth		
	280mn	n(11 in)	591mm	(23.3 in)	

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7204 Models 402, and 404 External Disk Drives

Dimensions						
Height		55 mm	2.2 in.			
Width		250 mm	9.8 in.			
Depth		275 mm	10.8 in.			
Weight						
Minimum		3.0 kg	6.6 lbs.			
Maximum		3.4 kg	7.5 lbs.			
Electrical						
Power source loading		0.06 @ 12	20 V ac			
(typical in kVA)						
Voltage range (V ac)		100 to 125 or 200 to	,,			
Frequency (hertz)		50 or				
Thermal output		107 Bt	tu/hr			
(typical) Power requirements		31.5 watts				
(typical)	31.5 Watts					
Power factor	0.5 to 0.6					
Inrush Current ³		47.6 amps at 120 Vac, 8				
Maximum altitude	2135 m (7000 ft.)					
	0					
Temperature Requirements	Operating 16 to 32°C			perating 0.43°C		
nequirements		90°F)		110°F)		
Humidity	•	ating		·		
Requirements	Oper	atting	Non-Operating			
(Noncondensing)	8 to	80%	8 to 80%			
Wet Bulb		(73°F)	27°C (80°F)			
Noise Emissions ¹		` ating	Idle			
	-	bels	5.5 bels			
L _{WAd}		/A	N/A			
L _{pAm} <l<sub>pA>_m</l<sub>		dBA	38 dBA			
Impulsive or		lo	No			
prominent discrete		.•	•			
tones						
Clearances	Front	Back	Left	Right		
0.00.00.000		152 mm(6 in)	N/A	N/A		
	152 mm(6 in)	102 11111(0 111)				
Install/Air Flow ²	152 mm(6 in) 152 mm(6 in)	N/A	N/A	N/A		
Install/Air Flow ² Service Footprint ²	152 mm(6 in)	• • • • • • • • • • • • • • • • • • • •	De	N/A epth (22.8 in)		

- 3. Inrush currents occur only at initial application of power, no inrush occurs during a normal power off-on cycle.

7204 Models 409, and 419 External Disk Drives

7204 model 404 external

Dimensions				
Height		55 mm	2.2 in.	
Width		250 mm	9.8 in.	
Depth		275 mm	10.8 in.	
Weight				
Minimum		3.0 kg	6.6 lbs.	
Maximum		3.4 kg	7.5 lbs.	
Electrical				
Power source loading		0.06 @ 12	20 V ac	
(typical in kVA)				
Voltage range (V ac)		100 to 125 or 200 to		
Frequency (hertz)		50 or	60	
Thermal output		107 Bt	u/hr	
(typical)				
Power requirements	31.5 watts			
(typical)		0.51		
Power factor	0.5 to			
Inrush Current ³		47.6 amps at 120 Vac, 8	•	
Maximum altitude	2135 m (7000 ft.)			
Temperature		ating		perating
Requirements	16 to 32°C			43°C
	(60 to	90°F)	(50 to	110°F)
Humidity	Oper	ating	Non-O	perating
Requirements	0.1	000/	0.1	200/
(Noncondensing)		80%		80%
Wet Bulb	23°C	(73°F)	27°C	(80°F)
Noise Emissions ¹	•	ating	Idle	
L _{WAd}		bels	5.5 bels	
L _{pAm}		/A	N/A	
<l<sub>pA>_m</l<sub>		dBA	38 dBA	
Impulsive or	N	lo	ſ	No
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²		dth		epth
	250mm	n(9.8 in)	579mm	n(22.8 in)

- See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
 The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.
 Inrush currents occur only at initial application of power, no inrush occurs during a normal power off-on cycle.

7205 Model 311 External DLT Tape Drive

Footprint ²		dth n(11 in)		pth (23.5 in)	
Service	152 mm(6 in)	N/A	N/A	N/A	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
prominent discrete tones					
<l<sub>pA>_m Impulsive or</l<sub>		dBA Io	39 dBA No		
L _{pAm}		/A	N/A		
L _{WAd}		bels	5.5 bels		
Noise Emissions ¹		ating	Idle		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
(Noncondensing)	20 to	80%	20 to 80%		
Humidity Requirements	Oper	ating	Non-Op	perating	
	(60 to 90°F)			110°F)	
Requirements	16 to	16 to 32°C		43°C	
Temperature	Oper	ating		perating	
Maximum altitude		2135 m (7			
(typical) Power factor		0.8			
Power requirements		61 wa	atts		
Thermal output (typical)		208 Bt	u/nr		
Frequency (hertz)		50 or			
Voltage range (V ac)		100 to 127 or 200 to	, , ,		
(typical in kVA)					
Power source loading		0.13	5		
Electrical		0.00 Ng	10 150.		
Maximum		6.63 kg	15 lbs.		
Weight Minimum		6.63 kg	15 lbs.		
<u> </u>		292 111111	11.5 III.		
Width Depth		292 mm	11.0 in. 11.5 in.		
Height Width		114 mm 280 mm	4.8 in. 11.0 in.		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7205 Model 440 External DLT Tape Drive

Footprint ²	Wi o 255mm	dth	Depth 597mm(23.5 in)		
Service	152 mm(6 in)	N/A	N/A	N/A	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
prominent discrete tones					
Impulsive or prominent discrete	N	0	ı	No	
<l<sub>pA>_m</l<sub>	41 (38 dBA		
L_pAm		/A	N/A		
L_{WAd}		bels	5.3 bels		
Noise Emissions ¹	Oper	ating	Idle		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
(Noncondensing)	20 to	80%	20 to	80%	
Humidity Requirements	Oper	aung	Non-O	perauliy	
Humidity	•		Non-Operating		
Requirements	16 to 32°C (60 to 90°F)			110°F)	
Temperature	Oper		Non-Operating 10 to 43°C		
	2135 m (7000 ft.)				
Power factor Maximum altitude		0105	0.9 (7000 ft)		
(typical)	0.0				
Power requirements	44 watts				
(typical)	44				
Thermal output		150) Btu/hr		
Frequency (hertz)		50	or 60		
Voltage range (V ac)		100 to 127 or 200	to 240 (autoranging)		
(typical in kVA)					
Power source loading		C	0.047		
Electrical					
Maximum		6.0 kg	13 lbs.		
Minimum		6.0 kg	13 lbs.		
Weight					
Depth		290 mm	11.5 in.		
Width		250 mm	9.8 in.		
Height		122 mm	4.8 in.		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7206 Model 005 External 4-mm Tape Drive

Dimensions					
Height		80 mm	3.3 in.		
Width		280 mm	11.0 in.		
Depth		285 mm	11.3 in.		
Weight					
Minimum		5 kg	11 lbs.		
Maximum		5 kg	11 lbs.		
Electrical					
Power source loading		0.08	3		
typical in kVA)		400 to 407 on 000 to	040 (
Voltage range (V ac)		100 to 127 or 200 to 50 or			
Frequency (hertz) Thermal output		110 Bt			
(typical)		TTO DE	u/III		
Power requirements		32 wa	itts		
(typical)					
Power factor		0.5 to			
Maximum altitude		2135 m (7	000 ft.)		
Temperature	Operating		Non-Operating		
Requirements	16 to 32°C		10 to 43°C		
	(60 to 90°F)		(50 to 110°F)		
Humidity	Oper	ating	Non-Operating		
Requirements					
(Noncondensing)		80%	20 to 80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	-	ating	Idle		
L _{WAd}		bels	5.5 bels		
L _{pAm}	N		N/A		
<l<sub>pA>_m</l<sub>		dBA	40 dBA		
Impulsive or prominent discrete	N	lo	No		
prominent discrete tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth		pth	
	432mm	n(17 in)	589mm	(23.3 in)	

7206 Model 110 External 4-mm DDS-3 Tape Drive

Dimensions					
Height		55 mm	2.2 in.		
Width		250 mm	9.8 in.		
Depth		275 mm	10.8 in.		
Weight					
Minimum		3.7 kg	8 lbs.		
Maximum		3.7 kg	8 lbs		
Electrical					
Power source loading (typical in kVA)		0.07	7		
Voltage range (V ac)		100 to 127 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or			
Thermal output		100 Bt			
(average)					
Power requirements (typical)		30 wa	atts		
Power factor		0.3 to	0.5		
Maximum altitude		2135 m (7	'000 ft.)		
Temperature	Operating		Non-Operating		
Requirements	16 to 32°C			43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity	Oper	ating	Non-Operating		
Requirements	20 to	000/	00.4	- 000/	
(Noncondensing) Wet Bulb	20 to 23°C (20 to 80% 27°C (80°F)		
			,		
Noise Emissions ¹	Oper	•		dle	
L _{WAd}	5.9 \ N/		5.5 bels N/A		
L _{pAm}	N/ 46 c		N/A 40 dBA		
<l<sub>pA>_m Impulsive or</l<sub>	46 C		No		
prominent discrete	IN	•	ı	10	
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²	Wie	dth	De	epth	
1	250mm			n(22.8 in)	

7206 Model 220 External 4-mm DDS-4 Tape Drive

Dimensions					
Height		55 mm	2.2 in.		
Width	250 mm		9.8 in.		
Depth		275 mm	10.8 in.		
Weight					
Minimum		3.7 kg	8 lbs.		
Maximum		3.7 kg	8 lbs.		
Electrical			_		
Power source loading		0.07	7		
(typical in kVA)		100 to 127 or 200 to	240 (outeranging)		
Voltage range (V ac) Frequency (hertz)		100 to 127 of 200 to			
Thermal output		120 Bt			
(typical)		120 00	u/III		
Power requirements		35 wa	itts		
(typical)					
Power factor		0.6			
Maximum altitude		2135 m (7	000 ft.)		
Temperature	Operating		Non-Operating		
Requirements	16 to		10 to 43°C (50 to 110°F)		
	(60 to	90°F)	(50 to	110°F)	
Humidity	Operating		Non-Operating		
Requirements (Noncondensing)	20 to	900/	20 to	80%	
Wet Bulb		(73°F)		(80°F)	
				. ,	
Noise Emissions ¹	Oper	ating bels		le	
L _{WAd}	<5.9 N		<5.5 bels N/A		
L _{pAm}		/A /A	N/A N/A		
<l<sub>pA>_m Impulsive or</l<sub>	N		No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Service	152mm(6 in)	N/A	N/A	N/A	
Footprint ²	Width		Depth		
	250mm	(9.8 in)	579mm(22.8 in)		

7207 Model 012 1.2GB External 1/4-Inch Cartridge Tape Drive

Footprint ²		dth n(11 in)		e pth n(23.3 in)	
Service	152 mm(6 in)	N/A	N/A	N/A	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
tones					
Impulsive or prominent discrete	N	lo	1	No	
<l<sub>pA>_m</l<sub>		dBA		dBA	
L _{pAm}		/A	N/A		
L _{WAd}		bels	5.3 bels		
Noise Emissions ¹		ating	ldle		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
(Noncondensing)		80%		80%	
Requirements	Орег	~····9	Tion operating		
Humidity	Oper	ating	Non-O	perating	
	(60 to 90°F)			110°F)	
Temperature Requirements		ating 32°C		perating o 43°C	
			·		
Power factor Maximum altitude		0.5 to 2135 m (7	5 to 0.7		
(typical)					
Power requirements		40 wa	atts		
(typical)		140 D	IM/TII		
Thermal output		140 Bi			
Voltage range (V ac) Frequency (hertz)		100 to 125 or 200 to 50 or			
(typical in kVA)					
Electrical Power source loading		0.0	7		
Maximum		4.5 kg	10.0 lbs.		
Minimum		4.5 kg	10.0 lbs.		
Weight					
Depth		285 mm	11.3 in.		
Width		280 mm	11.0 in.		
Height		80 mm	3.3 in.		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7207 Model 122 4GB External SIRS 1/4-Inch Cartridge Tape Drive

Dimensions					
Height		55 mm	2.2 in.		
Width		250 mm	9.8 in.		
Depth		275 mm	10.8 in.		
Weight	3.4kg		7.5 lbs		
Electrical					
Power source loading		0.03 @ 12	20 V ac		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or	60		
Thermal output		76 Btu	u/hr		
(typical)					
Power requirements		22 wa	atts		
(typical)					
Power Factor		0.3 to			
Maximum altitude		2135 m (7	7000 ft.)		
Temperature	Operating		Non-Operating		
Requirements		45°C	-40 to 60°C		
•	(41 to	113°F)	(-40 to 140°F)		
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)	8 to	80%	10 to 90%		
Wet Bulb		(79°F)		(84°F)	
Noise Emissions ¹				dle	
	•	ating			
L _{WAd}		bels	5.3 bels N/A		
L _{pAm}		/A			
<l<sub>pA>_m</l<sub>		dBA	40 dBA		
Impulsive or	N	lo	No		
prominent discrete tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²	Wi	dth	Depth		
	250mm(9.8 in)		579mm(22.8 in)		

7207 Model 315 13GB External 1/4-Inch Cartridge Tape Drive

Dimensions					
Height		55 mm	2.2 in.		
Width		250 mm	9.8 in.		
Depth		275 mm	10.8 in.		
Weight		0.01	7 0 11		
Minimum		3.6 kg	7.9 lbs.		
Maximum	3.6 kg		7.9 lbs.		
Electrical					
Power source loading		0.029 @ 1	20 V ac		
(typical in kVA) Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or			
Thermal output		50 Btu			
(typical)		30 Bit	v : 11		
Power requirements (typical)		16 wa	tts		
Power Factor		0.3 to	0.5		
Maximum altitude		2135 m (7	000 ft.)		
Temperature	Oper	ating	Non-Operating		
Requirements	16 to 32°C			43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity	Operating		Non-Operating		
Requirements	/	/	00 to 000/		
(Noncondensing)		80%		80%	
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	-	ating	Idle		
L-WAd		bels	5.3 bels		
pAm	N.	"= =	N/A		
<l<sub>pA>_m</l<sub>		dBA	37 dBA		
Impulsive or	N	0	No		
prominent discrete tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth	Width		
	25UMM	(9.8 in)	575mm(22.6 in)		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7208 Model 001 2.3GB External 8-mm Tape Drive

Dimensions					
Height		123 mm	4.8 in.		
Width		280 mm	11.0 in.		
Depth		285 mm	11.3 in.		
Weight					
Minimum		6 kg	13.3 lbs.		
Maximum		6 kg	13.3 lbs.		
Electrical					
Power source loading		0.0	6		
typical in kVA)					
/oltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 or			
Thermal output		120 B	tu/hr		
(typical) Power requirements		35 w	atte		
(typical)		33 W	atto		
Power factor		0.5 to	0.7		
Maximum altitude		2135 m (7000 ft.)		
Temperature	Oper	ating	Non-Operating		
Requirements	16 to	32°C	10 to 43°C		
	(60 to	90°F)	(50 to 110°F)		
Humidity	Oper	ating	Non-Operating		
Requirements					
(Noncondensing)		80%	20 to 80%		
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹	Oper	ating		ldle	
-WAd		bels	5.5 bels		
L _{pAm}	N		N/A		
<l<sub>pA>_m</l<sub>		dBA	40 dBA		
Impulsive or	N	lo	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	152 mm(6 in)	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth	•		
	432mm	n(17 in)	589mm(23.3 in)		

7208 Model 011 5/10GB External 8-mm Tape Drive

Dimensions					
Height		80 mm	3.3 in.		
Nidth		280 mm	11.0 in.		
Depth		285 mm	11.3 in.		
Weight					
Minimum		4.7 kg	10.3 lbs.		
Maximum		4.7 kg	10.3 lbs.		
Electrical					
Power source loading		0.0	06		
typical in kVA)		1001 105 0001	040 / / :)		
/oltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 o			
Thermal output (typical)		120 E	stu/nr		
Power requirements		35 w	vatts		
(typical)		00	atto		
Power factor		0.5 to	0.7		
Maximum altitude		2135 m (7000 ft.)		
Temperature	Oper	ating	Non-Operating		
Requirements		16 to 32°C		43°C	
	(60 to 90°F)		(50 to	110°F)	
Humidity	Operating		Non-Operating		
Requirements					
(Noncondensing)		80%		80%	
Wet Bulb	23°C	(73°F)	27°C	(80°F)	
Noise Emissions ¹	-	ating		dle	
L_{WAd}		bels	5.5 bels		
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>	_	dBA	40 dBA		
Impulsive or	N	lo	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Service	152mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth	Depth		
	280mm(11 in)		589mm(23.3 in)		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7208 Model 341 20/40GB External 8-mm Tape Drive

Footprint ²	Wi o 250mm		Depth 575mm(22.6 in)		
Service	152mm(6 in)	N/A	N/A	N/A	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Clearances	Front	Back	Left	Right	
prominent discrete tones					
Impulsive or	N	0	No		
<l<sub>pA>_m</l<sub>		dBA	38 dBA		
L_pAm	N	/A	N/A		
L_{WAd}	5.6	bels	5.5 bels		
Noise Emissions ¹	Oper	ating	lo	lle	
Wet Bulb	23°C	(73°F)	27°C (80°F)		
(Noncondensing)	20 to	80%	20 to	80%	
Humidity Requirements	Oper	aung	Non-Operating		
	·	·	•	<u> </u>	
Requirements	16 to 32°C (60 to 90°F)			43°C 110°F)	
Temperature	Oper		Non-Operating 10 to 43°C		
Maximum altitude		2135 m (7	000 ft.)		
Power factor		0.58			
(typical)		20 Wa			
(typical) Power requirements		20 wa	tts		
Thermal output		67 Btu	/hr		
Frequency (hertz)		50 or			
Voltage range (V ac)		100 to 125 or 200 to			
(typical in kVA)		0.04	•		
Electrical Power source loading		0.04	1		
		J Ng	11 103.		
Minimum Maximum		5 kg 5 kg	11 lbs. 11 lbs.		
Weight					
Depth		275 mm	10.8 in.		
Width		250 mm	9.8 in.		
Height		55 mm	2.2 in.		

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7208 Model 345 External 8-mm Tape Drive

Dimensions					
Height	55 mm		2.2 in.		
Width		250 mm	9.8 in.		
Depth		275 mm	10.8 in.		
Weight					
Minimum		3.7 kg	8 lbs.		
Maximum		3.7 kg	8 lbs.		
Electrical					
Power source loading		0.02	3		
(typical in kVA) Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)		
Frequency (hertz)		50 or			
Thermal output		44 Btı			
(typical)		7-7 Dit	a/ 1 11		
Power requirements		30 wa	atts		
(typical)			_		
Power factor		0.58			
Maximum altitude	2135 m (7000 ft.)				
Temperature	Oper			perating	
Requirements	16 to		1 to 60°C		
	(60 to	·	(34 to 140°F)		
Humidity	Oper	ating	Non-Operating		
Requirements (Noncondensing)	20 to	80%	20 to 95%		
Wet Bulb	20 to		20 to 95 % 27°C (80°F)		
			Idle		
Noise Emissions ¹	Oper 5.9	•	5.5 bels		
L _{WAd}	5.9 N		5.5 dels N/A		
L _{pAm}	1N/ 38 (1N/A 38 dBA		
<l<sub>pA>_m Impulsive or</l<sub>	30 C		No		
prominent discrete	14	~	'		
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152mm(6 in)	152mm(6 in)	N/A	N/A	
Service	152mm(6 in)	N/A	N/A	N/A	
Footprint ²	Width		Depth		
	250mm(9.8 in)		575mm(22.6 in)		

7209 Model 002 External Rewritable Optical Disk Drive

Dimensions					
Height		123 mm	4.8 in.		
Width		280 mm	11.0 in.		
Depth		290 mm	11.5 in.		
Weight					
Minimum		6.3 kg	14 lbs.		
Maximum		6.3 kg	14 lbs.		
Electrical					
Power source loading		0.05	53		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 or 110 Bt			
Thermal output (typical)		110 Bi	u/nr		
Power requirements		33 wa	atts		
(typical)					
Power factor		0.5 to	0.7		
Maximum altitude		2135 m (7	'000 ft.)		
Temperature	Oper	ating	Non-Operating		
Requirements		32°C	1 to 60°C		
	(60 to	90°F)	(34 to	140°F)	
Humidity	Operating		Non-Operating		
Requirements			10.1.000/		
(Noncondensing)		80%		80%	
Wet Bulb	23°C	(73°F)	27°C (80°F)		
Noise Emissions ¹		ating	Idle		
L _{WAd}		bels	5.5 bels		
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>	_	dBA	45 dBA		
Impulsive or prominent discrete	N	lo	No		
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth	Depth		
	280mn	n(11 in)	597mm	(23.5 in)	

7209 Model 003 External 2.6GB Rewritable Optical Disk Drive

Dimensions					
Height		55 mm	2.2 in.		
Width		250 mm	9.8 in.		
Depth		275 mm	10.5 in.		
Weight					
		4.0 kg	8.8 lbs.		
Electrical					
Power source loading (kVA)		0.045 @ 1	20 Vac		
Voltage range (V ac)		100 to 125 or 200 to	240 (auto-ranging)		
Frequency (hertz)		50 or	60		
Thermal output		100 Btu/hr @	230 Vac		
(maximum)					
Thermal output		55 Btu	u/hr		
(typical)					
Power requirements		16 wa	atts		
(typical)					
Power factor		0.4 to			
Maximum altitude		2135 m (7	'000 ft.)		
Temperature		ating	Non-Operating		
Requirements		32°C	10 to 52°C		
	(60 to	90°F)	(50 to 126°F)		
Humidity Requirements	Oper	ating	Non-Operating		
(Noncondensing)	20 to	80%	8 to 80%		
Wet Bulb	27°C	(80°F)	27°C (80°F)		
Noise Emissions ¹	Oper	ating	Idle		
L_{WAd}	5.5	bels	5.5 bels		
L_pAm	N	/A	N/A		
<l<sub>pA>_m</l<sub>	45 (dBA	45 dBA		
Impulsive or	N	lo	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth	Depth		
	250mm	n(9.8 in)	579mm(22.8 in)		

7210 Model 001 External CD-ROM Drive

Dimensions					
Height		80 mm	3.3 in.		
Width		280 mm	11.0 in.		
Depth		285 mm	11.3 in.		
Weight					
Minimum		4.9 kg	10.8 lbs.		
Maximum		4.9 kg	10.8 lbs.		
Electrical					
Power source loading		0.0)5		
(typical in kVA)					
Voltage range (V ac)		100 to 125 or 200 to			
Frequency (hertz)		50 o			
Thermal output		85 Bi	tu/hr		
(typical) Power requirements		25 w	ratte		
(typical)		25 W	atts		
Power factor		0.5 to	0.7		
Maximum altitude		2135 m (
Temperature	Oper	ating	Non-O	perating	
Requirements	-	32°C	10 to	43°C	
	(60 to	90°F)	(50 to	110°F)	
Humidity	Oper	ating	Non-O	perating	
Requirements					
(Noncondensing)		80%		80%	
Wet Bulb	23°C	(73°F)	27°C	(80°F)	
Noise Emissions ¹	Oper	ating	lo	lle	
L _{WAd}	• • • • • • • • • • • • • • • • • • • •	bels	5.1 bels		
L _{pAm}		/A	N/A		
<l<sub>pA>_m</l<sub>		dBA	36 dBA		
Impulsive or	No		N	lo	
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	52 mm(6 in)	N/A	N/A	N/A	
Footprint ²		dth		pth	
	280mn	n(11 in)	590mm(23.3 in)		

7210 Model 005 External CD-ROM Drive

Dimensions				
Height		50 mm	1.94 in.	
Width		183 mm 312 mm	7.2 in. 12.3 in.	
Depth		312 111111	12.3 111.	
Weight				
Minimum		2.0 kg	4.4 lbs.	
Electrical				
Power source loading		0	.03	
(typical in kVA)				
Voltage range (V ac)			to 240 (autoranging)	
Frequency (hertz)			or 60	
Thermal output (max)		50 I	Btu/hr	
Power requirements (max)		18	watts	
Power factor		(0.6	
(minimum)				
Maximum altitude		2135 m	(7000 ft.)	
Temperature	Opera	ating	Non-O	perating
Requirements	16 to			43°C
	(60 to	90°F)	(50 to	110°F)
Humidity Requirements	Opera	ating	Non-O	perating
(Noncondensing)	10 to	80%	10 to	80%
Wet Bulb	23°C ((80°F)
		•	, ,	
Noise Emissions ¹	Opera		ldle	
L _{WAd}	4.7 k		4.7 bels No	
Impulsive or	N	0	Γ	NO
prominent discrete tones				
Clearances	Front	Back	Left	Right
Install/Air Flow	N/A	N/A	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²	Wic		Depth	
	183mm	(7.2 in)	464mm	(18.3 in)

^{2.} The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

7210 Model 010 External Quad Speed CD-ROM Drive

Dimensions				
Height		55 mm	2.2 in.	
Width		250 mm	9.8 in.	
Depth		275 mm	10.8 in.	
Weight				
		3.6 kg	7.9 lbs.	
Electrical				
Power source loading		0.07	7	
(typical in kVA)				
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)	
Frequency (hertz)		50 or	60	
Thermal output		110 Bt	u/hr	
(typical)				
Power requirements		18 wa	tts	
(max) Power factor		O.E. to	0.7	
Maximum altitude		0.5 to		
waximum aititude		2135 m (7	000 π.)	
Temperature	Oper	_	=	perating
Requirements	16 to			43°C
	(60 to	90°F)	(50 to	110°F)
Humidity	Oper	ating	Non-O	perating
Requirements				
(Noncondensing)		80%	10 to 80%	
Wet Bulb	23°C	(73°F)	27°C (80°F)	
Noise Emissions ¹	Oper	ating	lo	lle
L_{WAd}	5.1	bels	5.1 bels	
L_pAm	N/	/A	N/A	
<l<sub>pA>_m</l<sub>	36 (dBA	36 dBA	
Impulsive or	N	0	N	lo
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²	Wie	dth	Depth	
	250mm(9.8 in)		579mm(22.8 in)	

7210 Model 015 External 8X to 20X Speed SCSI-2 CD-ROM Drive

Dimensions					
Height		55 mm	. 2	.2 in.	
Width		250 mn	n 9	.8 in.	
Depth		275 mn	n 10	0.8 in.	
Weight					
		3.2 kg	7.	1 lbs.	
Electrical					
Power source loading (kVA)			0.023 @ 120 Vac		
Voltage range (V ac)		100 to 125	or 200 to 240 (aut	o-ranging)	
Frequency (hertz)			50 or 60		
Thermal output (maximun)		4.	2 Btu/hr @240 Vac	;	
Power requirements (typical idle)			06 watts		
Power requirements (typical seek/read)			18 watts		
Power factor			0.4 to 0.6		
Maximum altitude			2135 m (7000 ft.)		
Temperature		Operating		Non-Operating	
Requirements		16 to 32°C		10 to 52°C	
		(60 to 90°F)		(50 to 126°F)	
Humidity Requirements		Operating		Non-Operating	
(Noncondensing)		20 to 80%		8 to 80%	
Wet Bulb		27°C (80°F)		27°C (80°F)	
Noise Emissions ¹		Operating		Idle	
L_{WAd}		4.8 bels		4.5 bels	
L _{pAm}		N/A		N/A	
Impulsive or		No		No	
prominent discrete					
Classanas	Frant	Dools	1.4	Diale	
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		Width		Depth	
		250mm(9.8 in)		579mm(22.8 in)	

7210 Model 020 External 32X Speed SCSI-2 CD-ROM Drive

Dimensions				
Height	55 mm		2.2 in.	
Width		250 mm	9.8 in.	
Depth		275 mm	10.8 in.	
Weight				
		3.2 kg	7.1 lbs.	
Electrical				
Power source loading (kVA)		0.023 @ 1	20 Vac	
Voltage range (V ac)		100 to 125 or 200 to	240 (auto-ranging)	
Frequency (hertz)		50 or	60	
Thermal output		42 Btu/hr @	240 Vac	
(maximum)				
Power requirements (typical idle)		06 wa	tts	
Power requirements (typical seek/read)		18 wa	tts	
Power factor		0.4 to	0.6	
Maximum altitude		2135 m (7	000 ft.)	
Temperature	Oper	ating	Non-O	perating
Requirements		32°C		52°C
	(60 to	90°F)	(50 to	126°F)
Humidity Requirements	Operating		Non-O _l	perating
(Noncondensing)	20 to	80%	8 to 80%	
Wet Bulb	27°C	(80°F)	27°C	(80°F)
Noise Emissions ¹	Oper	ating	lo	dle
L_{WAd}		bels	4.5	bels
L _{pAm}	N.	/A	N	I/A
Impulsive or	N	0	N	No
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²	Wie	dth	Depth	
	250mm	(9.8 in)	579mm	(22.8 in)

7210 Model 025 External SCSI-2 DVD-RAM Drive

Dimensions				
Height		55 mm	2.2 in.	
Width		250 mm	9.8 in.	
Depth		275 mm	10.8 in.	
Weight				
		3.6 kg	8 lbs.	
Electrical				
Power source loading (kVA)		0.023 @ 1	20 Vac	
Voltage range (V ac)		100 to 125 or 200 to 2	240 (auto-ranging)	
Frequency (hertz)		50 or	60	
Thermal output (maximum)		42 Btu/hr @	240 Vac	
Power requirements (typical idle)		06 wa	tts	
Power requirements (typical seek/read)		12.5 w	atts	
Power factor		0.4 to	0.6	
Maximum altitude		2135 m (7		
Temperature	Oper	ating	Non-O _l	perating
Requirements		32°C		52°C
	(60 to	90°F)	(50 to	126°F)
Humidity Requirements	Operating		Non-O _l	perating
(Noncondensing)	20 to	80%	8 to	80%
Wet Bulb	23°C	(73°F)	23°C (73°F)	
Noise Emissions ¹	Oper	ating	lo	lle
L_WAd	4.8	bels	4.5 bels	
L_pAm	46 (dBA	41	dBA
Impulsive or	N	0	N	lo
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²	Wie		Depth	
	250mm(9.8 in)		579mm(22.8 in)	

7235 POWER GTO[™] Models 01i and 02i Graphics Subsystem

Dimensions	Des	ktop	Des	kside
Height	160 mn	n 6.3 in.	466 mr	n 18.3 in.
Width	460 mm	18.0 in.	160 m	m 6.3 in.
Width at pedestal			241 m	m 9.5 in.
(deskside)				
Depth	525 mm	21.0 in.	525 mr	n 21.0 in.
Weight				
Minimum		35 lbs.	_	35 lbs.
Maximum	16 kg	35 lbs.	16 kg	35 lbs.
Electrical				
Power source loading		0.5	5	
typical in kVA)				
/oltage range (V ac)		100 to 125 or 200 to	240 (autoranging)	
Frequency (hertz)		50 or	60	
Thermal output (typical)		850 Bi	tu/hr	
Power requirements		250 w	atts	
(typical)				
Power factor		0.5 to	0.7	
Maximum altitude		2135 m (7	7000 ft.)	
Temperature		ating	Non-Operating	
Requirements		32°C		43°C
	(60 to	90°F)	(50 to	110°F)
Humidity	Oper	ating	Non-O	perating
Requirements			0.1000/	
(Noncondensing)		80%	8 to 80%	
Wet Bulb	23°C	(73°F)	27°C (80°F)	
Noise Emissions ¹	-	ating	le	dle
-WAd		bels	5.5 bels	
L _{pAm}	N	/A	N/A	
<l<sub>pA>_m</l<sub>		dBA		I/A
mpulsive or	N	lo	I	No
orominent discrete cones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²		dth	De	epth
Desktop	460mm	n(18 in)	830mi	m(33 in)
Deskside	241mm	n(9.5 in)	830mi	m(33 in)
	Notes" on page 199 fo	or definitions of noise em	issions positions.	

7250 POWER GXT1000 Graphics Accelerator

Dimensions	Des	ktop	Des	kside
Height	160 mn	n 6.3 in.	466 mr	n 18.3 in.
Width	460 mm	18.0 in.	160 m	m 6.3 in.
Width (at pedestal			241 m	m 9.5 in.
for deskside)				
Depth	525 mm	21.0 in.	525 mr	n 21.0 in.
Weight				
Minimum	13.6 kg	30 lbs.	13.6 k	g 30 lbs.
Maximum	13.6 kg	30 lbs.	13.6 k	g 30 lbs.
Electrical				
Power source loading		0.5		
(typical in kVA)				
Voltage range (Vac) ²		100 to 125 or 200 to	240 (autoranging)	
Frequency (Hertz)		50 or	60	
Thermal output (typical)		850 Bt	u/hr	
Power requirements (typical)		250 W	atts	
Power factor		0.5 to	0.7	
Maximum altitude		2135 m (7		
Temperature	Operating Non-Operating		perating	
Requirements	16 to	32°C	10 to	o 43°C
	(60 to	90°F)	(50 to	110°F)
Humidity	Oper	ating	Non-O	perating
Requirements				
(Noncondensing)		80%		80%
Wet Bulb	23°C	(73°F)	27°C	(80°F)
Noise Emissions ¹	•	rating	=	dle
L_{WAd}		bels	5.2 bels	
L_{pAm}	N	/A	N/A	
Impulsive or	N	lo		No
prominent discrete				
tones				
Noise Emissions ¹				
<l<sub>pA>_m</l<sub>	36.8 dBA			
Clearances	Front	Back	Left	Right
Install/Air Flow ³	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ³		dth		epth
Desktop		n(18 in)		m(33 in)
Deskside	241mm	n(9.5 in)	830m	m(33 in)

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. The power supply may be autoranging or switchable. The switchable type has a red voltage selection switch near the power cord connector.
- 3. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

4869 Model 002 5 1/4-Inch 1.2MB External Diskette Drive

Dimensions				
Height		62.5 mm	2.5 in.	
Width		227.0 mm	8.9 in.	
Depth		408.0 mm	16.0 in.	
Weight				
Minimum		2.1 kg	4.6 lbs.	
Maximum		2.1 kg	4.6 lbs.	
Electrical				
Power source loading		0.02	2	
(typical in kVA)				
Voltage range (V ac)		100 to 125 or 200 to	240 (autoranging)	
Frequency (hertz)		50 or		
Thermal output		35 Btu	u/hr	
(typical)				
Power requirements		10 wa	atts	
(typical)				
Power factor		N/A	A	
Maximum altitude		2135 m (7	7000 ft.)	
Temperature	Oper	ating	Non-Operating	
Requirements	10 to 40°C		10 to 52°C	
· 	(50 to	104°F)	(50 to	125°F)
Humidity	Oper	ating	Non-O	perating
Requirements				
(Noncondensing)				
ANSI Media	8 to	80%	5 to 95%	
ISO Media	20 to	80%	5 to	95%
Wet Bulb	23°C ((73°F)	27°C (80°F)	
Noise Emissions ¹	Oper	ating	Idle	
L_WAd	6.0	bels	N/A	
L _{pAm}	54 (dBA	N/A	
<l<sub>pA>_m</l<sub>	42 (dBA	N	I/A
Impulsive or	Ye	es	1	No
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²	Wid	dth	De	epth
	Width 227mm(8.9 in)			n(28 in)

Chapter 8. Physical Characteristics of the 7300 Series

This section gives the physical characteristics for the 73xx series of external devices. The following information can help you plan for your external devices. You only have to do physical planning for the devices you have ordered. Footprints are not drawn to scale.

7318 Serial Communications Network Server Models P10, and S20

Dimensions		
Height	44 mm	1.73 in.
Width	381 mm	15.00 in.
Depth	229 mm	9.00 in.
Weight		
Maximum	2.6 kg	5.7 lbs.
Electrical		
Power source loading	0.0	085
(typical in kVA)		
Voltage range (V ac)	100 to 125 or 200 t	to 240 (autoranging)
Frequency (hertz)	50 c	or 60
Thermal output	170 I	Btu/hr
(typical)		
Power requirements	50 v	vatts
(max)		
Maximum altitude	2135 meter	rs (7000 ft.)
Temperature	Operating	Non-Operating
Requirements	16 to 32°C	10 to 50°C
	(60 to 90°F)	(50 to 125°F)
Humidity	Operating	Non-Operating
Requirements		
(Noncondensing)	8 to 80%	8 to 80%
Wet Bulb	23°C (73°F)	27°C (80°F)
Noise Emissions*	Operating	ldle
L _{WAd}	4.9 bels	4.9 bels
L _{pAm}	N/A	N/A
<l<sub>pA>_m</l<sub>	54 dBA	54 dBA
Impulsive or	No	No
prominent discrete tones		

7319 Models 100, and 110 Fibre Channel Switches

Dimensions		
Height	86 mm	3.39 in.
Width	483 mm	19.00 in.
Depth	495 mm	19.50 in.
Weight		
Maximum	12.2 kg	27 lbs.
Electrical		
Power source loading	0	.18
(typical in kVA)		
Voltage range (V ac)	100 to 125 or 200	to 240 (autoranging)
Frequency (hertz)	50	or 60
Thermal output	570	Btu/hr
(typical)		
Power requirements	170	watts
(typical)		
Power factor		.98
Maximum altitude	2135 m	(7000 ft.)
Temperature	Operating	Non-Operating
Requirements	0 to 40°C	0 to 50°C
	(32 to 104°F)	(32 to 125°F)
Humidity	Operating	Non-Operating
Requirements	0.4- 000/	0.4 000/
(Noncondensing) Wet Bulb	0 to 90% 27°C (80°F)	0 to 90% 27°C (80°F)
wet Buib	27 C (80 F)	27 C (80 F)
Noise Emissions*	Operating	ldle
	4.9 bels	4.9 bels
L_{WAd}		
L_WAd L_pAm	N/A	N/A
L _{pAm} Impulsive or		N/A No
L _{pAm}	N/A	

7329 Model 308 QIC 1/4 Tape Autoloader

Dimensions			
Height	174 mm	6.8 in.	
Width	224 mm	8.8 in.	
Depth	578 mm	22.8 in.	
Weight	15.5 kg	34 lbs.	
Electrical			
Power source loading (kVA)	0	0.07	
Voltage range (V ac)	100 to 125 or 200	to 240 (autoranging)	
Frequency (hertz)	50	or 60	
Thermal output (typical)	208	Btu/hr	
Power requirements	23.1	watts	
(typicial)			
Power factor		0.6	
Maximum altitude	2135 m (7000 ft.)		
Temperature	Operating	Non-Operating	
Requirements	16 to 32°C	10 to 43°C	
	(60 to 90°F)	(50 to 110°F)	
Humidity Requirements	Operating	Non-Operating	
(Noncondensing)	20 to 80%	20 to 80%	
Wet Bulb	23°C (73°F)	27°C (80°F)	
Noise Emissions*	Operating	Idle	
L _{WAd}	<5.8 bels	<5.0 bels	
L _{pAm}	54 dBA	48 dBA	
Impulsive or	No	No	
prominent discrete			
tones			
* See "Noise Emission Notes"	on page 199 for definitions of emissions	s positions.	
	· ·	•	

7331 Model 205 140/280GB or Model 305 400/800GB 8-mm Tape Library

Dimensions			
Height	637.0 mm	25.1 in.	
Width	322.5 mm	12.7 in.	
Depth	723.0 mm	28.5 in.	
Weight			
Minimum	45 kg	92.5 lbs.	
Maximum	45 kg	92.5 lbs.	
Electrical			
Power source loading (kVA)	0.	34	
Voltage range (V ac)	100 to 125 or 200 t	o 240 (autoranging)	
Frequency (hertz)	50 c	or 60	
Thermal output	580 Btu/hr fo	or two drives	
Power requirements	340	watts	
Power factor	0.	95	
Maximum altitude	3048 m (10,000 ft.)	
Temperature	Operating	Non-Operating	
Requirements	5 to 40°C	5 to 32°C	
	(41 to 110°F)	(41 to 90°F)	
Humidity Requirements	Operating	Non-Operating	
(Noncondensing)	20% to 80%	20% to 80%	
Wet Bulb	26°C (79°F)	26°C (79°F)	
Noise Emissions*	Operating	Idle	
L _{WAd}	6.2 bels	5.5 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	46 dBA	43 dBA	
Impulsive or	No	No	
prominent discrete			

7332 Model 005 4-mm DDS-2 Autoloading Tape

Dimensions		
Height	122 mm	4.8 in.
Width	280 mm	11.0 in.
Depth	290 mm	11.5 in.
Weight	6.4 kg	14 lbs.
Electrical		
Power source loading (kVA)	0	.07
Voltage range (V ac)	100 to 125 or 200	to 240 (autoranging)
Frequency (hertz)	50	or 60
Thermal output	120	Btu/hr
(average)		
Power requirements		watts
Power factor		to 0.6
Maximum altitude	2135 m	(7000 ft.)
Temperature	Operating	Non-Operating
Requirements	16 to 32°C	10 to 43°C
	(60 to 90°F)	(50 to 110°F)
Humidity	Operating	Non-Operating
Requirements		
(Noncondensing)	20 to 80%	20 to 80%
Wet Bulb	23°C (73°F)	27°C (80°F)
Noise Emissions*	Operating	Idle
L _{WAd}	5.3 bels	5.3 bels
L_pAm	N/A	N/A
$\langle L_{pA}\rangle_{m}$	39 dBA	39 dBA
Impulsive or	No	No
•		
prominent discrete tones		

7332 Model 110 4-mm DDS-3 Autoloading Tape

Dimensions			
Height	122 mm	4.8 in.	
Width	280 mm	11.0 in.	
Depth	290 mm	11.5 in.	
Weight	6.4 kg	14 lbs.	
Electrical			
Power source loading (kVA)	0.	07	
Voltage range (V ac)	100 to 125 or 200 t	to 240 (autoranging)	
Frequency (hertz)	50 c	or 60	
Thermal output	120 I	Btu/hr	
(average)			
Power requirements	35 v	watts	
(typcial)			
Power factor	0.3 to 0.6		
Maximum altitude	2135 m	(7000 ft.)	
Temperature	Operating	Non-Operating	
Requirements	16 to 32°C	10 to 43°C	
	(60 to 90°F)	(50 to 110°F)	
Humidity	Operating	Non-Operating	
Requirements			
(Noncondensing)	20 to 80%	20 to 80%	
Wet Bulb	23°C (73°F)	27°C (80°F)	
Noise Emissions*	Operating	Idle	
L _{WAd}	5.3 bels	5.3 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	39 dBA	39 dBA	
Impulsive or	No	No	
prominent discrete			
tones			
* See "Noise Emission Notes"	on page 199 for definitions of emissions	positions.	

7332 Model 220 4-mm DDS-4 Autoloading Tape

Requirements 16 to 32°C (60 to 90°F) 10 to 43°C (50 to 110°F) Humidity Operating Non-Operating Requirements (Noncondensing) 20 to 80% 20 to 80% Wet Bulb 23°C (73°F) 27°C (80°F) Noise Emissions* Operating Idle	nensions		
Depth 290 mm 11.5 in. Weight 6.4 kg 14 lbs. Electrical Power source loading (kVA) Voltage range (V ac) 100 to 125 or 200 to 240 (autoranging) Frequency (hertz) 50 or 60 Thermal output (typical) 208 Btu/hr Power requirements (typicial) 61 watts Power factor 0.6 Maximum altitude 2135 m (7000 ft.) Temperature Operating Non-Operating Requirements 16 to 32°C (60 to 90°F) (50 to 110°F Humidity Operating Non-Operating Requirements (Noncondensing) 20 to 80% 20 to 80% Wet Bulb 23°C (73°F) 27°C (80°F) Noise Emissions* Operating Idle L _{DAD} N/A N/A L _{DAD} N/A N/A L _{DAD} N/A N/A Impulsive or N/O N/O	ight	122 mm	4.8 in.
Weight 6.4 kg 14 lbs. Electrical Power source loading (kVA) 0.07 (kVA) 100 to 125 or 200 to 240 (autoranging) Frequency (hertz) 50 or 60 Thermal output (typical) 208 Btu/hr (typical) Power requirements (typicial) 61 watts (typicial) Power factor 0.6 Maximum altitude 2135 m (7000 ft.) Temperature Requirements Operating Non-Operating Requirements 16 to 32°C (60 to 90°F) (50 to 110°F Humidity Requirements (Noncondensing) 20 to 80% 20 to 80% Wet Bulb 23°C (73°F) 27°C (80°F) Noise Emissions* Operating Idle L _{QAD} N/A N/A L _{QAD} N/A N/A L _{QAD} N/A N/A N/A N/A N/A Impulsive or No No	dth	280 mm	11.0 in.
Electrical	pth	290 mm	11.5 in.
Power source loading (kVA) Voltage range (V ac) Frequency (hertz) Thermal output (typical) Power requirements (typicial) Power factor Maximum altitude Temperature Requirements (Noncondensing) Voltage range (V ac) Power requirements 16 to 32° C (60 to 90° F) Voltage range (V ac) Non-Operating Requirements Non-Operating Re	ight	6.4 kg	14 lbs.
(kVA) Voltage range (V ac) 100 to 125 or 200 to 240 (autoranging) Frequency (hertz) 50 or 60 Thermal output (typical) 208 Btu/hr Power requirements (typicial) 61 watts Power factor 0.6 Maximum altitude 2135 m (7000 ft.) Temperature Requirements 16 to 32°C (60 to 90°F) 10 to 43°C (50 to 110°F Humidity Pequirements Operating Non-Operating Requirements Non-Operating Requirements (Noncondensing) 20 to 80% 20 to 80% Wet Bulb 23°C (73°F) 27°C (80°F) Noise Emissions* Operating Idle Idle L _{pAm} N/A	ectrical		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.0	07
Thermal output (typical) Power requirements (typicial) Power factor 0.6 Maximum altitude $2135 \text{ m} (7000 \text{ ft.})$ Temperature Requirements $16 \text{ to } 32^{\circ}\text{C}$ $10 \text{ to } 43^{\circ}\text{C}$ $(60 \text{ to } 90^{\circ}\text{F})$ $(50 \text{ to } 110^{\circ}\text{F})$ Humidity Operating Requirements $(Non-Operating Requirements)$ $(Non-Operating Requirement$	tage range (V ac)	100 to 125 or 200 to	o 240 (autoranging)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		50 o	r 60
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	•	208 B	Btu/hr
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	wer requirements	61 w	vatts
	*	0.	6
	ximum altitude	2135 m ((7000 ft.)
	nperature	Operating Non-Operating	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	quirements		
		(60 to 90°F)	(50 to 110°F)
		Operating	Non-Operating
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	=	20 to 80%	20 to 80%
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	t Bulb	23°C (73°F)	27°C (80°F)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ise Emissions*	Operating	Idle
$\begin{array}{cccc} L_{pAm} & N/A & N/A \\ < L_{pA}>_m & N/A & N/A \\ \\ Impulsive or & No & No & No \end{array}$	Ad	<5.3 bels	<5.3 bels
$<$ L $_{pA}>_m$ N/A N/A Impulsive or No No		N/A	N/A
		N/A	N/A
prominent discrete		No	No
·			
tones	es		

7334 Model 410 8-mm Tape Library

Dimensions			
Height	220.0 mm	8.7 in.	
Width	438.0 mm	17.2 in.	
Depth	612.0 mm	24.1 in.	
Weight			
Minimum	34.5 kg	76 lbs.	
Maximum	34.5 kg	76 lbs.	
Electrical			
Power source loading (kVA)	0.0	03	
Voltage range (V ac)	100 to 125 or 200 to	o 240 (autoranging)	
Frequency (hertz)	50 o	r 60	
Thermal output	427 B	8tu/hr	
Power requirements	125 watts		
Power factor	0.3 to 0.6		
Maximum altitude	3048 m (1	0,000 ft.)	
Temperature	Operating	Non-Operating	
Requirements	5 to 35°C	−20 to 60°C	
	(41 to 95°F)	(–4 to 140°F)	
Humidity Requirements	Operating	Non-Operating	
(Noncondensing)	20% to 80%	10% to 90%	
Wet Bulb	26°C (79°F)	29°C (84°F)	
Noise Emissions*	Operating	ldle	
L _{WAd}	6.3 bels	5.8 bels	
L _{pAm}	N/A	N/A	
$\langle L_{pA} \rangle_m$	46 dBA	43 dBA	
Impulsive or	No	No	
prominent discrete			
tones			

7336 Model 205 4-mm Tape Library

Dimensions			
Height	637.0 mm	25.1 in.	
Width	322.5 mm	12.7 in.	
Depth	723.0 mm	28.5 in.	
Weight			
Minimum	45 kg	92.5 lbs.	
Maximum	45 kg	92.5 lbs.	
Electrical			
Power source loading	0.	34	
(kVA)			
Voltage range (V ac)	100 to 125 or 200 t	to 240 (autoranging)	
Frequency (hertz)	50 c	or 60	
Thermal output	580 Btu/hr fo	or two drives	
Power requirements	340 watts		
Power factor	0.	95	
Maximum altitude	3048 m (10000 ft.)	
Temperature	Operating	Non-Operating	
Requirements	5 to 40°C	5 to 32°C	
	(41 to 110°F)	(41 to 90°F)	
Humidity	Operating	Non-Operating	
Requirements			
(Noncondensing)	20 to 80%	20 to 80%	
Wet Bulb	26°C (79°F)	26°C (79°F)	
Noise Emissions*	Operating	ldle	
L _{WAd}	6.2 bels	5.5 bels	
	N/A	N/A	
∟ _{pAm}	46 dBA	43 dBA	
L _{pAm} <l<sub>pA>_m</l<sub>	40 UDA		
	No No	No	
$\langle L_{pA} \rangle_m$			

7337 Model 305 DLT Tape Library

Dimensions			
Height	23.5 mm	9.25 in.	
Width	47.9 mm	18.9 in.	
Depth	67.3 mm	26.5 in.	
Weight			
Minimum	41.8 kg	92 lbs.	
Maximum	41.8 kg	92 lbs.	
Electrical			
Power source loading (kVA)		0.34	
Voltage range (V ac)	100 to 24	40 (autoranging)	
Frequency (hertz)	Ę	50 or 60	
Thermal output	445 Btu/	hr for two drives	
Power requirements	130 watts		
Power factor	TBD		
Maximum altitude	2438	m (6000 ft.)	
Temperature	Operating	Non-Operating	
Requirements	10 to 35°C	5 to 32°C	
	(50 to 95°F)	(40 to 90°F)	
Humidity	Operating	Non-Operating	
Requirements (Noncondensing)	20 to 80%	20 to 80%	
Wet Bulb	23°C (73.4°F)	46°C (114°F)	
	. ,		
Noise Emissions*	Operating	Idle	
L _{WAd}	5.5 bels	5.14 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	46 dBA	43 dBA	
Impulsive or	No	No	
prominent discrete			

7337 Model 306 DLT Tape Library

Dimensions				
Height	22	2.2 mm	8.75 in.	
Width	48.0 mm		18.9 in.	
Depth	67.3 mm		26.5 in.	
Weight				
Maximum	;	33 kg	72 lbs.	
Electrical				
Power source loading (kVA)		0.	34	
Voltage range (V ac)		100 to 240 (autoranging)	
Frequency (hertz)			or 60	
Thermal output		445 Btu/hr fo	or two drives	
Power requirements		130	watts	
Power factor		TE	BD	
Maximum altitude		1828 m	(6000 ft.)	
Temperature	Operating Non-Operating			
Requirements	10 to 35°C	5 to 32°C		
	(50 to 95°F)		(40 to 90°F)	
Humidity Requirements	Operating		Non-Operating	
(Noncondensing)	20 to 80%		20 to 80%	
Wet Bulb	23°C (73.4°F)		46°C (114°F)	
Noise Emissions*	Operating		Idle	
L _{WAd}	5.3 bels		6.0 bels	
L _{pAm}	N/A		N/A	
$\langle L_{pA}\rangle_{m}$	46 dBA		43 dBA	
Impulsive or	No		No	
prominent discrete tones				
* See "Noise Emission Notes"	on page 199 for definitions	s of emissions	positions.	

7337 Model 360 DLT Tape Library

Dimensions		
Height	68.5 cm	27.0 in. (w/casters)
Width	48.1 cm	18.9 in.
Depth	73.5 cm	28.9 in.
Weight		
Minimum	65.8 kg	145 lbs.
Maximum	116.6 kg	257 lbs.
Electrical		
Power source loading		0.72
(kVA)		
Voltage range (V ac)	100 to 24	10 (autoranging)
Frequency (hertz)	5	60 or 60
Thermal output	193	20 Btu/hr
Power requirements	56	62 watts
Power factor	0.	.55 - 0.8
Maximum altitude	2135	m (7000 ft)
Temperature	Operating	Non-Operating
Requirements	10 to 38°C	5 to 32°C
	(50 to 100°F)	(40 to 90°F)
Humidity Requirements	Operating	Non-Operating
(Noncondensing)	20 to 80%	20 to 80%
Wet Bulb	26°C (79°F)	46°C (114°F)
Noise Emissions*	Operating	ldle
L_WAd	6.8 bels	6.6 bels
L _{pAm}	N/A	N/A
<l<sub>pA>_m</l<sub>	46 dBA	43 dBA
Impulsive or	No	No
prominent discrete		
tones		

Chapter 9. Physical Characteristics of the 9000 Series

This section gives the physical characteristics for the 9xxx series of external devices. The following information can help you plan for your external devices. You only have to do physical planning for the devices you have ordered. Footprints are not drawn to scale.

Where a footprint is shown, the figure represents a top view of the device.

9291 Models 010, and 020 Single Digital Trunk Processors

Dimensions				
Height		110 mm	4.33 in.	
Width	220 mm		8.66 in.	
Depth	430 mm		16.9 in.	
Weight				
Minimum	7.5 kg		16.5 lbs.	
Maximum	7.5 kg		16.5 lbs.	
Electrical				
Power source loading		0.0	06	
(typical in kVA)				
Voltage range (V ac)		100 to 127 or 200 to		
Frequency (hertz)		50 o		
Thermal output		170 E	Btu/hr	
(typical)				
Power requirements (typical)		50 w	atts	
(typical) Power factor		0.5 to	n 0.8	
Maximum altitude		2135 m (
Temperature		ating	Non-Operating	
Requirements	10 to 40°C (50 to 104°F)		10 to 43°C	
	(50 to	104°F)	(50 to 110°F)	
Humidity Requirements	Oper	ating	Non-O _l	perating
(Noncondensing)	8 to	80%	8 to	80%
Wet Bulb		(80°F)	27°C (80°F)	
Noise Emissions ¹	Oper	ating	lo	lle
L_{WAd}	•	bels	4.8 bels	
L _{pAm}	N.	/A	N/A	
<l<sub>pA>_m</l<sub>	40 (dBA	40 dBA	
Impulsive or	N	О	No	
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²	Wie	dth	De	pth
	220mm(8.66 in)		734mm(28.9 in)	

9295 Multiple Digital Trunk Processor With AC Power Supply

Dimensions	Base Unit	Each T1 or CEPT	Secon	d Power
		feature	Supply	feature
Height	266 mm 10.5 in.	264 mm 10.3 in.	264.0 m	m 10.3 in.
Width	449 mm 17.6 in.	50 mm 1.9 in.		m 2.7 in.
Depth	400 mm 15.7 in.	373 mm 14.6 in.	373.0 m	m 14.6 in.
Weight				
Minimum	13.2 kg 29.2 lbs.	2.1 kg 4.6 lbs.	•	11.0 lbs.
Maximum	13.2 kg 29.2 lbs.	2.1 kg 4.6 lbs.	5.0 kg	11.0 lbs.
Electrical				
Power source loading		0.40)	
per power supply				
typical in kVA)				
Voltage range (V ac)		100 to 127 or 200 to	240 (autoranging)	
Frequency (hertz)		50 or		
Thermal output		1030 B	tu/hr	
per power supply				
Power requirements		300 w	atts	
per power supply				
Power factor		0.5 to		
Maximum altitude		2135 m (7	(000 ft.)	
Temperature	Operating		Non-Operating	
Requirements	10 to 40°C		10 to 43°C	
	(50 to 104°F)		(50 to 110°F)	
Humidity	Ор	erating	Non-O	perating
Requirements	_			
(Noncondensing)		to 80%	8 to 80%	
Wet Bulb	27°	C (80°F)	27°C	(80°F)
Noise Emissions ¹	_	erating		dle
L_{WAd}	6.	0 bels	6.0 bels	
L _{pAm}		N/A	N/A	
<l<sub>pA>_m</l<sub>	4	2 dBA	42 dBA	
Impulsive or		No	No	
prominent discrete				
tones				
Clearances	Front	Back	Left	Right
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A
Service	152 mm(6 in)	N/A	N/A	N/A
Footprint ²		Vidth		epth
	449m	m(17.6 in)	704mm	(27.7 in)
See "Noise Emission	Notes" on page 199	for definitions of noise emi	ssions positions.	
		during normal operation is		rint dimensions

9295 Multiple Digital Trunk Processor With DC Power Supply

Dimensions	Base Unit	Each T1 or CEPT		d Power	
Height	266 mm 10.5 in.	feature 264 mm 10.3 in.		/ feature m 10.3 in.	
neigni Width	449 mm 17.6 in.	50 mm 1.9 in.		m 2.7 in.	
	400 mm 15.7 in.	373 mm 14.6 in.		m 14.6 in.	
Depth	400 mm 15.7 m.	3/3 11111 14.0 111.	3/3.0 111	III 14.0 III.	
Weight					
Minimum	13.2 kg 29.2 lbs.	2.1 kg 4.6 lbs.	_	11.0 lbs.	
Maximum	13.2 kg 29.2 lbs.	2.1 kg 4.6 lbs.	5.0 kg	11.0 lbs.	
Electrical					
Voltage range (V dc)		-48 to -60) Vdc		
Thermal output		1030 Bt	u/hr		
per power supply					
Power requirements		300 wa	atts		
per power supply					
Maximum altitude		2135 m (70	000 ft.)		
Temperature	Operating 10 to 40°C			perating	
Requirements			10 to 43°C		
	(50 to 104°F)		(50 to 110°F)		
Humidity Requirements	Operating		Non-O	perating	
(Noncondensing)	8 1	0 80%	8 tc	80%	
Wet Bulb	27°	C (80°F)	27°C	(80°F)	
Noise Emissions ¹	Ор	erating	I	dle	
L_{WAd}	6.	0 bels	6.0	6.0 bels	
L _{pAm}		N/A	N/A		
<l<sub>pA>_m</l<sub>	4	2 dBA	42 dBA		
Impulsive or		No	No		
prominent discrete					
tones					
Clearances	Front	Back	Left	Right	
Install/Air Flow ²	152 mm(6 in)	152 mm(6 in)	N/A	N/A	
Service	152 mm(6 in)	N/A	N/A	N/A	
Footprint ²		Vidth		epth	
	449m	m(17.6 in)	704mm	n(27.7 in)	

See Noise Emission Notes on page 199 for definitions of noise emissions positions.
 The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

9333 Models 010, and 011 Drawer High-Performance Subsystem

Dimensions			
Height	171 mm	6.7 in.	
		(4 EIA units)	
Width	443 mm	17.4 in.	
Depth	686 mm	27.0 in.	
Weight			
Minimum	25 kg	55 lbs.	
Maximum	49 kg	108 lbs.	
Electrical			
Power source loading		0.36	
(typical in kVA)			
Voltage range for		200 to 240	
Model 010 (V ac)			
Voltage range for Model 011	200 to 240 V ac or -48 V dc		
Frequency (hertz)	50 or 60		
Thermal output	680 Btu/hr		
(typical)			
Power requirements	200 watts		
(typical)			
Power factor	0.5 to 0.7		
Maximum altitude	2135 m (7000 ft.)		
Temperature	Operating Non-Operating		
Requirements	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 125°F)	
Humidity Requirements	Operating	Non-Operating	
(Noncondensing)	8 to 80%	8 to 80%	
Wet Bulb	27°C (80°F) 27°C (80°F)		
Noise Emissions*	Operating	Idle	
L_{WAd}	5.5 bels	5.2 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	42 dBA	40 dBA	
Impulsive or	No	No	
prominent discrete			
tones			

9333 Models 500, and 501 Deskside High-Performance Subsystem

610 mm		24.0 in.	
	39 kg	85 lbs.	
	63 kg	138 lbs.	
	0.37	7	
	680 Bt	u/hr	
	200	otto	
	∠00 W	aแอ	
0.5 to 0.7			
		-	
Operating			perating
		10 to 43°C	
(60 to	90°F)	(50 to	110°F)
Oper	rating	Non-Op	perating
0.4.000/		0 to 200/	
		8 to 80% 27°C (80°F)	
			· ,
		Idle	
		5.3 bels	
		N/A	
		42 dBA No	
No		N	10
Front	Rack	Left	Right
. ,			N/A
152 mm(6 in)	N/A	N/A	N/A
Width 270mm(10.6 in)		Depth 1085mm(42.7 in)	
	16 to (60	270 mm 780 mm 39 kg 63 kg 0.37 100 to 125 or 200 to 50 or 680 Bt 200 w 0.5 to 2135 m (7 Operating 16 to 32°C (60 to 90°F) Operating 8 to 80% 23°C (73°F) Operating 5.5 bels N/A 44 dBA No Front Back 152 mm(6 in) 152 mm(6 in) N/A	270 mm 780 mm 30.7 in. 39 kg 85 lbs. 63 kg 138 lbs. 0.37 100 to 125 or 200 to 240 (selectable) 50 or 60 680 Btu/hr 200 watts 0.5 to 0.7 2135 m (7000 ft.) Operating Non-Operating N

9334 Models 010, and 011 Drawer Expansion Units

Dimensions			
Height	171 mm	6.7 in.	
	440	(4 EIA units)	
Width	443 mm	17.4 in.	
Depth	686 mm	27.0 in.	
Weight			
Minimum	25 kg	55 lbs.	
Maximum	43 kg	95 lbs.	
Electrical			
Power source loading	(0.34	
(typical in kVA)			
Voltage range for	200	to 240	
Model 010 (V ac)			
Voltage range for	200 to 240 V	/ ac or -48 V dc	
Model 011			
Frequency (hertz)	50 or 60		
Thermal output	580	Btu/hr	
(typical)			
Power requirements	170 watts		
(typical) Power factor	0.5	4-07	
Maximum altitude	0.5 to 0.7 2135 m (7000 ft.)		
waximum aiiiiude	2135 11	1 (7000 It.)	
Temperature	Operating	Non-Operating	
Requirements	10 to 40°C	10 to 52°C	
	(50 to 104°F)	(50 to 125°F)	
Humidity	Operating	Non-Operating	
Requirements			
(Noncondensing)	8 to 80%	5 to 80%	
Wet Bulb	27°C (80°F) 27°C (80°F)		
Noise Emissions*	Operating Idle		
L _{WAd}	5.5 bels	5.2 bels	
L _{pAm}	N/A	N/A	
<l<sub>pA>_m</l<sub>	42 dBA	40 dBA	
Impulsive or	No	No	
prominent discrete			
tones			
* See "Noise Emission Notes"	on page 199 for definitions of noise em	nissions positions.	

9334 Models 500, and 501 Deskside Expansion Units

Width 270mm(10.6 in)		Depth 1085mm(42.7 in)	
152 mm(6 in)	N/A	N/A	N/A
152 mm(6 in)	152 mm(6 in)	N/A	N/A
Front	Back	Left	Right
	Operating		le
23°C (73°F)		27°C (80°F)	
8 to 80%		8 to 80%	
Oper	ating	Non-Op	erating
`	•	•	,
		10 to 43°C (50 to 110°F)	
Operating			erating
		-	
0.5 to 0.7			
190 watts			
	000 Bt		
	100 to 125 or 200 to	240 (selectable)	
	0.4		
	65 kg	142 lbs.	
	39 kg	85 lbs.	
780 mm		30.7 in.	
610 mm 270 mm		24.0 in. 10.6 in	
	16 to (60	270 mm 780 mm 39 kg 65 kg 0.4 100 to 125 or 200 to 50 or 650 Bt 190 w 0.5 to 2135 m (7 Operating 16 to 32°C (60 to 90°F) Operating 8 to 80% 23°C (73°F) Operating 5.5 bels N/A 44 dBA No Front Back 152 mm(6 in) 152 mm(6 in) N/A Width	270 mm 780 mm 30.7 in. 39 kg 85 lbs. 65 kg 142 lbs. 0.4 100 to 125 or 200 to 240 (selectable) 50 or 60 650 Btu/hr 190 watts 0.5 to 0.7 2135 m (7000 ft.) Operating 10 to 32°C 10 to 60 to 90°F) (50 to 0.7 (

2. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

9348 Model 012 Magnetic Tape Unit

Footprint ³	Width 483mm(19 in)		Depth 977mm(38.5 in)	
Service	152mm(6 in)	N/A	305mm(12 in)	305mm(12 in)
Install/Air Flow ³	152mm(6 in)	152mm(6 in)	N/A	N/A
Clearances	Front	Back	Left	Right
prominent discrete tones	IV		IN	
<l<sub>pA>_m Impulsive or</l<sub>	51 dBA² No		50 dBA No	
L _{pAm}	N/A		N/A	
L _{WAd}	7.0 bels ²		6.8 bels	
Noise Emissions ¹	Operating		Idle	
Wet Bulb	23°C	(73°F)	27°C (80°F)	
(Noncondensing)	20 to		20 to 80%	
Humidity Requirements	Oper	ating	Non-Operating	
riequirements		90°F)		110°F)
Temperature Requirements	Oper	ating 32°C	-	perating 43°C
Maximum altitude	2135 m (7000 ft.)			
Power factor	0.5 to 0.7			
(typical)		120 Walls		
Power requirements		120 watts		
Thermal output (typical)		410 8	3tu/hr	
Frequency (hertz)			or 60	
Voltage range (V ac)			to 240 (selectable)	
(typical in kVA)				
Power source loading		0.	27	
Electrical				
Maximum		48.2 kg 48.2 kg	105 lbs.	
Weight Minimum		40.0 kg	105 lbs.	
Depth	673 mm		26.5 in.	
Width		483 mm	19.0 in.	
Height	222 mm		8.75 in.	

- 1. See "Noise Emission Notes" on page 199 for definitions of noise emissions positions.
- 2. Data applies when the tape unit is in streaming operating mode.
- 3. The amount of space needed by the unit during normal operation is indicated by the footprint dimensions.

Noise Emission Notes

- 1. L_{WAd} is the declared sound power emission level for a production series of machines.
- 2. L_{pAm} is the mean value of the sound pressure emission levels at the operator position (if any) for a production series of machines.
- 3. $\langle L_{DA} \rangle_m$ is the mean value of the space-averaged sound pressure emission levels at the one-meter positions for a production series of machines.
- 4. N/A = Not Applicable (no operator position).
- 5. All measurements are made in accordance with ISO DIS 779 and reported in conformance with ISO DIS 7574/4.
- 6. NA not available.

Chapter 10. Power Cords and Electrical Needs

General Considerations

In planning for your electrical needs, consider the following:

- You must have adequate power to meet the requirements of the devices.
- Electrical receptacles must be near enough to be reached by the power cords supplied with the devices.
- Electrical outlets must be compatible with the electrical plugs supplied with the devices.
- Electrical outlets must be functional and properly grounded.
- Paths of power cords should be arranged to prevent damage to power cords or tripping hazards to personnel.
- · Depending on the computing environment, you may need surge protection devices.
- Radio, radar, or other strong radio frequency transmitters close to your location may cause computer malfunctions. Consult your sales representative if abnormally high radio frequency noise is anticipated.
- Functionality and capacity of uninterruptible power source (UPS), if used.
- Varying magnetic fields from high current electrical power distribution systems, elevators, or equipment
 employing high currents or magnets may cause annoying motion on video displays. Check for
 acceptable operation of video displays if varying magnetic fields may be encountered.

Power Cords

Power cords with attached plugs are provided for most AC powered systems. Power cords are 1.8 m (6 ft.) minimum length. Rack mounted products are normally supplied with 4.3 m (14 ft) power cords. All products shipped to Chicago, are provided with 1.8 m (6 ft.) power cords to comply with local electrical standards

The power cord that is supplied with the system has an attached plug. The plug that is provided corresponds to the power-outlet receptacle most commonly used in the country to which the product is being shipped. A different plug may be selected by specifying its feature code from the following table when the product is ordered. You, the customer, must supply the corresponding power outlet receptacles.

Plugs

The table at the end of this section presents information concerning system unit plugs for various countries. The plugs are listed in order of feature code. Consult your sales representative for information on which type of plug is used in your area or country.

Notes:

- 1. Feature codes 6173, 6174, 9173 and 9174 are for a rack mounted power distribution and include a power cord and plug that attaches to the power distribution bus (PDB). It is not necessary to order a power cord when one of these feature codes is selected.
 - Single phase PDBs 6171, and 9171 must have a power cord specified.
- 2. In the United States, raised floor installations involving racks may require a Russell and Stoll (R & S) watertight plug/connector/receptacle (feature code 9801 or 9987).
- 3. A combination of AC power distribution busses and DC power distribution panels (PDPs) in one rack will only be provided on a special order basis.

System Input Power

Most of these input power considerations apply to all system units, except for the "Power Phase Imbalance" and "Power Phase Rotation" sections, which apply only to the rack mounted or large systems.

Electrical Considerations

These topics should be considered before installing a system.

Primary Computer Power Service

While a dedicated power supply is not necessary, for maximum reliability the computer power panel should connect to feeders that do not serve other loads. Connect electrical noise-producing devices to panels separate from those feeding the system units.

Grounding

A system unit or device must be properly grounded. It is recommended that an insulated green wire ground, the same size as the phase wire, be installed between the branch circuit panel and the receptacle.

To ensure proper grounding, a licensed electrician should check the grounding and receptacles for conformance with the country electrical codes.

Computer Room Emergency Power-Off Controls

As a safety precaution, you should provide room emergency power-off controls for disconnecting the main service wiring that supplies the computer equipment. Install these controls at a convenient place for the operator and next to the main exit doors of the room.

Lightning Protection

You should install lightning protection devices when:

- · An overhead power service supplies the primary power.
- The area is subject to electrical storms or equivalent-type power surges.

Power Phase Imbalance

Three versions of rack power distribution units are available. The single-phase PDB, has a detachable line cord and can accept single-phase power or power from one phase of a three-phase source. Multiphase PDBs connect to two and three phases of a three-phase power source.

Systems with any of the power distribution units can cause a load imbalance when connected to a three-phase power source. You should consult a licensed electrician to properly balance the loads when new or additional systems are to be connected to a three-phase source.

Power Phase Rotation

The phase rotation (sequence) is not critical for the rack multiphase power distribution units. The system will operate correctly with a multiphase distribution unit connected to a 200- to 240-volt single-phase power source (all phases connected to one side of the power source, neutral to the other).

Desktop and Deskside System Unit Power Plugs

Feature Code	Plug	Standard Compliance or Type
9116 9800 9986		NEMA WD-1 5-15P 125 V, 15 A
9820		CEE7 VII 250 V, 16 A
9821		Afsnit 107 250 V, 10 A
9825		BS 1363 250 V, 13 A
9827		SII-32-1971 250 V, 16 A
9828	•••	SEV 1011.1959 250 V, 10 A
9829	• •	SABS 164, BS 546 250 V, 16 A
9830	•••	CEI 23-16/VII 250 V, 10 A
9831		AS 3122-1981 250 V, 10 A

Feature Code	Plug	Standard Compliance or Type
9833		NEMA WD-1 6#15P 250 V, 15 A
9834		IEC 83-A5 1957 250 V, 10 A

Rack-Type System Unit Power

The racks for rack-type system units are supplied with a power distribution bus (PDB) and a pluggable power cord. One to three PDBs may be added to the rack. Each PDB will have a power cord and the customer must provide a power outlet for each PDB.

Multiphase PDBs and Power Cords

The feature codes in the table below have a power distribution bus (PDB) and a system power cord. The PDB and system power cord have the same plug as shown in the table. The system power cord has a receptacle for connection to the PDB plug.

PDB and System Power Cord Feature Code	Plug	Standard Compliance or Type
6173 9173 Except for S70, S7A, and S80 CEC Racks. See notes.		IEC 309 380-415 V, 32 A
6174 9174 For S70, S7A, and S80 Racks. See Notes.		IEC 309 380-415 V, 16 A

Note: When an S70, S7A, S80, or S85 CEC is ordered with feature code (FC) 9173, it is supplied with a 16 amp IEC 309 plug. All other racks ordered with FC 9173 are supplied with a 32 amp IEC 309 plug.

Single Phase PDB with Feature Code 9823

System Power cord feature code 9823 may be ordered with a single phase PDB 9171 or 6171. For this feature code, the plug on the PDB will be a 32 Amp IEC 309 identical to the plug on the system power cord. The system power cord has a compatible IEC 309 receptacle for connection to the PDB.

PDB and System Power Cord Feature Code	Plug	Standard Compliance or Type
9823		IEC 309 220 to 240 V, 32 A

Single Phase PDBs and Power Cords

The feature codes in the table maybe specified with a 6171, or 9171 single phase PDB. For feature codes in the table below, the PDB will have a NEMA WD-5 L6-30 style plug as shown in feature code 9800. The system power cord has a NEMA WD-5 L6-30 style receptacle that plugs on to the PDB on one end. The other end of the system power cord has a plug as shown in the drawing with the feature code in the following table.

System Power Cord Feature Code	Plug	Standard Compliance or Type
9800 9824 9986		NEMA WD-5 L6-30P 250 V, 30 A
9801 9987		R & S 3750 250 V, 30 A
9822		Wilco Weatherproof WIP130 250 V, 30 A
9826		PDL Insulated 56PA330 250 V, 30 A
9835		Korean Standard KS C 8305-1990 250 V, 30 A

Rack-Type System Internal Power Distribution Cable

AC power distribution from PDBs to system components is accomplished with cords using IEC 320/C14 plugs. Additional cords for customer installed equipment can be provided by feature code 6095. Each outlet on the PDB is limited to 8 amps. The PDB is limited to a total of 24 amps. The cable is 2.8 m (9 ft.) in length. Voltage from the PDB will be 200 to 240 volts as provided by the customers AC power system. The plug and output connector for power cable feature code 6095 are shown in the table below.

Feature Code	Plug	Standard Compliance or Type
6095		IEC 320/C14 250 V, 10 A This plug is used for all power outlets from a PDB.
		IEC 320/C13 250 V, 10 A For connection to customer installed equipment

-48 Volt DC Rack Power Distribution

System Racks with -48V DC power distribution (feature codes 6115, 6116, or 6117) have provision for ring terminal connection of power to the power distribution panel (PDP) at the top of the rack. The PDP has two independent sections for power input and output. Each section of the PDP has a -48 Volt bus bar and a -48 Volt Return bus bar. Two holes are provided in each bus bar for input power connection. The input power connection holes are sized for 3/8 inch bolts that are approximately 10 mm in diameter. Bolts, ring terminals and wire for -48 volt input power connection are not provided with the rack.

Properly sized circuit breakers, connectors, and cables to distribute the -48 volts from the PDP to the drawers in the rack are provided with the drawers.

Chapter 11. Cable Planning

Before shipment, the customer is asked to provide specific planning information concerning the physical layout of the installation.

This section can help you plan your layout by presenting planning information on some cables used to interconnect the system units and devices. This chapter includes information on cable length and measuring techniques and some sample cable planning charts. Other cable planning charts can be laid out as necessary. The *Adapters, Devices, and Cable Information (ADCI) for Micro Channel Bus Systems*, order number SA23-2764 or *ADCI for Multiple Bus Systems*, order number SA23-2778 has detailed information on cable feature codes, part numbers, and pin-out charts for cables available to be purchased and customer-supplied cables.

You must plan the type of cable, cable path, and cable length. Consider not only your current needs, but also your anticipated growth and the relocation of personnel.

You should note cable paths on your office layout as this will assist with the installation of your system.

The customer is responsible for planning for the installation of interconnecting cables including the proper lightning and surge protection as necessary and should contact the appropriate contractor for guidance and assistance as required. If the cables discussed in the cable publication do not meet your needs, you should talk to your sales representative or cabling vendor about custom cabling alternatives.

General Considerations

In preparing for cabling, consider the following:

- Where applicable, electrical and physical specifications of cables you currently have and plan to use with the new system must be compatible with the standards mentioned in this book. If no standard is specifically mentioned in this book, the standards for the interface on that adapter must be met.
- · Lengths and paths of cables. See "Cable Measuring" on page "Cable Measuring" on page 210.
- Communication signal cables should be installed away from power lines or other sources of electrical interference.
- Toroid and shielding considerations. Shielded cables should be used in applications where a shielded connection is provided. Toroid kits should be applied to cables when provided.
- Labeling of cables and ports you currently have in order to indicate which devices you want attached to them. See "Cable Labeling" on page "Chapter 12. Cable Labeling" on page 225.
- Electrostatic discharge (ESD) considerations. In particular, unprotected patch panels, punch blocks, or other intermediate routing or switching devices used in cabling can allow ESD into the network.

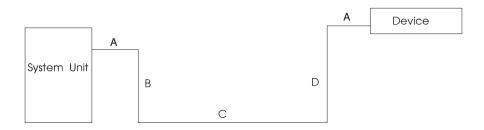
Note: Lightning protection must be provided on any cable which travels outside of the building in which the system or device such as a terminal or printer is installed. Contact a cabling vendor about providing lightning protection for those cables. Fiber-optic cables do not require lightning protection.

Cable Measuring

Accurate measuring of cables is critical to a successful and efficient installation. Do not guess or estimate your cable lengths.

In determining the cable lengths you need, be sure to consider the following:

- A=length allowed for service access, 51 mm (2 ft.) on both system unit and device ends.
- · B=length from system unit to floor.
 - Tabletop to floor for desktop models.
 - 46 mm (1.5 ft.) for deskside units.
 - See "7015 Considerations" for rack-mounted system units.
- C=horizontal and vertical cable runs. Be sure to route cables around furniture to avoid tripping hazards.
- D=distance from floor to device. (This can include distance between floors, between buildings, etc., depending on complexity of installation.)

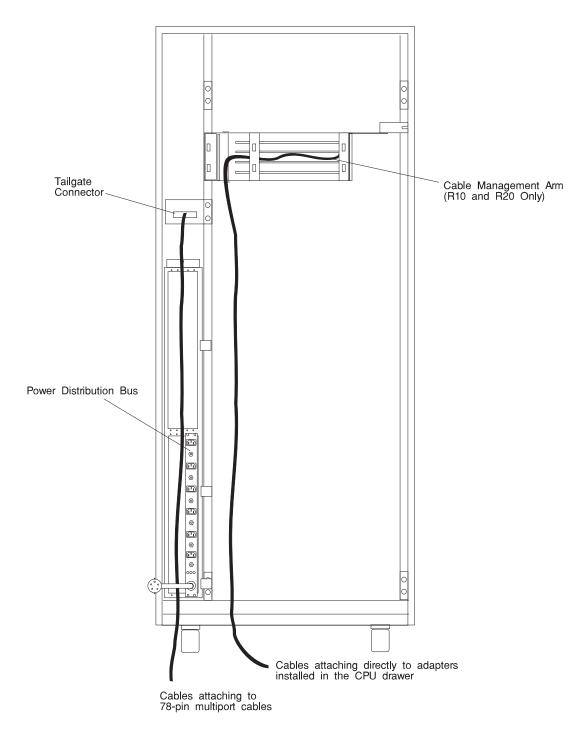


7015 Considerations

The 78-pin multiport interface cables for the 8-or 16-port Async Adapters when used with the 7015 Models R10 and R20 attach to the system tailgate connect rather than to the adapter itself. Internal cables not shown in the cable diagram run from the adapter through the cable management arm to the tailgate connector. You should begin your cable measurements at the tailgate connector for the 8-or 16-port Async Adapter multiport cables.

Other cables used with the 7015 Models R10 and R20 are routed through a cable management arm. The management arm is designed to ensure that the cables do not kink, stretch, or accidentally disconnect when a drawer is pulled out for service.

When planning the necessary lengths of cables routed through this arm, add 2.3 m (7.5 ft.) to the measured distance from the base of the rack.



Rear view of a 7015 system unit, showing system tailgate connector and cable management arm (Models R10 and R20). The EIA scale, which provides a standard unit of measure, is located on the inside right of the rack.

Cable Planning Charts

Cable planning charts help your electrician or cable vendor understand your master plan for cabling. These are particularly useful for large, complex installations.

For information about the cables see the following publications:

- Adapters, Devices and Cable Information, for Micro Channel Bus Systems, order number SA23-2764.
- Adapters, Devices and Cable Information, for Multiple Bus Systems, order number SA23-2778.
- For more information on asynchronous communications software, hardware, and cabling see AIX Versions 3.2 and 4 Asynchronous Communications Guide order number SC23-2488.

Your responsibilities are as follows:

- · Fill in each chart, except for the shaded areas, which will be completed by the electrician or cable vendor installing your system. You can make copies of the charts as needed. To help you complete the charts, samples are provided on the following pages.
- · Verify that the proper cabling has been ordered and installed.
- Prepare and attach cable labels using the information from the completed charts.
- · Once you have completed your sections, give the charts to your electrician or cable vendor who can use them to understand your cabling needs.

Note: Following the installation, the charts should be kept to help you remember the cabling scheme. These charts, in addition to the cable labels that are available (see Chapter 5), will be invaluable in the future as you move system units or devices and need to keep cabling in order.

There are four unique charts, one for each of the following adapters or adapter types:

- Asynchronous adapters
- · Standard I/O adapters
- · 4-Port Multiprotocol Communications Controller
- · Other adapters

Asynchronous Adapter Planning Charts Example

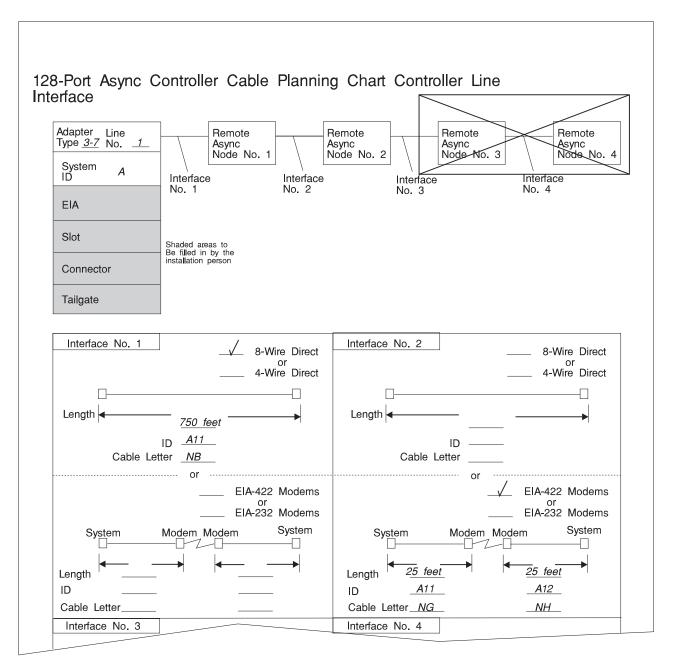
Async Adapter Computer Room Loo	Cable Planni			
Shaded areas to Be filled in by the installation person Adapter Type 3-1	Length <u>25 ft.</u> ID <u>A1</u>	Port	Length	Device Type Device ID Location Telephone
System A EIA Slot		Port	Length	Device Type Device ID Location Telephone
Connector Tailgate		Port 2	Length 100 ft.	Device Type ASCII terminal Device ID tty48 Location RM 3-487 Telephone 5-3822

An example of an Async Cable Planning Chart for the 8 port async adapter complete for an ASCII terminal. In this example, the terminal is attached to Port 2. This chart can be used for 8-port or 16-port asynchronous adapters.

Async Adapter Cable Planning Chart

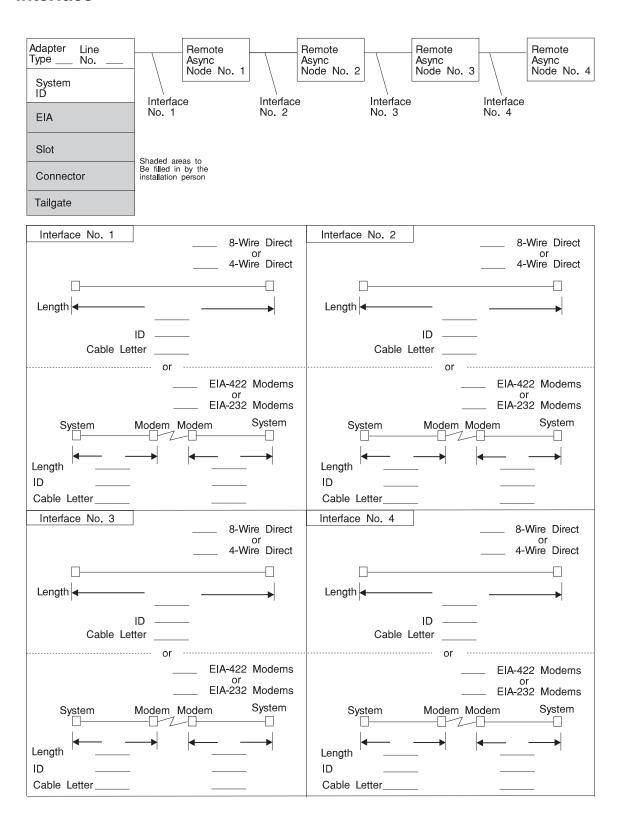
Computer Room Location Shaded areas to Be filled in by the installation person Device Type Length. Port ID -Device ID Length ID Adapter Location Type Telephone System ID Device Type Port Length. ID Device ID EIA Location Slot Telephone Connector Device Type Port Length ID ____ Device ID Tailgate Location Telephone Device Type Port Length ID. Device ID Location Telephone Fan-Out Box No. __ Device Type Port Length. Location _ Device ID Location Telephone Device Type Port Length Device ID Location Telephone Device Type Port Length_ ID. Device ID Location Telephone Device Type Port Length. ID. Device ID Location Telephone

128-Port Async Controller Cable Planning Chart Example



An example of a 128-Port Async Controller Cable Planning Chart, Controller Line Interface, completed for two interfaces. In this example, interface number 1 uses a 750-foot 8-wire cable, and interface number 2 uses two EIA-422 synchronous modems and associated cables. Cable IDs are assigned by the customer. For information about the cables represented by the cable letters shown in the example above, see "Adapters and Cabling Chapters" for the 128-Port Async Controllerin the Adapters, Devices and Cable Information, for Micro Channel Bus Systems, order number SA23-2764 or Adapters, Devices and Cable Information, for Multiple Bus Systems, order number SA23-2778.

128-Port Async Controller Cable Planning Chart Controller Line **Interface**



128-Port Async Device Cable Planning Chart Example

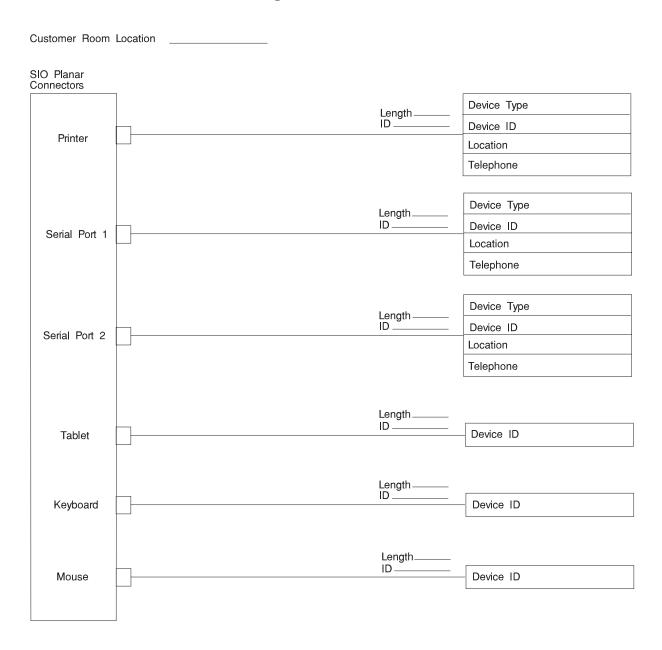
		ng Cha			
Remote Async Node No.	1				
Location Room 231					
Device Type 2381 Proprinter	Cable: Length_200 ft.			Cable:	Device Type
Device ID LP44	ID B	Port	Port	Length ID	_
Location Room 522		0			Location
Telephone 5-7152					Telephone
Device Type 3151 ASCII Term.	Cable: Length_100 ft.	Port	Port	Cable:	Device Type
Device ID TTY45	ID A		Port	Length ID	Device ID
Location Room 487		1			Location
Telephone 5-8317					Telephone
Device Type	Cable: Length	Dovt	Port	Cable:	Device Type
Device ID	ID	Port	Port	Length ID	
Location	-				Location
Telephone					Telephone

An example of a 128-Port Async Device Cable Planning Chart, Remote Async Node, completed for a 2381 Proprinter® and a 3151 ASCI terminal. In this example, the terminal is attached to Port 1 on Remote Async Node number 1, and the printer is connected to port 0. Cable IDs are assigned by the customer.

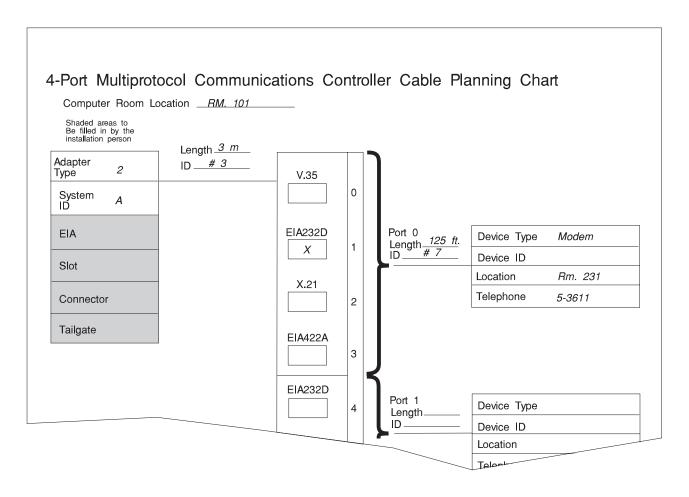
128-Port Async Device Cable Planning Chart

Remote Async Node No.					
Location					
Device Type	Cable: Length	Deat	Dowl	Cable:	Device Type
Device ID	ID	Port	Port	ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID			ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID			ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID			ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID			ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID			ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID		TOIL	ID	Device ID
Location					Location
Telephone					Telephone
Device Type	Cable: Length	Port	Port	Cable: Length	Device Type
Device ID	ID			ID	Device ID
Location					Location
Telephone					Telephone

Standard I/O Cable Planning Chart

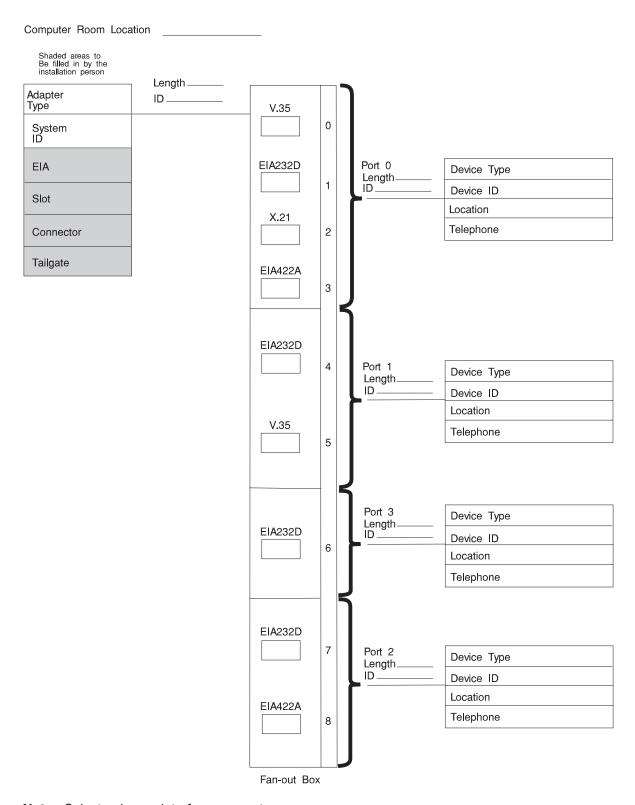


4-Port Multiprotocol Communications Controller Cable Planning Chart **Example**



An example of a 4-Port Multiprotocol Communications Controller Cable Planning Chart completed for a modem. In this example, the terminal is attached to Port 0. Protocol type, in this case EIA-232D, is noted with an X.

4-Port Multiprotocol Communications Controller Cable Planning Chart

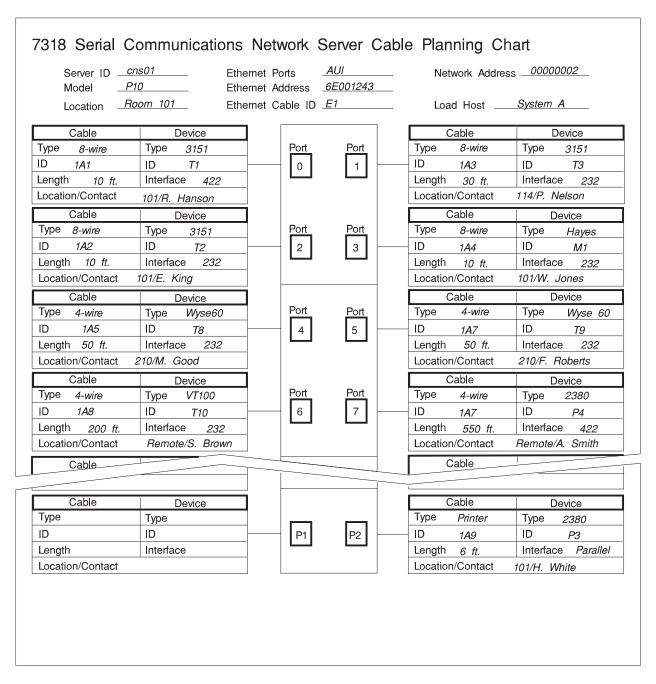


Note: Select only one interface per port.

Cable Planning Chart Other Adapters

Computer Room Loc	ation	_	
Shaded areas to Be filled in		Lamenth	
Adapter Type		Length	
		<u> </u>	Device Type
System ID		Interface	Device ID
_		X.21	Location
Drawer		V.24 V.35	Telephone
Slot			
Tailgate			
Adapter Name	<u> </u>		
Adapter No			
Adapter		_ength	
Typė	I	D	Device Type
System ID		Interface	Device ID
		X.21	Location
Drawer		V.24 V.35	Telephone
Slot			
Tailgate			
Adapter Name			
Adapter No	of	u.	
Adapter Type		Length D	Device Type
System		Interface	
ID		X.21	Device ID Location
Drawer		V.24	
Slot		V.35	Telephone
Tailgate			
Adapter Name			
Adapter No			
Adapter Type	L	_ength D	
System		lukuda	Device Type
ID		Interface	Device ID
Drawer		X.21 V.24	Location
		V.35	Telephone
Slot			
Tailgate			

7318 Models P10 and S20 Cable Planning Chart Example



An example of the 7318 Terminal Server Cable Planning Chart showing connection of six terminals, 1 modem, 1 serial printer, and 1 parallel printer. The IDs assigned in the example above are assigned by the configuration planner. Refer to the 7318 Serial Communications Network Server Guide and Reference, order number SC23-2542 for information about slew rates, interface types and 7318 configurations.

7318 Serial Communications Network Server Cable Planning Chart

Server ID _		Ethernet Port				Network Addre	ess
Model Location		Ethernet Add Ethernet Cab				Load Host	
Cable	Device]	Cable	Device
Туре	Туре		Port	Port		Туре	Туре
ID	ID		0	1		ID	ID
Length	Interface		ات			Length	Interface
Location/Contact						Location/Contact	
Cable	Device					Cable	Device
Type	Type		Port	Port		Туре	Туре
ID	ID		2			- ID	ID
Length	Interface		2	3		Length	Interface
Location/Contact	Intenace					Location/Contact	IIIleilace
	1				1		
Cable	Device		David	ъ.		Cable	Device
Туре	Туре		Port	Port		Туре	Туре
ID	ID		4	5		- ID	ID
Length	Interface					Length	Interface
Location/Contact						Location/Contact	
Cable	Device					Cable	Device
Туре	Туре		Port	Port		Туре	Туре
ID	ID		6	7		- ID	ID
Length	Interface		ш	ш		Length	Interface
Location/Contact	'					Location/Contact	'
Cable	Device					Cable	Device
Type	Туре		Port	Port		Туре	Type
ID	ID		8	9		- ID	ID
Length	Interface		பீ	٩		Length	Interface
Location/Contact	menace					Location/Contact	Intenace
	D. 1						D. 1
Cable	Device		Port	Port		Cable	Device
Туре	Туре					Туре	Type
ID	ID		10	11		ID	ID
Length	Interface					Length	Interface
Location/Contact					-	Location/Contact	
Cable	Device					Cable	Device
Type	Туре		Port	Port		Туре	Туре
ID	ID		12	13		- ID	ID
Length	Interface					Length	Interface
Location/Contact						Location/Contact	
Cable	Device					Cable	Device
Туре	Туре		Port	Port		Туре	Туре
ID	ID		14	15		ID	ID
Length	Interface		ш	Ш		Length	Interface
Location/Contact						Location/Contact	
Cable	Desire	<u> </u>			1		Davis
Type	Device					Cable	Device
	Type ID		ы	PO		Type ID	Туре
ID Longth			P1	P2			ID Interfere
Length	Interface					Length	Interface
Location/Contact						Location/Contact	

Chapter 12. Cable Labeling

Cable Lableing Reference Information

This chapter has general information on lableing cables. It is to assist in cable planning and installation so it will be known where a cable is going to or comming from.

Reasons for Labeling Cables

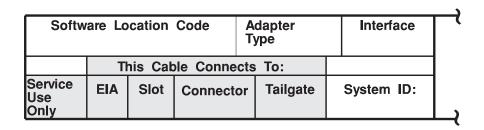
For system installations requiring cabling between rooms and use a variety of different interfaces, cable labelling is especially important. This is because there are several different interfaces that have cable connectors which are identical in appearance. Cable labeling can help you keep track of how each cable is being used and provide correct location data. By attaching a cable label to each end of a cable, you can always know the source and destination of any cable. This information will facilitate installation and the inevitable moving of devices that occurs in any office.

Cable labels can be ordered using order number GX23-0819 from your sales representative. The 7015 system units have several sheets of cable labels shipped with them. However, if you would like to label the cables before your system arrives, they will need to be ordered. If you attach the cable labels in advance, the installer can make connections to match your cable planning charts. See "Chapter 11. Cable Planning" on page 209 for more details on cable planning charts.

Process for Labeling Cables

As a customer, you are primarily interested in the side of the label that describes the cable's destination. However, each side is shown and explained so you can understand the labels.

The cable label is designed to fold around a cable and stick to itself.



	This Cable Goes To:	
p D	Room Person	Telephone Number
Fol	Device Type:	
,	Device ID:	

Cable labels can be ordered using order number GX23-0819.

The following topics describe the information in each area of the label.

This Cable Goes To:

Prior to shipment, the customer is asked to provide specific planning information concerning the physical layout of the installation.

This task includes tagging each of the cables that are installed prior to the system unit installation. The cables should be identified with information describing the type and location of the device it attaches.

Use that information to fill out the right hand side of the label.

Room The room number, or other information about the physical location of the

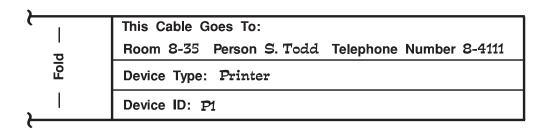
device.

Person The name of the person who uses the device. Telephone # The nearest telephone number to the device.

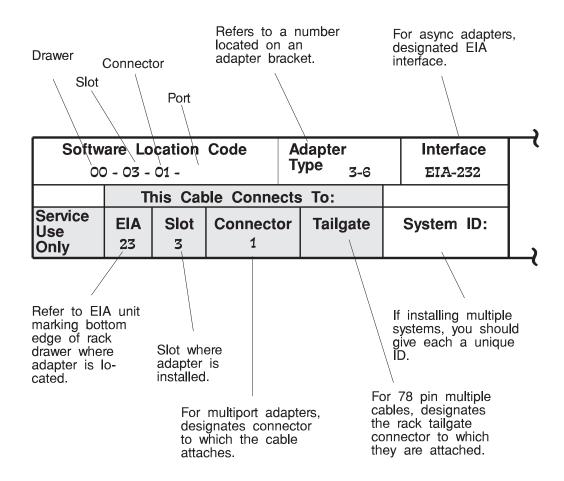
Device Type This could be a printer, plotter, TTY, or similar device.

Device ID The device ID is determined at the time the software is configured on the

system.



The right side of the cable label.



The left side of the cable label, which has shaded areas, is primarily for use by the customer engineer installing your system.

Software Location Code

The software location code is the link between the hardware and software. This code appears in the software configuration menus and in the hardware diagnostic menus.

Note: Refer to the Diagnostic Information manual for your system:

- Diagnostic Information for Micro Channel Bus Systems order number SA23-2765 (formally Common Diagnostics Information Manual).
- Diagnostics Information for Multiple Bus Systems, order number SA23-2769

for specific location code information.

Because the same diagnostic programs are used on all of the system units, a software location code is used to physically locate a failing device or unit. The software location code is displayed along with the service request number (SRN) when the diagnostic programs isolate a failure. The information you are instructed to record appears in the software configuration menus and in the hardware diagnostics menus. The software location code identifies the path from the adapter in the system unit through the signal cables to the device. Without this information it may be difficult to determine which adapter controls a device.

There are two types of software location codes:

- The non-SCSI device location code. These include all built-in adapters and all other adapters except the SCSI controller.
- The SCSI device location code. This is used to identify SCSI devices.

Adapter Type

The adapter type is two digits separated by a hyphen. This number is on a label attached to the end of the adapter. Refer to chapter1 of one Adapters, Devices, and Cable Information for Multiple Bus Systems Systems, order number SA23-2778 or Adapters, Devices, and Cable Information for Micro Channel Bus Systems, order number SA23-2764 for a listing of adapter types.

Note: Some of the adapters in the multiple bus systems do not have an adapter type.

Interface

The name of the asynchronous adapters, and some network adapters, generally includes the name of the interface.

Since several different types of cables have the same kind of connectors, it is easy to connect them incorrectly because the connectors match. Therefore, it becomes an important check to write the name of the interface on the label. Examples of common interfaces are X.25, EIA-232, and EIA-422.

- EIA The EIA number is used in a rack-type system unit to identify the physical location of the drawer within the rack. There is a label along the right side of the rack (with rear cover open) numbered from 1, at the bottom, to 32, at the top of the rack. The number at the bottom right corner of the drawer is the EIA location for this drawer.
- Slot The slot number is the physical position within the system unit or drawer where the adapter is located. Each adapter slot is identified by a single digit number. Usually, the number is embossed in the adapter mounting frame.

Connector

This is the connector number on the adapter. Most adapters have only one connect so this number is 1. Refer to Chapter 8 in this book for more information about the adapter you are connecting.

Tailgate

This number is only used on a rack-type system unit. Record the number of the tailgate connector to which this cable is attached.

System ID

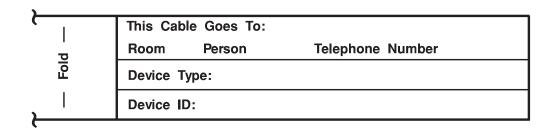
If an installation has more than one system unit, each one must be identified to prevent connecting devices to the wrong system unit. The customer should determine the System ID.

Attaching the Cable Label

- 1. Type or print the information for the labels you need for a given set of cables.
- 2. Peel the label off of the sheet and place it on the cable with the words "-Fold -" parallel to the cable; then fold the label around and stick it to itself.

Note: The glue on the label is designed to pull apart if you need to remove and reinstall the label when the cable is exchanged.

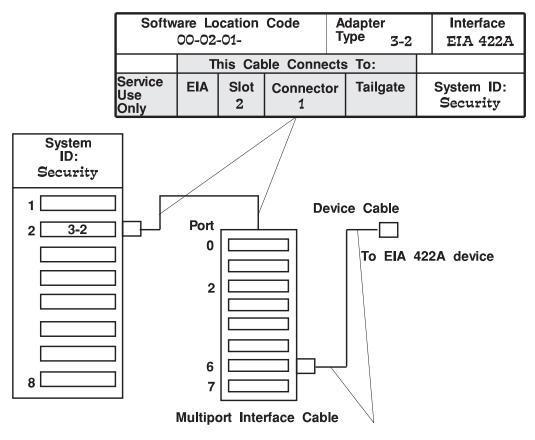
								•
Software Location Code			Adapter Type			Interface	•	
	TI	This Cable Connects To:						
Service Use Only	EIA	Slot	Connector		Tailgate		System ID:	



Example of 8-Port Async Adapter EIA-422A in Slot 2

This example shows the filled-in cable labels for a Multiport Interface Cable attached to an 8-Port Async Adapter EIA-422A in slot 2. The second cable label has the port number for the interface cable added to the software location code.

You may want to use a label at each end of a cable (as shown here) if the cable is long.



1	vare Location Code 00-02-01-06			Adapter Type ₃₋₂			Interface EIA 422A
	This Cable Connects To:						
Service Use Only	EIA	Slot 2	Connect	or	Tailg	gate	System ID: Security

Chapter 13. High Availability Cluster Server Information

This chapter presents information on high availability cluster servers with cluster server cabling information.

Reference Information

This section has general information about systems or subsystems that can be used in high availability cluster configurations.

7133 Serial Disk Systems

High Availability Cluster Servers consist of a minimum of two systems in a cluster with two 7133 Serial Disk Systems. Each system in the cluster comes with AIX operating system software and HACMP high availability cluster software. The systems use and share the external SSA disks in the 7133 SSA Disk Storage Systems.

Each system in the cluster has a minimum of two SSA PCI adapters to allow redundant connection to the 7133 SSA Disk Storage Subsystems.

It is highly recommended that a 3153 ASCII terminal (or equivalent) be purchased even if graphics adapters or remote workstations are used as the control console. This allows a software or service person to work on one of the cluster servers through the serial port without affecting the other server. If a graphical display is preferred to the 3153 display, a low cost workstation can be connected through an ethernet connection or a local network.

The 7133 Serial Disk System comes with eight SSA disk drives on two loops and a redundant AC power supply

Up to four SSA adapters can be put in each cluster server.

The HA cluster server systems offer configuration flexibility. Since cluster servers are comprised of systems that can operate independently, all normally available features are supported.

Configuring the HA Cluster Server System With No Single Points of Failure

Redundant adapters and mirrored disks are the only way to guarantee redundancy in the 7133 serial disk system. In this configuration, no single hardware component failure can cause the serial disk system to be unavailable.

Refer to the *High Availability Cluster Multi-Processing for AIX, Version 4.3: Enhanced Scalability Installation and Administration Guide*, order number SC23-4284, and the *High Availability Cluster Multi-Processing for AIX, Version 4.3: Planning Guide*, order number SC23-4277, for HACMP/ES planning information.

The following table describes outages and their impacts for the minimum cluster server configuration with mirrored SSA adapters (2 ethernet adapters, 2 SSA adapters, mirrored disk, HACMP, external SSA and two power distribution units (PDUs) per I/O rack).

Hardware Failure Description	Failure Behavior If HACMP Is Not Configured	Extra Work Required To Provide Recovery Action (in addition to normal HACMP configuration)	Recovery Action and Behavior If HACMP Is Configured
Node Outage or AIX crash	Node unavailable	None	HACMP fallover. Application(s) unavailable for brief time during fallover.
Ethernet adapter failure	Access to node through ethernet lost, error log entry.	None	HACMP swap adapter event moves IP address to spare adapter. Node ethernet IP address unavailable for an extremely brief period as address is swapped.
SSA Drawer Power Supply Failure	None seen, error log entry	None	N/A (no fallover)
SSA adapter failure¹	None seen, error log entry	None	N/A (no fallover)
CPU power supply or cooling subsystem failure.	Node available, N+1 redundancy	None	N/A (no fallover)
CPU power cord or power supply circuit failure	Node unavailable	None	HACMP fallover, application(s) unavailable for a brief time during fallover.
I/O drawer power supply or cooling subsystem failure.	Node available, N+1 redundancy	None	N/A (no fallover)
I/O drawer power cord failure	Fallover does not happen if the redundant power supplies are cabled to separate I/O rack power distribution units which are powered by different supply circuits.	None	N/A (no fallover).
I/O power distribution unit power cord failure.	None	None	N/A (no fallover).

¹ Assumes "Quorum off" for volume group.

High Availability Cluster Server System Cabling

This section provides cabling information for the base HA Cluster Server. The two systems should be installed before cabling the HA Cluster Server. There are four areas of cabling that you need to consider to ensure the redundancy required for no single points of failure:

- Cabling for server system consoles and cluster administration workstations
- Heartbeat connections between HA Cluster Servers
- SSA cable connections between HA Cluster Servers and 7133 Serial Disk Subsystems
- · Power cable connections.

Cabling For System Consoles and Cluster Administration Workstations

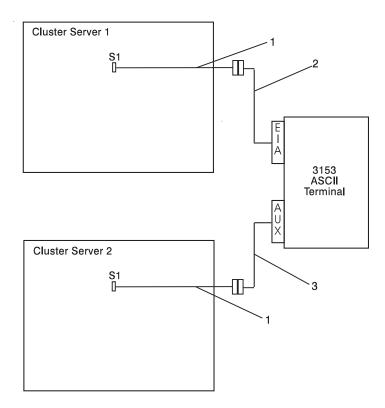
The system console for a High Availability Cluster Server can be either an ASCII terminal connection to the S1 serial port or a graphics terminal connected to a graphics display adapter with keyboard and mouse connections directly to the keyboard and mouse ports on the server.

A cluster administration workstation is connected through a LAN connection.

This section shows the cabling requirements for these connections.

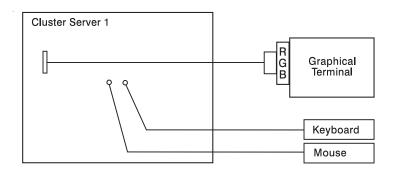
HA Cluster Server with ASCII System Console

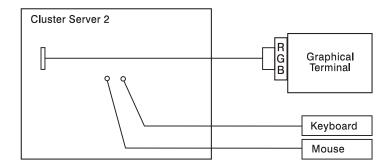
A single ASCII terminal connected to both servers in the cluster allows a system administrator or the service representative to work on one server or the other without disrupting the operation of the cluster.



Index	Description	
1	Cable adapter DB9fDB25M (9 pin to 25 pin) (PN 40H6328)	
2	Serial cable with internal null modem (PN 12H1204)	
3	Serial cable without internal null modem (PN 88G0093)	

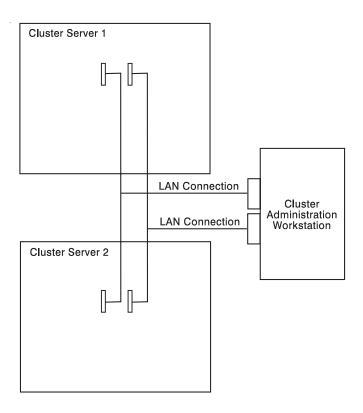
HA Cluster Server With Graphical System ConsoleIf graphical system console is used for system administration or service representative tasks, each cluster server must have its own console.





HA Cluster Server Graphical Cluster Administration Workstation

In addition to the system consoles described in the previous sections, a LAN attached cluster administration workstation is required. Two Local area networks are required to eliminate a single point of failure.

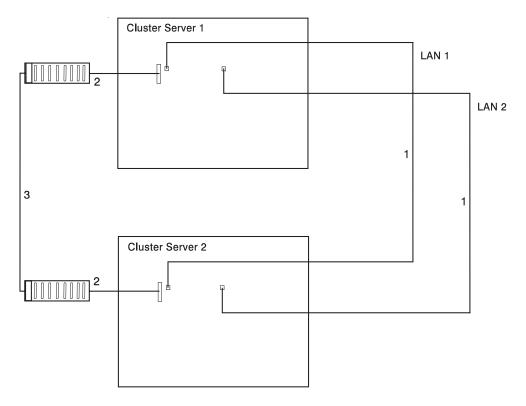


High Availability Cluster Server Heartbeat Connections

The primary heartbeat connections between two HA Cluster Servers are made through a serial connection and the LAN connections. These connections are shown below.

The serial connection is made using an 8-Port Asynchronous PCI Adapter or an optional 128-Port Asynchronous PCI Adapter. The LAN connections are made using a pair of Ethernet, FDDI, Token Ring, or ATM connections.

The figure below shows an HA cluster server using the 8-Port Asynchronous PCI Adapter and Ethernet connections.

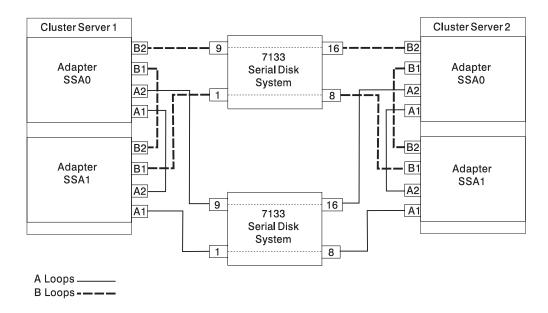


Index	Description	
1	Ethernet Connections, the customer is responsible for furnishing the cabling to the Ethernet. (T2, T5 and 10baseT are all available.	
2	8-Port DB-25 connector box (PN 11H5967) supplied with 8-Port Asynchronous EIA-232E/RS-422A PCI Adapter	
3	Serial Port to Serial Port Cable (Rack to Rack, FC 3125)	

SSA Cabling Connections

This section shows how to connect the cables from the HA Cluster Server and the 7133 Serial Disk Systems.

SSA From Cluster Servers to Double Looped 7133

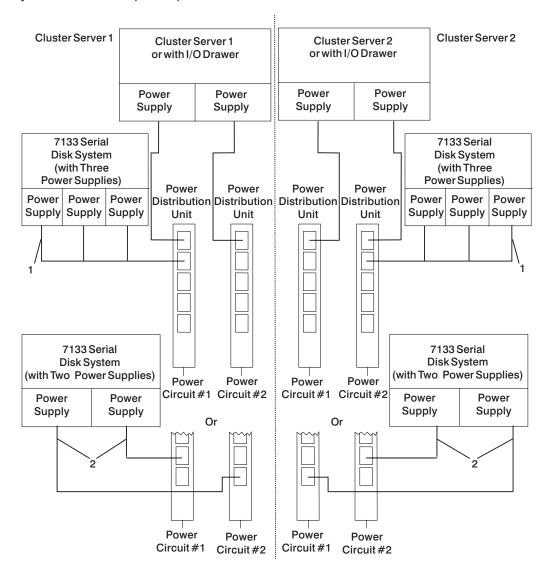


Note: The figure above shows cabling for a fully populated 7133 (16 disk drives installed). Configuration with fewer disk drives, may use different port numbers.

Index	Description	
1	7133 SSA Cable (FC 5050, PN 88G6404)	

HA Cluster Server AC Power Connections

When installing an HA cluster server, care must be taken to ensure that power is also connected in a redundant manner. The figure below shows an example of how power can be connected to ensure that your cluster has separate power connections.



Note: Redundant input power can only be configured on systems with two power cords.

Index	Description	
1	Power Cable, PDU to 7133 with three power supplies	
2	Power Cable, PDU to 7133 with two power supplies	

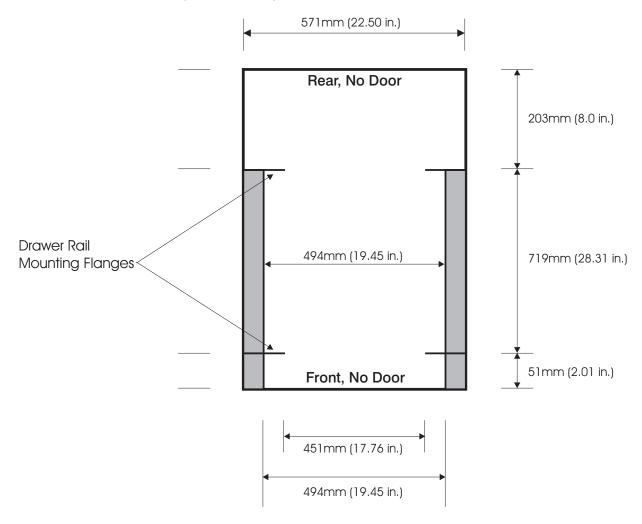
Chapter 14. Specifications For OEM Rack Installation

This section provides requirements and specifications for 19" racks used by certain products in this document.

OEM Rack Specifications

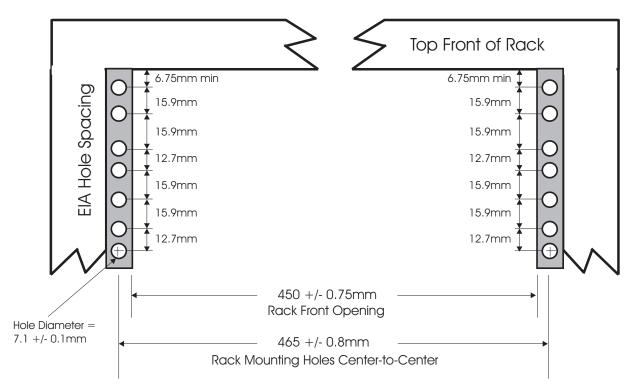
1. The rack/cabinet must meet the EIA Standard EIA-310-D for 19 inch racks.

The front rack opening must be 451 mm wide + 0.75 mm (17.75" + 0.03"), and the rail mounting holes must be 465 mm + 0.8 mm (18.3" + 0.03") apart on center (horizontal width between vertical columns of holes on the two front mounting flanges and on the two rear mounting flanges). Rail mounting holes must be 7.1 mm + 0.1 mm (0.28" + 0.004") in diameter.

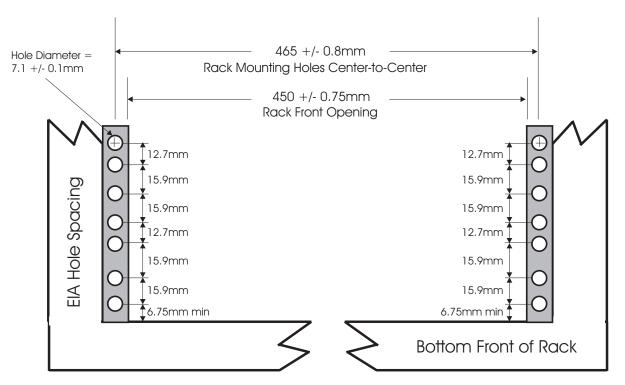


Top View of non-pSeries Rack Spec Dimensions

The vertical distance between mounting holes must consist of sets of 3 holes spaced (from bottom to top) 15.9 mm (0.625"), 15.9 mm (0.625"), and 12.67 mm (0.5") on center (making each 3 hole set of vertical hole spacing 44.45 mm (1.75") apart on center).



Rack Spec Dimensions, Top Front View



Rack Spec Dimensions, Bottom Front View

2. The rack/cabinet must be capable of supporting an average load of 15.9 kg (35 lbs.) of product weight per EIA unit.

For example, a 4 EIA drawer will have a maximum drawer weight of 63.6 kg (140 lb.).

3. Only AC power drawers are supported in the rack/cabinet. It is strongly recommended to use a Power Distribution Unit (PDU) that meets the same specifications as IBM PDU's to supply rack power. Each Power Distribution Bus installed in a rack requires a dedicated power line of 200 to 240 V ac and 30 A. Rack/cabinet power distribution device(s) must meet the drawer power requirements as well as that of any additional products that will be connected to the same power distribution device.

The rack/cabinet power receptacle (PDU, UPS or Multi-Outlet Strip) must have a compatible plug type for your drawer or device.

Note: Refer to the sales manual for 7014 racks if you wish to use power distribution units (PDU) that are designed for 7014 racks. The customer is responsible for ensuring the PDU is compatible with the rack/cabinet and assumes responsibility for any/all agency certifications required.

4. The rack/cabinet must be compatible with drawer mounting rails, including a secure and snug fit of the rail mounting pins and screws into the rack/cabinet rail support hole.

Note: If the rack/cabinet has square holes, a plug-in hole adapter may be required.

This is due to the fact that the rails have been designed and tested to safely support the weight of your drawer or device and to facilitate service access by allowing the drawer to be safely extended forwards, and for some models, also backwards. They also provide drawer specific anti-tip brackets, rear lock down brackets and cable management guides that require clearance on the rear side of the rails.

The front and rear mounting flanges in the rack/cabinet must be 719 mm (28.3") apart and the internal width bounded by the mounting flanges at least 494 mm (19.45"), for the IBM pSeries rails to fit in your rack/cabinet (see figure, Top View of non-pSeries Rack Spec Dimensions on page 239).

5. The rack/cabinet must have stabilization feet or brackets installed both in the front and rear of the rack, or have another means of preventing the rack/cabinet from tipping while the drawer or device is pulled into its extreme front or rear service positions.

Examples of some acceptable alternatives: The rack/cabinet may be securely bolted to the floor, ceiling or walls, or to adjacent racks/cabinets in a long and heavy row of racks/cabinets. Refer to 7014 Rack Installation Guides and the individual drawer installation guides for additional information.

6. There must be adequate front and rear service clearances (in and around the rack/cabinet).

The rack/cabinet must have sufficient horizontal width clearance in the front and rear to allow the drawer to be fully slid into the front and, if applicable, the rear service access positions (typically this requires 914.4 mm (36") clearance in both the front and rear).

If present, front and rear doors must be able to open far enough to provide unrestrained access for service or be easily removable. If doors must be removed for service it is the customer's responsibility to remove them prior to service.

7. The rack/cabinet must provide adequate clearance around the rack drawer.

There must be adequate clearance around the drawer bezel so that it can be opened and closed, per the product specifications (refer to the 7014 Rack Installation Guides and the individual drawer installation guides).

Front or rear doors must also maintain a minimum of 51 mm (2") front, 203 mm (8") rear, door to mounting flange clearance, and 494 mm (19.4") front, 571 mm (22.5") rear, side-to-side clearance for drawer bezels and cables (see figure, Top View of non-pSeries Rack Spec Dimensions on page 239). 8. The rack/cabinet must provide adequate front to back ventilation.

For optimum ventilation, it is recommended the rack/cabinet not have a front door. If the rack/cabinet has doors, the doors must be fully perforated such that there is proper front to back airflow to maintain the required drawer ambient inlet temperature between 10 °C and 40 °C (50 °F and 104 °F), with an ideal 22 °C (72 °F), inside the rack. The perforations must yield 34% minimum open area per square inch.

General Safety Requirements for IBM Products Installed in an OEM Rack/Cabinet

1. Any product or component which plugs into either an IBM Power Distribution Unit (PDU) or main power (via a power cord), or uses any voltage over 42 VAC or 60 VDC (considered to be hazardous voltage) must be Safety Certified by a Nationally Recognized Test Laboratory (NRTL) for the country in which it will be installed.

Some of the items that require safety certification may include: the rack/cabinet (if it contains electrical components integral to the rack/cabinet), fan trays, PDU, Uninterruptable Power Supplies (UPS), Multi-Outlet Strips, or any other products installed in the rack/cabinet that connect to hazardous voltage.

Examples of OSHA approved NRTLs for the USA:

- UL
- ETL
- CSA (with CSA NRTL or CSA US mark)

Examples of approved NRTLs for Canada:

- UL (Ulc mark)
- ETL (ETLc mark)
- CSA

The European Union requires a CE mark and a Manufacturer's Declaration of Conformity (DOC).

Certified products should have the NRTL logos or marks somewhere on the product or product label. However, proof of certification must be made available to IBM upon request. Proof consists of such items as copies of the NRTL license or certificate, a CB Certificate, a Letter of Authorization to apply the NRTL mark, the first few pages of the NRTL certification report, Listing in an NRTL publication, or a copy of the UL Yellow Card. Proof should contain the Manufacturer's name, product type and model, standard to which it was certified, the NRTL name or logo, the NRTL file number or license number, and a list of any Conditions of Acceptance or Deviations. A Manufacturer's Declaration is not proof of certification by an NRTL.

2. The rack/cabinet must meet all electrical and mechanical safety legal requirements for the country in which it is installed.

The rack/cabinet must be free of exposed hazards (voltages over 60 VDC or 42 VAC, energy over 240 VA, sharp edges, mechanical pinch points, hot surfaces, etc.).

3. There must be an accessible and unambiguous disconnect device for each product in the rack, including any PDU.

A disconnect device may consist of either the plug on the power cord (if the power cord is no longer than 6 feet long), the appliance inlet receptacle (if the power cord is of a detachable type), or a power on/off switch, or an Emergency Power Off switch on the rack, provided all power is removed from the rack or product by the disconnect device.

If the rack/cabinet has electrical components (such as fan trays or lights), then the rack must have an accessible and unambiguous disconnect device.

4. The rack/cabinet, PDU and Multi-Outlet Strips, and products installed in the rack/cabinet must all be properly grounded to the customer facility ground.

There must be no more than 0.1 Ohms between the ground pin of the PDU or rack plug and any touchable metal or conductive surface on the rack and on the products installed in the rack. Grounding method must comply with applicable country's electric code (NEC, CEC, etc.). Ground continuity can be verified by your IBM Service personnel, once the installation is completed, and should be verified prior to the first service activity.

5. The voltage rating of the PDU and Multi-Outlet Strips must be compatible with the products plugged into them.

The PDU or Multi-Outlet Strips current and power ratings must be at least 1.25 times the sum of the ratings of the products that will plug into it. The current rating of the PDU or Multi-Outlet strip must be less than 0.80 of the rating for the building supply circuit (as required by the NEC and CEC). Example: A PDU rating of 12A for a 15A wall breaker, and sum of product ratings does not exceed 9.6A.

If a UPS is installed, it must meet all the above electrical safety requirements as described for a PDU (including certification by an NRTL).

6. The rack/cabinet, PDU, UPS, Multi-Outlet Strips and all products in the rack/cabinet must be installed according to the manufacturers instructions, and in accordance with all national. state or province, and local codes and laws.

The rack/cabinet, PDU, UPS, Multi-Outlet Strips and all products in the rack/cabinet must used as intended by the manufacturer (per manufacturer's product documentation and marketing literature).

- 7. All documentation for use and installation of the rack/cabinet, PDU, UPS, and all products in the rack/cabinet, including safety information, must be available on-site.
- 8. If there is more than one source of power in the rack/cabinet, there must be clearly visible safety labels for "Multiple Power Source" (in the languages required for the country in which the product is installed).
- 9. If the rack/cabinet or any products installed in the cabinet had safety or weight labels applied by the manufacturer, they must be intact and translated into the languages required for the country in which the product is installed.
- 10. If the rack/cabinet has doors, the rack becomes a fire enclosure by definition and must meet the applicable flammability ratings (V-0 or better). Totally metal enclosures at least 1 mm (0.04") thick are considered to comply.

Non-enclosure (decorative) materials must have a flammability rating of V-1 or better. If glass is used (such as in rack doors) it must be safety glass. If wood shelves are used in the rack/cabinet, they must be treated with a UL Listed flame retardant coating.

11. The rack/cabinet configuration must comply with all IBM requirements for "safe to service". (Contact your IBM Installation Planning Representative if in doubt.)

There must be no unique maintenance procedures or tools required for service.

Elevated service installations, where the product(s) to be serviced are installed between 1.5 m and 3.7 m (5' and 12') above the floor, require the availability of an OSHA and CSA approved nonconductive step ladder. If a ladder is required for service, the customer must supply the OSHA and CSA approved nonconductive step ladder (unless other arrangements have been made with the local IBM Service Branch Office). Products installed over 2.9 m (12') above the floor require a Special Bid to be completed before they can be serviced by IBM Service personnel.

For products not intended for rack-mounting to be serviced by IBM, the products and parts which will be replaced as part of that service must not weigh over 11.4 kg (25 lbs.) (contact your Installation Planning Representative if in doubt).

There must not be any special education or training required for safe servicing of any of the product(s) installed in the racks (contact your Installation Planning Representative if in doubt).

- 12. Any rack/cabinet must have stabilization feet or brackets installed, or have another means of preventing the rack/cabinet from tipping during product operation or service.
 - Examples of some acceptable alternatives: The rack/cabinet may be securely bolted to the floor, ceiling or walls, or to adjacent racks/cabinets in a long and heavy row of racks/cabinets.
- 13. It is strongly recommended to use the mounting rails which ship with the product to install it in the rack.

The mounting rails that ship with IBM products have been designed and tested to safely support the product during operation and service activities. The mounting rails used on products to be serviced by IBM must be Certified for use with the products by an NRTL to UL 1950 or equivalent country applicable safety standard.

Note: UL 1950 requires that mounting rails must be able to support four times the maximum rated product weight in its worst case position (fully extended front and rear positions) for 1 full minute without catastrophic failure.

Chapter 15. Additional Planning Considerations

The following topics provide guidance for additional planning steps that may be necessary.

Create or Modify Communications Networks

If you intend to use the system in a network environment, appoint a central site or system administrator to help design and maintain a system that provides maximum availability of all devices in the network. The system administrator may need to consider the following:

- Types of networks with which your network users must communicate (for example, local and wide area networks, asynchronous, coaxial).
- Types of communications functions your network users need (for example, file transfer, mail, 3278/79 emulation, X-Window server support, data conversion, printing).
- Communications software that is required to communicate between systems within your own network and with systems on external networks.
- International language considerations, if any, between communicating systems.
- Network management functions that you wish to use within your network, including error isolation procedures and performance and monitoring tools.
- Information needed to properly configure your system. The following list provide some of the types of information needed:
 - Transmission speed (in bits per second)
 - Parity checking (whether none, odd, or even)
 - Pacing protocols required or allowed by remote system
 - Dialing or calling protocols, such as autoanswer and autocall, and information such as phone numbers (including back-up phone numbers in case no connection is possible)
 - Times you can call and communicate with the remote systems
 - Naming and addressing requirements within your network and between your systems and remote systems
 - Security relationships within your network and between your systems and remote systems
 - Gateway or bridge requirements
 - Information needed to configure the system software for correct operation in the network.
- · Any necessary cables, control units, or other specialized communications hardware.
- Preparation of communications lines:
 - Number of concurrent communications users
 - Amount of data to be transmitted
 - Communications software licensing restrictions.

Perform Building Alterations as Needed

Perform any building alterations that you determine are necessary to accommodate your new computing equipment. These may include the following:

- · Electrical wiring modifications to accommodate the added computing equipment.
- · Network cabling additions to accommodate the replaced or added computing equipment.
- · Fire protection measures to protect your data and equipment.
- · Antistatic measures to protect your data and equipment.
- · Radio or radar shields if you are installing near transmitters.
- Installation of uninterruptable power source (UPS), if required.
- · Air conditioning installation.

Prepare Maintenance, Recovery, and Security Plans

Maintenance, recovery, and security plans can help protect your investment and maximize productivity. The system administrator may need to formulate the following plans:

- System maintenance program for both hardware and software
- · System recovery and availability plan
- Logical security plan
- Physical security plan.

Develop an Education Plan

Depending on the applications you will be using, your employees may need formal and/or informal training. You should discuss this with your sales representative.

Order Any Needed Supplies

You may need to order some of the following items:

- Publications AIX and Related Products Documentation Overview, order number SC23-2456, lists publications available for AIX and the system.
- InfoExplorer, a hypertext database of documentation that provides an alternative to hardcopy books, is also described in the AIX and Related Products Documentation Overview, order number SC23-2456.
- · Tapes or diskettes for backing up software and data.
- Printer supplies (paper, printer toner, printer ribbons).
- · Plotter supplies (paper, vellum, film, pens).

Note: Where x.x.x is the current level of AIX.

Prepare for System Delivery

Once your system unit arrives, you are responsible for moving it to the installation location. Some systems such as Machine Types 7006, 7009 and 7011, you are also responsible for setting up the system unit. Check your system information or with your sales representative to find out who sets up your system. This section explains how to both identify and inventory your shipment.

Identifying Your Shipment

If you have more than one machine being delivered at the same time, it is import to keep their components separate. Your order, for example, may come from various locations, software from one place and hardware from another.

The shipping label on each box has several numbers that will help you keep everything organized. No matter where they come from, the parts of the order, from the display to the system unit, have the same system number. The serial number identifies all components that come with a particular system unit's processor. The figure below is an example of a shipping Label, with the system number and the serial number indicated.

Customer No.	Sched Date	CL	System Number	Mach Type	Serial No.	Br. Off
			340045	2600512		

If you have any difficulty identifying your order or which products are for a particular system, contact your sales representative.

Appendix. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

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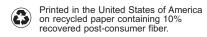
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