

Preparing for Installation

Before installing the CDDI/FDDI Workgroup WS-C1400 Concentrator, read this chapter carefully. It contains information about safety recommendations, site requirements, and cabling requirements and lists the tools and materials you will need to install the concentrator.



Warning This warning symbol means *danger*. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translated versions of this warning, refer to the appendix “Translated Safety Warnings.”

Safety Recommendations

Follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Keep tools away from walk areas where you and others could fall over them.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses when working under any conditions that might be hazardous to your eyes.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

Safety with Electricity

Follow these guidelines when working on equipment powered by electricity.



Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. To see translated versions of this warning, refer to the appendix “Translated Safety Warnings.”

- Locate the emergency power-off switch for the room in which you are working. Then, if an electrical accident occurs, you can act quickly to turn off the power.
- Before working on the system, unplug the power cord, but ground the chassis for electrostatic discharge (ESD) protection.
- Disconnect all power before doing the following:
 - Installing or removing a chassis
 - Working near power supplies
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
 - Use caution; do not become a victim yourself.
 - Unplug the power cord.
 - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions, then take appropriate action.



Warning There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. To see translated versions of this warning, refer to the appendix "Translated Safety Warnings."

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures. Always follow ESD-prevention procedures when removing and replacing components. Ensure that the chassis is electrically connected to earth ground using an ESD mat or a ground wire. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.



Caution For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.

Site Requirements

Following are the site requirements for installation.

Environment

Choose a clean, dust-free, (preferably) air-conditioned location. Avoid direct sunlight, heat sources, or areas with high levels of electromagnetic interference (EMI).

Cabling Requirements

Chassis Accessibility

Both the front and rear panels of the concentrator chassis have duplicate status indicators that you may need to monitor. (The traffic LEDs are only on the front panel.) Leave at least 24 inches (60.9 cm) clearance at the rear of the concentrator for easier cabling, service, and access to the LEDs and the reset switch.

Cooling and Airflow

Two fans located at the side of the chassis cool the chassis interior. Both fans always operate. The fans draw air through vents in the left side and exhaust heated air through holes in the right side. If the concentrator temperature exceeds 104 F (40 C) the concentrator status LED will be red. If the interior temperature returns to normal, the status LED will return to its normal green.



Warning To prevent the switch from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104 F (40 C). To prevent airflow restriction, allow at least 3 inches (7.6 cm) of clearance around the ventilation openings. To see translated versions of this warning, refer to the appendix “Translated Safety Warnings.”

Power

The source electrical outlet should be installed near the concentrator, be easily accessible, and be properly grounded. Power should come from a building branch circuit. Use a maximum breaker current rating of 20A for 110V or 8A for 230V. Note the power consumption ratings of each unit before you connect to a power source.

Cabling Requirements

Following are the cabling requirements for installation. For pinouts of the following cable types, refer to the appendix “Cabling Specifications.”

FDDI

The multimode FDDI connectors on the concentrator accept 62.5/125-micron multimode fiber, or 50/125-micron multimode fiber, with standard FDDI MICs. The single-mode connectors accept 8.7 to 10/125-micron single-mode fiber, with standard FDDI ST-type connectors. Table 2-1 lists FDDI distance specifications and Figure 2-1, Figure 2-2, and Figure 2-3 illustrate single-mode ST, multimode MIC, and multimode SC (low cost) connectors, respectively.

Table 2-1 FDDI Maximum Transmission Distances

Transceiver Type	Maximum Distance Between Stations
Single-mode-ST	18.6 miles (30 km)
Multimode-MIC	1.2 miles (up to 2 km)
Multimode-SC	1.2 miles (up to 2 km)
Multimode-SC (low cost)	320 feet (up to 100 m)



Warning Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI card when no cable is connected. *Avoid exposure and do not stare into open apertures.* To see translated versions of this warning, refer to the appendix “Translated Safety Warnings.” Following is an example of the warning label that appears on the product:

Cabling Requirements



Warning Class 1 laser product.

Figure 2-1 Single-Mode FDDI Interface Connector—ST Type

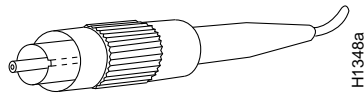


Figure 2-2 Multimode FDDI Interface Connector—MIC Type

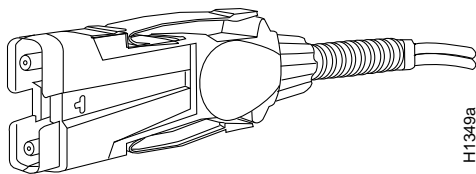
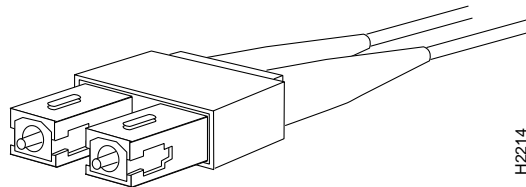


Figure 2-3 Multimode FDDI Interface Connector—SC Type



CDDI

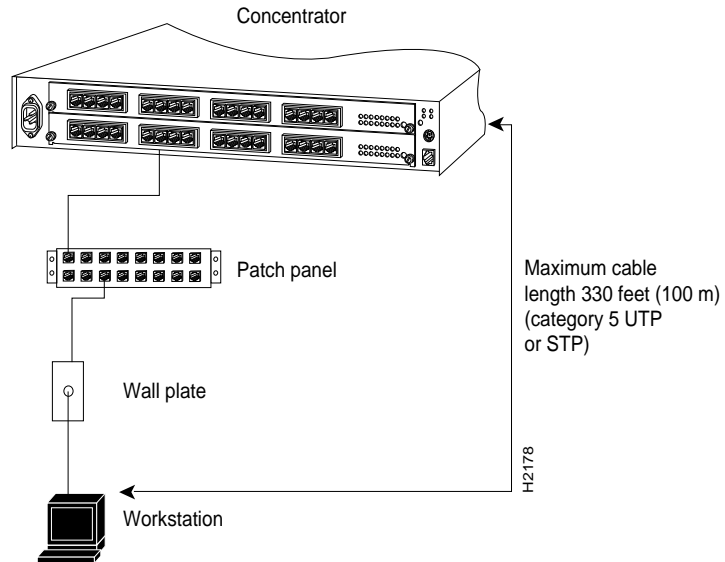
Check all existing cables for conformance with CDDI/MLT-3 distance requirements and to ensure that you have the proper connectors (modular RJ-45). Following are cable and distance specifications:

- Data-grade UTP—EIA-568, category 5, data-grade cable is required for CDDI installations. The total length of data-grade UTP cable from the concentrator to another concentrator, station, or CDDI switch must not exceed 320 feet (100 m), including patch and cross-connect cables. (See Figure 2-4.)
- STP wiring—You must use IBM Type 1 STP wiring for your CDDI installation. The total length of STP cable measured from the adapter or media access unit (MAU) to the concentrator must not exceed 320 feet (100 m). (See Figure 2-4.)

Note You must use a type 5 media filter. We recommend the Ortronics filter, part number OR-820022178.

Cabling Requirements

Figure 2-4 **Category 5 UTP and STP Distance Requirement**



Note You must use high-performance, category 5, data-grade, modular cables for external connections.

When you plan your CDDI installation, remember the following:

- Use cross-connect (patch) panels that comply with the EIA-568 category 5 wiring standard.
- Do *not* use bridge taps.
- Do *not* use protection coils.

Tools and Materials Required

- Do *not* share services (such as voice and data on the same cable). CDDI uses two of the four pairs in the twisted-pair cable. The remaining two pairs cannot be used for other applications.
- Do *not* exceed the maximum cable length for CDDI UTP and STP of 320 feet (100 m).

EIA/TIA-232

As with all signaling systems, EIA/TIA-232 signals can travel a limited distance at any given bit rate; generally, the slower the data rate, the greater the distance. Table 2-2 contains the baud rates and maximum distances. The EIA/TIA-232 admin. port requires a modular RJ-45 connector for the switch end and an RJ-45-to-DB-25 connector for the console terminal to which it will attach.

Table 2-2 **EIA/TIA-232 Speed and Distance Limitations**

Data Rate (baud)	Distance (feet)	Distance (meters)
2,400	200	60
4,800	100	30
9,600	50	15
19,200	25	7.6
38,400	12	3.7

Tools and Materials Required

Table 2-3 lists the tools and supplies you will need to install the concentrator. The concentrator can be mounted in a standard 19-inch rack or placed on a desktop in a work area.

Tools and Materials Required

Table 2-3 Tools and Materials Needed for Installation

Tools and Hardware	Type of Installation	
	Rack	Desk
Rack-mount kit (standard):	Yes	—
2 brackets		
8 screws (to attach the brackets to the concentrator)		
4 screws (to attach the concentrator to the rack— you provide these)		
No. 2 Phillips screwdriver	Yes	—
Flat-blade screwdriver (to remove line cards or blank plates)	Yes	Yes