APPENDIX F

Cable and Pin Information

This appendix provides information on cables that can be used with the Catalyst 2600 Token Ring Switch. It also provides minimum pinout information so that you can verify that the cables that you are using are correctly wired.

Connecting to the Management (EIA 232) Port

Table F-1 lists the type of cables that are used when connecting to the EIA 232 port on the Catalyst 2600.

Table F-1 Connecting the Catalyst 2600 to the EIA 232 Port

Cable Function	Cable Type Or Cable Solution
Connect a modem to the EIA 232 port	Connect one end of a straight-through, EIA 232 modem cable to the EIA 232 port and the other to the modem.
Connect a PC or other DTE device to the EIA 232 port	Connect one end of a crossover, EIA 232 cable to the EIA 232 port and the other end to the PC or DTE device. Attach a null-modem adapter to the EIA 232 port. Then, attach a straight-through modem cable to the null-modem adapter.

Twisted-Pair Cable Pinouts

When connecting devices to the Token Ring ports on the Catalyst 2600, you must use a straight-through cable. Diagrams of these cables follow.

The Catalyst 2600 RJ-45 connector makes ground available on the shield and on pins 1, 2, 7, and 8. Shielded cables will provide continuity for ground to any shielded connector on the other end of the cable.

Figure F-1 Straight-Through Cable

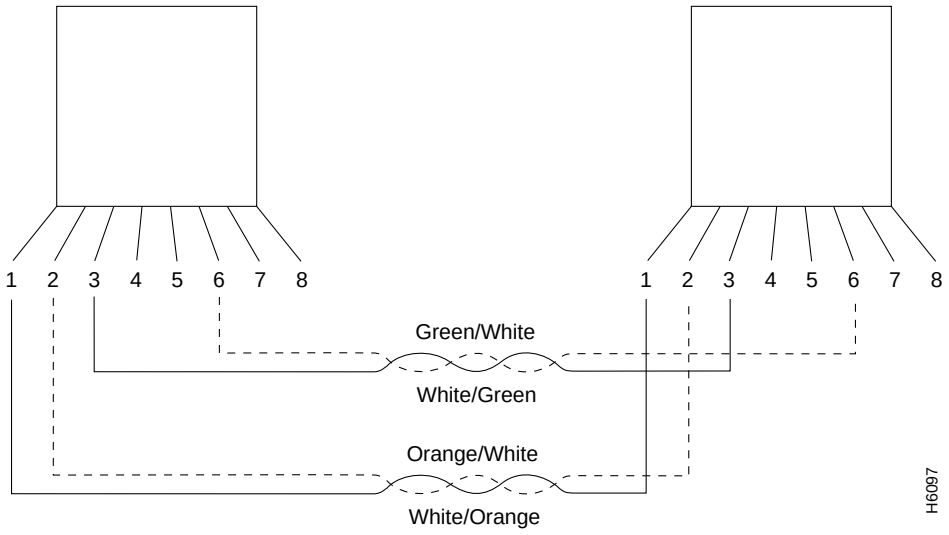
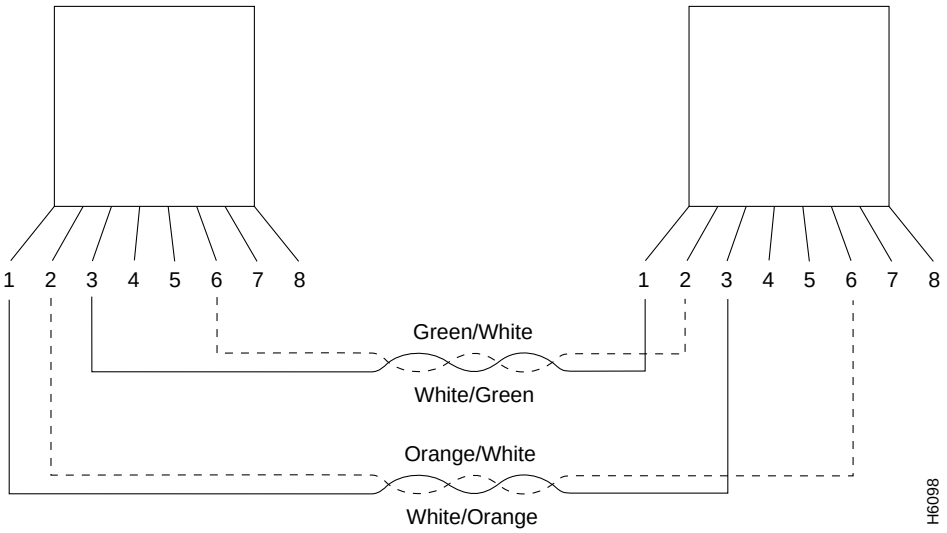


Figure F-2 150-Ohm Data Connector-to-RJ-45 Straight-Through Cable



EIA 232 Port and Cable Pinouts

The Catalyst 2600 has an EIA 232 port wired as a DTE. For this reason, you cannot use a straight-through modem cable to directly connect a terminal to the EIA 232 port.

For a terminal connection, you can use either a null-modem cable or a modem cable with a null-modem adapter attached. For a modem connection, you can use a standard modem cable.

This section provides pinout information for the cables you can use to connect to the EIA 232 port.

EIA 232 Port Pinout

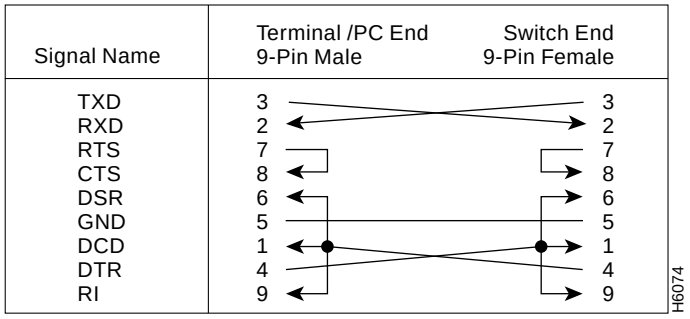
Table F-2 Pinout of the EIA 232 Port

Pin	Signal Name
Shell	CHS GND
3	TXD
2	RXD
7	RTS
8	CTS
6	DSR
5	SIG GND
1	CD
4	DTR
9	RI

EIA 232 Modem Cable Connections

Use a straight-through modem cable to connect the EIA 232 port of the Catalyst 2600 to a modem.

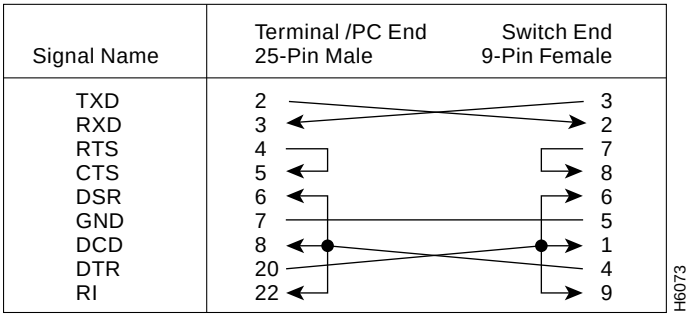
Figure F-3 EIA 232 Modem Cable



EIA 232 Null-Modem Connections

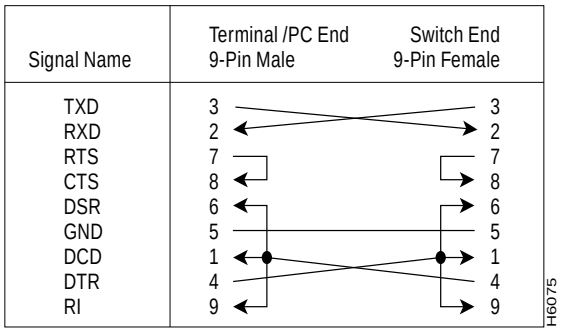
Use a null-modem (crossover) cable (Figure F-4) to connect the EIA 232 port to a terminal (DTE) with a 25-pin connector. Alternatively, you can use a modem cable and a null-modem adapter. DTR (pin 20) and RTS (pin 4) must be on, or high, on your terminal or in your terminal emulation program.

Figure F-4 EIA 232 Null-Modem Cable for Terminal with 25-Pin Connector



Use a null-modem (crossover) cable (Figure F-5) to connect the EIA 232 port to a terminal (DTE) with a 9-pin connector. Alternatively, you can use a modem cable and a null-modem adapter. DTR (pin 4) and RTS (pin 7) must be on, or high, on your terminal or in your terminal emulation program.

Figure F-5 EIA 232 Null-Modem Cable for Terminal with 9-Pin Connector



Cabling Recommendations

The following tables contain the maximum supported lobe lengths. The maximum lengths reflect the longest lengths supported by the transmission characteristics of IEEE 802.5-compliant adapters. The recommended distances for the various cable types are set by North American and international commercial building wiring standards. These standards state that standards-compliant horizontal copper cabling shall not exceed 90 m (295 ft) leaving 10 m (33 ft) total for required patch cabling in both the office and telecommunications closet. It is good practice to follow the cabling standards guidelines when installing building cabling to help ensure a longer useful life for your cabling infrastructure, migration to new technologies, and maximum flexibility for the network configuration.

Table F-3 Copper Cable Types

Cable Type	Impedance
Type 1 and 1A	150 ohm
Type 2 and 2A	150 ohm
Type 8	150 ohm
Type 9	150 ohm
Type 3	100 ohm
Category 3	100 and 120 ohm
Category 4	100 and 120 ohm
Category 5	100 and 120 ohm

Table F-4 Multimode Optical Fiber Cable Types

Cable Type
65.5/125 Micron Fiber
50/125 Micron Fiber
100/140 Micron Fiber

If you are installing new cabling for data applications, it is recommended that you use the following types of cable:

- For lobe cabling from the telecommunications closet to the wall outlet, it is recommended that 150-ohm STP or four-pair Category 5 cable that meets the international cable standard (ISO/IEC 11801) or North American cabling standard (EIA/TIA 568A).
- For backbone cabling, it is recommended that 62.5/125-micron multimode optical fiber cable that meets the international cable standard (ISO/IEC 11801) or the North American cabling standard (EIA/TIA 568A).

Cabling Length Recommendations for Dedicated-Media LAN Segments

The IBM Token Ring Network dedicated-media connections support only one attached entity (workstation or Catalyst 2600) per connection.

For all supported cable types except optical fiber, the recommended maximum cable lobe length is 190 m (625 ft) plus a 10-meter (33 ft) total allowance for the patch cords in the office and the telecommunications closets. For optical fiber, the recommended maximum cable lobe length is 2000 m (6562 ft).

In a Token Ring network, the section of cable that attaches a device to an access unit is called a lobe.

Lobe Wiring Rules for Dedicated-Media LAN Segments

Table F-5 and Table F-6 specify the maximum supported lobe lengths for the following types of cables. An additional 10 m (33 ft) per lobe length is allowed to accommodate patch cables, unless otherwise specified.

- 150-ohm, shielded media lobe lengths cable
- Lobe lengths for 100- or 120-ohm, shielded or unshielded cable

Table F-5 Lobe Lengths for 150-Ohm Shielded Media

Ring Speed	Types 1 and 1a, Types 2 and 2a	Type 8	Type 9
4 Mbps	750 m (2460 ft)	376 m (1234 ft)	500 m (1640 ft)
16 Mbps	290 m (952 ft)	146 m (480 ft)	200 m (656 ft)

Note Subtract 10 m (33 ft) from the allowed Type 1 or 2 distance each time a 2.4-m (8 ft) patch cable is replaced by a Type 6, 9-m (30 ft) patch cable on that lobe.

Table F-6 Lobe Lengths for 100-/120-Ohm, Shielded or Unshielded Cable

Ring Speed	100-OHM Type 3	100-OHM Category 3
4 Mbps	100 m (328 ft)	250 m (820 ft)
16 Mbps	Not Supported	100 m (328 ft)

Note Unshielded media requires appropriate filtering.

Table F-7 Lobe Lengths for 100- and 120-Ohm, Shielded or Unshielded Cable

Ring Speed	100- or120-OHM Category 4	100- or 120-OHM Category 5
4 Mbps	350 m (1148 ft)	350 m (1148 ft)
16 Mbps	200 m (656 ft)	200 m (656 ft)

Note Unshielded media requires appropriate filtering.

Table F-8 Lobe Lengths for 100-/120-Ohm Shielded or Unshielded Cable

Ring Speed	100-OHM Type 3	100-OHM Category 3	100- OR 120-OHM Category 4	100- or 120-OHM Category 5
4 Mbps	100 m (328 ft)	250 m (820 ft)	350 m (1148 ft)	350 m (1148 ft)
16 Mbps	Not Supported	100 m (328 ft)	200 m (656 ft)	200 m (656 ft)

Note Unshielded media requires appropriate filtering.

Cable Length and Lobe Wiring Rules for Shared-Media LAN Segments

The types of cables that can be used are the same as those described above for dedicated-media segments. The acceptable distances are defined by the hub or concentrator attached to the Catalyst 2600 port.

Number of Attaching Devices

A Token Ring Network supports up to 260 attaching devices or nodes on a single network when using 150-ohm shielded media (type 1, 1A, 2, or 2A). When cable segments in the network are 100 or 120 ohm, this number is decreased to 132 (72 if using any 4-Mbps-only adapters or filters).