



100BASE-FX and 10/100BASE-TX Fast Ethernet Switching Modules Quick Start Guide

For the CoreBuilder™ 9000 Enterprise Switch

Switching Modules Description

Two Fast Ethernet (FEN) Switching Interface Modules are designed for the CoreBuilder™ 9000 Enterprise Switch:

- The 100BASE-FX Fast Ethernet Switching Module (Model Number 3CB9LF10MC) has ten 100-Mbps Ethernet fiber-optic front panel ports. These ports interface to a maximum of two 1-Gigabit non-blocking ports on the backplane.
- The 10/100BASE-TX Fast Ethernet Switching Module (Model Number 3CB9LF20R) has twenty 10/100-Mbps RJ-45 front panel ports. These ports interface to a maximum of two 1-Gigabit non-blocking ports on the backplane.

The 100BASE-FX and 10/100BASE-TX are intelligent interface modules with their own embedded management agents that support standard SNMP MIBs. The modules connect to the backplane ports of the switch fabric module in the CoreBuilder 9000 chassis.

Key Features

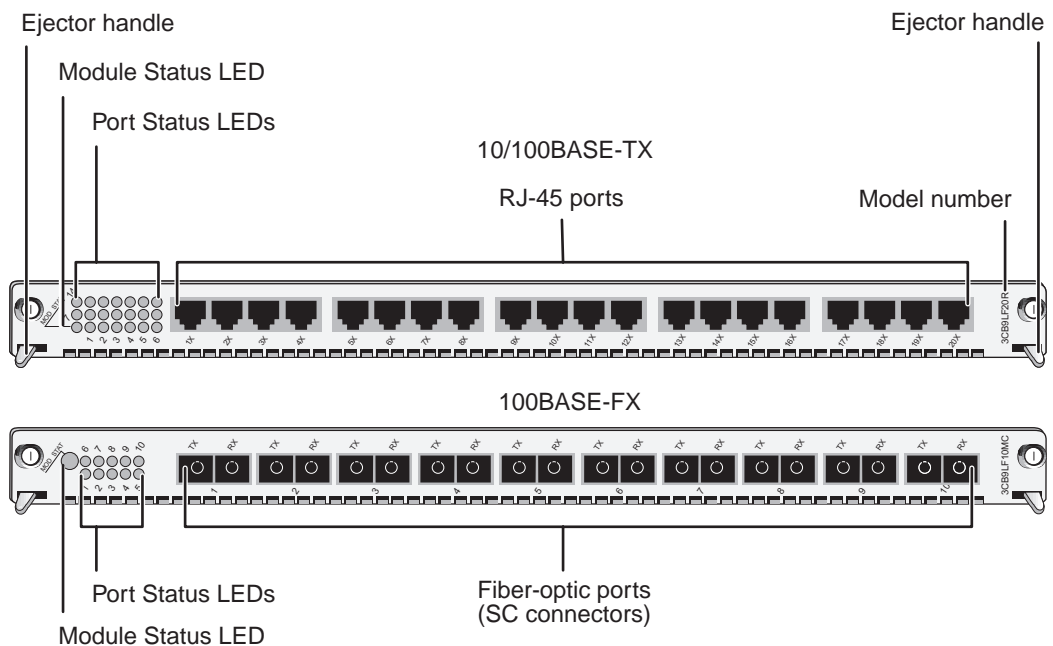
The Fast Ethernet Switching Modules support the following key features:

- Autonegotiation of flow control
- Embedded management agent
- IEEE 802.1Q VLAN support
- Management using the CoreBuilder 9000 Administration Console command line interface or SNMP (Simple Network Management Protocol)
- IEEE 802.1D Spanning Tree Protocol (STP) bridging for Ethernet

- Port trunking support for four groups, with up to six ports in a group (4x6)
- Remote Monitoring (RMON) for up to seven groups

Figure 1 identifies the components on the 100BASE-FX and 10/100BASE-TX module front panels. You install the modules vertically with the LEDs at the top.

Figure 1 100BASE-FX and 10/100BASE-TX Module Front Panels



Audience Description

This guide is intended for *trained technical personnel* only. Do not attempt to install, remove, or replace CoreBuilder 9000 Fast Ethernet Switching Modules if you have not had the proper training from 3Com. For training information, call 1-800-NET-3COM.

Safety Precautions

When you handle components in a CoreBuilder 9000 system, be sure that you follow all safety precautions. To avoid electric shocks, burns, or equipment damage, read and follow these warnings:



WARNING: Allow only trained service personnel to install, remove, or replace a FEN Interface Module.



WARNING: Hazardous energy exists within the CoreBuilder system. Use extreme caution when you install, remove, or replace a FEN Interface Module.

When the system is on, never insert metal objects such as a screwdriver or a finger with jewelry into open module slots.

When the system is on, do not touch any connections within the chassis with your hands or fingers. Do not insert metal objects into the backplane.



WARNING: To ensure optical safety when installing the 100BASE-FX Switching Module, comply with the following precaution:

Although the data communication LEDs used in this product meet the regulatory requirements for casual exposure to the eye, as with any source of bright light, it is advised that you do not look into the light source.

LED Safety Information: IEC 825 and EN60825, Class 1 LED Device. For connection only to Class 1 LED Devices.

**ESD Safety Information**

Electrostatic discharge (ESD) can damage components of the module. ESD, which occurs when the FEN Interface Module is improperly handled, can cause complete or intermittent failures.



CAUTION: To prevent ESD-related damage:

- Always wear an ESD wrist strap (not provided) when you handle a Switching Module, ensuring that the strap makes good skin contact.
- Keep the Switching Module in its antistatic bag until you are ready to install it.

Handling Precautions

When you handle the FEN Interface Module, follow these precautions:

- Always handle the FEN Interface Module by the front panel only.
- Do not touch the components, pins, leads, or solder connections.
- Do not twist or otherwise force the module into the chassis when you insert it into the module guides.
- Before you push the module into the chassis, make sure that the module ejector handles are open.
- When you slide the module into place, match the upper and lower module guides.

Unpacking Instructions

Use the following procedure when you unpack the Switching Module:

- 1 Verify that the Switching Module is the correct model by matching the model number that is listed on the side of the shipping box to the model number that you ordered (Model Number 3CB9LF10MC or 3CB9LF20R).
- 2 Remove the module, in its antistatic bag, from the shipping box.
- 3 Ensure that the box also contains:
 - *Release Notes for the CoreBuilder 9000 Fast Ethernet Switching Modules*
 - *100BASE-FX and 10/100BASE-TX Fast Ethernet Switching Modules Quick Start Guide for the CoreBuilder 9000 Enterprise Switch* (this guide)



All shipping boxes are reusable. After you remove the contents, replace the packing materials and store the shipping box for future use.

- 4 Remove the Switching Module from the antistatic bag and inspect it for physical damage.



CAUTION: Handle the module by the front panel only. Do not touch any components, pins, leads, or solder connections.

If the module appears to be damaged, replace it in the antistatic bag, place it back in the shipping box, and contact your local supplier.

Installation Prerequisites

Before you install the Switching Module in the CoreBuilder 9000 chassis, make sure that the CoreBuilder 9000 chassis is properly installed in a rack, on a table, or on a shelf, according to the instructions in the *CoreBuilder 9000 Enterprise Switch Getting Started Guide*.

You need a flat-head screwdriver to complete module installation.

3Com recommends that you install CoreBuilder 9000 modules in the following order:

- 1 Enterprise Management Engine (EME) and Enterprise Management Controller (EMC) Modules

By installing the management modules first, you can complete the required system-level setup procedures before you add other modules to the chassis. See the *Enterprise Management Engine Quick Start Guide* and the *Enterprise Management Controller Quick Start Guide* for additional information about these modules.

- 2 Switch Fabric Modules

Because you manage the Switching interface modules through the switch fabric module backplane ports, you must install the switch fabric modules before you install the Switching interface modules.

- 3 Interface Modules

Install interface modules, such as 1000BASE-SX and 1000BASE-LX Gigabit Ethernet Interface Modules and the 100BASE-FX and 10/100BASE-TX Fast Ethernet Switching Modules, last.

Module Slot Considerations

Either one or two switch fabric module backplane ports are allocated to each interface module slot, as shown in Table 1.

Table 1 Backplane Port Allocation

Chassis Slot Number	Number of Switch Fabric Module Backplane Ports Allocated to Slot	Interface Module Backplane Port Numbers
1	2	1, 2
2	2	3, 4
3	2	5, 6
4	2	7, 8
5	2	9, 10
6	2	11, 12
7	2	13, 14
8	Not applicable. Switch fabric module slot only.	
9	Not applicable. Switch fabric module slot only.	
10	2	15, 16
11	2	17, 18
12	2	19, 20
13	1	21
14	1	22
15	1	23
16	1	24

Consider the following slot restrictions when you choose a chassis slot for Switching Modules:

- Slots 8 and 9 are reserved only for switch fabric modules, which are 1.5 inches in width. You cannot install FEN Interface Modules in these slots.
- Slots 13 through 16 have only one connection to the backplane. The 100BASE-FX and 10/100BASE-TX Switching Modules have two backplane ports. The second backplane port on the 100BASE-FX module is for future use, and if necessary, can be installed in slots 13 through 16 without affecting its bandwidth. Install the 10/100BASE-TX module in other slots that support both ports.

Installing the Module To install a Fast Ethernet Switching Module:

- 1 Before you start the installation process, read the “Safety Precautions” section earlier in this document.
- 2 To expose a slot for the module, remove a blank faceplate from a chassis slot.
You can install the module in any slot except slots 8 and 9.
- 3 Open the module ejector handles.
- 4 Hold the module vertically with the LEDs at the top and then insert the module into the guides at the top and bottom of the slot.

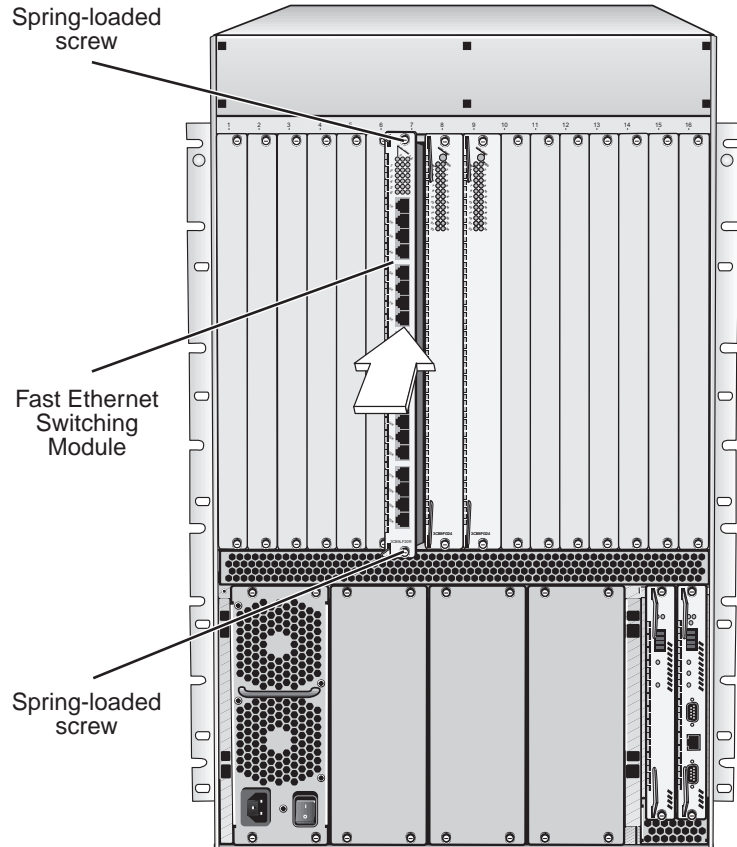


CAUTION: Be careful not to twist or bend the module when you insert it.

- 5 Slide the module into the chassis by pushing firmly at the top and bottom of the front panel (Figure 2).



WARNING: Hazardous energy levels exist inside of the chassis. Do not place hands or objects into the chassis or touch components on an inserted module.

Figure 2 Installing a Fast Ethernet Switching Module into the Chassis

- 6 To engage the module and chassis backplane connectors, apply pressure to the module front panel with one hand, while you push the ejector handles inward toward the front panel with your other hand. You can feel a slight resistance as the connectors engage.



CAUTION: If the resistance is too great, the module and backplane connectors may not be aligned. Forcing the module inward can damage the module and backplane connectors. If necessary, remove and reinsert the module, ensuring that the connectors are properly aligned. Do not tighten the spring-loaded screws to seat the module.

- 7 Ensure that the module remains fully seated in the backplane connector while you close the ejector handles. Push the end of each ejector handle until the ejector handle locks into place.
- 8 To secure the module front panel to the front of the chassis, tighten the top and bottom spring-loaded screws to Torque Specification 3 to 5 inch-pounds.



CAUTION: To ensure adequate cooling airflow and continued product safety agency compliance, install blank faceplates over **all** empty slots.

Verifying Module Operation

The 100BASE-FX and 10/100BASE-TX Fast Ethernet Switching Modules contain LEDs that indicate the module and port status. Watch the Module Status LED during system power-on to verify proper module operation.

The power-on diagnostic test flash sequence is:
Green – Yellow – Green – Flashing Green (while running the diagnostic test) – Green.

If the Module Status LED is Yellow after the diagnostics run, the module has failed.

For the latest revision of diagnostics, only the Port Status LEDs are tested, and the flashing sequence is: Yellow – Green – Off.

Table 2 describes the LED states and colors.

Table 2 Module and Port Status LED Indicators

LED	State and Color	Description
Module Status	Green	Power is on (normal operation).
	Off	No power.
	Flashing Green	Diagnostics or download in process.
	Yellow	Diagnostic failure.
Port Status	Green	Port is enabled and link is up.
	Off	Port is disabled or link is down.
	Flashing Green	Port is receiving packets.
	Yellow	Malfunctioning module.

Managing the Module

You manage modules using the Administration Console management software. The Administration Console uses a command line interface that you access from a terminal through the EME (Enterprise Management Engine).

To manage Fast Ethernet Switching Modules from the Administration Console:

- 1 Log in to the EME.

For information about logging in to the EME, see the *CoreBuilder 9000 Enterprise Management Engine User Guide*.

- 2 At the prompt, enter:

```
connect <slot>.1
```

Where <slot> is the slot number of the module that you want to manage (the subslot is always 1).

The Administration Console top-level menu prompt appears.

- 3 Enter commands to manage the module.

For example, to display a module baseline, enter:

```
module baseline display
```

Finding More Information

For detailed information about using and managing these modules, see the following documents:

- *CoreBuilder 9000 Enterprise Management Engine User Guide*
- *CoreBuilder 9000 Administration Console User Guide*

You can view these documents online, or print them from the CoreBuilder 9000 documentation CD-ROM that is shipped with the chassis.

Specifications The following tables list the specifications for the 100BASE-FX and 10/100BASE-TX Fast Ethernet Switching Modules.

Cabling Requirements

Module	Required Cable Type	Maximum Segment Length
100BASE-FX 3CB9LF10MC	Multimode 62.5/125 micron	Half-duplex mode: 400 m (1312 ft.) Full-duplex mode: 2 km (1.2 miles)
10/100BASE-TX 3CB9LF20R	UTP Category 5	Up to 100 m (328 ft.)

Environmental Requirements

The CoreBuilder 9000 100BASE-FX and 10/100BASE-TX Fast Ethernet Modules have the following environmental requirements:

Operating Temperature	0 to 50 °C (32 to 122 °F)
Operating Humidity	10% to 90% relative humidity, noncondensing
Storage Temperature	–30 to 70 °C (–22 to 158 °F)
Storage Humidity	10% to 95% relative humidity, noncondensing

Physical Specifications

Module	Dimensions	Weight
100BASE-FX 3CB9LF10MC	1 in. x 15.28 in. x 13.19 in. 2.54 cm x 38.81 cm x 33.50 cm	4.85 lb 1.8 kg
10/100BASE-TX 3CB9LF20R	1 in. x 15.28 in. x 13.19 in. 2.54 cm x 38.81 cm x 33.50 cm	5 lb 1.9 kg

Power Specifications

The CoreBuilder 9000 100BASE-FX and 10/100BASE-TX Fast Ethernet Switching Modules have the following power requirements:

Voltage	Minimum	Maximum	Current 100BASE-FX	Current 10/100BASE-TX
+5 V	4.8 V	5.35 V	5.38 A	4.32 A
+3.3 V	3.14 V	3.6 V	12.42 A	8.6 A
+12 V	10.0 V	15.0 V	100 mA	100 mA

Standards Supported

SNMP

- bridge.mib – Bridge MIB, RFC 1493
- ethernet.mib – Ethernet MIB, RFC 1398
- if.mib – If MIB, RFC 1573
- S2System.mib – S2 Systems MIB
- mib2.mib – MIB-II, RFC 1213
- vlan.mib – 3Com VLAN MIB

Software Installation

- FTP (RFC 959)
- TFTP

Terminal Emulation Protocols

- telnet (RFC 854)
- rlogin (RFC 1282)

Protocols for Administration

- UDP (RFC 768)
- IP (RFC 791)
- ICMP (RFC 792)
- TCP (RFC 793)
- ARP (RFC 826)
- TFTP

Regulatory Compliance

Safety

- CSA 22.2 No. 950
- EN60950
- IEC950
- UL1950

Emissions

- FCC 47 CFR Part 15 Class A
- ICES003 Class A
- VCCI Class 1
- EN55022 Class A
- EN50082-1
- AS3548
- CISPR 22 Class A

3Com Corporation LIMITED WARRANTY

The duration of the warranty for the CoreBuilder™ 9000 100BASE-FX (3CB9LF10MC) and 10/100BASE-TX (3CB9LF20R) Fast Ethernet Switching Modules is 1 year.

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 Interface Cards	Lifetime
Other hardware products *unless otherwise specified above	1 year*
Spare parts and spares kits	90 days

If a product does not operate as warranted above during the applicable warranty period, 3Com shall, at its option and expense, repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

SOFTWARE

3Com warrants that the software programs licensed from it will perform in substantial conformance to the program specifications therefor for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation with respect to this express warranty shall be (at 3Com's discretion) to refund the purchase price paid by Customer for any defective software products, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product.

YEAR 2000 WARRANTY

In addition to the Hardware Products Warranty and Software Products Warranty identified above, 3Com warrants that all Heritage 3Com products sold or licensed to Customer on and after January 1, 1998 that are date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com products, including hardware, software, and firmware, accurately exchange date data with the 3Com products, with the exception of those products identified at 3Com's Web site, <http://www.3com.com/products/yr2000.html>, as not meeting this standard. A product is considered a "Heritage 3Com product" if it is a member of a product family which was manufactured by 3Com prior to its merger with US Robotics Corporation. This Year 2000 limited warranty does not apply to Heritage US Robotics Corporation products. If it appears that any such product does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.

Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days or until April 1, 2000, whichever is later.

OBTAINING WARRANTY SERVICE

Customer must contact 3Com's Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after receipt of the defective product by 3Com.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. When an advance replacement is provided and Customer fails to return the defective product to 3Com within fifteen (15) days after shipment of the replacement, 3Com will charge Customer for the replacement product, at list price.

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GOVERNING LAW

This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.

EMISSIONS COMPLIANCE STATEMENTS FOR CLASS A PRODUCTS

Federal Communications Commission Notice	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 and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Canadian Emissions Requirements	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.
VCCI Class A Compliance	

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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.

EMC DIRECTIVE STATEMENT

EMC Directive Compliance	This equipment was tested and found to conform to the Council Directive 89/336/EEC for electromagnetic compatibility. Conformity with this Directive is based upon compliance with the following harmonized standards:
	EN 55022 Limits and Methods of Measurement of Radio Interference
	EN 50082-1 Electromagnetic Compatibility Generic Immunity Standard: Residential, Commercial, and Light Industry
	Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case you may be required to take adequate measures.

LOW VOLTAGE DIRECTIVE STATEMENT

Low Voltage Directive Compliance	This equipment was tested and found to conform to the Council Directive 72/23/EEC for safety of electrical equipment. Conformity with this Directive is based upon compliance with the following harmonized standard:
	EN 60950 Safety of Information Technology Equipment

**GENERAL APPROVAL
STATEMENT FOR UK**

UK General Approval Statement

This equipment is manufactured to the international Safety Standard EN60950 and is approved in the UK under the General Approval Number NS/G/12345/J/100003 for indirect connection to the public telecommunication network.

**AUSTRALIAN EMC
FRAMEWORKS STATEMENT**Australian EMC Frameworks
Compliance

This product conforms to the EMC Frameworks and meets the Class A limits of AS3548.

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