

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

Installing Media Dependent Adapters (MDA)s

Part No. 302403-B Rev 00
January 1999

Bay Networks

Downloaded from www.Manualslib.com manuals search engine

© 1999 by Bay Networks, Inc.

All rights reserved.

Trademarks

Bay Networks is a registered trademark and BayStack is a trademark of Bay Networks, Inc. All other trademarks and registered trademarks are property of their respective owners.

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, Bay Networks, Inc. reserves the right to make changes to the products described in this document without notice.

Bay Networks, Inc. does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

Note: 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. If it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.

EN 55 022 Declaration of Conformance

This is to certify that the Bay Networks 100BASE-FX/TX MDA are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

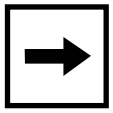
Warning: This device is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

These products conform to the provisions of Council Directive 89/336/EEC and 72/23/EEC. The Declaration of Conformity is available on the Bay Networks World Wide Web site at www.baynetworks.com.

Downloaded from www.Manualslib.com manuals search engine

Introduction

This document provides procedures for installing optional plug-in media dependent adapters (MDAs) into supported Bay Networks products equipped with an expansion slot. The MDAs can support high-speed connections to servers, shared Fast Ethernet hubs, or backbone devices.



Note: The MDAs are *not* hot-swappable. Power down the switch before installing or removing an MDA.

The following MDA models are available:

Type	Model/Description	Refer to:
10BASE-T/ 100BASE-TX	400-4TX MDA --- 4-port twisted pair RJ-45 connectors.	page 2
100BASE-FX (Fiber)	• 400-2FX MDA --- 2-port multimode fiber SC connectors. • 400-4FX MDA --- 4-port multimode fiber MT-RJ connectors.	page 5
1000BASE-SX (Shortwave gigabit fiber)	• 450-1SR MDA --- Single MAC gigabit MDA with a separate redundant PHY. • 450-1SX MDA --- Single PHY gigabit MDA.	page 10

(continued)

Downloaded from www.Manualslib.com manuals search engine

Type	Model/Description	Refer to:
1000BASE-LX (Longwave gigabit fiber)	• 450-1LR MDA --- Single MAC gigabit MDA with a separate redundant PHY. • 450-1LX MDA --- Single PHY gigabit MDA.	page 13

Bay Networks is constantly adding new models and features to existing product lines; see your Bay Networks sales representative for a full range of available MDAs.

For more details, see your switch product user's guide.

The following Bay Networks products are supported:

- BayStack 350 Series 10/100/1000 switches
- BayStack 450 Series 10/100/1000 switches

For installation instructions, see "Installing an MDA" on page 17.

10BASE-T/100BASE-TX MDA

The 400-4TX MDA (see Figure 1) uses four 10BASE-T/100BASE-TX RJ-45 (8-pin modular) port connectors to attach Ethernet devices.

Table 1 describes the 400-4TX MDA components and LEDs.

Downloaded from www.Manualslib.com manuals search engine

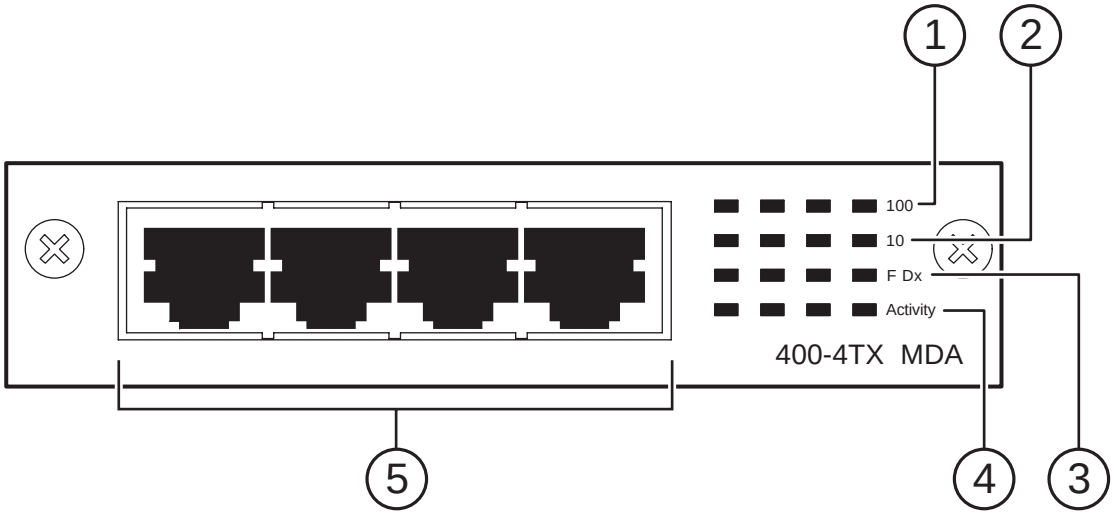


Figure 1. 400-4TX MDA Front Panel

Table 1. 400-4TX MDA Components

Item	Label	Description
1	100	100BASE-TX port status LEDs (green): On: The corresponding port is set to operate at 100 Mb/s. Off: The link connection is bad or there is no connection to this port. Blinking: The corresponding port is management disabled.

(continued)

Downloaded from www.Manualslib.com manuals search engine

Table 1. 400-4TX MDA Components *(continued)*

Item	Label	Description
2	10	10BASE-T port status LEDs (green): On: The corresponding port is set to operate at 10 Mb/s. Off: The link connection is bad or there is no connection to this port. Blinking: The corresponding port is management disabled.
3	F Dx	Full-duplex port status LEDs (green): On: The corresponding port is in full-duplex mode. Off: The corresponding port is in half-duplex mode.
4	Activity	Port activity LEDs (green): Blinking: Indicates the network activity level for the corresponding port. A high level of network activity can cause LEDs to appear to be on continuously.
5		10BASE-T/100BASE-TX RJ-45 (8-pin modular) port connectors.

The RJ-45 ports are configured as media-dependent interface-crossover (MDI-X) connectors. These ports connect over straight cables to the network interface controller (NIC) card in a node or server, similar to a

Downloaded from www.Manualslib.com manuals search engine

conventional Ethernet repeater hub. If you are connecting to another Ethernet hub or Ethernet switch, you need a crossover cable unless an MDI connection exists on the associated port of the attached device.

The 400-4TX MDA can operate at either 10 Mb/s or 100 Mb/s. The speed is determined through autonegotiation with its connecting device.

For installation instructions, see “Installing an MDA” on page 17.

100BASE-FX MDAs

There are two 100BASE-FX models:

- 400-2FX MDA

  The 400-2FX MDA uses two longwave 1300 nm SC connectors to attach devices over 62.5/125 micron multimode fiber optic cable.

- 400-4FX MDA

  The 400-4FX MDA uses four longwave 1300 nm MT-RJ connectors to attach devices over 62.5/125 micron multimode fiber optic cable.

Both models (see Figure 2) can be used to attach fiber-based 100 Mb/s connections to other compatible Fast Ethernet devices.

Single-mode fiber cable is not supported.

Downloaded from www.Manualslib.com manuals search engine



Warning: Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.



Vorsicht: Glasfaserkomponenten können Laserlicht bzw. Infrarotlicht abstrahlen, wodurch Ihre Augen geschädigt werden können. Schauen Sie niemals in einen Glasfaser-LWL oder ein Anschlußteil. Gehen Sie stets davon aus, daß das Glasfaserkabel an eine Lichtquelle angeschlossen ist.



Avertissement: L'équipement à fibre optique peut émettre des rayons laser ou infrarouges qui risquent d'entraîner des lésions oculaires. Ne jamais regarder dans le port d'un connecteur ou d'un câble à fibre optique. Toujours supposer que les câbles à fibre optique sont raccordés à une source lumineuse.

Downloaded from www.Manualslib.com manuals search engine



Advertencia: Los equipos de fibra óptica pueden emitir radiaciones de láser o infrarrojas que pueden dañar los ojos. No mire nunca en el interior de una fibra óptica ni de un puerto de conexión. Suponga siempre que los cables de fibra óptica están conectados a una fuente luminosa.



Avvertenza: Le apparecchiature a fibre ottiche emettono raggi laser o infrarossi che possono risultare dannosi per gli occhi. Non guardare mai direttamente le fibre ottiche o le porte di collegamento. Tenere in considerazione il fatto che i cavi a fibre ottiche sono collegati a una sorgente luminosa.



警告：光ファイバ装置は目に有害なレーザ
あります。光ファイバやコネクタ・ポート
光ファイバ・ケーブルは光源に接続されて

Downloaded from www.Manualslib.com manuals search engine

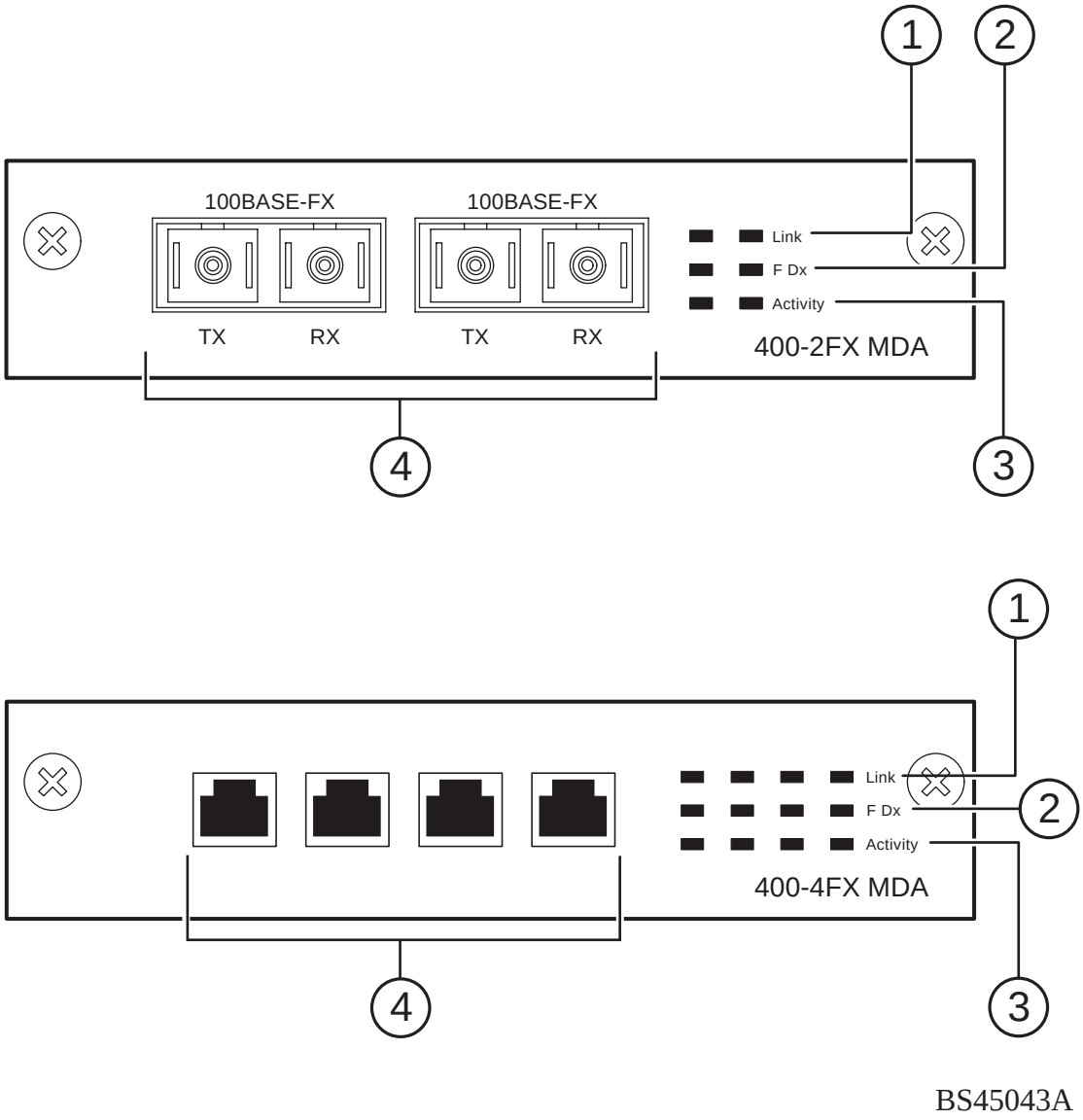


Figure 2. 100BASE-FX MDA Front Panels

Table 2 describes the 100BASE-FX components and LEDs.

For installation instructions, see “Installing an MDA” on page 17.

Downloaded from www.Manualslib.com manuals search engine

Table 2. 100BASE-FX MDA Components

Item	Label	Description
1	Link	Communications link LEDs (green): On: Valid communications link established. Off: The communications link connection is bad or there is no connection to this port. Blinking: The corresponding port is management disabled.
2	F Dx	Full-duplex port status LEDs (green): On: The corresponding port is in full-duplex mode. Off: The corresponding port is in half-duplex mode.
3	Activity	Port activity LEDs (green): Blinking: Indicates the network activity level for the corresponding port. A high level of network activity can cause LEDs to appear to be on continuously.
4		100BASE-FX port connectors: • Model 400-2FX uses SC connectors. • Model 400-4FX uses MT-RJ connectors.

Downloaded from www.Manualslib.com manuals search engine

1000BASE-SX MDAs



Warning: This is a Class 1 Laser/LED product. It contains a laser light source that can injure your eyes. Never look into an optical fiber or connector port. Always assume that the fiber optic cable or connector is connected to a laser light source.

There are two 1000BASE-SX (shortwave gigabit) MDA models:

- The 450-1SR MDA is a single MAC MDA with a separate redundant Phy (backup Phy port). Only one Phy port can be active at any time. If the active Phy port fails, the redundant Phy port automatically becomes the active port.
- The 450-1SX MDA is a single PHY MDA.

Both models (Figure 3) use shortwave 850 nm fiber optic connectors to connect devices over multimode (550 meter) fiber optic cable.

Downloaded from www.Manualslib.com manuals search engine

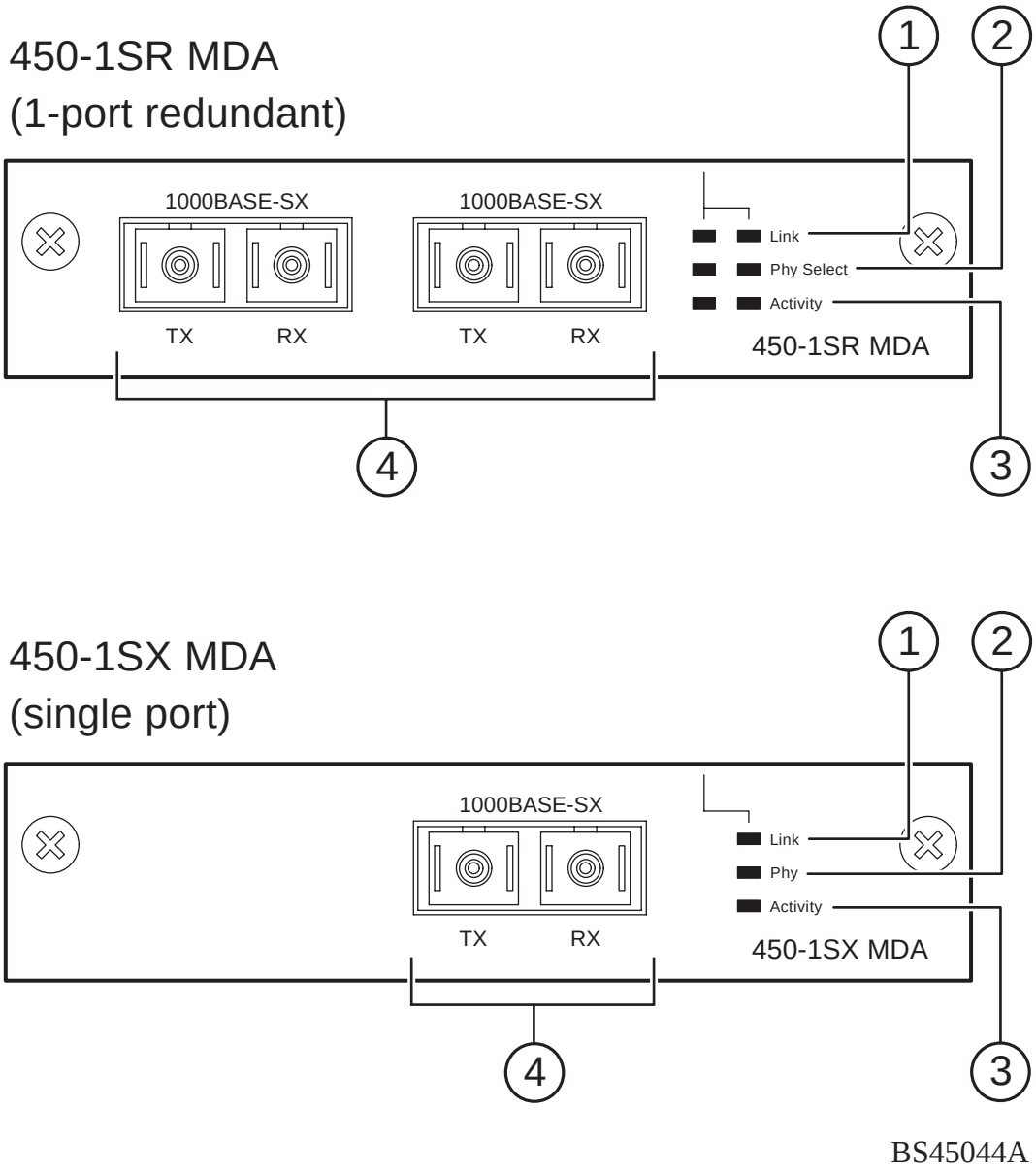


Figure 3. 1000BASE-SX MDA Front Panels

Table 3 describes the 1000BASE-SX components and LEDs.

For installation instructions, see “Installing an MDA” on page 17.

Downloaded from www.Manualslib.com manuals search engine

Table 3. 1000BASE-SX MDA Components

Item	Label	Description
1	Link	Communication link LEDs (green): On: Valid communications link. Off: The communications link connection is bad or there is no connection to this port. Blinking: The corresponding port is management disabled.
2	Phy (or) Phy Select	Phy status LEDs (green): On: The corresponding Phy port is active. Off: The corresponding Phy port is in backup mode or there is no connection to this port.
3	Activity	Port activity LEDs (green): Blinking: Indicates network activity level for the corresponding port. A high level of network activity can cause LEDs to appear to be on continuously.
4		1000BASE-FX SC port connectors.

Downloaded from www.Manualslib.com manuals search engine

1000BASE-LX MDAs

Warning: This is a Class 1 Laser/LED product. It contains a laser light source that can injure your eyes. Never look into an optical fiber or connector port. Always assume that the fiber optic cable or connector is connected to a laser light source.

There are two 1000BASE-LX (longwave gigabit) MDA models:

- The 450-1LR MDA is a single MAC MDA with a separate redundant Phy (backup Phy port). Only one Phy port can be active at any time. If the active Phy port fails, the redundant Phy port automatically becomes the active port.
- The 450-1LX MDA is a single Phy MDA.

Both models (Figure 4) use longwave 1300 nm fiber optic connectors to connect devices over single mode (3 kilometer) or multimode (550 meters) fiber optic cable.

Note: The optical performance of this transceiver cannot be guaranteed when connected to a multimode fiber plant without the use of the special offset SMF/MMF mode conditioning patch cord (see "1000BASE-LX Multimode Applications" on page 16).

Downloaded from www.Manualslib.com manuals search engine

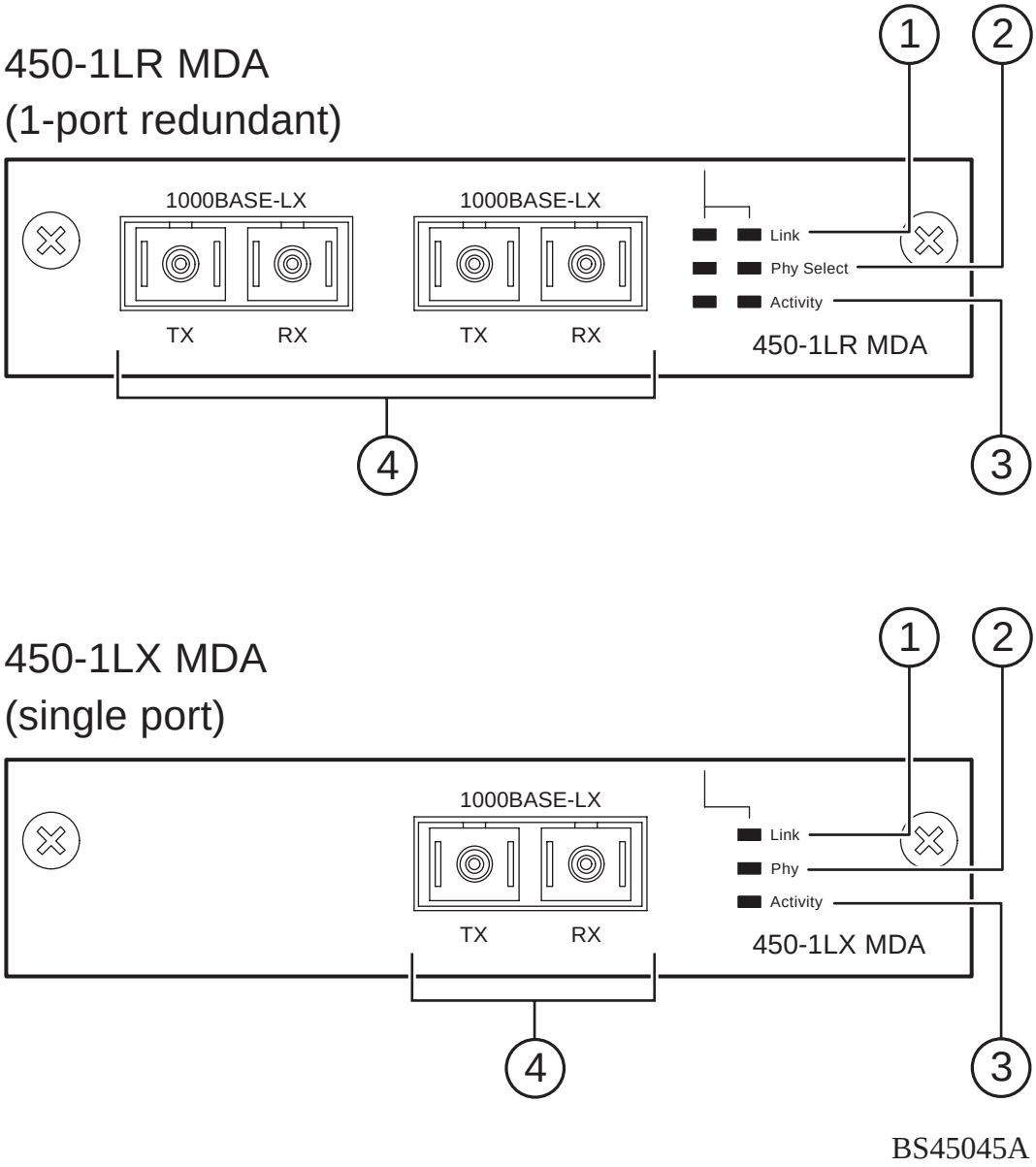


Figure 4. 1000BASE-LX MDA Front Panels

Table 4 describes the 1000BASE-LX MDA components and LEDs.

For installation instructions, see “Installing an MDA” on page 17.

Downloaded from www.Manualslib.com manuals search engine

Table 4. 1000BASE-LX MDA Components

Item	Label	Description
1	Link	Communication link LEDs (green): On: Valid communications link. Off: The communications link connection is bad or there is no connection to this port. Blinking: The corresponding port is management disabled.
2	PHY (or) Phy Select	Phy status LEDs (green): On: The corresponding Phy port is active. Off: The corresponding Phy port is in backup mode or there is no connection to this port.
3	Activity	Port activity LEDs (green): Blinking: Indicates network activity level for the corresponding port. A high level of network activity can cause LEDs to appear to be on continuously.
4		1000BASE-FX SC port connectors.

Downloaded from www.Manualslib.com manuals search engine

1000BASE-LX Multimode Applications

For 1000BASE-LX multimode applications, the longwave gigabit transceivers must be mode conditioned *externally* via a special offset SMF/MMF patch cord. The offset SMF/MMF patch cord allows the same transceiver to be used for both multimode and single-mode fiber. See your Bay Networks sales representative for more information about the SMF/MMF patch cord.

The 1000BASE-LX transceiver is designed to mechanically accomodate the *single-mode ferrules* used on one end of the special offset SMF/MMF patch cord. *Multimode ferrules* must not be used because they can bind and cause damage to the transceiver. Do not connect multimode cables *directly* into the 1000BASE-LX MDA transceiver. Instead, connect a special offset SMF/MMF patch cord into the transceiver, and then connect the multimode cable into the SMF/MMF patch cord.

For more information about gigabit transmission over fiber optic cable and mode conditioning, refer to the following publication:

Reference Note: Gigabit Ethernet Physical Layer Considerations (Bay Networks part number 201540-B)

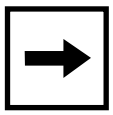
The publication is available on the World Wide Web at *support.baynetworks.com/library/tpubs/*

At the Web site, click on Accelar under the Routing Switches heading.

Downloaded from www.Manualslib.com manuals search engine

Installing an MDA

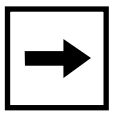
The Uplink Module slot on the BayStack 450 switches accommodates a single MDA. The connection can be either an RJ-45 10/100BASE-TX MDA or a fiber (100BASE-FX or 1000BASE-SX/LX) MDA with an SC or MT-RJ connector.



Note: The MDA is *not* hot-swappable. Power down the switch before installing or removing an MDA.

To install an MDA into the Uplink Module slot, follow these steps:

1. **Unplug the AC power cord from the back of the switch.**
2. **Loosen the thumb screws and remove the filler panel (or previously installed MDA) from the Uplink Module slot.**



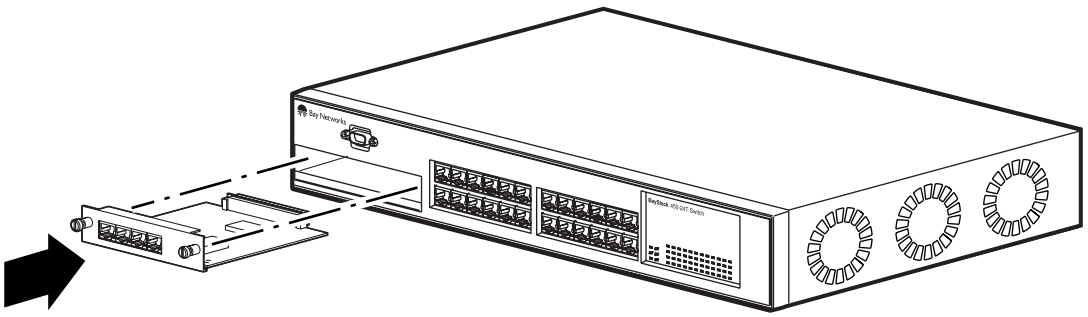
Note: If you are replacing an installed MDA with another type of MDA, see “Replacing an MDA with a Different Model” on page 19.

Downloaded from www.Manualslib.com manuals search engine

3. **Insert the MDA into the chassis slot (see Figure 5) taking care to slide the MDA onto the guides provided on the chassis.**

Caution: Make sure the MDA slides in on the guides provided. Failure to align the guides could result in bent and broken pins

---



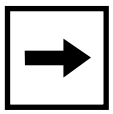
BS45046B

Figure 5. Installing an MDA

4. **Press the MDA *firmly* into the chassis slot. Be sure that the MDA is fully seated into the mating connector.**
5. **Secure the MDA in the chassis by tightening the thumb screws on the MDA front panel.**
6. **Attach devices to the MDA ports (refer to the *Using the BayStack 450 Switch*.**

Downloaded from www.Manualslib.com manuals search engine

After connecting the port cables, continue to follow the instructions in that manual to connect power and verify the installation.



Note: The IEEE 802.3u specification requires that all ports operating at 100 Mb/s use only Category 5 unshielded twisted pair (UTP) cabling.

Replacing an MDA with a Different Model

When replacing an installed MDA with another type of MDA, complete the following steps to clear the switch NVRAM:

1. **Power down the switch.**

   Remove the AC power cord from the power source.

2. **Remove the installed MDA.**

   Loosen the thumbscrews and remove the MDA.

3. **Cycle the switch power.**

   Power up the switch and wait for the Bay Networks logo screen to appear (approximately 10 seconds); then power down the switch.

4. **Install the replacement MDA.**

   Be sure to *firmly* tighten the two thumbscrews on the MDA front panel.

5. **Power up the switch.**

Downloaded from www.Manualslib.com manuals search engine

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP