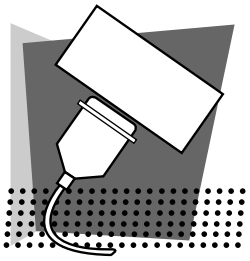
Cables and Transceivers

This chapter provides information on various cables and transceivers. The information is organized into the following sections:

- Ethernet Transceivers
- Cisco-Approved Cable Vendors
- T1/DSUs
- Serial Cables
  - DTE or DCE
  - Cable Gender
  - Signaling Standards
  - Ordering
  - Specifications
- RJ-45 Cables
- Cisco LightStream 2020 Cables
- ATM Cable Specifications

If a product number in this chapter ends with an equal sign (=), the item can be ordered only as a spare. If a product number does not end with an equal sign, the item can be ordered as a spare or as a configurable part of a system order. For example, a serial cable ordered as part of an original order uses part number CAB-232FC. The same cable ordered as a spare uses part number CAB-232FC=.

Note Please send catalog corrections to bug-doc@cisco.com.



Ethernet Transceivers

Table 326 lists Ethernet transceivers and applicable systems.

Table 326 Ethernet Transceivers

Description	Systems	Product Number
Thin Ethernet BNC transceiver with 9.8-foot (3-meter) attachment unit interface (AUI) cable	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-13B=
Thick Ethernet, N-series transceiver with 9.8-foot (3-meter) AUI cable	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-13N=
Thick Ethernet piercing-tap transceiver with 9.8-foot (3-meter) cable	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-13V=
Shielded transceiver with 49-foot (15-meter) cable	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-14A=
Unshielded transceiver with a 16.4-foot (5-meter) cable	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-14B=
Two 50-ohm thick Ethernet cable terminators	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-14TA=
Two 50-ohm thin Ethernet cable terminators	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-14TB=

Cisco-Approved Cable Vendors

Following is a list of Cisco-approved cable vendors:

LoDan West, Inc.
1050 Commercial Street
San Carlos, California 94070
Tel: 415 592-4600
Fax: 415 592-4054

Volex, Inc.
646 Caribbean Drive
Sunnyvale, CA 94089
Tel: 408-541-4600
Fax: 408-541-4640

Storm Products Co.
1400 Memorex Drive
Santa Clara, California 95050
Tel: 408 565-9800
Fax: 408 565-9820

The JPM Company
Route 15 North
Lewisburg, PA 17837
Tel: 717-524-8200
Fax: 717-524-8181
or their Pacific Coast representative
Camino Sales
Tel: 415-968-4099
Fax: 415-968-2645

T1/DSUs

Table 327 lists T1/DSUs and applicable systems.

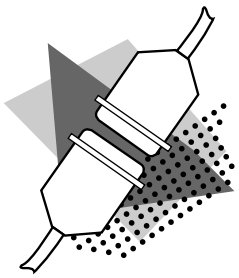
Table 327 T1/DSUs

Description	System	Product Number
T1 Switched Multimegabit Data Service (SMDS) DSU, 110 VAC Vendor: Kentrox	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-SNI1=
T1/DSU Vendor: Digital Link	AGS+ ASM-CS Cisco 7000 family Cisco 4000 series Cisco 3000 series Cisco 2500 series Access Server series	COM-T1=

Table 328 lists DSU/channel service unit (CSU) cables.

Table 328 DSU/CSU Cables

Description	Cable	DSU/CSU
EIA/TIA-449 female to EIA-530 male cable, 3 ft. (1 m)	CAB-SDS1=	COM-SNI1= COM-T1=
DA-15 female to pigtail cable, 24.6 ft. (7.5 m)	CAB-SDS6=	COM-SNI1= COM-T1=
DA-15 female to RJ-48 male cable, 24.6 ft. (7.5 m)	CAB-SDS0=	COM-SNI1= COM-T1=



Serial Cables

One of the most complicated parts of setting up a router is the selection of the serial cables to connect the router to the serial devices in your network. There are many different serial cables with seemingly similar features, and finding the correct cable can be a challenge. The information that follows will quickly and easily guide you through the process of selecting the right serial cables for your network.

Selecting the proper serial cable is as easy as knowing the answers to three questions:

- Is the router being connected to a DTE or DCE device?
- What signaling standard does the device require?
- Is a male or female connector required on the cable?

With the answers to these questions, and the model of your router, you can read the part number of the cable required from Table 330.

DTE or DCE

Devices that communicate over a serial interface are divided into two modes: data terminal equipment (DTE) and data communications equipment (DCE). The most important difference between these types of devices is that the DCE device supplies the clock signal that paces the communications on the bus. The documentation that came with the device should indicate whether it is DTE or DCE (some devices have a jumper to select either mode). If you cannot find the information in the documentation, use Table 329 to help you select the proper class.

Table 329 DTE or DCE Determination

	DTE	DCE	Selectable DTE or DCE[1]
Device	Terminals	Modems CSU/DSU Multiplexers	Hubs Routers
Gender	Male	Female	Either

1. Selectable devices usually have a jumper, switch, or software command used to select DTE or DCE.

Note The cable itself identifies the Cisco router as a DTE or DCE device to other devices in the network; for this reason, it is important to select the correct product number from Table 330.

Cable Gender

If pins protrude from the base of the connector, the plug is male. If the connector has holes to accept the pins, the receptacle is female. Refer to Figure 157 to identify the connector you need.

Signaling Standards

A number of different standards define the signaling over a serial cable (including EIA/TIA-232, X.21, V.35, EIA/TIA-449, EIA-530, and EIA-613 HSSI). Each standard defines the signals on the cable and specifies the connector at the end of the cable. The documentation for the device being connected should indicate the signaling standard used for that device. If you cannot find the information in the documentation, use the illustrations inside to select the signaling standard required. Select the connector in Figure 157 that will *mate* with the connector on your device, not the illustration that looks like the connector on the device.

Figure 157 Serial Cable Connectors—Network Ends

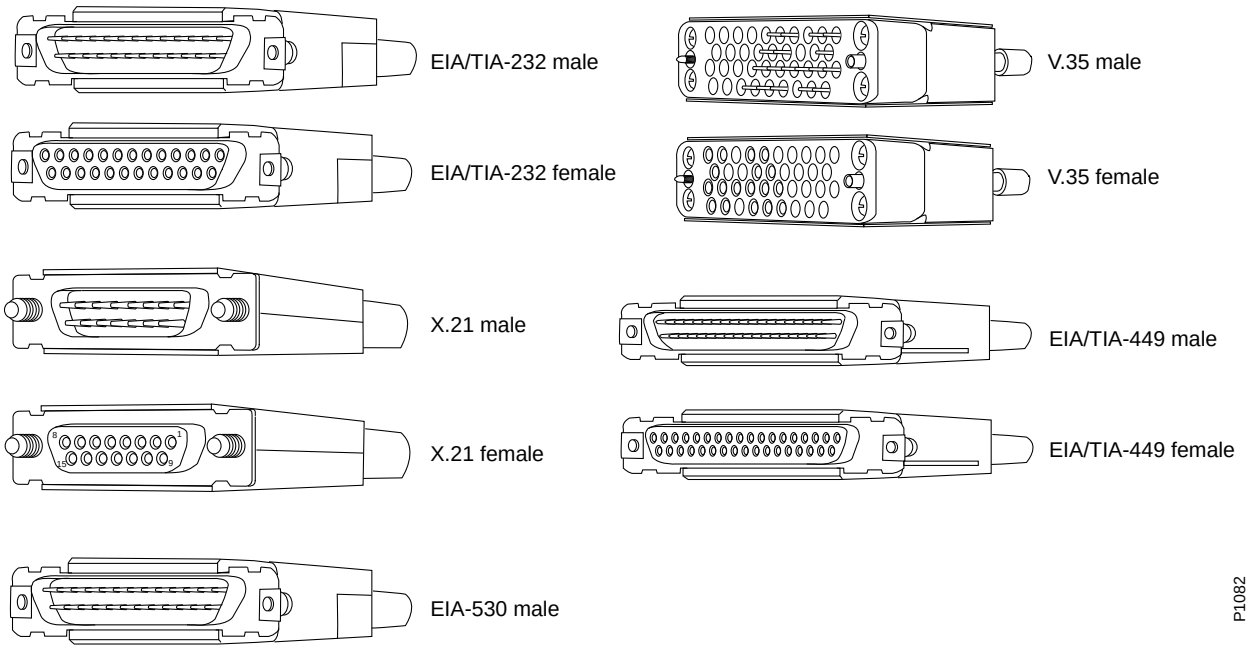


Table 330 Serial Cable Part Numbers

Mode	Cable Gender	Signaling	Cisco 7000 Family Cisco 2500 Series Cisco 4000 NP-4T Access Server Series	Cisco 4000 NP-2T	AGS+
DTE	Male	EIA/TIA-232	CAB-232MT=	CAB-NP232T=	CAB-R23= CAB-R23NZ=
		EIA/TIA-449	CAB-449MT=	CAB-NP449T=	CAB-R44=
		V.35	CAB-V35MT=	CAB-NPV35TV2=	CAB-VTM=
		X.21	CAB-X21MT=	CAB-NPX21T=	CAB-IX=
		EIA-530	CAB-530MT=	CAB-NP530=	–
		HSSI	CAB-HSI1=[1]	–	CAB-HSI1=
		ASYNC	CAB-OCTAL-ASYNC=[2]	–	–
		V.35	–	–	CAB-V35MTS=[3]
		–	CAB-PCA-VA=[4]	–	–
		–	CAB-PCA-VB=[4]	–	–
		–	CAB-PCA-Y=[4]	–	–
		T1	CAB-7KCT1DB15=[5]	–	–
		E1	CAB-E1-BNC=[5]	–	–
		E1	CAB-E1-DB15=[5]	–	–
		E1	CAB-E1-PRI=[5]	–	–
		E1	CAB-E1-TWINAX=[5]	–	–
	Female	V.35	CAB-V35FT=[1]	–	CAB-VTF=
DCE	Male	V.35	CAB-V35MC=	–	CAB-VCM=
		HSSI	CAB-HNUL=[1]	–	CAB-HNUL=
		T1	CAB-7KCT1NULL=[5]	–	–
	Female	EIA/TIA-232	CAB-232FC=	CAB-NP232C=	CAB-R23=
		EIA/TIA-449	CAB-449FC=	CAB-NP449C=	CAB-R44=
		V.35	CAB-V35FC=	CAB-NPV35CV2=	CAB-VCF=
		X.21	CAB-X21FC=	CAB-NPX21C=	–

1. Applies only to the Cisco 7500 series and 7000 series, and the AGS+.
2. Applies only to the access server series (2509 through 2512).
3. Applies the AGS+ and the Cisco 1001. It is a generic V.35 DTE translation cable.
4. Applies only to the Cisco 7500 series and 7000 series, and the CIP2 bus and tag transition cable..
5. Applies only to the Cisco 7500 series, 7000 series, and 4000 series.

Ordering

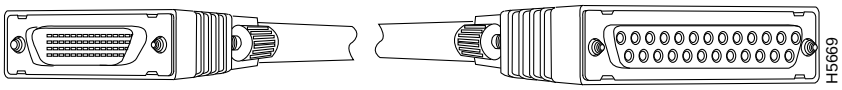
To order serial cables and other Cisco products, contact Cisco as described in the chapter "Ordering Products."

Specifications

This section describes serial cables by product and part number. The illustrations in this section show the Cisco end and the network end of each serial cable. The connector on the left is the Cisco end of the cable. The connector on the right is network end of the cable.

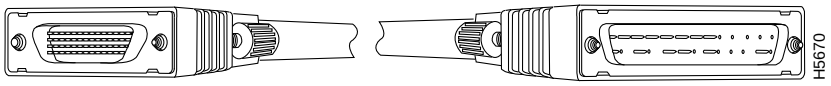
CAB-232FC=

The following illustration shows serial cable CAB-232FC= (part number 72-0794-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a female DB-25 connector on the network end.



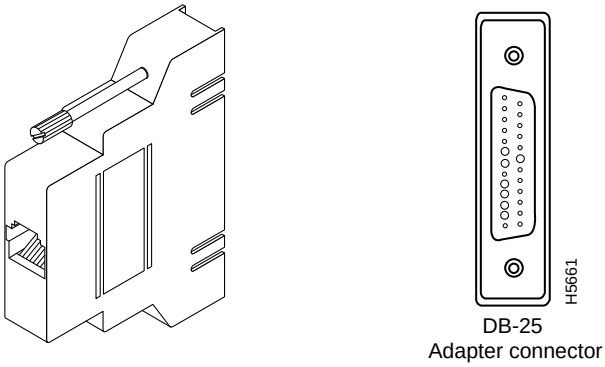
CAB-232MT=

The following illustration shows serial cable CAB-232MT= (part number 72-0793-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a male DB-25 connector on the network end.



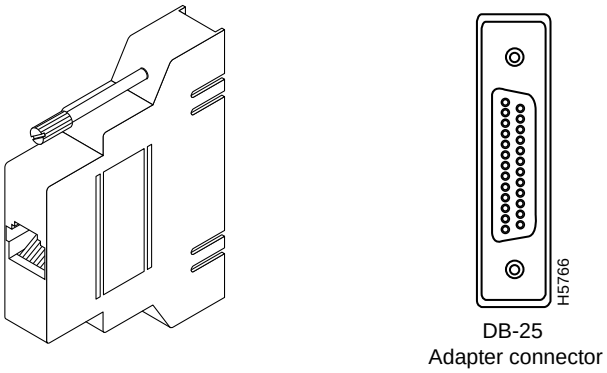
CAB-25AS-MMOD=

The following illustration shows adapter CAB-25AS-MMOD= (part number CAB-25AS-MMOD), which is used in the following systems: the Cisco 2500 series, including the Access Server series (Cisco 2509 through Cisco 2512). This adapter has an RJ-45 connector on one side and a male DB-25 connector on the other side.



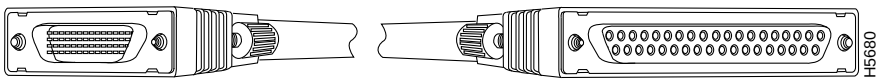
CAB-25AS-FDTE=

The following illustration shows adapter CAB-25AS-FDTE= (part number CAB-25AS-FDTE), which is used in the Cisco 2500 series, including the Access Server series (Cisco 2509 through Cisco 2512). This adapter has an RJ-45 connector on one side and a female DB-25 connector on the other side.



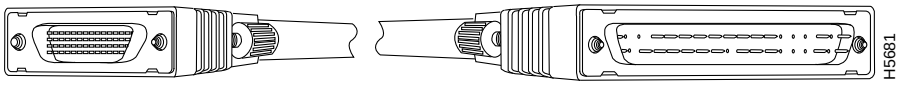
CAB-449FC=

The following illustration shows serial cable CAB-449FC= (part number 72-0796-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a female DB-37 connector on the network end.



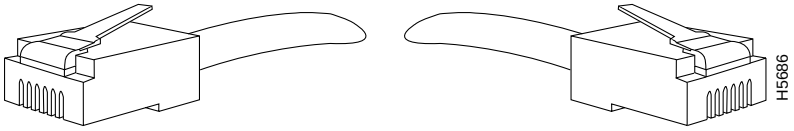
CAB-449MT=

The following illustration shows serial cable CAB-449MT= (part number 72-0795-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a male DB-37 connector on the network end.



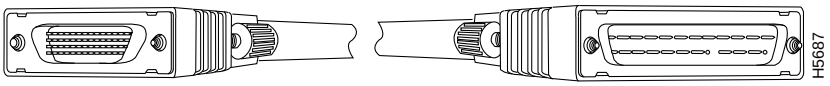
CAB-500RJ=

The following illustration shows serial cable CAB-500RJ= (part number 31-0590-01), which is used in the following systems: the Cisco 2500 series and the Cisco CS500. This cable has an RJ-45 connector on both ends.



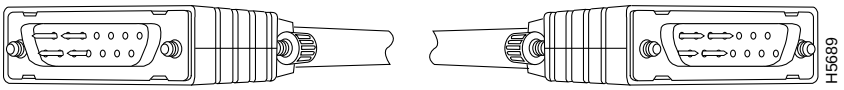
CAB-530MT=

The following illustration shows serial cable CAB-530MT= (part number 72-0797-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a male DB-25 connector on the network end.



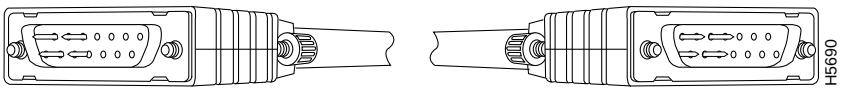
CAB-7KCT1DB15=

The following illustration shows serial cable CAB-7KCT1DB15= (part number 72-0799-00), which is used in the following systems: the Cisco 7500 series, 7000 series, and the Cisco 4000 series. This cable has a male DB-15 connector on the Cisco end and a male DB-15 connector on the network end.



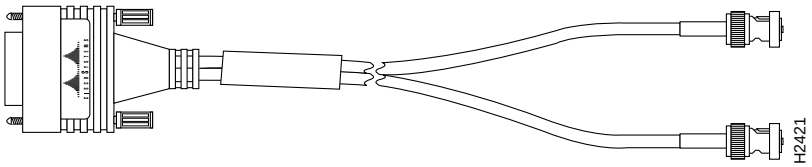
CAB-7KCT1NULL=

The following illustration shows serial cable CAB-7KCT1NULL= (part number 72-0800-00), which is used in the following systems: the Cisco 7500 series, 7000 series, and the Cisco 4000 series. This cable has a male DB-15 connector on the Cisco end and a male DB-15 connector on the network end.



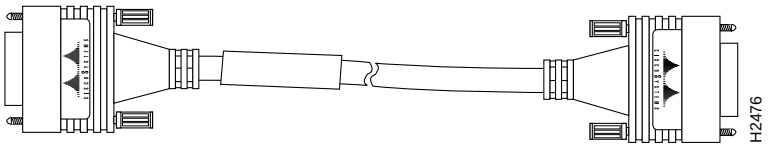
CAB-E1-BNC-3M=

The following illustration shows serial cable CAB-E1-BNC= (part number CAB-E1-BNC), which is used in the Cisco 7500 series, 7000 series, and the Cisco 4000 series systems. This cable has a male DB-15 connector on the Cisco end and two BNC connectors on the network end.



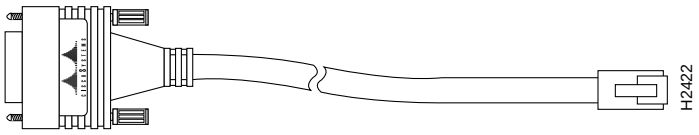
CAB-E1-DB15=

The following illustration shows serial cable CAB-E1-DB15= (part number CAB-E1-DB15), which is used in the Cisco 7500 series, 7000 series, and the Cisco 4000 series systems. This cable has a male DB-15 connector on the Cisco end and a DB-15 connector on the network end.



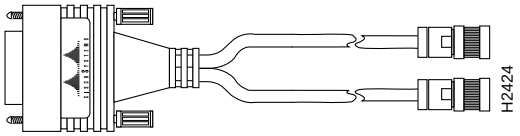
CAB-E1-PRI=

The following illustration shows serial cable CAB-E1-PRI= (part number CAB-E1-PRI), which is used in the Cisco 7500 series, 7000 series, and the Cisco 4000 series systems. This cable has a male DB-15 connector on the Cisco end and an RJ-45 connector on the network end.



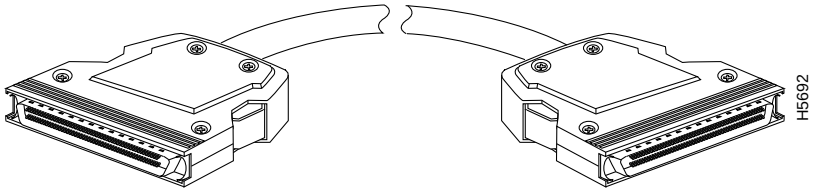
CAB-E1-TWINAX=

The following illustration shows serial cable CAB-E1-TWINAX= (part number CAB-E1-TWINAX), which is used in the Cisco 7500 series, 7000 series, and the Cisco 4000 series systems. This cable has a male DB-15 connector on the Cisco end and two BNC connectors on the network end.



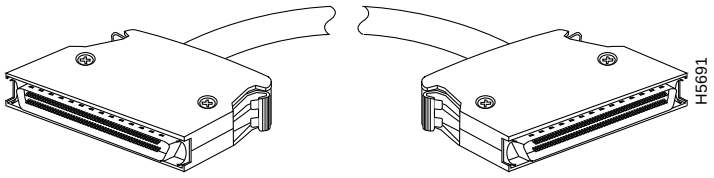
CAB-HNUL=

The following illustration shows serial cable CAB-HNUL= (part number 75-1000-01), which is used in the Cisco 7500 series, 7000 series, and the Cisco AGS+ systems. This cable has a male DB-50 (SCSI) connector on the Cisco end and a male DB-50 (SCSI) connector on the network end.



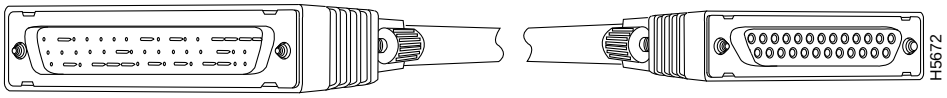
CAB-HSI1=

The following illustration shows serial cable CAB-HSI1= (part number 75-1001-01), which is used in the Cisco 7500 series, 7000 series, and the Cisco AGS+ systems. This cable has a male DB-50 (SCSI) connector on the Cisco end and a male DB-50 (SCSI) connector on the network end.



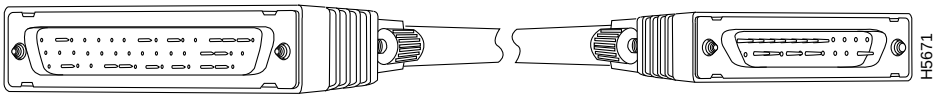
CAB-NP232C=

The following illustration shows serial cable CAB-NP232C= (part number 72-0736-01), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-60 connector on the Cisco end and a female DB-25 connector on the network end.



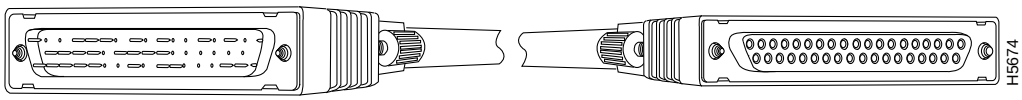
CAB-NP232T=

The following illustrations show serial cable CAB-NP232T= (part number 72-0670-01), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-60 connector on the Cisco end and a male DB-25 connector on the network end.



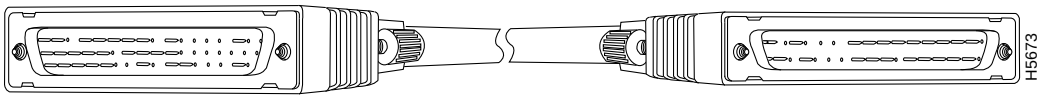
CAB-NP449C=

The following illustration shows serial cable CAB-NP449C= (part number 72-0738-01), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-60 connector on the Cisco end and a female DB-37 connector on the network end.



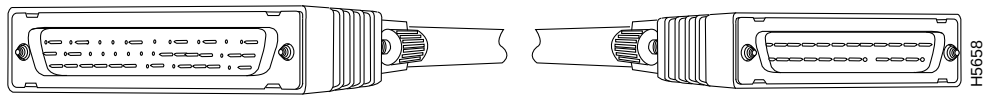
CAB-NP449T=

The following illustration shows serial cable CAB-NP449T= (part number 72-0672-01), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-60 connector on the Cisco end and a male DB-37 connector on the network end.



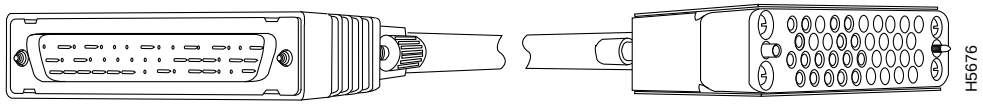
CAB-NP530=

The following illustration shows serial cable CAB-NP530= (part number 72-0732-01), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-50 connector on the Cisco end and a male DB-25 connector on the network end.



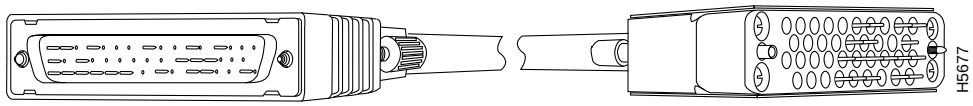
CAB-NPV35CV2=

The following illustration shows serial cable CAB-NPV35CV2= (part number 72-0740-02), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-50 connector on the Cisco end and a female Winchester connector on the network end.



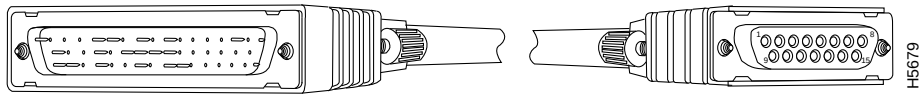
CAB-NPV35TV2=

The following illustration shows serial cable CAB-NPV35TV2= (part number 72-0671-02), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-50 connector on the Cisco end and a male Winchester connector on the network end.



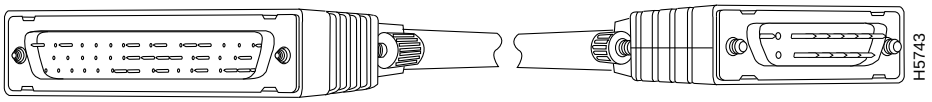
CAB-NPX21C=

The following illustration shows serial cable CAB-NPX21C= (part number 72-0737-01), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-50 connector on the Cisco end and a female DB-15 connector on the network end.



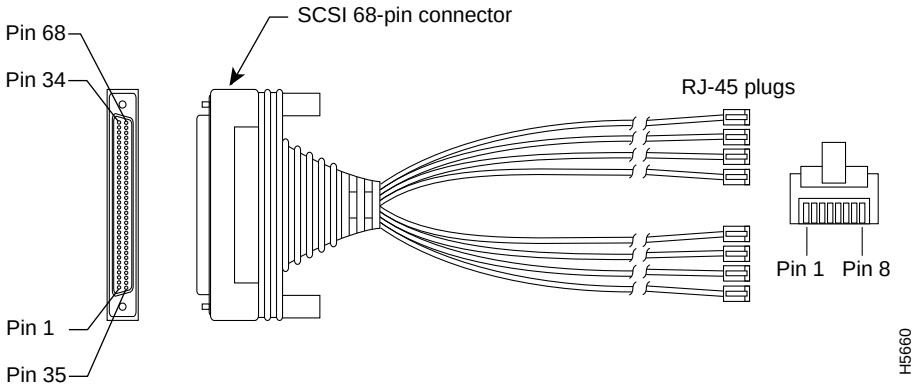
CAB-NPX21T=

The following illustration shows serial cable CAB-NPX21T= (part number 72-0683-02), which is used in the Cisco 4000 series (2T) systems. This cable has a male DB-50 connector on the Cisco end and a male DB-15 connector on the network end.



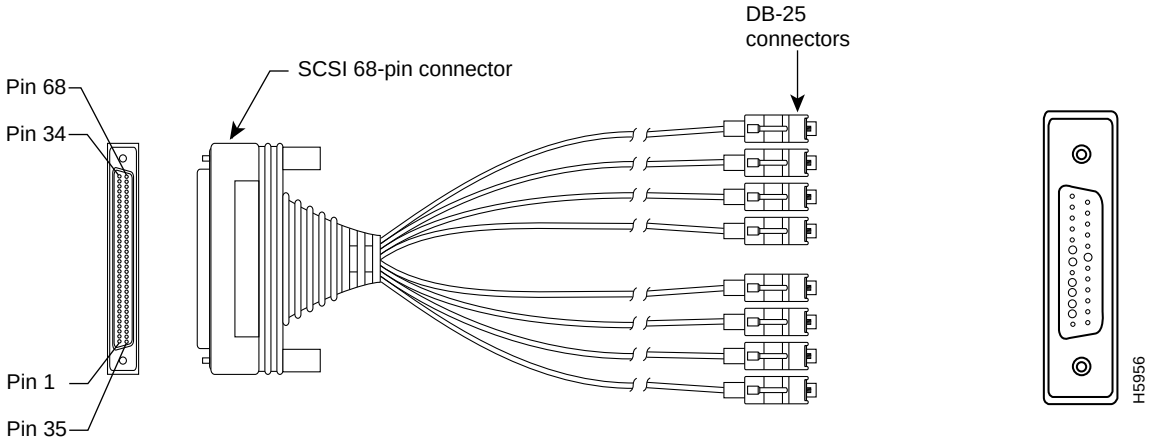
CAB-OCTAL-ASYNC=

The following illustration shows serial cable CAB-OCTAL-ASYNC= (part number CAB-OCTAL-ASYNC), which is used in the Access Server series (Cisco 2509 through Cisco 2512). This cable has a male DB-68 (SCSI II) connector on the Cisco end and eight RJ-45 connectors on the network end.



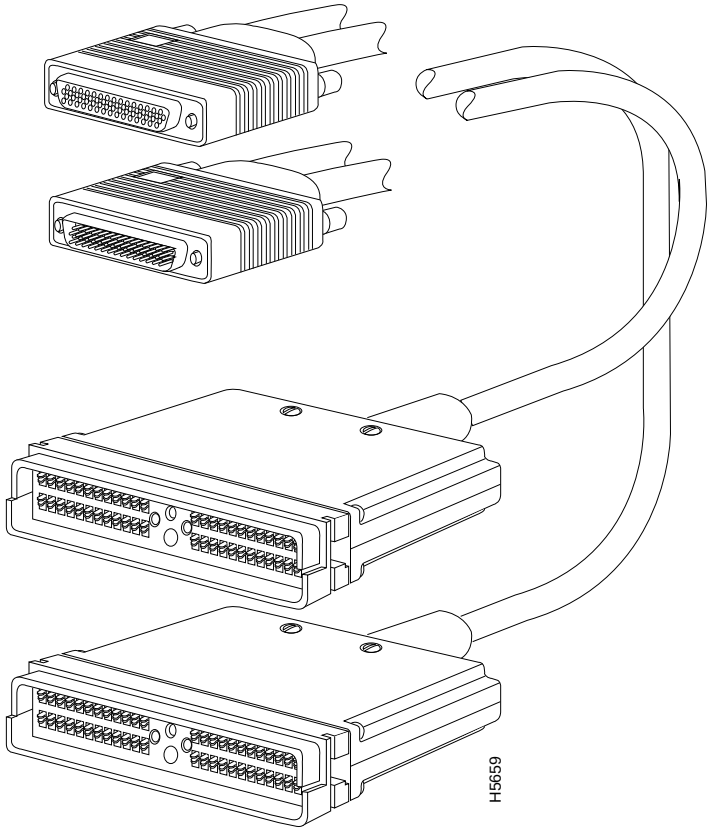
CAB-OCTAL-MODEM=

The following illustration shows serial cable CAB-OCTAL-MODEM= (part number CAB-OCTAL-MODEM), which is used in the Access Server series (Cisco 2509 through Cisco 2512). This cable has a male DB-68 (SCSI II) connector on the Cisco end and eight DB-25 connectors on the network end.



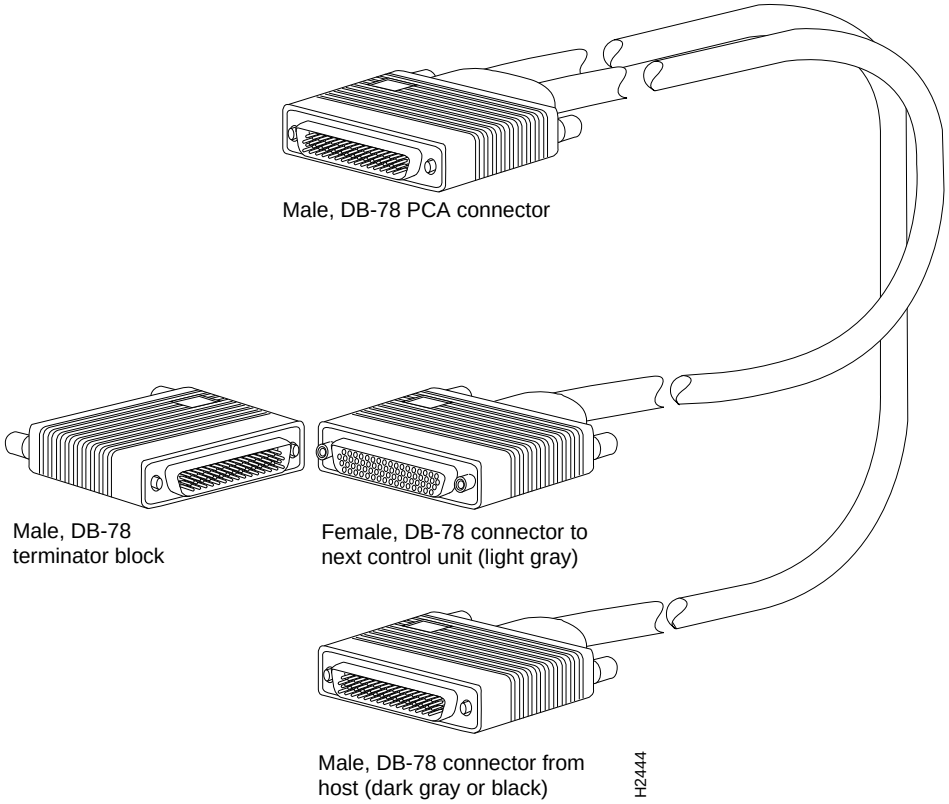
CAB-PCA-VA= and CAB-PCA-VB=

The following illustration shows serial cable CAB-PCA-VA= (part number CAB-PCA-VA) and serial cable CAB-PCA-VB= (part number CAB-PCA-VB), which are used in the Cisco 7500 series and 7000 series systems. The CAB-PCA-VA= has a female DB-78 connector on the Cisco end. The CAB-PCA-VB= has a male DB-78 connector on the Cisco end. Both cables have a DB-48 type-A connector on the network end.



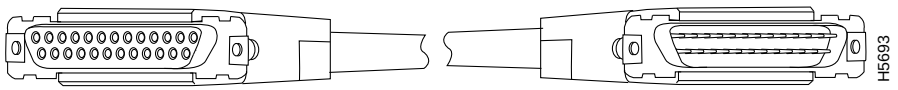
CAB-PCA-Y=

The following illustration shows serial cable CAB-PCA-Y= (part number CAB-PCA-Y), which is used in the Cisco 7500 series and 7000 series systems. The CAB-PCA-Y= is a spare Y cable with female and male DB-78 connectors; this cable ships with the Cisco 7000 series and Cisco 7500 series CIP2.



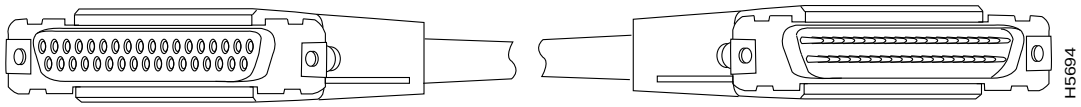
CAB-R23=

The following illustration shows serial cable CAB-R23= (part number 74-0173), which is used in the Cisco AGS+ system. This cable has a female DB-25 connector on one end and a male DB-25 connector on the other end. Either end of the CAB-R23 cable can be the Cisco end or the network end, depending on whether the Cisco router is designated as a DCE device or a DTE device. If the router is designated as a DCE device, the female DB-25 connector is the Cisco end. If the router is designated as a DTE device, the male DB-25 connector is the Cisco end.



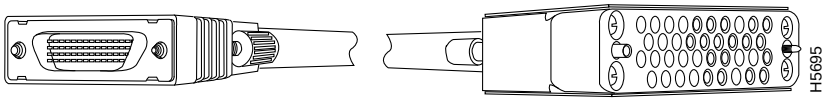
CAB-R44=

The following illustration shows serial cable CAB-R44= (part number 74-0187), which is used in the Cisco AGS+ systems. This cable has a female DB-37 connector on one end and a male DB-37 connector on the other end. Either end of the CAB-R44= cable can be the Cisco end or the network end, depending on whether the Cisco router is designated as a DCE device or a DTE device. If the router is designated as a DCE device, the female DB-37 connector is the Cisco end. If the router is designated as a DTE device, the male DB-37 connector is the Cisco end.



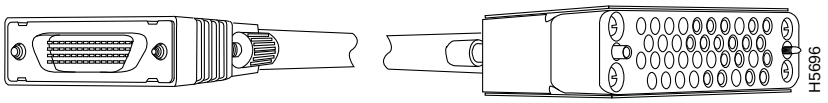
CAB-V35FC=

The following illustration shows serial cable CAB-V35FC= (part number 72-0792-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a female Winchester connector on the network end.



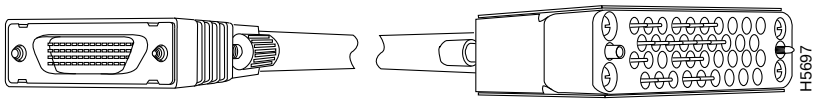
CAB-V35FT=

The following illustration shows serial cable CAB-V35FT= (part number 72-0801-01), which is used in the following systems: the Cisco 7500 series, 7000 series, 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a female Winchester connector on the network end.



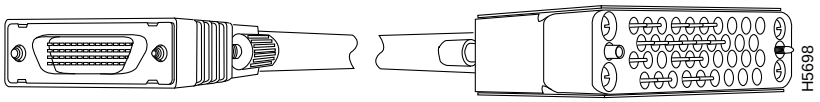
CAB-V35MC=

The following illustration shows serial cable CAB-V35MC= (part number 72-0802-01), which is used in the following systems: the Cisco 7500 series, 7000 series, 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a male Winchester connector on the network end.



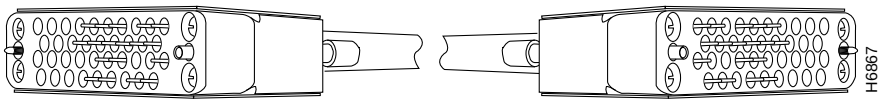
CAB-V35MT=

The following illustration shows serial cable CAB-V35MT= (part number 72-0791-01), which is used in the following systems: all Cisco routers including the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a male Winchester connector on the network end.



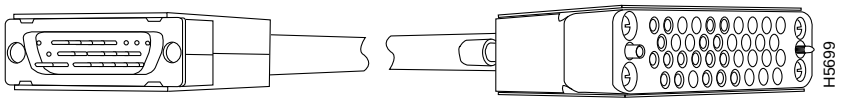
CAB-V35MTS=

The following illustration shows serial cable CAB-V35MTS= (part number 72-0816-01), which is a generic V.35 DTE translation cable and is used in the following systems: the Cisco AGS+ and the Cisco 1001. This cable has a male shielded Winchester connector on both ends.



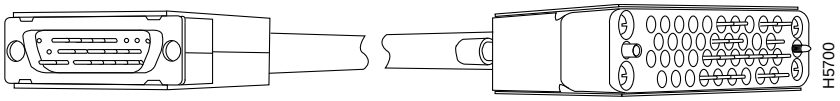
CAB-VCF=

The following illustration shows serial cable CAB-VCF= (part number 72-0685), which is used in the Cisco AGS+ system. This cable has a male DB-26 connector on the Cisco end and a female Winchester connector on the network end.



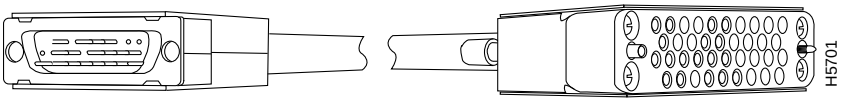
CAB-VCM=

The following illustration shows serial cable CAB-VCM= (part number 72-0681), which is used in the Cisco AGS+ system. This cable has a male DB-26 connector on the Cisco end and a male Winchester connector on the network end.



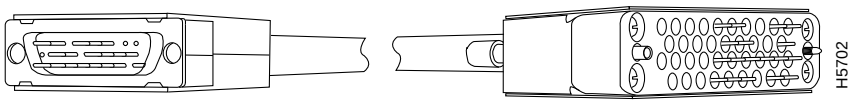
CAB-VTF=

The following illustration shows serial cable CAB-VTF= (part number 72-0695), which is used in the Cisco AGS+ system. This cable has a male DB-26 connector on the Cisco end and a female Winchester connector on the network end.



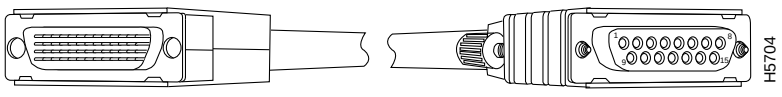
CAB-VTM=

The following illustration shows serial cable CAB-VTM= (part number 72-0682), which is used in the Cisco AGS+ system. This cable has a male DB-26 connector on the Cisco end and a male Winchester connector on the network end.



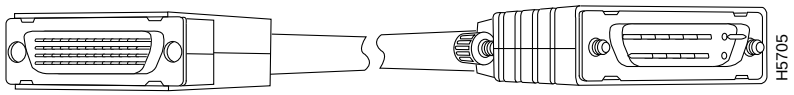
CAB-X21FC=

The following illustration shows serial cable CAB-X21FC= (part number 72-0790-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a female DB-15 connector on the network end.



CAB-X21MT=

The following illustration shows serial cable CAB-X21MT= (part number 72-0789-01), which is used in the following systems: the Cisco 7000 family, Cisco 4000 series (4T), and the Cisco 2500 series. This cable has a male DB-60 connector on the Cisco end and a male DB-15 connector on the network end.



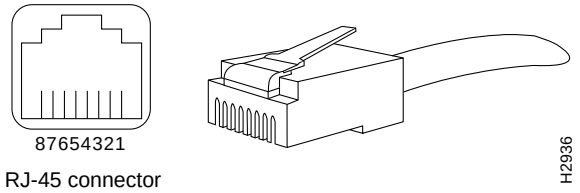
RJ-45 Cables

Cisco products use the following three types of RJ-45 cables:

- Straight-through
- Crossover
- Rolled

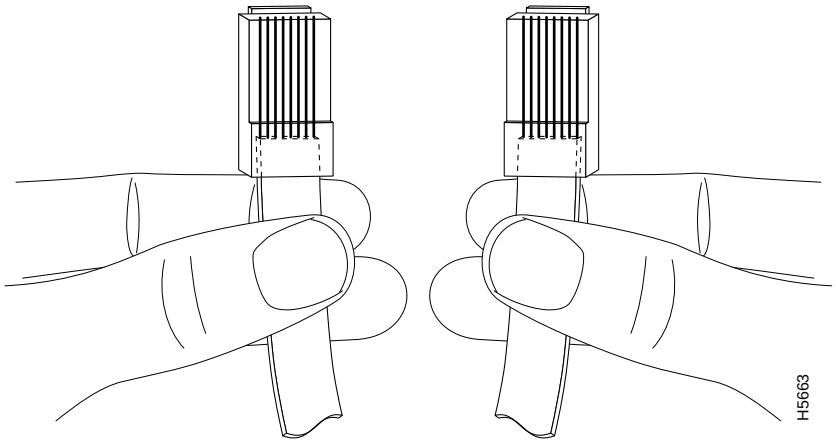
Cisco does not provide these cables; they are widely available from other sources.

Figure 158 RJ-45 Cable



To identify RJ-45 cable type, hold the two ends of the cable next to each other so that you can see the colored wires inside the ends, as shown in Figure 159.

Figure 159 RJ-45 Cable Identification



Examine the sequence of colored wires to determine the type of RJ-45 cable, as follows:

- Straight-through—The colored wires are in the same sequence at both ends of the cable.
- Crossover—The first (far left) colored wire at one end of the cable is the third colored wire at the other end of the cable.
- Rolled—The colored wires at one end of the cable are in the reverse sequence of the colored wires at the other end of the cable.

The following tables list pinout information for RJ-45 cables.

Table 331 RJ-45 Straight-Through (Ethernet) Cable Pinouts

Signal	Pin	Pin	Signal
Tx+	1	1	Tx+
Tx–	2	2	Tx–
Rx+	3	3	Rx+
–	4	4	–
–	5	5	–
Rx–	6	6	Rx–
–	7	7	–
–	8	8	–

Table 332 RJ-45 Crossover (Ethernet) Cable Pinouts

Signal	Pin	Pin	Signal
Tx+	1	3	Rx+
Tx–	2	6	Rx–
Rx+	3	1	Tx+
–	4	4	–
–	5	5	–
Rx–	6	2	Tx–
–	7	7	–
–	8	8	–

Table 333 RJ-45 Rolled (Console) Cable Pinouts

Signal	Pin	Pin	Signal
–	1	8	–
–	2	7	–
–	3	6	–
–	4	5	–
–	5	4	–
–	6	3	–
–	7	2	–
–	8	1	–

Cisco LightStream 2020 Cables

This section describes the cables used with the Cisco LightStream 2020.

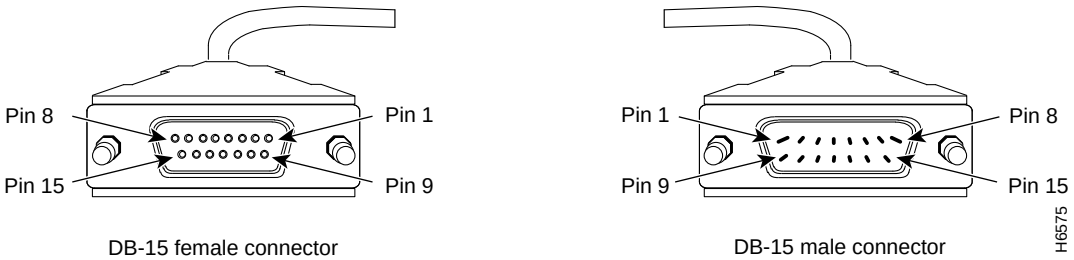
Ordering Cables

For Cisco LightStream 2020 cable product numbers, refer to Table 239 and Table 241 in the "Cisco LightStream 2020" chapter. For detailed cabling information, refer to the chapter "Cables and Connectors" in the *LightStream 2020 Site Planning and Cabling Guide*.

X.21 Interface Cable

The X.21 interface cable is used to connect an X.21 fantail to an external X.21 device.

Note Use the switches on the X.21 fantail to select a DTE or DCE interface for each port.

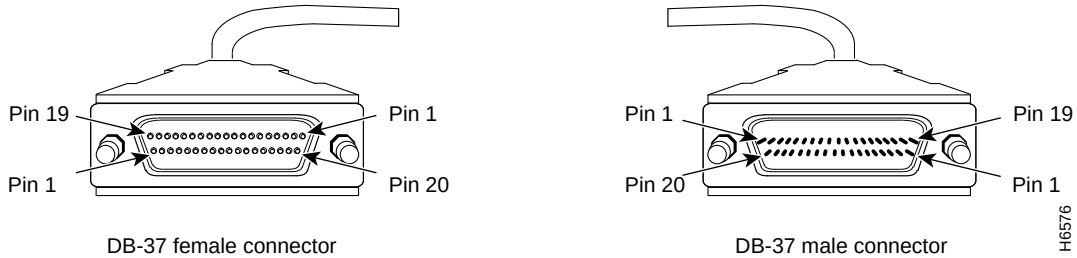


DB-15 female connector

DB-15 male connector

RS-449 Interface Straight-Through Cable

The RS-449 straight-through cable is used to connect an RS-449 fantail to an external RS-449 DCE device.

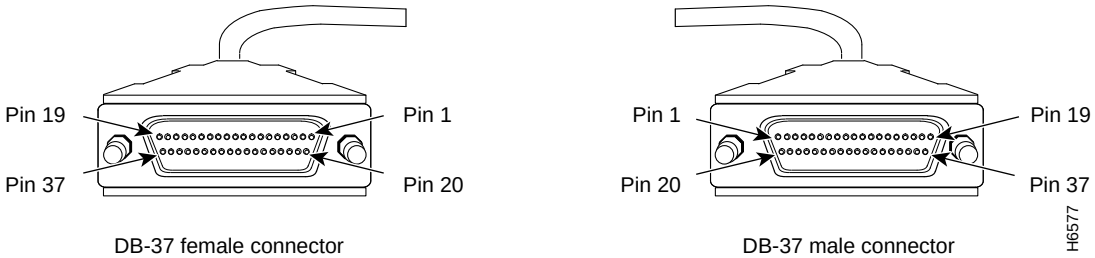


DB-37 female connector

DB-37 male connector

RS-449 Interface Crossover Cable

The RS-449 interface crossover cable is used to connect two LightStream 2020 switches via their RS-449 fantail interfaces, or to connect an RS-449 fantail to an external RS-449 DTE device.

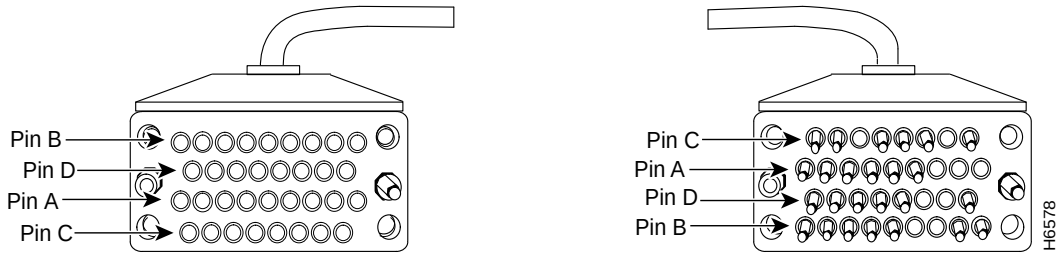


DB-37 female connector

DB-37 male connector

V.35 Interface Straight-Through Cable

The V.35 interface straight-though cable is used to connect a V.35 fantail to an external V.35 DCE device.

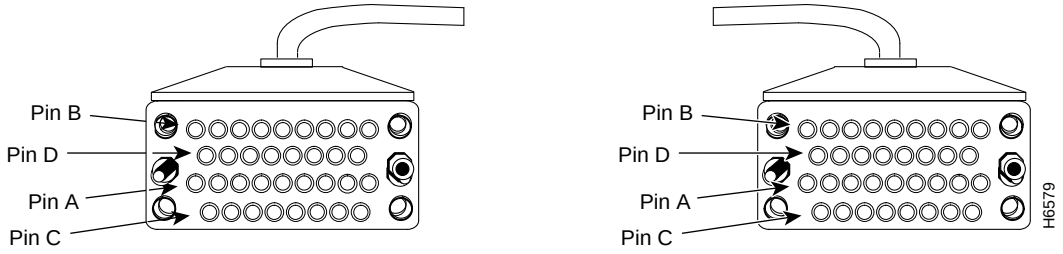


34-position female block connector

34-position male block connector

V.35 Interface Crossover Cable

The V.35 interface crossover cable is used to connect two LightStream 2020 switches via their V.35 fantail interfaces, or to connect a V.35 fantail to an external V.35 DTE device.



34-position female block connector

34-position female block connector

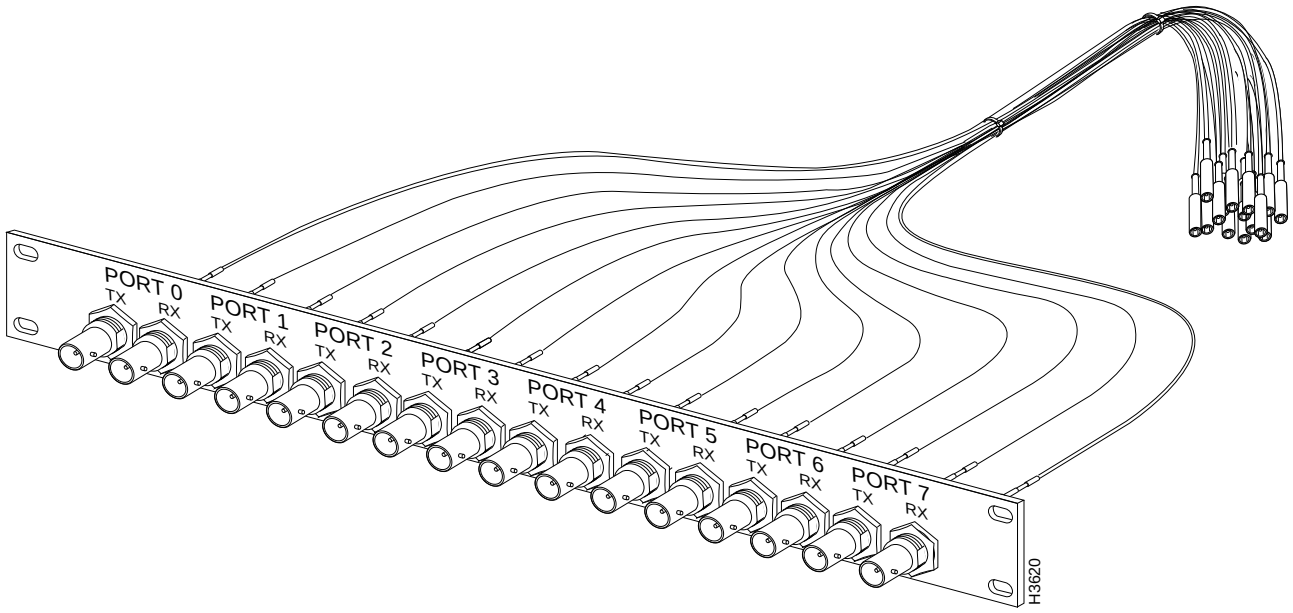
75-Ohm Coaxial Data Cable

The 75-ohm coaxial data cable is used for making connections directly to the BNC connectors on the medium-speed access card (MSAC). In addition, this cable can be used as a means of external connection to or from the BNC connector on the T3/E3 fantail.

T3/E3 Fantail and Cable Harness

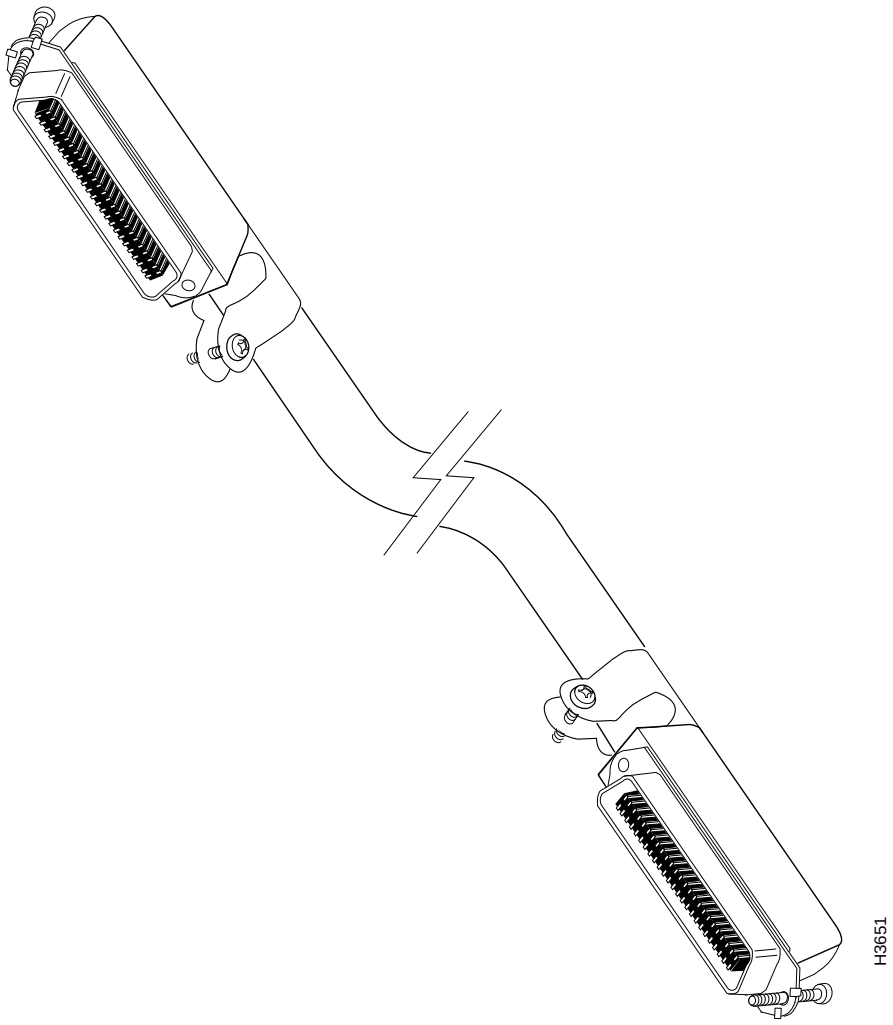
The T3/E3 fantail (dressing panel) contains 16 BNC connectors for external 75-ohm hookup, together with a cable harness that provides the means for direct connection between the back of the T3/E3 fantail and the SMB connectors on a T3AC or an E3AC access card. The T3/E3 fantail and cable harness are available separately.

To interconnect patch panels or T3/E3 fantails to T3AC or E3AC access cards, both 4-port and 8-port coaxial cable harnesses are offered by Cisco Systems.



E1 Fantail Cable

A 50-pin data cable is used as to connect the bulkhead connector on the E1 CEMAC card and the back of the E1 fantail.



ATM Cable Specifications

Cisco ATM devices support the cable types listed in Table 334 and the cable connectors listed in Table 335. The ATM cables listed in Table 334 are industry standard unless otherwise specified.

Table 335 lists the following connector types:

- ST—Round, bayonet or twist-lock coupling connector.
- SC—Push/pull coupling connector similar to ST connector except for a more square form.

- FSD (also called MIC)—Fixed shroud duplex system is specified for FDDI interface. Because TAXI is 100 Mbps derived from the physical media FDDI, it was kept the same for ATM TAXI mode.
- BNC—Standard connector used to connect IEEE 802.3 10Base2 coaxial cable to a transceiver.
- RJ-45—Standard 8-wire connector for IEEE 802.3 StarLAN networks. Also, used as a telephone line in some cases.

Figure 157 shows the ATM device mating connectors.

Figure 160 ATM Connector Types

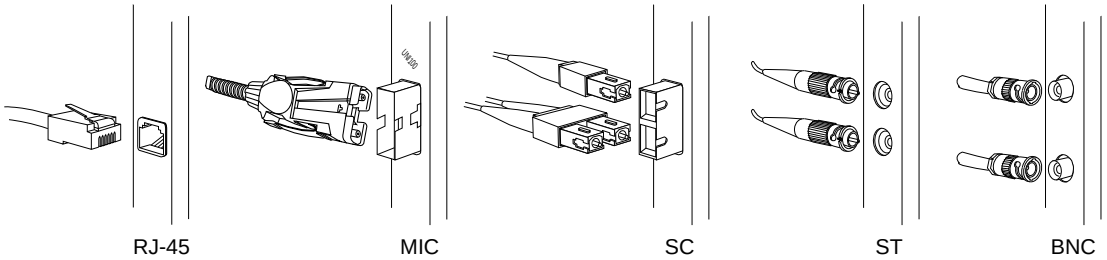


Table 334 ATM Cable Types

Media Type	ATM Forum Specification	Cisco 7000 Series[1]	Cisco 4000 Series[2]	LightStream 100 LightStream 1010	LightStream 2020	Catalyst 5000[3]	ATM SBus Adapter
SONET MM	62.5/125 µm[4]	62.5/125 µm	62.5/125 µm	62.5/125 µm	62.5/125 µm	62.5/125 µm	62.5/125 µm
SONET SM	8.5/125 µm	8.5/125 µm	8.5/125 µm	8.5/125 µm	8.5/125 µm	–	–
SONET TP	150-ohm STP[5]	–	–	100-ohm UTP[6]	–	100-ohm UTP	SJ-45
TAXI	62.5/125 µm	62.5/125 µm	–	62.5/125 µm[7]	–	–	–
DS3/E3	75-ohm coaxial	75-ohm coaxial	75-ohm coaxial	75-ohm coaxial	75-ohm coaxial	–	–

1. With AIP (ATM Interface Processor).
2. Models 4700, 4500, and 4500-M with interface ATM-NIM (ATM Network Interface Module).
3. With ATM LAN emulation module.
4. µm = micrometer = micron.
5. Types 1 and 2 as specified by IEEE 802.5 specification.
6. ATM physical interface specification for 155 Mbps over twisted pair cable, version 1.0.
7. Not applicable for the LightStream 1010.

Table 335 ATM Cable Connectors

Media Type	ATM Forum Specification	Cisco 7000 Series[1]	Cisco 4000 Series[2]	LightStream 100 LightStream 1010	LightStream 2020	Catalyst 5000[3]	ATM SBus Adapter
SONET MM	FC or SC[4]	SC	SC	SC	SC	SC	SC
SONET SM	FC or SC[4]	ST	SC	SC	ST	–	–
SONET TP	DB9[5]	–	–	RJ-45	–	RJ-45	RJ-45
TAXI	FSD	FSD	–	FSD[6]	–	–	–
DS3/E3	RG59-BNC	RG59-BNC[7]	RG59-BNC	RG59-BNC	RG59-BNC	–	–

1. With AIP (ATM Interface Processor).
2. Models 4700, 4500, and 4500-M with interface ATM-NIM (ATM Network Interface Module).
3. With ATM LAN emulation module.
4. SC is a push/pull coupling connector similar to ST connector except for a more square form.
5. Shielded 9-pin D connector.
6. Does not apply to the LightStream 1010.
7. The AIP DS3 and E3 interfaces require a special cable (CAB-ATM-DS3/E3) that ensures compliance with EMI standards.