Using the BayStack Ethernet Fiber Media Adapters

Bay Networks

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Related Publications

For more information about the installation and use of BayStack™ hubs and optional equipment, refer to the following publications:

- *Using the BayStack 10BASE-T Hubs* (Bay Networks™ part number 893-839-B)
- *Using the BayStack Ethernet Network Management Modules* (Bay Networks part number 893-841-A)

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Introduction

This guide describes the Bay Networks 10BASE-FL (fiber link) and single-mode fiber media adapters for the BayStack 10BASE-T Hubs, and provides instructions for installing, connecting, and configuring the adapters in the hub.

Each BayStack fiber media adapter provides one nonredundant single- or multimode fiber port for flexible backbone connectivity to your BayStack 10BASE-T Hub. Both adapters employ 10BASE-FL signaling technology.

The BayStack 10BASE-T Hub provides two Media Adapter LEDs to indicate the status of the hub media adapter ports A and B. For more information about interpreting media adapter LEDs, refer to Chapter 1, "Quick Reference Information," in *Using the BayStack 10BASE-T Hubs*.

This guide contains the following sections:

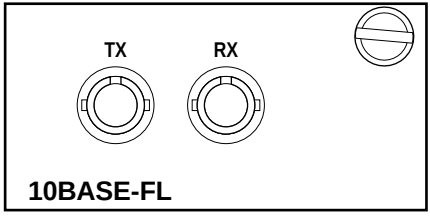
- BayStack 10BASE-FL Media Adapter
- BayStack Single Mode Fiber Media Adapter
- Fiber Optic Cable Length Limitations
- Installing a Media Adapter in a BayStack Hub

For more information about how the media adapter operates in the hub, refer to *Using the BayStack 10BASE-T Hubs* (Bay Networks Part number 893-839-B).

BayStack 10BASE-FL Media Adapter

The BayStack 10BASE-FL Media Adapter is a modular 10BASE-FL fiber link port. It is designed to be installed in either media adapter slot of a BayStack 10BASE-T Hub.

The port is compatible with the IEEE 802.3 10BASE-FL specification for Ethernet running over 62.5/125 µm or 50/125 µm multimode fiber optic cable.



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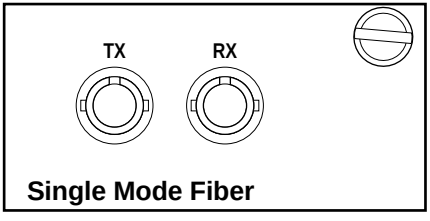
Connection is made to the port using two straight-tip (ST) connectors (Tx and Rx).

For more information about multimode fiber optic cable connection and limitations, see “Fiber Optic Cable Length Limitations” later in this guide.

BayStack Single Mode Fiber Media Adapter

The BayStack Single Mode Fiber Media Adapter is a modular port supporting 10BASE-F signaling. It is designed to be installed in the media adapter slot of any BayStack 10BASE-T Hub.

The port conforms to Bay Networks proprietary standards for Ethernet running over 9/125 µm single-mode fiber optic cable. No IEEE or other international standards exist for this configuration at this time.



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Connection is made to the port using two straight-tip (ST) connectors (Tx and Rx).

For more information about single-mode fiber optic cable connection and limitations, see “Fiber Optic Cable Length Limitations” next in this guide.

Fiber Optic Cable Length Limitations

The 10BASE-F standard permits you to use fiber optic cables up to 2000 meters long. However, the fiber connection must meet:

- Optical power budget
- Ethernet repeater rules

For more information about simple rules for Ethernet network compliance, refer to *Using the BayStack 10BASE-T Hubs*.

BayStack 10BASE-FL Media Adapter

The optical power budget for the 10BASE-FL media adapter is shown in Table 1. Power loss in the link cannot exceed the value for the type of fiber optic cable you are using.

Table 1. 10BASE-FL Optical power budget

Parameter	62.5/125 μm	50/125 μm
Transmitted power (average)	–20.0 dBm	–25.7 dBm
Receiver sensitivity (average)	–32.5 dBm	–32.5 dBm
Optical power budget	12.5 dB	6.8 dB

Only in-line fiber-to-fiber connections (a connection between two fibers terminated with fiber connectors, using a fiber-to-fiber connector) count against the optical power budget. The loss in a fiber connection at the ends of the link is included in the optical power budget and does not count as an in-line connection.

Table 2 lists the most common cable and connector combinations for the 10BASE-FL media adapter, assuming the maximum permitted attenuation with ST connectors. The table lists the maximum (total) distance allowed in the fiber connection. However, your fiber connection may have to be shorter to meet the optical power budget and Ethernet repeater rules.

Table 2. 10BASE-FL cable and connector combinations

Number of in-line fiber-to-fiber connections	62.5/125-μm cable	50/125-μm cable
0	2000 m (6560 ft)	2000 m (6560 ft)
1	2000 m (6560 ft)	2000 m (6560 ft)
2	2000 m (6560 ft)	2000 m (6560 ft)
3	2000 m (6560 ft)	1710 m (5620 ft)
4	2000 m (6560 ft)	1430 m (4690 ft)
5	2000 m (6560 ft)	1140 m (3750 ft)
6	1750 m (5740 ft)	860 m (2810 ft)
7	1500 m (4920 ft)	570 m (1870 ft)
8	1250 m (4100 ft)	290 m (940 ft)
9	1000 m (3280 ft)	0
10	750 m (2460 ft)	
11	500 m (1640 ft)	
12	250 m (820 ft)	
13	0	

BayStack Single Mode Fiber Media Adapter

The optical power budget for the single-mode fiber media adapter is shown in Table 1. Power loss in the link cannot exceed the value for the type of fiber optic cable you are using.

Table 3. Single-mode fiber optical power budget

Parameter	9/125 μm
Transmitted power (average)	–29.0 dBm
Receiver sensitivity (average)	–35.5 dBm
Optical power budget	6.5 dB

Only in-line fiber-to-fiber connections (a connection between two fibers terminated with fiber connectors, using a fiber-to-fiber connector) count against the optical power budget. The loss in a fiber connection at the ends of the link is included in the optical power budget and does not count as an in-line connection.

NOTE: *Your fiber connection must meet the optical power budget and the Ethernet repeater rules for your network.*

Installing a Media Adapter in a BayStack Hub

A BayStack 10BASE-FL media adapter is installed in a slot on the front of the BayStack 10BASE-T Hub.

To install a media adapter, follow these steps:

1. **Unplug the BayStack 10BASE-T Hub power cord from the AC power source.**
2. **Remove the filler panel from the media adapter slot on the front panel of the hub.**
3. **Install the media adapter into the media adapter slot.**
   a. Align the media adapter with the card guides and gently slide in the media adapter until you feel it align with the connector on the hub motherboard.
   b. Firmly push the media adapter into the connector.

CAUTION: *Do not force or overtighten the captive retaining screw on the media adapter.*

   c. Tighten the captive retaining screw on the media adapter by turning the screw clockwise.
4. **Reconnect the power cord.**

   The hub powers up and performs a self-test.
5. **Make appropriate cable connections.**

   For cabling information, see the section earlier in this guide that refers to the media adapter you are installing.

6. Verify the installation for the media adapter.

Observe for the installed media adapter that the respective Media Adapter LEDs on the front panel of the hub light according to Table 4.

Table 4. Media adapter status LEDs

Hub media adapter LEDs	Media adapter status
Green	Link status is good, port not partitioned.
Amber	Link status is good, port is partitioned.
Off	Link status is bad or connection is not present.

For more information about interpreting media adapter LEDs, refer to Chapter 1, “Quick Reference Information,” in *Using the BayStack 10BASE-T Hubs*.

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Meets requirements of:

FCC Part 15, Class A Digital Devices
VCCI Class 1 ITE
EN 55 022 (CISPR 22, Class B)
General License Vfg 243 (Class B)

Compliance with the VCCI regulation is dependent upon the use of shielded AC power cables. The user is responsible for procuring the appropriate cables.

Compliance with Class B regulations is dependent upon the use of shielded cables. The user is responsible for procuring the appropriate cables.

For the complete electromagnetic emissions statements and declaration of conformance, see *Using the BayStack 10BASE-T Hubs* (Bay Networks part number 893-839-A).

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