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## Installation Guide for 8x1 10/100BaseT Regeneration Tap



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## Table of Contents

Introduction .....	1
Key Features .....	2
Product Diagram .....	3
Connecting the 8x1 10/100 No Delay Regeneration Tap to the Network .....	5
Connecting the 8x1 10/100 No Delay Regeneration Tap to the Monitoring Devices .....	6
Specifications .....	8
Warranty .....	9

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***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.

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## **Introduction**

Net Optics 8x1 10/100BaseT Regeneration Taps solve the key physical layer challenges of multi-device monitoring for 10/100BaseT networks. For a complete picture of network health, these Taps connect up to eight different network management and security devices at any single network location.

## **One Tap, No Idle Resources**

Keep your intrusion detection and prevention systems, protocol analyzers, RMON probes, and other security devices productive with a single Regeneration Tap. Maximize resources and save on access points when multiple devices can monitor link traffic simultaneously through a single Regeneration Tap. Secure, passive access for multiple devices simply means a better return on monitoring investments.

## **Zero Delay™ - A Net Optics Breakthrough**

Highly sensitive network locations can improve monitoring performance via the innovative features of Net Optics Taps. If power is lost to other 10/100 Taps, the connected devices may introduce delays as they detect the power loss and try to re-establish their link.

Net Optics' pioneering design ensures that any loss of power to the Tap is transparent to the network, and does not affect the flow of traffic through the Tap – eliminating packet delay and loss as potential security issues.

## **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.

## **Reliability**

For extra uptime protection, Net Optics 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.

## Key Features

### Passive, Secure Technology

- Enables real-time, simultaneous monitoring of a single 10/100BaseT link with up to eight monitoring devices
- Provides complete full-duplex visibility at 10 or 100 Mbps without data stream interference or introducing a point of failure
- Unique Zero Delay technology ensures every packet goes through without delay, even if power is lost to the Tap
- Passes all 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, speed, link, and activity status
- Front-mounted connectors support easy installation and operation
- Silk-screened application diagram illustrates all connections for easy deployment
- Optional custom monitoring cables support easy full-duplex monitoring by sending each side of the signal to a separate monitoring device NIC
- 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).

## Product Diagrams

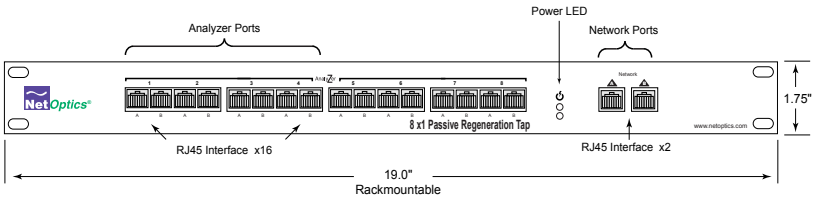


Figure 1: Front Panel View

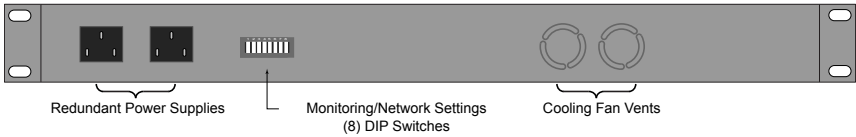


Figure 2: Back Panel View

## LED Functions

- **PWR 1/ PWR 2:** Main and Redundant Power. If the Tap is deployed with both power supplies, both LEDs will illuminate green when the Tap is plugged in. If an LED is off, this indicates that the corresponding power supply is not functioning.
- **10/100 Indicator:** Located in the upper left hand corner. If the Port is set to 10 Mbps, the LED illuminates yellow. If the Port is set to 100 Mbps, the LED will illuminate green.
- **Link Indicator:** Located in the upper right hand corner. If a good link is established, the LED illuminates a steady green. If there is current activity on this link, the LED flashes.

## DIP Switch Diagram

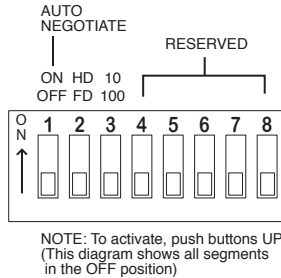


Figure 3

## Monitoring/Network Settings

Eight dual in-line package (DIP) switches are located on the back of the unit, allowing the user to select from multiple monitoring and network settings. When the bottom half of the switch is down, the Port is “Off.” When the top half of the switch is down, the Port is “On.” You must ensure that both Network Ports A and B match your network devices speed and duplex settings.

- **Switch 1: Autonegotiation.** When this Port is “On” the Tap can change between monitoring at either 10 or 100 Mbps, depending on the dictates of the connected monitoring devices. When this Port is “Off” the Tap is forced to operate only at 10 Mbps, or at 100 Mbps, depending on the position of Switch 2.
- **Switch 2: Half or Full-Duplex.** When this Port is “Off” the Tap supports full-duplex communication. When this Port is “On” the Tap supports half-duplex communication.
- **Switch 3: 10 or 100 Mbps.** When this Port is “Off” the Tap is set to communicate with all connected devices at 100 Mbps. When this Port is “On” the Tap is set to communicate at 10 Mbps. This setting is overridden when Autonegotiation (Switch 1) is “On.”
- **Switch 4:** Reserved
- **Switch 5:** Reserved
- **Switch 6:** Reserved
- **Switch 7:** Reserved
- **Switch 8:** Reserved

*Note: Factory default setting is Auto-negotiation.*

## Connecting the 8x1 10/100 Regeneration Tap to the Network

1. Unpack the Regeneration Tap, verify that you have all components, and obtain the required cables needed to successfully install the unit.
2. Connect Network Port A to the appropriate switch, server or router device using a CAT5 RJ45 cross-over cable.
3. Connect Network Port B to the appropriate switch, server or router device using a CAT5 RJ45 cross-over cable.
4. Verify that the Regeneration Tap Network Ports are cabled in-line between two devices.

### 1 Connect Copper Network Ports

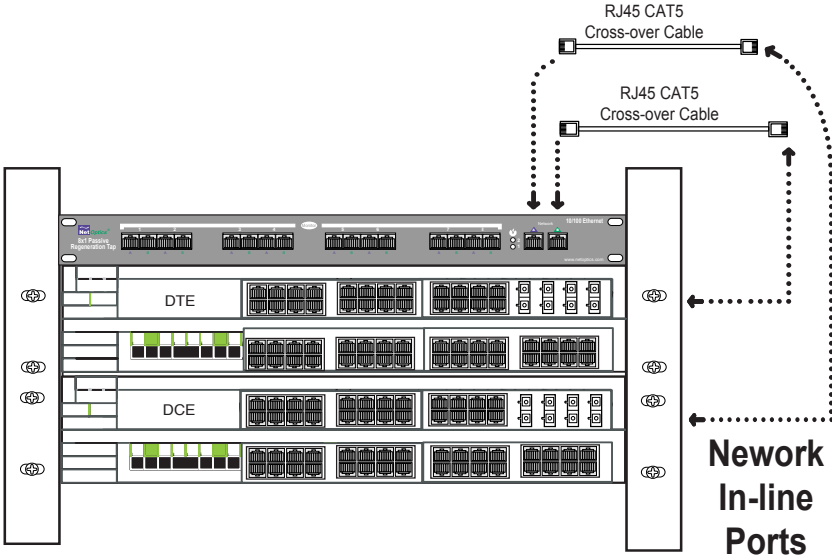


Figure 4: Tap to Network Connection

## Connecting the 8x1 10/100 Regeneration Tap to the Monitoring Devices

1. Supply power to the Tap using the power supply adapter included with the unit. Verify that the power LED illuminates.
2. Connect Monitor Port 1 side A to the appropriate port on the monitoring device using a CAT5 RJ45 straight-through cable.
3. Connect Monitor Port 1 side B to the appropriate port on the monitoring device using a CAT5 RJ45 straight-through cable.
4. Repeat steps 2-3 for each monitoring device you wish to connect to the Regeneration Tap.

*Note 1: Straight-through cable is used when connecting the Tap Ports to Routers or NICs. Cross-over cable is used when connecting the Tap Ports to Switches and Hubs. The Tap Ports Transmit on Pins 3 & 6 and Receive on Pins 1 & 2.*

*Note 2: 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. If the first power supply is unavailable, the second power supply will supply all power for the Tap. Since the Tap is passive, network traffic continues to flow even if no power is available to the Tap.*

# Connecting the 8x1 10/100 Regeneration Tap to the Monitoring Devices

## 1 Connect Copper Network Ports

## 2 Connect Copper Monitoring Ports

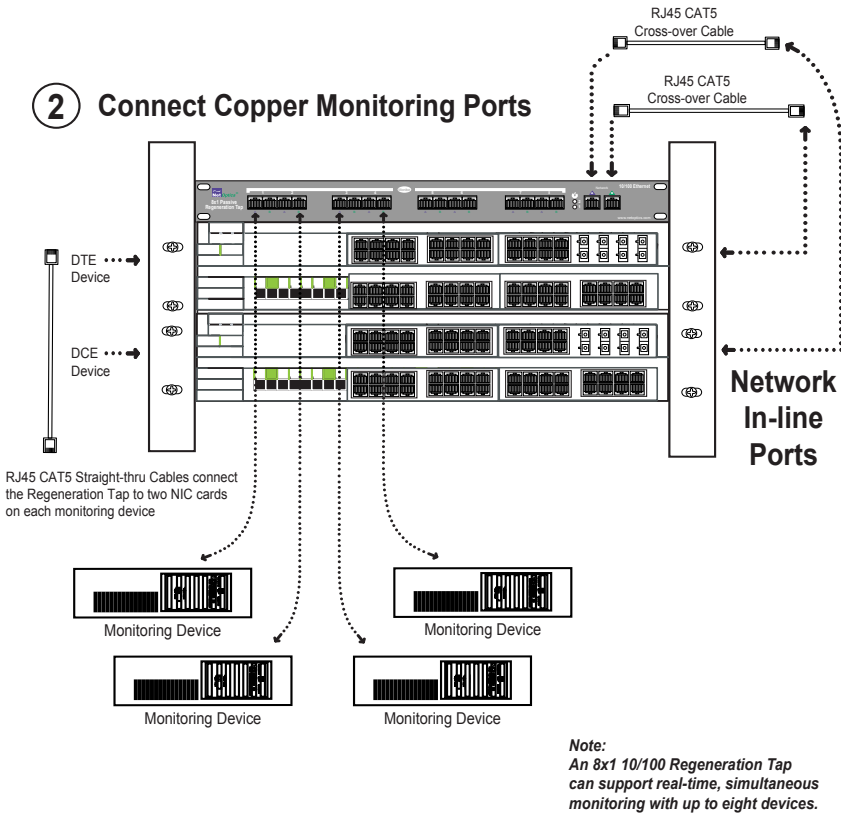


Figure 5: Tap to Monitoring Devices

## Specifications

### Operating Specifications:

Operating Temperature: 0°C to 40°C

Storage Temperature: -10°C to 70°C

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

### Mechanical Specifications:

Redundant Internal Power Supplies (2):

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

Dimensions: 1.75" high x 10.5" deep x 17" wide

### Cable Interface:

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

Link Distance Supported: 100 meters

### Certificate:

Fully RoHS compliant

### Connectors:

(16) RJ45, 8-pin connectors (monitor ports)

(2) RJ45, 8-pin connectors (network ports)

### *Limitations on Warranty and Liability*

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Net Optics, Inc. warrants this Regeneration 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.

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

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