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Installation Notes for the FastHub 400 10/100 Series Switched Uplink Modules

February 8, 1999

Use the following publications with this document:

- *FastHub 400 10/100 Series Cabling and Start Up*
- *FastHub 400 10/100 Series Installation and Configuration Guide*
- *FastHub 400 10/100 Series Command Reference*

These installation notes describe the functional and physical features of the switched uplink modules for the FastHub 400 models. This document also provides installation and cabling procedures, troubleshooting information, and technical specifications.

Note See the *FastHub 400 10/100 Series Installation and Configuration Guide* for information on managing the modules through the hub manager.

Notes, cautions, and warnings use the following conventions and symbols:

Note Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Caution This caution symbol means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Warning This warning symbol means *danger*. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. (To see translations of the warnings that appear in this publication, refer to the *FastHub 400 10/100 Series Installation and Configuration Guide*.)

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Key Features

When installed in a FastHub 400 model, each 10BaseT/100BaseTX and 100BaseFX switched uplink module provides a separate switched collision domain for traffic to the workgroup backbone.

The switched uplink modules have these key features:

- Switched ports on both switched uplink modules.
- Autonegotiation of speed and duplex on the 10BaseT/100BaseTX switched uplink module
- Half- and full-duplex operation on the 100BaseFX switched uplink module
- Per-port data rates of up to 200 Mbps in full-duplex mode
- Management through the FastHub 400 series Hub Manager web-based interface, command-line interface (CLI), or Simple Network Management Protocol (SNMP) management station

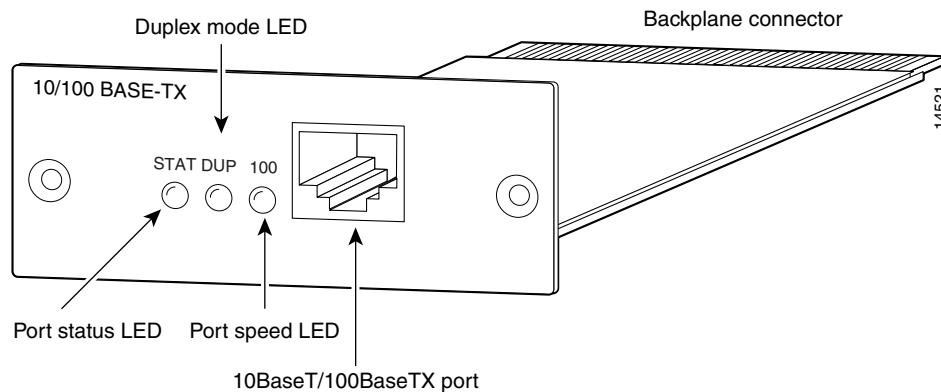
Note See the *FastHub 400 10/100 Series Installation and Configuration Guide* for information on managing the modules through the hub manager.

10BaseT/100BaseTX Switched Uplink Module

The 10BaseT/100BaseTX switched uplink module, hereafter referred to as the 10/100 switch module, has a switched 10/100 autosensing port (Figure 1). By default, the port autonegotiates the transmission speed and duplex mode. You can set the port to 10 or 100 Mbps and to half- or full-duplex mode.

The 10/100 switch module has LEDs (STAT, DUP, and 100) that reflect the status, duplex mode, and speed of the module port. These LEDs are described later in this section.

Figure 1 10BaseT/100BaseTX Switch Module



The 10/100 switch module complies with IEEE 802.3 10BaseT and IEEE 802.3u 100BaseT standards. The port uses a standard RJ-45 connector. Attached devices must be within 100 meters of the port and be either 10BaseT- or 100BaseTX-compatible. (See the *FastHub 400 10/100 Series Installation and Configuration Guide* for details on the port connector.)

10/100 Module Port Status LED

The colors of the STAT LED show the status of the module port (Table 1).

Table 1 **10/100 Module Port STAT LED Description**

Color	Status
Off	No link.
Solid green	10BaseT or 100BaseTX link operational.
Flashing green	10BaseT or 100BaseTX link operational (with activity).

10/100 Module Port Duplex Mode LED

The colors of the DUP LED show that the module port is operating in either half- or full-duplex mode (Table 2).

Table 2 **10/100 Module Port DUP LED Description**

Color	Status
Off	Operating in half-duplex mode.
Solid green	Operating in full-duplex mode.

10/100 Module Port Speed LED

The colors of the 100 LED show that the module port is operating in either 10 or 100 Mbps (Table 3).

Table 3 **10/100 Module Port 100 LED Description**

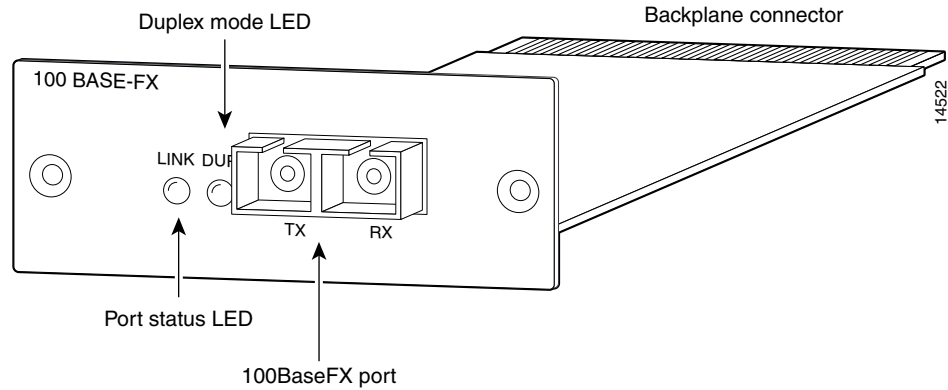
Color	Status
Off	Operating at 10 Mbps.
Solid green	Operating at 100 Mbps.

100BaseFX Switched Uplink Module

The 100BaseFX switched uplink module, hereafter referred to as the 100BaseFX switch module, has a switched 100BaseFX port for 100-Mbps fiber-optic connectivity (Figure 2). By default, the port operates in half-duplex mode. However, you can set the port to full-duplex operation.

The 100BaseFX switch module has LEDs (LINK and DUP) that reflect the status and duplex mode of the module port. These LEDs are described later in this section.

Figure 2 100BaseFX Switch Module



The port complies with the IEEE 802.3u 100BaseT standard and uses 50/125- or 62.5/125-micron multimode fiber-optic cabling with a duplex SC connector. When set to full-duplex mode, the 100BaseFX module port can connect to another 100BaseFX-compatible device over distances of up to 2 kilometers. In half-duplex mode, the module port can connect to other compatible devices over distances of up to 412 meters.

100BaseFX Module Port Status LED

The colors of the LINK LED show the status of the module port (Table 4).

Table 4 100BaseFX Module Port LINK LED Description

Color	Status
Off	No link.
Solid green	100BaseFX link operational.
Flashing green	100BaseFX link operational (with activity).

100BaseFX Module Port Duplex Mode LED

The colors of the DUP LED show that the module port is operating in either half- or full-duplex mode (Table 5).

Table 5 10BaseFX Module Port DUP LED Description

Color	Status
Off	Operating in half-duplex mode.
Solid green	Operating in full-duplex mode.

Installing a Module

You can install either switched uplink module in the expansion slot on the rear panel of the hub.



Warning Class 1 laser product.



Warning Avoid exposure to the laser beam.



Caution When installing a 100BaseFX switched uplink module, do not remove the rubber plugs from the fiber-optic port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the fiber-optic port and cable from contamination.

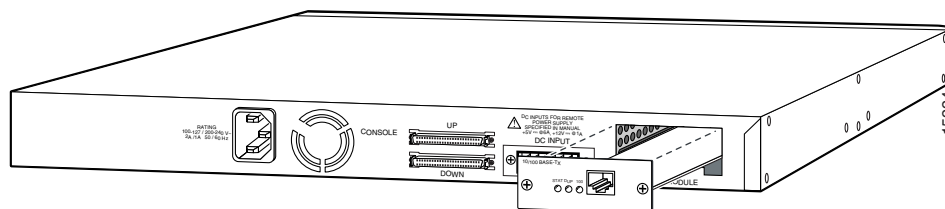


Caution The modules are not hot-swappable. Be sure to power off the hub before installing a module in the hub or removing it.

To install a module, follow these steps:

- Step 1** Power off the hub.
- Step 2** Remove and set aside the screws attaching the faceplate to the expansion slot. The screws will be used later in Step 6.
- Step 3** Remove the faceplate and store it for future use.
- Step 4** Slide the module into the slot card-guides until you feel it touch the back of the hub.
- Step 5** Push the module firmly until it snaps into place and is firmly seated. Figure 3 shows a 10/100 switch module being installed.

Figure 3 Installing a Module



- Step 6** Insert and tighten the screws on the module faceplate.
- Step 7** Power on the hub.
- Step 8** Connect the module port to a device as described in the “Connecting to the Module Port” section on page 6.

Removing a Module



Caution The modules are not hot-swappable. Be sure to power off the hub before installing a module in the hub or removing it.

To remove a module, follow these steps:

- Step 1** Power off the hub.
- Step 2** Disconnect the cable from the module port.
- Step 3** Loosen the screws attaching the module to the hub.
- Step 4** Pull the module out of the slot.
- Step 5** Replace the blank faceplate over the slot.
- Step 6** Insert and tighten the screws on the faceplate.
- Step 7** Power on the hub.

Connecting to the Module Port

Note The *FastHub 400 10/100 Series Installation and Configuration Guide* provides information about Ethernet network guidelines, including determining acceptable cable distances between a FastHub 400 model and attached network devices.



Warning Class 1 laser product.



Warning Avoid exposure to the laser beam.



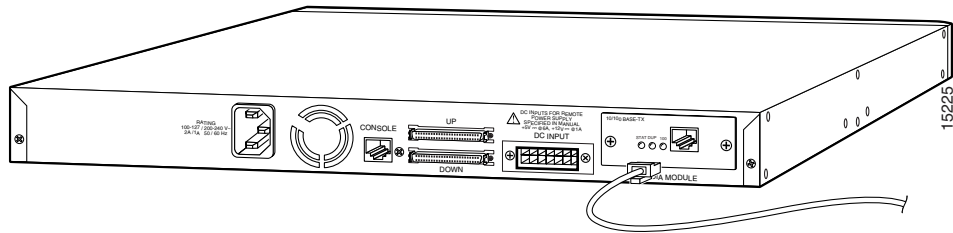
Caution When installing a 100BaseFX switched uplink module, do not remove the rubber plugs from the fiber-optic port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the fiber-optic port and cable from contamination.

Insert a connector according to the type of module (10/100 or 100BaseFX), as follows:

- 10BaseT/100BaseTX connector—Insert the connector until it snaps into place in the module port (see Figure 4).

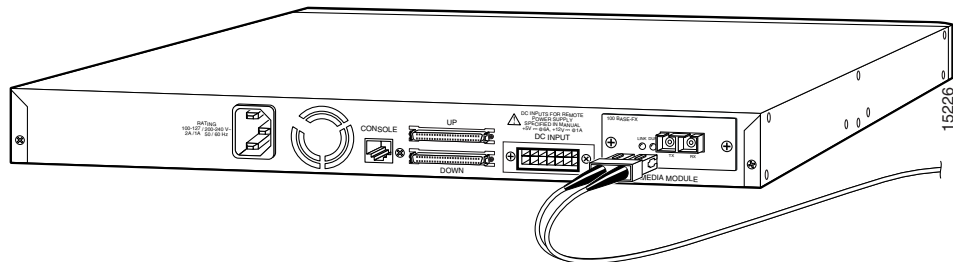
Note Use a straight-through cable to connect two ports when one of the ports is designated with an **X**. Use a crossover cable to connect two ports when both ports are designated with an **X**.

Figure 4 Connecting to the 10/100 Module Port



- 100BaseFX SC connector—Remove the rubber plugs from the fiber-optic port on the module and store them for future use. Insert the connector into the fiber-optic module port (see Figure 5).

Figure 5 Connecting to the 100BaseFX Module Port



Troubleshooting

Use Table 6 to identify problems with the modules and take the appropriate corrective action.

Table 6 Common Problems and Their Solutions

Symptom	Possible Cause	Corrective Action
Poor performance or no links	Incorrect speed settings for 10-Mbps and 100-Mbps connections.	<ul style="list-style-type: none"> Let both ports autonegotiate port speed. Set the port speed to match on both ends of the connection.
	<p>Cabling distance exceeded.</p> <p>Port statistics show excessive FCS, late-collision, or alignment errors.</p> <p>For 100BaseTX connections:</p> <ul style="list-style-type: none"> The distance between the port and the attached device exceeds 100 meters. If attached to a repeater, the total distance between the two end stations exceeds the 100BaseT cabling guidelines. <p>For 10BaseT connections: The distance between the port and the attached device exceeds 100 meters.</p>	<p>Reduce the cable length to within the recommended distances. See your 100BaseT repeater documentation for cabling guidelines.</p> <p>Reduce the cable length to within the recommended distances.</p>
	Bad adapter in attached device.	
	Excessive errors found in port statistics.	Run the adapter card diagnostic utility.
The switched uplink module is experiencing excessive flooding of unicast packets.	Module was not correctly installed.	Ensure the module is firmly in place in the expansion slot and the screws are inserted and tightened.
	Switched uplink module might have reached the maximum 1536 MAC addresses in memory and needs to be cleared.	Reset the installed switched uplink module to clear the address table.
No connectivity	Incorrect or bad cable.	
	<ul style="list-style-type: none"> A crossover cable was used when straight-through was required, or vice-versa. Bad cable. 	<p>See the <i>FastHub 400 10/100 Series Installation and Configuration Guide</i> for the correct pinouts and the proper use of crossover vs. straight-through cables.</p> <p>Replace with a known good cable.</p>
Port LED off	Devices not powered up.	Ensure both devices have power.
	Cable connection loose.	Verify the connection at both ends of cable.
	Wrong cable type.	Verify the cable type (crossover vs. straight-through).
	Incorrect wiring.	See the <i>FastHub 400 10/100 Series Installation and Configuration Guide</i> for pinout information.
	Faulty cable.	Replace the cable with a known good one.
Port LED solid amber	Port not forwarding.	
	The port might be disabled by management, or the device at other end is malfunctioning.	<p>Enable the port through in-band or out-of-band management.</p> <p>Investigate the device that is connected to the disabled port on the hub.</p>

Technical Specifications

Table 7 provides the technical specifications for the switched uplink modules.

Table 7 Technical Specifications

Physical Dimensions	
Weight	1 lb (0.45 kg)
Dimensions (L x W x H)	5.52 x 3.15 x 0.126 inch (114.8 x 80 x 32 cm)
Environmental Requirements	
Storage temperature	-13 to 158°F (-25 to 70°C)

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- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

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This document is to be used in conjunction with the *FastHub 400 10/100 Series Cabling and Start Up* document and *FastHub 400 10/100 Series Installation and Configuration Guide*.

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