

Chapter 2

Preparing for Installation

Before installing the CDDI/FDDI Workgroup Concentrator, read this chapter carefully.

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 trip over them.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and 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.

- 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 if potentially hazardous conditions exist.
- Never assume that power is 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.

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 megohm.

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).

Chassis Accessibility

Because the front of the concentrator chassis provides status indicators that you may need to monitor and the reset switch, make the front panel accessible. Leave at least 24 inches (60.9 cm) clearance (recommended) at the rear of the concentrator for easier cabling and service.

Cooling and Airflow

Two fans located at the front of the chassis cool the chassis interior. One fan always operates, and the other automatically switches on if the ambient temperature of the concentrator exceeds 95 F (35 C). The fans draw air through vents in the front and exhaust heated air through holes in the rear.



Caution To prevent overheating the chassis, do not operate the concentrator in an area that exceeds the maximum recommended ambient temperature of 104 F (40 C). To prevent airflow restriction, you must allow at least three inches (7.6 cm) of clearance around these openings for proper airflow.

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 and Figure 2-2 illustrate single-mode and multimode connectors, respectively.

Table 2-1 FDDI Maximum Transmission Distances

Transceiver Type	Maximum Distance Between Stations
Single-mode	18.6 miles (up to 30 km)
Multimode	1.2 miles (up to 2 km)

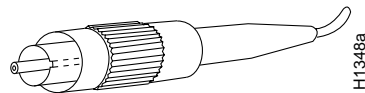


Figure 2-1 Single-Mode FDDI Interface Connector—ST Type



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.

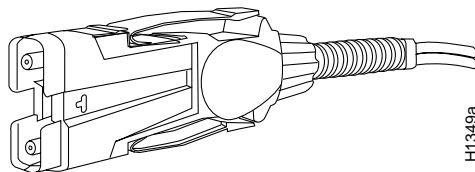


Figure 2-2 Multimode FDDI Interface Connector—MIC Type

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 330 feet (100 m), including patch and cross-connect cables. (See Figure 2-3.)
- 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 330 feet (100 m). (See Figure 2-3.)

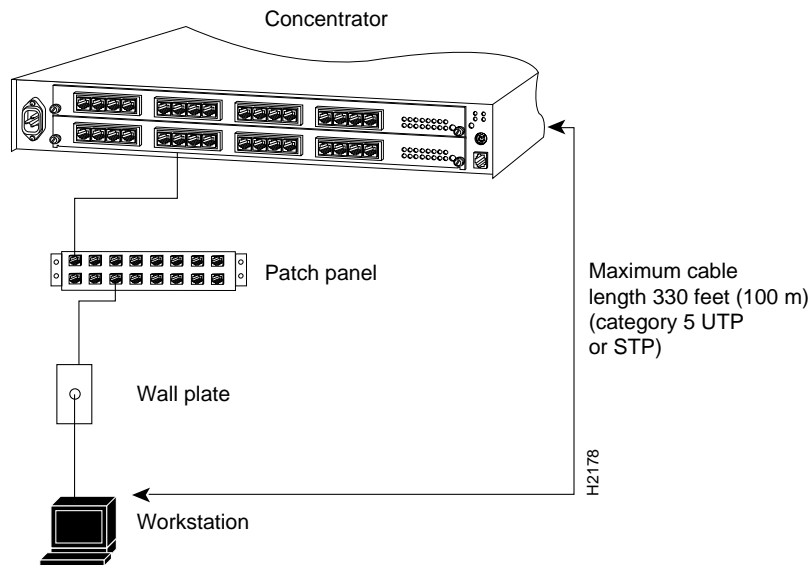


Figure 2-3 Category 5 STP and UTP Distance Requirement

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-B category 5 wiring standard.
- Do *not* use bridge taps.
- Do *not* use protection coils.
- 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 maximum cable length for CDDI UTP and STP of 330 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 describes the relationship between baud rate and maximum distance. 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 materials you will need to install the concentrator. The concentrator can be mounted in a standard 19-inch rack, on a wall in your wiring closet or office, or placed on a desktop in a work area.

Table 2-3 Tools and Materials Needed for Installation

Tools and Materials	Type of Installation		
	Wall	Rack	Desk
Rack-mount kit (standard):	–	Yes	–
2 brackets			
8 screws (attach brackets to concentrator)			
4 screws (concentrator to rack—you provide)			
Wall-mount kit ¹ (optional):	Yes	–	–
2 brackets			
4 screws (attach brackets to switch)			
4 screws (attach to wall—you provide)			
Wall-mounting template			
No. 2 Phillips screwdriver	Yes	Yes	–
Flat-blade screwdriver (to remove A/B port cards or blank plates)	Yes	Yes	Yes
3/8" (0.952 cm) drill with 1/4" (0.635 cm) bit	Yes	–	–

1. Model Number WS-C1670.

