



ONline 17-Slot System Concentrator Installation and Operation Guide

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Model Numbers: 5017C-LS
5017C
5017C with load sharing

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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 you must correct the interference at your 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.

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Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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This is to certify that the 5017C and 5017C-LS are shielded against radio interference in accordance with the provisions of Vfg 243/1991.

The German Postal Services have been advised that this equipment is being placed on the market and that they have been given the right to inspect the series for compliance with regulations.

Compliance with applicable regulations depends on the use of shielded cables. The user is responsible for procuring the appropriate cables.

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This equipment conforms to the Class A emissions limits for a digital device as defined by EN55022 (CISPR22).

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Read the instructions for correct handling.

UK General Approval Statement

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How to Use This Guide

This guide explains how to install, operate, and manage the following 3Com ONline™ 17-Slot System Concentrators.

- ❑ 5017C
- ❑ 5017C with load sharing
- ❑ 5017C-LS

Keep this guide near the ONline System Concentrator

Audience

This guide is intended for the following people at your site:

- ❑ Network manager or administrator
- ❑ Hardware installer

Structure of This Guide

This guide contains the following chapters:

Chapter 1, Introduction – Introduces the principal features of the ONline System Concentrator and provides a front and rear view of the unit.

Chapter 2, Installation and Troubleshooting – Provides illustrated procedures for installing and verifying the operation of the 17-Slot ONline System Concentrator.

Chapter 3, Maintenance – Describes how to order and replace serviceable parts on the ONline System Concentrator. These parts include the power supply, backup power supply, and fan units.

Appendix A, Specifications – Provides product dimensions, power requirements, and other specifications for the unit.

Appendix B, Slot Usage Chart – Provides a chart to record information about which modules are installed in the 17 concentrator slots.





Appendix C - Technical Support – Lists the various methods for contacting the 3Com technical support organization and for accessing other product support services.

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Document Conventions

The following document conventions are used in this manual:

Convention	Indicates	Example
Courier text	User input	In the Agent Information Form, enter <code>MIS</code> in the New Contact field.
	System output	After pressing the Apply button, the system displays the message <code>Transmitting data.</code>
Bold command string	Path names	Before you begin, read the <code>readme.txt</code> file located in <code>/usr/snm/agents</code> .
Italic text in braces	User-substituted identifiers	Use the following command to show port details: <code>SHOW PORT {slot.all} VERBOSE</code>
Capitalized text in plain brackets	Keyboard entry by the user	Type your password and press <code>[ENTER]</code> .
Italics	Text emphasis, document titles	Ensure that you press the Apply button <i>after</i> you add the new search parameters.

Convention	Indicates	Example
Note:	A Note . The information is important	Note: Use STP lobe cables for your system.
 Caution:	A Caution . A condition may damage software or hardware	 Caution: Do not put your installation diskettes on a magnetic surface. This may damage the diskettes.
 Warning:	A Warning . A condition may threaten personal safety	 Warning: Wear eye protection when performing these maintenance procedures.

Related Documents

This section provides information on supporting documentation, including:

- ❑ 3Com Documents
- ❑ Reference Documents

3Com Documents

The following documents provide additional information on 3Com products:

17-Slot ONline System Concentrator Installation and Operation Guide – Explains how to install, operate, and manage the 3Com ONline 17-Slot System Concentrator (Models 5017C-LS and 5017C with load sharing).

6-Slot ONline System Concentrator Installation and Operation Guide – Explains how to install, operate, and manage the 3Com ONline 6-Slot System Concentrator.

ONline Token Ring Management Module User's Guide – Explains how to install, operate, and use the 3Com ONline Token Ring Management Module.

ONline Management Commands Guide – Provides an alphabetized reference resource describing all ONline management commands.

For a complete list of 3Com documents, contact your 3Com representative.

Reference Documents

The following documents supply related background information:

Case, J., Fedor, M., Scoffstall, M., and J. Davin, *The Simple Network Management Protocol*, RFC 1157, University of Tennessee at Knoxville, Performance Systems International and the MIT Laboratory for Computer Science, May 1990.

Rose, M., and K. McCloghrie, *Structure and Identification of Management Information for TCP/IP-based Internets*, RFC 1155, Performance Systems International and Hughes LAN Systems, May 1990.

1

Introduction

This chapter briefly describes the capabilities and operation of the 3Com ONline™ System Concentrator. Chapter 2 provides important information for installing modules and verifying their operation.

If you are uncertain about legal network configurations when using the ONline System Concentrator, refer to the appropriate ONline media module manual.

Introducing the ONline System Concentrator

The ONline System Concentrator is a modular, fault-tolerant platform for facility networks. The concentrator has a unique TriChannel® architecture that allows it to run three network protocols concurrently. It is capable of running Ethernet, Token Ring, and FDDI networks - all in the same concentrator.

Ethernet connectivity is available on a variety of major cable types including:

- Fiber optic cable
- Unshielded and Shielded twisted pair wire
- Thin and Thick coaxial cable

Figure 1-1 shows a model system that includes each of these cable types. In this diagram, an ONLINE Ethernet Repeater Module is connected to a 10BASE5 segment via an AUI cable and a transceiver. Also shown is the physical connection between an ONLINE Ethernet Fiber Module and a 10BASE2 segment, via a fiber cable, fiber media access unit, and IEEE repeater. Unshielded and shielded twisted pair connections to-the-desk are also included in this sample configuration.

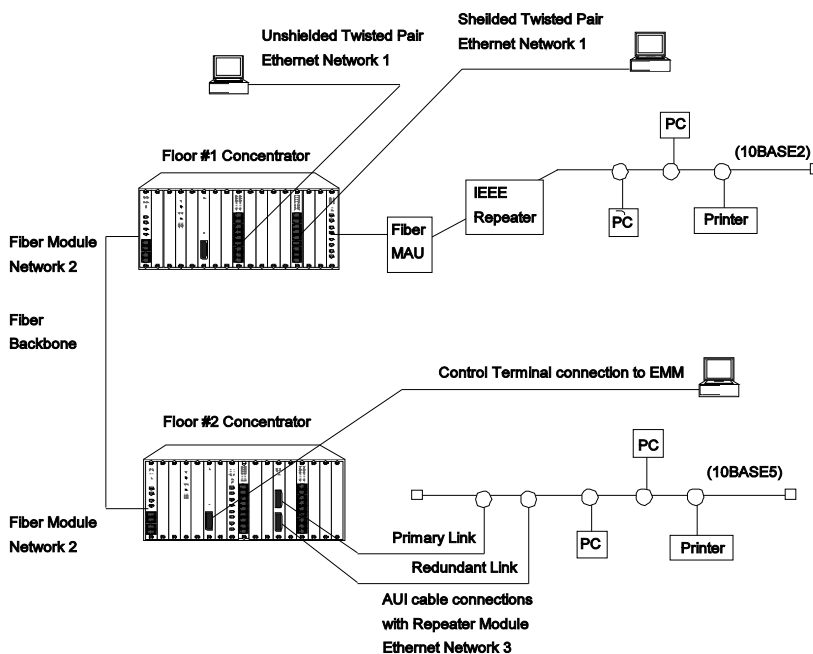


Figure 1-1. Multiple 17-Slot Concentrator Environment

Network segments attach to the concentrator through media modules you install into the chassis. The ONLINE Controller Module, which provides re-timing and re-transmission of received signals, must be installed in one of the concentrator's seventeen slots. The remaining sixteen slots can be configured with any combination of media modules.

Back Panel

A power supply and DC fan unit are installed when you receive your concentrator. There is an On/Off switch on the power supply. The power supply should be powered down when you install or remove it. Note that there is no need to power down the concentrator for installation or removal of the media modules. Additionally, you can replace the fan unit with an optional backup power supply to provide power redundancy.

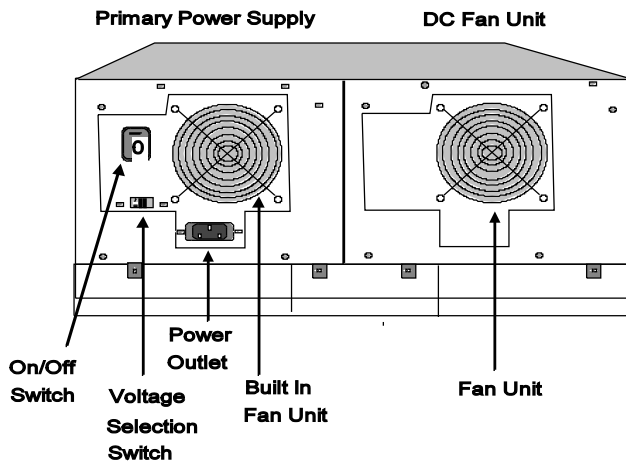


Figure 1-2. ONline System Concentrator Rear View

Front Panel

The concentrator is shipped with 15 blank faceplates and two empty slots. The two slots are left empty because you must install the ONline Controller Module and at least one media module for the concentrator to be functional. As you add media modules to your unit, remove blank faceplates to provide additional slots for the new modules.

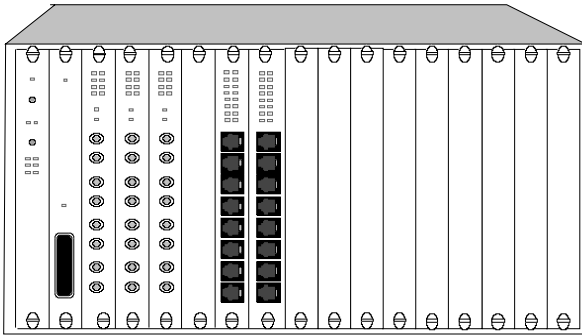


Figure 1-3. ONline System Concentrator Front View

A cable tray is provided with the concentrator so that cables you attach to the media modules can be run under the unit and out the back – where they will not be in the way. A rack mount kit is also provided for the concentrator and for the cable tray so you can rack mount the entire unit.

ONline System Concentrator Features

This section describes the major features of the ONline System Concentrator. The features include:

- Modular Design
- TriChannel® Architecture
- Port-Switching Technology
- Fault-Tolerance Capabilities
- Hot Swapping of Media Modules
- Synchronous Backplane

Modular Design

The ONline Concentrator's modular design lets you add different media modules (such as fiber, twisted pair, and coaxial) in any combination to connect different types of media segments. A possible configuration is shown in Figure 1-4. You can link segments of different protocols using Token Ring, FDDI, bridging and routing modules.

Every concentrator requires one Controller Module that controls communications between all modules. In addition, a Network Management Module provides sophisticated monitoring and control of the modules in the concentrator. As a rack-mounted unit, the ONline Concentrator can be connected to patch panels to simplify and manage your network cables.

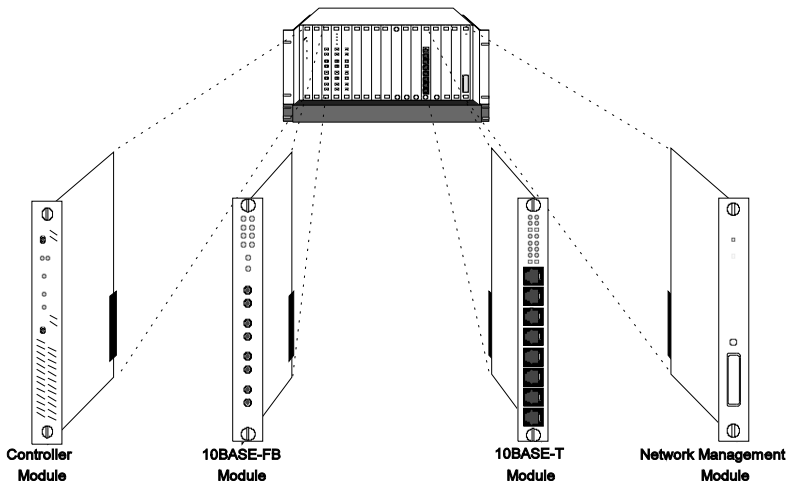


Figure 1-4. Modular ONline Configuration

TriChannel Architecture

The ONline System Concentrator's TriChannel architecture lets you run Ethernet, Token Ring, and FDDI networks, all in the same concentrator. This allows a single ONline unit to do the work of three conventional hubs. You can also run multiple Ethernet networks or mixture of Ethernet, Token Ring, and FDDI networks in any combination you want. This architecture is shown in Figure 1-5.

Any module you add to the concentrator can be assigned to any of three networks on its backplane and can be easily moved to another backplane network using either an on-board dip switch or remote network management.

Additionally, any module can be set to "isolated" mode whereby it acts as an isolated network - not connected to the concentrator backplane. This mode lets you isolate users from the main network. This can be useful for security or as a temporary situation to prevent traffic from contaminating the network (for example, if some users are conducting network tests or running at very high loads.)

Port-Switching Technology

Available port-switching modules allow you to assign any port to any backplane network using a network management command. This allows you to perform moves, adds, and changes at the network console, saving costly and time-consuming trips to the wiring closet. It also allows you to get additional bandwidth on demand by switching users to lower volume networks during peak traffic periods.

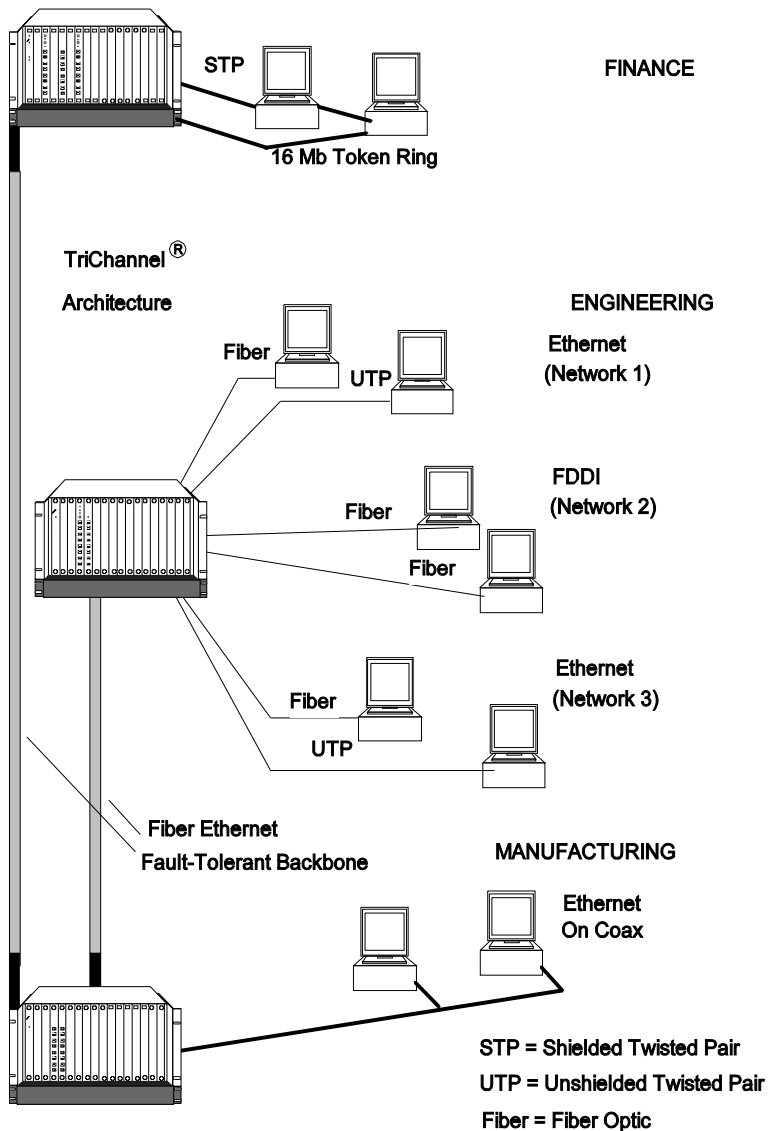


Figure 1-5. Online System Concentrator Using Multiple Networks

Fault-Tolerance Capabilities

The ONline System Concentrator provides fault tolerance through redundant features, such as an optional backup power supply, backup controller module, redundant cable links, and backup concentrator capability.

Backup Power Supply

An optional second power supply can be used to backup the primary power supply in case of a power failure. Should the primary power supply fail, the backup power supply takes over automatically. In addition, once a backup power supply has been installed, you can replace a failed primary power supply without shutting down the system.

Load Sharing

The load-sharing function provides uninterrupted power to modules installed in a concentrator with two power supplies. If the active power supply fails, the concentrator automatically switches to the other power supply without interrupting the network.

The following ONline 17-Slot System Concentrators have load-sharing capability:

- Model 5017C-LS
- Model 5017C with load-sharing upgrade

To determine if your model 5017C concentrator has load-sharing hardware, check the rear of the concentrator chassis for a label reading "Upgraded w/30-0286." If this label is present, the concentrator has received the load-sharing upgrade.

In order for load sharing to work, the Fault-Tolerant Controller Module model 5000M-RCLS must be installed. This controller monitors the concentrator's load-sharing function.

Backup Controller Module

The controller is vital to the system because it performs important functions including:

- ❑ synchronizing all modules
- ❑ monitoring concentrator conditions (temperature, power supply status, etc.)
- ❑ recognizing failures
- ❑ clocking and timing to the ONline Concentrator backplane

By using two 3Com Fault-Tolerant Controller Modules (5000M-RCLS) in your concentrator you can protect these critical tasks if a controller fails.

Note: You cannot use the 5000M-RCTL or 5000M-CTL controller in a load-sharing concentrator (Model 5017C-LS or Model 5017C with load-sharing upgrade).

Redundant Cable Links

Cable breaks or failures are the most common problem in any network. Using the ONline Ethernet Fiber Module in your ONline System Concentrator enables you to implement full cable redundancy for your network's backbone. Thereafter, if one port should fail, or if a cable is disconnected or cut, the backup port will take over in 100 milliseconds. A sample redundant network connection is shown in Figure 1-6.

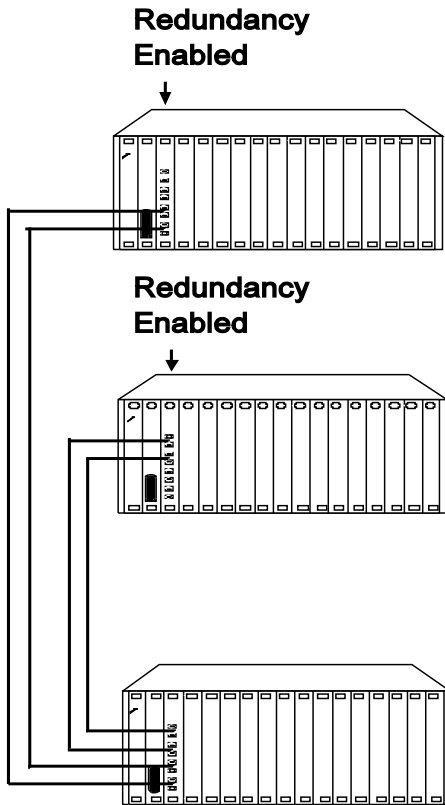


Figure 1-6. Redundant Cable Link Configuration

Backup Concentrator

A second concentrator or 3Com Fiber Ethernet Star Coupler may be used to backup the primary concentrator in a star-wired network. This provides full fault tolerance for a backbone cable plant.

Synchronous Backplane

The ONline System Concentrator backplane is designed with all passive components to achieve the maximum reliability. The synchronous backplane allows the concentrator to be connected (using the 3Com ONline Fiber Module) without the need for internal repeaters. This avoids the limitations of the Ethernet four-repeater rule and lets you connect up to 23 concentrators serially, without the need for an intervening repeater or bridge.

2 *Installation and Troubleshooting*

This chapter describes how to install the ONline System Concentrator, how to install ONline modules, and how to install the optional backup power supply into your ONline unit.



Warning: Do not turn the concentrator's power supply switch on until you are instructed to do so in the following procedures.

The information and procedures contained in this chapter are to be used only by service personnel to install and maintain the ONline 17-Slot System Concentrator.

Contents of the Shipping Box

The ONline System Concentrator is a chassis that enables installation of media modules for network connection. The unit is shipped complete with the following parts:

- ❑ Chassis containing:
 - single power supply
 - fan unit

- 15 blank faceplates
- ❑ Chassis rack mount kit
- ❑ Cable tray with rack mount kit
- ❑ ONline Fault-Tolerant Controller Module and *ONline Fault-Tolerant Controller Module Installation Guide*
- ❑ Power cord
- ❑ This *ONline System Concentrator Installation and Operation Guide*

The power cord and hardware items are shown in Figure 2-1.

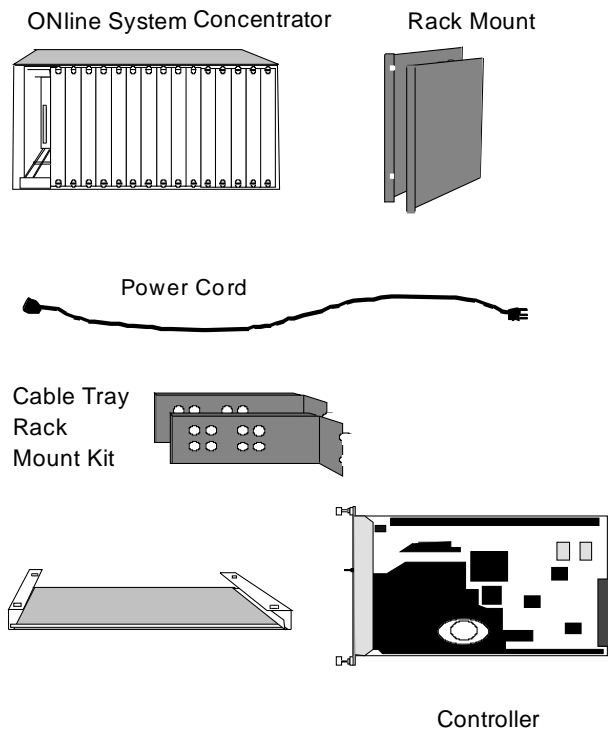


Figure 2-1. *ONline System Concentrator Shipping Box Contents*

If any of these items are damaged or missing, contact your local supplier or a 3Com service representative.

3Com suggests you keep the carton and anti-static shielding bag in which your unit was shipped in case you later want to repackage the unit for storage or shipment.

We also suggest that you record the serial number of your Controller Module. We have provided a log for this and other information specific to modules under the Slot Usage Chart in Appendix B near the end of this manual.

FCC Regulations

FCC regulations require that blank faceplates cover slots that are not being used. To comply with this regulation, the concentrator is shipped with 15 blank faceplates and two empty slots. These two slots are left empty because the ONline Controller Module and at least one media module must be installed for the concentrator to be functional.



Caution: Do not turn the concentrator's power supply switch on until you have:

- verified that the selected site meets the installation requirements outlined in the following pages
- completed each of the steps outlined in Table 2-1.
 - Be sure to verify that the correct voltage level has been selected. An improper setting may damage the power supply.

Site Selection Considerations

The concentrator can be placed almost anywhere within your company, including offices and computer rooms. In general, we recommend installation in a wiring closet. The unit has been designed for rack mounting and comes with all the necessary hardware.

Location Requirements

The area where you install the ONline System Concentrator *must* meet the following conditions:

- ❑ Temperature between 0° to 50° C (32° to 122° F)
- ❑ Relative humidity less than 95%, non-condensing
- ❑ AC power source within 6 feet (2 meters). Note that for installation to have true backup power, two independent AC power sources are required
- ❑ The table or rack where the unit is installed should be level and not in direct sunlight or in an excessively dusty location

Ventilation

The concentrator fan units draw air in through the front and bottom of the chassis and exhausts air out the back. Make sure there are at least 6 inches (15 centimeters) between the fan vents at the back of the unit and the nearest surface to allow adequate airflow for cooling. This minimum distance is also required for access to the rear of the unit for maintenance.

The cable tray that comes standard with the concentrator helps prevent a tangle of cables at the front of the concentrator and also permits the required airflow to the unit. Make sure the cable tray is installed below the unit correctly before installing the concentrator.



Caution: The concentrator should have two fans running at all times to cool the unit properly. You should therefore have: (A) a power supply (with built-in fan) and a fan unit installed or (B) two power supplies installed.

Power Requirements

3Com recommends using a 15 ampere electrical wire (branch circuit) to supply power to the concentrator. This circuit must be grounded to a safety ground (protected earth ground), not to neutral that carries current back to the transformer. Do not use the electrical conduit pipe as the only means of grounding.

Rack Mount Installation Requirements

For rack mount installation of the ONline System Concentrator you need a standard nineteen-inch EIA configured rack. The rack and its environment also should meet the following specifications:

- If the rack has an open back and sides:
 - the rack must be bolted to the floor
 - the top of the rack may need to be braced to the wall
- the rack must be grounded
- there must be 10.5" (26.7 cm) (6U) of vertical space in the rack for each 17-slot concentrator
- the unit location in the rack must be less than 6 feet (2 meters) from the nearest AC outlet
- patch panels should already be installed in the rack for easier cable management

Table Top Installation Requirements

For table top or shelf mount installation of the ONline System Concentrator you must make sure the table or shelf can support 100 pounds (45 kg) for a fully loaded 17-slot concentrator. (The concentrator itself, fully loaded and with cable tray, weighs almost 75 pounds/34 kilograms.) The table/shelf also must be less than 6 feet (2 meters) from the nearest AC outlet.

To ensure proper airflow to the unit, you should leave at least 1.75" (4.45cm) of space below the concentrator (provided by the installed rubber feet) and by installing the cable tray below the concentrator.

Installation

Table 2-1 provides a quick description of the steps you must follow to install the ONline System Concentrator as well as reference to the section in this manual where the step is described. It is important that you perform the steps in the order indicated, noting that Step 3 is optional.

Table 2-1. Steps for Installing the ONline System Concentrator

Step	Action	Section
1	Install the cable tray into a rack or place it on a table top.	<i>"Installing the Cable Tray"</i>
2	Install the concentrator unit into a rack or place it on a table top.	<i>"Installing the ONline System Concentrator"</i>
3	Install the backup power supply in the concentrator.	<i>"Installing the Backup Power Supply (Optional)"</i>

**Table 2-1. Steps for Installing the ONline System Concentrator
(Continued)**

4	Set up the power supply.	<i>"Selecting the Power Supply Voltage"</i>
5	Install the ONline Controller Module in the concentrator.	<i>"Installing ONline Modules"</i>
6	Install media modules in the concentrator.	<i>"Installing ONline Modules"</i>
7	Connect the network cables to the media modules.	<i>"Connecting Network Cables"</i>
8	Power up all network devices and verify the installation.	<i>"Power Up and Verification"</i>

Installing the Cable Tray

The cable tray that comes standard with the concentrator helps to manage the cables that run from the front of the unit so they are fed under the unit and out through the back. The tray also provides the required space between the bottom of the unit and the next device in the rack (or the top of the table) so there is adequate air flow to cool the unit.



Caution: If you choose not to use the cable tray beneath your unit, you must ensure that 1 3/4" (4.45 cm) of space is open below the ONline unit to ensure adequate incoming airflow (provided by the installed feet).

Cable Tray Rack Mounting

To install the concentrator in a rack, first install the cable tray and then install the concentrator above the tray. The cable tray can be mounted in four separate configurations in your rack depending on your preference. The options are described in Table 2-2 and shown in Figure 2-2.

Table 2-2. Rack Mount Settings

Option	Rack Setting	Function
1	Flush Mount	Flush mounts the unit to the front of the rack.
2	1/2" Recess	Recesses the unit 1/2" (1.3 cm) from the front of the rack.
3	2 1/8" Recess	Recesses the unit 2 1/8" (5.4 cm) in a rack.
4	2 3/4" Recess	Recesses the unit 2 3/4" (7.0 cm) in a rack.

Note: The ONline System Concentrator is 18.3" (46.5 cm) deep. Some shallow rack cabinets may only allow you to flush mount the unit. In addition, make sure you mount the unit so that cables connected to the media modules have enough room to bend (especially important for fiber cables).

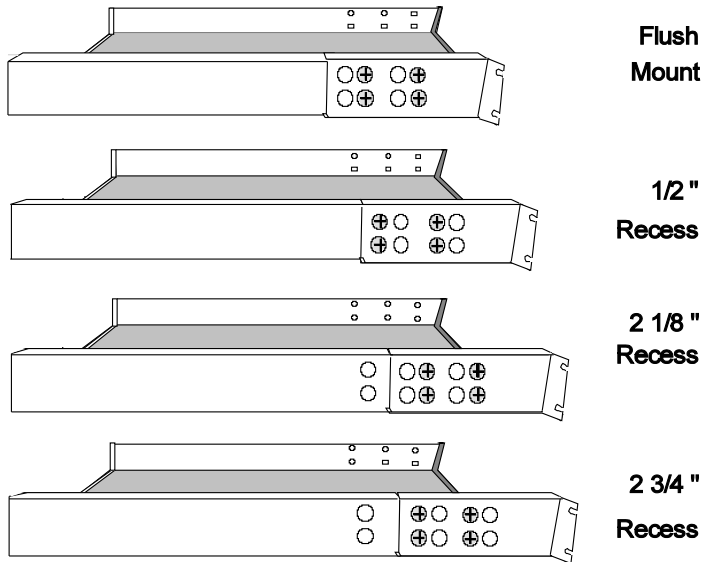


Figure 2-2. Rack Mount Positions

Follow the steps below to mount the cable tray in your rack:

1. Attach the two rack mount flanges to the cable tray in the position you want as shown in Figure 2-2 using the eight (8) provided 8-32 x 1/4" flathead screws - four per side.

Note: You must tighten the screws completely to be flush with the rack mount flanges so the tray will fit in the rack.

2. Select a vacant position in the rack that is at least 10.5 inches (26.7 cm) from the top of the rack or the next higher unit in the rack.
3. Install the provided clip nuts onto the front of the rack where you want to attach the tray.

Note: The function of the clip is to hold the nut in place behind the rail. Be sure to install the clip onto the rail so that the nut is centered **behind** the hole through which you plan to insert the screw.

4. Place the tray in the rack and attach to the clip nuts through the front of the rack using the four (4) 10-32 x 5/8" truss-head screws and as shown in Figure 2-3.

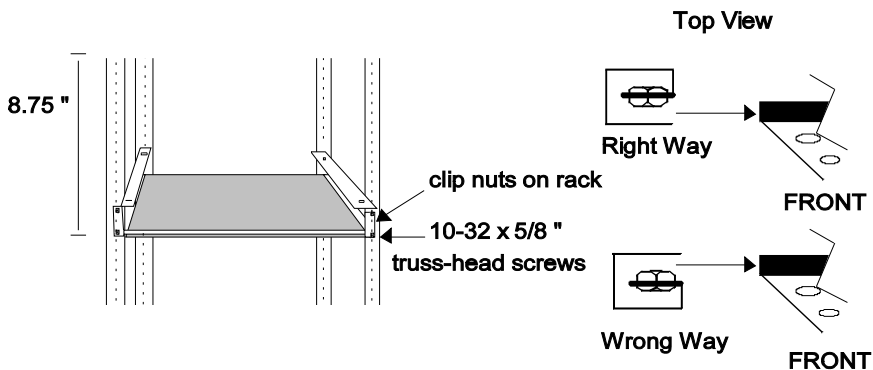


Figure 2-3. Cable Tray Installation in Rack

Cable Tray Table Mounting

To install the concentrator on a table top or on a shelf, place the cable tray on the surface first and then place the concentrator on top of the tray. Note that the four rubber feet *must be* installed on the concentrator before it is placed on the table top or on top of the cable tray. The feet fit into the four holes in the cable tray, which prevents the concentrator from moving.

Installing the ONline System Concentrator

The ONline System Concentrator can be placed on top of a table or a shelf, or mounted in a rack. Make sure the cable tray has been installed first on the table or in the rack (or that 1 3/4" (4.5 cm) of vertical space has been provided below the unit for air flow) and that the location meets all the environmental considerations specified earlier in this chapter.



Caution: 3Com recommends that two people install the unit since it weighs 38 lbs (17 kg) with one power supply and 46 lbs (24 kg) with the backup power supply installed.

3Com also recommends installing the backup power supply prior to rack mounting the unit (see the section titled Installing the Backup Power Supply later in this chapter). In some rack cabinets, the rear of the cabinet may interfere with installation or removal of the power supply and fan.

Rack Mounting the ONline System Concentrator

The ONline System Concentrator can be mounted in four different configurations in the rack. Use the same rack settings for both the cable tray and the concentrator. If you are not installing the cable tray in the rack, you should select the concentrator mount setting at this time. Refer to Table 2-2 and Figure 2-2 in the "Cable Tray Rack Mounting" section for specifics about the four mounting settings.

Follow the steps below to mount the concentrator in your rack:

1. Attach the two rack mount flanges to the ONline concentrator unit in the position you want as shown in Figure 2-4 using the eight (8) provided 8-32 x 1/4" flathead screws - four per side.



Caution: You must use the supplied 8-32 x 1/4" screws to attach the rack mount flanges. A longer screw may extend too far into the ONline chassis and disrupt the installation of modules.

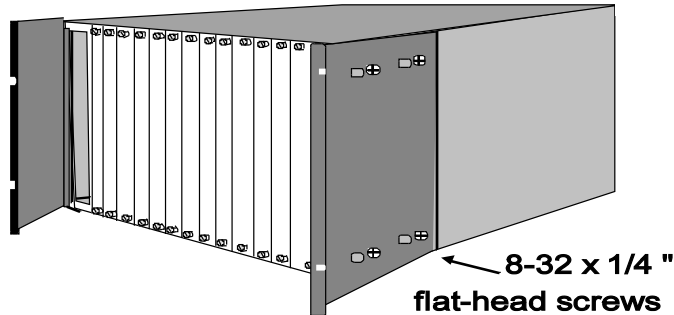


Figure 2-4. Attaching the Rack Mount Flanges

2. Install the provided clip nuts onto the front of the rack where you want to attach the unit. See Figure 2-3 for proper orientation.
3. Slide the unit in the rack above the installed cable tray until the rack mount flanges seat flush to the front of the rack.



Caution: While mounting the concentrator, do not leave the unit resting on the mounted cable tray since the cable tray rack mounts may not support a fully-loaded concentrator.

4. Secure the unit to the rack with the four (4) 10-32 x 5/8" truss-head screws as shown in Figure 2-5.

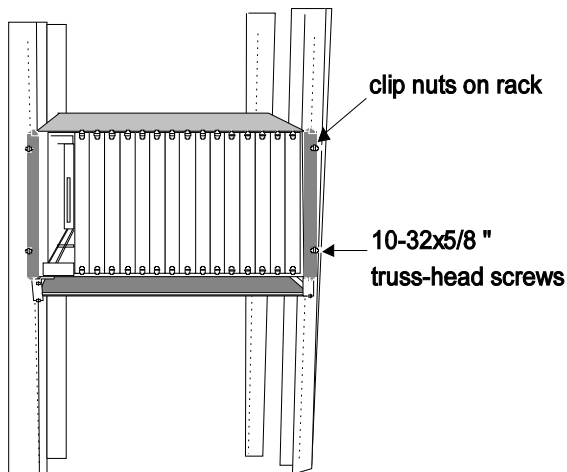


Figure 2-5. Chassis Mounted in Rack

Table Top Mounting the ONLINE Concentrator

You can set the ONLINE Concentrator directly on a table top or shelf that can support at least 100 pounds (45 kg). A fully loaded concentrator weighs about 75 lbs (34 kg). 3Com recommends you set the unit on top of the ONLINE cable tray as the cable tray provides a central area for cable management and provides the required 1 3/4" (4.5 cm) of clearance for sufficient air flow. Regardless of whether the cable tray is used or not, the four (4) rubber feet must remain on the bottom of the unit.

If the cable tray is used, place the ONLINE unit on top of the cable tray and insert the rubber feet from the unit into the holes in the cable tray, which stabilizes the unit on the tray.

If the cable tray is not used, place the unit on the table or shelf.

Installing the Backup Power Supply (Optional)

Install the backup power supply in the ONline System Concentrator (if ordered). This power supply provides power redundancy if the primary power supply should fail. Skip this section if you do not have a backup power supply.

To install the backup power supply, you must first remove the fan unit from the power supply slot in the back of the unit. Follow the steps below to install the backup power supply:

1. Remove and save the four screws that attach the fan unit to the rear of the concentrator as shown in Figure 2-6.

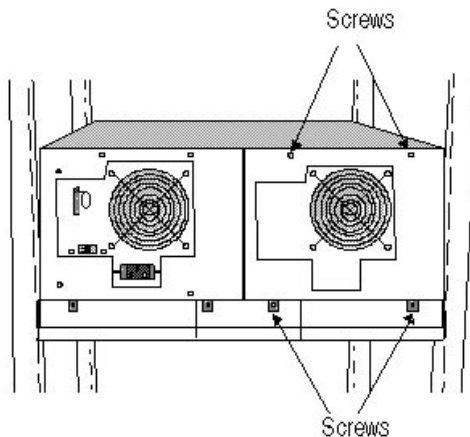


Figure 2-6. Removing Fan Unit

2. Carefully remove the fan unit and disconnect the fan unit wiring harness from the connector inside the base of the ONline unit as shown in Figure 2-7. Save this fan unit in case a power supply should fail at a later time and you need to reinstall the fan unit.

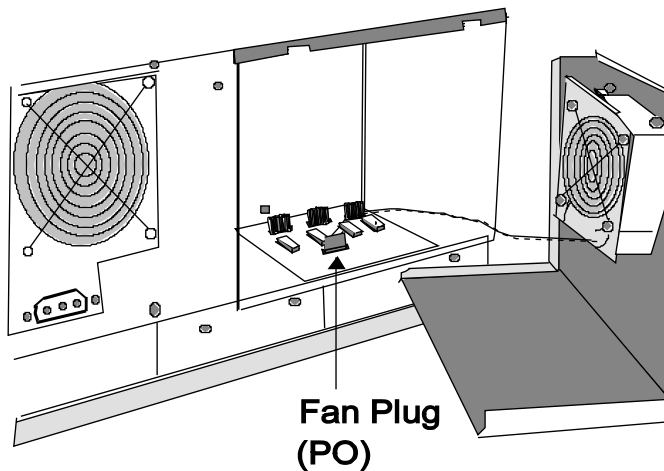


Figure 2-7. Unplugging the Fan Unit

Before you install the new power supply, check the label on the inside of the power supply bay that explains where each of the seven power leads from the power supply are connected in the concentrator chassis.

Power leads labeled P7, P8, and P9 fit in the back three raised connectors and they are “keyed” so they can be inserted only in the correct connector and only in one direction. Power leads labeled P10, P11, P12, and P13 fit in the front four recessed connectors and can be inserted in only one direction. These connectors are shown in Figure 2-8.

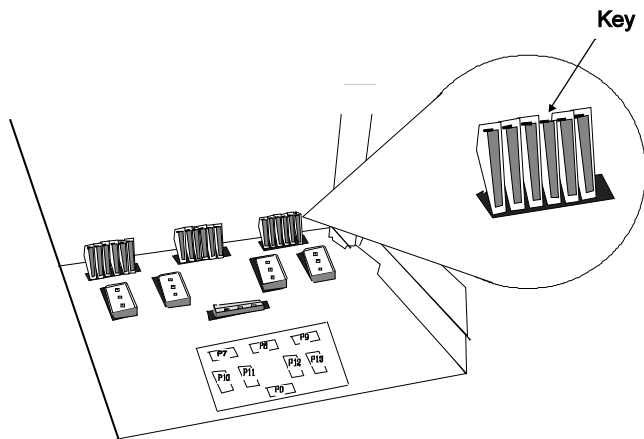


Figure 2-8. Power Supply Connectors

3. Hold the backup power supply in one hand while using your other hand to plug in the seven (7) leads from the power supply as shown in Figure 2-9.

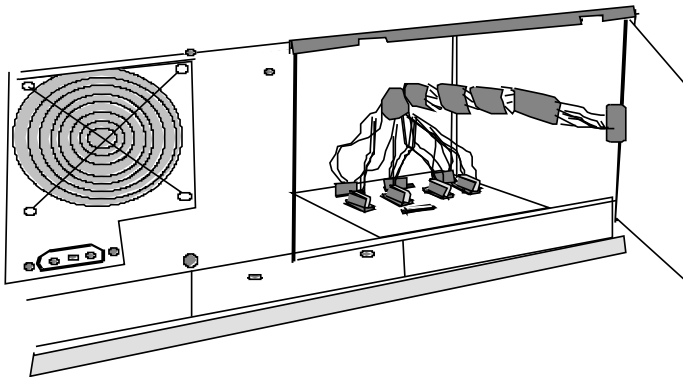


Figure 2-9. Installing the Backup Power Supply

4. Make sure the cable is pushed up to the right side and then slide the power supply into the back of the concentrator as shown in Figure 2-10. Then fasten with the four (4) screws you removed earlier from the fan unit.

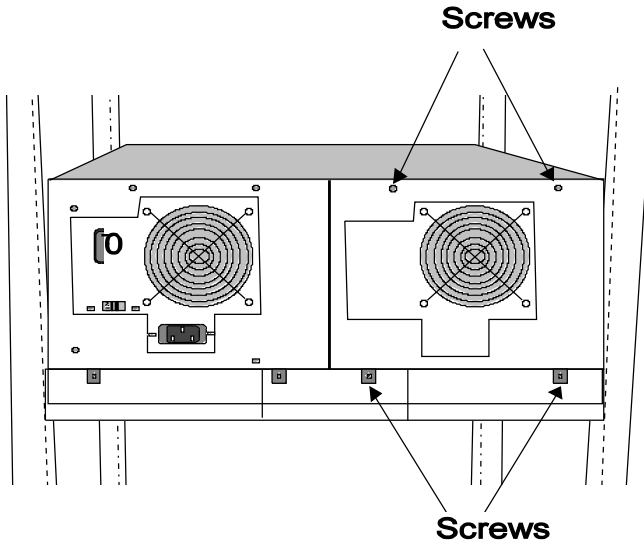


Figure 2-10. Installed Backup Power Supply

Selecting the Power Supply Voltage

Before you plug in the power cord to the power connector on the power supply (and to the backup power supply, if you have one), you must verify that the voltage selector is correctly set for your country line voltage.



Caution: An incorrect voltage setting can damage the power supply.

1. Set the power switch to the Off (O) position.

2. Use a flat-blade screwdriver to move the voltage selector switch so the setting that is appropriate for your country's line voltage is showing: 100/120 Volts or 220/240 Volts, as shown in Figure 2-11.

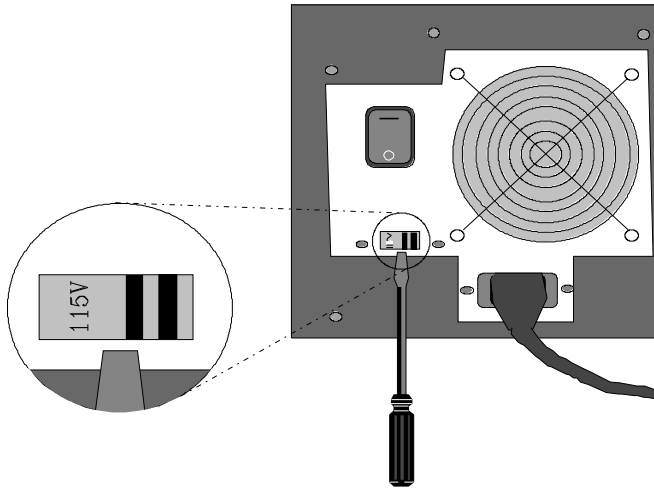


Figure 2-11. Setting the Voltage Selector Switch

3. Plug in the power cord to the power connector on the back of the concentrator and connect the other end to an outlet. If you installed a backup power supply, make sure that power cord is connected to an outlet on an independent circuit from that used for the primary power supply.

The power receptacle on the concentrator is an approved IEC connector. Make sure the power cord you use is appropriate for your country line voltage:

- For 100/120 Volt operation, use only a power cord rated for 10 Amps, 125 Volts.
- For 220/240 Volt operation, use only use a power cord rated for 10 Amps, 250 Volts.



Warning: DO NOT use a 3-to-2 pronged adapter at the outlet since this may result in electrical shock and does not provide adequate grounding.

Installing ONLINE Modules



Warning: Only service personnel should install ONLINE modules.

Install the ONLINE Controller Module in the concentrator as described in the *ONline Controller Module Installation Guide* provided with the Controller Module.

Install any ONLINE media modules in the ONLINE System Concentrator as described in the manual provided with each module. Note that you do not need to turn off the concentrator when installing additional modules to your concentrator.

Use the chart in Appendix B to label the location of each module in the concentrator. At least one media module must be installed along with the Controller Module to make the concentrator functional.

Connecting Network Cables

Connect the network cables between concentrators, patch panels, and transceivers.

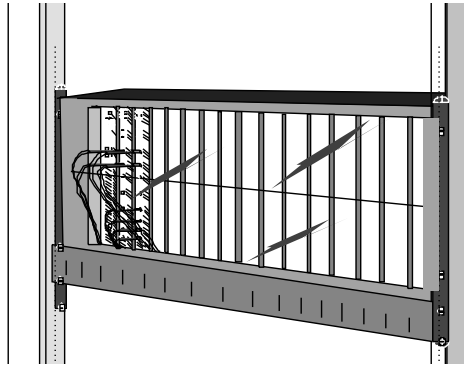


Figure 2-12. Network Cable Connections

Power Up and Verification

This section tells how to power up the concentrator and verify that it is working correctly.

Switch the power supply On/Off switch to the On (|) position.

The Power Supply LED(s) on the ONline Controller Module light when the unit is powered up correctly. The verification procedure is split into the following areas:

- fan operation
- power supply operation
- network operation

Fan Operation Verification

To verify that the fan unit and the power supply fan are functioning correctly you need to visually inspect the fan unit(s) on the rear of the concentrator to make sure they are turning and that nothing is blocking their path.

Power Supply Operation Verification

Verify that the LEDs on the Controller Module appear as defined in Table 2-3 to check the operation of the power supply.

Table 2-3. Controller Module LEDs After Proper Power-Up

LED	Proper State
Primary Power	On.
Backup Power	On. A backup power supply is installed.
	Off. No backup power supply is installed.
Temperature (TEMP)	Off.

If any of these LEDs are not lit as shown in this chart, refer to Table 2-4 to troubleshoot the problem.

Table 2-4. Troubleshooting with Controller Module LEDs

LED	State	Possible Problem	Troubleshooting Suggestions
Primary Power	Off	The Primary Power LED is broken.	Press the LED Test button to verify that the LED is working properly.
		The primary power supply is not properly installed.	Reinstall the primary power supply and turn it on.
	Steady Blinking	The primary power supply has failed.	Verify that the outlet is supplying power.
			Verify that the voltage selection switch is set to the correct position for your country's line voltage.
			Verify that the power cord is plugged in at both ends and that the cord is appropriate for your country's line voltage.
Verify that the power switch is turned on.			
Replace the power supply.			

**Table 2-4. Troubleshooting with Controller Module LEDs
(Continued)**

LED	State	Possible Problem	Troubleshooting Suggestions
Primary Power (cont.)	Steady blinking (cont.)	The primary power supply is not properly installed.	Reinstall the primary power supply and turn it on.
	Two blinks, then a pause (in unison with Backup Power LED)	The power load-sharing hardware is in an error state.	If a management module is installed, the concentrator should recover automatically from this condition. If it doesn't, reset the concentrator using the RESET CONCENTRATOR command. If this fails to correct the condition, turn both power supplies OFF, then ON again. If a management module is not installed, turn both power supplies OFF, then ON again.
Backup Power	Off	The Backup Power LED is broken.	Press the LED Test button to verify that the LED is working properly.
		The backup power supply is not properly installed.	Reinstall the backup power supply and turn it on.

**Table 2-4. Troubleshooting with Controller Module LEDs
(Continued)**

LED	State	Possible Problem	Troubleshooting Suggestions
Backup Power (cont.)	Steady blinking (cont.)	The backup power supply has failed.	See Primary Power LED suggestions for same State and Possible Problem (above).
		The backup power supply is not properly installed.	Reinstall the backup power supply and turn it on.
	Two blinks, then a pause (in unison with Primary Power LED)	The power load-sharing hardware is in an error state.	See <i>Primary Power LED suggestions for same State and Possible Problem</i> (above).
Temp	Blinking	The temperature in the concentrator is too high.	Verify that the fan units are working and nothing is blocking airflow from the front and bottom of the concentrator.
			Verify at least 1 3/4" of space below the concentrator for proper air flow.
			Lower the temperature in the room.
Active	Off	The module is in standby mode.	Verify that the Standby LED is illuminated.

**Table 2-4. Troubleshooting with Controller Module LEDs
(Continued)**

LED	State	Possible Problem	Troubleshooting Suggestions
		The Active LED is broken.	Press the LED Test button to see if the LED is working.
Standby	Off	The module is in active mode.	Verify that the Active LED is illuminated.
		The Standby LED is broken.	Press the LED Test button to see if the LED is working.
	Blinking	There is a hardware failure in the Standby module.	Reset the module. If this action does not correct the problem, install the module in another slot. If necessary, replace the module and contact 3Com Customer Support Organization. See <i>Technical Assistance</i> to follow.

Technical Assistance

You can receive assistance for installing and troubleshooting the 17-Slot concentrator by calling your dealer or 3Com Customer Support. Be prepared to supply a representative with the following information:

- a description of the problem
- the steps you have taken to try and correct the problem

- ❑ the configuration of your concentrator
- ❑ the screen information reporting the SHOW DEVICE command (if you have an ONline management module installed in the concentrator)

Refer to Appendix C for instructions how to contact Technical Support for your product.

Where To Go From Here

Once you have made the necessary concentrator connections, and have verified that communication has been established between all segments connected to the concentrator, no further installation procedures are required. Chapter 3, *Maintenance*, discusses what to do in the event that the fan unit or power supply needs to be replaced.

3 *Maintenance*

This chapter describes routine maintenance designed to keep your ONline System Concentrator working at its best. It also explains how to replace a failed power supply or fan unit.

This chapter explains the following maintenance procedures:

- Routine Maintenance
- Power Supply Replacement
- Fan Unit Replacement
- ONline Module Maintenance
- Other System Components



Warning: There are no serviceable parts on either the power supply or the fan unit. If either of these parts fail, remove them as described in this chapter and return them to your reseller or to 3Com Corporation. You should keep replacement power supply and fan units at your site so they are available if needed.

Routine Maintenance

You should inspect your equipment to make sure that all of the following are true:

- all the blank faceplates are on
- the fans are running
- there are no obstructions to the ventilation on the concentrator
- the ONline Controller Module and media module LEDs are registering correctly

Replacing the Power Supply

Both the primary and backup power supplies in the ONline System Concentrator are removed and installed in exactly the same manner. If a power supply should fail and switch over automatically to the backup power supply (optional) you can replace the failed power supply while the unit is operating - without disrupting network operation.



Caution: Improper installation of the power supply could damage the power supply.

Follow the steps below to replace a power supply unit:

1. Switch Off the failed power supply, then unplug the power cord from both the wall and from the back of the power supply.
2. Remove and save the four screws that attach the power supply to the rear of the concentrator as shown in Figure 3-1.

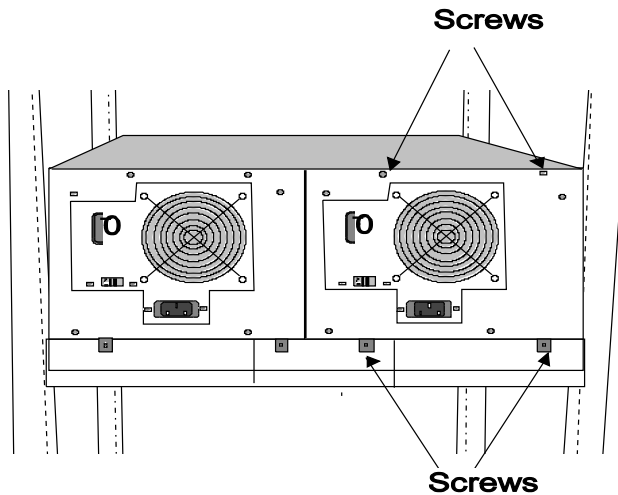


Figure 3-1. Removing the Power Supply

3. Carefully pull the power supply out from the concentrator and disconnect the seven (7) power leads from the connectors inside the base of the ONline unit as shown in Figure 3-2.

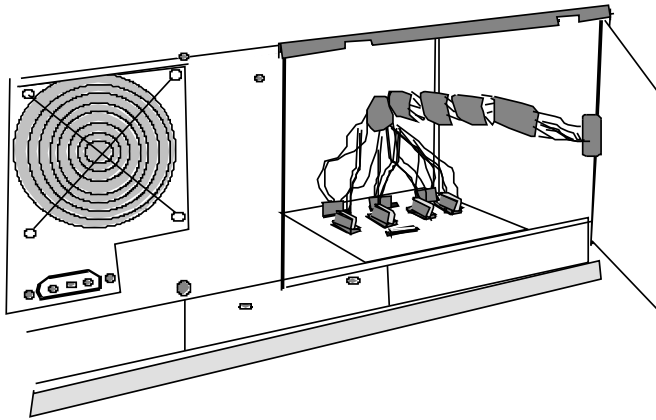


Figure 3-2. Unplugging the Power Supply

Note: Before you install the new power supply, check the label on the inside of the power supply bay that explains where each of the seven power leads from the power supply are connected in the concentrator chassis.

Power leads labeled P7, P8, and P9 fit in the back three raised connectors and they are “keyed” so they can be inserted only in the correct connector and only in one direction. Power leads labeled P10, P11, P12, and P13 fit in the front four recessed connectors and can be inserted in only one direction.

4. Pick up the new power supply and plug in the seven (7) power leads from the power supply as shown in Figure 3-3.

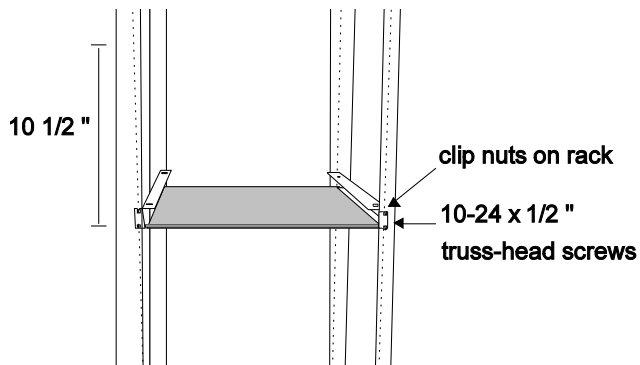


Figure 3-3. Power Supply Plugs in ONline System Concentrator

5. Make sure the cable is pushed up to the right side and slide the power supply into the back of the concentrator and fasten it with the four (4) screws you removed from the defective unit as shown in Figure 3-4.

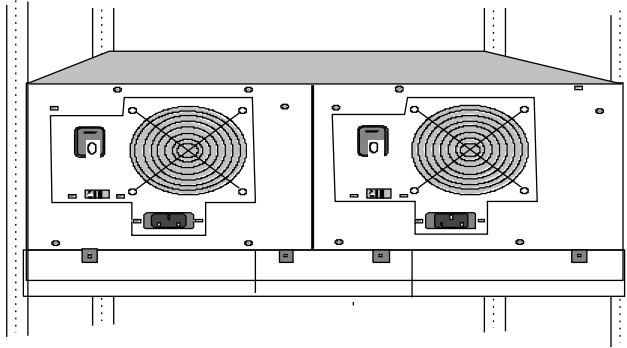


Figure 3-4. Backup Power Supply Installed

6. Set the voltage selection switch on the back of the new power supply to the same setting as the old power supply (or as explained in the “Selecting the Power Supply Voltage” section in Chapter 2) and turn the power switch to the Off (0) position.
7. Plug in the power cord to the power supply and to the wall outlet, then turn the power switch to the On (|) position.
8. Check the power supply LEDs on the controller module to verify that the new power supply is working correctly. Make sure the fan on the power supply is running.

Replacing the Fan Unit

A fan installed in either the left or right bays is removed or installed in exactly the same manner as the power supply. Follow the steps below to replace a fan unit:



Caution: The concentrator must have two fans running at all times to cool the unit. This is achieved through the power supply fan and the fan unit that come standard with the concentrator, or by having two power supplies installed.

1. Remove and save the four screws that attach the fan to the rear of the concentrator as shown in Figure 3-5.

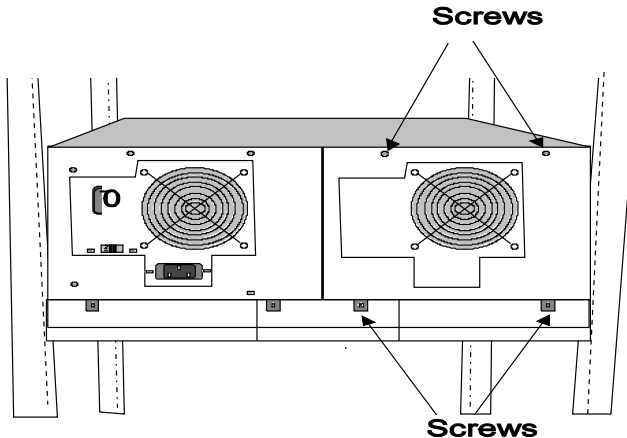


Figure 3-5. Removing the Fan Unit

- Carefully pull the fan unit out from the concentrator and disconnect the wiring harness from the plug inside the base of the ONline unit as shown in Figure 3-6.

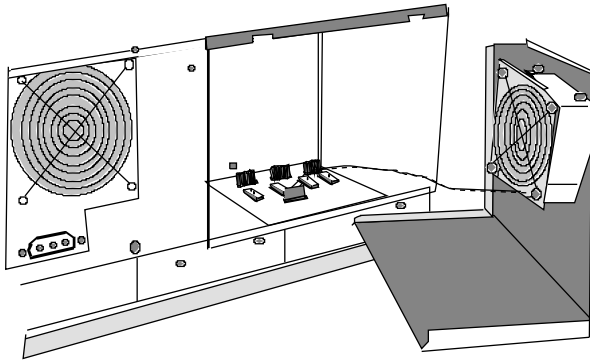


Figure 3-6. Unplugging the Fan Unit

- Pick up the new fan unit and plug the fan power lead in the same connector in the base of the ONline unit from which you removed the old fan (plug P0).
- Slide the new fan unit into the back of the concentrator and fasten it to the unit with the four (4) screws you removed from the defective unit as shown in Figure 3-7.

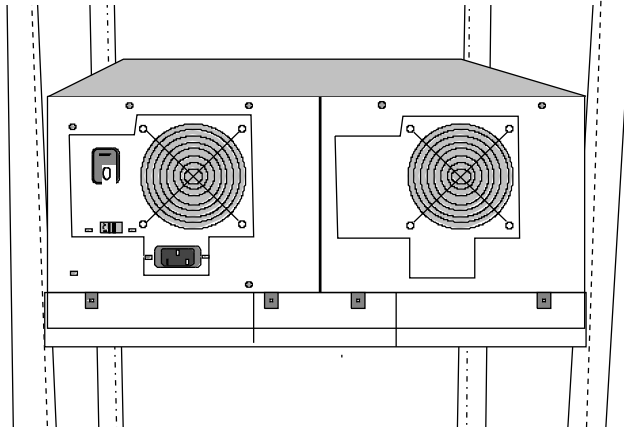


Figure 3-7. Fan Unit Installed

ONline Module Maintenance

Refer to the ONline installation guides that come with the modules for installation and operation information.

Other System Components

For maintenance other than hot swap of power supply, fan, and modules described previously in this section, the following applies:



Caution: This unit may have one or two power supply cords. Disconnect all power supply cords before servicing to avoid electrical shock.

Vorsicht: Dieses gerät hat eine oder zwei netzverbindungen. Vor wartung des gerätes alle netzstecker ziehen um elektroschock zu vermeiden.

A *Specifications*

General

Network Protocols Supported:

Ethernet/IEEE 802.3 over various media

IEEE 802.5 Token Ring over various media

ANSI FDDI

Environmental

Operating temperature: 0° to 50° C (32° to 122° F)

Storage temperature: -30° to 65° C (-22° to 149° F)

Operating humidity: less than 95%, non-condensing

Mechanical

Dimensions: 17.5"W x 18.3"D x 8.75"H (44.5 cm x 46.5 cm x 22.2 cm)

Weight: unloaded, with one power supply: 38 lb. (17 kg.)

unloaded, with two power supplies: 46 lb. (21 kg.)

loaded, with two power supplies: 75 lb. (34 kg.)

Power Source

90-132 VAC, 6 Amps

180-264 VAC, 3 Amps, 47-63 Hz

325 Watts

1700 BTU/hr

Regulatory Compliance

Safety: UL, CSA, and TUV certified.

Emissions: FCC/A, VDE/B, and VCCI/1 certified.

Accessories

Cable Management Tray (5000CT): 17.5"W x 18.3"D x 1.75"H
(44.5 cm x 46.5 cm x 4.5 cm)
8 lb. (3.6 kg.)

Rack-Mount Kit (5017RM): 2.5 lb. (1.2 kg.)

Backup Power Supply (5017PS-325): 8 lb. (3.6 kg.)

Front Cover Panel (5017FC): .5 lb. (.23 kg.)

B *Slot Usage Chart*

The ONline System Concentrator has seventeen slots, sixteen of which are available slots for installing media modules (one slot is occupied by the ONline Controller Module). The slot on the far left is slot number 1 and runs to slot 17 on the far right. Use the chart on the next two pages to keep track of the following:

- which module is installed in each slot
- which network (channel) each module is set for (or if it is isolated)
- any general remarks, such as module serial number or module specific configuration settings

Store any other information on this chart that you think will be helpful when adding new modules or when diagnosing network questions.

Table B-1. Concentrator Slot Usage Chart

Slot	Module Type	Network (# or Isolated)	Remarks
1			
2			

Table B-1. Concentrator Slot Usage Chart (Continued)

Slot	Module Type	Network (# or Isolated)	Remarks
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Table B-1. Concentrator Slot Usage Chart (Continued)

Slot	Module Type	Network (# or Isolated)	Remarks
13			
14			
15			
16			
17			

C *Technical Support*

3Com provides easy access to technical support information through a variety of services. This appendix describes the following services:

- On-line Technical Services
- Support from Your Network Supplier
- Support from 3Com
- Returning Products for Repair

On-line Technical Support

3Com offers worldwide product support through the following on-line systems:

- Email Technical Service
- World Wide Web Site

Email Technical Support

You can contact the Integrated Systems Division (formerly Chipcom) on the Internet for technical support using the e-mail address techsupp@chipcom.com.

World Wide Web Site

You can access the latest networking information on the 3Com World Wide Web site by entering our URL into your Internet browser:

<http://www.3Com.com/>

This service features news and information about 3Com products, customer service and support, the 3Com latest news releases, selected articles from 3TECH™, the 3Com award-winning technical journal, and more.

You can contact the Integrated Systems Division on the World Wide Web by entering our URL into your Internet browser:

<http://www.chipcom.com/>

There are links between both WWW pages to view information from all 3Com divisions.

Support from Your Network Supplier

If additional assistance is required, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Diagnostic error messages
- A list of system hardware and software, including revision levels
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to receive support from your network supplier, technical support contracts are available from 3Com.

For direct access to customer service for Integrated Systems Division products (formerly Chipcom) in:

- U.S.A. and Canada - call (800) 724-2447
- Asia Pacific - call (508) 787-5151
- Europe - Refer to table below

Country	Telephone Number	Country	Telephone Number
Belgium	0800 71429	Netherlands	06 0227788
Denmark	800 17309	Norway	800 11376
Finland	0800 113153	Spain	900 983125
France	05 917959	Sweden	020 795482
Germany	0130 821502	U.K.	0800 966197
Ireland	1 800 553117	U.S.	800 876-3266
Italy	1678 79489		

For access to customer service for all 3Com products, call (800) 876-3266.

You can also contact the Integrated Systems Division (ISD) on the Internet by using the e-mail address techsupp@chipcom.com.

Returning Products for Repair

A product sent directly to 3Com for repair must first be assigned a Return Materials Authorization (RMA) number. A product sent to 3Com without an RMA number will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number for Integrated Systems Division products (formerly Chipcom), use the following numbers.

Country	Telephone Number	Fax Number
U.S. and Canada	(800) 724-2447	(508) 787-3400
Europe	(44) (1442) 275860	No Fax
Asia Pacific	(508) 787-5296	(508) 787-3400

Accessing the 3Com MIB

The 3Com Management Information Base (MIB) for the Integrated Systems Division describes commands that enable you to manage 3Com SNMP-based products. The MIB is available over the Internet on an anonymous FTP server. Updates to these MIBs are released as new 3Com products are introduced.

To access Internet versions:

1. FTP to [ftp.chipcom.com](ftp://ftp.chipcom.com) (151.104.9.65).
2. Enter the login name `anonymous`.

3. Enter your full Internet e-mail address as the password (for example, `jdoe@company.com`).
4. Change to the `mib` or `schema` directory using the `cd /pub/mibs` or `cd /pub/mibs/schemas` command.
5. To view the 3Com MIB, OID, or schema entries, enter the `dir` command.
 - ❑ To pause the display, press [CTRL-S].
 - ❑ To continue the display, press [CTRL-Q].
6. Copy the MIB, OID, or schema files to your current directory using the appropriate command (for example, `get chipcom.mib`).
7. To exit the FTP session, invoke the `quit` command.

3Com Technical Publications

If you have comments or questions on 3Com Integrated Systems Division Technical Publications documents, please contact the Technical Publications group by FAX (508) 229-1551.

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