AWAN 3883/4/5 Access Server Installation and Support Guide

Abstract

This manual describes how to install and maintain Asynchronous wide area network (AWAN) access server models 3883-8, 3883-8R, 3883-16, 3883-16R, 3884, 3884R, 3885, and 3885R. It is written for anyone who is responsible for installing or maintaining these AWAN access server models. This manual complements the *AWAN 3883/4/5 Access Server Configuration and Management Manual*.

Product Version

N.A.

Supported Releases

This manual supports D42 and subsequent D-series releases and G03.00 and later G-series releases until otherwise indicated in a new edition.

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AWAN 3883/4/5 Access Server Installation and Support Guide

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Manual Information

Abstract

This manual describes how to install and maintain Asynchronous wide area network (AWAN) access server models 3883-8, 3883-8R, 3883-16, 3883-16R, 3884, 3884R, 3885, and 3885R. It is written for anyone who is responsible for installing or maintaining these AWAN access server models. This manual complements the *AWAN 3883/4/5 Access Server Configuration and Management Manual*.

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What's New In This Edition

This manual describes the new Current-Loop Port module and adapter and provides new installation steps for installing port modules. This manual also contains the updated information found on the compact disk (CD) shipped with each new AWAN access server unit.

Note that previous Tandem part numbers for hardware assemblies and products have changed. For part numbers beginning with "1," the letter "U" is now substituted.

Starting with G06.03, all the firmware for the "R" model version of the AWAN access server now resides in the standard units, 3883, 3884, and 3885 and the "R" model version is no longer available for order. However, the "R" model version is still supported and is documented in this manual.

About This Manual

The *AWAN 3883/4/5 Access Server Installation and Support Guide* describes how to install and maintain Asynchronous wide area network (AWAN) access server models 3883-8, 3883-8R, 3883-16, 3883-16R, 3884, 3884R, 3885, and 3885R. This manual includes the following information:

- Descriptions of the AWAN access server models and link, port, and power supply modules
- Physical descriptions of the panel indicators on the various AWAN access server models
- Step-by-step instructions for installing and replacing an AWAN access server
- Step-by-step instructions for installing and removing link and port modules and for replacing the fuse
- Information about connecting devices to an AWAN access server
- Detailed hardware specifications, including supported modems and adapter-hood pinouts

Note. Refer to the *AWAN 3883/4/5 Access Server Configuration and Management Manual* for firmware upgrade instructions.

Who Should Use This Manual

This manual is written for anyone who installs or maintains an AWAN access server.

How This Manual Is Organized

This manual consists of three sections and two appendixes. Table i summarizes the contents of this manual.

Table i. Contents (page 1 of 2)

Section or Appendix	Title	Contents
1	Introduction to the AWAN Access Server	Provides an introduction to the AWAN access server.
2	Installing the AWAN Access Server	Provides step-by-step instructions for installing your AWAN access server, link and port modules, and power supply modules. This section also describes how to connect devices to your AWAN access server.
3	Maintaining the AWAN Access Server	Describes how to maintain your AWAN access server.

Table i. Contents (page 2 of 2)

Section or Appendix	Title	Contents
A	Hardware Specifications	Provides detailed hardware specifications for each AWAN access server model.
B	Modems	Describes the modems that are supported by the AWAN access server.
C	Adapter Hood Pinouts	Describes the DB-9 and DB-25 adapter hood pinouts for personal computers (PCs), terminals, printers, and modems.

Related Manuals

This manual is meant to be used with the *AWAN 3883/4/5 Access Server Configuration and Management* Manual, which explains how to configure and manage the AWAN access server.

Your Comments Invited

After using this manual, please take a moment to send us your comments. You can do this by returning a Reader Comment Card or by sending an Internet mail message.

A Reader Comment Card is located at the back of printed manuals and as a separate file on the Tandem User Documentation disc. You can either fax or mail the card to us. The fax number and mailing address are provided on the card.

Also provided on the Reader Comment Card is an Internet mail address. When you send an Internet mail message to us, we immediately acknowledge receipt of your message. A detailed response to your message is sent as soon as possible. Be sure to include your name, company name, address, and phone number in your message. If your comments are specific to a particular manual, also include the part number and title of the manual.

Many of the improvements you see in Tandem manuals are a result of suggestions from our customers. Please take this opportunity to help us improve future manuals.

Notation Conventions

General Syntax Notation

The following list summarizes the notation conventions for syntax presentation in this manual.

UPPERCASE LETTERS. Uppercase letters indicate keywords and reserved words; enter these items exactly as shown. Items not enclosed in brackets are required. For example:

```
MAXATTACH
```

lowercase italic letters. Lowercase italic letters indicate variable items that you supply. Items not enclosed in brackets are required. For example:

```
file-name
```

[ ] Brackets. Brackets enclose optional syntax items. For example:

```
TERM [\system-name.]$terminal-name
```

```
INT[ERRUPTS]
```

A group of items enclosed in brackets is a list from which you can choose one item or none. The items in the list may be arranged either vertically, with aligned brackets on each side of the list, or horizontally, enclosed in a pair of brackets and separated by vertical lines. For example:

```
LIGHTS [ ON              ]
       [ OFF             ]
       [ SMOOTH [ num ] ]
```

```
K [ X | D ] address-1
```

{ } Braces. A group of items enclosed in braces is a list from which you are required to choose one item. The items in the list may be arranged either vertically, with aligned braces on each side of the list, or horizontally, enclosed in a pair of braces and separated by vertical lines. For example:

```
LISTOPENS PROCESS { $appl-mgr-name }
                  { $process-name  }
```

```
ALLOWSU { ON | OFF }
```

| Vertical Line. A vertical line separates alternatives in a horizontal list that is enclosed in brackets or braces. For example:

```
INSPECT { OFF | ON | SAVEABEND }
```

… Ellipsis. An ellipsis immediately following a pair of brackets or braces indicates that you can repeat the enclosed sequence of syntax items any number of times. For example:

```
M address-1 [ , new-value ]...
```

```
[ - ] {0|1|2|3|4|5|6|7|8|9}...
```

An ellipsis immediately following a single syntax item indicates that you can repeat that syntax item any number of times. For example:

"*s-char*..."

Punctuation. Parentheses, commas, semicolons, and other symbols not previously described must be entered as shown. For example:

error := NEXTFILENAME (*file-name*) ;

LISTOPENS SU $*process-name*.#*su-name*

Quotation marks around a symbol such as a bracket or brace indicate the symbol is a required character that you must enter as shown. For example:

"[" *repetition-constant-list* "]"

Item Spacing. Spaces shown between items are required unless one of the items is a punctuation symbol such as a parenthesis or a comma. For example:

CALL STEPMOM (*process-id*) ;

If there is no space between two items, spaces are not permitted. In the following example, there are no spaces permitted between the period and any other items:

$*process-name*.#*su-name*

Line Spacing. If the syntax of a command is too long to fit on a single line, each continuation line is indented three spaces and is separated from the preceding line by a blank line. This spacing distinguishes items in a continuation line from items in a vertical list of selections. For example:

ALTER [/ OUT *file-spec* /] CONTROLLER

   [, *attribute-spec*]...

1

Introduction to the AWAN Access Server

This section provides an introduction to the Asynchronous wide area network (AWAN) access server. Read this section before installing or servicing your AWAN access server.

Topics described in this section include the following:

Note. The products described in this manual can be ordered directly from the Tandem Division of Compaq Computer Corporation by calling the Compaq customer number 1-800-4TANDEM.

AWAN Access Server Models

Table 1-1 lists the AWAN access servers that are currently supported by Compaq. Model numbers that contain an “R” are no longer sold by Compaq because all AWAN access server models now contain the appropriate software for optimized use on NonStop Kernel Himalaya systems. Beginning with the G06.03 release, all the necessary firmware is bundled with the standard units, 3883, 3884, 3885.

Table 1-1. AWAN Access Server Models and Part Numbers

Model Number	Previous Tandem Part Number	Compaq Part Number
3883-8	132641	U32641
3883-16	132642	U32642
3883-8R	132837	U32837
3883-16R	132838	U32838
3884	133661	U33661
3884R	133742	U33742
3885	133662	U33662
3885R	133741	U33741

Beginning with the G06.05 release, all new AWAN access servers have serial numbers that begin with the letter “Q.”

Model 3883-8, 3883-8R, 3883-16, and 3883-16R Features

Models 3883-8 and 3883-16 have the following features:

- Eight RS-232 RJ-45 connectors that have full modem control (models 3883-8 and 3883-8R)
- Sixteen RS-232 RJ-45 connectors that have full modem control (models 3883-16 and 3883-16R)
- LAN speeds up to 10 Mbps and port operation at speeds up to 115.2 Kbps
- A single universal input, 85-264 VAC, 50-60 Hz, automatically self-sensing power supply
- A 68360 processor that has 2 Mbytes of dynamic RAM

Models 3883-8R and 3883-16R are identical to models 3883-8 and 3883-16 except that the 3883-8R and 3883-16R have the following additional features:

- Support for VT-to-6530 protocol conversion, the Interchange Package Exchange (IPX) protocol, and the Apple Remote Access Protocol (ARAP)
- An additional 3 Mbytes of dynamic RAM (for a total of 5 Mbytes)

Note. The 3883-8R and the 3883-16R models do not support link and port modules.

Model 3884 and 3884R Features

Model 3884 has the following features:

- Sixteen RS-232 RJ-45 connectors that have full modem control
- Eight-port integrated V.34 modems
- Six-port ISDN BRI
- LAN speeds up to 10 Mbps and port operation at speeds up to 115.2 Kbps
- A single universal input, 85-264 VAC, 50-60 Hz, automatically self-sensing power supply
- 68360 processor with 4 Mbytes of dynamic RAM (various modules can be installed for additional processing capability)
- One link module and up to two port modules can be installed in the chassis

Model 3884R is identical to model 3884 except that 3884R has the following additional features:

- Support for VT-to-6500 protocol conversion, the Interchange Package Exchange (IPX) protocol, and the Apple Remote Access Protocol (ARAP)
- An additional 4 Mbytes of dynamic RAM (for a total of 8 Mbytes)

Model 3885 and 3885R Features

Model 3885 has the following features:

- Sixteen RS-232 RJ-45 connectors that have full modem control
- Eight-port integrated V.34 modems
- Six-port ISDN BRI
- LAN speeds up to 10 Mbps and port operation at speeds up to 115.2 Kbps
- A single universal input, 85-264 VAC, 50-60 Hz, automatically self-sensing power supply
- An optional redundant power supply (Compaq part number 138697) that can keep the unit powered on with no interruption in service
- 68360 processor that has 4 Mbytes of dynamic RAM (various modules can be installed for additional processing capability)
- One link module and up to four port modules can be installed in the chassis

Model 3885R is identical to model 3885 except that model 3885R has the following additional features:

- Support for VT-to-6500 protocol conversion, the Interchange Package Exchange (IPX) protocol, and the Apple Remote Access Protocol (ARAP)
- An additional 4 Mbytes of dynamic RAM (for a total of 8 Mbytes)

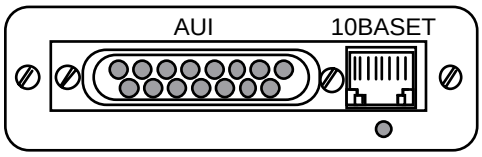
Note. For detailed hardware specifications for each AWAN access server model, refer to Appendix A, Hardware Specifications.

Ethernet LAN Link Module

The Ethernet LAN link module (Compaq part number U133744) provides the connection between a model 3884/3884R or model 3885/3885R AWAN access server and the Ethernet local area network (LAN). The LAN Link Module contains both an AUI and a 10BaseT hardware interface. The AUI connector has a connector slide lock that is moved to the leftmost position when using the 10BaseT connector. The 10BaseT connector is automatically sensed by the circuitry. Only one connector can be used at a time.

Figure 1-1 shows the panel of an Ethernet LAN link module.

Figure 1-1. Ethernet LAN Link Module



CDT019.CDD

Port Modules

Table 1-2 lists the port modules that are available for models 3884/3884R and 3885/3885R.

Table 1-2. Link Modules

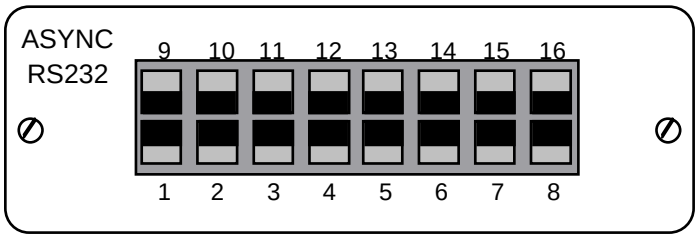
Module Name	New Compaq Part Number
RS-232 Asynchronous Port Module	U33745
Asynchronous RS232/20mA Current Loop Port Module	U38087
Asynchronous Current Loop Only Port Module	420280-001
V.34 Analog Modem Port Module	U33739
IDSN BRI Port Module	U33738

RS-232 Asynchronous Port Module

The RS-232 Asynchronous port module provides 16 asynchronous RS-232 ports. Each port has a data transfer rate of up to 115.2 Kbps. You can use RJ-45 connectors to provide the port connections.

Figure 1-2 shows the panel of an RS-232 Asynchronous port module.

Figure 1-2. RS-232 Asynchronous Port Module



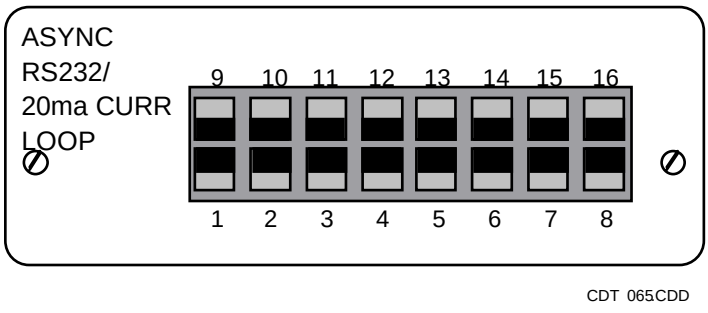
Note. The RS-232 Asynchronous port module is not designed to be connected to telephone lines. Do not connect any of the ports of the Current Loop port module to a telephone line.

Asynchronous RS-232/20mA Current Loop Port Module

The Asynchronous RS-232/20mA Current Loop port module is a dual-mode port module that provides 16 ports. Each port may be individually configured for RS-232 or Current Loop. Each RS-232 port has a data-transfer rate of up to 115.2 Kbps. Each Current Loop port has a data-transfer rate of up to 19.2 Kbps.

Figure 1-3 shows the panel of an RS-232/20mA Current Loop port module.

Figure 1-3. Asynchronous RS-232/20mA Current Loop Port Module



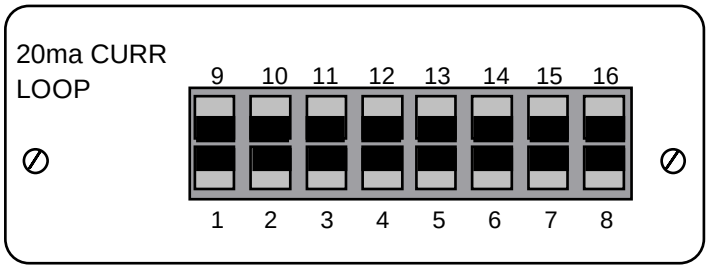
Note. The Async RS-232/20mA current Loop port module is not designed to be connected to telephone lines. Do not connect any of the ports of the Current Loop port module to a telephone line.

Asynchronous Current Loop Only Port Module

The Asynchronous Current Loop port module is a port module dedicated only to Current Loop; 16 ports are provided. Each port has a data-transfer rate of up to 19.2 Kbps.

Figure 1-4 shows the panel of a Current Loop only port module.

Figure 1-4. Current Loop Only Port Module

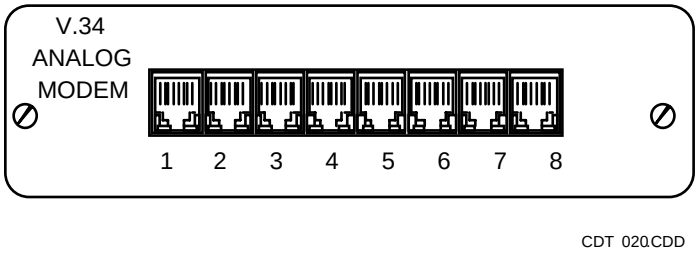


V.34 Analog Modem Port Module

The V.34 Analog Modem port module provides eight V.34 modems. Each modem has a data-transfer rate of up to 115.2 Kbps. The modem connect speed is a maximum of 33.6 Kbps.

Figure 1-5 shows the panel of a V.34 Analog Modem port module.

Figure 1-5. V.34 Analog Modem Port Module

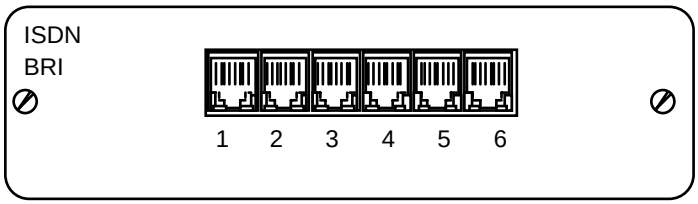


IDSN BRI Port Module

The ISDN BRI port module provides six basic-rate ISDN connections.

Figure 1-6 shows the panel of an ISDN BRI port module.

Figure 1-6. ISDN BRI Port Module



Panel Indicators

This subsection describes the front and back panel indicators of each AWAN access server model. Refer to this information during the installation procedure. The installation procedure is described in Section 2, Installing the AWAN Access Server.

Model 3883-8, 3883-8R, 3883-16, and 3883-16R Panel Indicators

The front panel of models 3883-16 and 3883-16R is shown in Figure 1-7.

Figure 1-7. Model 3883-16 and 3883-16R Front Panel

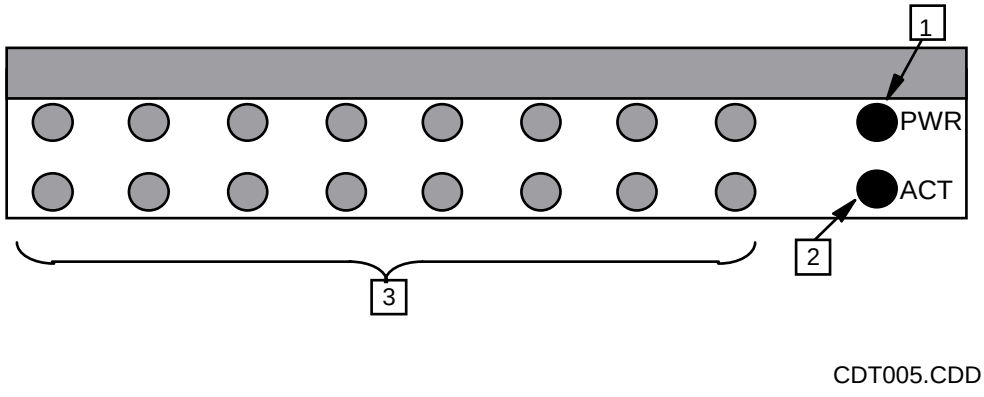


Table 1-3 describes the LED indicators on the front panel of models 3883-8, 3883-8R, 3883-16, and 3883-16R.

Table 1-3. Front Panel LEDs (Models 3883-8, 3883-8R, 3883-16, and 3883-16R)

Item	Indicator Type	Description
1	Power/Fault (PWR)	This LED is illuminated (green) when AC power is present.
2	Activity (ACT)	This LED flashes (green) to indicate normal Ethernet activity.
3	Port Status	These LEDs are illuminated (green) when port output activity is indicated. There are 8 port status indicators on models 3883-8 and 3883-8R and 16 port status indicators on models 3883-16 and 3883-16R.

The rear panel of models 3883-8, 3883-8R, 3883-16, and 3883-16R contain the various connectors for network connections, power, and protection devices. The rear panel of models 3883-16 and 3883-16R is shown in Figure 1-8.

Figure 1-8. Model 3883-16 and 3883-16R Rear Panel

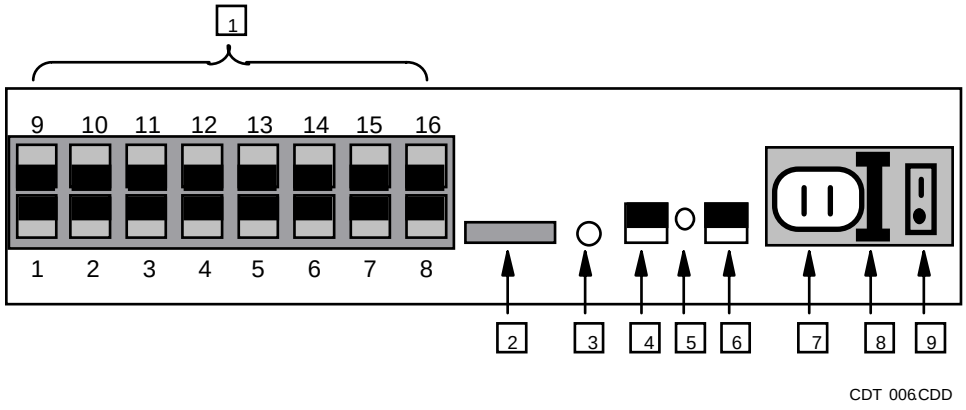


Table 1-4 describes each component on the rear panel of models 3883-8, 3883-8R, 3883-16, and 3883-16R.

Table 1-4. Rear Panel Components (Models 3883-8, 3883-8R, 3883-16, and 3883-16R)

Item	Component	Description
1	Asynchronous Ports	These are dedicated asynchronous ports. There are 8 ports on models 3883-8 and 3883-8R and 16 ports on models 3883-16 and 3883-16R.
2	AUI Receptacle	This is a 15-pin female connector used for the AUI network interface (using a transceiver).
3	LED	When illuminated (green), this LED indicates 10BaseT link activity.
4	10BaseT Receptacle	This is an autosensing receptacle to connect a 10BaseT (twisted-pair) cable.

Table 1-4. Rear Panel Components (Models 3883-8, 3883-8R, 3883-16, and 3883-16R)

Item	Component	Description
5	Factory Configuration Button	This is a recessed push-switch that is used to reset the AWAN access server to the factory default configuration at power up time. **Note:** The Factory Configuration button might be mislabeled "Reset". The label should read "Factory Config".
6	Console Port	This is an RJ-45 receptacle used to connect a terminal or PC used for boot utilities only.
7	Power Receptacle	This is a grounded, three-wire receptacle for AC with an integral fuse holder. It accepts the AC power cord supplied with the AWAN access server.
8	Fuse Holder	This is a fuse holder that uses an F1.6A 250 volt (5x20 mm) fast-blow fuse. A compartment for a spare fuse is located in the holder.
9	On/Off Switch	This is a rocker switch for turning AC power on and off. Press the topside side **[|]** of the switch to turn power on and the bottom side **[O]** of the switch to turn power off.

Model 3884 and 3884R Panel Indicators

A partial view of the front panel of models 3884 and 3884R is shown in Figure 1-9.

Figure 1-9. Model 3884/3884R Front Panel

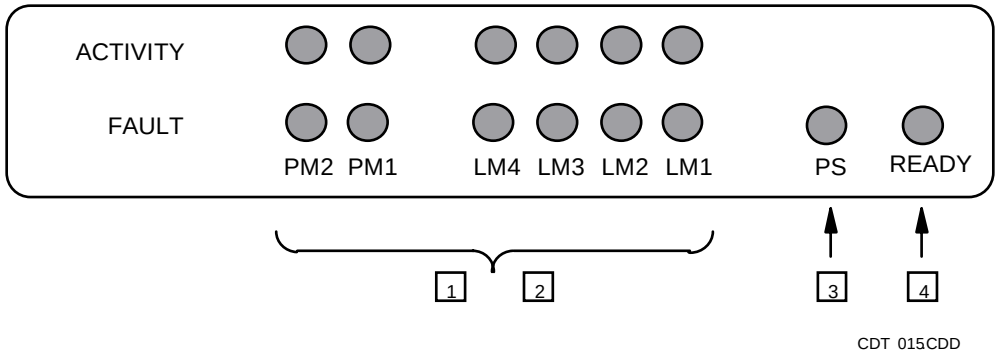


Table 1-5 describes the LED indicators on the front panel of models 3884 and 3884R.

Table 1-5. Front Panel LEDs (Models 3884 and 3884R)

Item	Indicator Type	Description
1	Activity	These LEDs flash when there is activity on the modules indicated by the LED labels.
2	Fault	These LEDs are illuminated when a fault occurs in the module indicated by the LED label.
3	Power Supply	This LED is illuminated when the power supply has been turned on and AC power is present.
4	Ready	This LED is illuminated when the runtime code has been successfully loaded.

The rear panel of models 3884 and 3884R contains the various connectors for network connections, power, and protection devices. The rear panel of models 3884 and 3884R is shown in Figure 1-10.

Figure 1-10. Model 3884 and 3884R Rear Panel

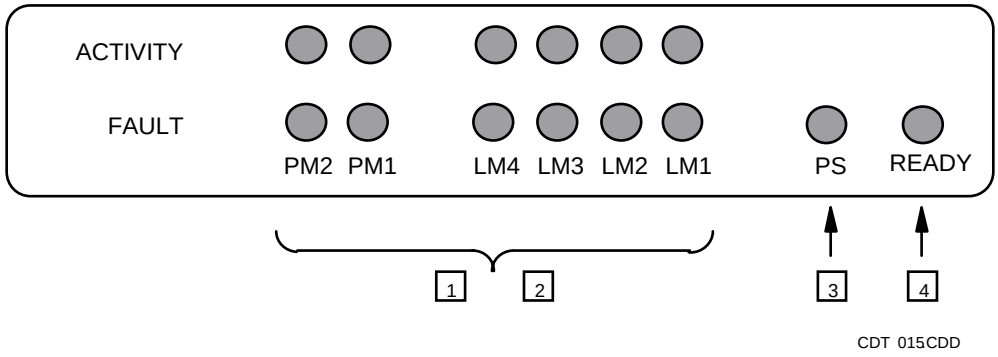


Table 1-6 describes each component on the rear panel of models 3884 and 3884R.

Table 1-6. Rear Panel Components (Models 3884 and 3884R)

Component	Description
Link Modules (4)	These are the link module slots. Four link module slots are provided. The AUI/10BaseT link module is installed as link module 1. Link module slots 2, 3, and 4 are reserved for future use.
Port Modules (2)	These are the port module slots. Two port module slots are provided. Port module slot 1 must contain a port module.

Table 1-6. Rear Panel Components (Models 3884 and 3884R)

Component	Description
Power Receptacle	This is a grounded, three-wire receptacle for AC with an integral fuse holder. It accepts the AC power cord supplied with the AWAN access server.
Fuse Holder	This is a fuse holder that uses an F1.6A 250 volt (5x20 mm) fast-blow fuse. A compartment for a spare fuse is located in the holder.
On/Off Switch	This is a rocker switch for turning AC power on and off. Press the topside side **[I]** of the switch to turn power on and the bottom side **[O]** of the switch to turn power off.

Model 3885 and 3885R Panel Indicators

A partial view of the front panel of models 3885 and 3885R is shown in Figure 1-11.

Figure 1-11. Model 3885/3885R Front Panel

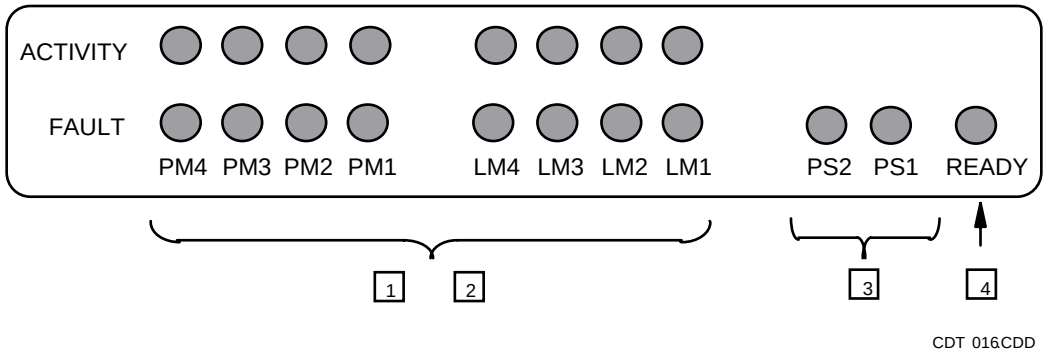


Table 1-7 describes the LED indicators on the front panel of models 3885 and 3885R.

Table 1-7. Front Panel LEDs (Models 3885 and 3885R)

Item	Indicator Type	Description
1	Activity	These LEDs flash when there is activity on the modules indicated by the LED labels.
2	Fault	These LEDs are illuminated when a fault occurs in the module indicated by the LED label.
3	Power Supply	This LED is illuminated when the power supply has been turned on and AC power is present. The PS2 power supply is optional.
4	Ready	This LED is illuminated when the runtime code has been successfully loaded.

The rear panel of models 3885 and 3885R contains the various connectors for network connections, power, and protection devices. The rear panel of models 3885 and 3885R is shown in Figure 1-12.

Figure 1-12. Model 3885 and 3885R Rear Panel

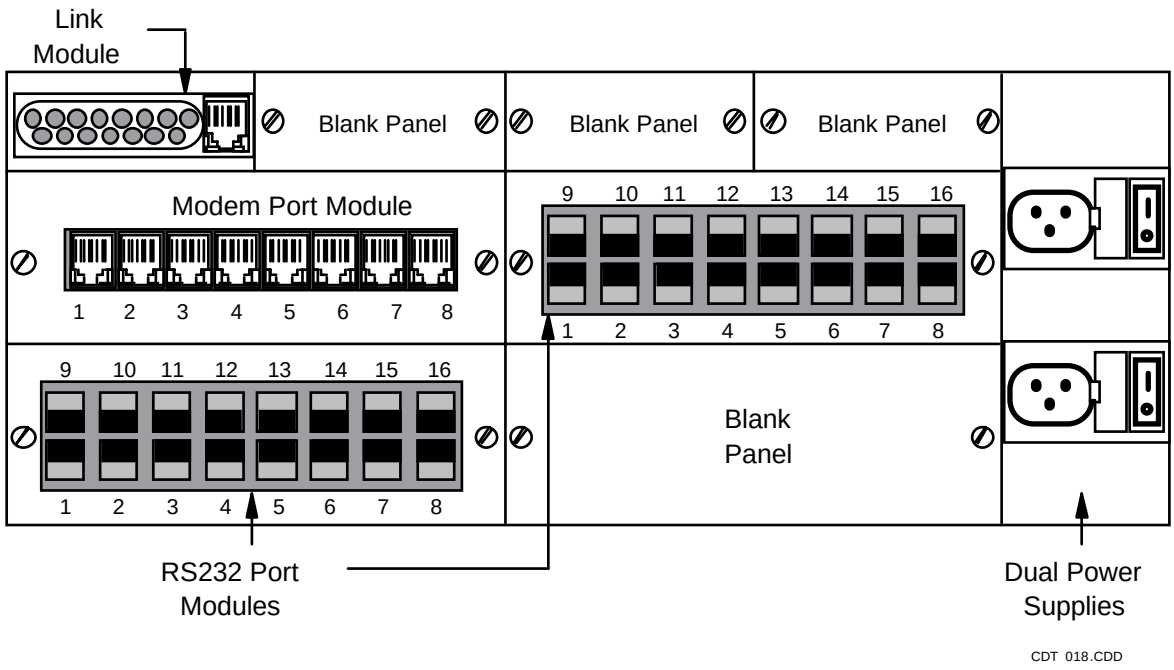


Table 1-8 describes each component on the rear panel of models 3884 and 3884R.

Table 1-8. Rear Panel Components (Models 3885 and 3885R)

Component	Description
Link Modules (4)	These are the link module slots. Four link module slots are provided. The AUI/10BaseT link module is installed as link module 1. Link module slots 2, 3, and 4 are reserved for future use.
Port Modules (4)	These are the port module slots. Four port module slots are provided. Port-module slot 1 must contain a port module.
Power Receptacle	This is a grounded, three-wire receptacle for AC with an integral fuse holder. It accepts the AC power cord supplied with the AWAN access server. The model 3885/3885R has an optional power supply with a power receptacle.
Fuse Holder	This a fuse holder that uses an F1.6A 250 volt (5x20 mm) fast-blow fuse. A compartment for a spare fuse is located in the holder.
On/Off Switch	This is a rocker switch for turning AC power on and off. Press the topside **[|]** of the switch to turn power on and the bottom side **[O]** of the switch to turn power off.

Console Port and Factory Configuration Button Locations

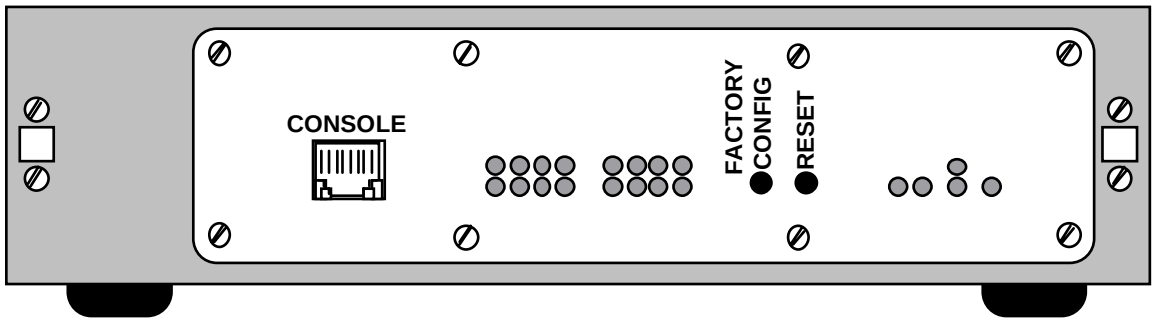
On models 3883-08 and 3883-16, including “R” models, the recessed Factory Configuration button is located on the back panel.

Note. Depending on your 3883-*xx* unit, the Factory Config button might be mislabeled as “Reset.” The button’s function, however, is the same as for Factory Configuration: It is used to reset the AWAN access server to the factory default configuration at power up time.

On models 3884, 3884R, 3885, and 3885R, the console port and recessed Factory Configuration button are located under the front panel bezel.

To access the console port or Factory Configuration button on AWAN models 3884-*xx* and 3885-*xx*, position the AWAN access server with the front facing you and pull forward on the bottom of the bezel. The bezel will snap off the chassis shell. With the bezel removed, the AWAN access server appears as shown in Figure 1-13.

Figure 1-13. Model 3884, 3884R, 3885, or 3885R With Bezel Removed



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Note. The rightmost button labeled RESET is not normally used.

2 Installing the AWAN Access Server

This section provides step-by-step instructions for installing your AWAN access server and link, port, and power supply modules. This section also describes how to connect devices to your AWAN access server.

You should be familiar with the information provided in Section 1, Introduction to the AWAN Access Server, before performing the tasks described in this section.

Summary of Installation Tasks

Installing your AWAN access server involves a number of tasks. Table 2-1 lists each task in the order in which it must be performed.

Table 2-1. Summary of Installation Tasks

Task	Description	Purpose
1.	Site Planning and Preparation	To plan for and prepare your installation site and to ensure that you have the appropriate cables and adapters.
2.	Installing a Link Module or Port Module	To install the Ethernet LAN link module and port modules in your AWAN access server. **Note:** This step applies to models 3884, 3884R, 3885, and 3885R only.
3.	Installing a Power Supply Module	To install a power supply module in your AWAN access server. **Note:** This step applies to models 3885 and 3885R only.
4.	Installing an AWAN Access Server	To install the AWAN access server.
5.	Connecting Devices	To connect devices to the AWAN access server.

Site Planning and Preparation

Before you install your AWAN access server, you should select an acceptable physical location for the unit. When selecting an installation site, consider the following:

- Determine whether your AWAN access server will be shelf or rack mounted. Refer to Mounting an AWAN Access Server for more information.
- Locate your AWAN access server within the distance limits established for the different types of Ethernet cabling. Refer to Cables and Adapters on page 2-3 for more information.
- Provide ventilation for the unit chassis with clean, dry, dust-free air to maintain acceptable operating temperatures without damaging circuit components. Environmental, temperature, and humidity specifications are provided in Table 2-4 on page 2-5.
- Provide AC power to the AWAN access server.
- Allow enough room behind the AWAN access server to permit the connection and disconnection of cables.

Note. Do not store any equipment in an area that is exposed to moisture or excessive heat.

Unpacking an AWAN Access Server

When you receive your AWAN access server, remove it from its packaging and inspect all materials, comparing the items listed on your packing slip with the contents of the package. Report any deficiencies or defects to your Compaq support representative.

If the AWAN access server will not be installed immediately, store it in its original packaging. Shipping carton and inserts should be retained in the event that the AWAN access server must be shipped.

Mounting an AWAN Access Server

All AWAN access server models can be shelf-mounted. Models 3884, 3884R, 3885, and 3885R are also rack-mountable.

Shelf Mounting

The AWAN access server rests on four rubber feet for shelf mounting. You may mount an AWAN access server so that either the front or rear panel is exposed.

If you are stacking the unit with another manufacturer's device, be sure to check the ventilation and service accessibility requirements of the other manufacturer's device. You might need to allow open space between the stacked units to permit adequate air circulation.

Note. It is recommended that you stack no more than six model 3883/3883R, four model 3884/3884R, or three model 3885/3885R AWAN access servers. The number of AWAN access servers that you can stack depends on the weight limit of the shelf.

Rack Mounting

Models 3884, 3884R, 3885, and 3885R are rack-mountable in a 19-inch rack. You must use an open-frame style rack that has no side or front panels that might restrict ventilation. The rack must be permanently secured in place to prevent instability. Rack mounting hardware is available from Compaq as an option for these AWAN access server models. Table 2-2 describes the rack mounting kits available from Compaq.

Table 2-2. Rack Mounting Kits

Description	Compaq Part Number
19-inch rack mounting kit for model 3884/3884R	U41619
19-inch rack mounting kit for model 3885/3885R	U41620

Note. When an AWAN access server is rack mounted, power connections should be made directly to the AC branch circuit. Connection through any other device in the rack (such as a power strip, power distribution unit (PDU), or uninterruptible power supply (UPS)) should not be made without ensuring that the total system current limit is not exceeded.

Cables and Adapters

This subsection describes the cables used to connect an AWAN access server to an Ethernet local area network (LAN) and the adapters and terminal cables used to connect devices to an AWAN access server.

AUI Transceiver Cable

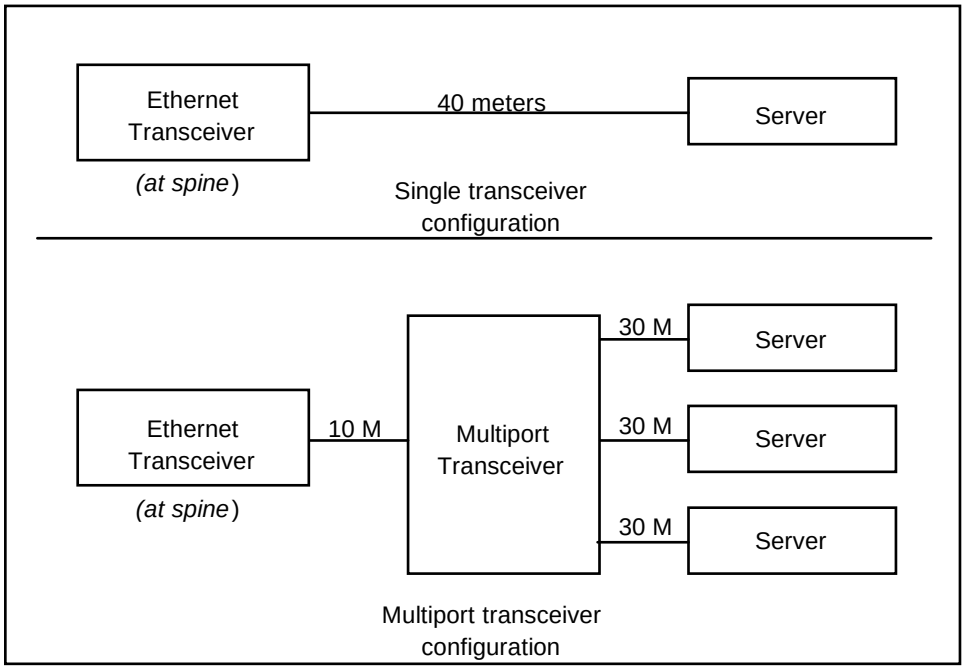
In the AUI configuration, devices are connected to the network through separate cables attached to transceivers that tap into the central Ethernet cable. A single Ethernet cable supports up to 100 transceiver taps. Adjacent transceiver taps must be spaced at intervals no closer than 2.5 meters (8.2 feet).

The distance between the Ethernet transceiver and the AWAN access server is limited by engineering standards to a distance of up to 50 meters (164 feet) from the Ethernet transceiver. In practice, however, distances are usually limited to 40 meters (131.2 feet). The 40-meter cable-length restriction applies to both single and multiport transceivers. For multiport transceivers, the total cable length is the sum of the distance of the cable that connects the Ethernet backbone to the multiport transceiver and the distance of the cable that connects the multiport transceiver to the device.

Figure 2-1 shows a single Ethernet transceiver configuration and a multiport Ethernet transceiver configuration. The single Ethernet transceiver tap is 40 meters (131.3 feet) from the router. The multiport transceiver is 10 meters (32.8 feet) from the Ethernet transceiver tap; thus, the unit must be no more than 30 meters (40 minus 10) from the multiport transceiver. Each of the legs can extend up to 30 meters (98.4 feet).

Note. A minitransceiver can be connected to the AUI port to allow a thinwire (10Base2) connection. A connection lock is provided for the AUI connector. The lock slides horizontally to secure the connector.

Figure 2-1. Possible AUI Transceiver Configurations



10Base-T (Twisted-Pair) Cable

An IEEE 802.3 standard 10BaseT connector is provided for CAT5 (unshielded outer covering) twisted-pair wiring that is terminated in an RJ-45 modular connector. The maximum distance between the unit and the network hub using twisted-pair cable is 100 meters (328 feet).

Note. If you want to connect the AWAN access server directly to the Compaq NonStop server without using a hub, you must use a patch cable instead of the standard 10BaseT cable.

Terminal Cables and Adapters

The RS-232 and Current Loop ports on an AWAN access server are female RJ-45 connectors. Devices such as terminals, personal computers (PCs), printers, and modems are connected to an AWAN access server using straight-through RJ-45 terminal cables with either DB-9 or DB-25 adapter hoods.

The AWAN access server adapter hood pinouts are nonstandard, requiring custom cable hoods to be constructed or purchased from Compaq. Adapter hood pinouts are described in Appendix C, Adapter Hood Pinouts.

Table 2-3 describes the adapters that are available from Compaq.

Table 2-3. Compaq Adapters

Adapter Hood Type	Purpose	Compaq Part Number
RS-232 Console Adapter*	This RS-232 adapter hood connects a terminal or PC to the console port or to an RS-232 port.	U37450-A00
RS-232 Modem/Host Adapter	This RS-232 modem/host adapter hood is designed to be used with existing terminal or modem cabling.	U37451-A00
CL 25 Host Adapter	This Current Loop host adapter hood works with existing customer cables. Cables may be unplugged from a 6100 communications subsystem (CSS) controller and plugged into this adapter.	U37393-A00
CL 9 Host Adapter	This Current Loop host adapter hood works with existing customer cables. Cables may be unplugged from a 3650 CSS controller and plugged into this adapter.	U37392-A00

*One RS-232 Console Adapter is shipped with the AWAN access server.

Environmental, Temperature, and Humidity Specifications

Table 2-4 provides environmental, temperature, and humidity specifications for each AWAN access server model.

Table 2-4. Environmental, Temperature, and Humidity Specifications

	Models 3883-8, 3883-8R, 3883-16, and 3883-16R	Models 3884 and 3884R	Models 3885 and 3885R
Environment	0°-45° C (32°-113° F)	0°-40° C (32°-104° F)	0°-40° C (32°-104° F)
Temperature	10-90% noncondensing	10-90% noncondensing	10-90% noncondensing
Humidity	Meets FCC Part 15, Class A specifications.	Meets FCC Part 15, Class A specifications.	Meets FCC Part 15, Class A specifications.

Complete hardware specifications for each AWAN access server model are provided in Appendix A, Hardware Specifications.

Installing a Link Module or Port Module

Note. The information in this subsection applies to models 3884, 3884R, 3885, and 3885R only. If you purchased a model 3883-8, 3883-8R, 3883-16, or 3883-16R, proceed to Installing an AWAN Access Server on page 2-9.

This subsection describes how to install link and port modules in an AWAN access server.

Planning the Installation

Before installing a link or port module, keep in mind the following hardware-configuration requirements:

- The link module slot 1–which is the left-most slot when you face the rear panel, farthest from the power supply– must contain a 10BaseT Link Module. All other link module slots must be empty.
- Port Module slot 1 must contain a port module.
  - For 3884 models, Slot 1 is at the left when you face the rear panel, farthest from the power supply.
  - For 3885 models, Slot 1 is at the upper left when you face the rear panel.

When you replace a port module, install the replacement module into the same slot. Otherwise, you will have to perform a factory reset. See Module Installation Steps for replacing a module.

Figure 1-12 on page 1-13 is an example of a correct hardware configuration.

Module Installation Steps

Note. The following procedures apply to all link module and port module installations.

Module installation involves removing the cover-plate over the module opening at the rear of the AWAN access server and installing the module in the chassis. Modules are installed by lining up the module into the module guides at each side of the slot, pushing the module into the chassis, and tightening the screw locks. The connector at the rear is self-aligning.

To install a module, perform the following steps:

1. Verify that all power is disconnected and that you are properly grounded. Modules contain electrostatic-sensitive devices. Modules are not hot-swappable.
2. Remove the cover plate from the module slot. Cover plates are held in place on the chassis by two captive screws. There is one screw on either side of the cover plate. Cover plates are easily removed by loosening these two screws and removing the cover plate.
3. With the cover plate removed, line up each side of the module with the module guides on each side of the slot.

4. Carefully slide the module into the chassis until the module reaches the mating connector at the rear of the module slot. Then, carefully press the module firmly toward the rear, so that the socket mounted in the rear of the module slot receives the module connections fully into the socket.
5. Tighten the two captive screws at each end of the module. These screws should be tightened firmly, but not over-tightened.
6. Attach the telephone lines, cables, and so forth to the corresponding jacks on the module front panel. For information about cables and adapters, refer to Cables and Adapters on page 2-3.
7. If you have a current working configuration and you are replacing an old port module with a new module of the same type into the same slot, no reconfiguration is required. However, both a factory configuration reset and subsequent server configuration are required if you:
   - Install a port module into a previously empty slot.
   - Remove a port module and do not replace it.
   - Replace a port module with a port module of a different type.

   Note. The new Current-Loop Only Port module is considered to be a different type from the old Current-Loop RS232 Port module. Thus, if you decide to use the Current-Loop Only port module, you will need to perform a factory configuration reset and you must reconfigure your server.

   Before replacing or adding the Current-Loop Only Port module, you should save and store your configuration.

   - Swap existing port modules, of different types, between two slots.

Installing a Power Supply Module

Note. The information in this subsection applies to models 3885 and 3885R only.

This subsection explains how to install a power supply module.

Installation Steps

The power supply module is hot-swappable and is installed from the front of the AWAN access server. To install a power supply module, perform the following steps:

1. With the AWAN access server facing you, remove the front-panel bezel by pulling on the bottom of the bezel. The front bezel will snap off the chassis, allowing you to remove it.
2. Using a phillips-head screwdriver, remove the six screws that attach the front metal panel to the chassis.
3. Install the power supply module by placing the module in the appropriate location (PS1 or PS2), and slide it toward the chassis until the electrical connectors on the module and mating connectors on the chassis backplane are connected.
4. Reposition the metal cover, and tighten the six screws; then snap the front-cover bezel on the chassis.

Installing an AWAN Access Server

Note. If you are installing a model 3884, 3884R, 3885, or 3885R AWAN access server, you should install your link modules and port modules before performing the following procedure.

This subsection describes how to install an AWAN access server.

Installation Steps

To install an AWAN access server, perform the following steps:

1. Connect the supplied AC power cord between the AWAN access server and a grounded AC receptacle.

   Note. When installing a redundant power supply, both power-supply AC cords must be plugged in. The power supply automatically adapts the unit to the type of incoming voltage (110 VAC or 220 VAC) by sensing the voltage and adjusting the circuitry to operate at that voltage. No manual switching is required.

2. Connect the Ethernet cable. The AWAN access server supports connection to one Ethernet cable configuration at a time.
3. Power on the AWAN access server using the power switch on the rear panel of the chassis.

Connecting Devices

The RS-232 and Current Loop ports on an AWAN access server are female RJ-45 connectors. Devices such as terminals, PCs, printers, and modems are connected to an AWAN access server using straight-through RJ-45 terminal cables with either DB-9 or DB-25 hoods.

The AWAN access server adapter hood pinouts are nonstandard, requiring custom cable hoods to be constructed or purchased from Compaq. Refer to Table 2-3 on page 2-5 for the adapter hoods available from Compaq. Adapter hood pinouts are provided in Appendix C, Adapter Hood Pinouts.

Table 2-5 describes how to connect various devices to your AWAN access server.

Table 2-5. Making Device Connections

To connect this device...	Use this ...
PC	A DB9 adapter. Insert the RJ-45 end of the cable adapter into one of the ports on the rear of the AWAN access server or to the console port.*
Terminal	A DB-25 adapter. Insert the RJ-45 end of the cable adapter to one of the asynchronous port at the rear of the AWAN access server.
Printer	A DB-25 adapter. Insert the RJ-45 end of the cable adapter into one of the asynchronous ports at the rear of the AWAN access server.
Modem	A DB-25 adapter. Insert the RJ-45 end of the cable adapter into one of the asynchronous ports on the rear of the AWAN access server.

*Some PCs may also require an RS-232-to-PSX (9-pin to 29-pin) adapter.

3

Maintaining the AWAN Access Server

This section describes how to maintain and service your AWAN access server. Topics described in this section include the following:

Note. Refer to the *AWAN Access Server 3883/4/5 Configuration and Management Manual* for firmware upgrade instructions.

Removing a Link Module or Port Module

To remove a link module or port module, perform the following steps:

1. Verify that all port users have disconnected their sessions.
2. Verify that all power is disconnected and that you are properly grounded. Modules contain electrostatic-sensitive devices. Modules are not hot-swappable
3. Loosen the screw locks at each end of the cover panel.
4. Pull the module out from the chassis.
5. Reinstall the cover plate or install another module. Installing link modules and port modules is described in Installing a Link Module or Port Module on page 2-6.

Removing a Power Supply Module

Note. The power supply module is hot-swappable.

To remove a power supply module, perform the following steps:

1. Verify that power is disconnected from the power supply.
2. With the AWAN access server facing you, remove the front-panel bezel by pulling on the bottom of the bezel. The front bezel will snap off the chassis allowing you to remove it.
3. Using a phillips-head screwdriver, remove the six screws that attach the front metal panel to the chassis.

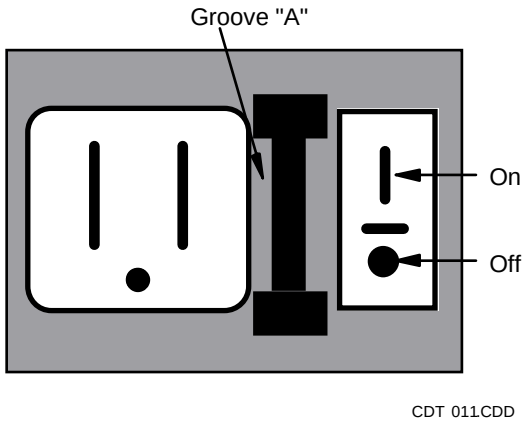
4. Remove the power supply module (either PS1 or PS2) by grasping the bottom lip of the power supply module and pulling it toward you. The modules slides out for removal.
5. Position the metal cover and tighten the six screws; then snap the front-cover bezel on the chassis.

Replacing a Fuse

To remove a fuse, perform the following steps:

1. Verify that all port users have disconnected their sessions.
2. Verify that all power is disconnected and that you are properly grounded.
3. Remove the power cord from the AC receptacle at the rear of the AWAN access server. The fuse compartment cannot be removed unless you remove the AC power cord.
4. Insert the blade of a sharp, slotted screwdriver into groove A and lift upward to pry the fuse compartment out of the AC receptacle/fuse module. Groove A is shown in Figure 3-1.

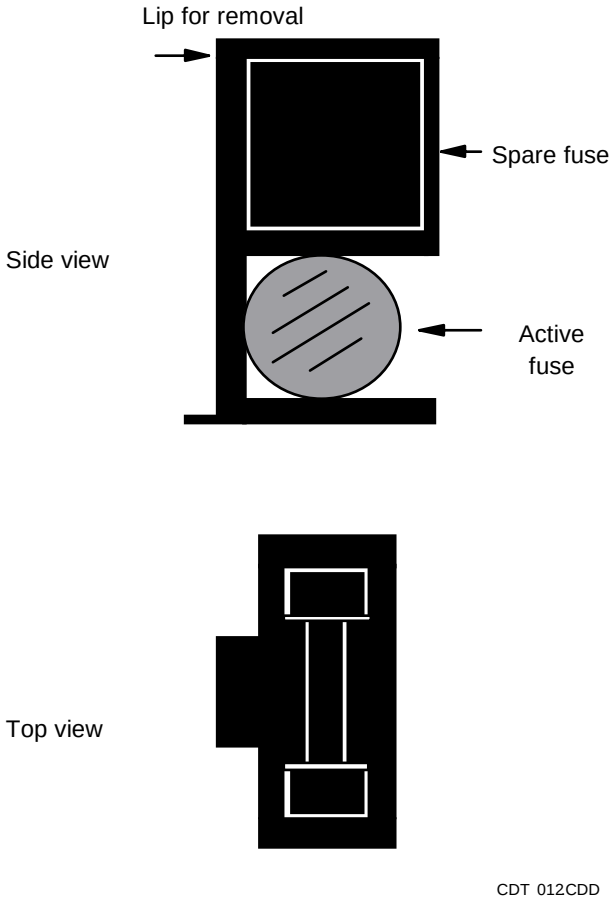
Figure 3-1. Fuse Module



5. Remove the active fuse from the plastic holder.
6. Insert the new fuse between the jaws of the plastic holder and press the assembly into the fuse compartment. A definitive snap is felt when the fuse is properly seated.

   Figure 3-2 shows the side and top views of the fuse compartment.

Figure 3-2. Plastic Fuse Holder and Spare Container



7. Replace the power cable and turn the power on.

Note. If the replacement fuse blows, there may be an electrical fault within the AWAN access server. Do not attempt to disassemble and repair the AWAN access server; contact your Compaq support representative.

Removing an AWAN Access Server

Note. Failed AWAN access server hardware should be returned using the normal Logistics channels or normal return department.

To remove an AWAN access server, perform the following steps:

1. Verify that all port users have disconnected their sessions.
2. Power off the AWAN access server using the power off switch on the rear panel of the chassis.
3. Verify that all power is disconnected and that you are properly grounded.
4. Disconnect the Ethernet cable.
5. Disconnect any attached devices.
6. If you will be replacing the AWAN access server, follow the instructions in Section 2, Installing the AWAN Access Server.

A Hardware Specifications

This appendix provides detailed hardware specifications for each AWAN access server model.

Item	3883-8, 3883-8R, 3883-16, and 3883-16R	3884 and 3884R	3885 and 3885R
Ports	For models 3883-8 and 3883-8R: Eight RS-232 RJ-45 connectors with full modem control. For models 3883-16 and 3883-16R: Sixteen RS-232 RJ-45 connectors with full modem control.	Sixteen RS-232 RJ-45 connectors with full modem control. Eight-port integrated V.34 modems. Six-port ISDN BRI. Sixteen RS-232/20mA Current Loop RJ-45 connectors.	Sixteen RS-232 RJ-45 connectors with full modem control. Eight-port integrated V.34 modems. Six-port ISDN BRI. Sixteen RS-232/20mA Current Loop RJ-45 connectors.
Link Modules	N/A	One link module can be installed on the chassis.	One link module can be installed on the chassis.
Port Modules	N/A	Up to two port modules can be installed on the chassis.	Up to four port modules can be installed on the chassis.
Speeds	LAN speeds up to 10 Mbps and port operation at speeds up to 115.2 Kbps.	LAN speeds up to 10 Mbps and port operation at speeds up to 115.2 Kbps.	LAN speeds up to 10 Mbps and port operation at speeds up to 115.2 Kbps.
Weight	5 lbs.	8 lbs.	10 lbs.
Dimensions	Height: 1.75 inches Width: 16.75 inches Depth: 12 inches	Height: 3.48 inches Width: 17.25 inches Depth 16.43 inches	Height: 5.22 inches Width: 17.25 inches Depth: 16.43 inches
Flow Control	XON/XOFF, RTS/CTS	XON/XOFF, RTS/CTS	XON/XOFF, RTS/CTS
Power Supply	Single universal input, 85-264 VAC, 50-60 Hz, automatically self-sensing.	Single universal input, 85-264 VAC, 50-60 Hz, automatically self-sensing.	Single or redundant universal input, 85-264 VAC, 50-60 Hz, automatically self-sensing.
Front Panel	Eight or sixteen status LEDs, power/fault indicator, and Ethernet activity indicator.	Fourteen LEDs: power, link module activity, port module activity, and fault indicators.	Nineteen LEDs: active power supply, link module activity, port module activity, and fault indicators.

Item	3883-8, 3883-8R, 3883-16, and 3883-16R	3884 and 3884R	3885 and 3885R
Network Interface	AUI connector or 10BaseT connector, software-selectable Ethernet interface, auto-Ethernet selection.	AUI connector or 10BaseT connector, software-selectable Ethernet interface, auto-Ethernet selection.	AUI connector or 10BaseT connector, software-selectable Ethernet interface, auto-Ethernet selection.
Processor	68360 CPU; watchdog timer; automatic restart allows unattended operation.	68360 CPU; watchdog timer; automatic restart allows unattended operation.	68360 CPU; watchdog timer; automatic restart allows unattended operation.
		Various modules can be installed for additional processing capability.	Various modules can be installed for additional processing capability.
Memory	2MB flash/2MB dynamic RAM (3883-8 and 3883-16)	2MB flash/2MB dynamic RAM (3884)	2MB flash/4MB dynamic RAM (3885)
	2MB flash/6MB dynamic RAM (3883-8R and 3883-16R)	2MB flash/6MB dynamic RAM (3884R)	2MB flash/8MB dynamic RAM (3885R)
Environment:	0°-45° C (32°-113° F)	0°-40° C (32°-104° F)	0°-40° C (32°-104° F)
Temperature	10-90% noncondensing	10-90% noncondensing	10-90% noncondensing
Humidity	Meets FCC Part 15, Class A specifications.	Meets FCC Part 15, Class A specifications.	Meets FCC Part 15, Class A specifications.
Certification	EC/Europe: CE Mark EN 55022, Class A, IEC 1000-4-2, 1000-4-3, 1000-4-4, 1000-4-5 Canada: CVL, ICES-003 Australia: AS354 Japan: VCCI, Class A	EC/Europe: CE Mark EN 55022, Class A IEC 1000-4-2, 1000-4-3, 1000-4-4, 1000-4-5 Canada: CVL, ICES-003 Australia: AS354 Japan: VCCI, Class A	EC/Europe: CE Mark EN 55022, Class A IEC 1000-4-2, 1000-4-3, 1000-4-4, 1000-4-5 Canada: CVL, ICES-003 Australia: AS354 Japan: VCCI, Class A
Options	4MB SIMM with VT-to-6530 protocol conversion, IPX, and ARA support.	Link modules, port modules, and 4MB SIMM with VT-to-6530 protocol conversion, IPX, and ARA support.	Link modules, port modules, and 4MB SIMM with VT-to-6530 protocol conversion, IPX, and ARA support.

B Modems

The following modems are supported by the AWAN access server:

AT&T V.34 Class 1& 2

Cardinal 28.8 V.34/V.FC 1

Elsa Microlink 28.8 TQV

Hayes Smartmodem OPTIMA 28.8 V.FC

Intel FaxModem 14.4

Logicode Quicktel 2.814XV?R

Microcom Deskporte Fast

MultiTech MultiModem II MT2834

NetComm Smartmodem M34F

Pace Linnet V34 V.FC

Penril Alliance V.34

Penril DX V.32 terbo

Practical Peripherals PM14400FXMT

Practical Peripherals PC288LCD V.FC

Practical Peripherals PM288 MT II V.34

Sonix Volante

Sonix Volante V.34 28.8Kps Fast

Supra FaxModem V.32bis

Supra FaxModem 28.8

Telebit T3000

UDS V.3400

UDS 1440bis

USRobotics Sportster 14400

USRobotics Sportster 28800

USRobotics Courier 28800

USRobotics Courier HST Dual Standard

USRobotics Courier HST Dual

VASAT Unique 144

Viva 14.4/Fax

ZOOM FaxModem V.32/V.42bis

ZOOM FaxModem VFX 28.8 V.34X

C Adapter Hood Pinouts

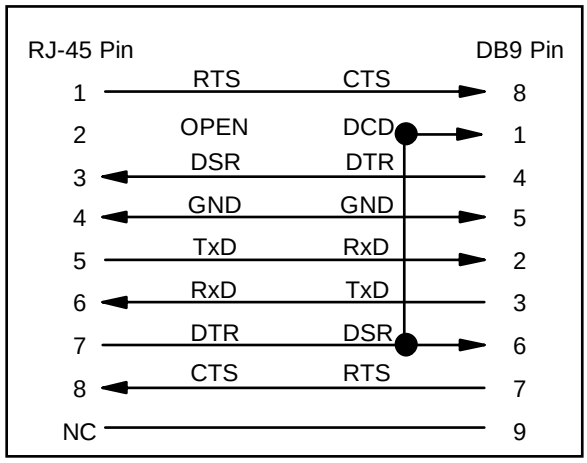
This appendix describes the DB-9 and DB-25 adapter hood pinouts for personal computers (PCs), terminals, printers, and modems.

Note. Custom adapters can be purchased from Compaq. These adapters are listed in Table 2-3 on page 2-5.

DB-9 PC Adapter Hood Pinouts (RS-232)

The DB-9 PC adapter hood pinouts for RS-232 are shown in Figure C-1.

Figure C-1. DB-9 for PC (RS-232)



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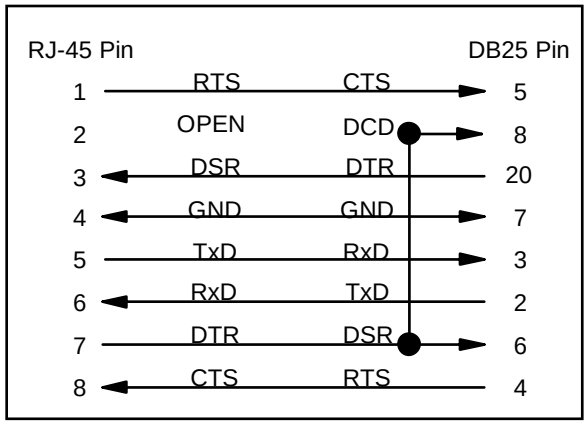
Note. Many PCs have a male DB-9 connector for the COM1 port.

DB-25 Terminal Adapter Hood Pinouts (RS-232)

The DB-25 terminal adapter hood pinouts for RS-232 are shown in Figure C-2.

Figure C-2. DB-25 for Terminal (RS-232)

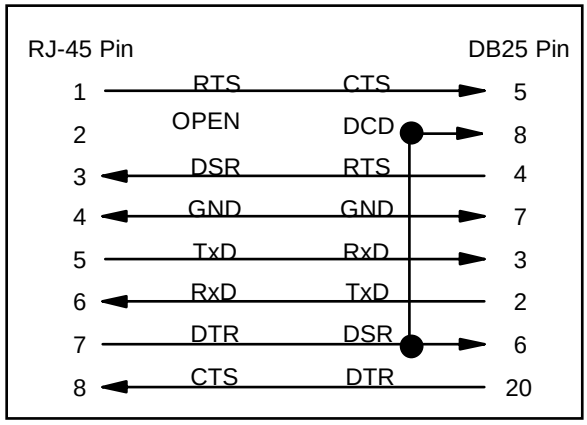


Note. Many PCs have a male DB25 connector for the COM2 port.

DB-25 Printer Adapter Hood Pinouts (RS-232)

The DB-25 printer hood pinouts for RS-232 are shown in Figure C-3.

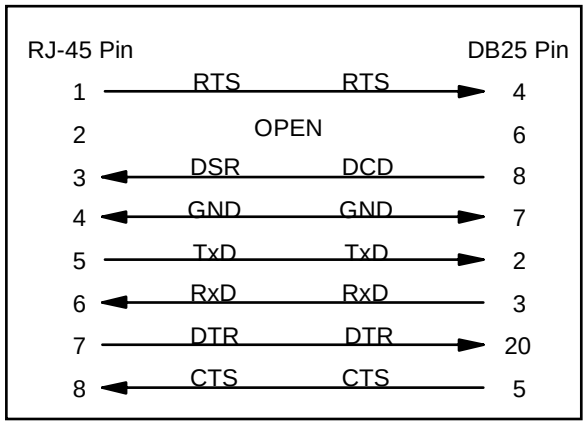
Figure C-3. DB-25 for Printer (RS-232)



DB-25 Modem/Host Adapter Hood Pinouts (RS-232)

The DB-25 modem/host adapter hood pinouts for RS-232 are shown in Figure C-4.

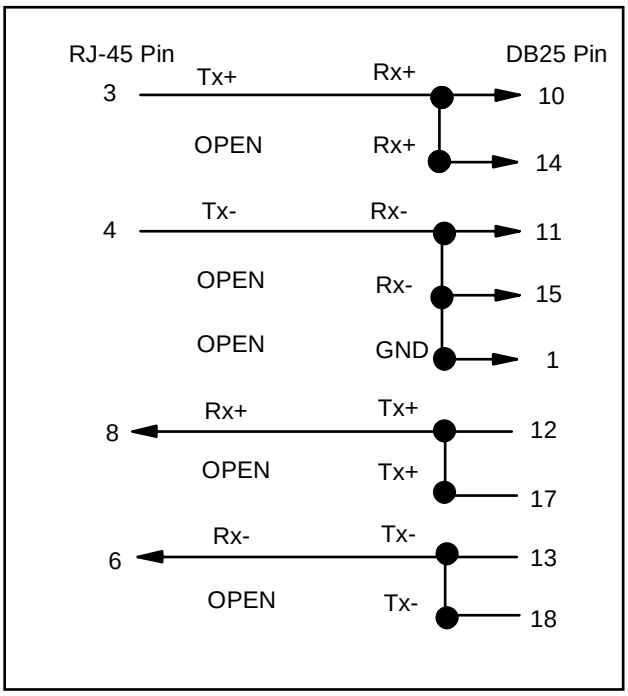
Figure C-4. DB-25 for Modem/Host (RS-232)



DB-25 Host Adapter Hood Pinouts (Current Loop)

The DB-25 host adapter hood pinouts for Current Loop are shown in Figure C-6.

Figure C-5. DB-25 for Host (Current Loop)



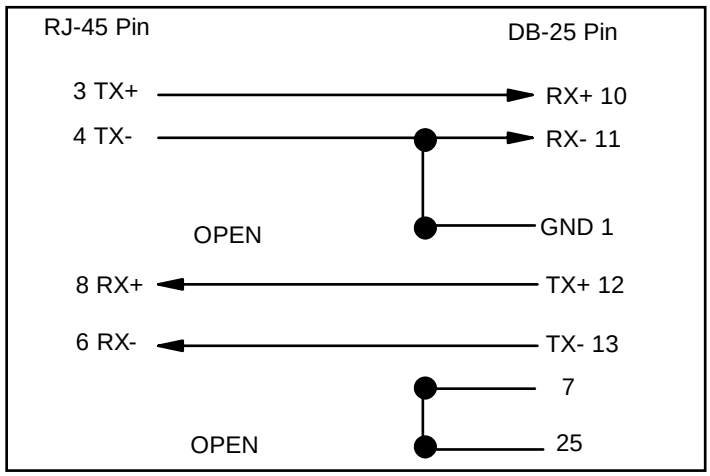
CDT071.CDD

DB-25 Terminal Adapter Hood Pinouts (Current Loop)

The DB-25 terminal adapter hood pinouts are used to connect an AWAN server port directly to a current loop terminal or to a passive current loop adapter, which is in turn connected to the RS-232 port of a terminal. The jumper from pin 7 to 25 is used by 6530 and 6526 terminals at power on time to indicate current loop instead of RS-232.

DB-25 host adapter hood pinouts for a typical terminal Current Loop are shown in Figure C-6.

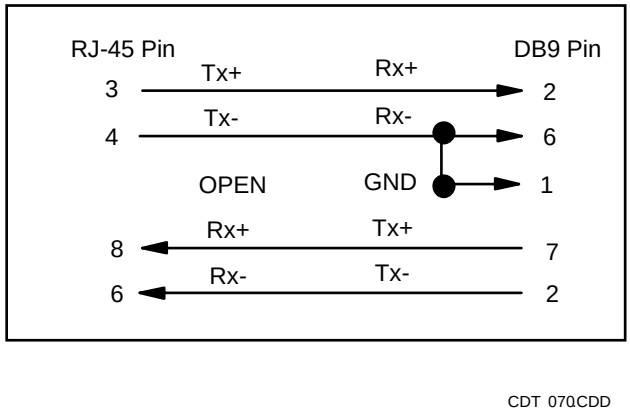
Figure C-6. DB-25 for Terminal (Current Loop)



DB-9 Host Adapter Hood Pinouts (Current Loop)

The DB-9 host adapter hood pinouts for Current Loop are shown in Figure C-7.

Figure C-7. DB-9 for Host (Current Loop)



Safety and Compliance

Regulatory Notices

This equipment has been certified to comply with the limits for a Class A computing device, pursuant to Subject J of Part 15 of the Federal Communications Commission (FCC) rules and Industry Canada rules. The various regulations that are applicable are in this appendix.

Only peripherals (computer input/output devices, terminals, printers, and so on) certified to comply with the Class A limits may be attached to this server. Operation with noncertified peripherals is likely to result in interference to radio and television reception.

Instructions to User

This equipment generates and uses radio frequency energy and if not installed and used properly in strict accordance with the operating instructions may cause interference to radio or television reception. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a residential installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment *off* and *on*, you are encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that the equipment and receiver are on different circuits.
- Ensure that adapter connections are tightly secured.
- If peripherals not offered by the vendor are used with equipment, it is suggested that you use shielded, grounded cables, with in-line filters if necessary.

If necessary, consult your Compaq representative for additional suggestions.

Compaq is not responsible for any radio or television interference caused by unauthorized modification to this equipment. It is the responsibility of the user to correct such interference.

▲ **WARNING.** To comply with FCC regulations on electromagnetic interference for Class A computing equipment, all cables must be properly shielded and grounded. Using substitute cables that are not properly shielded and grounded may result in violation of the FCC regulation.

CE Notice

The CE symbol on your Server indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the Union European (EU). This mark signifies that the Server meets or exceeds the following standards.

EMC Number	Conformity to Directive
EN55022	"Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. EN55022. Warning: This is a Class A product. In a domestic environment, this product may cause radio interference. Therefore, the user may be required to take adequate corrective measures."
EN50082-1	"Electromagnetic compatibility. Generic immunity standard Part 1: Residential, commercial, and light industry."
EN60950-1992 including EN41003	Safety of Information Technology equipment including Electrical Business Equipment.
EIC-1000-4-2	Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 2: Electrostatic discharge immunity test.
EIC-1000-4-3	Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 3: Radiated, radio frequency, electromagnetic field immunity.
EIC-1000-4-4	Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 4: Electrical fast transient/burst immunity test.
EIC-1000-4-5	Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 5: Surge immunity test.

A "Declaration of Conformity" in accordance with the above standards has been made and is on file.

FCC Regulations

Fax Branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page, or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual.

FCC Regulation Part 15

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference with the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

Changes, modifications by the installer or user not expressly approved by Compaq Computers could void the user's authority to operate the equipment.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment *off* and *on*, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that the equipment and receiver are on different circuits.
- Ensure that adapter connections are tightly secured.
- If peripherals not offered by the vendor are used with equipment, it is suggested that you use shielded, grounded cables, with in-line filters necessary.

Instructions to User

In the event of equipment malfunction, all repairs should be performed by Compaq

▲ **WARNING.** To comply with FCC regulations on electromagnetic interference for Class A computing equipment, all cables must be properly shielded and grounded. Using substitute cables that are not properly shielded and grounded may result in violation of the FCC regulation.

Computers, or an authorized agent. It is the responsibility of users requiring service to report the need for service to Compaq or to an authorized agent. For complete repair information, see the folder, *Service Information and Warranty.* This is included in the shipping carton.

Consult your service representative for additional suggestions.

FCC Regulations Part 68

- The modems may not be connected to a party line or coin-operated telephone line.
- If a modem malfunctions, it may harm the telephone network; disconnect the modem until the problem is determined and repaired. If this is not done, the telephone company may temporarily disconnect service.
- The telephone company is required to notify you if it makes changes to the telephone line that may affect the compatibility or use of a modem.
- The telephone company may request the following information about equipment connected to the telephone line:
- Telephone number to which the modem is connected.
- Ringer equivalence number: 0.7B*
- USOC telephone jack required.
- FCC Registration Number: 5DYUSA-30982-DT-E*

**This information is found on the FCC label located on the modem card.*

Industry Canada Regulations

The Industry Canada label identifies certain equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. It does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an approved method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified jack-plug-cord ensemble (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Existing telecommunications company requirements do not permit their equipment to be connected to customer provided jacks except where specified by individual telecommunications company tariffs.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

△ **Caution.** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

You are not required to notify your local telephone company when you install your modem. However, you should be aware of the following items, and should keep this information handy in case the specifications provided need to be reported in the future.

Certification

The INDUSTRY CANADA CERTIFICATE NO. for the modem is: 2747 7936 A. (This number is also printed on the Industry Canada certification label.) The Industry Canada REN: 0.7

Note. This equipment is a Class A digital apparatus which complies with the Radio Interference Regulations, CRC c1374.

PSTN Load Number

A single PSTN network line can be connected to a limited number of devices. The total load limit is expressed as 100 or 100%. You may connect several devices to your line as long as the total of the load numbers of all devices does not exceed 100. Your modems are assigned a load number (located on the modem card) which represents its percentage of the total limit.

IC Notice

This digital apparatus does not exceed Class A limits for radio noise emissions from a digital apparatus set out in the radio interference regulations of the Canadian Industry Canada (IC).

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Cet Appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matérial du Canada.

The Canadian IC label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Canadian IC does not guarantee the equipment will operate to the user’s satisfaction.

Before installing this equipment, users should ensure that it is permissible for connection to the facilities of the local telecommunication company. The equipment must be installed using an acceptable method of connection. In some cases, the company’s inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (telephone extension cord). You should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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