



MicroVAX 3100
V96-2.2—16 Jan 1997
DIGITAL Systems and Options Catalog

Product Description

MicroVAX 3100 systems offer enhanced distributed computing capabilities and flexibility. They support more than 10,000 commercial and technical applications across local or wide area networks.

MicroVAX 3100 systems support add-on synchronous options for wide area communications and asynchronous options, including modem options for terminal and printer connections. Networking allows communications in a variety of environments, including DECnet, TCP/IP, OSI, SNA, and X.25.

PC clients based on MS-DOS, OS/2, and Macintosh can be connected to the MicroVAX 3100 system, enabling the entire business to share information. DIGITAL'S advanced client/server computing, based on NAS (Network Application Support), delivers a wide range of solutions to help integrate desktop workstations and PCs.

MicroVAX 3100 Model 40 system supports a broad range of computing needs and a large number of users. Additional internal SCSI storage can be added to meet future application needs. The MicroVAX 3100 Model 40 system is board upgradable to MicroVAX 3100 Model 85 and 96 systems.

MicroVAX 3100 Model 85 and 96 systems offer enhanced Ethernet performance, and twice the storage capacity of the Model 40 on optional SCSI-2 card for external SCSI devices. ECC memory can be expanded to 512 MB.

MicroVAX 3100 Model 88 and 98 systems offer similar performance, are compatible with Model 85 and 96, but are housed in a new desktop mini-tower enclosure. In addition these systems offer enhancements in memory, support for up to 512 MB using low cost SIMM memory, and six internal storage devices are supported in system enclosure.

All MicroVAX 3100 Models are available as Rackmount Systems from CSS (Computer Special Systems).

MicroVAX 3100 systems are designed for sustained reliability and ease of serviceability. Their compact size provides mid-range systems performance at entry-level system prices.

MicroVAX 3100 Comparison Chart

	Model 40	Model 85	Model 96	Model 88	Model 98
Performance (TPS/VUPS)	39e / 5	110e / 16	200e / 38	110e /16	200e / 38
Enclosures	BA42-B	BA42-B	BA42-B	MiniTower	MiniTower
Mbytes of memory: Included	8	64	64	64	64 / 128
Mbytes of memory: Maximum	32	128	128	512	512
Storage Devices (internal maximum)	5	5 ¹	5	6 ¹	6 ¹
Storage Devices (total internal and external)	7	14 ¹	14 ¹	14 ¹	14 ¹
Storage Capacity (total internal and external)	14.8 GB/ 27.3 GB	14.8 GB/ 56.7 GB	14.8 GB/ 56.7 GB	19.2 GB/ 60.2 GB	19.2 GB/ 60.2 GB

1 SCSI controller option (KZDDA-xx) supports seven additional external SCSI devices.

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MicroVAX 3100 Models 40, 85 and 96

Step 1—Systems

Select user licenses are required.

MicroVAX 3100 Model 40, 85, and 96 Systems include

- BA42 large enclosure with CPU/FPU
- **Model 40**
 - 8 MB base memory on CPU, maximum 32 MB parity memory
DIGITAL NAS Base Server 200
- **Models 85 and 96**
 - 64 MB memory in DSIM slot, maximum 128 MB ECC memory
DIGITAL NAS Base Server 200
- 802.3/Ethernet interface (ThinWire/Thick wire) with terminators
- Ethernet kit; includes ThinWire T-connector with BNC terminators and 15-pin thick wire terminator
- Synchronous SCSI-2 interface for connecting internal and external SCSI devices; external connection via a 50-pin external SCSI-2 connector
- Three DEC-423 asynchronous serial lines (MMJ data leads only)
- EIA-232 asynchronous serial line with modem control (25-pin D-subminiature connector)
- H8575-A 25-pin-to-MMJ DEC-423 to EIA-232 adapter
- 7.6-meter (25-foot) console terminal cable
- 120 V power cord (country-specific power cord required for 240 V use; see Step 9)
- Universal power supply that automatically adjusts to 88–132 Vac or 176–264Vac
- Hardware documentation (QZ-K44AB-GZ for Model 40; QZ-A05AA-GZ for Model 85; QZ-001AA-GZ for Model 96)
- OpenVMS base license (with POSIX)
- Factory-installed software¹
- Three-year hardware product warranty
- 90-day software warranty

1. Delivery of software on a system disk is not warranted. It is provided as a convenience to the customer. Customers are encouraged to purchase the necessary media and documentation kits that include complete installation instructions. See Step 8 for details.

MicroVAX 3100 Model 40, 85, and 96 Advantage Servers

Order Number	MicroVAX 3100	Memory	DIGITAL NAS	Disk Drive	CD-ROM
DV-31GCB-CA	Model 40	16 MB	Base Server 200	1.05 GB FIS*	RRD45 (600 MB)
DV-31JCB-EA	Model 85	64 MB	Base Server 200	1.05 GB FIS*	RRD45 (600 MB)
DV-31SCA-CA	Model 96	64 MB	Base Server 200	1.05 GB FIS*	RRD45 (600 MB)

* Disk drive in Advantage Server systems include Factory Installed Software (FIS)

MicroVAX 3100 Model 40 Base Server

Order Number	MicroVAX 3100	Memory	DIGITAL NAS	Disk Drive	CD-ROM
DV-31GAB-B9	Model 40	8 MB	Base Server 200	Required	Required

Note: Hard disk, CD-ROM, and tape drive are not included with Model 40 Base Server, they must be ordered separately.

Step 2—Memory

Model 40

Systems include 8 MB of base memory on CPU; systems support maximum 32 MB parity memory.

MS44L-BA 8 MB parity memory modules for Model 40

Model 85 and 96

Systems include 64 MB base memory in first DSIM slot; systems support maximum 128 MB of ECC memory.

MS44L-BC 16 MB ECC memory modules for Models 85 and 96

MS44-DC 64 MB ECC memory modules for Models 85 and 96

Step 2—Memory (*continued*)**Memory Configuration Chart for Models 40, 85, and 96**

Required Memory	Model 40 (8 MB systems)	Models 85 and 96 (64 MB systems)
16 MB	1 x MS44L-BA	N/A
24 MB	2 x MS44L-BA	N/A
32 MB	3 x MS44L-BA	N/A
40 MB	N/A	N/A
48 MB	N/A	N/A
72 MB	N/A	N/A
80 MB	N/A	1 x MS44L-BC
128 MB	N/A	1 x MS44-DC

Step 3—Storage

Select storage devices as required. See *Storage Devices* for further details.

Step 3a—Internal Storage

- .. System supports maximum of five internal drives in any of the following combinations:
 - Five RZ2x half-height disk drives, or
 - Four RZ2x half-height disk drives and one removable media device
 - Maximum of two RZ29B disk drives
 - Three RZ2x half-height disk drives and two removable media devices (RX26, RRD45, TLZ09, TZK11, or TZK20)
- .. RZ26N disk drive in Advantage Server systems include Factory Installed Software (FIS)
- .. Base Systems ordered with one hard disk drive include FIS
- .. Order a load device (TLZ09) if necessary
- .. OpenVMS Cluster satellite members or systems being loaded over the network do not require a load device.

Field-installed options require Customer Services installation. Removable Media Devices for Models 40, 85, and 96 systems

RRD45-EN	600 MB CD-ROM drive
RX26 -EN/EL	2.8 MB diskette drive; factory/field installed
TLZ09-HF	8.0 GB 4-mm 3.5-inch DAT drive
TZK11-HF	2.1 GB cartridge (QIC) tape drive
TZK20-HF	2.3 GB 300 Kbs SCSI (QIC) tape drive

Fixed Disk Drives for Models 40, 85, and 96 systems

RZ26N-EN	1.0 GB 3.5-inch SCSI disk drive 5400 RPM
RZ28M-EN	2.1 GB 3.5-inch SCSI disk drive 5400 RPM
RZ28D-EN	2.1 GB 3.5-inch SCSI disk drive 7200 RPM
RZ29B-EN	4.3 GB 3.5-inch SCSI disk drive 7200 RPM

Step 3b—External Storage

- .. Model 40:
 - Maximum seven SCSI-2 devices
 - Maximum two BA353 expansion boxes or one BA356 StorageWorks expansion shelf
- .. Models 85 and 96:
 - Maximum 14 SCSI devices with additional SCSI card option.

Use the following table to calculate external SCSI bus length.

Maximum SCSI Bus Length	Model 40	Models 85 and 96
Internal	2 m (78.7 inches)	2.25 m (88.6 inches)
External	4 m (157.4 inches)	3.75 m (148.0 inches)
KZDDA internal	N/A	0.73 m (29.0 inches)
KZDDA external	N/A	5.27 m (207.5 inches)

External Enclosure	External Cable Length
RRD45	0.45 m (18 inches)
TLZ09	0.91 m (36 inches)
TZ88N	0.28 m (11 inches)
TLZ9L	0.91 m (36 inches) or 1.82 m (72 inches)
BA353	1.82 m (72 inches)
BA356	1.82 m (72 inches)

SCSI Controller and Tabletop Storage

KZDDA-AA/AF	SCSI controller card supports seven additional external SCSI devices, factory/field installed (Models 85 and 96 only)
RRD45-FA/DG*	600 MB tabletop CD-ROM drive; 120 V/240 V, requires 1.8 meter (6 foot) SCSI cable BC06P-06
TLZ09-DD*	8.0 GB tabletop DAT tape drive with universal power supply; includes 120 V power cord
TLZ9L-DB	32/64 GB tabletop DAT tape loader
TZ88N-TA*	40 GB SCSI tabletop tape drive
TZ887-NT	280 GB SCSI tape subsystem, 7 cartridge loader in tabletop enclosure
BC06P-2F	TZ8x cable, 2.5 ft (0.8 m)
BC06P-06	TZ8x cable, 6 ft (1.8 m)
BC06P-09	TZ8x cable, 9 ft (2.7 m)

* Country-specific power cord required for 240 V use.

StorageWorks Expansion Units

BA353-AA¹	StorageWorks desktop expansion box supports three 3.5-inch half-height, or two 3.5-inch half-height and one 5.25-inch half height drive. 120 V power cord included, Requires SCSI cable BC09D-xx.
BA356-KD²	StorageWorks 16-bit shelf includes dual speed blowers. Supports maximum of seven 3.5-inch devices (8 or 16-bit), requires BA35X-MG 8-bit I/O module, and BN21H-xx SCSI cable
BA362-AA/AB	Office expansion unit, supports up to two 3.5-inch modular storage devices
BA364-AA/AB	Office expansion unit, supports up to four 3.5-inch modular storage devices and one fixed CD-ROM

1. Country-specific power cord required for 240 V use.

2. One BA356 expansion unit is supported per single ended SCSI bus; no other external device can be connected to system with BA356 unit.

SCSI devices supported in StorageWorks Expansion Units

RZ26N-VA/VW	1.05 GB, 3.5-inch, half-height disk drive, 5400 RPM
RZ28M-VA/VW	2.1 GB, 3.5-inch, half-height disk drive, 5400 RPM
RZ28D-VA/VW	2.1 GB, 3.5-inch, half-height disk drive, 7200 RPM
RZ29B-VA/VW	4.3 GB, 3.5-inch, half-height disk drive, 7200 RPM
TLZ09-VA	8.0 GB, 3.5-inch, half-height 4-mm DAT drive
TLZ9L-VA	32/64 GB DAT tape loader in StorageWorks carrier
TZ88N-VA	20/40 GB SCSI tape drive in StorageWorks carrier
TZK11-VA	2.0 GB 5.25-inch QIC tape in StorageWorks carrier

Step 4—Networks and Communications

- .. Systems support one asynchronous and one synchronous communication option
- .. An 8-line DEC-423 to 16-line DEC-423 upgrade option is available for the MicroVAX 3100 Models 40/85/96, see *Network Products Guide* for more information.

Host-Based Communications Controllers

Select host-based communications controllers for standalone systems (without LAN connectivity), or for other requirements.

Asynchronous Multiplexer Options

Select **one** asynchronous multiplexer for communications expansion

DHW42-AA	Provides eight DEC-423 lines for a system total of 12 asynchronous lines (11 data only and one with modem control). Includes internal logic module with cable, DEC-423 I/O assembly, external 36-pin BC16C-10 3-m (10-ft) cable, and H3104-00 eight-line distribution harmonica; factory or field installed.
DHW42-CA	Provides eight EIA-232 lines for a system total of 12 asynchronous lines (three data only and nine with modem control). Includes internal logic module with cable, EIA-232 I/O assembly, and two external 50-pin to 4-way 25-pin BC29J-06 1.8-m (6-ft) cables; factory or field installed.
DHW42-BA	Provides 16 DEC-423 lines for a system total of 20 asynchronous lines (19 data only and one with modem control). Includes internal logic module with cable, DEC-423 I/O assembly, two external 36-pin BC16C-10 3-m (10-ft) cables, and two H3104-00 eight-line distribution harmonica; factory or field installed.
DHW42-UP	Upgrades DHW42-AA to DHW42-BA; field installed only.

Note: Addition of DHW4x options increases number of users; an OpenVMS license upgrade may be required.

Synchronous Communications Options

- .. Select **one** synchronous option
- .. EIA-232/V.24 cable (BC19D-02) is included—select alternate cables for EIA-423/V.10 and EIA-422/V.11 connection
- .. Synchronous communication option requires VAX WAN Device Driver V1.2 or higher required. VAX WAN Device Driver media included in OpenVMS Consolidated Software Disk CD-ROM media. See Step 8 for details.

DSW42-AA	EIA-232 synchronous controller provides two lines). Includes synchronous logic module, I/O assembly, and external EIA-232 0.6-m (2-ft) adapter cable
BC19B-02	EIA-422/V.11 0.6-m (2-ft) adapter cable
BC19E-02	EIA-423/V.10 0.6-m (2-ft) adapter cable

LAN Communications Controller

802.3/Ethernet Interface (ThinWire/Thick wire selectable) included with system. Connection of system to Ethernet requires a ThinWire BNC connection (e.g., BC16M cable) or a thick wire 15-pin AUI transceiver cable (e.g., BNE3x).

Local and Wide Area Communications Servers

Each communications server requires an 802.3/Ethernet connection. Depending on the server selected, either a ThinWire BNC connection (e.g., BC16M cable) or a thick wire 15-pin AUI transceiver cable is required (e.g., BNE3x). Software media and documentation and cables are also required. See *Network Products Guide*.

DECserver 90M, 90TL, 900TM, 90L+, 700, and MUXserver 90, 320, 380 Communications and Printer Servers

Select a terminal or printer server to provide users with multiple session access to systems on a LAN, to minimize on a LAN, to minimize cabling complexity and costs, and to conserve host resources such as backplane slots.

DEC WANrouter 90, 250, DECbrouter 90; and DECnis 500, 600 MultiProtocol Routers

Select a router to cost-effectively link a LAN to a remote system or another LAN and to offload routing overhead from the application host system.

InfoServer 1000 Network Storage Server

To provide initial system load (ISL) capabilities order InfoServer Local Area Compact Disk. Other configurations are offered for tape/backup and for serving more CD-ROMs. InfoServer systems support CD-ROM, hard drives, magneto-optical and tape drives. InfoServer 1000 systems can serve up to seven SCSI devices. See *Storage Devices* for ordering information.

Step 4—Networks and Communications (continued)**Network Connectivity Products**

See the *Network Products Guide*.

Step 5—Console Terminal

A console device is necessary for a system to function. Console cable included with system. Order video terminals (e.g., VT520) for each system unless otherwise available. If logging is required, a combination of video terminal and LA75 is recommended.

Step 6—Terminals and Printers

Select terminals and serial printers as required. Serial printers connect to an asynchronous line. A cable (e.g., BC16E-25) must be ordered with each unless otherwise provided.

Step 7—CPU Upgrades

Note: A non-return charge will be assessed if old CPU board is not returned to DIGITAL

Order Number	From	To	Includes
31JXR-AA	MicroVAX 3100 Model 40 MicroVAX 3100 Model 80	MicroVAX 3100 Model 85 Server	MicroVAX 3100 Model 85 Server CPU 64 MB of memory OpenVMS base license
49GAX-E9	MicroVAX 3100 Model 40 MicroVAX 3100 Model 80	MicroVAX 3100 Model 96 Server	MicroVAX 3100 Model 96 Server CPU 64 MB of memory OpenVMS base license
49JAX-E9	MicroVAX 3100 Model 85 MicroVAX 3100 Model 90 MicroVAX 3100 Model 95	MicroVAX 3100 Model 96 Server	MicroVAX 3100 Model 96 Server CPU 64 MB of memory OpenVMS base license
49XR-AA	MicroVAX 3100 Model 90 MicroVAX 3100 Model 95	MicroVAX 3100 Model 96 Server	MicroVAX 3100 Model 96 Server CPU OpenVMS base license

Step 8—Software

Licenses required to support additional users beyond those included in base systems.

Operating System support for Model 40 requires V5.5 or higher; Model 85 and 96 require V5.5-2H4 or higher

Software Processor Code = B

Clusterwide License Rating = 20 (C)

OpenVMS VAX Concurrent Use Licenses

OpenVMS VAX Concurrent Use licenses are for customers running **OpenVMS VAX V6.2 or greater**.

OpenVMS VAX Concurrent Use license provides the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one OpenVMS system to another OpenVMS system at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha Cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license

Step 8—Software (continued)

QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-XULA5-AA	OpenVMS VAX Traditional unlimited user license

OpenVMS VAX Interactive User Licenses

OpenVMS VAX Interactive User licenses are for customers running OpenVMS VAX V5.5 or greater. OpenVMS VAX Interactive User licenses **are** specific to a single system and **cannot** be shared across an OpenVMS Cluster.

QL-XULA9-BB	OpenVMS VAX Interactive 1-user license
QL-XULA9-BC	OpenVMS VAX Interactive 2-user license
QL-XULA9-BD	OpenVMS VAX Interactive 4-user license
QL-XULA9-BE	OpenVMS VAX Interactive 8-user license
QL-XULA9-BF	OpenVMS VAX Interactive 16-user license
QL-XULA9-BG	OpenVMS VAX Interactive 32-user license

OpenVMS VAX Interactive User Licenses

QL-XULA9-BH	OpenVMS VAX Interactive 64-user license
QL-XULAA-BR	OpenVMS VAX Interactive 128-user license
QL-XULAB-BR	OpenVMS VAX Interactive 256-user license

OpenVMS VAX Distributed Interactive User Licenses

OpenVMS VAX Distributed Interactive User licenses are for customers running **OpenVMS VAX Version 6.0 or greater**. OpenVMS VAX Distributed Interactive User licenses are **not** specific to a single system and can be moved between systems at user discretion. OpenVMS VAX Distributed Interactive User licenses can also be shared across an entire OpenVMS Cluster running OpenVMS VAX V6.0 or greater.

Note: OpenVMS VAX Distributed Interactive User licenses are architecture specific and **cannot** be shared across a **mixed** OpenVMS Cluster (OpenVMS VAX and OpenVMS Alpha systems).

QL-09SA9-BB	OpenVMS VAX Distributed Interactive 1-user license
QL-09SA9-BC	OpenVMS VAX Distributed Interactive 2-user license
QL-09SA9-BD	OpenVMS VAX Distributed Interactive 4-user license
QL-09SA9-BE	OpenVMS VAX Distributed Interactive 8-user license

OpenVMS VAX Distributed Interactive User Licenses

QL-09SA9-BF	OpenVMS VAX Distributed Interactive 16-user license
QL-09SA9-BG	OpenVMS VAX Distributed Interactive 32-user license
QL-09SA9-BH	OpenVMS VAX Distributed Interactive 64-user license
QL-09SAA-BR	OpenVMS VAX Distributed Interactive 128-user license
QL-09SAB-BR	OpenVMS VAX Distributed Interactive 256-user license
QL-VBRAP-AA	VAXcluster license for multiuser systems

OpenVMS VAX Media and Documentation

Choose operating system media and documentation. Recommended for first system on site. Operating System support for Model 40 requires V5.5 or higher; Model 85 and 96 require V5.5-2H4 or higher.

QA-001AA-Hx*	OpenVMS media with extended documentation.
QA-09SAA-Hx*	OpenVMS media with base documentation.

* x denotes the media type: 5 = TK50, 8 = CD-ROM

Step 8—Software (*continued*)

OpenVMS Consolidated Software Media and Documentation

Choose as an alternative to the above OpenVMS kits. Requires RRD45 CD-ROM.

- QA-VWJ8A-A8** OpenVMS and layered product binaries on CD-ROM without hardcopy documentation.
- QA-VYR8A-G8** OpenVMS extended online documentation and layered product online documentation on CD-ROM; requires DECwindows Bookreader.
- QA-GXXAB-Hx** POSIX media and documentation (without IEEE documentation)

DIGITAL NAS Base Server 200

DIGITAL NAS packaged products do not include hardcopy documentation, (documentation is CD-ROM only).

- QL-MC1AB-AA** DIGITAL NAS Base Server 200 license for OpenVMS VAX systems
- QA-MC1AA-Hx*** DIGITAL NAS Base Server 200 media and documentation kit

* x denotes media type: 8 = CD-ROM, 5 = TK50, M = magtape

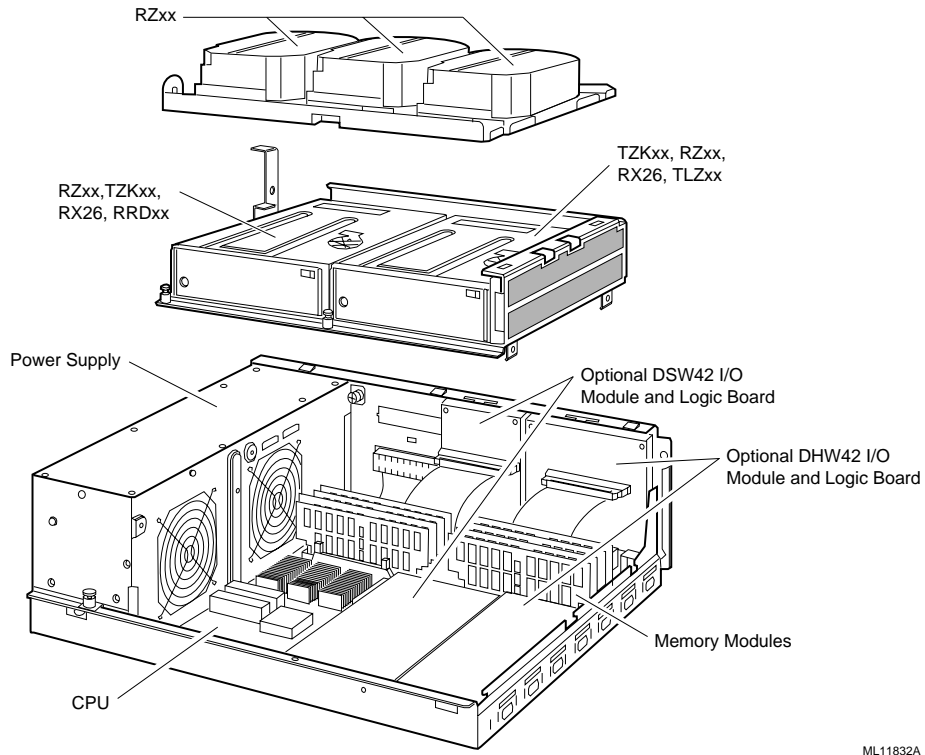
Step 9—Power Cords

Select for 220/240 V systems.

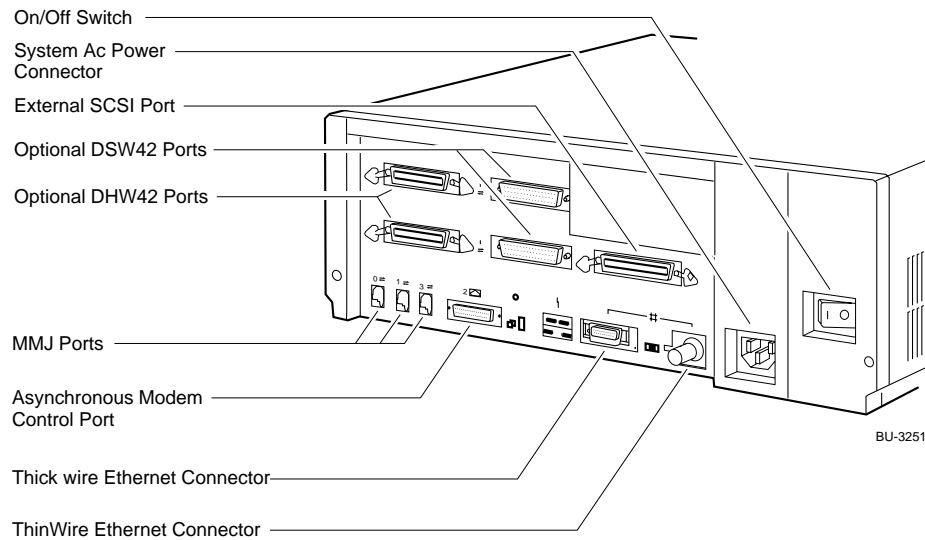
- BN19A-2E** U.K./Ireland
- BN19C-2E** Austria, Belgium, France, Germany, Finland, Holland, Norway, Sweden, Portugal, Spain, and Chile
- BN19E-2E** Switzerland
- BN19K-2E** Denmark
- BN19M-2E** Italy
- BN19U-2E** Israel
- BN19S-2E** India
- BN19H-2E** Australia, New Zealand

MicroVAX 3100 Model 40, 85, and 96

MicroVAX 3100 System Diagram



MicroVAX 3100 System Diagram



Specifications

Physical Characteristics	Models 40, 85, 96	
Height	14.99 cm (5.90 inches)	
Width	46.38 cm (18.26 inches)	
Depth	40.00 cm (15.75 inches)	
Weight	16.0 kg (36.85 lb)	
Power Requirements	Model 40	Models 85/96
Nominal voltage	120/240 Vrms	120/240 Vrms
Power source phasing	Single	Single
Nominal frequency	50–60 Hz	50–60 Hz
Voltage range	88–132 Vrms 176–264 Vrms	88–132 Vrms 176–264 Vrms
Line frequency tolerance	47–63 Hz	47–63 Hz
Typical running current	1.1/0.6 A	1.5/0.75 A
Typical power consumption (Watts)	132/144	180/40
Standard Communication		
Minimum MMJ lines	3 DEC-423	3 DEC-423
Modem lines	1 EIA-232	1 EIA-232
Ethernet	Thick wire and ThinWire supported on all models	
Communications Options¹		
MMJ lines	8 DEC-423	8 DEC-423
MMJ lines	16 DEC-423	16 DEC-423
Modem lines	8 EIA-232	8 EIA-232
Synchronous lines	2 synchronous	2 synchronous
Operating Environment	Temperature (sea level) 10-40°C (50-90°F) Relative humidity 10%–80% noncondensing; 20% to 80% if tape drive is present. Maximum operating altitude 2.4 km (8,000 ft)	

¹ DEC-423, EIA-232 and synchronous lines can be ordered separately. The DEC-423 and EIA-232 options cannot be configured together in the same system. An 8-line DEC-423 to 16-line DEC-423 upgrade option is available for the MicroVAX 3100 Model 40.

MicroVAX 3100 Model 88 and 98

Step 1—Systems

MicroVAX 3100 Model 88 and 98 Systems include

- .. Minitower enclosure with CPU/FPU
- .. 64 MB or 128 MB SIMM memory
- .. DIGITAL NAS Base Server 200
- .. 802.3/Ethernet interface (ThinWire/Thick wire) with terminators
- .. Ethernet kit; includes ThinWire T-connector with BNC terminators and 15-pin thick wire terminator
- .. Synchronous SCSI-2 interface for connecting internal and external SCSI devices; external connection via a 50-pin external SCSI-2 connector
- .. Three DEC-423 asynchronous serial lines (MMJ data leads only)
- .. EIA-232 asynchronous serial line with modem control (25-pin D-subminiature connector)
- .. H8575-A 25-pin-to-MMJ DEC-423 to EIA-232 adapter
- .. 7.6-meter (25-foot) console terminal cable
- .. 120 V power cord (country-specific power cord required for 240 V use; see Step 9)
- .. Universal power supply that automatically adjusts to 88–132 Vac or 176–264Vac
- .. Hardware documentation (EK-MV489-UI for Model 88 and 98)
- .. 1.05 GB RZ26N disk (Uses one 3.5” half-height SCSI bay)
- .. 600 MB CD-ROM (Uses one 5.25” removable media bay)
- .. OpenVMS base license (with POSIX)
- .. Factory-installed software¹
- .. Three-year hardware product warranty
- .. 90-day software warranty

1. Delivery of software on a system disk is not warranted. It is provided as a convenience to the customer. Customers are encouraged to purchase the necessary media and documentation kits that include complete installation instructions. See Step 8 for details.

MicroVAX 3100 Model 88 and 98 Advantage Servers

Order Number	MicroVAX 3100	Memory	DIGITAL NAS	Disk Drive	CD-ROM
DV-31JCC-EA	Model 88	64 MB	Base Server 200	1.05 GB FIS*	RRD45 (600 MB)
DV-31SCC-EA	Model 98	64 MB	Base Server 200	1.05 GB FIS*	RRD45 (600 MB)
DV-31SCC-FA	Model 98	128 MB	Base Server 200	1.05 GB FIS*	RRD45 (600 MB)

* Disk drive includes Factory Installed Software (FIS)

Step 2—Memory

- .. Systems with 64 MB memory include one PB7MA-CC memory option, select one additional memory option 64 MB or 128 MB for system total of 128 or 192 MB.
- .. Systems with 128 MB memory include one PB7MA-CD memory option, select one additional memory option 64 MB or 128 MB for system total of 192 or 256 MB.
- .. To expand beyond 256 MB see Memory Configuration Chart below.

- PB7MA-CC** 64 MB SIMM memory
- PB7MA-CD** 128 MB SIMM memory
- MS45 -DA** 128 MB SIMM memory expansion option includes 128 MB, and supports one additional 64 MB or 128 MB (PB7MA-CC/CD) SIMM memory option.

Memory Configuration Chart

Required Memory	1st Memory Board (standard)		2nd Memory Expansion Board (optional)	
	64 MB	128MB	64 MB	128MB
64 MB	1	0	N/A	N/A
128 MB	2 or	1	N/A	N/A
192 MB	1	1	N/A	N/A
256 MB	0	2	N/A	N/A
320 MB	1	1	0	1
384 MB	0	2	0	1
448 MB	0	2	1	1
512 MB	0	2	0	2

Step 3—Storage

Select storage devices as required. See *Storage Devices* for further details.

Step 3a—Internal Storage

- .. System supports maximum of six internal devices in any of the following combinations:
 - Six RZ26 or RZ28 half-height disk drives, or
 - Five RZ26 or RZ28 disk drives and one removable media device
 - Three RZ26 or RZ28 half-height disk drives and three removable media devices
 - Maximum of three RZ29B disk drives supported, must be installed in removable media device bays
- .. RZ26N disk drive in Advantage Server systems include Factory Installed Software (FIS)
- .. Order a load device (TLZ09) if necessary
- .. OpenVMS Cluster satellite members or systems being loaded over the network do not require a load device.
- .. Field-installed options require Customer Services installation.

Removable Media Devices for Models 88 and 98

RRD45-AB	600 MB CD-ROM drive
TLZ09-LK	8.0 GB 4-mm DAT drive
TZK11-LG	2.1 GB cartridge QIC tape drive
TZK20-LK	2.3 GB 300 Kbs SCSI QIC tape drive

Fixed Disk Drives

RZ26N-EB	1.0 GB 3.5-inch SCSI disk drive 5400 RPM
RZ28M-EB	2.1 GB 3.5-inch SCSI disk drive 5400 RPM
RZ28D-EB	2.1 GB 3.5-inch SCSI disk drive 7200 RPM
RZ29B-EB	4.3 GB 3.5-inch SCSI disk drive 7200 RPM

Step 3b—External Storage

- .. Model 88 and 98:
 - Maximum 14 SCSI devices with additional SCSI card option.

Use the following table to calculate external SCSI bus length.

Maximum SCSI Bus Length

Internal	1.2 m (47.2 inches)
External	4.8 m (189.0 inches)
KZDDA internal	0.1 m (3.9 inches)
KZDDA external	5.9 m (232.0 inches)

SCSI Controller and Tabletop Storage

KZDDA-AB	SCSI controller card supports seven additional external SCSI devices (one per system supported)
RRD45-FA/DG*	600 MB tabletop CD-ROM drive; 120 V/240 V, requires 1.8 meter (6 foot) SCSI cable BC06P-06
TLZ09-DD*	8.0 GB tabletop DAT drive with universal power supply; includes 120 V power cord
TZ88N-TA*	40 GB SCSI tabletop tape drive
TZ887-NT	280 GB SCSI tape subsystem, 7 cartridge loader in tabletop enclosure
BC09D-03	TZ8x cable, 3 foot (0.9 m)
BC09D-06	TZ8x cable, 6 ft (1.8 m)
BC09D-09	TZ8x cable, 9 ft (2.7 m)

* Country-specific power cord required for 240 V use.

Step 3b—External Storage (continued)**StorageWorks Expansion Units**

BA356-KD¹	StorageWorks 16-bit shelf includes dual speed blowers. Supports maximum of seven 3.5-inch devices (8 or 16-bit), requires BA35X-MG 8-bit I/O module, and BN21H-xx SCSI cable
BA362-AA/AB	Office expansion unit, supports up to two 3.5-inch modular storage devices, requires BN31V-01 3.2 feet (1.0 m) SCSI cable
BA364-AA/AB	Office expansion unit, supports up to four 3.5-inch modular storage devices and one fixed CD-ROM, requires 3.2 feet (1.0 m) SCSI cable

1. One BA356 expansion unit is supported per single ended SCSI bus; no other external device can be connected to system with BA356 unit.

SCSI devices supported in StorageWorks Expansion Units

RZ26N-VA/VW	1.0 GB, 3.5-inch, half-height disk drive, 5400 RPM
RZ28M-VA/VW	2.1 GB, 3.5-inch, half-height disk drive, 5400 RPM
RZ28D-VA/VW	2.1 GB, 3.5-inch, half-height disk drive, 7200 RPM
RZ29B-VA/VW	2.1 GB, 3.5-inch, half-height disk drive, 7200 RPM
TLZ09-VA	8.0 GB, 3.5-inch, half-height 4-mm DAT drive
TZK11-VA	2.0 GB 5.25-inch QIC tape in StorageWorks carrier
TZ88N-VA	20/40 GB SCSI tape drive in StorageWorks carrier

Step 4—Networks and Communications

- .. Systems support one asynchronous and one synchronous communication option
- .. An 8-line DEC-423 to 16-line DEC-423 upgrade option is available for the MicroVAX 3100, see *Network Products Guide* for more information.

Host-Based Communications Controllers

Select host-based communications controllers for standalone systems (without LAN connectivity), or for other requirements.

Asynchronous Multiplexer Options

Select **one** asynchronous multiplexer for communications expansion

DHW42-CB	Provides eight EIA-232 lines for a system total of 12 asynchronous lines (three data only and nine with modem control). Includes internal logic module with cable, EIA-232 I/O assembly, and two external 50-pin to 4-way 25-pin BC29J-06 1.8-m (6-ft) cables; factory or field installed.
DHW42-BB	Provides 16 DEC-423 lines for a system total of 20 asynchronous lines (19 data only and one with modem control). Includes internal logic module with cable, DEC-423 I/O assembly, two external 36-pin BC16C-10 3-m (10-ft) cables, and two H3104-00 eight-line distribution harmonica; factory or field installed.

Note: Addition of DHW42 xB options increases number of users; an OpenVMS license upgrade may be required.

Synchronous Communications Options

- .. Select **one** synchronous option
- .. EIA-232/V.24 cable (BC19D-02) is included—select alternate cables for EIA-423/V.10 and EIA-422/V.11 connection
- .. Synchronous communication option requires VAX WAN Device Driver V1.2 or higher required. VAX WAN Device Driver media included in OpenVMS Consolidated Software Disk CD-ROM media. See Step 8 for details.

DSW43-AA	EIA-232 synchronous controller provides two lines). Includes synchronous logic module, I/O assembly, and external EIA-232 0.6-m (2-ft) adapter cable
BC19B-02	EIA-422/V.11 0.6-m (2-ft) adapter cable
BC19E-02	EIA-423/V.10 0.6-m (2-ft) adapter cable

Step 4—Networks and Communications (*continued*)

LAN Communications Controller

802.3/Ethernet Interface (ThinWire/Thick wire selectable) included with system. Connection of system to Ethernet requires a ThinWire BNC connection (e.g., BC16M cable) or a thick wire 15-pin AUI transceiver cable (e.g., BNE3x).

Local and Wide Area Communications Servers

Each communications server requires an 802.3/Ethernet connection. Depending on the server selected, either a ThinWire BNC connection (e.g., BC16M cable) or a thick wire 15-pin AUI transceiver cable is required (e.g., BNE3x). Software media and documentation and cables are also required. See Network Products Guide.

DECserver 90M, 90TL, 900TM, 90L+, 700, and MUXserver 90, 320, 380 Communications and Printer Servers

Select a terminal or printer server to provide users with multiple session access to systems on a LAN, to minimize on a LAN, to minimize cabling complexity and costs, and to conserve host resources such as backplane slots.

DEC WANrouter 90, 250, DECbrouter 90; and DECnis 500, 600 MultiProtocol Routers

Select a router to cost-effectively link a LAN to a remote system or another LAN and to offload routing overhead from the application host system.

InfoServer 1000 Network Storage Server

To provide initial system load (ISL) capabilities order InfoServer Local Area Compact Disk. Other configurations are offered for tape/backup and for serving more CD-ROMs. InfoServer systems support CD-ROM, hard drives, magneto-optical and tape drives. InfoServer 1000 systems can serve up to seven SCSI devices. See *Storage Devices* for ordering information.

Network Connectivity Products

See the *Network Products Guide*.

Step 5—Console Terminal

A console device is necessary for a system to function. Console cable included with system. Order video terminals (e.g., VT520) for each system unless otherwise available. If logging is required, a combination of video terminal and LAXx is recommended.

Step 6—Terminals and Printers

Select terminals and serial printers as required. Serial printers connect to an asynchronous line. A cable (e.g., BC16E-25) must be ordered with each unless otherwise provided.

Step 7—CPU Upgrades

Note: A non-return charge will be assessed if old CPU board is not returned to DIGITAL

Order Number	From	To	Includes
49JAC-AA	MicroVAX 3100 Model 88	MicroVAX 3100 Model 98	MicroVAX 3100 Model 98 Server CPU OpenVMS base license

Step 8—Software

Licenses required to support additional users beyond those included in base systems.

Operating System support requires V5.5-2H4, V6.2 or higher

Software Processor Code = B

Clusterwide License Rating = 20 (C)

OpenVMS VAX Concurrent Use Licenses

OpenVMS VAX Concurrent Use licenses are for customers running **OpenVMS VAX V6.2 or greater**.

OpenVMS VAX Concurrent Use license provides the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one OpenVMS system to another OpenVMS system at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha Cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-XULA5-AA	OpenVMS VAX Traditional unlimited user license

OpenVMS VAX Interactive User Licenses

OpenVMS VAX Interactive User licenses are for customers running **OpenVMS VAX V5.5 or greater**. OpenVMS VAX Interactive User licenses **are** specific to a single system and **cannot** be shared across an OpenVMS Cluster.

QL-XULA9-BB	OpenVMS VAX Interactive 1-user license
QL-XULA9-BC	OpenVMS VAX Interactive 2-user license
QL-XULA9-BD	OpenVMS VAX Interactive 4-user license
QL-XULA9-BE	OpenVMS VAX Interactive 8-user license
QL-XULA9-BF	OpenVMS VAX Interactive 16-user license
QL-XULA9-BG	OpenVMS VAX Interactive 32-user license
QL-XULA9-BH	OpenVMS VAX Interactive 64-user license
QL-XULAA-BR	OpenVMS VAX Interactive 128-user license
QL-XULAB-BR	OpenVMS VAX Interactive 256-user license

OpenVMS VAX Distributed Interactive User Licenses

OpenVMS VAX Distributed Interactive User licenses are for customers running **OpenVMS VAX Version 6.0 or greater**. OpenVMS VAX Distributed Interactive User licenses are **not** specific to a single system and can be moved between systems at user discretion. OpenVMS VAX Distributed Interactive User licenses can also be shared across an entire OpenVMS Cluster running OpenVMS VAX V6.0 or greater.

Note: OpenVMS VAX Distributed Interactive User licenses are architecture specific and **cannot** be shared across a **mixed** OpenVMS Cluster (OpenVMS VAX and OpenVMS Alpha systems).

QL-09SA9-BB	OpenVMS VAX Distributed Interactive 1-user license
QL-09SA9-BC	OpenVMS VAX Distributed Interactive 2-user license
QL-09SA9-BD	OpenVMS VAX Distributed Interactive 4-user license
QL-09SA9-BE	OpenVMS VAX Distributed Interactive 8-user license

Step 8—Software (*continued*)

OpenVMS VAX Distributed Interactive User Licenses

QL-09SA9-BF	OpenVMS VAX Distributed Interactive 16-user license
QL-09SA9-BG	OpenVMS VAX Distributed Interactive 32-user license
QL-09SA9-BH	OpenVMS VAX Distributed Interactive 64-user license
QL-09SAA-BR	OpenVMS VAX Distributed Interactive 128-user license
QL-09SAB-BR	OpenVMS VAX Distributed Interactive 256-user license
QL-VBRAP-AA	VAXcluster license for multiuser systems

OpenVMS VAX Media and Documentation

Choose operating system media and documentation. Recommended for first system on site. Operating System support for Models 88 and 98 require V5.5-2H4 or higher.

QA-001AA-Hx*	OpenVMS media with extended documentation.
QA-09SAA-Hx*	OpenVMS media with base documentation.

* x denotes the media type: 5 = TK50, 8 = CD-ROM

OpenVMS Consolidated Software Media and Documentation

Choose as an alternative to the above OpenVMS kits. Requires RRD45 CD-ROM.

QA-VWJ8A-A8	OpenVMS and layered product binaries on CD-ROM without hardcopy documentation.
QA-VYR8A-G8	OpenVMS extended online documentation and layered product online documentation on CD-ROM; requires DECwindows Bookreader.

QA-GXXAB-Hx*	POSIX media and documentation (without IEEE documentation)
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* x denotes the media type: 5 = TK50, 8 = CD-ROM

DIGITAL NAS Base Server 200

DIGITAL NAS packaged products do not include hardcopy documentation, (documentation is CD-ROM only).

QL-MC1AB-AA	DIGITAL NAS Base Server 200 license for OpenVMS VAX systems
QA-MC1AA-Hx*	DIGITAL NAS Base Server 200 media and documentation kit

* x denotes media type: 8 = CD-ROM, 5 = TK50, M = magtape

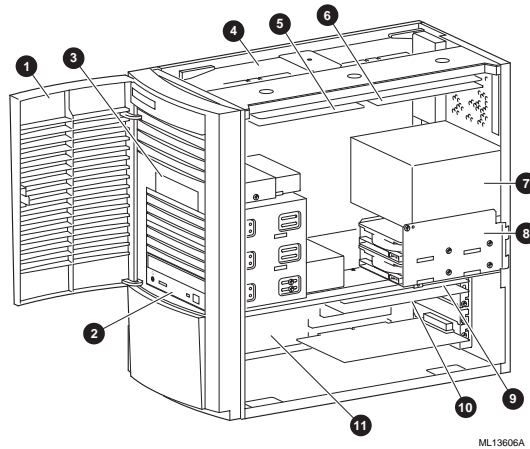
Step 9—Power Cords

BN19P-2E power cord is included with North American systems. Select country specific power cord for 240 V use.

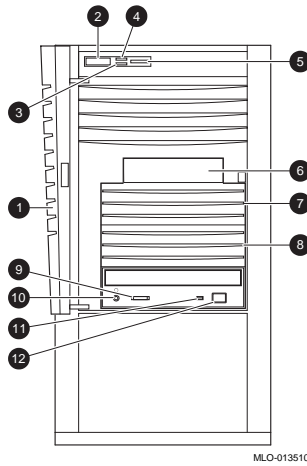
Order Number	Country/Voltage	Amps	Plug	Meters (Feet)
BN19P-2E	U.S./Japan 125 V	10	NEMA 5-15	1.9 (6.2)
BN19H-2E	Australia/New Zealand 125 V	10	AS 3112-1981	2.5 (8.2)
BN19C-2E	Central Europe, 250 V	10	CEE 7/7 (Schuko)	2.5 (8.2)
BN19A-2E	U.K./Ireland, 250 V	10	BS 1363	2.5 (8.2)
BN19E-2E	Switzerland, 250 V	10	SEV 1011	2.5 (8.2)
BN19K-2E	Denmark, 250 V	10	Afsnit 107	2.5 (8.2)
BN24X-2E	Italy, 250 V	10	CEI 23-16 / VII	2.5 (8.2)
BN19S-2E	India/South Africa, 250 V	10	BS 546	2.5 (8.2)
BN18L-2E	Israel, 250 V	10	SI 32	2.5 (8.2)

MicroVAX 3100 Model 88 and 98

Model 88 and 98 System Diagram

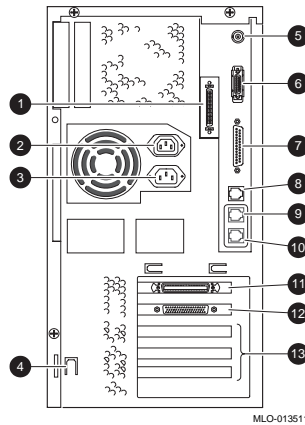


- | | |
|-----------------------------|-----------------------------|
| 1 Front Door | 6 2nd SIMM board (optional) |
| 2 CD-ROM | 7 Power Supply |
| 3 System Disk Drive | 8 Rear drive bay |
| 4 System board | 9 DHW42 Asynchronous option |
| 5 1st SIMM board (standard) | 10 DSW43 synchronous option |



- | | |
|--|--|
| 1 Front door | 7 Accessible/non-accessible bay for 3.5" or 5.25" device |
| 2 Power switch | 8 Accessible/non-accessible bay for 3.5" or 5.25" device |
| 3 Disk drive LED | 9 CD-ROM volume switch |
| 4 Power LED | 10 CD-ROM headphone jack |
| 5 Halt switch; halts system and returns it from operating system to console mode | 11 CD-ROM activity light |
| 6 RZ2x SCSI disk (non-accessible) | 12 CD-ROM eject button |

Model 88 and 98 System Diagram



- | | |
|-----------------------------------|--|
| 1 SCSI port (terminated required) | 10 Thick wire Ethernet LED |
| 2 2A AC power outlet connection | 11 Modem port (with adapter) |
| 3 AC power input connector | 12 MMJ port (for console only) |
| 4 Pre-installed software label | 13 MMJ port |
| 5 System identification label | 14 MMJ port |
| 6 Lockdown hasp | 15 DHW42 Asynchronous communication (optional) |
| 7 ThinWire Ethernet | 16 DSW43 Synchronous communication (optional) |
| 8 ThinWire Ethernet LED | 17 KZDDA SCSI port (optional) |
| 9 Thick wire Ethernet | |

Specifications

Physical Characteristics	Models 88, 98
Height	40.64 cm (16.0 inches)
Width	22.1 cm (8.7 inches)
Depth	47.5 cm (18.7 inches)
Weight	16.0 kg (35.0 lb)
Power Requirements	
Nominal voltage	120/240 Vrms
Power source phasing	Single
Nominal frequency	50–60 Hz
Voltage range	88–132 Vrms 176–264 Vrms
Line frequency tolerance	47–63 Hz
Typical running current	2.3/1.3 A
Typical power consumption (Watts)	170W
Standard Communication	
Minimum MMJ lines	3 DEC-423
Modem lines	1 EIA-232
Synchronous lines	Thick wire and ThinWire supported on all models
Communications Options ¹	
MMJ lines	16 DEC-423
Modem lines	8 EIA-232
Synchronous lines	2 synchronous
Operating Environment	Temperature (sea level) 10-40°C (50-90°F) Relative humidity 10%–80% noncondensing; 20% to 80% if tape drive is present. Maximum operating altitude 3.5 km (10,000 ft)

¹ DEC-423, EIA-232 and synchronous lines can be ordered separately. The DEC-423 and EIA-232 options cannot be configured together in the same system.