HP AdvanceStack Switch 100Base-T Module

Installation Guide

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Applicable Products:

HP J3191A AdvanceStack Switch 100Base-T Module
HP J3192A AdvanceStack 100Base-TX Transceiver Module
HP J3193A AdvanceStack 100Base-FX Transceiver Module

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See the warranty booklet included with the product.
A copy of the specific warranty terms applicable to your Hewlett-Packard product and replacement parts can be obtained from your HP sales and service office or HP-authorized reseller.

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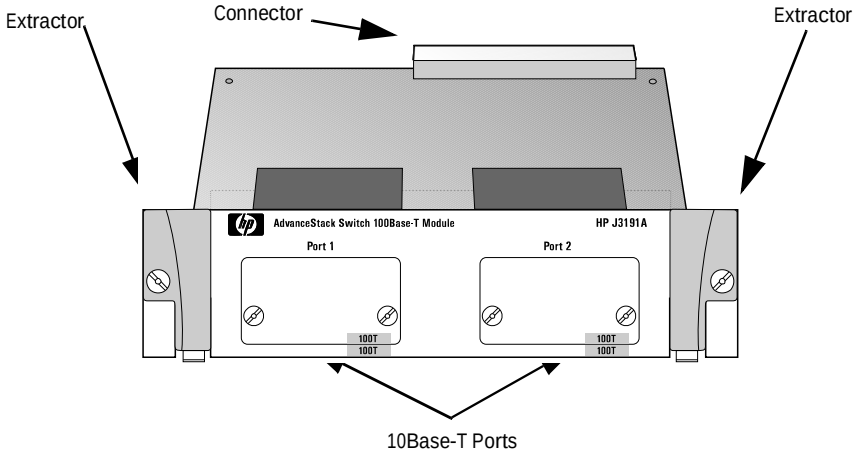
HP AdvanceStack Switch 100Base-T Module

At A Glance

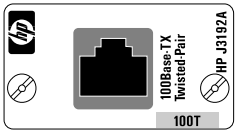
The HP AdvanceStack Switch 100Base-T Module (HP J3191A) is an optional component that you can add to an HP AdvanceStack Switch 2000. The 100Base-T module has two slots into which you can install your choice of available HP 100Base-T transceivers.



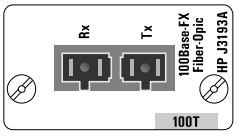
The HP AdvanceStack Switch 100Base-T Module

Module Features:

You can use the module to connect different 100Base-T media types to your Switch 2000 depending on the type of transceiver modules you install into the HP 100Base-T Module. Currently, the two transceivers are:



HP J3192A AdvanceStack 100Base-TX Twisted-Pair Transceiver Module-providing connection for unshielded twisted-pair networks.



HP J3193A AdvanceStack 100Base-FX Fiber-Optic Transceiver Module (Available first half of 1997.) Provides connection for fiber-optic networks.

- You can exchange, or remove either the module itself or a transceiver in the module. (Note that transceivers are to be installed in a module that is removed from the Switch 2000.)
- Because the 100Base-T Module is a “low power” module, you can install up to six 100Base-T Modules in your Switch 2000, enabling you to “fully load” the switch with up to 12 ports.

Software Prerequisite: To use the 100Base-T Switch Module in the Switch 2000, the switch must be running software version A.02.50 or later. (Refer to step 1 under “Downloading Software” on page 2.)

Standards Adherence: The HP J3191A 100Base-T Switch Module complies with the IEEE 802.3u standard.

HP Customer Support Services

How to get the latest software/agent firmware
You can download a compressed file (j3100a.exe) containing the latest version of the HP Switch 2000 software, proprietary MIB, and a software download utility file (update.exe).

from the HP BBS, HP FTP Library Service, CompuServe, and the World Wide Web. After you download the file, **extract** the file by typing: *filename* /x. For example, j3100a.exe /x.

HP BBS
Set your modem to no parity, eight bits, 1 stop bit, set speed up to 14400 bps, and with your telecommunication program (e.g., Windows Terminal) dial (208) 344-1691 to get the latest software for your HP networking product.

HP FTP Library Service
1. FTP to Internet IP Address — ftp ftp.hp.com.
2. Log in as anonymous and press Return at the password prompt.
3. Enter bin to set the transfer type.
4. Enter cd /pub/networking/software.
5. Enter get *filename* to transfer the file to your computer, then quit.

CompuServe
1. Login to CompuServe.
2. Go to the "hp" service.
3. Select "HP Systems, Disks, Tapes, etc."
4. Select "Networking Products" library.
5. Download *filename* then quit.

World Wide Web
http://www.hp.com/go/network_city
Select the "Support" section.
From this web site you can also download information on the HP Switching Hubs and HP AdvanceStack Assistant. If you have a growing network, download the Designing HP AdvanceStack Workgroup Networks Guide or call 1-800-752-0900 to receive a copy through mail.

(over for more services)

HEWLETT® PACKARD

Obtain the latest console code (j3100a.exe) from

HP FTP Library: ftp ftp.hp.com

World Wide Web: http://www.hp.com/go/network_city

HP BBS: (208) 344-1691

(over)

HP NETWORK CONNECTIVITY

HP FIRST Fax Retrieval Service

HP FIRST is an automated fax retrieval service that is available 24 hours a day, seven days a week. HP FIRST provides information on the following topics:

- Product information
- Troubleshooting instructions
- Technical reviews and articles
- Configuration information

To access HP FIRST, dial one of the following phone numbers:

Location	Phone Number
U.S. and Canada Only	Dial 1 (800) 333-1917 with your fax machine or touch-tone phone and press 1.
Outside the U.S. and Canada	Dial 1 (208) 344-4809 from your fax machine and press 9.To receive a list of currently available documents, enter document number 19941. The information you requested will be sent to you by return fax.

Additional HP Support Services

In addition to the above services, you can purchase various HP telephone support services which provide you expert HP technical assistance:

- Network Phone-In Support provides you support at an hourly rate. In the USA, call 1-800-790-5544. In other countries, please contact your local HP Response Center to see if this service is available in your country.
- HP SupportPack Comprehensive Network Support provides complete problem resolution for medium to large interconnected local and wide area networks. Contact your HP Authorized Reseller or the nearest HP Sales and Support Office for more information.

CompuServe:	Go the “hp” service. Select HP systems, etc. Select Networking Products. Download the file.
Network Phone-In Support (hourly):	1-800-790-5544

Contents

Installation

You can install a 100Base-T Module into any of the Switch 2000's six module slots. The following steps provide an overview. The actual installation procedure begins on page 2.

1. Determine whether your Switch 2000 is running the necessary operating system (OS) version and, if necessary, download a new version (page 2).
2. Install one or two 100Base-T transceivers into the 100Base-T module (page 6).
3. Install the 100Base-T Module in a Switch 2000 slot (page 7).
4. (Optional) Customize the configuration for the module's ports (page 12).
5. Reboot the switch (page 13).

If necessary, you can "hot-swap" one 100Base-T module for another; that is, replace one module with another of the same type without rebooting the switch (page 14). However, if you replace one module type with a different module type (such as replacing an Ethernet Module with a 100Base-T Module), you must reboot the Switch 2000 after making the replacement.

Included Parts

Each HP 100Base-T Module has the following components shipped with it:

- *HP AdvanceStack 100Base-T Module Installation and Reference Guide*- this manual (J3191-90001)
- Warranty booklet
- Module Label envelope with the 100Base-T Module label
- Connectivity Card
- Switch software disk

Downloading Software

Use this procedure in either of the following cases:

- You are installing a 100Base-T Module in your Switch 2000 for the first time.
- A 100Base-T Module is already installed in the Switch 2000 and you now want to upgrade the operating system (OS) to a newer version.

Do You Need To Download a New OS Version? The 100Base-T Module requires OS version A.02.50 or later to operate in the Switch 2000. To determine which OS version is running in the switch, go to the Main Menu in the Switch 2000 console interface and do the following:

1. Select `Statistics` to display the Statistics screen.
2. Select `Switch Information` to display the Switch Information screen.

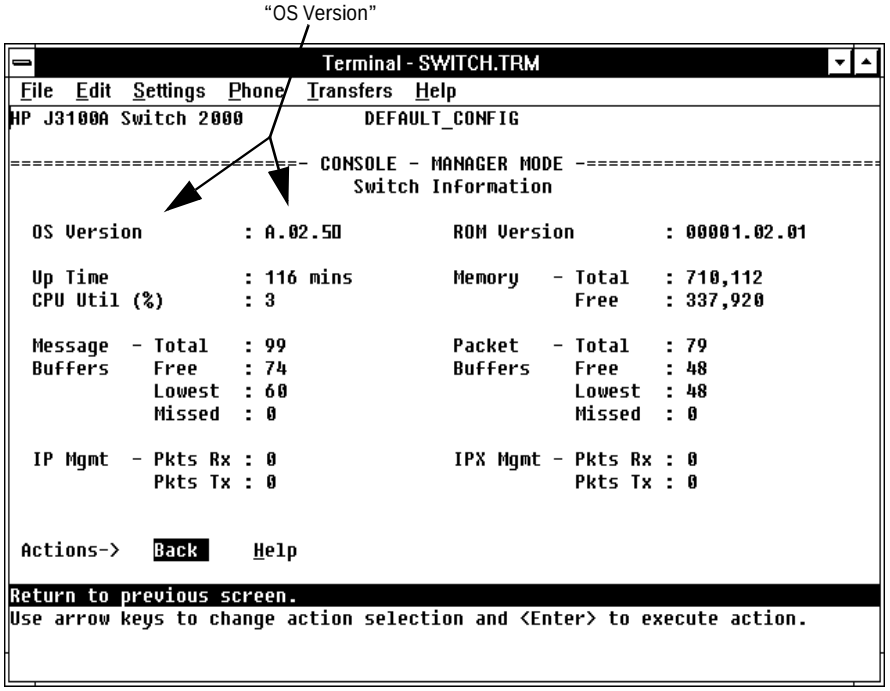


Figure 1. Example of the Switch Information Screen

3. Check the "OS Version" line in the Switch Information screen.
   - If the version number is A.02.50 or later, the Switch 2000 can support the 100Base-T Module. In this case, go to "Installing the 100Base-T Module in an Unused Slot" on page 7.
   - If the version number is earlier than A.02.50, download a new OS before installing the 100Base-T Module. In this case, continue with the instructions in this section before you install the module.

Software Sources and Content

First-Time 100Base-T Module Installation: Generally, if you are installing the 100Base-T Module in your Switch 2000 for the first time, use the software provided on the disk you received with the module.

Upgrading a Previous 100Base-T Module Installation: If you are upgrading the software for an existing 100Base-T Module installation, you can use software that is either provided on a current disk or obtained in a compressed, self-extracting file named `j3100a.exe` that you can download from Hewlett-Packard's World Wide Web or other electronic sources. (Refer to "HP Customer Support Services" on the card included in the front of this manual.)

Both the disk and the self-extracting (`j3100a.exe`) file contain one or more of the following files:

- The switch update utility, named `update.exe`, and a `readme.txt` file containing instructions on how to use the update utility, plus other information. (This is a PC-based utility that you can run from DOS or from a DOS window to download the new switch software from a PC directory. This utility requires an RS-232 serial connection to the Switch 2000.)
- The proprietary MIB file for the Switch 2000.
- Two OS files:

  `filename``.swi`
  `filename``.fdd`

  where *filename* will be the same for both files; for *example*:

`A_02_50.swi`	OS for the Switch 2000 chassis and all Switch 2000 modules that operate with version A.02.50 or earlier software.
`A_02_50.fdd`	OS for the FDDI Module. *(Necessary if an FDDI Module is installed.)*

Observe the following when downloading the OS software to the Switch 2000:

– *filename*.swi and *filename*.fdd must be in the same directory.
– *filename* must be the same for both files (that is, the files must be the .swi and .fdd file pair from the disk or from the self-extracting j3100a.exe file.

For the above reasons, do not place the *filename*.swi and *filename*.fdd in separate directories, and do not rename them.

Note

The latest version of the Switch 2000 OS supports all Switch 2000 Modules as of November 1, 1996. If you are installing more than one type of Switch 2000 module and/or if it is necessary to download a new version of the Switch 2000 OS, use the latest version available. To support the 100Base-T Module, use OS version A.02.50 or later. The Switch 2000 Ethernet and 100VG Modules operate with *any* version of Switch 2000 OS software. For more on software compatibility, see the readme.txt file included on the disk and in the compressed, self-extracting j3100a.exe file from the electronic sources mentioned above.

How To Download the OS

Use this procedure if you need to download a new OS version to your Switch 2000. The procedure describes how to use a personal computer (PC) to download the OS. (If you are using a UNIX workstation, refer to the Note on page 5.) The files used in this procedure are described under “Software Sources and Content” on page 3.

1. Do one of the following:
   - If the source of your OS files is the disk shipped with the 100Base-T Module, copy the files from the disk into the DOS directory you will use for downloading to the switch. Then go to step 2 on the next page.
   - If the source of your OS files is the self-extracting j3100a.exe file from an electronic source (see “Software Sources and Content” on page 3):
     i. Copy the j3100a.exe file into the DOS directory you will use for downloading to the switch.
     ii. Run the file to decompress and extract its contents.

2. Download the software upgrade by using one of the following methods:
   - **TFTP download using a TFTP server and the `Download OS` option in the Switch 2000 console interface:** This is the recommended download method if you have TFTP server access to the Switch 2000. Refer to the instructions in appendix A, "Downloading an Operating System", in the *Console User's Guide* you received with your Switch 2000. For this option, use the form

     filename.swi

     for the `Remote File Name` parameter. (The *`filename`*`.fdd` file will automatically be used if an FDDI Module is already installed in the Switch 2000.)
   - **Switch update utility:** Refer to the instructions in the `readme.txt` file provided with the update utility.
3. If you are performing a first-time installation of a 100Base-T Module, go on to "Installing the 100Base-T Module in an Unused Slot" on page 7.

Note

To perform a TFTP download from a UNIX system, store the uncompressed *`filename`*`.swi` and *`filename`*`.fdd` in the UNIX TFTP directory, then perform the TFTP download as described in Step 2, above. If you do not have access to a DOS system in order to run the `j3100a.exe` file, use the World Wide Web or BBS services described on the card at the front of this manual to download uncompressed versions of *`filename`*`.swi` and *`filename`*`.fdd`. If your TFTP server is a UNIX system, ensure that the case (upper or lower) that you specify for the filename in the Switch 2000 Download OS screen is the same case as the OS filenames in the TFTP server.

Switch-to-Switch Download

If you have two or more Switch 2000s networked together, you can download the OS software from one switch to another by using the Download OS feature in the Switch 2000 console interface. To do so:

1. Go to the Download OS screen from in the switch to receive the download.
2. Enter the IP or IPX address of the remote switch containing the OS you want to download.
3. Enter "OS" for the Remote File Name.
4. Execute the download.

For more information on the Download OS feature, refer to appendix A, "Downloading an Operating System" in the *Console User's Guide* you received with your Switch 2000.

Adding, Replacing, or Removing a Transceiver

Caution

When adding, removing, or replacing a transceiver from a HP 100Base-T Switch Module, always remove the module from the Switch 2000 first. While the modules are hot swappable, the transceivers are not. Otherwise, you might interrupt switch operation and/or damage the module or transceiver circuitry.

For proper cooling and for reduction of electromagnetic emissions, ensure that a slot cover (provided with your Switch 2000) is installed on any unused switch module slot or transceiver slot.

1. Disconnect any network cables attached to the module for which you will add, replace, or remove a transceiver.
2. Remove the module from the Switch 2000:
   a. Loosen the screws in the extractor handles of the module.
   b. Simultaneously rotate both extractor handles downward and pull the module toward you until it releases from the slot and the Fault and status LEDs for that slot are off.
   c. Slide the module out of the slot.
3. Always check the color coding of the transceiver and the module. The color and text must match each other.
4. Using the transceiver manual, do one of the following:
   - **To install a new transceiver:**
     i. Remove the cover plate.
     ii. Install the new transceiver.
   - **To replace an existing transceiver:**
     i. Remove the old transceiver.
     ii. Install the new transceiver.
   - **To remove a transceiver without replacing it:**
     i. Remove the old transceiver.
     ii. Install the cover plate.
5. Re-install the 100Base-T module into the Switch 2000.

Installing the 100Base-T Module in an Unused Slot

Caution

Static electricity can severely damage the sensitive electronic components on the HP AdvanceStack Switch 100Base-T Module. When handling and installing the module in your switch, follow these procedures to avoid damage from static electricity:

- Handle the module by its edges and avoid touching the components and the circuitry on the board.
- Equalize any static charge difference between your body and the switch by wearing a grounding wrist strap and attaching it to the switch's metal body, or by continually touching the switch's metal body while you are installing the module.

For proper cooling and reduction of electromagnetic emissions, ensure that a slot cover is installed on any unused switch module slot or transceiver slot.

1. Slide out the blank LED label strip from the label slot on the switch's brow corresponding to the physical slot in which you will install the module. (See figure 2.)

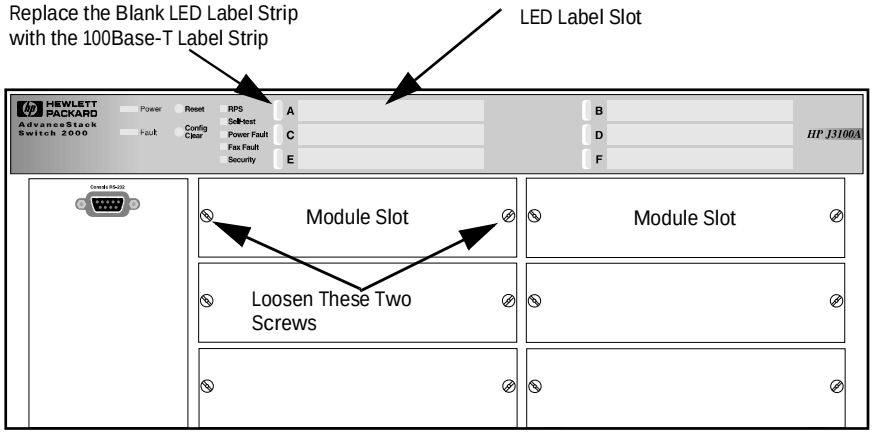


Figure 2. Remove the Cover Plate from an Unused Switch Port

2. The LED label strips have a small loop on the left end. Use your fingernail or a small implement to catch the loop and slide the label to the left and out of the label slot. Then insert the LED label strip you received with the 100Base-T Module. For example, if you are going to install the module in slot “A”, you would replace the blank LED label strip in label slot “A” with the new LED label strip for the 100Base-T Module.

   Save the blank LED label strip in case you ever want to remove the module and its LED label strip.

3. Using a Torx T-10 or slotted screw driver, unscrew the screws in the cover plate over the slot you want to use, and remove the cover. Store the cover plate with its screws for possible future use. For example, to install a module in slot A, see figure 2.

4. Holding the module by its edges—taking care not to touch the metal connectors—position the module in front of an open slot on the switch by aligning the edges of the module with the small grooves near the bottom of the module slot, as shown in figure 3.

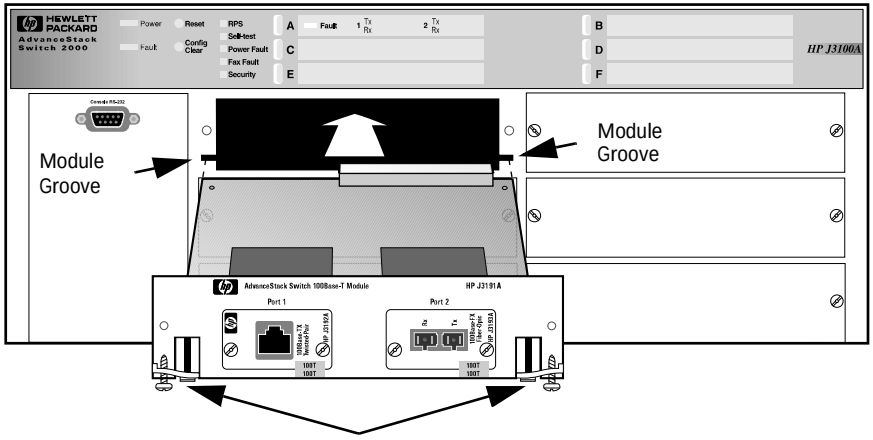


Figure 3. Position the Module

5. Make sure the extractor handles on each side of the module are in the open position (rotated away from the face plate), then push the module into the slot until you feel the extractor handles contact the switch chassis. (The handles will move slightly upwards when they contact the chassis.)

6. Seat the module in the slot by simultaneously pushing up on both extractor handles until they are firmly seated against the front panel of the module (in the closed position). You should be able to see the module pull into the slot when you raise the handles.

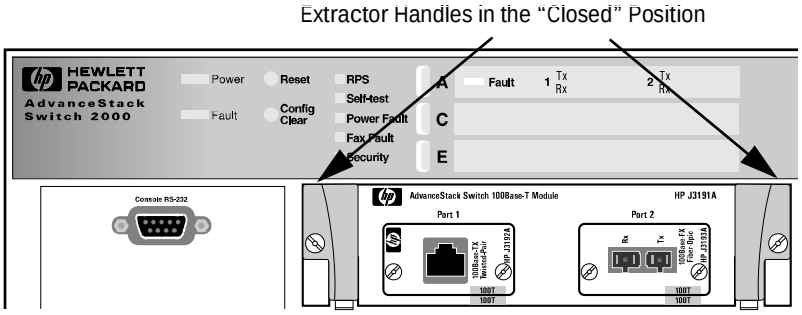


Figure 4. Extractor Handles in the Closed Position

If the switch has power during module installation, the LEDs will behave as described in the "Slot and Port LED Behavior" table on the next page. (If you have not already done so, install the LED label strip as described in step 1 on page 7.)

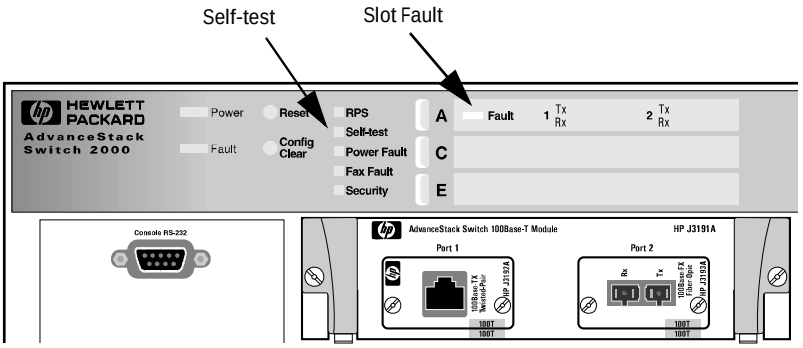


Figure 5. Self-Test and Fault LEDs

7. Tighten the captured screw in each handle by using a flat-blade or Torx T-10 screwdriver. *Do not overtighten the screws.*

Slot and Port LED Behavior

LED	Pattern
Slot Fault (for the slot in which you are installing the module)	1. FLASHING RAPIDLY if the module is not properly installed 2. ON for less than 1 second after the module has been properly installed. 3. OFF during normal switching operation. 4. FLASHING SLOWLY if there is a self-test failure. Check the switch event log through the console interface for more information. 5. FLASHING SLOWLY if an incorrect transceiver (e.g., 100VG) transceiver was installed in either of the 100Base-T slots. Make sure that only 100Base-T Switch Module. Look for the blue color bar [100T] on the transceiver label. **Note:** If the Fault LED for the module slot continues flashing rapidly, the module may not be completely seated in the slot. Ensure that the handles on the module are fully in the "closed" position and the screws in the handles are tightened. If the module slot Fault LED continues flashing, remove the module, and re-install it. If the Fault LED continues flashing, the module may need to be replaced. Contact your HP-authorized LAN dealer or HP networking support representative for assistance. If a module is not installed properly, and the module slot Fault LED continues rapid flashing, other modules in the switch will continue to forward packets normally, but other switch functions will be suspended until the module is removed or properly installed.
Self-test (for the Switch 2000)	1. ON for less than 40 seconds after the module has been properly installed. 2. OFF during normal switching operation. 3. FLASHING simultaneously with slot Fault LED if the slot has failed self-test. Check the event log by selecting Event Log from the switch's console in the Main Menu.

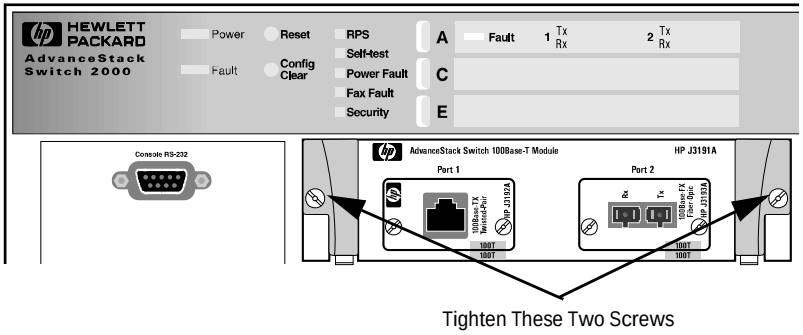


Figure 6. Securing the Module in the Slot

8. Connect the appropriate network cables to the module's 100Base-T ports. See the transceiver manual for a description of the supported cable type.

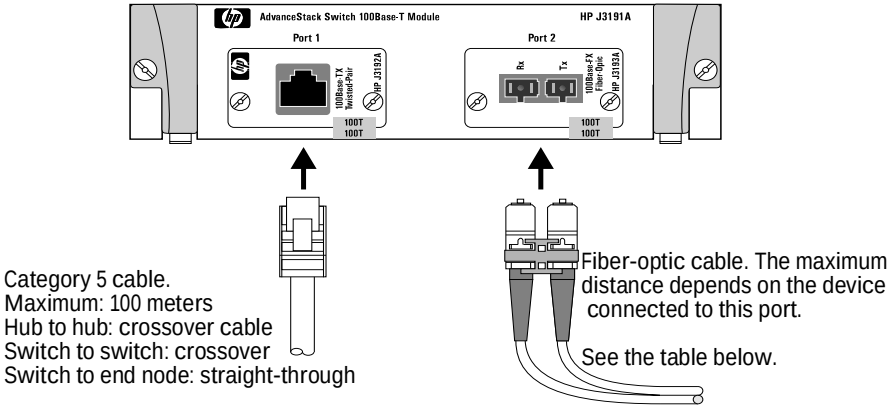


Figure 7. Connecting a Cable

Connection Type for a Fiber Connection	Maximum Distance
Switch to switch, full duplex	2 km
Switch to switch, half duplex	412 meters
Switch to end node, full duplex	2 km
Switch to end node, half duplex	412 meters
Switch to Class I hub with 100 meters between the hub and end node	160 meters
Switch to Class II hub with 100 meters between the hub and end node	208 meters

9. Check the port LEDs for the newly-installed module to ensure that the port(s) connected in the preceding step are operating correctly. (If you have not already done so, install the LED label strip as described in step 1 on page 7.) The "port-enabled" LED (1, 2) will be lit for each port that is operating correctly. The transmit (Tx) and/or receive (Rx) LEDs for each port that is transmitting and/or receiving packets will flash when traffic is detected on the port.

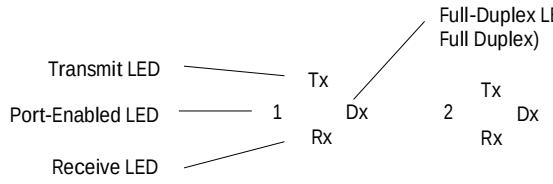


Figure 8. Port LEDs for the 100Base-T Module

10. Customize the port configuration, if necessary. (See "Customizing the Port Configuration", below.)
11. Reboot the switch, since this is a new module being installed. (See "Rebooting the Switch" on page 13 for more information on when the switch must be rebooted.)

Customizing the Port Configuration

If the slot in which you installed the 100Base-T Module was empty the last time the switch was either rebooted or reset (or the power to the switch was cycled), then the module will use preconfigured default parameter values that will work for most networks.

The default 100Base-T port configuration is:

- Enabled: Yes
- Mode: 100 Mbit/s-Half Duplex
- Trunk (port trunking): None
- Broadcast Limit: 0

If the default port configuration listed above is not acceptable for your network, then configure the port(s) in the module by using the switch console interface. (See the *Console User's Guide* shipped with the Switch 2000, and the online Help provided in the console interface itself.)

Rebooting the Switch

You can reboot the switch either by using the Reboot Switch command in the console Main menu or by pressing the recessed Reset button located to the right of the Power LED.

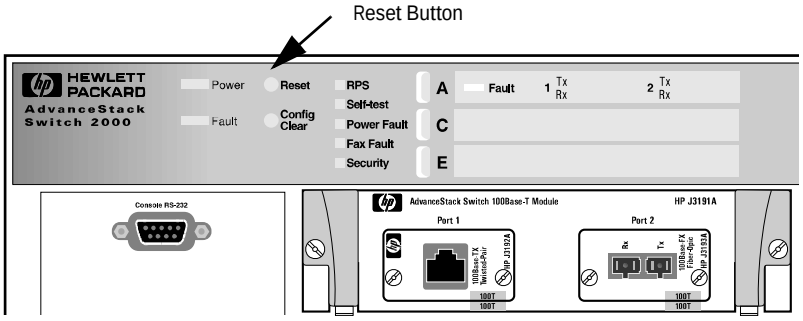


Figure 9. Location of the Reset Button

Generally, you only need to reboot the switch when it needs to recognize a change in its hardware or software (console) configuration. Some circumstances in which you will need to reboot the switch are:

- Adding new modules or moving modules to unused slots (page 7).
- Installing a module in a slot that was previously occupied by a different type of module—for example, installing a 100Base-T Module in a slot that was previously used for a Ethernet 10Base-T Module (page 14).
- Changing certain switch configuration parameters through the console interface. (In this case, the console provides a * next to the menu item that changed. If a reboot is needed, a message indicates this status.)

You do not need to reboot the switch when:

- Replacing a module with the same type of module.
- Adding or changing a transceiver in a switch module designed to accept such transceivers. (The module must be removed from the Switch 2000 for this procedure.)
- Changing the duplex of a port.
- Enabling or disabling a port.

Removing or Replacing a Module

Use this section to do either of the following:

- Replace one module with another
- Remove a module without replacing it

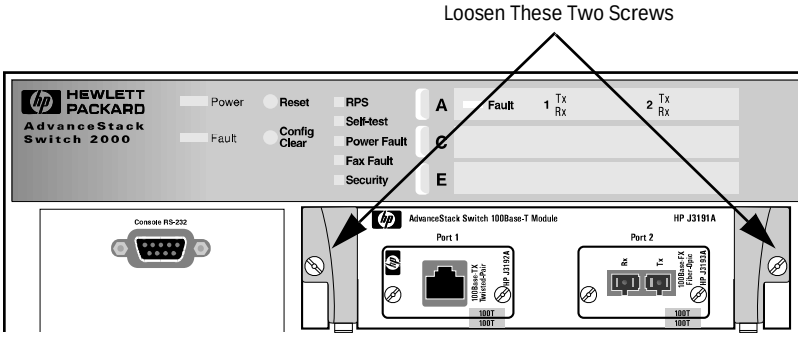


Figure 10. Removing the Module from the Slot

1. Remove any network cables from the ports on the module.
2. Loosen the screws in the extractor handles of the module you want to remove from the switch. (Refer to figure 10, above.)
3. Simultaneously pull both extractor handles toward you and down until the module releases from the slot and the Fault and status LEDs for that slot are off.

Note

During removal (or installation), the module and switch connectors will be only partially connected momentarily. The Fault LED for the slot flashes rapidly to indicate this state until the module is removed or properly installed. (The other modules in the switch will continue to forward packets normally, but other switch functions will be suspended until the module is removed or properly installed.)

4. Slide the module out of the slot.

5. Do one of the following:
   - If you will be installing another 100Base-T module in the slot, go to "Installing the 100Base-T Module in an Unused Slot" on page 8 and begin with step 3. To install another module type, refer to the manual you received with that module.

     Make sure that you install the proper LED strip for the new module you are installing, as described in step 1 on page 7. If you do not install the correct LED strip for the module you have installed, the LED display will be incorrect for that module.
   - If you will not install another module in the slot (that is, leave it empty), re-attach a slot cover plate over the empty slot opening, and replace the LED strip for that slot with a blank LED strip.
6. Reboot the switch (as described under "Rebooting the Switch" on page 13) if you are doing either of the following:
   - You are removing a module and leaving the module slot empty
   - You are replacing one type of module with another type of module in the same slot (for example, replacing an Ethernet 10Base-T Module with a 100Base-T Module)

   (If you are exchanging one 100Base-T Module with another 100Base-T transceiver in the same slot, it is not necessary to reboot the switch. The current configuration for ports in that slot will apply to the new module.)

Caution

For proper cooling and reduction of electromagnetic emissions, ensure that a slot cover is installed on any unused port or transceiver slot.

Troubleshooting

The primary tools for troubleshooting the 100Base-T Module are the LEDs on the front of the Switch 2000. Refer to “Slot and Port LED Behavior” on page 10. Also, refer to the installation guide shipped with the Switch 2000 for more detailed troubleshooting information.

If you placed 100Base-T transceivers in a 100VG Module or 100VG transceivers in a 100Base-T module, the following LEDs will flash slowly:

- switch Fault LED
- module Fault LED
- Port LED

Be sure to install 100VG transceivers in the 100VG Module and 100Base-T transceivers are inserted in the 100Base-T module.

Customer Support Services

Hewlett-Packard offers support 24 hours a day, seven days a week through the use of automated electronic services including:

- Hewlett-Packard BBS and World Wide Web
- Hewlett-Packard FTP Library Service on the Internet
- CompuServe
- HP Network Phone-In Support (NPS)
- HP FIRST FAX Retrieval Service

These services are described on the card at the front of this manual.

Specifications

Physical

Dimensions

Width: 16.5 cm (6.5 in)
Depth: 25.0 cm (9.8 in)
Height: 4.3 cm (1.7 in)
Weight: 0.72 lbs (0.33 kilos)

Environmental

Operating temperature: 0°C to 55°C (32°F to 131°)
Relative humidity: 15% to 95% at 40°C (104°F) non-condensing
Maximum altitude: 4.6 km (15,000 feet)

Connectors

The 100Base-T Module ports are compatible with the IEEE 802.3u standard, and are designed to accept 100Base-T transceivers (such as 100Base-TX and 100Base-FX) only.

Electromagnetic

Emissions
FCC part 15 Class A
CISPR-22 Class A EN55022 Class A
VCCI Class 1

Immunity
EN50082-1

Regulatory Statements

FCC Statement (U.S.A.)

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 when 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.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

VCCI Class 1 (Japan)

注意

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づく第一種情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

注意

この装置は、第一種情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-1

European Community

This equipment complies with CISPR22/EN55022 Class A.

Note

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Declaration of Conformity

This product is designed for operation with the Switch 2000 and is listed in the Declaration of Conformity available from your HP-authorized dealer or reseller and the Switch 2000 installation manual.

DOC Statement (Canada)

Complies with Canadian EMC Class A requirements.