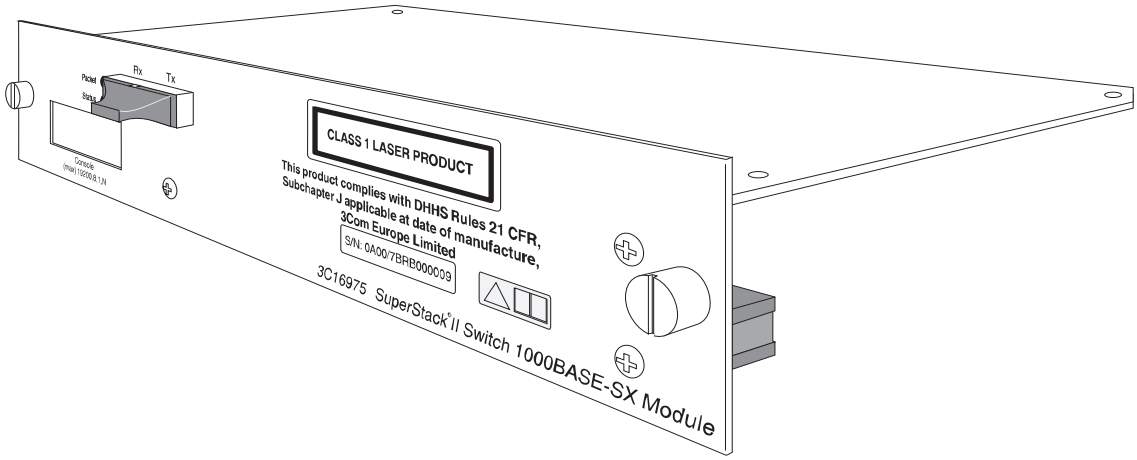
SuperStack II



SuperStack® II Switch 1000BASE-SX Module (3C16975)
User Guide

INTRODUCTION

The SuperStack® II Switch 1000BASE-SX Module provides an 850nm Gigabit Ethernet fiber port for units in the SuperStack II Switch 1100/3300 family.

The module requires management software version 2.0 or later to be installed on the Switch. For instructions on upgrading management software, refer to the documentation supplied with your Switch.

The module conforms to the full duplex implementation of the Gigabit Ethernet standard, IEEE 802.3z. The port uses 62.5/125µm or 50/125µm multimode fiber cable with SC duplex connectors, and supports the segment lengths described below.

Fiber Size	Fiber Bandwidth	Segment Lengths Supported
62.5/125µm	160MHz/km	2m–220m (7ft–722ft)
	200MHz/km	2m–275m (7ft–902ft)
50/125µm	400MHz/km	2m–500m (7ft–1641ft)
	500MHz/km	2m–550m (7ft–1805ft)

LEDs

You can gather information about the status of the module and its packet activity using LEDs on the front of the Switch and on the module itself.

LED	Color	Indicates
Expansion Module Port Status LEDs (located on the front of the Switch):		
Packet	Yellow	Packets are being transmitted/received on the module port.
Status	Yellow	A valid module is installed.
	Yellow flashing	An unrecognized module is installed.
	Off	No module is installed.
Module Status LEDs (located on the module at the rear of the Switch):		
Packet	Yellow	Packets are being transmitted/received on the module port.
Status	Green	Link present and port enabled.
	Green flashing (fast 1Hz)	Link present but port disabled.
	Green flashing (slow 0.5Hz)	The module is failing to auto-negotiate. See "Problem Solving".
	Off	Link failed or disconnected.

INSTALLATION AND REMOVAL

***WARNING**: Installation and removal of the module must be carried out by qualified personnel only. Before installing the module into a unit, you must first disconnect the unit from the mains power supply. For full safety instructions, refer to the user guide that accompanies the unit.*

***AVERTISSEMENT**: Confiez l'installation et la dépose de ce module à un personnel qualifié. Avant d'installer ce module dans un groupe, vous devez au préalable débrancher ce groupe de l'alimentation secteur. Pour prendre connaissance des consignes complètes de sécurité, consultez le guide utilisateur qui accompagne ce groupe.*

***WARNHINWEIS**: Die Installation und der Ausbau des Moduls darf nur durch Fachpersonal erfolgen. Vor dem Installieren des Moduls in einem Gerät muß zuerst der Netzstecker des Geräts abgezogen werden. Vollständige Sicherheitsanweisungen sind dem Benutzerhandbuch des Geräts zu entnehmen.*

WARNING: Fiber Optic ports - Optical Safety

Never look at the transmit laser while it is powered-up. Never look directly at the fiber TX port and fiber cable ends when they are powered-up.

AVERTISSEMENT: Ports pour fibres optiques - sécurité sur le plan optique

Ne regardez jamais le laser tant qu'il est sous tension. Ne regardez jamais directement le port TX (Transmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

WARNHINWEIS: Faseroptikanschlüsse - Optische Sicherheit

Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

Handling the Module

The module can be easily damaged by electrostatic discharge. To prevent damage, observe the following:

- Do not remove the module from its packaging until you are ready to install it into a Switch.
- Do not touch any of the pins, connections or components on the module.
- Handle the module only by its edges and front panel.
- Always wear an anti-static wristband connected to a suitable earth point.
- Always store or transport modules in anti-static packaging.

Installing the Module into a Switch

***CAUTION:** When a module is installed into a Switch, the Switch only supports one port trunk. If you have two port trunks configured on your Switch, remove one of them before installing the module. If you do not remove the second port trunk, both port trunks are automatically removed.*

1. Ensure that the Switch is disconnected from the mains power supply and that you are wearing an anti-static wristband connected to a suitable earth point.
2. Place the Switch on a flat surface. Using a suitable screwdriver, remove the blanking plate from the rear of the Switch. Do not remove any other screws from the rear of the Switch.
3. Keep the blanking plate and screws in a safe place. If you remove the module at any time, you must replace the blanking plate to prevent dust and debris entering the Switch and to aid the circulation of cooling air.
4. Hold the module so that the text on the front panel is upright, and insert it into the Switch, ensuring the connectors are fully engaged. Tighten the two captive thumbscrews securing the module.
5. Install the module:
   a. Ensure that the Switch is powered-up.
   b. Remove the protective plastic covers from the fiber connections on the module.
   c. Plug the SC connector on the fiber cable into the fiber socket on the module.
   d. Connect the other end of the fiber optic segment to a device fitted with a Gigabit Ethernet connection.
6. Check the LEDs on the front of the Switch to ensure that the module is operating correctly. Refer to "LEDs" on page 1 for more information.

Removing the Module from a Switch

1. Ensure that the power supply and the fiber backbone connection cables are disconnected from the Switch.
2. Place the Switch on a flat surface. Undo the two captive thumbscrews securing the module into the Switch. Do not remove any other screws from the Switch.
3. If you are not fitting another module immediately, you must replace the blanking plate to ensure that dust and debris do not enter the Switch and to aid the circulation of cooling air.

MANAGING THE MODULE

The module requires management software version 2.0 or later to be installed on the Switch. For instructions on upgrading management software, refer to the documentation supplied with your Switch.

When the module is installed in a suitable Switch, the Switch interfaces contain features to enable, disable and monitor the auto-negotiation system specified in the IEEE 802.3z Gigabit Ethernet standard. This system allows the module port to automatically detect the flow control setting of a Gigabit Ethernet link and provide the appropriate connection.

Configuring IEEE 802.3z Auto-negotiation Using the Web Interface

You can enable and disable IEEE 802.3z auto-negotiation for the module port using the Port Setup page of the web interface.

To do this:

1. Click the Unit icon on the side-bar.
2. Click the module port on the Switch graphic. The Port Setup page is displayed.
3. From the *Auto-negotiation* listbox, specify Enabled or Disabled:
   - Specify Enabled if the device at the other end of the link supports IEEE 802.3z auto-negotiation. This is the default setting for the listbox.
   - Specify Disabled if the device at the other end of the link does not support IEEE 802.3z auto-negotiation.

     If you specify Disabled, the module port uses the bypass mechanism and bi-directional flow control specified in IEEE 802.3z. When using this setting, we recommend that the device at the other end of the link has bi-directional flow control enabled.

The Link State field displays Auto-negotiating *when the ports at both ends of the link are enabled, but cannot forward traffic because auto-negotiation is not yet complete.*

The Current Flow Control field displays the method of flow control currently used by the module port. If auto-negotiation is enabled, this field shows the flow control method that has been negotiated. If auto-negotiation is disabled, Bi-Directional *is always shown. If auto-negotiation is not yet complete,* Not Determined *is displayed.*

The module port has restricted functionality — for information, see "Module Port Restrictions" below. As a consequence, the Port Setup page for the port does not contain all the standard listboxes.

Configuring IEEE 802.3z Auto-negotiation Using the Command Line Interface

You can enable and disable IEEE 802.3z auto-negotation for the module port using the command line interface.

To do this:

1. At the Top-level menu, enter:

   `ethernet autoNegotiation`

   The following prompt is displayed:

   `Select Ethernet port (1-27):`
2. Enter the number of the module port.

The module port number is one greater than the number of fixed ports on the Switch. For example, when installed in a 24-port SuperStack II Switch 3300, the module port number is 25.

The following prompt is displayed:

`Enter new value (enable,disable) [enable]`

3. Enter **`enable`** or **`disable`**:
   - Enter **`enable`** if the device at the other end of the link supports IEEE 802.3z auto-negotiation. This is the default setting.
   - Enter **`disable`** if the device at the other end of the link does not support IEEE 802.3z auto-negotiation.

     If you specify **`disable`**, the module port uses the bypass mechanism and bi-directional flow control specified in IEEE 802.3z. When using this setting, we recommend that the device at the other end of the link has bi-directional flow control enabled.

Monitoring IEEE 802.3z Auto-negotiation Using the Command Line Interface

You can display statistics that indicate whether IEEE 802.3z auto-negotiation is correctly configured using the command line interface.

When you enter **`ethernet statistics`** for the module port, an additional statistic, `Discarded Packets`, is displayed. If there are no discarded packets, this indicates that IEEE 802.3z auto-negotiation is configured correctly. If there are some discarded packets, check the IEEE 802.3z settings at both ends of the link.

MODULE PORT RESTRICTIONS

When using the module port, note the following:

- The port only operates at 1000Mbps
- The port only operates in full duplex
- The port only supports the Store and Forward forwarding mode
- The port does not support PACE
- The port cannot be part of a port trunk
- The port does not support VLT tagging
- You cannot create a resilient link pair that includes the port and another port that uses VLT tagging
- The port does not support Next Page during auto-negotiation.

PROBLEM SOLVING

If you suspect a problem, carry out these steps *before* contacting your supplier:

- Ensure that the Switch in which the module is fitted is powered-up.
- Ensure that the module is correctly installed in the Switch.
- Ensure that the device at the far end of the link is powered-up and operating correctly.
- Reverse the Tx and Rx connections.
- Check that all connectors on the fiber optic segment are all correctly engaged.
- Clean the terminators by wiping them gently with a clean tissue or cotton bud moistened with a little ethanol. Dirty fiber terminators on the fiber optic segment impair the quality of the light transmitted through the cable.
- If the Status LED on the module is flashing slowly (0.5Hz):
  - Ensure that both ends of the link have the same IEEE 802.3z auto-negotiation setting.
  - Ensure that the remote end of the link has Next Page disabled.

For information about technical support, refer to the documentation supplied with your Switch.

TECHNICAL SPECIFICATIONS

Operating Temperature	0 to 50°C (32 to 122°F)
Operating Humidity	10 to 95% non-condensing
Power Consumption	15W maximum
Safety Standards	UL 1950 EN 60825-1 & EN 60950 CSA 22.2#950 IEC 950
Electromagnetic Emissions	CISPR22 Class A EN55022 Class A AS/NZS 3548 Class A FCC Part 15 Class A ICES-003 Class A VCCI Class 2 CNS 13438 Class A Korean EMC Approval

ELECTRO-MAGNETIC COMPATIBILITY

FCC Statement

This equipment has been tested with a class A computing device and has been found to comply with part 15 of FCC Rules. Operation in a residential area may cause unacceptable interference to radio and TV receptions, requiring the operator to take whatever steps are necessary to correct the interference.

CSA Statement

This Class A digital apparatus meets all requirements of the Canadian interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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Information To The User

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.

Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

In order to meet FCC emissions limits, this equipment must be used only with cables which comply with IEEE 802.3.

LIMITED WARRANTY

HARDWARE: 3Com warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following lengths of time from the date of purchase from 3Com or its Authorized Reseller:

Network adapters	Lifetime
Other hardware products	One year (unless otherwise specified above)
Spare parts and spares kits	90 days

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- Conserving energy, materials and natural resources in all operations
- Reducing the waste generated by all operations
- Ensuring that all waste conforms to recognized environmental standards
- Maximizing the recyclable and reusable content of all products
- Ensuring that all products can be recycled, reused and disposed of safely
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