DECserver 900GM and 900GMx

Installation

Part Number: EK–DSRVY–IN. C01

This manual describes how to install the
DECserver 900GM and DECserver 900GMx modules.

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

Attention!
Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendraalors à l'utilisateur de prendre les mesures spécifiques appropriées.

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Safety ⚠

Any warning or caution that appears in this manual is defined as follows:

WARNING	Contains information to prevent personal injury.
VORSICHT	Enthält Informationen, die beachtet werden müssen, um den Benutzer vor Schaden zu bewahren.
DANGER	Signale les informations destinées à prévenir les accidents corporels.
AVISO	Contiene información para evitar daños personales.

Safety ⚠ (Cont.)

WARNING ⚠   To avoid personal injury or damage to equipment, do not install the module into a DEChub 900 or DEChub ONE unless the module is completely assembled, with the enclosure, bezel, and all faceplates in place. [Page 7.]

VORSICHT   Um den Benutzer vor Schaden zu bewahren und eine Beschädigung des Geräts zu vermeiden, muß das Modul erst vollständig mit Gehäuse, Blende und Anschlußdose montiert werden, bevor es in ein System DEChub 900 oder DEChub ONE eingebaut wird.

DANGER   Pour éviter tout risque d'accident corporel ou de dommage àl'équipement, n'installez le module dans un DEChub 900 ou un DEChub ONE que s'il est complètement monté et que le boîtier,le couvercle et les caches ont été mis en place.

AVISO   Para evitar daños personales o al equipo, no se debe instalar el módulo en un DEChub 900 o un DEChub ONE a menos que el módulo esté completamente ensamblado, con la carcasa, la tapa y las placas de conexión en sus respectivos lugares.

Introduction

The DECserver 900GM is a network access server that supports up to 16 full modem control ports, or 32 eight–wire partial modem control ports. The DECserver 900GMx is identical to the DECserver 900GM, except that it supports up to 8 full modem control ports, or 16 eight–wire partial modem control ports. The ports may be used to connect asynchronous devices including terminals, printers, modems, or PCs to an Ethernet local area network (LAN). Both systems operate in a DEChub 900 Multiswitch or as a standalone access server.

Except where noted, all references to the DECserver 900GM also apply to the DECserver 900GMx.

NOTE: In this manual, the term Ethernet is Digital's term for its product compatibility with the ISO 8802-3/ANSI/IEEE 802.3 standards and the Ethernet standards for Carrier Sense Multiple Access with Collision detection (CSMA/CD) local area networks (LANs).

To give your workgroup LAN media flexibility and connectivity, the module can be configured into a DEChub 900 MultiSwitch (also referred to in this manual as the DEChub 900). One or more DECserver 900GM modules can be installed into the DEChub 900 (a maximum of 8 DECservers can be present; however, to connect to the network, there must also be at least one repeater or one bridge in the configuration). The module can also serve as a standalone unit when configured with a DEChub ONE docking station (see the *DEChub ONE installation* manual).

When the module is installed into a DEChub 900, the module's hot-swap capability allows you to install or remove the module without turning off power to the DEChub 900.

The DECserver 900GM is configured with four 68-pin D-connectors (two for the DECserver 900GMx), and provides full or limited modem control. Each port supports 16 baud rates from 75 baud to 115.2 Kbaud. The DECserver 900GM includes 4 megabytes (MB) of standard memory, and can be expanded to 8 MB.

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[1] Throughout this manual, the term DEChub ONE refers to the DEChub ONE or the DEChub ONE-MX docking station unless otherwise specified.

Introduction (Cont.)

Features

Your DECserver 900GM and 900GMx modules include the following features:

- Access to ThinWire 10base2 segment in the DEChub 900 MultiSwitch or in the DEChub ONE docking station.

- Backplane access to multiple LANs through one of six flexible channels in the DEChub 900.

- Automatic module self-test at powerup.

- In-band Simple Network Management Protocol (SNMP) management.

- Built-in SNMP agent that supports the following management information bases (MIBs):

    — Ethernet-like Interface Type MIB (RFC 1398)

    — DEChub 900 Public Common MIB

- Manageability using any generic SNMP management application that supports the MIBs listed above.

- User-friendly advanced Graphical User Interface (GUI) manageability with Digital's HUBwatch Network Management Station (NMS) application.

Front Panel–DECserver 900GM

1) ⊘ **Power LED** — Lights when the module has power.

2) ↻ **Module OK LED** — Lights when the module passes self-test.

3) ⊞ **Network OK LED** — Lights when the module has an active network connection.

4) → **Network Activity LED** — Indicates network traffic level.

5) **Seven-Segment Display** — Provides error and status information. For more information, see the section titled Problem Solving Using the Seven Segment Display.

6) **Flash RAM Slot** — Provides an opening in which to insert the Flash RAM card.

7) **Address Label** — Contains the module's 48-bit Ethernet Hardware Address.

8) **Reset Switch** — Resets the module to factory defaults. To reset: while turning on the power, press and hold the reset switch until the Module OK LED flashes, or if the DECserver 900GM is in operational mode (the seven-segment display shows the "race track" pattern), hold the switch for 10 seconds. The module reboots with factory defaults.

9) **Bulk Connectors** — Four 68-pin connectors, each providing 4 full modem control ports or 8 partial modem control ports. When using all four connectors, you can configure these cables to provide ports in the following combinations:

Full	0	4	8	12	16
Partial	32	24	16	8	0
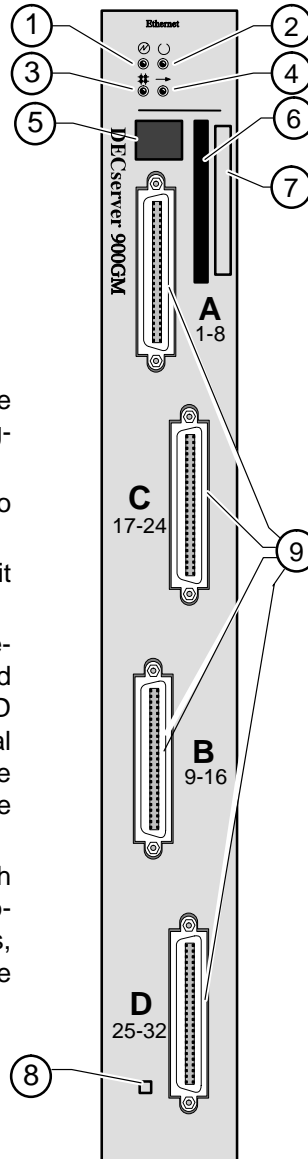
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Front Panel (Cont.)

NOTES: You can mix port types on connectors A through D but you cannot mix port types on any single connector.

You can change port type cables at any time but you must reboot the module when you do so.

Front Panel–DECserver 900GMx

1) ⊘ **Power LED** — Lights when the module has power.

2) ⟳ **Module OK LED** — Lights when the module passes self-test.

3) ⫲ **Network OK LED** — Lights when the module has an active network connection.

4) → **Network Activity LED** — Indicates network traffic level.

5) **Seven-Segment Display** — Provides error and status information. For more information, see the section titled Problem Solving Using the Seven Segment Display.

6) **Flash RAM Slot** — Provides an opening in which to insert the Flash RAM card.

7) **Address Label** — Contains the module's 48-bit Ethernet Hardware Address.

8) **Reset Switch** — Resets the module to factory defaults. To reset: while turning on the power, press and hold the reset switch until the Module OK LED flashes, or if the DECserver 900GMx is in operational mode (the seven-segment display shows the "race track" pattern), hold the switch for 10 seconds. The module reboots with factory defaults.

9) **Bulk Connectors** — Two 68-pin connectors, each providing 4 full modem control ports or 8 partial modem control ports. When using all four connectors, you can configure these cables to provide ports in the following combinations:

Full	0	4	8
Partial	16	8	0
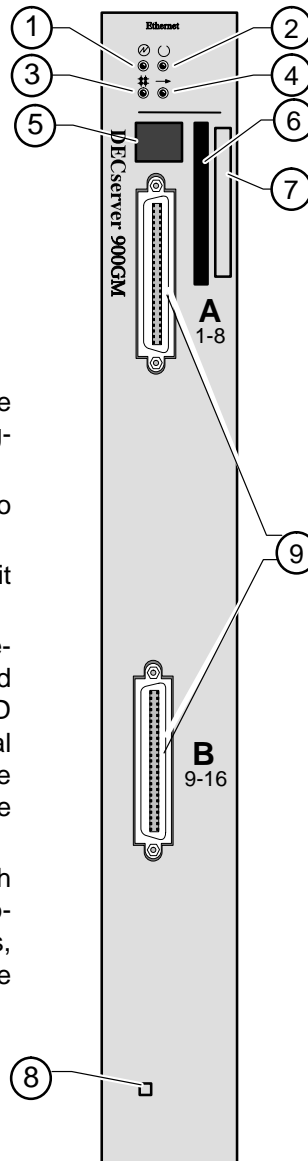
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Back Panel

1) **Locking tab** — Locks the module in the DEChub 900 backplane or in the DEChub ONE. It also contains the hot-swap switch lever.

2) **48-pin connector** — Provides network and power connections to the module when the module is installed in a DEChub 900 or DEChub ONE.

3) **Grounding bolt** — Provides a chassis grounding connection between the module and a DEChub.

4) **Manufacturing label** — Lists the module's part number, serial number, revision level, and power requirements.

5) **160-pin connector** — Provides network and power connections to the module when the module is installed in a DEChub 900 or DEChub ONE.

6) **Mounting tab** — Secures the module to the backplane when the module is installed in a DEChub 900 or DEChub ONE.

7) **Grounding fingers** — Provides additional chassis grounding between the module and a DEChub 900 or DEChub ONE.
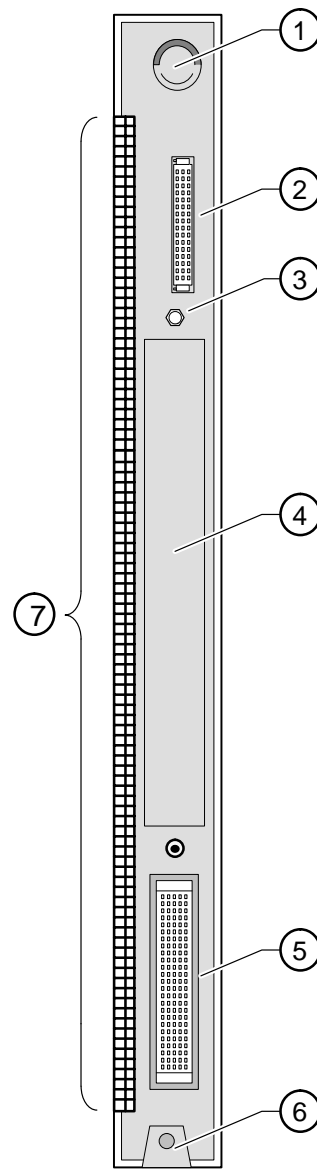
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Installing the Module

The module hot-swap feature allows you to install the module into the DEChub 900 without turning off power to the DEChub 900. Seating the module initiates the powerup sequence if enough power is available.

WARNING ⚠️   To avoid personal injury or damage to equipment, do not install the module into a DEChub 900 or DEChub ONE unless the module is completely assembled, with the enclosure, bezel, and all faceplates in place.

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① **Compare your module's power requirements with the values shown in the Hub Manager status display (see examples).**

> If any of the module's power requirements exceed the values shown in the status display, add another power supply (see the *DEChub 900 MultiSwitch Owner's Manual*).

Module's Manufacturing Label (Example)
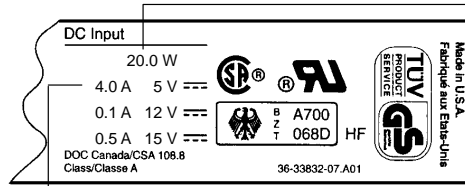
Hub Manager Status Display (Example)

DC Input

	20.0 W	
4.0 A	5 V	⎓
0.1 A	12 V	⎓
0.5 A	15 V	⎓

DOC Canada/CSA 108.8
Class/Classe A   36-33832-07.A01

Made in U.S.A.
Fabriqué aux États-Unis

B Z T   A700   068D   HF

Available: 90.5 W
5V: 13.0 A, 15V: 3.5 A

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NOTE: The 12V power in the DEChub 900 is derived from the 15V power source. Although it is listed separately in the product specifications, the 12V requirements are included in the 15V power total.

Installing the Module (Cont.)

2 **Seat the module into the DEChub 900 MultiSwitch.**

  a. Place the module's mounting tab into a mounting slot on the DEChub 900.

  b. Pivot the module on the mounting tab and align the connectors.

  c. Firmly push the module onto the backplane connectors until the release lever clicks.

  d. Press down on the release lever to ensure that it is locked.

Release lever clicks when module is seated.

Hub Manager status display

Mounting tab
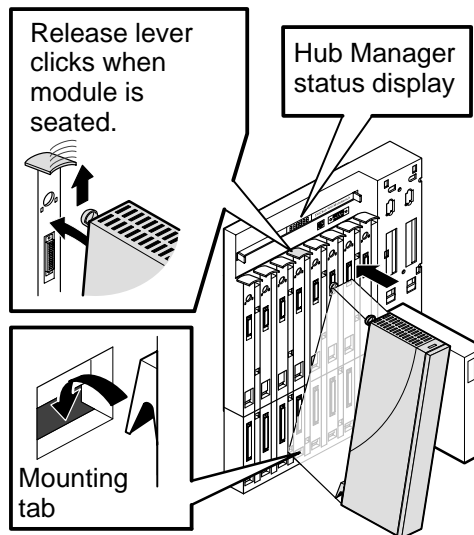
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3 **Verify that the module's Power LED and the Module OK LED light (within approximately 2 minutes).**

  a. The Power LED lights when the power is applied, then the module performs a self-test.

  b. After the module completes the self-test, the Module OK LED lights and remains lit.

Ethernet

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  c. The timing depends on the amount of memory installed in the module and the length of time needed to load the network access software.
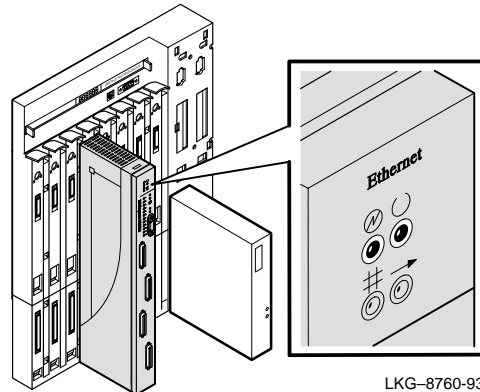
NOTE: Refer to the section titled Problem Solving Using the LEDs if the LEDs do not operate as described.

Installing the Module (Cont.)

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4 **Connect the port cables as required.**

Connect up to four 68-pin bulk connector cables.

NOTE: All cables should have been installed, tested, and tagged at the site before you perform this installation.

a. Insert the bulk connector plug into the port connector on the module.

b. Using a flat-blade screwdriver, tighten the two screws at the ends of the plug.
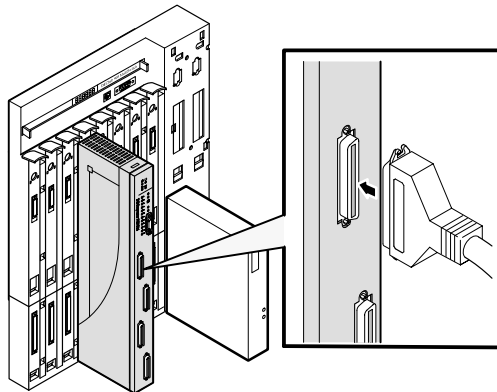
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NOTE: To disconnect the bulk cables, use a flat-blade screwdriver to loosen the two screws at the ends of the plug, then disconnect the cable.

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NOTE: You must reboot the DECserver 900GM after changing the bulk cable type on a port from a full modem control cable to a partial modem control cable or data lead only connector, or vice versa.

Installing Flash RAM

If you use a Flash RAM card for loading the operational software, perform the following:

1 **Insert the Flash RAM card into the Flash RAM slot on the front of the module.**

    a. The Digital label should be on the same side as the DECserver 900GM logo on the front panel of the module.

    b. When properly inserted, the Flash RAM card protrudes from the front panel about 1/4 inch. The Flash RAM card is keyed and cannot be inserted improperly.
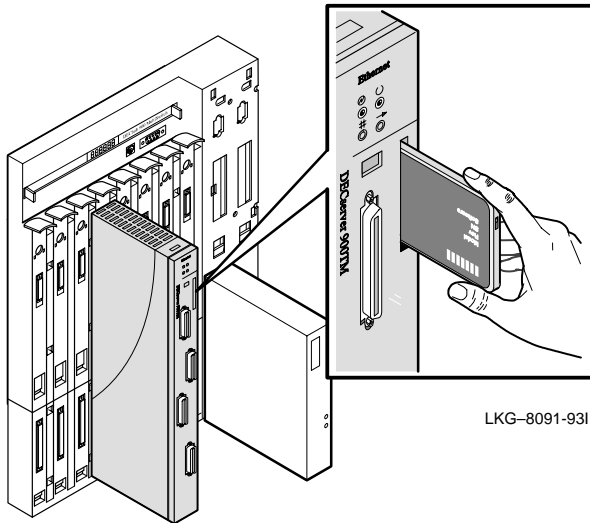
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The Flash RAM card can be hot swapped and may be inserted or removed at anytime. If you are booting from the Flash RAM card, insert it before powering the module or during the self-test phase.

Once you boot the DECserver 900GM, the card may be left in place or removed.

Removing the Module

1 **Disconnect all the cables from the module.**

   a. To remove the bulk cables, use a flat-blade screwdriver to loosen the two screws at the ends of the plugs, then disconnect the cable.
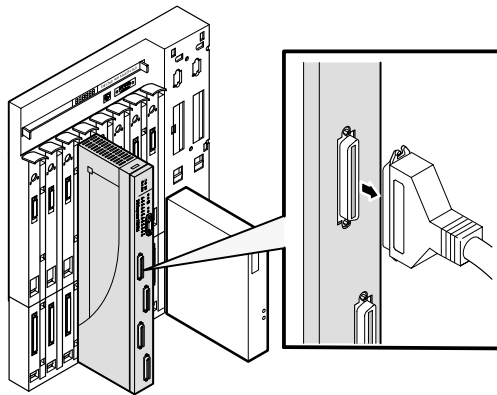
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2 **Unseat the module from the DEChub 900 MultiSwitch.**

   a. Lift the release lever located on the top of the DEChub 900 mounting slot.

   b. Pivot the module back on its bottom mounting tab, and remove the module from the backplane.

Lift release lever

Mounting tab
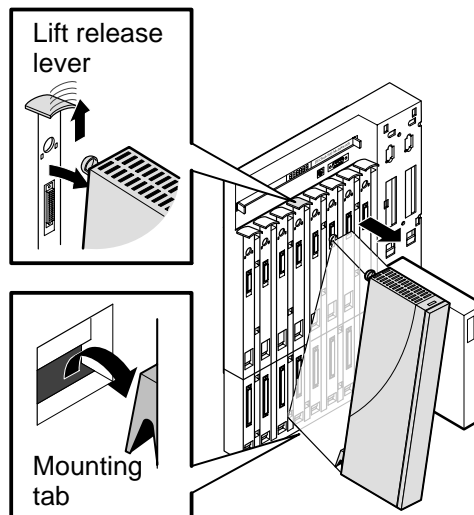
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LED Descriptions

The module's LEDs provide dynamic indications of its status.

Table 1 shows the static states that are possible for each of the module's LEDs.

Table 1   Module LED States

LED Name		Off	On	Flashing
Power	⊘	No power to the module.	Module receiving power.	Faulty power connection or insufficient power.
Module OK	↻	After approximately 2 minutes, module failed self test.	Module passed self-test.	Non-fatal self-test failure. Unit may still be operational.
Network OK	✛	Module is not connected to a properly terminated and enabled LAN through the DEChub 900 or via the AUI port on the DEChub ONE.	Network connection is operational.	Network connection is disabled by network management.
Network Activity	→	No network activity.	Network has heavy traffic.	Flashes more rapidly and appears brighter as network traffic increases.

Problem Solving Using the LEDs

When diagnosing a problem with the module, note that the problem is often indicated by the combined states of the module's LEDs. Table 2 lists the states of the LEDs for various error conditions that can occur during initial installation of the device, along with probable causes and steps you can take to correct the condition.

Normal Powerup

When power to the module is initially turned on, the following events occur:

1. The Power LED lights and remains lit. All other LEDs light and then turn off. This verifies that the individual LEDs are operational.

2. The module initiates its built-in self-test.

3. After the self-test completes successfully (within approximately 2 minutes), the Module OK LED lights and remains lit.

4. The remaining LEDs indicate their operational status as described in Table 2.

Problem Solving

Table 2 lists probable causes and corrective actions you can take if the module LEDs do not function properly.

Problem Solving Using the LEDs (Cont.)

Table 2   Problem Solving Using the LEDs

Symptom	Probable Cause	Corrective Action
Power LED is off.	The module is not receiving power.	Ensure that the release lever (if instal-ling into a DEChub 900) or the locking L-bracket screw (if installing into a DEChub ONE) is locked securely.
		If installing the module into a DEChub 900, check the power status on the Hub Manager status display. If enough power is available, lift the re-lease lever (if installing the module into a DEChub ONE, loosen the lock-ing L-bracket screw). Remove the module.
		Inspect the module's 48-pin and 160-pin connectors for bent, broken, or dirty pins. If any pins are broken or bent, replace the module.
		If no pins are broken or bent, reinstall the module into the DEChub.
		If the problem persists, replace the module.
Power LED is flashing.	The module connection is faulty.	Lift the release lever, then reseat the module.
	Faulty DEChub 900 slot connection.	Reinstall the module into another slot.
	DEChub power supply is faulty.	If the module is installed in a DEChub 900, replace the power sup-ply. If the module is installed in a DEChub ONE, replace the DEChub ONE.

Problem Solving Using the LEDs (Cont.)

Table 2 (Cont.)   Problem Solving Using the LEDs

Symptom	Probable Cause	Corrective Action
Module OK LED is off.	Module does not have sufficient power.	Ensure Power LED is on.
	Self-test is in progress.	Wait up to 2 minutes for self-test to complete.
	Self-test failed.	If the LED does not light after approximately 2 minutes, lift the release lever momentarily to repeat the self-test. If self-test fails again, replace the module.
Module OK LED is flashing.	Non-fatal error.	See the error message on the console port.
	Fan is faulty.	Call Multivendor Customer Services to replace the fan.
Seven-segment display is flashing "C," "d," or "n".	Memory failure.	Return the unit to Digital Equipment Corporation.
Seven-segment display is flashing or displaying a solid "8".	Fatal error.	Return the unit to Digital Equipment Corporation.
Seven-segment display shows a "3".	Download backoff is in progress.	If the display persists, there is a loading problem. See the error message on the console port.

Problem Solving Using the Seven Segment Display

Table 3 shows the codes that appear on the seven-segment display during the
server power-up and initialization internal self-test. The first column indicates a
horizontal view (standalone). The second column indicates a vertical view (hub) of
the codes. The third column describes the codes.

Table 3   Seven Segment Display Codes

Horizontal	Vertical	Description
Off	Off	No power or display broken
8		Initial power on
F		Initialization
E		DECserver 900 internal test
d		SIM 1 test
C		SIM 2 test
P		DECserver 900 internal test (Flexchannel test and Fan test)
b		DECserver 900 internal test
A		DECserver 900 internal test
9		DECserver 900 internal test
7		Network interface external test
5		Software loading from or programming Flash RAM card
=		Requesting load
4		Load request backoff
3		Loading
2		Requesting dump
1		Dumping
0		Hardware revision # incompatible with firmware revision #
H		No SIMs, or wrong type SIMs installed
n		DECserver 900 is operating correctly. The rotating code is
Rotating	Rotating	referred to as the "race track" pattern.

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Cabling

Table 4 shows the maximum cable lengths for a number of data rates using DECserver 900GM supported line protocols.

For more information about cabling and configuring of LANs and using DECconnect system products, refer to the *DECconnect System Planning and Configuration Guide*.

Table 4   Maximum Cable Lengths[1] − −   DECserver 900GM to Devices

Line Protocol	Data Rate (Baud)	Cable Length	
EIA−432−A/V1.0	4.8 K	500 m	(1600 ft)
	9.6 K	280 m	(900 ft)
	19.2 K	150 m	(500 ft)
	38.4 K	85 m	(280 ft)
	57.6 K	30 m	(100 ft)
	115.2 K	12 m	(40 ft)
DEC 423	9.6 K	900 m	(3000 ft)
	19.2 K	300 m	(1000 ft)
	38.4 K	150 m	(500 ft)
	57.6 K	60 m	(200 ft)
	115.2 K	30 m	(100 ft)
EIA−232−E/V.28	9.6 K	60 m	(200 ft)
	19.2 K	30 m	(100 ft)
	38.4 K	15 m	(50 ft)
	57.6 K	6 m	(20 ft)
	115.2 K	3 m	(10 ft)

[1] For cable type H8245-A or H8246-B, 24 AWG, 4 pair, twisted pair.

Connector Pin Assignments

To install the DECserver 900GM, use either a 68-pin bulk to 50-pin female Telco adapter (H8586-AA), the 68-pin bulk to 50-pin male Telco cable (BN41C-03), the 68-pin to eight MP8 connectors cable (BN41B-03), or 68-pin to four 25-pin DB connectors cable (BN41A-03).

Bulk Connector

The following illustrations show the pin orientations of a 68-pin female bulk connector on the DECserver 900GM and a 68-pin male bulk connector on the cable. These figures are followed by a listing of the pin assignments for the 68-pin female bulk connector.

68-pin female
bulk connector
(DECserver)

68-pin male
bulk connector
(cable)
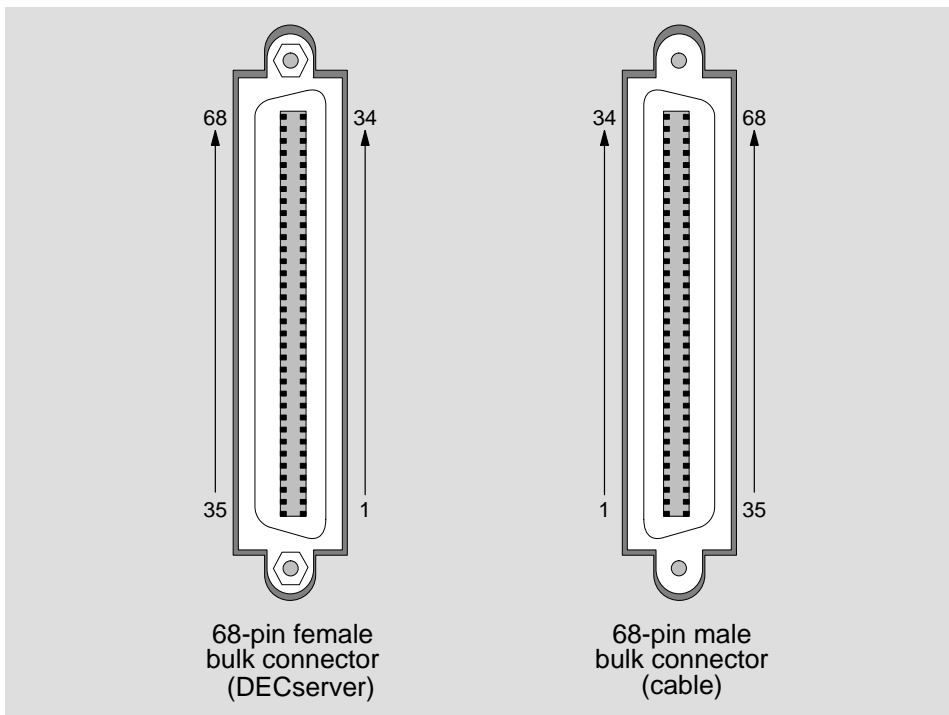
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Connector Pin Assignments (Cont.)

The following table lists the pin assignments for the 68-pin female bulk connector on the DECserver 900GM. Use this information in conjunction with the cable pinouts shown in the following tables and diagrams. If you are using cables that are not made by Digital, be sure to follow the pin orientations for the 68-pin male bulk connector shown on the previous page.

Pin #	Modem Control Full	Partial	Data Leads	Ports F, P, D[*]	Pin	Modem Control Full	Partial	Data Leads	Ports F, P, D[*]
1	TXD	TXD	TXD	1, 1, 1	35	GND	TXD COM	TXD COM	1, 1, 1
2	RXD	RXD	RXD	1, 1, 1	36	GND	RXD COM	RXD COM	1, 1, 1
3	CTS	DSR	DSR	1, 1, 1	37	RTS	DTR	DTR	1, 1, 1
4	DSR	CTS		1, 1, –	38	DTR	RTS		1, 1, –
5	TXD	TXD	TXD	2, 2, 2	39	GND	TXD COM	TXD COM	2, 2, 2
6	RXD	RXD	RXD	2, 2, 2	40	GND	RXD COM	RXD COM	2, 2, 2
7	CTS	DSR	DSR	2, 2, 2	41	RTS	DTR	DTR	2, 2, 2
8	DSR	CTS		2, 2, –	42	DTR	RTS		2, 2, –
9	TXD	TXD	TXD	3, 3, 3	43	GND	TXD COM	TXD COM	3, 3, 3
10	RXD	RXD	RXD	3, 3, 3	44	GND	RXD COM	RXD COM	3, 3, 3
11	CTS	DSR	DSR	3, 3, 3	45	RTS	DTR	DTR	3, 3, 3
12	DSR	CTS		3, 3, –	46	DTR	RTS		3, 3, –
13	TXD	TXD	TXD	4, 4, 4	47	GND	TXD COM	TXD COM	4, 4, 4
14	RXD	RXD	RXD	4, 4, 4	48	GND	RXD COM	RXD COM	4, 4, 4
15	CTS	DSR	DSR	4, 4, 4	49	RTS	DTR	DTR	4, 4, 4
16	DSR	CTS		4, 4, –	50	DTR	RTS		4, 4, –
17		TXD	TXD	–, 5, 5	51		TXD COM	TXD COM	–, 5, 5
18	DCD	RXD	RXD	1, 5, 5	52	GND	RXD COM	RXD COM	1, 5, 5
19	RI	DSR	DSR	1, 5, 5	53	DSRS	DTR	DTR	1, 5, 5
20	SMI	CTS		1, 5, –	54		RTS		–, 5, –
21		TXD	TXD	–, 6, 6	55		TXD COM	TXD COM	–, 6, 6
22	DCD	RXD	RXD	2, 6, 6	56	GND	RXD COM	RXD COM	2, 6, 6
23	RI	DSR	DSR	2, 6, 6	57	DSRS	DTR	DTR	2, 6, 6
24	SMI	CTS		2, 6, –	58		RTS		–, 6, –
25		TXD	TXD	–, 7, 7	59		TXD COM	TXD COM	–, 7, 7
26	DCD	RXD	RXD	3, 7, 7	60	GND	RXD COM	RXD COM	3, 7, 7
27	RI	DSR	DSR	3, 7, 7	61	DSRS	DTR	DTR	3, 7, 7
28	SMI	CTS		3, 7, –	62		RTS		–, 7, –
29		TXD	TXD	–, 8, 8	63		TXD COM	TXD COM	–, 8, 8
30	DCD	RXD	RXD	4, 8, 8	64	GND	RXD COM	RXD COM	4, 8, 8
31	RI	DSR	DSR	4, 8, 8	65	DSRS	DTR	DTR	4, 8, 8
32	SMI	CTS		4, 8, –	66		RTS		–, 8, –
33				–, Id,–	67				Id, –, –
34				–, –, Id	68				Id, Id, Id

[*] F = Full modem control
   P = Partial modem control
   D = Data leads only

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Connector Pin Assignments (Cont.)

H8586-AA: 68-pin Bulk to 50-pin Telco Adapter (Included)

You can use the H8586-AA adapter with a 50-pin Telco cable that you supply. The following illustration shows an H8586-AA adapter and its pin assignments:

68-pin male D-Connector		50-pin female Telco Adapter
1	TXD PORT 1	1
2	RXD PORT 1	2
3	DSR PORT 1	3
5	TXD PORT 2	4
6	RXD PORT 2	5
7	DSR PORT 2	6
9	TXD PORT 3	7
10	RXD PORT 3	8
11	DSR PORT 3	9
13	TXD PORT 4	10
14	RXD PORT 4	11
15	DSR PORT 4	12
17	TXD PORT 5	13
18	RXD PORT 5	14
19	DSR PORT 5	15
21	TXD PORT 6	16
22	RXD PORT 6	17
23	DSR PORT 6	18
25	TXD PORT 7	19
26	RXD PORT 7	20
27	DSR PORT 7	21
29	TXD PORT 8	22
30	RXD PORT 8	23
31	DSR PORT 8	24
34		
35	TXD COM PORT 1	
36	RXD COM PORT 1	26
37	DTR PORT 1	27
39	TXD COM PORT 2	28
40	RXD COM PORT 2	29
41	DTR PORT 2	30
43	TXD COM PORT 3	31
44	RXD COM PORT 3	32
45	DTR PORT 3	33
47	TXD COM PORT 4	34
48	RXD COM PORT 4	35
49	DTR PORT 4	36
51	TXD COM PORT 5	37
52	RXD COM PORT 5	38
53	DTR PORT 5	39
55	TXD COM PORT 6	40
56	RXD COM PORT 6	41
57	DTR PORT 6	42
59	TXD COM PORT 7	43
60	RXD COM PORT 7	44
61	DTR PORT 7	45
63	TXD COM PORT 8	46
64	RXD COM PORT 8	47
65	DTR PORT 8	48
68		49
SHELL	SHELL	SHELL

NOTE: Tie together pins 34 and 68 on the 68-pin connector to enable the software to identify the adapter.

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Connector Pin Assignments (Cont.)

BN41C-03: 68-pin Bulk to 50-pin Telco Cable (Optional)

The BN41C-03 is recommended for use with the H3117-MA or H3107-M MJ8 to 50-pin Telco patch panel. The following illustration shows a BN41C-03 cable and its pin assignments:
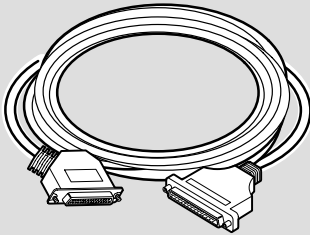
NOTE: Tie together pins 34 and 68 on the 68-pin connector to enable the software to identify the cable.

$()$ = twisted pair

Signal	68-pin D-Connector	50-pin Telco Adapter
TXD PORT 1	1	1
TDX COM PORT 1	35	26
RXD PORT 1	2	2
RXD COM PORT 1	36	27
DSR PORT 1	3	3
DTR PORT 1	37	28
TXD PORT 2	5	4
TXD COM PORT 2	39	29
RXD PORT 2	6	5
RXD COM PORT 2	40	30
DSR PORT 2	7	6
DTR PORT 2	41	31
TXD PORT 3	9	7
TDX COM PORT 3	43	32
RXD PORT 3	10	8
RXD COM PORT 3	44	33
DSR PORT 3	11	9
DTR PORT 3	45	34
TXD PORT 4	13	10
TXD COM PORT 4	47	35
RXD PORT 4	14	11
RXD COM PORT 4	48	36
DSR PORT 4	15	12
DTR PORT 4	49	37
TXD PORT 5	17	13
TDX COM PORT 5	51	38
RXD PORT 5	18	14
RXD COM PORT 5	52	39
DSR PORT 5	19	15
DTR PORT 5	53	40
TXD PORT 6	21	16
TXD COM PORT 6	55	41
RXD PORT 6	22	17
RXD COM PORT 6	56	42
DSR PORT 6	23	18
DTR PORT 6	57	43
TXD PORT 7	25	19
TDX COM PORT 7	59	44
RXD PORT 7	26	20
RXD COM PORT 7	60	45
DSR PORT 7	27	21
DTR PORT 7	61	46
TXD PORT 8	29	22
TXD COM PORT 8	63	47
RXD PORT 8	30	23
RXD COM PORT 8	64	48
DSR PORT 8	31	24
DTR PORT 8	65	49
	34	
	68	

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DECserver 900GM Installation

Connector Pin Assignments (Cont.)

BN41A-03: 68-pin to Four 25-pin DB Octopus Cable (Optional)

Use this cable on DECserver bulk connectors A through D to provide four full-modem control connections for each serial port. The following illustration shows a 68-pin bulk connector to four 25-pin DB connector cable. You can connect the 25-pin DB connectors directly to modems. You must use a crossover adapter or crossover cable for terminal interconnections. The wire size should be 26 or 28GA, shielded or unshielded, twisted- or untwisted-pair. On the 68-pin connector, tie pins 67 and 68 together to enable the software to identify the cable. Table 5 lists the appropriate pin assignments.

NOTE: You can mix cable BN41A-03 and cable BN41B-03 on serial ports A through D to create four full modem control connections on one port and eight partial modem control connections on another.
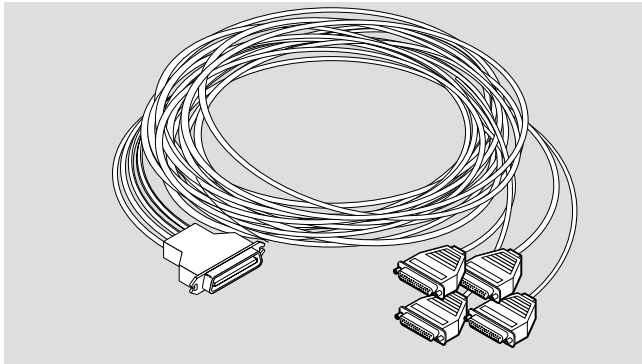
LKG–4730–93I

Recommended Wire Pairings for each DB25 Connector
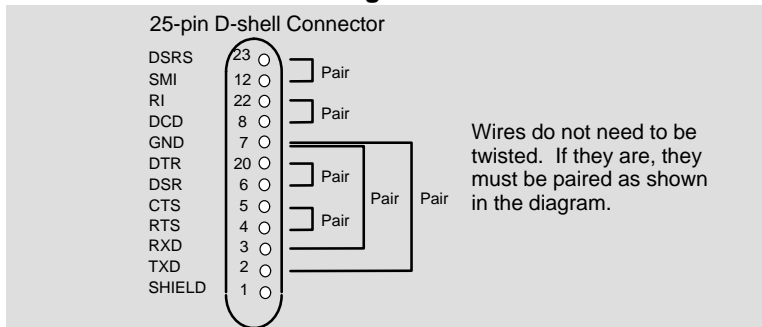
LKG–09760–94I

Connector Pin Assignments (Cont.)

Table 5   68-pin to Four 25-pin DB Octopus Cable Pinout

25-pin DB Number	Twisted Pairings	25-pin DB Pin Number	68-pin Pin Number	Full Modem Control Signal
1		1 and HOUSING	HOUSING	SHIELD
	Pair {	2	1	TXD
		7	35	GND
	Pair {	3	2	RXD
		7	36 and 52	GND
	Pair {	4	37	RTS
		5	3	CTS
	Pair {	20	38	DTR
		6	4	DSR
	Pair {	8	18	DCD
		22	19	RI
	Pair {	12	20	SMI
		23	53	DSRS
2		1 and HOUSING	HOUSING	SHIELD
	Pair {	2	5	TXD
		7	39	GND
	Pair {	3	6	RXD
		7	40 and 56	GND
	Pair {	4	41	RTS
		5	7	CTS
	Pair {	20	42	DTR
		6	8	DSR
	Pair {	8	22	DCD
		22	23	RI
	Pair {	12	24	SMI
		23	57	DSRS

Connector Pin Assignments (Cont.)

Table 5 (Cont.) 68-pin to Four 25-pin DB Octopus Cable Pinout

25-pin DB Number	Twisted Pairings	25-pin DB Pin Number	68-Pin Pin Number	Full Modem Control Signal
3		1 and HOUSING	HOUSING	SHIELD
	Pair {	2	9	TXD
		7	43	GND
	Pair {	3	10	RXD
		7	44 and 60	GND
	Pair {	4	45	RTS
		5	11	CTS
	Pair {	20	46	DTR
		6	12	DSR
	Pair {	8	26	DCD
		22	27	RI
	Pair {	12	28	SMI
		23	61	DSRS
4		1 and HOUSING	HOUSING	SHIELD
	Pair {	2	13	TXD
		7	47	GND
	Pair {	3	14	RXD
		7	48 and 64	GND
	Pair {	4	49	RTS
		5	15	CTS
	Pair {	20	50	DTR
		6	16	DSR
	Pair {	8	30	DCD
		22	31	RI
	Pair {	12	32	SMI
		23	65	DSRS

**NOTE:** On the 68-pin connector, tie pins 67 and 68 together to enable the software to identify the cable.

Connector Pin Assignments (Cont.)

BN41B-03: 68-pin to Eight 8-pin MP Octopus Cable (Optional)

Use this cable on DECserver bulk connectors A through D to provide eight partial modem control connections for each serial port and with the H8585 series adapters for modem and personal computer (PC) connections. You can also use this cable with the H3117-NA/NB or H3107-N MJ8 patch panel to provide a DECserver 900TM-type MJ8 interface. The following illustration shows a 68-pin to eight 8-pin MP8 connector cable. Table 6 shows the appropriate pin assignments.
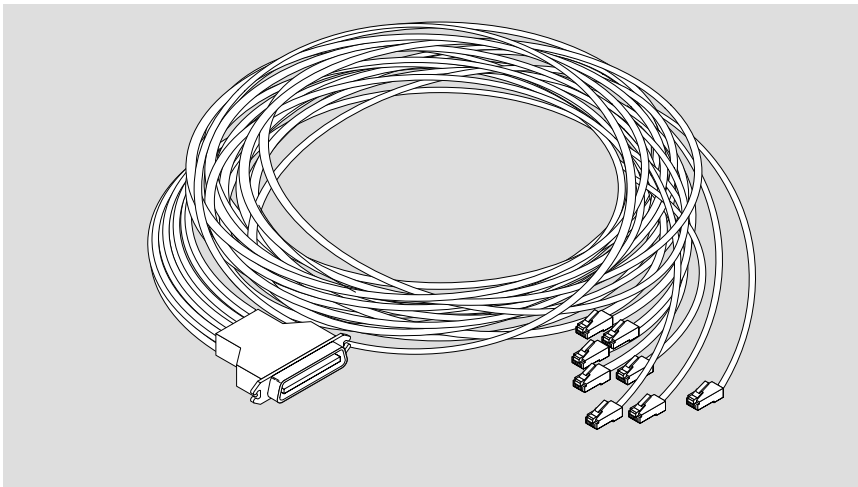
LKG–4730–93I

Recommended Wire Pairings for each MP8 Connector

8-pin Modular Jack

Wires do not need to be twisted. If they are, they must be paired as shown in the diagram.

DSR	8 ○ ⬜ Pair
DTR	7 ○
TXD	6 ○
RTS	5 ○ ⬜ Pair	Pair
CTS	4 ○
TXD GND	3 ○
RXD	2 ○ ⬜ Pair
RXD GND	1 ○
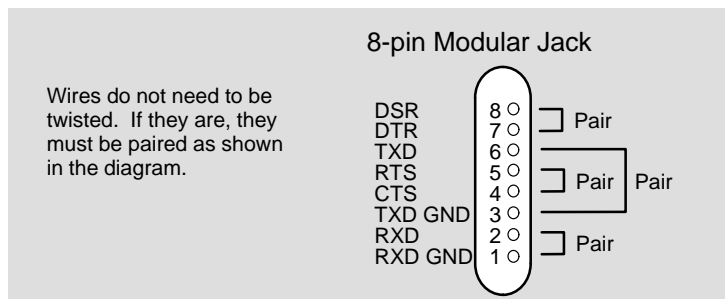
LKG–09759–94I

Connector Pin Assignments (Cont.)

NOTE: You can mix cable BN41A-03 and cable BN41B-03 on serial ports A through D to create four full modem control connections on one port and eight partial modem control connections on another.

Table 6   68-pin to Eight 8-pin MP Octopus Pinout

8-pin MP Number	Twisted Pairings	8-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
1		6	1	TXD
	Pair {	3	35	TXD COM
		2	2	RXD
	Pair {	1	36	RXD COM
		8	3	DSR
	Pair {	7	37	DTR
		4	4	CTS
	Pair {	5	38	RTS
8-pin MP Number	**Twisted Pairings**	**8-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
2		6	5	TXD
	Pair {	3	39	TXD COM
		2	6	RXD
	Pair {	1	40	RXD COM
		8	7	DSR
	Pair {	7	41	DTR
		4	8	CTS
	Pair {	5	42	RTS

Connector Pin Assignments (Cont.)

Table 6 (Cont.) 68-pin to Eight 8-pin MP Octopus Pinout

8-pin MP Number	Twisted Pairings	8-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
3		6	9	TXD
	Pair {	3	43	TXD COM
		2	10	RXD
	Pair {	1	44	RXD COM
		8	11	DSR
	Pair {	7	45	DTR
		4	12	CTS
	Pair {	5	46	RTS
8-pin MP Number	**Twisted Pairings**	**8-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
4		6	13	TXD
	Pair {	3	47	TXD COM
		2	14	RXD
	Pair {	1	48	RXD COM
		8	15	DSR
	Pair {	7	49	DTR
		4	16	CTS
	Pair {	5	50	RTS

Connector Pin Assignments (Cont.)

Table 6 (Cont.) 68-pin to Eight 8-pin MP Octopus Pinout

8-pin MP Number	Twisted Pairings	8-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
5		6	17	TXD
	Pair {	3	51	TXD COM
		2	18	RXD
	Pair {	1	52	RXD COM
		8	19	DSR
	Pair {	7	53	DTR
		4	20	CTS
	Pair {	5	54	RTS
8-pin MP Number	**Twisted Pairings**	**8-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
6		6	21	TXD
	Pair {	3	55	TXD COM
		2	22	RXD
	Pair {	1	56	RXD COM
		8	23	DSR
	Pair {	7	57	DTR
		4	24	CTS
	Pair {	5	58	RTS

Connector Pin Assignments (Cont.)

Table 6 (Cont.) 68-pin to Eight 8-pin MP Octopus Pinout

8-pin MP Number	Twisted Pairings	8-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
7		6	25	TXD
	Pair {	3	59	TXD COM
		2	26	RXD
	Pair {	1	60	RXD COM
		8	27	DSR
	Pair {	7	61	DTR
		4	28	CTS
	Pair {	5	62	RTS
8-pin MP Number	**Twisted Pairings**	**8-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
8		6	29	TXD
	Pair {	3	63	TXD COM
		2	30	RXD
	Pair {	1	64	RXD COM
		8	31	DSR
	Pair {	7	65	DTR
		4	32	CTS
	Pair {	5	66	RTS

NOTES: On the 68-pin connector, tie pins 33 and 68 together to enable the software to identify the cable.

The wire size should be 28GA or 26GA unshielded twisted pair.

BN41D-03: 68-pin to Eight 25-pin DB Octopus Cable (Optional)

Use this cable on DECserver bulk connectors A through D to provide eight partial modem control connections for each serial port. The following illustration shows a 68-pin bulk connector to eight 25-pin DB connector cable. You can connect the 25-pin DB connectors directly to modems. You must use a crossover adapter or crossover cable for terminal interconnections. The wire size should be 26 or 28GA, shielded or unshielded, twisted- or untwisted-pair. On the 68-pin connector, tie pins 33 and 68 together to enable the software to identify the cable. Table 7 lists the appropriate pin assignments.

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LKG–10313–96I

Connector Pin Assignments (Cont.)

NOTE: You can mix cable BN41A-03, BN41B–03, and cable BN41D-03 on serial ports A through D to create four full modem control connections on one port and eight partial modem control connections on another.

Table 7   68-pin to Eight 25-pin DB Octopus Pinout

25-pin MP Number	Twisted Pairings	25-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
1		2	1	TXD
	Pair {	7	35	GND
		3	2	RXD
	Pair {	7	36	GND
		6	3	DSR
	Pair {	20	37	DTR
		5	4	CTS
	Pair {	4	38	RTS
25-pin MP Number	**Twisted Pairings**	**25-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
2		2	5	TXD
	Pair {	7	39	GND
		3	6	RXD
	Pair {	7	40	GND
		6	7	DSR
	Pair {	20	41	DTR
		5	8	CTS
	Pair {	4	42	RTS

Connector Pin Assignments (Cont.)

Table 7 (Cont.) 68-pin to Eight 25-pin DB Octopus Pinout

25-pin MP Number	Twisted Pairings	25-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
3		2	9	TXD
	Pair {	7	43	GND
		3	10	RXD
	Pair {	7	44	GND
		6	11	DSR
	Pair {	20	45	DTR
		5	12	CTS
	Pair {	4	46	RTS
25-pin MP Number	**Twisted Pairings**	**25-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
4		2	13	TXD
	Pair {	7	47	GND
		3	14	RXD
	Pair {	7	48	GND
		6	15	DSR
	Pair {	20	49	DTR
		5	16	CTS
	Pair {	4	50	RTS

Connector Pin Assignments (Cont.)

Table 7 (Cont.) 68-pin to Eight 25-pin DB Octopus Pinout

25-pin MP Number	Twisted Pairings	25-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
5		2	17	TXD
	Pair {	7	51	GND
		3	18	RXD
	Pair {	7	52	GND
		6	19	DSR
	Pair {	20	53	DTR
		5	20	CTS
	Pair {	4	54	RTS
25-pin MP Number	**Twisted Pairings**	**25–pin MP Pin Number**	**6 pin Pin Number**	**Partial Modem Control Signal**
6		2	21	TXD
	Pair {	7	55	GND
		3	22	RXD
	Pair {	7	56	GND
		6	23	DSR
	Pair {	20	57	DTR
		5	24	CTS
	Pair {	4	58	RTS

Connector Pin Assignments (Cont.)

Table 7 (Cont.) 68-pin to Eight 25-pin DB Octopus Pinout

25-pin MP Number	Twisted Pairings	25-pin MP Pin Number	68-pin Pin Number	Partial Modem Control Signal
7		2	25	TXD
	Pair {	7	59	GND
		3	26	RXD
	Pair {	7	60	GND
		6	27	DSR
	Pair {	20	61	DTR
		5	28	CTS
	Pair {	4	62	RTS
25-pin MP Number	**Twisted Pairings**	**25-pin MP Pin Number**	**68-pin Pin Number**	**Partial Modem Control Signal**
8		2	29	TXD
	Pair {	7	63	GND
		3	30	RXD
	Pair {	7	64	GND
		6	31	DSR
	Pair {	20	65	DTR
		5	32	CTS
	Pair {	4	66	RTS

NOTES: On the 68-pin connector, tie pins 33 and 68 together to enable the software to identify the cable.

The wire size should be 28GA or 26GA unshielded twisted pair.

Cable Compatibility

Before connecting cables to the DECserver 900GM ports, you must verify supported modem signals with the person managing the DECserver 900GM. This information is necessary to determine what cables to use. For more information on the signals, refer to the *Network Access Server Management* manual.

Table 8 describes the cable connections that are compatible with the DECserver 900GM Ethernet and serial line connectors.

Table 8   Cable Connections Compatible with the DECserver 900GM

Cable Type	Description
H8585-AC[1] MP8 to DB25 (male) modem adapter	Use this adapter with the BN25G or the BN41B-03 cable to connect high-speed modems to the DECserver 900GM.
H8585-AB[1] MP8 to DB25 (male) modem adapter	Use this adapter with the BN25G or the BN41B-03 cable to connect low-speed modems to the DECserver 900GM.
H8585-AA MP8 to DB9 (female) null-modem adapter	Use this adapter with the BN25G or the BN41B-03 cable to convert the DECserver 900GM connector to the DB9 connector for cabling to PC asynchronous ports.
H8584-AC MP8 to MMJ adapter	Use this adapter to convert a serial port to a DECserver 900GM terminal server configuration.
BN24H MP8 to MP6 office cable	Use this office cable to connect from the 6-pin MMJ port of a terminal or printer to the 8-pin MJ faceplate data connector. The BN24H is configured with one 6-pin modified modular plug, one standard 8-pin plug, and crossover wiring.
BN25G MP8 to MP8 equipment cable	Use this cable as either a patch cord or office cable. It is configured with standard 8-pin modular plugs, which connect four unshielded twisted pairs pin-to-pin.

[1]Adapters H8585-AB and H8585-AC are not for connection to public networks in Sweden, Germany, or Japan.

Cable Compatibility (Cont.)

The following wiring diagrams illustrate the cable connections that are compatible with the DECserver 900GM Ethernet and serial line connectors:

H8585-AC MP8 to DB25 Modem Adapter

8-pin Modular Jack   DB25 Plug

DSR	8	6	DSR
DTR	7	20	DTR
TXD	6	2	TXD
RTS	5	4	RTS
CTS	4	5	CTS
TXD GND	3	7	SIG GND
RXD	2	3	RXD
RXD GND	1		

H8585-AB MP8 to DB25 Modem Adapter

8-pin Modular Jack   DB25 Plug

DCD	8	8	DCD
DTR	7	20	DTR
TXD	6	2	TXD
DSRS	5	23	DSRS
RI	4	22	RI
TXD GND	3	7	SIG GND
RXD	2	3	RXD
RXD GND	1	4	RTS

H8585-AA MP8 to DB9 Null-Modem Adapter

8-pin Modular Jack   DB9 Jack

		9	RI
DSR	8	8	CTS
DTR	7	7	RTS
TXD	6	6	DRDY
RTS	5	5	GND
CTS	4	4	DTR
TXD GND	3	3	TXD
RXD	2	2	RXD
RXD GND	1	1	DCD

H8584-AC MP8 to MMJ Adapter

8-pin Modular Plug   6-pin Modular Jack

DSR	8		
DTR	7		
TXD	6	6	DSR
	5	5	RXD
CTS	4	4	RXD GND
TXD GND	3	3	TXD GND
RXD	2	2	TXD
RXD GND	1	1	DTR

BN24H MP8 to MP6 Office Cable

8-pin Modular Plug   6-pin Modular Plug

DSR	8		
DTR	7		
TXD	6	6	DSR
	5	5	RXD
	4	4	RXD GND
TXD GND	3	3	TXD GND
RXD	2	2	TXD
RXD GND	1	1	DTR

— — Twisted pairs

BN25G MP8 to MP8 Equipment Cable

8-pin Modular Plug   8-pin Modular Plug

RXD GND	1	1	RXD GND
RXD	2	2	RXD
TXD GND	3	3	TXD GND
* CTS or RI	4	4	* CTS or RI
* RTS or DSRS	5	5	* RTS or DSRS
TXD	6	6	TXD
DTR	7	7	DTR
* DSR or DCD	8	8	* DSR or DCD

*Software selectable

— — Twisted pairs

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Cable Compatibility (Cont.)

H8587-AA Loopback Connector (Provided)

The DECserver 900GM product includes a 68-pin male to 8-pin MJ loopback connector. You can use the loopback connector on connector A of the DECserver to provide a console port, to set up a loopback connection, and to perform loopback testing. The following diagram represents the loopback connector.
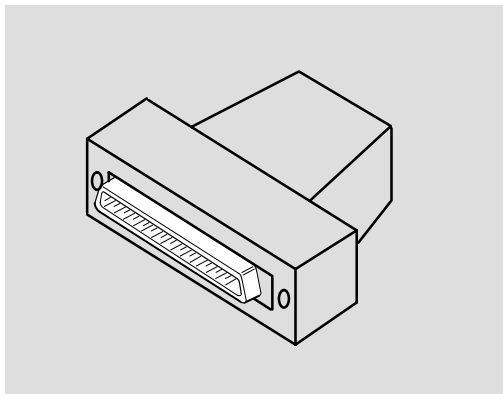
LKG–09729–94I

Product Specifications

Table 9 lists the DECserver 900GM physical, environmental, and certification specifications.

Table 9   Operating Specifications

Parameter	DECserver 900GM	DECserver 900GMx
Operating Environment		
Operating Temperature[1]	5° C – 50° C (41° F – 122° F)	5° C – 50° C (41° F – 122° F)
Relative Humidity	10% to 95% noncondensing	10% to 95% noncondensing
Altitude	Sea level to 4900 m (16K ft)	Sea level to 4900 m (16K ft)

Power	28.7 W, total power
	  4.0 A, 5Vdc
	  0.1 A, 12Vdc[2]
	  0.5 A, 15Vdc
		18.2 W, total power
		  2.5 A, 5Vdc
		  0.1 A, 12Vdc[2]
		  0.3 A, 15Vdc

Connectors

GM module has four 68-pin bulk connectors.
GMx module has two 68-pin bulk connectors.

DEChub ONE has: one 8-pin MJ, one DB-9, and one 15-pin D-Sub AUI connector.
DEChub ONE-MX has: one 8-pin MJ, one 6-pin MJ (OBR), one DB-9, one 15-pin D-Sub, and one redundant power connector (D-Sub).

Physical

Height	44.45 cm (17.5 in)
Width	4.45 cm (1.75 in)
Depth	15.25 cm (6 in); 25.40 cm (10.0 in) with a DEChub ONE docking station
Weight	1.8 kg (4 lb)[3]

Certification
CE, CSA, FCC,TÜV, UL, VCCI.

[1] For sites above 4900 m (16,000 ft), decrease the operating temperature specification by 1.8° C for each 1000 m or 3.2°F for each 3200 ft.

[2] The 12V power in the DEChub 900 is derived from the 15V power source. Although it is listed separately in the product specification, the 12V requirements are included in the 15V power total.

[3] Include an additional 1.59 kg (3.5 lb) when attached to a DEChub ONE; when attached to a DEChub ONE-MX, add 2.10 kg (4.63 lb).

Product Specifications (Cont.)

Table 10 lists the DECserver 900GM acoustical specifications.

Table 10 Acoustical Specifications

Acoustics — Declared values per ISO 9296 and ISO 7779[1]

Product	Sound Power Level L_{WAd}, B	Sound Pressure Level L_{pAm}, dBA (bystander positions)
	Idle/Operate	*Idle/Operate*
DSRVY	4.8	34
DSRVY + DEHUA	5.2	39
DSRVY + DEF1H	5.2	38

Schallemissionswerte — Werteangaben nach ISO 9296 und ISO 7779/DIN EN27779[2]

Produkt	Schalleistungspegel L_{WAd}, B	Schalldruckpegel L_{pAm}, dBA (Zuschauerpositionen)
	Leerlauf/Betrieb	*Leerlauf/Betrieb*
DSRVY	4,8	34
DSRVY + DEHUA	5,2	39
DSRVY + DEF1A	5,2	38

[1] Current values for specific configurations are available from Digital Equipment Corporation representatives. 1 B = 10 dBA.

[2] Aktuelle Werte für spezielle Ausrüstungsstufen sind über die Digital Equipment Vertretungen erhältlich. 1 B = 10 dBA.

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Internal orders should be placed through U.S. Software Supply Business (SSB),
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*Any prepaid order from Puerto Rico must be placed
with the Local Digital Subsidiary:
809–754–7575