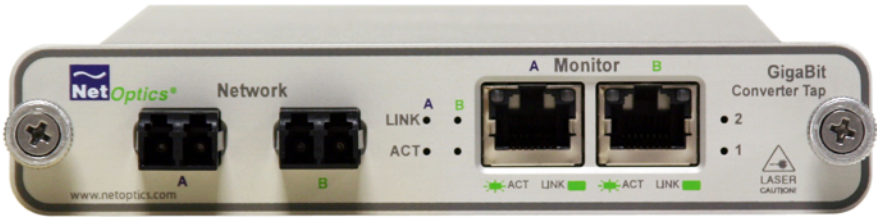




---

# Installation Guide for GigaBit SX/LX to TX Tap





## Contents

Introduction . . . . .	1
Key Features . . . . .	2
About This Guide . . . . .	3
Unpacking and Inspection . . . . .	3
Product Diagrams . . . . .	4
LED Indicators . . . . .	5
Connecting to the Network . . . . .	6
Connecting to the Monitoring Device . . . . .	7
Specifications . . . . .	8
Limitations on Warranty and Liability . . . . .	10

---

**PLEASE READ THESE LEGAL NOTICES CAREFULLY.**

By using a Net Optics Tap you agree to the terms and conditions of usage set forth by Net Optics, Inc.

No licenses, express or implied, are granted with respect to any of the technology described in this manual. Net Optics retains all intellectual property rights associated with the technology described in this manual. This manual is intended to assist with installing Net Optics products into your network.

***Trademarks and Copyrights***

© 2009 by Net Optics, Inc. Net Optics® is a registered trademark of Net Optics, Inc. Additional company and product names may be trademarks or registered trademarks of the individual companies and are respectfully acknowledged.

***Additional Information***

Net Optics, Inc. reserves the right to make changes in specifications and other information contained in this document without prior notice. Every effort has been made to ensure that the information in this document is accurate.

---

## **Introduction**

Net Optics GigaBit SX/LX to TX Tap simplifies connecting GigaBit copper monitoring and security devices to SX or LX fiber network links. Convert SX or LX to TX and tap into the link with one device, reducing cost and complexity at the same time. GigaBit SX/LX to TX Taps support passive monitoring of GigaBit links at 1000 Mbps.

### **Transparent Access**

GigaBit SX/LX to TX Taps establish permanent passive access ports without introducing a point of failure or disturbing other network connections. These passive Taps deliver full-duplex monitoring with zero impact on network traffic around the clock.

### **Security and Visibility**

Without an IP address, monitoring devices are isolated from the network, dramatically reducing their exposure to attacks. However, the monitoring device connected to the Tap still sees all full-duplex traffic as if it were in-line, including Layer 1 and Layer 2 errors.

### **Simply Plug It In**

Full-duplex monitoring is a snap with supplied cables. All network and monitoring cables necessary for plug-and-play deployment are included with the Tap.

### **Reliability**

For extra uptime protection, Net Optics GigaBit SX/LX to TX Taps offer redundant power connections. Should the primary power source fail, the Tap automatically switches to the backup power source. Power LEDs on the front of the Tap indicate the current power source – even if power is lost and reapplied, there is always zero delay to network traffic.

## Key Features

### Passive, Secure Technology

- Provides passive access at 1000 Mbps without data stream interference or introducing a point of failure
- Access SX or LX links with GigaBit copper devices without a separate converter
- Permanent in-line installation without affecting network performance
- Passes all full-duplex traffic (including errors) from all layers for comprehensive troubleshooting
- No IP address is needed for the Tap or monitoring device, enhancing monitoring security
- Redundant power ensures monitoring uptime
- Fully IEEE 802.3 compliant
- Fully RoHS compliant

### Ease of Use

- LED indicators show redundant power and link status
- Front-mounted connectors make installation and operation quick and easy
- All networking and monitoring cables are included
- Silk-screened application diagram illustrates all connections for easy deployment
- Optional 19-inch rack frames hold up to 3 or 12 Taps
- Tested and compatible with all major manufacturers' monitoring devices, including protocol analyzers, probes, and intrusion detection/prevention systems

### Support

- Net Optics offers free technical support throughout the lifetime of your purchase. Our technical support team is available from 8 am to 5 pm Pacific Time, Monday through Friday at +1 (408) 737-7777 and via email at [ts-support@netoptics.com](mailto:ts-support@netoptics.com). FAQs are also available on Net Optics website at [www.netoptics.com](http://www.netoptics.com).

## About This Guide

Please read the guide before attempting to install GigaBit Tap. This guide covers the following models:

Part Number	Description
CVT-SXn*/GCU	GigaBit SX to TX Tap
CVT-LXn*/GCU	GigaBit LX to TX Tap

\* “n” is the split ratio where 5 is 50/50, 4 is 60/40, and 3 is 70/30.

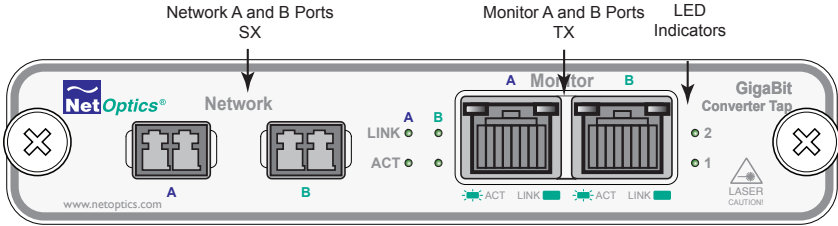
## Unpacking and Inspection

Carefully unpack the GigaBit Tap and check for damaged or missing parts. The Fiber Tap ships with the following:

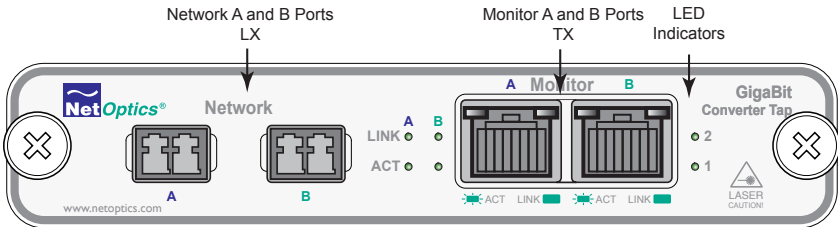
- GigaBit Tap
- 2 Network cables
- 2 Monitor cable
- Test report
- Installation Guide
- Fasteners for rack mounting

You may have also ordered a panel for rack mounting and an extended warranty. Carefully check the packing slip against parts received. If any part is missing or damaged, contact Net Optics' Customer Service immediately.

**Product Diagrams**



**Figure 1: CVT-SX/GCU Front Panel**



**Figure 2: CVT-LX/GCU Front Panel**



**Figure 3: Rear Panel AC Power Model**



**Figure 4: Rear Panel DC Power Model**

## LED Indicators

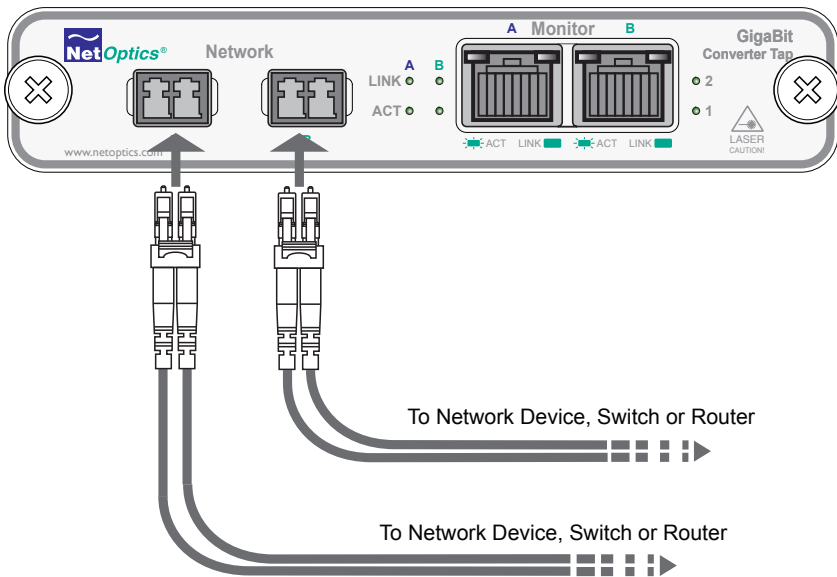
- **PWR 1/ PWR 2:** Main and Redundant Power. If the Tap is deployed with both power supplies, both LEDs illuminate when the Tap is plugged in. If an LED is off, this indicates that the corresponding power supply is not functioning.
- **Link/Activity Indicators:** If a good link is established, the LED illuminates a steady green. If there is current activity on this link, the LED flashes.

## Connecting to the Network

1. Connect Network Port A to the appropriate network device using a Duplex LC cable.
2. Connect Network Port B to the appropriate network device using a Duplex LC cable.
3. Verify that the Tap Network Ports are cabled in-line between two devices.

**Note:**

*The use of Singlemode (8.5µm) or Multimode (50µm or 62.5µm) cabling is determined by the model purchased.*



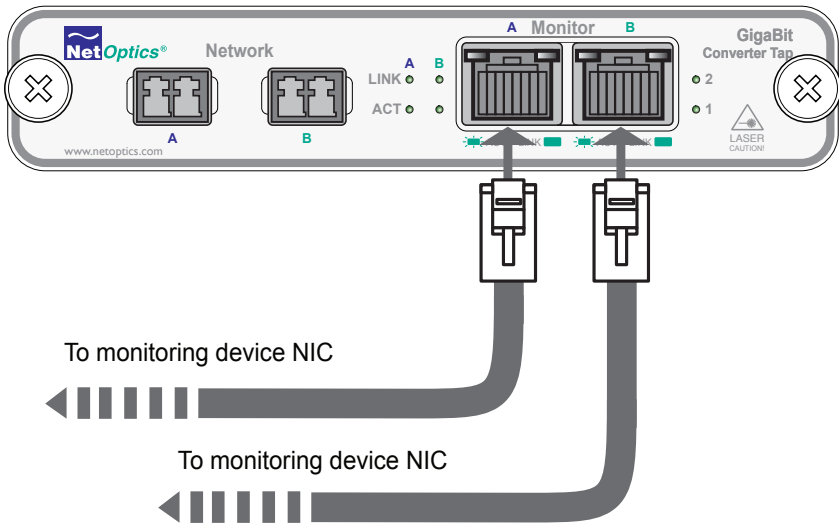
**Figure 4: Connecting to the Network**

### Connecting to the Monitoring Device

1. Supply power to the Tap using the two redundant power supplies included with the unit. Verify that the Power LED illuminates.
2. Connect Monitor Port A to the appropriate port on the monitoring device using a CAT5e straight-through cable.
3. Connect Monitor Port B to the appropriate port on the monitoring device using a CAT5e straight-through cable.

**Note:**

*The second power supply is available to support the flow of traffic to the monitoring device in the event that the first power supply becomes unavailable.*



**Figure 5: Connecting to the Monitoring Device**

## Specifications

### Environment

Operating Temperature: 0°C to 40°C

Operating Temperature: -10°C to 70°C

Relative Humidity: 10% min, 95% max, non-condensing

### Power

Power Supply Input: 100-240VAC, 0.5A, 47-63Hz

Output: 12V 1.5A

-48V Power Supply Input: -48V DC typical, -36V DC min, -75V DC max

### Mechanical

Dimensions: 1.125" high x 6.5" deep x 4.5" wide

### Cable Interface

Copper Cable Type: 22-24 AWG unshielded twisted pair cable,  
CAT5/CAT5e

Link Distance Supported: 100 meters

### Optical Interface

Transceivers: Class I, eye-safe, laser emitter type. These Class I Lasers conform to the applicable requirements per US 21 CFR (J) and EN 60825-1, also UL 1950 applications.

Split Ratio: 50/50

#### Multimode:

Cable Type: Multimode Corning 50 or 62.5/125 $\mu$ m, wavelength 850nm

Insertion Loss:  $\leq$  4.5 dB

Optical Transmitter Wavelength: 850 nm nominal

Output Power: -9.5 dB min, -4 dB max

Optical Receiver Input Sensitivity: 0 dB min, -17 dB max

#### Singlemode:

Cable Type: Singlemode Corning 8.5/125 $\mu$ m, wavelength 1310nm

Insertion Loss:  $\leq$  3.7 dB

Optical Transmitter Wavelength: 1310 nm nominal

Output Power: -10 dB min, -3 dB max

Optical Receiver Input Sensitivity: -3 dB min, -20 dB max

## Connectors

### CVT-SXn/GCU model:

- (2) RJ45, 8-pin connectors (monitor ports)
- (2) Duplex LC Multimode connectors (network ports)

### CVT-LXn/GCU model:

- (2) RJ45, 8-pin connectors (monitor ports)
- (2) Duplex LC Singlemode connectors (network ports)

## Certifications

Fully RoHS compliant

## Limitations on Warranty and Liability

Net Optics offers a limited warranty for all its products. IN NO EVENT SHALL NET OPTICS, INC. BE LIABLE FOR ANY DAMAGES INCURRED BY THE USE OF THE PRODUCTS (INCLUDING BOTH HARDWARE AND SOFTWARE) DESCRIBED IN THIS MANUAL, OR BY ANY DEFECT OR INACCURACY IN THIS MANUAL ITSELF. THIS INCLUDES BUT IS NOT LIMITED TO LOST PROFITS, LOST SAVINGS, AND ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT, even if Net Optics has been advised of the possibility of such damages. Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Net Optics, Inc. warrants this Tap to be in good working order for a period of ONE YEAR from the date of purchase from Net Optics or an authorized Net Optics reseller.

Should the unit fail anytime during the said ONE YEAR period, Net Optics will, at its discretion, repair or replace the product. This warranty is limited to defects in workmanship and materials and does not cover damage from accident, disaster, misuse, abuse or unauthorized modifications.

If you have a problem and require service, please call the number listed at the end of this section and speak with our technical service personnel. They may provide you with an RMA number, which must accompany any returned product. Return the product in its original shipping container (or equivalent) insured and with proof of purchase.

### *Additional Information*

Net Optics, Inc. reserves the right to make changes in specifications and other information contained in this document without prior notice. Every effort has been made to ensure that the information in this document is accurate. Net Optics is not responsible for typographical errors.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS, EXPRESS OR IMPLIED. No Net Optics reseller, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

Net Optics is always open to any comments or suggestions you may have about its products and/or this manual.

Send correspondence to  
Net Optics, Inc.  
5303 Betsy Ross Drive  
Santa Clara, CA 95054 USA  
Telephone: +1 (408) 737-7777  
Fax: +1 (408) 745-7719  
Email: [info@netoptics.com](mailto:info@netoptics.com)/[Internet: www.netoptics.com](http://www.netoptics.com)

All Rights Reserved. Printed in the U.S.A. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form, by any means, without prior written consent of Net Optics, Inc., with the following exceptions: Any person is authorized to store documentation on a single computer for personal use only and that the documentation contains Net Optics' copyright notice.



**[www.netoptics.com](http://www.netoptics.com)**