

NOTICE

Enterasys Networks reserves the right to make changes in specifications and other information contained in this document and its web site without prior notice. The reader should in all cases consult Enterasys Networks to determine whether any such changes have been made.

The hardware, firmware, or software described in this manual is subject to change without notice.

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FCC NOTICE

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.

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 uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator’s manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

INDUSTRY CANADA NOTICE

This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n’émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

VCCI NOTICE

This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（V C C I）の基準に基づくクラスA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。

CLASS A ITE NOTICE

WARNING: 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.

SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

THE XENPAK 10GBASE-LR, 10GBASE-ER, 10GBASE-LX4, AND 10GBASE-SR USE CLASS 1 LASER TRANSCEIVERS. READ THE FOLLOWING SAFETY INFORMATION BEFORE INSTALLING OR OPERATING THESE PHYS.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

SAFETY INFORMATION CLASS 1 LASER TRANSCEIVERS LASER RADIATION AND CONNECTORS

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55 x 10⁻⁶ watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm⁻² or 8 x 10³ W m² sr-1.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

DECLARATION OF CONFORMITY

Application of Council Directive(s):	89/336/EEC 73/23/EEC
Manufacturer’s Name:	Enterasys Networks, Inc.
Manufacturer’s Address:	50 Minuteman Road Andover, MA 01810
European Representative Address:	Enterasys Networks Ltd. Nexus House, Newbury Business Park London Road, Newbury Berkshire RG14 2PZ, England
Conformance to Directive(s)/ Product Standards:	EC Directive 89/336/EEC EC Directive 73/23/EEC EN 55022 EN 55024 EN 60950 EN 60825
Equipment Type/Environment:	Networking Equipment, for use in a Commercial or Light Industrial Environment.

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

AGENCY STANDARDS

Safety

Meets the requirements of UL 60950, CSA C22.2 No. 60950, 73/23/EEC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Electromagnetic Compatibility

Compliant with the requirements of FCC Part 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS 3548, and VCCI V-3.

XENPAK 10GBASE-LR, -ER, -LX4, AND -SR PHYS

The LAN XENPAK PHYs (physical interfaces) provide inexpensive, high-speed Ethernet connectivity. These PHYs provide network managers the ability to use 10-Gigabit Ethernet technologies to provide high-speed, local backbone interconnections between large capacity switches. As demand for bandwidth increases, network administrators can deploy 10-Gigabit Ethernet throughout the entire network to improve server farm, backbone, and campus-wide connectivity.

SPECIFICATIONS

Firmware Requirements

E9.1.2.0 or later

Ports

1 10-Gbps Port

Physical Dimensions

Size: 11.33 cm H x 3.48 W x 1.17 D (4.46 in. H x 1.37 W x 0.46 D)

Weight: 0.13 kg (0.29 lbs)

Optics

Xenpak PHY	Output Power	Extinction Ratio	Received Sensitivity	Link Budget
10GBASE-LR	<0.5 dBm	>4 dB	-10.28 dBm	0 to 9.4 dB
10GBASE-ER	<4.0 dBm	>3 dB	-10.3 dBm	5 to 11 dB
10GBASE-LX4	<0.5 dBm	>3.5 dB	-10.3 dBm	0 to 7.5 dB
			-13.4 dBm (on 10µm fiber)	0 to 8.2 dB (on 10µm fiber)
10GBASE-SR	<-1 dBm	>3 dB	-11.1 dBm	7.3 dB

Temperature

Operating: 41° to 104° F (5° to 40° C)

Storage: -22° to 164° F (-30° to 73° C)

Humidity

5% to 90% (non-condensing)

CONNECTIVITY GUIDELINES

Table 1 Recommended Cable Types and Specifications

Xenpak PHY	Type	Max. Length	Connector	
10GBASE-LR	SMF	10 km (6.21 mi)	SC	
10GBASE-ER	SMF	40 km (24.85 mi)	SC	
10GBASE-LX4	SMF MMF	10 km (6.21 mi) 300 m (984.25 ft)	SC	
10GBASE-SR	62.5 um MMF 50 um MMF	200Mhz/km 400Mhz/km	33 m (108 ft) 66 m (217 ft)	SC SC
	50 um MMF	2000Mhz/km	300 m (884 ft)	SC

NOTE: The 10GBASE-ER Xenpak requires a minimum of 5dB attenuation or a cable length of about 10 km.

INSTALLING THE PHY



WARNING: The XENPAK PHYs use Class 1 Lasers. Do not use optical instruments to view laser output. The use of optical instruments to view laser output increases eye hazard.



ELECTRICAL HAZARD: Only qualified personnel should perform installation procedures.

Handling the PHY



CAUTION: Xenpak PHYs are easily damaged by electrostatic discharge.

To prevent electrostatic damage, observe the following guidelines:

- Wear an anti-static wrist strap connected to a suitable earth ground whenever handling the module.
- Store or transport this module only in appropriate anti-static packaging.
- Do not remove the PHY from its packaging until you are ready to install it.
- Do not touch any of the PHY’s pins, connectors or components.
- Hold the PHY only by its edges or faceplate.

Equipment Checklist

After unpacking the PHY, check the contents of the box to be sure you received the following items:

- One Xenpak PHY in anti-static bag

Tools

This installation requires the following tools:

Anti-static Wrist Strap



Hot Swap

To hot swap a Xenpak PHY, do not press the hot swap button. You may remove or install a PHY at any time.

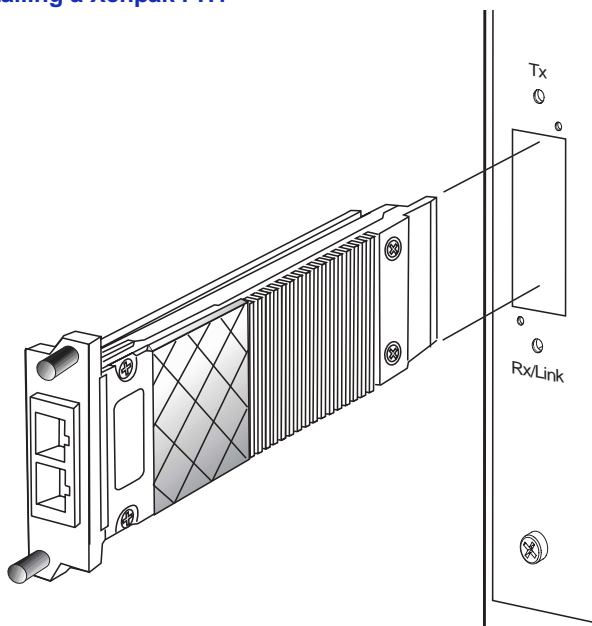
Instructions



CAUTION: Before performing any upgrade or installation, ensure that you are properly “grounded” to avoid electrostatic discharge.

1. Attach the anti-static wrist strap (refer to the instructions in the anti-static wrist strap package) and remove the PHY from its anti-static packaging.
2. Position the PHY with its top side oriented as shown below and its edge connector facing the port slot.
3. Carefully push the PHY into the slot until the back of the PHY’s faceplate is flush with the faceplate of the receiving module.
4. Tighten the two thumbscrews to secure the PHY to the module. This completes the installation.

Installing a Xenpak PHY



TROUBLESHOOTING

Common Errors

- The PHY is not seated properly.
- Tx and Rx connections are not matched correctly.
- The PHYs used on either end of the connection are not identical.
- The 10GBASE-ER Xenpak requires a minimum of 5dB attenuation or a cable length of about 10 km.

ADDITIONAL INFORMATION

For additional information about installing Xenpak PHYs, visit the Enterasys Networks web site.

Getting Help

For additional support related to the Common CLI syntax or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	http://www.enterasys.com/
Phone	603-332-9400 1-800-872-8440 (toll-free in U.S. and Canada) For the Enterasys Networks Support toll-free number in your country: http://www.enterasys.com/support/gtac-all.html
Internet mail	support@enterasys.com
Additional documentation	http://www.enterasys.com/support/manuals

To send comments or suggestions concerning this document, contact the Technical Writing Department via the following email address:
TechWriting@enterasys.com

Please include the document Part Number in the email message.

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) taken to resolve the problem (e.g., changing mode switches, rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)

Xenpak 10GBASE-LR, -ER, -LX4, and -SR PHYs

Quick Start

Web Site: <http://www.enterasys.com/>

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