

## Cable Specifications

This appendix provides the connector and pinout information you need for making or purchasing cables used with Cisco MC3810 series concentrators. The following list summarizes the port and cable types and tells you which table to see for pinout information:

Cisco MC3810 Port and Connection Type	Pinout Information
<a href="#">Console Port to PC—Cable Pinouts (RJ-45 to DB-9)</a>	<a href="#">Table A-1</a>
<a href="#">Console Port to ASCII Terminal—Cable Pinouts (RJ-45 to DB-25)</a>	<a href="#">Table A-2</a>
<a href="#">Auxiliary Port to Modem—Cable Pinouts (RJ-45 to DB-25)</a>	<a href="#">Table A-3</a>
<a href="#">Alternative Terminal and Modem Connections</a>	<a href="#">Table A-4</a>
<a href="#">EIA-530 DTE Cable Pinouts (DB-60 to DB-25)</a>	<a href="#">Table A-5</a>
<a href="#">EIA-530 DCE Cable Pinouts (DB-60 to DB-25)</a>	<a href="#">Table A-6</a>
<a href="#">EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25)</a>	<a href="#">Table A-7</a>
<a href="#">EIA/TIA-232 DCE Cable Pinouts (DB-60 to DB-25)</a>	<a href="#">Table A-8</a>
<a href="#">EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37)</a>	<a href="#">Table A-9</a>
<a href="#">EIA/TIA-449 DCE Cable Pinouts (DB-60 to DB-37)</a>	<a href="#">Table A-10</a>
<a href="#">V.35 DTE Cable Pinouts (DB-60 to 34-Pin)</a>	<a href="#">Table A-11</a>
<a href="#">V.35 DCE Cable Pinouts (DB-60 to 34-Pin)</a>	<a href="#">Table A-12</a>
<a href="#">V.35 DCE with Ringing Indicator Cable Pinouts (DB-60 to 34-Pin)</a>	<a href="#">Table A-13</a>
<a href="#">X.21 DTE Cable Pinouts (DB-60 to DB-15)</a>	<a href="#">Table A-14</a>
<a href="#">X.21 DCE Cable Pinouts (DB-60 to DB-15)</a>	<a href="#">Table A-15</a>
<a href="#">RS-366 ACE Cable Pinouts (26-Pin to DB-25)</a>	<a href="#">Table A-16</a>
<a href="#">Ethernet 10BaseT Port Pinouts (RJ-45)</a>	<a href="#">Table A-17</a>
<a href="#">Pinouts for T1/E1 Trunk and Digital Voice Port (RJ-48)</a>	<a href="#">Table A-18</a>
<a href="#">Pinouts for FXO and FXS Voice Ports (RJ-11)</a>	<a href="#">Table A-19</a>
<a href="#">Pinouts for E&amp;M Voice Ports (RJ-1CX)</a>	<a href="#">Table A-20</a>
<a href="#">CTR17 Adapter Pinouts for E&amp;M 4-Wire Voice Ports</a>	<a href="#">Table A-21</a>
<a href="#">Pinouts for BRI S/T Voice Port and Backup Port (CB-1D)</a>	<a href="#">Table A-22</a>

If you prefer to order cables from Cisco, see the “[Obtaining Technical Assistance](#)” section on page xi for information about contacting Cisco.

# Console and Auxiliary Port Cables and Pinouts

Your Cisco MC3810 series concentrator comes with the cable and adapters you need to connect a PC, an ASCII terminal, or a modem to your Cisco MC3810. The cable kit includes:

- RJ-45-to-RJ-45 rollover cable (see the “[Identifying a Rollover Cable](#)” section on [page A-2](#) for more information)
- RJ-45-to-DB-9 female DTE adapter (labeled TERMINAL)
- RJ-45-to-DB-25 female DTE adapter (labeled TERMINAL)
- RJ-45-to-DB-25 male DCE adapter (labeled MODEM)

You can also make your own cable assemblies and obtain your own adapters. The following illustrations and tables provide assembly drawings and pinouts for these cables and the adapters:

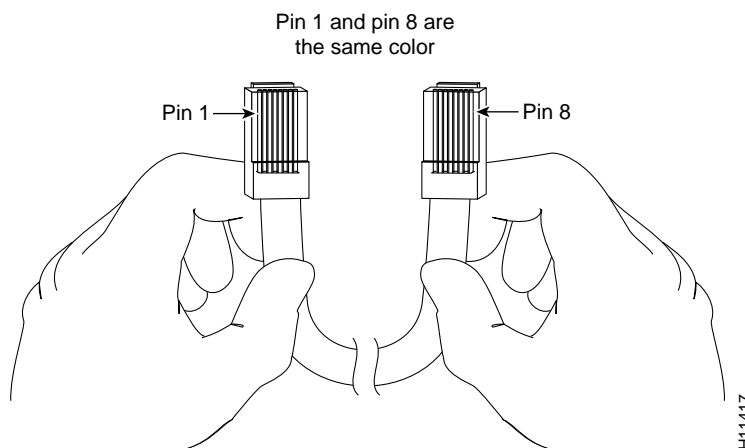
- Console port to a PC—See [Table A-1](#) and [Table A-4](#)
- Console port to an ASCII terminal—See [Table A-2](#) and [Table A-4](#)
- Auxiliary port to a modem—See [Table A-3](#) and [Table A-4](#)

The console port is configured as data communications equipment (DCE); the auxiliary port is configured as data terminal equipment (DTE). Both are asynchronous serial ports and use RJ-45 connectors.

## Identifying a Rollover Cable

You can identify a rollover cable by comparing the modular plugs at the two ends of the cable. Hold the plugs side-by-side, with the tab at the back. The wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug. (See [Figure A-1](#).) If your cable came from Cisco Systems, pin 1 is white on one plug, and pin 8 is white on the opposite plug (a rollover cable reverses the wire connections at the opposite ends: 1 to 8, 2 to 7, 3 to 6, 4 to 5, 5 to 4, 6 to 3, 7 to 2, 8 to 1).

**Figure A-1** Identifying a Rollover Cable



## Console Port to PC

Figure A-2 shows the RJ-45-to-RJ-45 rollover cable assembly and the RJ-45-to-DB-9 female DTE adapter (labeled TERMINAL); Table A-1 lists the pinouts.

Figure A-2 Console Port to PC—Cable and Adapter

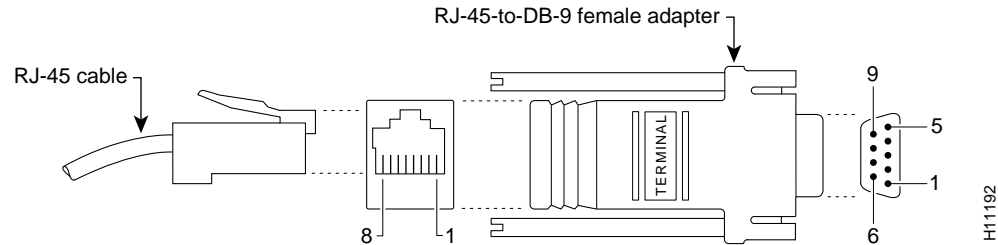


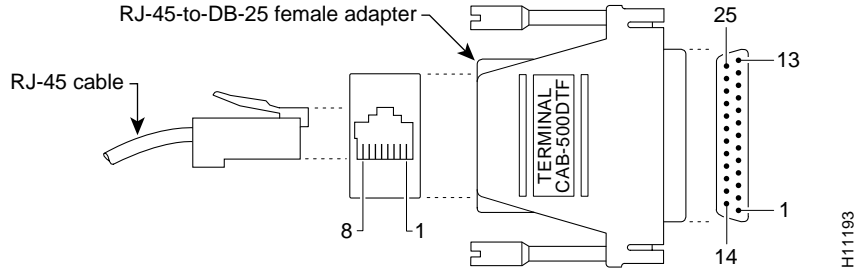
Table A-1 Console Port to PC—Cable Pinouts (RJ-45 to DB-9)

Console Port (DCE, RJ-45)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-9 Adapter "TERMINAL"		PC Port (DTE, DB-9)
	RJ-45 Pin	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	
Signal	RJ-45 Pin	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	Signal
RTS	1 <sup>1</sup>	8	8	8	CTS
DTR	2	7	7	6	DSR
TxD	3	6	6	2	RxD
GND	4	5	5	5	GND
GND	5	4	4	5	GND
RxD	6	3	3	3	TxD
DSR	7	2	2	4	DTR
CTS	8 <sup>1</sup>	1	1	7	RTS

1. Pin 1 is connected to pin 8 inside the Cisco MC3810.

## Console Port to ASCII Terminal

Figure A-3 shows the RJ-45-to-RJ-45 rollover cable assembly and the RJ-45-to-DB-25 female DTE adapter (labeled TERMINAL); Table A-2 lists the pinouts.

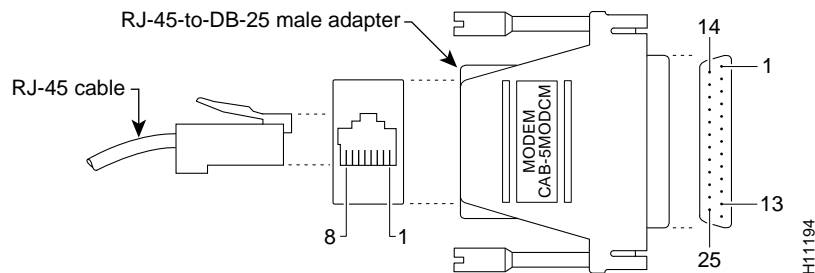
**Figure A-3 Console Port to ASCII Terminal—Cable and Adapter****Table A-2 Console Port to ASCII Terminal—Cable Pinouts (RJ-45 to DB-25)**

Console Port (DCE, RJ-45)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-25 Adapter "TERMINAL"		Terminal Port (DTE, DB-25)
	RJ-45 Pin	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	
RTS	1 <sup>1</sup>	8	8	5	CTS
DTR	2	7	7	6	DSR
TxD	3	6	6	3	RxD
GND	4	5	5	7	GND
GND	5	4	4	7	GND
RxD	6	3	3	2	TxD
DSR	7	2	2	20	DTR
CTS	8 <sup>1</sup>	1	1	4	RTS

1. Pin 1 is connected to pin 8 inside the Cisco MC3810.

## Auxiliary Port to Modem

Figure A-4 shows the RJ-45-to-RJ-45 rollover cable assembly and the RJ-45-to-DB-25 male DCE adapter (labeled MODEM); Table A-3 lists the pinouts.

**Figure A-4 Auxiliary Port to Modem—Cable and Adapter**

**Table A-3 Auxiliary Port to Modem—Cable Pinouts (RJ-45 to DB-25)**

Auxiliary Port (DTE, RJ-45)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-25 Adapter "MODEM"		Modem Port (DCE, DB-25)
	RJ-45 Pin	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	
Signal					Signal
RTS	1	8	8	4	RTS
DTR	2	7	7	20	DTR
TxD	3	6	6	2	TxD
GND	4	5	5	7	GND
GND	5	4	4	7	GND
RxD	6	3	3	3	RxD
DSR	7	2	2	8	DCD
CTS	8	1	1	5	CTS

## Alternative Connections to Terminal and Modem

Your Cisco MC3810 series concentrator comes with an RJ-45-to-RJ-45 rollover cable and three adapters for connection to a PC, a terminal, or a modem. If you want to use an RJ-45 straight-through cable or other companies' adapters, see [Table A-4](#) for usable cable and adapter combinations.

**Table A-4 Alternative Terminal and Modem Connections**

Cisco MC3810 Port Connection	RJ-45 Cable Type	Adapter
Console port to PC	Straight-through	DCE, DB-9 female
Console port to terminal	Straight-through	DCE, DB-25 female
Auxiliary port to modem	Rollover <sup>1</sup>	DCE <sup>2</sup> , DB-25, male
	Straight-through	DTE <sup>2</sup> , DB-25, male

1. An octal cable or RJ-45 breakout cable is equivalent to a rollover cable.
2. Modify the DB-25 adapter by removing pin 6 and placing it into the pin 8 position.

## Serial Cable Assemblies and Pinouts

The following illustrations and tables provide assembly drawings and pinouts for the EIA-530 DCE, EIA/TIA-232, EIA/TIA-449, V.35, and X.21 DTE and DCE, and RS-366 ACE cables. These cables are used with the synchronous serial ports, labeled SERIAL 0 and SERIAL 1.



### Note

These serial cables have a DB-60 connector on the Cisco MC3810 end. Because of the small pins on the DB-60 connector, manufacturing and soldering these cables yourself might be very difficult and is not recommended.

## EIA-530

Figure A-5 shows the EIA-530 serial cable assembly, and Table A-5 lists the pinouts. Arrows indicate signal direction.

Figure A-5 EIA-530 Serial Cable Assembly

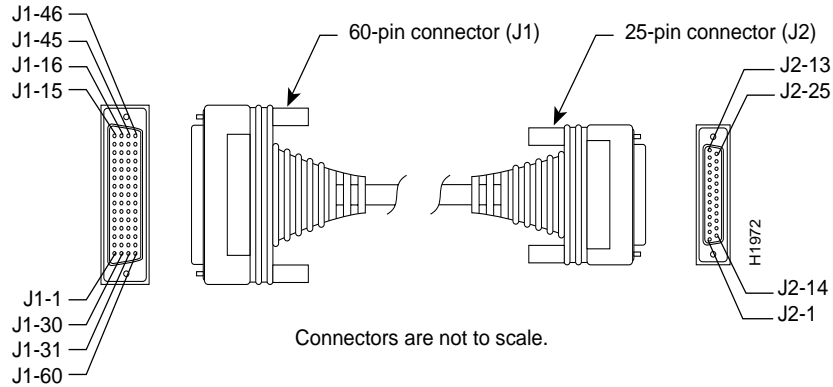


Table A-5 EIA-530 DTE Cable Pinouts (DB-60 to DB-25) <sup>1</sup>

J1	Signal	Description	Direction	J2	Signal
J1-49 J1-48 J1-47	MODE_1 GND MODE_2	Shorting group	—	—	—
J1-51 J1-52	GND MODE_DCE	Shorting group	—	—	—
J1-46	Shield GND	Single		J2-1	Shield GND
J1-11 J1-12	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 7	—> —>	J2-2 J2-14	BA(A), TxD+ BA(B), TxD-
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 11	<— <—	J2-3 J2-16	BB(A), RxD+ BB(B), RxD-
J1-9 J1-10	O_RTS/CTS+ O_RTS/CTS-	Twisted pair no. 6	—> —>	J2-4 J2-19	CA(A), RTS+ CA(B), RTS-
J1-1 J1-2	I_CTS/RTS+ I_CTS/RTS-	Twisted pair no. 2	<— <—	J2-5 J2-13	CB(A), CTS+ CB(B), CTS-
J1-3 J1-4	I_DSR/DTR+ I_DSR/DTR-	Twisted pair no. 3	<— <—	J2-6 J2-22	CC(A), DSR+ CC(B), DSR-
J1-5 J1-6	IO_DCD/DCD+ IO_DCD/DCD-	Twisted pair no. 4	<— <—	J2-8 J2-10	CF(A), DCD+ CF(B), DCD-
J1-24 J1-23	IO_TxC/RxC+ IO_TxC/RxC-	Twisted pair no. 9	<— <—	J2-15 J2-12	DB(A), TxC+ DB(B), TxC-
J1-26 J1-25	I_RxC/TxC+ I_RxC/TxC-	Twisted pair no. 10	<— <—	J2-17 J2-9	DD(A), RxC+ DD(B), RxC-
J1-44 J1-45	O_LL/DCD Circuit GND	Twisted pair no. 12	—> —	J2-18 J2-7	LL Circuit GND

**Table A-5 EIA-530 DTE Cable Pinouts (DB-60 to DB-25) <sup>1</sup> (continued)**

J1	Signal	Description	Direction	J2	Signal
J1-7 J1-8	O_DTR/DSR+ O_DTR/DSR-	Twisted pair no. 5	—>	J2-20	CD(A), DTR+
			—>	J2-23	CD(B), DTR-
J1-13 J1-14	O_TxCE/TxC+ O_TxCE/TxC-	Twisted pair no. 8	—>	J2-24	DA(A), TxCE+
			—>	J2-11	DA(B), TxCE-

1. Any pin not referenced is not connected.

**Table A-6 EIA-530 DCE Cable Pinouts (DB-60 to DB-25) <sup>1</sup>**

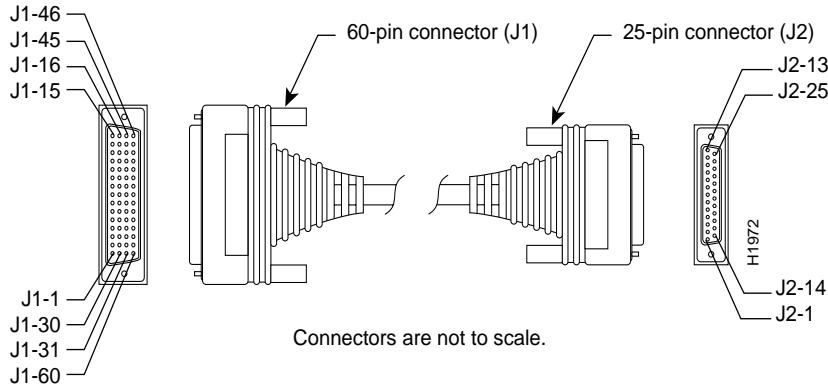
J1	Signal	Description	Direction	J2	Signal	
J1-49 J1-48 J1-47	MODE_1 GND MODE_2	Shorting group	-	-	-	
J1-46	Shield GND		Single		J2-1	Shield GND
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-		Twisted pair no. 11	<—	J2-2	BA(A), TxD+
		<—		J2-14	BA(B), TxD-	
J1-11 J1-12	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 7	—>	J2-3	BB(A), RxD+	
			—>	J2-16	BB(B), RxD-	
J1-1 J1-2	I_CTS/RTS+ I_CTS/RTS-	Twisted pair no. 2	<—	J2-4	CA(A), RTS+	
			<—	J2-19	CA(B), RTS-	
J1-9 J1-10	O_RTS/CTS+ O_RTS/CTS-	Twisted pair no. 6	—>	J2-5	CB(A), CTS+	
			—>	J2-13	CB(B), CTS-	
J1-7 J1-8	O_DTR/DSR+ O_DTR/DSR-	Twisted pair no. 5	—>	J2-6	CC(A), DSR+	
			—>	J2-22	CC(B), DSR-	
J1-5 J1-6	IO_DCD/DCD+ IO_DCD/DCD-	Twisted pair no. 4	<—	J2-8	CF(A), DCD+	
			<—	J2-10	CF(B), DCD-	
J1-13 J1-14	O_TxCE/TxC+ O_TxCE/TxC-	Twisted pair no. 8	—>	J2-15	DB(A), TxC+	
			—>	J2-12	DB(B), TxC-	
J1-24 J1-23	IO_TxC/RxC+ IO_TxC/RxC-	Twisted pair no. 9	—>	J2-17	DD(A), RxC+	
			—>	J2-9	DD(B), RxC-	
J1-29 J1-30	I_NIL/LL Circuit GND	Twisted pair no. 12	<—	J2-18	LL	
			—	J2-7	Circuit GND	
J1-3 J1-4	I_DSR/DTR+ I_DSR/DTR-	Twisted pair no. 3	<—	J2-20	CD(A), DTR+	
			<—	J2-23	CD(B), DTR-	
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE-	Twisted pair no. 10	<—	J2-24	DA(A), TxCE+	
			<—	J2-11	DA(B), TxCE-	

1. Any pin not referenced is not connected.

## EIA/TIA-232

Figure A-6 shows the EIA/TIA-232 cable assembly; Table A-7 lists the DTE pinouts; Table A-8 lists the DCE pinouts. Arrows indicate signal direction.

Figure A-6 EIA/TIA-232 Cable Assembly

Table A-7 EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25) <sup>1</sup>

J1	Signal	Description	Direction	J2	Signal
J1-50 J1-51 J1-52	MODE_0 GND MODE_DCE	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-41 J1-56	O_TxD/RxD Circuit GND	Twisted pair no. 5	—> —	J2-2 J2-7	TxD Circuit GND
J1-36 J1-56	I_RxD/TxD Circuit GND	Twisted pair no. 9	<— —	J2-3 J2-7	RxD Circuit GND
J1-42 J1-56	O_RTS/CTS Circuit GND	Twisted pair no. 4	—> —	J2-4 J2-7	RTS Circuit GND
J1-35 J1-56	I_CTS/RTS Circuit GND	Twisted pair no. 10	<— —	J2-5 J2-7	CTS Circuit GND
J1-34 J1-56	I_DSR/DTR Circuit GND	Twisted pair no. 11	<— —	J2-6 J2-7	DSR Circuit GND
J1-45 J1-56	Circuit GND Circuit GND	Twisted pair no. 1	— —	J2-7 J2-7	Circuit GND Circuit GND
J1-33 J1-56	I_DCD/LL Circuit GND	Twisted pair no. 12	<— —	J2-8 J2-7	DCD Circuit GND
J1-37 J1-56	I_TxC/NIL Circuit GND	Twisted pair no. 8	<— —	J2-15 J2-7	TxC Circuit GND
J1-38 J1-56	I_RxC/TxCE Circuit GND	Twisted pair no. 7	<— —	J2-17 J2-7	RxC Circuit GND
J1-44 J1-56	O_LL/DCD Circuit GND	Twisted pair no. 2	—> —	J2-18 J2-7	LTST Circuit GND
J1-43 J1-56	O_DTR/DSR Circuit GND	Twisted pair no. 3	—> —	J2-20 J2-7	DTR Circuit GND
J1-39 J1-56	O_TxCE/TxC Circuit GND	Twisted pair no. 6	—> —	J2-24 J2-7	TxCE Circuit GND

1. Any pin not referenced is not connected.

**Table A-8 EIA/TIA-232 DCE Cable Pinouts (DB-60 to DB-25) <sup>1</sup>**

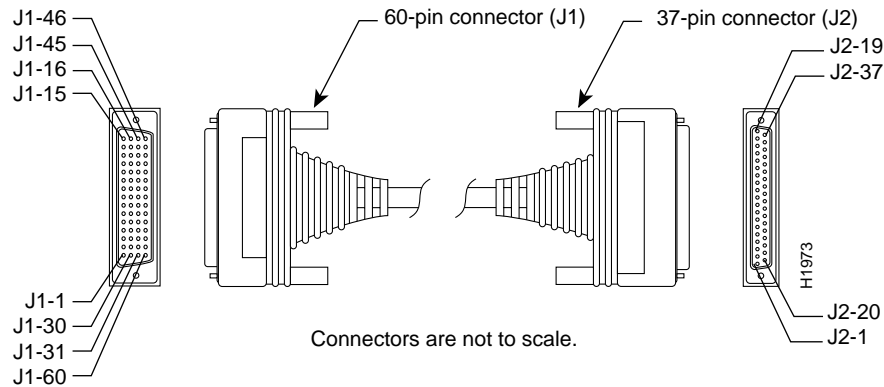
J1	Signal	Description	Direction	J2	Signal
J1-50 J1-51	MODE_0 GND	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-36 J1-56	I_RxD/TxD Circuit GND	Twisted pair no. 9	<— —	J2-2 J2-7	TxD Circuit GND
J1-41 J1-56	O_TxD/RxD Circuit GND	Twisted pair no. 5	—> —	J2-3 J2-7	RxD Circuit gnd
J1-35 J1-56	I_CTS/RTS Circuit GND	Twisted pair no. 10	<— —	J2-4 J2-7	RTS Circuit GND
J1-42 J1-56	O_RTS/CTS Circuit GND	Twisted pair no. 4	—> —	J2-5 J2-7	CTS Circuit GND
J1-43 J1-56	O_DTR/DSR Circuit GND	Twisted pair no. 3	—> —	J2-6 J2-7	DSR Circuit GND
J1-45 J1-56	Circuit GND Circuit GND	Twisted pair no. 1	— —	J2-7 J2-7	Circuit GND Circuit GND
J1-44 J1-56	O_LL/DCD Circuit GND	Twisted pair no. 2	—> —	J2-8 J2-7	DCD Circuit GND
J1-39 J1-56	O_TxCE/TxC Circuit GND	Twisted pair no. 7	—> —	J2-15 J2-7	TxC Circuit GND
J1-40 J1-56	O_NIL/RxC Circuit GND	Twisted pair no. 6	—> —	J2-17 J2-7	RxC Circuit GND
J1-33 J1-56	I_DCD/LL Circuit GND	Twisted pair no. 12	<— —	J2-18 J2-7	LTST Circuit GND
J1-34 J1-56	I_DSR/DTR Circuit GND	Twisted pair no. 11	<— —	J2-20 J2-7	DTR Circuit GND
J1-38 J1-56	I_RxC/TxCE Circuit GND	Twisted pair no. 8	<— —	J2-24 J2-7	TxCE Circuit GND

1. Any pin not referenced is not connected.

## EIA/TIA-449

Figure A-7 shows the EIA/TIA-449 cable assembly; Table A-9 lists the DTE pinouts; Table A-10 lists the DCE pinouts. Arrows indicate signal direction.

**Figure A-7 EIA/TIA-449 Cable Assembly**

Table A-9 EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37) <sup>1</sup>

J1	Signal	Description	Direction	J2	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	—	—	—
J1-51 J1-52	GND MODE_DCE	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-11 J1-12	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 6	—> —>	J2-4 J2-22	SD+ SD-
J1-24 J1-23	I_TxC/RxC+ I_TxC/RxC-	Twisted pair no. 9	<— <—	J2-5 J2-23	ST+ ST-
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 11	<— <—	J2-6 J2-24	RD+ RD-
J1-9 J1-10	O_RTS/CTS+ O_RTS/CTS-	Twisted pair no. 5	—> —>	J2-7 J2-25	RS+ RS-
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE-	Twisted pair no. 10	<— <—	J2-8 J2-26	RT+ RT-
J1-1 J1-2	I_CTS/RTS+ I_CTS/RTS-	Twisted pair no. 1	<— <—	J2-9 J2-27	CS+ CS-
J1-44 J1-45	LL/DCD Circuit GND	Twisted pair no. 12	—> —	J2-10 J2-37	LL SC
J1-3 J1-4	I_DSR/DTR+ I_DSR/DTR-	Twisted pair no. 2	<— <—	J2-11 J2-29	DM+ DM-
J1-7 J1-8	O_DTR/DSR+ O_DTR/DSR-	Twisted pair no. 4	—> —>	J2-12 J2-30	TR+ TR-
J1-5 J1-6	IO_DCD/DCD+ IO_DCD/DCD-	Twisted pair no. 3	<— <—	J2-13 J2-31	RR+ RR-
J1-13 J1-14	O_TxCE/TxC+ O_TxCE/TxC-	Twisted pair no. 7	—> —>	J2-17 J2-35	TT+ TT-
J1-15 J1-16	Circuit GND Circuit GND	Twisted pair no. 9	— —	J2-19 J2-20	SG RC

- Any pin not referenced is not connected.

**Table A-10 EIA/TIA-449 DCE Cable Pinouts (DB-60 to DB-37) <sup>1</sup>**

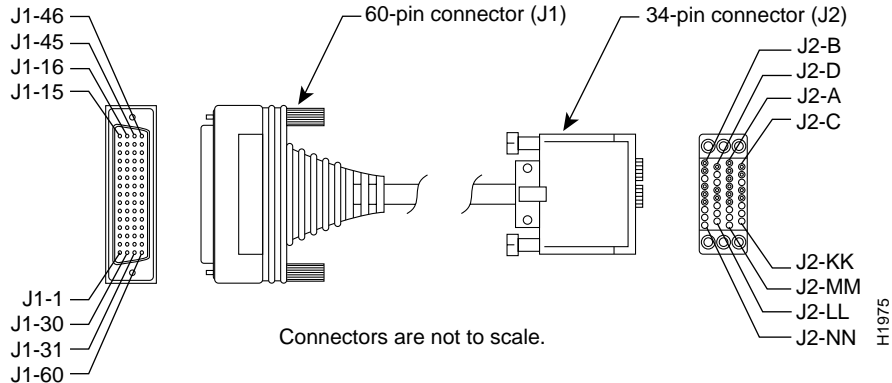
J1	Signal	Description	Direction	J2	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD–	Twisted pair no. 11	<— <—	J2-4 J2-22	SD+ SD–
J1-13 J1-14	O_TxCE/TxC+ O_TxCE/TxC–	Twisted pair no. 7	—> —>	J2-5 J2-23	ST+ ST–
J1-11 J1-12	O_TxD/RxD+ O_TxD/RxD–	Twisted pair no. 6	—> —>	J2-6 J2-24	RD+ RD–
J1-1 J1-2	I_CTS/RTS+ I_CTS/RTS–	Twisted pair no. 1	<— <—	J2-7 J2-25	RS+ RS–
J1-24 J1-23	O_TxC/RxC+ O_TxC/RxC–	Twisted pair no. 9	—> —>	J2-8 J2-26	RT+ RT–
J1-9 J1-10	O_RTS/CTS+ O_RTS/CTS–	Twisted pair no. 5	—> —>	J2-9 J2-27	CS+ CS–
J1-29 J1-30	NIL/LL Circuit GND	Twisted pair no. 12	—> —	J2-10 J2-37	LL SC
J1-7 J1-8	O_DTR/DSR+ O_DTR/DSR–	Twisted pair no. 4	—> —>	J2-11 J2-29	DM+ DM–
J1-31 J1-4	I_DSR/DTR+ I_DSR/DTR–	Twisted pair no. 2	<— <—	J2-12 J2-30	TR+ TR–
J1-5 J1-6	IO_DCD/DCD+ IO_DCD/DCD–	Twisted pair no. 3	—> —>	J2-13 J2-31	RR+ RR–
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE–	Twisted pair no. 10	<— <—	J2-17 J2-35	TT+ TT–
J1-15 J1-16	Circuit GND Circuit GND	Twisted pair no. 8	— —	J2-19 J2-20	SG RC

- Any pin not referenced is not connected.

## V.35

Figure A-8 shows the V.35 cable assembly; Table A-11 lists the DTE pinouts; Table A-12 lists the DCE pinouts without ringing indicator (RI); Table A-13 lists the DCE pinouts with RI. Arrows indicate signal direction.

Figure A-8 V.35 Cable Assembly

Table A-11 V.35 DTE Cable Pinouts (DB-60 to 34-Pin) <sup>1</sup>

J1	Signal	Description	Direction	J2	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	—	—	—
J1-50 J1-51 J1-52	MODE_0 GND MODE_DCE	Shorting group	—	—	—
J1-53 J1-54 J1-55 J1-56	G_TxC/NIL G_RxC_TxCE G_RxD/TxD GND	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-A	Shield GND
J1-45 J1-16	Circuit GND Circuit GND	Twisted pair no. 12	— —	J2-B J2-B	Circuit GND Circuit GND
J1-42 J1-16	O_RTS/CTS Circuit GND	Twisted pair no. 9	—> —	J2-C J2-B	RTS Circuit GND
J1-35 J1-16	I_CTS/RTS Circuit GND	Twisted pair no. 8	<— —	J2-D J2-B	CTS Circuit GND
J1-34 J1-16	I_DSR/DTR Circuit GND	Twisted pair no. 7	<— —	J2-E J2-B	DSR Circuit GND
J1-33 J1-16	I_DCD/LL Circuit GND	Twisted pair no. 6	<— —	J2-F J2-B	RLSD Circuit GND
J1-43 J1-16	O_DTR/DSR Circuit GND	Twisted pair no. 10	—> —	J2-H J2-B	DTR Circuit GND
J1-44 J1-16	O_LL/DCD Circuit GND	Twisted pair no. 11	—> —	J2-K J2-B	LT Circuit GND
J1-18 J1-17	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 1	—> —>	J2-P J2-S	SD+ SD-
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 5	<— <—	J2-R J2-T	RD+ RD-

**Table A-11 V.35 DTE Cable Pinouts (DB-60 to 34-Pin) <sup>1</sup> (continued)**

J1	Signal	Description	Direction	J2	Signal
J1-20 J1-19	O_TxCE/TxC+ O_TxCE/TxC-	Twisted pair no. 2	—> —>	J2-U J2-W	SCTE+ SCTE-
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE-	Twisted pair no. 4	<— <—	J2-V J2-X	SCR+ SCR-
J1-24 J1-23	IO_TxC/RxC+ IO_TxC/RxC-	Twisted pair no. 3	<— <—	J2-Y J2-AA	SCT+ SCT-

1. Any pin not referenced is not connected.

**Table A-12 V.35 DCE Cable Pinouts (DB-60 to 34-Pin) <sup>1</sup>**

J1	Signal	Description	Direction	J2	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	—	—	—
J1-50 J1-51	MODE_0 GND	Shorting group	—	—	—
J1-53 J1-54 J1-55 J1-56	G_TxC/NIL G_RxC_TxCE G_RxD/TxD GND	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-A	Shield GND
J1-45 J1-16	Circuit GND Circuit GND	Twisted pair no. 12	— —	J2-B J2-B	Circuit GND Circuit GND
J1-35 J1-16	I_CTS/RTS Circuit GND	Twisted pair no. 8	<— —	J2-C J2-B	RTS Circuit GND
J1-42 J1-16	O_RTS/CTS Circuit GND	Twisted pair no. 9	—> —	J2-D J2-B	CTS Circuit GND
J1-43 J1-16	O_DTR/DSR Circuit GND	Twisted pair no. 10	—> —	J2-E J2-B	DSR Circuit GND
J1-44 J1-16	O_LL/DCD Circuit GND	Twisted pair no. 11	—> —	J2-F J2-B	RLSD Circuit GND
J1-34 J1-16	I_DSR/DTR Circuit GND	Twisted pair no. 7	<— —	J2-H J2-B	DTR Circuit GND
J1-33 J1-16	I_DCD/LL Circuit GND	Twisted pair no. 6	<— —	J2-K J2-B	LT Circuit GND
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 5	<— <—	J2-P J2-S	SD+ SD-
J1-18 J1-17	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 1	—> —>	J2-R J2-T	RD+ RD-
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE-	Twisted pair no. 4	<— <—	J2-U J2-W	SCTE+ SCTE-

**Table A-12 V.35 DCE Cable Pinouts (DB-60 to 34-Pin) <sup>1</sup> (continued)**

J1	Signal	Description	Direction	J2	Signal
J1-22 J1-21	O_NIL/RxC+ O_NIL/RxC-	Twisted pair no. 3	—> —>	J2-V J2-X	SCR+ SCR-
J1-20 J1-19	O_TxCE/TxC+ O_TxCE/TxC-	Twisted pair no. 2	—> —>	J2-Y J2-AA	SCT+ SCT-

1. Any pin not referenced is not connected.

**Table A-13 V.35 DCE with Ringing Indicator Cable Pinouts (DB-60 to 34-Pin) <sup>1</sup>**

J1	Signal	Description	Direction	J2	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	—	—	—
J1-50 J1-51	MODE_0 GND	Shorting group	—	—	—
J1-53 J1-54 J1-55 J1-56	G_TxC/NIL G_RxC_TxCE G_RxD/TxD GND	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-A	Shield GND
J1-45 J1-31	Circuit GND O_NIL/RI	Twisted pair no. 12	— —>	J2-B J2-J	Circuit GND RI
J1-35 J1-16	I_CTS/RTS Circuit GND	Twisted pair no. 8	<— —	J2-C J2-B	RTS Circuit GND
J1-42 J1-16	O_RTS/CTS Circuit GND	Twisted pair no. 9	—> —	J2-D J2-B	CTS Circuit GND
J1-43 J1-16	O_DTR/DSR Circuit GND	Twisted pair no. 10	—> —	J2-E J2-B	DSR Circuit GND
J1-44 J1-16	O_LL/DCD Circuit GND	Twisted pair no. 11	—> —	J2-F J2-B	RLSD Circuit GND
J1-34 J1-16	I_DSR/DTR Circuit GND	Twisted pair no. 7	<— —	J2-H J2-B	DTR Circuit GND
J1-33 J1-16	I_DCD/LL Circuit GND	Twisted pair no. 6	<— —	J2-K J2-B	LT Circuit GND
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 5	<— <—	J2-P J2-S	SD+ SD-
J1-18 J1-17	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 1	—> —>	J2-R J2-T	RD+ RD-
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE-	Twisted pair no. 4	<— <—	J2-U J2-W	SCTE+ SCTE-
J1-22 J1-21	O_NIL/RxC+ O_NIL/RxC-	Twisted pair no. 3	—> —>	J2-V J2-X	SCR+ SCR-
J1-20 J1-19	O_TxCE/TxC+ O_TxCE/TxC-	Twisted pair no. 2	—> —>	J2-Y J2-AA	SCT+ SCT-

- Any pin not referenced is not connected.

## X.21

Figure A-9 shows the X.21 cable assembly; Table A-14 lists the DTE pinouts; Table A-15 lists the DCE pinouts. Arrows indicate signal direction.

Figure A-9 X.21 Cable Assembly

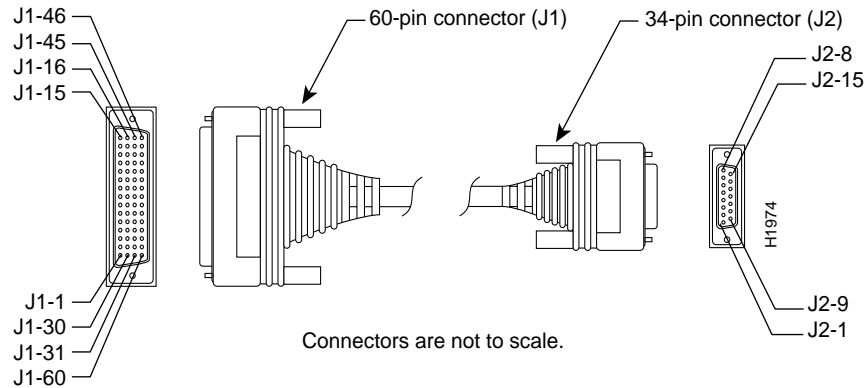


Table A-14 X.21 DTE Cable Pinouts (DB-60 to DB-15) <sup>1</sup>

J1	Signal	Description	Direction	J2	Signal
J1-48 J1-47	GND MODE_2	Shorting group	—	—	—
J1-51 J1-52	GND MODE_DCE	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-11 J1-12	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 3	→ →	J2-2 J2-9	Transmit+ Transmit-
J1-9 J1-10	O_RTS/CTS+ O_RTS/CTS-	Twisted pair no. 2	→ →	J2-3 J2-10	Control+ Control-
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 6	← ←	J2-4 J2-11	Receive+ Receive-
J1-1 J1-2	I_CTS/RTS+ I_CTS/RTS-	Twisted pair no. 1	← ←	J2-5 J2-12	Indication+ Indication-
J1-26 J1-25	I_RxC/TxCE+ I_RxC/TxCE-	Twisted pair no. 5	← ←	J2-6 J2-13	Timing+ Timing-
J1-15 J1-16	Circuit GND Circuit GND	Twisted pair no. 4	— —	J2-8 J2-8	Circuit GND Circuit GND

- Any pin not referenced is not connected.

Table A-15 X.21 DCE Cable Pinouts (DB-60 to DB-15) <sup>1</sup>

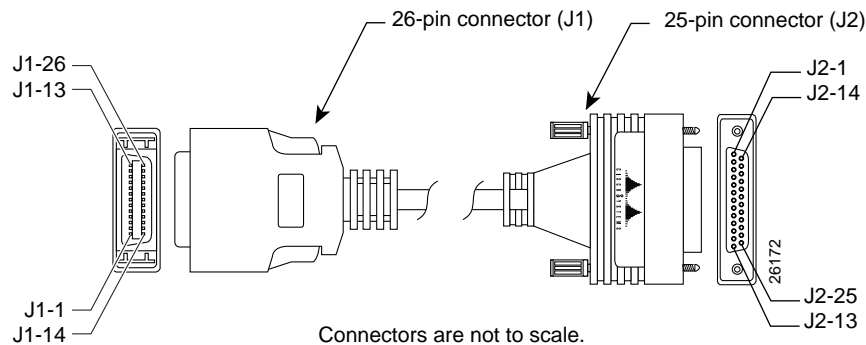
J1	Signal	Description	Direction	J2	Signal
J1-48 J1-47	GND MODE_2	Shorting group	—	—	—
J1-46	Shield GND				
J1-28 J1-27	I_RxD/TxD+ I_RxD/TxD-	Twisted pair no. 6	<—	J2-2	Transmit+
J1-1 J1-2	I_CTS/RTS+ I_CTS/RTS-			Twisted pair no. 1	<—
J1-11 J1-12	O_TxD/RxD+ O_TxD/RxD-	Twisted pair no. 3	—>		
J1-9 J1-10	O_RTS/CTS+ O_RTS/CTS-			Twisted pair no. 2	—>
J1-24 J1-23	IO_TxC/RxC+ IO_TxC/RxC-	Twisted pair no. 4	—>		
J1-15 J1-16	Circuit GND Circuit GND			Twisted pair no. 5	—

1. Any pin not referenced is not connected.

## RS-366 ACE

Figure A-10 shows the RS-366 ACE cable assembly; Table A-16 lists the pinouts. Arrows indicate signal direction.

Figure A-10 RS-366 ACE Cable Assembly

Table A-16 RS-366 ACE Cable Pinouts (26-Pin to DB-25) <sup>1</sup>

J1 (ACE)	Signal	Description	Direction	J2	Signal
J1-1	Shield GND	Shield	—	J2-1	Shield GND
J1-2 J1-18	I_DPR Rcv COMMON	Twisted pair no. 5	<—	J2-2	DPR
				J2-18	RC

Table A-16 RS-366 ACE Cable Pinouts (26-Pin to DB-25) <sup>1</sup>

J1 (ACE)	Signal	Description	Direction	J2	Signal
J1-3 J1-7	O_ACR Circuit GND	Twisted pair no. 3	—> —	J2-3 J2-7	ACR GND
J1-4 J1-7	I_CRQ Circuit GND	Twisted pair no. 1	<— —	J2-4 J2-7	CRQ GND
J1-5 J1-19	O_PND Send COMMON	Twisted pair no. 9	—> —>	J2-5 J2-19	PND SC
J1-6 J1-7	O_PWI Circuit GND	Twisted pair no. 6	—> —	J2-6 J2-7	PWI GND
J1-13 J1-7	O_DSC Circuit GND	Twisted pair no. 8	—> —	J2-13 J2-7	DSC GND
J1-14 J1-15	I_NB1 I_NB2	Twisted pair no. 4	<— <—	J2-14 J2-15	NB1 NB2
J1-16 J1-17	I_NB4 I_NB8	Twisted pair no. 2	<— <—	J2-16 J2-17	NB4 NB8
J1-22 J1-7	O_DLO Circuit GND	Twisted pair no. 7	—> —	J2-22 J2-7	DLO GND

1. Any pin not referenced is not connected.

## Ethernet Port Pinouts (RJ-45)

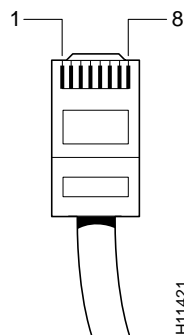
Figure A-11 shows the RJ-45 connector wiring for the 10BaseT Ethernet cable; Table A-17 lists the pinouts.



### Note

Pinout shown is for category 3, 4, or 5 Ethernet connection to an Ethernet hub.

Figure A-11 RJ-45-to-RJ-45 Straight-Through Cable Wiring



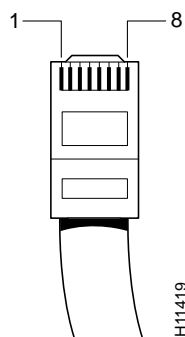
**Table A-17 Ethernet 10BaseT Port Pinouts (RJ-45)**

Pin <sup>1</sup>	Signal
1	TX+
2	TX-
3	RX+
4	–
5	–
6	RX-
7	–
8	–

1. Any pin not referenced on a connector is not connected.

## T1/E1 Trunk and Digital Voice Port Pinouts (RJ-48)

Figure A-12 shows the RJ-48 connector wiring for the T1/E1 trunk cable and the digital voice port cable; Table A-18 lists the pinouts.

**Figure A-12 RJ-48-to-RJ-48 T1/E1 Cable Wiring****Table A-18 Pinouts for T1/E1 Trunk and Digital Voice Port (RJ-48)**

Pin <sup>1</sup>	Signal
1	RX (input)
2	RX (input)
3	–
4	TX (output)
5	TX (output)
6	–
7	–
8	–

1. Any pin not referenced on a connector is not connected.

## Analog Voice Port Pinouts

Figure A-13 shows the RJ-11 connector wiring for the cables that are used for the Foreign Exchange Office (FXO) and Foreign Exchange Station (FXS) analog voice ports; Table A-19 lists the pinouts. Use an RJ-11-to-RJ-11 straight-through cable for connecting these ports to phones, fax machines, or central office lines.

Figure A-13 RJ-11-to-RJ-11 Straight-Through Cable Wiring

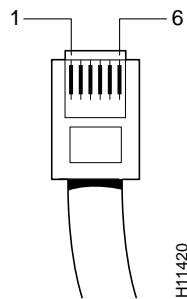


Table A-19 Pinouts for FXO and FXS Voice Ports (RJ-11)

RJ-11 Pin <sup>1</sup>	Signal
1	—
2	—
3	Ring
4	Tip
5	—
6	—

1. Any pin not referenced is not connected.

Figure A-14 shows the RJ-1CX connector wiring for analog voice-port cables that are used with 2-wire or 4-wire interfaces with separate signaling paths (E&M interfaces, from “ear and mouth”); Table A-20 lists the pinouts for E&M voice ports. Use an eight-conductor, straight-through cable with RJ-1CX modular connectors for connecting these ports to terminal equipment.

For four-wire E&M connections conforming to ETSI CTR17, use the CTR17 adapter to connect the eight-conductor, straight-through cable to the E&M port. Table A-21 lists the pinouts for the CTR17 adapter.

Figure A-14 Wiring for Eight-Conductor, Straight-Through Cable

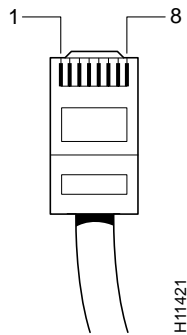


Table A-20 Pinouts for E&amp;M Voice Ports (RJ-1CX)

RJ-1CX Pin	Signal—4-Wire	Signal—2-Wire
1	SB (signal battery)	SB (signal battery)
2	M-lead	M-lead
3	Ring (input)	–
4	Ring1 (output)	Ring
5	Tip1 (output)	Tip
6	Tip (input)	–
7	E-lead	E-lead
8	SG (signal ground)	SG (signal ground)

Table A-21 CTR17 Adapter Pinouts for E&amp;M 4-Wire Voice Ports

Signal at E&M Voice Port	Adapter Pinout		Signal on ETSI CTR17 Cable
	Plug End (RJ-1CX)	Receptacle End (CTR17)	
SB (signal battery)	1	1	SB (signal battery)
M-lead	2	2	M-lead
Ring (input)	3	4	Ring (input)
Ring1 (output)	4	3	Ring1 (output)
Tip1 (output)	5	6	Tip1 (output)
Tip (input)	6	5	Tip (input)
E-lead	7	7	E-lead
SG (signal ground)	8	8	SG (signal ground)

## BRI S/T Port Pinouts (CB-1D)

Figure A-15 shows the CB-1D connector wiring for the BRI S/T voice port and the BRI S/T backup port; Table A-22 lists the pinouts.

Figure A-15 Wiring for 8-Conductor Cable

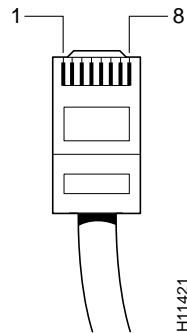


Table A-22 Pinouts for BRI S/T Voice Port and Backup Port (CB-1D)

Pin <sup>1</sup>	Polarity	Signal
1	–	–
2	–	–
3	Positive	TX (output)
4	Positive	RX (input)
5	Negative	RX (input)
6	Negative	TX (output)
7	–	–
8	–	–

1. Any pin not referenced on a connector is not connected.

