# Digital Networks<sup>®</sup>

## **DECserver 900TM**

## **Installation Guide**

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This document describes how to install and troubleshoot the DECserver 900TM

Revision/Update Information: This is a new document.

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#### **Purpose of This Guide**

This guide describes how to install the DECserver 900TM hardware. It also provides problem solving information and product specifications. Read through this guide completely to understand the features and capabilities.

#### **Intended Audience**

This guide is intended for the hardware installer. The installer is responsible for ensuring that the hardware is installed and tested.

#### **Related Documentation**

All related documents to help the user to install a DECserver 900TM may be found on the Web and can be located at http://www.digitalnetworks.net/.

#### **Support Services**

To locate product-specific information, refer to the Digital Networks web site at: http://www.digitalnetworks.net/

To locate information about our other products, refer to the our web site at: http://www.digitalnetworks.net/

To locate product warranty information, refer to the our web site at: http://www.digitalnetworks.net/support/warranty

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### **Product Description**

The DECserver 900TM is a 32-port network access server that connects asynchronous devices, including terminals, printers, modems, or PCs to an Ethernet local area network (LAN). It operates in a DEChub 900 MultiSwitch or as a standalone access server in the DEChub One single slot chassis. The DECserver 900TM is configured with 32 RJ-45 connectors, and provides limited modem control with the 8-pin connectors. Each port supports 16-baud rates from 75 baud to 115.2k baud. The DECserver 900TM includes 4 megabytes (MB) of standard memory, and can be expanded to 8 MB. A 2MB Flash Ram card is available for storing a local copy of the operational software.



### **Front Panel**



- 1) **Power LED.** Lights when the module has power.
- Module OK LED. Lights when the module passes self-test. Flashes when a non-fatal error occurs on self-test. If the module fails self-test, the Module OK LED is off.
- Network Traffic. Flashes or remains on depending on network activity.
- 4) **Network OK.** Lights when the module has an active network connection.
- 5) **Seven-Segment Display.** Provides error and status information.
- 6) **Flash RAM Slot.** Provides an opening in which to insert the Flash RAM card.
- 7) 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 900TM is in operational mode (the seven segment display shows the "race track" pattern), hold the switch in for 5 seconds. The module reboots with factory defaults.
- 8) **Serial Port Connectors.** Connect the asynchronous devices to the DECserver 900TM. The serial port connectors are labeled 1 to 32.

#### Installing the Module into a MultiSwitch 900

You do not have to shut off the MultiSwitch 900 power when you install a module in the MultiSwitch 900. The DECserver 900TM has a built-in hot-swap switch that allows quick and easy power-on installation and removal.

#### Install the module into the MultiSwitch 900.

- a) Check the Hub Manager Status Display to ensure that there is adequate power in the MultiSwitch 900 to accommodate this module's power rating. You may have to add another power supply to the MultiSwitch 900 to accommodate this module without affecting other modules already in the MultiSwitch 900.
- **b)** Locate an available MultiSwitch 900 slot.
- c) Place the module's bottom mounting tab into the mounting slot on the MultiSwitch 900.
- d) Pivot the module on the mounting tab and align the connectors. You hear the release lever click when the module is seated.



- e) Press down on the release lever to ensure that it is locked.
- f) Seating the module initiates the power up sequence and self-test within 10 seconds if the available MultiSwitch 900 power is sufficient. Read the Hub Manager Status Display for the module status and power consumption.

#### Installing the Module in a DEChub 900 MultiSwitch (continued)



Verify power.



- a) With power on in the DEChub, verify that the Power LED is on.
- b) Verify that the Module OK LED remains on after the module completes self-test.

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Connect the port cables.



Connect the port cables to any available port connector on the module.

#### Notes:

Port 1 by default may be used as a console port.

The DECserver 900TM does not support the out-of-band management (OBM) port or the setup port on the DEChub ONE. No devices should be connected to these ports.

#### Installing Flash RAM

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

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 900TM 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.



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 900TM, the card may be left in place or removed.

### Removing the Module from the MultiSwitch 900

Disconnect the port connector cables from the module.

Remove the module from the DEChub.

- a) Lift the release lever on top of the hub slot.
- b) Pivot the module back on its bottom mounting tab until it disengages from the hub.



### Cabling

Table 1 shows the maximum cable lengths for a number of data rates using DECserver 900TM supported line protocols.

For more information about cabling and configuring of local area networks (LANs) and using DECconnect system products, refer to the DECconnect System Planning and Configuration Guide.

Line Protocol	Data Rate (Baud)	Cable Length
EIA – 423 – 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)

#### Table 1 Maximum Cable Lengths<sup>1</sup> - - DECserver 900TM to Devices

<sup>1</sup> For cable type H8245-A or H8246-B, 24 AWG, 4 pair, twisted pair

### Cabling (continued)

Before connecting cables to the DECserver 900TM ports, you must verify supported modem signals with the person managing the DECserver 900TM. 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 2 describes the cable connections that are compatible with the DECserver 900TM Ethernet and serial line connectors. Wiring diagrams of individual cables are shown on page 11.

Cable Type	Description	
H8585AC <sup>1</sup> RJ45 to DB25 (male) modem adapter	Use this adapter with the BN25G cable to connect high-speed modems to the DECserver 900TM.	
H8585-AB <sup>1</sup> RJ45 to DB25 (male) modem adapter	Use this adapter with the BN25G cable to connect low-speed modems to the DECserver 900TM	
H8585-AA RJ45 to DB9 (female) null-modem adapter	Use this adapter with the BN25G cable to convert the DECserver 900TM connector to the DB9 connector for cabling to PC asynchronous ports. (PC COM port connections)	
H8584-AC MP8 to MMJ adapter	Use this adapter to convert a serial port to a DECserver 300 terminal server configuration.	
BN24H RJ45 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 RJ45 to RJ45 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.	
BN24Q RJ45 to RJ45 crossover 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.	

Table 2	Cable Connections	<b>Compatible with</b>	the DECserver 900TM
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<sup>1</sup> Adapters H8585-AB and H8585-AC are not for connection to public works in Sweden, Germany, or Japan.

### Cabling (continued)

The DECserver 900TM uses an MJ8 connector on the serial ports, and can be configured by the software to support the pin signals indicated in Table 3.



#### Table 3 DECserver 900TM Serial Line Ports

Pins	1	2	3	4	5	6	7	8
Signal Name	RXD GND	RXD	TXD GND	CTS or RI (Selected by software)	RTS or DSRS (Selected by software)	TXD	DTR	DSR or DCD (Selected by software)
Software Default <sup>1</sup>	RXD GND	RXD	TXD GND	CTS	RTS	TXD	DTR	DSR
Software Alternative <sup>1</sup>	RXD GND	RXD	TXD GND	RI	DSRS	TXD	DTR	DCD

<sup>1</sup> To change default values, refer to the *Network Access Server Management* manual.

#### **Cabling (continued)**

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





#### H8585-AA RJ45 to DB9 Null-Modem Adapter



#### BN24H RJ45 to MP6 Office Cable



#### H8584-AC RJ45 to MMJ Adapter



#### BN25G RJ45 to MP8 Equipment Cable



### **Problem Solving**

lf	Then	Do This
Power LED is off.	Module does not have power.	Verify that the outlet has power. Check the power connection to the server. Replace the power supply. Replace the module.
Module OK LED is off.	Fatal error.	Return the unit to your Authorized Digital Networks Reseller.
Module OK LED is flashing.	Non-fatal error.	See the error message on the console port.
Seven-segment display is flashing "C," "d," or "n."	Memory failure.	Return the unit to your Authorized Digital Networks Reseller.
Seven-segment display is flashing.	Fatal error.	Return the unit to your Authorized Digital Networks Reseller.
Seven-segment display shows a "3."	Downline loading problem exists.	See the error message on the console port.

The following section shows the codes that are appear on the seven-segment display during the server internal self-test when the module goes through a power up and initialization. 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.

Off	Off	No power or display broken
8	•	Initial power on
F	щ	Initialization
Ε	ш	DECserver 900 internal test
d	-	SIM 1 test
C	L	SIM 2 test
Ь	٩	DECserver 900 internal test
A	æ	DECserver 900 internal test
9	5	DECserver 900 internal test
٦	-	DECserver 900 internal test
5	сл	Network interface external test
Ξ	111	Software loading from Flash RAM
4	ъ	Requesting load
Э	m	Load request backoff
2	ru –	Loading
1	—	Requesting dump
0		Dumping
Н	I	Hardware revision # incompatible with firmware revision #
П	E	No SIMs, or wrong type SIMs installed
Rotati	ing Rotating	DECserver 900 is operating correctly. The rotating code is referred to as the "race track" pattern.

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#### MIBs Obtaining Digital Private MIBs:

You can obtain up-to-date DEChub Management Information Base (MIBs) from our Digital Networks Web Site: http://www.digitalnetworks.net/dr/hubs/mibs/

Digital Networks offers Internet access to private MIB information, in ASCII text form.

### **Product Specifications**

Product Specification	DECserver 900TM	DECserver 900TM in DEChub One		
		Docking Station		
Height	44.45 cm (17.5 in)	44.45 cm (17.5 in)		
Width	4.45 cm (1.75 in)	4.45 cm (1.75 in)		
Depth	5.25 cm (6 in)	25.4 cm (10.0 in)		
Weight	1.8 kg (4 lb)	3.4 kg (7.5 lb)		
Operating temperature	5? ? C to 50? ? C (41? ? F to	5? ? C to 50? ? C (41? ? F to		
Relative humidity	122? ? F)	122? ? F)		
Altitude	10% to 95% non-condensing	10% to 95% non-condensing		
Power	Sea level to 4900 m (16,000 ft)	Sea level to 4900 m (16,000 ft)		
Connectors	20W @+5Vdc, 7W@ +15Vdc	20W @+5Vdc, 7W@ +15Vdc		
Certification	Shielded RJ-45	Shielded RJ-45		
	CE, CSA, FCC,TUV, UL, VCCI, VDE	CE, CSA, FCC, TUV, UL, VCCI,		
		VDE		
Acoustics:				
Declared values per ISO 9296 and	Idle/Operate	Idle/Operate		
ISU ///9-	Sound Power / Sound Pressure	Sound Power / Sound Pressure		
	Level LWAd, B / Level LpAm, dBA	Level LWAd, B / Level LpAm, dBA		
DSRVZ + DEHUA	4.7 / 33	/ / 07		
	_/_	5.1/3/		
Schallomissionworte:		Loorlauf/Ratriab		
Werteangaben nach	Leerlauf/Betrieb	Schalleistungs- / Schalldruck-		
ISO 9296 und ISO 7779/DIN	Schalleistungs- / Schalldruck-	negal I W/Ad B / negal I nAm dBA		
130 9290 und 130 7779/Dill	pegal I WAd B / pegal I pAm dBA	pegai LWAG, D7 pegai LPAIII, ODA		
EN27779 <sup>3</sup>		/		
DSRVZ	4.7 / 33	5.1/37		
DSRVZ + DEHUA	.,. , 00	0,1701		
	_/			

1 For high altitude sites, decrease the operating temperature specification by 1.8° C (35.2°F) for each 1000 m (3200 ft).

2 Current values for specific configurations are available from Digital Networks representatives. 1 B = 10 dBA.

3 Aktuelle Werte für spezielle Ausrüstungsstufen sind Über die Digital Networks Vertretungen erhältlich. 1 B = 10 dBA.

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