



Cable Specifications

If you prefer to build your own cables, this appendix provides cable specifications for Cisco MWR 1941-DC router.

This document includes:

- [Warning Conventions](#)
- [Console and Auxiliary Port Signals and Pinouts](#)
- [Ethernet Cable Pinouts](#)
- [Fast Ethernet Connector Pinouts](#)
- [T1/E1 Trunk and DigitaS1 Voice Port Pinouts \(RJ-48\)](#)
- [Serial Connection Signals and Pinouts](#)
- [Smart Serial Connection Signals and Pinouts](#)



Note

All pins not listed in the tables in this document are not connected.

Warning Conventions



Warning

IMPORTANT SAFETY INSTRUCTIONS

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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus

TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung	<p>WICHTIGE SICHERHEITSHINWEISE</p> <p>Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.</p> <p>BEWAHREN SIE DIESE HINWEISE GUT AUF.</p>
Avvertenza	<p>IMPORTANTI ISTRUZIONI SULLA SICUREZZA</p> <p>Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.</p> <p>CONSERVARE QUESTE ISTRUZIONI</p>
Advarsel	<p>VIKTIGE SIKKERHETSINSTRUKSJONER</p> <p>Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.</p> <p>TA VARE PÅ DISSE INSTRUKSJONENE</p>
Aviso	<p>INSTRUÇÕES IMPORTANTES DE SEGURANÇA</p> <p>Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.</p> <p>GUARDE ESTAS INSTRUÇÕES</p>
¡Advertencia!	<p>INSTRUCCIONES IMPORTANTES DE SEGURIDAD</p> <p>Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.</p> <p>GUARDE ESTAS INSTRUCCIONES</p>

Varning! VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR**Figyelem FONTOS BIZTONSÁGI ELOÍRÁSOK**

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!**Предупреждение ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ**

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ**警告 重要的安全性说明**

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

Console and Auxiliary Port Signals and Pinouts

Your router comes with a console and auxiliary cable kit, which contains the cable and adapters you need to connect a console terminal (an ASCII terminal or PC running terminal emulation software) or modem to your router. The console and auxiliary cable kit includes the following items:

- RJ-45-to-RJ-45 rollover cable
- 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)

For console connections, proceed to the “[Console Port Signals and Pinouts](#)” section on page B-5; for modem connections, proceed to the “[Auxiliary Port Signals and Pinouts](#)” section on page B-6.

Console Port Signals and Pinouts

Use the thin, flat, RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-9 female DTE adapter (labeled “TERMINAL”) to connect the console port to a PC running terminal emulation software. [Figure B-1](#) shows how to connect the console port to a PC. [Table B-1](#) lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-9 female DTE adapter (labeled TERMINAL).

Figure B-1 Connecting the Console Port to a PC

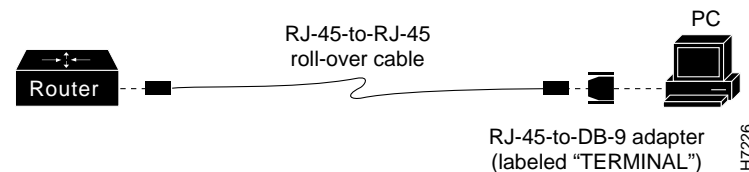


Table B-1 Console Port Signaling and Cabling Using a DB-9 Adapter

Console Port (DTE)	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-9 Terminal Adapter (connected to Rollover Cable)	Console Device
Signal	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	Signal
RTS	1 ¹	8	8	CTS
DTR	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
DSR	7	2	4	DTR
CTS	8 ¹	1	7	RTS

1. Pin 1 is connected internally to pin 8

Table B-2 lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-25 female DTE adapter (labeled TERMINAL).

Table B-2 Console Port Signaling and Cabling Using a DB-25 Adapter

Console Port (DTE) ¹	RJ-45-to-RJ-45 Rollover Cable		RJ-45-to-DB-25 Terminal Adapter	Console Device
	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	
RTS	1 ²	8	5	CTS
DTR	2	7	6	DSR
TxD	3	6	3	RxD
GND	4	5	7	GND
GND	5	4	7	GND
RxD	6	3	2	TxD
DSR	7	2	20	DTR
CTS	8 ¹	1	4	RTS

1. You can use the same cabling to connect a console to the auxiliary port
2. Pin 1 is connected internally to pin 8

Auxiliary Port Signals and Pinouts

Table B-3 lists the pinouts for the asynchronous serial auxiliary port, the RJ-45-to-RJ-45 rollover cable, and the RJ-45-to-DB-25 male DCE adapter (labeled MODEM).

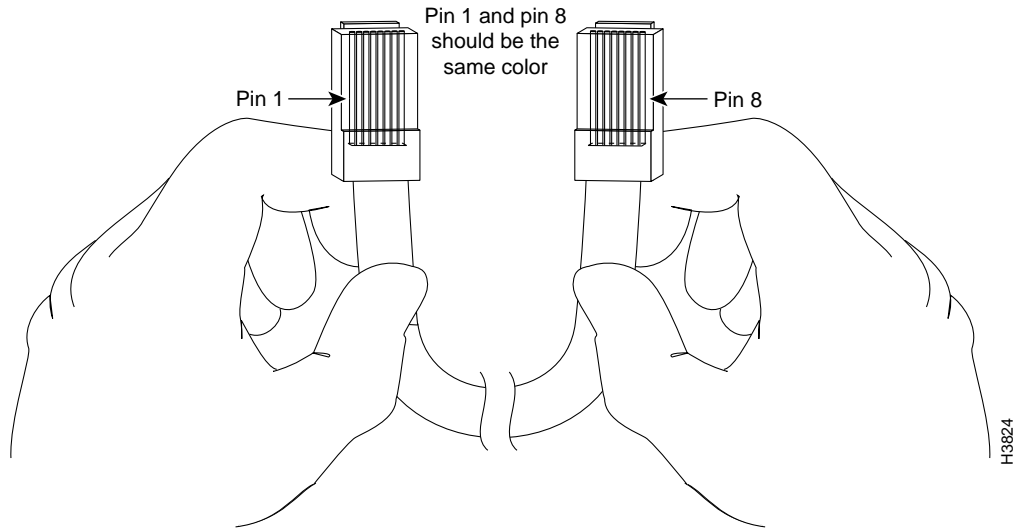
Table B-3 Auxiliary Port Signaling and Cabling Using a DB-25 Adapter

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

1. Pin 1 is connected internally to pin 8.

You can identify a rollover cable by comparing the modular plugs at the two ends of the cable. When you 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 B-2](#).) If you purchased your cable from Cisco Systems, pin 1 is white on one connector, and pin 8 is white on the other (a rollover cable connects pins 1 and 8, 2 and 7, 3 and 6, and 4 and 5).

Figure B-2 Identifying a Rollover Cable



Ethernet Cable Pinouts

This section describes the [Ethernet AUI Cable Pinouts](#) and the [10BaseT Connector Pinouts](#).

Ethernet AUI Cable Pinouts

[Figure B-3](#) shows the Ethernet (AUI) cable assembly and [Table B-4](#) lists the pinouts.

Figure B-3 Ethernet (AUI) Cable Assembly

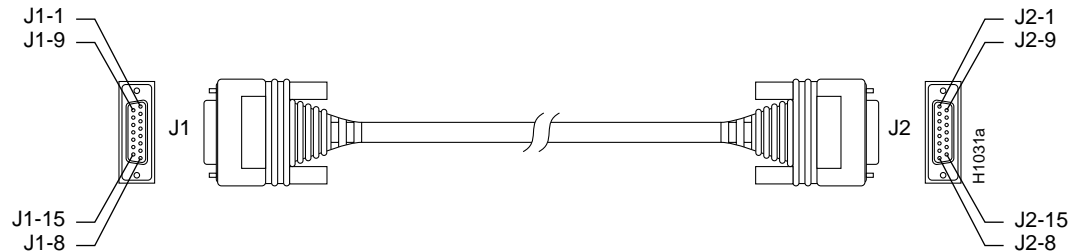


Table B-4 Ethernet (AUI) Pinouts

Pin	Ethernet Circuit	Signal Name
3	DO-A	Data Out Circuit A
10	DO-B	Data Out Circuit B
11	DO-S	Data Out Circuit Shield
5	DI-A	Data In Circuit A
12	DI-B	Data In Circuit B
4	DI-S	Data In Circuit Shield
7	CO-A	Control Out Circuit A (not connected)
15	CO-B	Control Out Circuit B (not connected)
8	CO-S	Control Out Circuit Shield (not connected)
2	CI-A	Control In Circuit A
9	CI-B	Control In Circuit B
1	CI-S	Control In Circuit Shield
6	VC	Voltage Common
13	VP	Voltage Plus
14	VS	Voltage Shield (L25 and M25)
Shell	PG	Protective Ground

10BaseT Connector Pinouts

Figure B-4 shows the 10BaseT connector (RJ-45) and Table B-5 lists its pinouts.

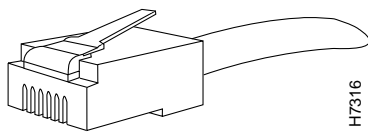
Figure B-4 10BaseT Connector (RJ-45)

Table B-5 10BaseT Connector (RJ-45) Pinouts

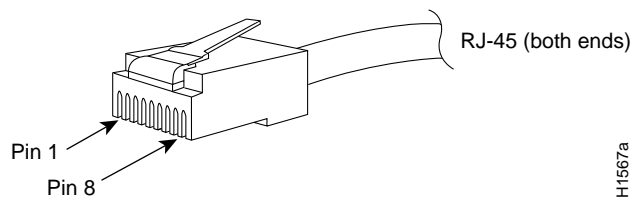
Pin ¹	Description
1	TX+
2	TX-
3	RX+
4	–
5	–
6	RX-
7	–
8	–

1. Any pin not described is not connected

Fast Ethernet Connector Pinouts

This section illustrates the Fast Ethernet 100BaseTX (RJ-45) connector and lists its pinout and signal descriptions.

[Figure B-5](#) shows the 100BaseTX RJ-45 connector, and [Table B-6](#) lists its pinout. The 1-port Fast Ethernet network module RJ-45 port actively terminates wire pair 4 and 5 and wire pair 7 and 8. Common-mode termination reduces electromagnetic interference (EMI) and susceptibility to common-mode sources.

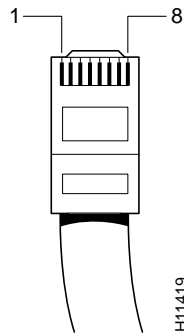
Figure B-5 100BaseTX RJ-45 Connector**Table B-6 RJ-45 Connector Pinout**

Pin	Signal
1	TX+
2	TX-
3	RX+
6	RX-

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

Figure B-5 shows the RJ-48 connector wiring for the T1/E1 trunk cable and the digital voice port cable; Table B-7 lists the pinouts.

Figure B-6 RJ-48-to-RJ-48 T1/E1 Cable Wiring



Serial Connection Signals and Pinouts

Table B-7 Pinouts for T1/E1 Trunk and Digital Voice Port (RJ-48)

Pin ¹	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.

This section provides information about the 1-port serial WAN interface card. With the appropriate serial transition cable, this card can provide an EIA/TIA-232, EIA/TIA-449, V.35, X.21, DTE/DCE, EIA-530 DTE, or NRZ/NRZI serial interface.

Types of Serial Cables

Six types of serial cables (also called serial adapter cables or serial transition cables) are available from Cisco Systems:

- [EIA/TIA-232 Interface](#)
- [EIA/TIA-449 Interface](#)
- [V.35 Interface](#)
- [X.21 Serial Cable Assembly](#)
- [EIA-530 Interface](#)

All serial cables provide a universal plug at the interface card end. The network end of each cable provides the physical connectors most commonly used for the interface. For example, the network end of the EIA/TIA-232 serial cable is a DB-25 connector, the most widely used EIA/TIA-232 connector.

All serial interface types except EIA-530 are available in DTE or DCE format: DTE with a plug connector (male) at the network end and DCE with a receptacle (female) at the network end. V.35 is available in either mode with either gender at the network end. EIA-530 is available in DTE only.

Connecting the Card to the Network



Note

The serial WAN interface card uses a universal high-density, 60-pin receptacle. Each universal port requires a serial port adapter cable that determines the port's electrical interface type and mode: DTE or DCE. Although all port adapter cables use a universal plug at the quad serial module end, the network end of each cable type uses the physical connectors commonly used for the interface. (For example, the network end of the EIA/TIA-232 port adapter cable is a DB-25 connector, the most widely used EIA/TIA-232 connector.)

After you install the serial WAN interface card, use the appropriate serial cable to connect the interface card's DB-60 serial port to one of the following types of equipment:

- An asynchronous modem, if connecting to an analog telephone line
- A synchronous modem, data service unit/channel service unit (DSU/CSU), or other data circuit-terminating equipment (DCE), if connecting to a digital WAN line

EIA/TIA-232 Interface

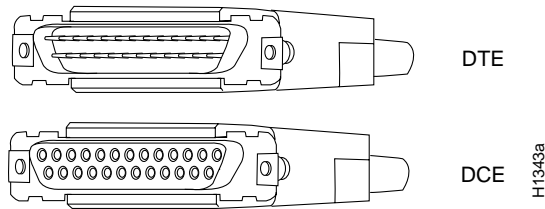
This section contains the following topics:

- [EIA/TIA-232 Connections](#)
- [EIA/TIA-232 Serial Cable Assembly](#)

EIA/TIA-232 Connections

EIA/TIA-232 supports unbalanced circuits at signal speeds up to 64 kbps. The network end of the adapter cable is a standard 25-pin D-shell connector known as a DB-25. (See [Figure B-7](#).) The router console and auxiliary ports also use EIA/TIA-232 connections; however, the serial module ports support synchronous connections, and the console and auxiliary ports support asynchronous connections.

Figure B-7 EIA/TIA-232 Adapter Cable Connectors, Network End



EIA/TIA-232 Serial Cable Assembly

[Figure B-8](#) shows the EIA/TIA-232 serial cable assembly. [Table B-8](#) lists the DTE pinout and [Table B-9](#) lists the DCE pinout. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Figure B-8 EIA/TIA-232 Cable Assembly

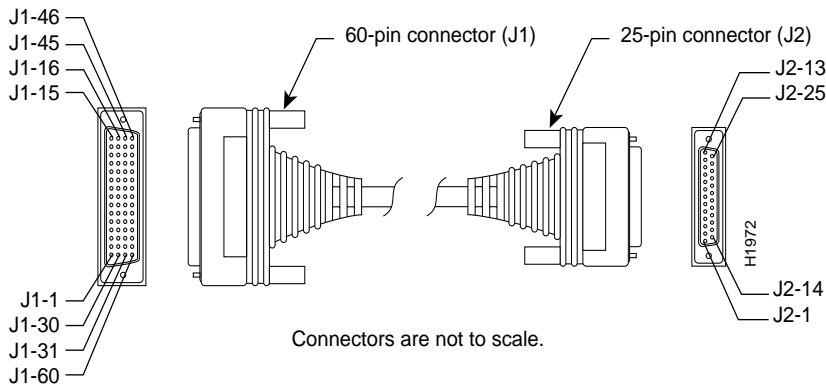


Table B-8 EIA/TIA-232 DTE Cable Pinout (DB-60 to DB-25)

60-Pin	Signal	Note	Direction	25-Pin	Signal
J1-50 J1-51 J1-52	MODE_0 GND MODE_DC E	Shorting group	—	—	—
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-46	Shield GND	Single	—	J2-1	Shield GND

Table B-8 EIA/TIA-232 DTE Cable Pinout (DB-60 to DB-25) (continued)

60-Pin	Signal	Note	Direction	25-Pin	Signal
J1-41 Shield	TXD/RXD –	Twisted pair no. 5	—> –	J2-2 Shield	TXD –
J1-36 Shield	RXD/TXD –	Twisted pair no. 9	<— –	J2-3 Shield	RXD –
J1-42 Shield	RTS/CTS –	Twisted pair no. 4	—> –	J2-4 Shield	RTS –
J1-35 Shield	CTS/RTS –	Twisted pair no. 10	<— –	J2-5 Shield	CTS –
J1-34 Shield	DSR/DTR –	Twisted pair no. 11	<— –	J2-6 Shield	DSR –
J1-45 Shield	Circuit GND –	Twisted pair no. 1	– –	J2-7 Shield	Circuit GND –
J1-33 Shield	DCD/LL –	Twisted pair no. 12	<— –	J2-8 Shield	DCD –
J1-37 Shield	TXC/NIL –	Twisted pair no. 8	<— –	J2-15 Shield	TXC –
J1-38 Shield	RXC/TXC E –	Twisted pair no. 7	<— –	J2-17 Shield	RXC –
J1-44 Shield	LL/DCD –	Twisted pair no. 2	—> –	J2-18 Shield	LTST –
J1-43 Shield	DTR/DSR –	Twisted pair no. 3	—> –	J2-20 Shield	DTR –
J1-39 Shield	TXCE/TXC –	Twisted pair no. 6	—> –	J2-24 Shield	TXCE –

Table B-9 EIA/TIA-232 DCE Cable Pinout (DB-60 to DB-25)

60-Pin	Signal	Note	Direction	25-Pin	Signal
J1-50 J1-51	MODE_0 GND	Shorting group	–	–	–
J1-36 Shield	RXD/TXD –	Twisted pair no. 9	<— –	J2-2 Shield	TXD –
J1-41 Shield	TXD/RXD –	Twisted pair no. 5	—> –	J2-3 Shield	RXD –
J1-35 Shield	CTS/RTS –	Twisted pair no. 10	<— –	J2-4 Shield	RTS –
J1-42 Shield	RTS/CTS –	Twisted pair no. 4	—> –	J2-5 Shield	CTS –
J1-43 Shield	DTR/DSR –	Twisted pair no. 3	—> –	J2-6 Shield	DSR –

Table B-9 EIA/TIA-232 DCE Cable Pinout (DB-60 to DB-25)

60-Pin	Signal	Note	Direction	25-Pin	Signal
J1-45 Shield	Circuit GND	Twisted pair no. 1	— —	J2-7 Shield	Circuit GND
J1-44 Shield	LL/DCD	Twisted pair no. 2	—> —	J2-8 Shield	DCD —
J1-39 Shield	TXCE/TX C	Twisted pair no. 7	—> —	J2-15 Shield	TXC —
J1-40 Shield	NIL/RXC	Twisted pair no. 6	—> —	J2-17 Shield	RXC —
J1-33 Shield	DCD/LL	Twisted pair no. 12	<— —	J2-18 Shield	LTST —
J1-34 Shield	DSR/DTR	Twisted pair no. 11	<— —	J2-20 Shield	DTR —
J1-38 Shield	RXC/TXC E	Twisted pair no. 8	<— —	J2-24 Shield	TXCE —

EIA/TIA-449 Interface

This section contains the following topics:

- [EIA/TIA-449 Connections](#)
- [EIA/TIA-449 Serial Cable Assembly](#)

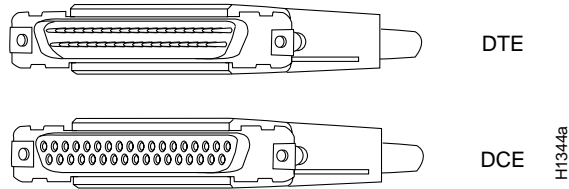
EIA/TIA-449 Connections

EIA/TIA-449, which supports balanced (EIA/TIA-422) and unbalanced (EIA/TIA-423) transmissions, is a faster (up to 2 Mbps) version of EIA/TIA-232 that provides more functions and supports transmissions over greater distances.

The EIA/TIA-449 standard was intended to replace the EIA/TIA-232 standard, but it was not widely adopted primarily because of the large installed base of DB-25 hardware and because of the larger size of the 37-pin EIA/TIA-449 connectors, which limited the number of connections possible (fewer than possible with the smaller, 25-pin EIA/TIA-232 connector).

The network end of the EIA/TIA-449 adapter cable provides a standard 37-pin D-shell connector. (See Figure B-9.) EIA/TIA-449 cables are available as either DTE (DB-37 plug) or DCE (DB-37 receptacle).

Figure B-9 EIA/TIA-449 Adapter Cable Connectors, Network End



EIA/TIA-449 Serial Cable Assembly

Figure B-10 shows the EIA/TIA-449 serial cable assembly. Table B-10 lists the DTE pinout and Table B-11 lists the DCE pinout. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Figure B-10 EIA/TIA-449 Serial Cable Assembly

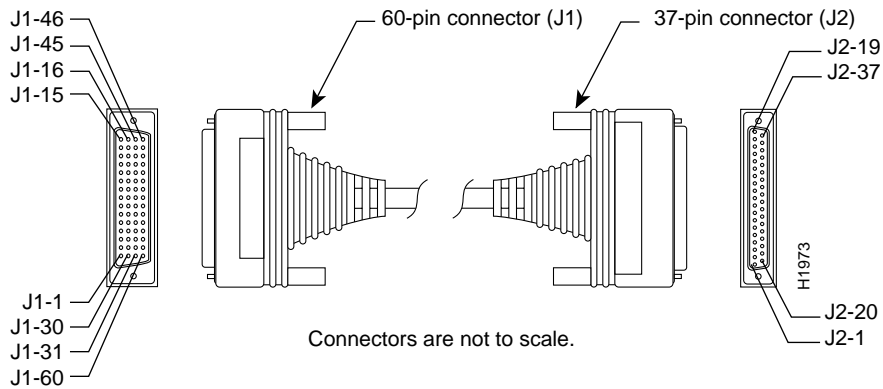


Table B-10 EIA/TIA-449 DTE Cable Pinout (DB-60 to DB-37)

60-Pin	Signal Name	Note	Direction	37-Pin	Signal Name
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	TXD/RXD+ TXD/RXD-	Twisted pair no. 6	—> —>	J2-4 J2-22	SD+ SD-
J1-24 J1-23	TXC/RXC+ TXC/RXC-	Twisted pair no. 9	<— <—	J2-5 J2-23	ST+ ST-
J1-28 J1-27	RXD/TXD+ RXD/TXD-	Twisted pair no. 11	<— <—	J2-6 J2-24	RD+ RD-

Table B-10 EIA/TIA-449 DTE Cable Pinout (DB-60 to DB-37) (continued)

60-Pin	Signal Name	Note	Direction	37-Pin	Signal Name
J1-9 J1-10	RTS/CTS+ RTS/CTS-	Twisted pair no. 5	—> —>	J2-7 J2-25	RS+ RS-
J1-26 J1-25	RXC/TXCE+ RXC/TXCE-	Twisted pair no. 10	<— <—	J2-8 J2-26	RT+ RT-
J1-1 J1-2	CTS/RTS+ 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	DSR/DTR+ DSR/DTR-	Twisted pair no. 2	<— <—	J2-11 J2-29	DM+ DM-
J1-7 J1-8	DTR/DSR+ DTR/DSR-	Twisted pair no. 4	—> —>	J2-12 J2-30	TR+ TR-
J1-5 J1-6	DCD/DCD+ DCD/DCD-	Twisted pair no. 3	<— <—	J2-13 J2-31	RR+ RR-
J1-13 J1-14	TXCE/TXC+ 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

Table B-11 EIA/TIA-449 DCE Cable Pinout (DB-60 to DB-37)

60-Pin	Signal Name	Note	Direction	37-Pin	Signal Name
J1-49 J1-48	MODE_1 GND	Shorting group	— —	— —	— —
J1-46	Shield_GND	Single	—	J2-1	Shield GND
J1-28 J1-27	RXD/TXD+ RXD/TXD-	Twisted pair no. 11	<— <—	J2-4 J2-22	SD+ SD-
J1-13 J1-14	TXCE/TXC+ TXCE/TXC-	Twisted pair no. 7	—> —>	J2-5 J2-23	ST+ ST-
J1-11 J1-12	TXD/RXD+ TXD/RXD-	Twisted pair no. 6	—> —>	J2-6 J2-24	RD+ RD-
J1-1 J1-2	CTS/RTS+ CTS/RTS-	Twisted pair no. 1	<— <—	J2-7 J2-25	RS+ RS-
J1-24 J1-23	TXC/RXC+ TXC/RXC-	Twisted pair no. 9	—> —>	J2-8 J2-26	RT+ RT-
J1-9 J1-10	RTS/CTS+ 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	DTR/DSR+ DTR/DSR-	Twisted pair no. 4	—> —>	J2-11 J2-29	DM+ DM-

Table B-11 EIA/TIA-449 DCE Cable Pinout (DB-60 to DB-37) (continued)

60-Pin	Signal Name	Note	Direction	37-Pin	Signal Name
J1-3	DSR/DTR+	Twisted pair no. 2	<—	J2-12	TR+
J1-4	DSR/DTR–		<—	J2-30	TR–
J1-5	DCD/DCD+	Twisted pair no. 3	—>	J2-13	RR+
J1-6	DCD/DCD–		—>	J2-31	RR–
J1-26	RXC/TXCE+	Twisted pair no. 10	<—	J2-17	TT+
J1-25	RXC/TXCE–		<—	J2-35	TT–
J1-15	Circuit_GND	Twisted pair no. 8	–	J2-19	SG
J1-16	Circuit_GND		–	J2-20	RC

V.35 Interface

This section contains the following topics:

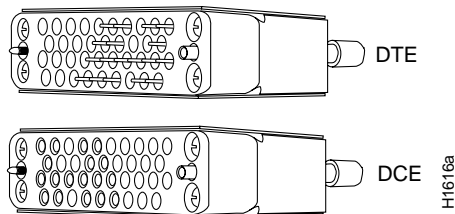
- [V.35 Connections](#)
- [V.35 Serial Cable Assembly](#)

V.35 Connections

The V.35 interface is recommended for speeds up to 48 kbps, although in practice it is used successfully at 4 Mbps.

The network end of the V.35 adapter cable provides a standard 34-pin Winchester-type connector. (See [Figure B-11](#).) V.35 cables are available with a standard V.35 plug or receptacle in either DTE or DCE mode.

Figure B-11 V.35 Adapter Cable Connectors, Network End



V.35 Serial Cable Assembly

Figure 12 shows the V.35 serial cable assembly. [Table B-12](#) lists the DTE pinout and [Table B-13](#) lists the DCE pinout. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Figure B-12 V.35 Serial Cable Assembly

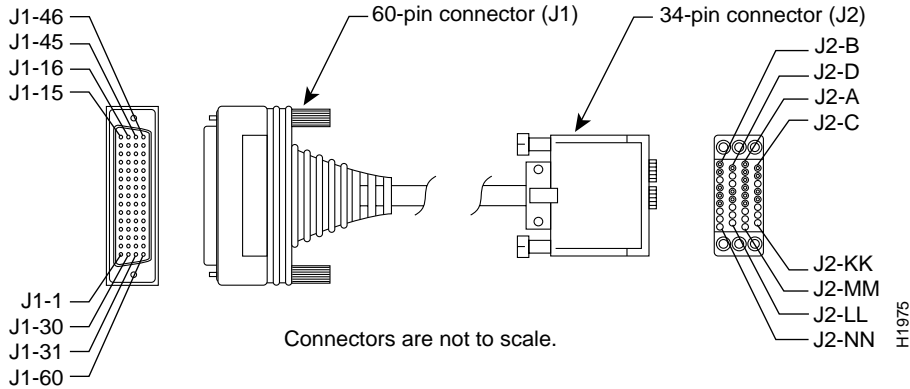


Table B-12 V.35 DTE Cable Pinout (DB-60 to Winchester-Type 34-Pin)

60-Pin	Signal Name	Type	Direction	34-Pin	Signal Name
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	TxC/NIL RxC_TxCE RxD/TxD GND	Shorting group	—	—	—
J1-46	Shield_GND	Single	—	J2-A	Frame GND
J1-45 Shield	Circuit_GND —	Twisted pair no. 12	— —	J2-B Shield	Circuit GND —
J1-42 Shield	RTS/CTS —	Twisted pair no. 9	—> —	J2-C Shield	RTS —
J1-35 Shield	CTS/RTS —	Twisted pair no. 8	<— —	J2-D Shield	CTS —
J1-34 Shield	DSR/DTR —	Twisted pair no. 7	<— —	J2-E Shield	DSR —
J1-33 Shield	DCD/LL —	Twisted pair no. 6	<— —	J2-F Shield	RLSD —
J1-43 Shield	DTR/DSR —	Twisted pair no. 10	—> —	J2-H Shield	DTR —
J1-44 Shield	LL/DCD —	Twisted pair no. 11	—> —	J2-K Shield	LT —
J1-18 J1-17	TxD/RxD+ TxD/RxD—	Twisted pair no. 1	—> —>	J2-P J2-S	SD+ SD—
J1-28 J1-27	RxD/TxD+ RxD/TxD—	Twisted pair no. 5	<— <—	J2-R J2-T	RD+ RD—
J1-20 J1-19	TxCE/TxC+ TxCE/TxC—	Twisted pair no. 2	—> —>	J2-U J2-W	SCTE+ SCTE—

Table B-12 V.35 DTE Cable Pinout (DB-60 to Winchester-Type 34-Pin) (continued)

60-Pin	Signal Name	Type	Direction	34-Pin	Signal Name
J1-26 J1-25	RxC/TxCE+ RxC/TxCE-	Twisted pair no. 4	<— <—	J2-V J2-X	SCR+ SCR-
J1-24 J1-23	TxC/RxC+ TxC/RxC-	Twisted pair no. 3	<— <—	J2-Y J2-AA	SCT+ SCT-

Table B-13 V.35 DCE Cable Pinout (DB-60 to Winchester-Type 34-Pin)

60-Pin	Signal Name	Type	Direction	34-Pin	Signal Name
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	TxC/NIL RxC_TxCE RxD/TxD GND	Shorting group	— — — —	— — — —	— — — —
J1-46	Shield_GND	Single	—	J2-A	Frame GND
J1-45 Shield	Circuit_GND —	Twisted pair no. 12	— —	J2-B Shield	Circuit GND —
J1-35 Shield	CTS/RTS —	Twisted pair no. 8	<— —	J2-C Shield	RTS —
J1-42 Shield	RTS/CTS —	Twisted pair no. 9	—> —	J2-D Shield	CTS —
J1-43 Shield	DTR/DSR —	Twisted pair no. 10	—> —	J2-E Shield	DSR —
J1-44 Shield	LL/DCD —	Twisted pair no. 11	—> —	J2-F Shield	RLSD —
J1-34 Shield	DSR/DTR —	Twisted pair no. 7	<— —	J2-H Shield	DTR —
J1-33 Shield	DCD/LL —	Twisted pair no. 6	<— —	J2-K Shield	LT —
J1-28 J1-27	RxD/TxD+ RxD/TxD-	Twisted pair no. 5	<— <—	J2-P J2-S	SD+ SD-
J1-18 J1-17	TxD/RxD+ TxD/RxD-	Twisted pair no. 1	—> —>	J2-R J2-T	RD+ RD-
J1-26 J1-25	RxC/TxCE+ RxC/TxCE-	Twisted pair no. 4	<— <—	J2-U J2-W	SCTE+ SCTE-
J1-22 J1-21	NIL/RxC+ NIL/RxC-	Twisted pair no. 3	—> —>	J2-V J2-X	SCR+ SCR-
J1-20 J1-19	TxCE/TxC+ TxCE/TxC-	Twisted pair no. 2	—> —>	J2-Y J2-AA	SCT+ SCT-

X.21 Interface

This section contains the following topics:

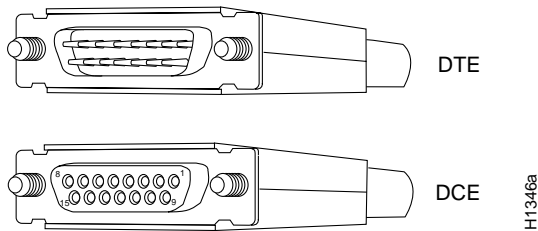
- [X.21 Connections](#)
- [X.21 Serial Cable Assembly](#)

X.21 Connections

The X.21 interface uses a 15-pin connection for balanced circuits and is commonly used in the United Kingdom to connect public data networks. X.21 relocates some of the logic functions to the DTE and DCE interfaces and, as a result, requires fewer circuits and a smaller connector than EIA/TIA-232.

The network end of the X.21 adapter cable is a standard DB-15 connector. (See [Figure B-13](#).) X.21 cables are available as either DTE (DB-15 plug) or DCE (DB-15 receptacle).

Figure B-13 X.21 Adapter Cable Connectors, Network End



X.21 Serial Cable Assembly

[Figure B-14](#) shows the X.21 serial cable assembly. [Table B-14](#) lists the DTE pinout and [Table B-15](#) lists the DCE pinout. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Figure B-14 X.21 Serial Cable Assembly

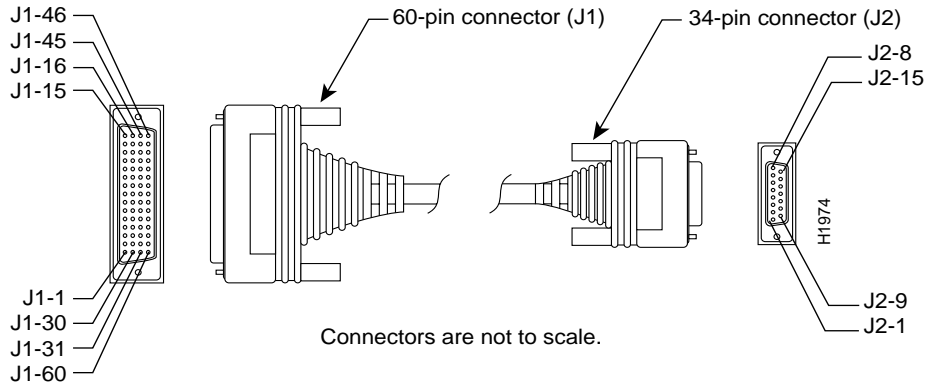


Table B-14 X.21 DTE Cable Pinout (DB-60 to DB-15)

60-Pin	Signal Name	Type	Direction	15-Pin	Signal Name
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	TXD/RXD+ TXD/RXD-	Twisted pair no. 3	—> —>	J2-2 J2-9	Transmit+ Transmit-
J1-9 J1-10	RTS/CTS+ RTS/CTS-	Twisted pair no. 2	—> —>	J2-3 J2-10	Control+ Control-
J1-28 J1-27	RXD/TXD+ RXD/TXD-	Twisted pair no. 6	<— <—	J2-4 J2-11	Receive+ Receive-
J1-1 J1-2	CTS/RTS+ CTS/RTS-	Twisted pair no. 1	<— <—	J2-5 J2-12	Indication+ Indication-
J1-26 J1-25	RXC/TXCE+ RXC/TXCE-	Twisted pair no. 5	<— <—	J2-6 J2-13	Timing+ Timing-
J1-15 Shield	Control_GN D -	Twisted pair no. 4	- -	J2-8 Shield	Control GND -

Table B-15 X.21 Serial DCE Cable Pinout (DB-60 to DB-15)

60 Pin	Signal Name	Type	Direction	15 Pin	Signal Name
J1-48 J1-47	GND MODE_2	Shorting group	-	-	-
J1-46	Shield_GND	Single	-	J2-1	Shield GND
J1-28 J1-27	RXD/TXD+ RXD/TXD-	Twisted pair no. 6	<— <—	J2-2 J2-9	Transmit+ Transmit-
J1-1 J1-2	CTS/RTS+ CTS/RTS-	Twisted pair no. 1	<— <—	J2-3 J2-10	Control+ Control-
J1-11 J1-12	TXD/RXD+ TXD/RXD-	Twisted pair no. 3	—> —>	J2-4 J2-11	Receive+ Receive-
J1-9 J1-10	RTS/CTS+ RTS/CTS-	Twisted pair no. 2	—> —>	J2-5 J2-12	Indication+ Indication-
J1-24 J1-23	TXC/RXC+ TXC/RXC-	Twisted pair no. 4	—> —>	J2-6 J2-13	Timing+ Timing-
J1-15 Shield	Control_GN D -	Twisted pair no. 5	- -	J2-8 Shield	Control GND -

EIA-530 Interface

This section contains the following topics:

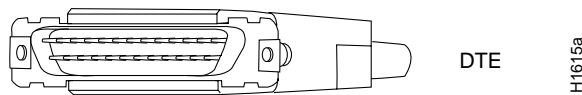
- [EIA-530 Connections](#)
- [EIA-530 Serial Cable Assembly](#)

EIA-530 Connections

EIA-530, which supports balanced transmission, provides the increased functionality, speed, and distance of EIA/TIA-449 on the smaller DB-25 connector used for EIA/TIA-232, instead of the 37-pin connectors used for EIA/TIA-449. Like EIA/TIA-449, EIA-530 refers to the electrical specifications of EIA/TIA-422 and EIA/TIA-423. Although the specification recommends a maximum speed of 2 Mbps, EIA-530 is used successfully at 4 Mbps or faster speeds over short distances.

The EIA-530 adapter cable is available in DTE mode only. The network end of the EIA-530 adapter cable is a standard DB-25 plug commonly used for EIA/TIA-232 connections. [Figure B-15](#) shows the DB-25 connector at the network end of the adapter cable.

Figure B-15 EIA-530 Adapter Cable Connector, Network End



EIA-530 Serial Cable Assembly

[Figure B-16](#) shows the EIA-530 serial cable assembly, and [Table B-16](#) lists the pinout. Arrows indicate signal direction: \rightarrow means DTE to DCE and \leftarrow means DCE to DTE.

The EIA-530 interface cannot be operated in DCE mode, and no DCE cable is available for it.

Figure B-16 EIA-530 Serial Cable Assembly

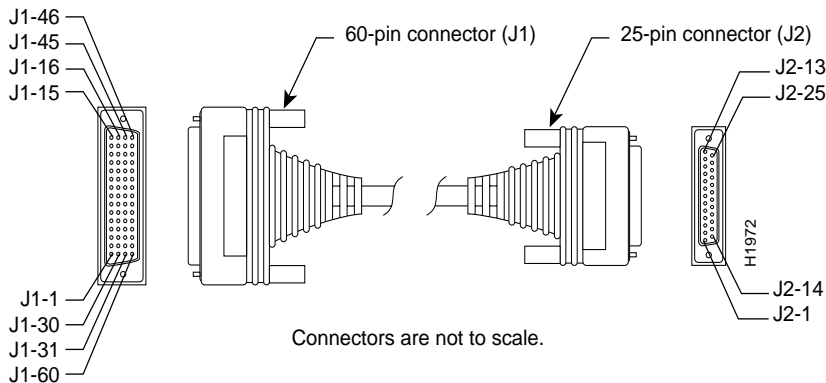


Table B-16 EIA-530 DTE Cable Pinout (DB-60 to DB-25)

60-Pin	Signal Name	25-Pin	Signal Name	Direction
J1-11	TXD/RXD+	J2-2	BA(A),	—>
J1-12	TXD/RXD-	J2-14	TXD+ BA(B), TXD-	—>
J1-28	RXD/TXD+	J2-3	BB(A),	<—
J1-27	RXD/TXD-	J2-16	RXD+ BB(B), RXD-	<—
J1-9	RTS/CTS+	J2-4	CA(A),	—>
J1-10	RTS/CTS-	J2-19	RTS+ CA(B), RTS-	—>
J1-1	CTS/RTS+	J2-5	CB(A),	<—
J1-2	CTS/RTS-	J2-13	CTS+ CB(B), CTS-	<—
J1-3	DSR/DTR+	J2-6	CC(A),	<—
J1-4	DSR/DTR-	J2-22	DSR+ CC(B), DSR-	<—
J1-46	Shield_GND	J2-1	Shield	Shorted
J1-47	MODE_2	-	-	
J1-48	GND	-	-	Shorted
J1-49	MODE_1	-	-	
J1-5	DCD/DCD+	J2-8	CF(A),	<—
J1-6	DCD/DCD-	J2-10	DCD+ CF(B), DCD-	<—
J1-24	TXC/RXC+	J2-15	DB(A),	<—
J1-23	TXC/RXC-	J2-12	TXC+ DB(B), TXC-	<—
J1-26	RXC/TXCE+	J2-17	DD(A),	<—
J1-25	RXC/TXCE-	J2-9	RXC+ DD(B), RXC-	<—
J1-44	LL/DCD	J2-18	LL	—>
J1-45	Circuit_GND	J2-7	Circuit_ GND	-
J1-7	DTR/DSR+	J2-20	CD(A),	—>
J1-8	DTR/DSR-	J2-23	DTR+ CD(B), DTR-	—>

Table B-16 EIA-530 DTE Cable Pinout (DB-60 to DB-25) (continued)

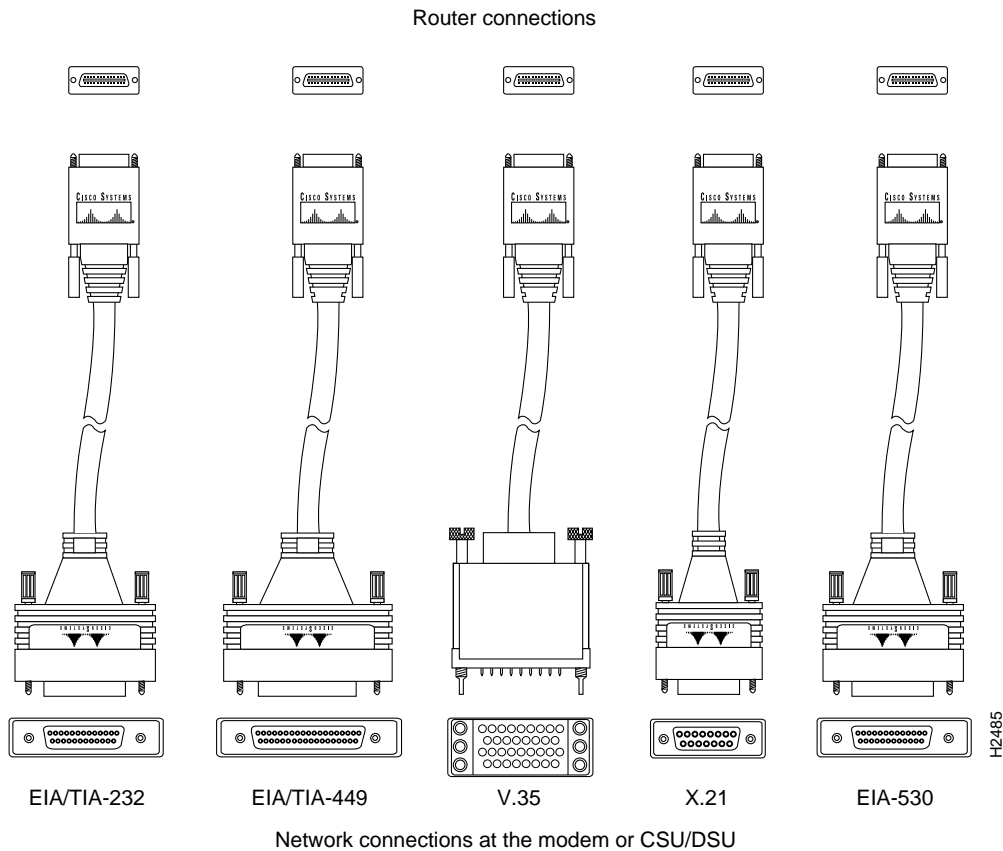
60-Pin	Signal Name	25-Pin	Signal Name	Direction
J1-13	TXCE/TXC+	J2-24	DA(A),	→
J1-14	TXCE/TXC-	J2-11	TXCE+	→
			DA(B),	
			TXCE-	
J1-51	GND	-	-	Shorted
J1-52	MODE_DCE	-	-	

Smart Serial Connection Signals and Pinouts

The Smart Serial cable interface supports two independent serial interface ports. Each port supports six types of serial interfaces: EIA/TIA-232, EIA/TIA-449, X.21, V.35 in both DTE and DCE modes, and EIA530/EIA530A in DTE mode. The serial end of the Smart Serial cable is a 26-pin connector. These cables are used with the 2-port serial and 2-port asynchronous/synchronous WAN interface cards.

Figure B-17 shows the serial transition cables you can connect to the DB-60 port on the asynchronous/synchronous serial modules and serial WAN interface card.

Figure B-17 Smart Serial Interface Adapter Cables



EIA/TIA-232 Smart Serial Cable Assembly

Table B-17 lists the DTE pinout and Table B-18 lists the DCE pinout for the EIA/TIA-232 Smart Serial cable. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Table B-17 EIA/TIA-232 DTE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-23 J1-24	MODE_0 MODE_DCE	Local connections			
Drain wire		Shield	—	J2-01	Shield_GND
J1-05 J1-18	I_RXD/TXD+ GND+	Twisted pair no. 9	<— —	J2-03	RXD GND
J1-01 J1-14	O_TXD/RXD+ GND+	Twisted pair no. 5	—> —	J2-02	TXD GND
J1-11 J1-12	I_CTS/RTS+ I_DSR/DTR+	Twisted pair no. 2	<— <—	J2-05 J2-06	CTS DSR
J1-08 J1-07	O_RTS/CTS O_DTR/DSR+	Twisted pair no. 4	—> —>	J2-04 J2-20	RTS DTR
J1-06 J1-19	B_DCD/DCD+ GND+	Twisted pair no. 1	<— —	J2-08 J2-07	DCD GND
J1-03 J1-16	B_TXC/TXC+ GND+	Twisted pair no. 7	<— —	J2-15	TXC GND
J1-02 J1-15	O_TXCE/RXC + GND+	Twisted pair no. 6	—> —	J2-24	TXCE GND
J1-13 J1-26	B_LL/LL+ GND+	Twisted pair no. 3	—> —	J2-18	LTST GND
J1-04 J1-17	I_RXC/TXCE + GND+	Twisted pair no. 8	<— —	J2-17	RXC GND

Table B-18 EIA/TIA-232 DCE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-23	MODE_0	Local connections			
Drain wire		Shield	—	J2-01	Shield_GND
J1-05 J1-18	I_RXD/TXD+ GND+	Twisted pair no. 5	<— —	J2-02	TXD GND
J1-01 J1-14	O_TXD/RXD+ GND+	Twisted pair no. 9	—> —	J2-03	RXD GND

Table B-18 EIA/TIA-232 DCE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-11 J1-12	I_CTS/RTS+ I_DSR/DTR+	Twisted pair no. 2	<— <—	J2-04 J2-20	RTS DTR
J1-08 J1-07	O_RTS/CTS O_DTR/DSR+	Twisted pair no. 4	—> —>	J2-05 J2-06	CTS DSR
J1-06 J1-19	B_DCD/DCD+ GND+	Twisted pair no. 1	—> —	J2-08 J2-07	DCD GND
J1-03 J1-16	B_TXC/TXC+ GND+	Twisted pair no. 7	—> —	J2-15	TXC GND
J1-02 J1-15	O_TXCE/RXC + GND+	Twisted pair no. 8	—> —	J2-17	RXC GND
J1-13 J1-26	B_LL/LL+ GND+	Twisted pair no. 3	<— —	J2-18	LTST GND
J1-04 J1-17	I_RXC/TXCE + GND+	Twisted pair no. 6	<— —	J2-24	TXCE GND

EIA/TIA-449 Smart Serial Cable Assembly

Table B-19 lists the DTE pinout and Table B-20 lists the DCE pinout for the EIA/TIA-449 Smart Serial cable. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Table B-19 EIA/TIA-449 DTE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-37 Pin	Signal Name
Drain wire		Shield	—	J2-01	Shield_GND
J1-22 J1-24	MODE_I MODE_DCE	Twisted pair no. 2	— —	J2-19 J2-20	SG RC
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 5	—> —>	J2-04 J2-22	SD+ SD-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	<— <—	J2-05 J2-23	ST+ ST-
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 9	<— <—	J2-06 J2-24	RD+ RD-
J1-08 J1-09	O_RTS/CTS O_RTS/CTS-	Twisted pair no. 1	—> —>	J2-07 J2-25	RS+ RS-
J1-04 J1-17	I_RXC/TXCE + I_RXC/TXCE-	Twisted pair no. 8	<— <—	J2-08 J2-26	RT+ RT-

Table B-19 EIA/TIA-449 DTE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	DB-37 Pin	Signal Name
J1-11 J1-10	I_CTS/RTS+ I_CTS/RTS-	Twisted pair no. 4	<— <—	J2-09 J2-27	CS+ CS-
J1-13 J1-26	B_LL/LL+ GND+	Twisted pair no. 12	—> —	J2-10 J2-37	LL SC
J1-12 J1-25	I_DTR/DSR+ I_DTR/DSR-	Twisted pair no. 10	<— <—	J2-11 J2-29	DM+ DM-
J1-07 J1-20	O_DTR/DSR+ O_DTR/DSR-	Twisted pair no. 3	—> —>	J2-12 J2-30	TR+ TR-
J1-02 J1-15	O_TXCE/RXC + O_TXCE/RXC -	Twisted pair no. 6	—> —>	J2-17 J2-35	TT+ TT-
J1-06 J1-19	B_DCD/DCD+ B_DCD/DCD-	Twisted pair no. 11	<— <—	J2-13 J2-31	RR+ RR-

Table B-20 EIA/TIA-449 DCE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-37 Pin	Signal Name
Drain wire		Shield	—	J2-01	Shield_GND
J1-22	MODE_I	Twisted pair no. 2	— Not used	J2-19 J2-20	SG RC
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 5	<— <—	J2-04 J2-22	SD+ SD-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	—> —>	J2-05 J2-23	ST+ ST-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 9	—> —>	J2-06 J2-24	RD+ RD-
J1-11 J1-10	I_CTS/RTS+ I_CTS/RTS-	Twisted pair no. 1	<— <—	J2-07 J2-25	RS+ RS-
J1-02 J1-15	O_TXCE/RXC + O_TXCE/RXC -	Twisted pair no. 8	—> —>	J2-08 J2-26	RT+ RT-
J1-08 J1-09	O_RTS/CTS O_RTS/CTS-	Twisted pair no. 4	—> —>	J2-09 J2-27	CS+ CS-
J1-06 J1-19	B_DCD/DCD+ B_DCD/DCD-	Twisted pair no. 11	—> —>	J2-13 J2-31	RR+ RR-
J1-07 J1-20	O_DTR/DSR+ O_DTR/DSR-	Twisted pair no. 10	—> —>	J2-11 J2-29	DM+ DM-

Table B-20 EIA/TIA-449 DCE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	DB-37 Pin	Signal Name
J1-12 J1-25	I_DTR/DSR+ I_DTR/DSR-	Twisted pair no. 3	<— <—	J2-12 J2-30	TR+ TR-
J1-13 J1-26	B_LL/LL+ GND+	Twisted pair no. 12	—> —	J2-10 J2-37	LL SC
J1-04 J1-17	I_RXC/TXCE + I_RXC/TXCE-	Twisted pair no. 6	<— <—	J2-17 J2-35	TT+ TT-

X.21 Smart Serial Cable Assembly

Table B-21 lists the DTE pinout and Table B-22, Part 1 lists the DCE pinout for the X.21 Smart Serial cable. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Table B-21 X.21 DTE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-15 Pin	Signal Name
J1-21 J1-24	MODE_2 MODE_DCE	Local connections			
Drain wire		Shield	—	J2-01	Shield_GND
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 8	<— <—	J2-04 J2-11	RECEIVE+ RECEIVE-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 5	—> —>	J2-03 J2-09	TRANSMIT+ TRANSMIT-
J1-11 J1-10	I_CTS/RTS+ I_DSR/DTR+	Twisted pair no. 2	<— <—	J2-05 J2-12	INDICATION + INDICATION -
J1-08 J1-09	O_RTS/CTS O_DTR/DSR+	Twisted pair no. 3	—> —>	J2-03 J2-10	CONTROL+ CONTROL-
J1-26	GND+ Not used	Twisted pair no. 1	—	J2-08	CCT GND Not used
J1-04 J1-17	I_RXC/TXCE + I_RXC/TXCE-	Twisted pair no. 7	<— <—	J2-06 J2-13	TIMING+ TIMING-
	Not used	Twisted pair no. 4			Not used
	Not used	Twisted pair no. 6			Not used
	Not used	Twisted pair no. 9			Not used

Table B-22, Part 1 X.21 DCE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-15 Pin	Signal Name
J1-21	MODE_2	Local connections			
Drain wire		Shield	—	J2-01	Shield_GND
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 5	<— <—	J2-02 J2-09	TRANSMIT+ TRANSMIT-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 8	—> —>	J2-04 J2-11	RECEIVE+ RECEIVE-
J1-11 J1-10	I_CTS/RTS+ I_DSR/DTR+	Twisted pair no. 3	<— <—	J2-03 J2-10	CONTROL+ CONTROL-
J1-08 J1-09	O_RTS/CTS O_DTR/DSR+	Twisted pair no. 2	—> —>	J2-05 J2-12	INDICATION + INDICATION -
J1-02 J1-15	O_TXCE/RXC + O_TXCE/RXC +	Twisted pair no. 7	—> —>	J2-06 J2-13	TIMING+ TIMING-
J1-26	GND Not used	Twisted pair no. 1	—	J2-08	CCT GND Not used
	Not used	Twisted pair no. 4			Not used
	Not used	Twisted pair no. 6			Not used
	Not used	Twisted pair no. 9			Not used

V.35 Smart Serial Cable Assembly

Table B-23 lists the DTE pinout and Table B-24 lists the DCE pinout for the V.35 Smart Serial cable. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Table B-23 V.35 DTE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	V.35 Pin	Signal Name
J1-22 J1-23 J1-24	MODE_1 MODE_0 MODE_DCE	Local connections			
Drain wire		Shield	—	J2-A	Shield_GND
J1-06 J1-19	B_DCD/DCD+ GND+	Twisted pair no. 1	<— —	J2-F	RLSD GND
J1-13 J1-26	B_LL/LL+ GND	Twisted pair no. 3	—> —	J2-K J2-B	LT GND

Table B-23 V.35 DTE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	V.35 Pin	Signal Name
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 9	<— <—	J2-R J2-T	RD+ RD-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 5	—> —>	J2-P J2-S	SD+ SD-
J1-11 J1-12	I_CTS/RTS+ I_DSR/DTR+	Twisted pair no. 2	<— <—	J2-D J2-E	CTS DSR
J1-08 J1-07	O_RTS/CTS O_DTR/DSR+	Twisted pair no. 4	—> —>	J2-C J2-H	RTS DTR
J1-04 J1-17	I_RXC/TXCE+ I_RXC/TXCE-	Twisted pair no. 8	<— <—	J2-V J2-X	SCR+ SCR-
J1-02 J1-15	O_TCXE/RXC+ O_TXCE/RXC-	Twisted pair no. 6	—> —>	J2-U J2-W	SCTE+ SCTE-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	<— <—	J2-Y J2-AA	SCT+ SCT-

Table B-24 V.35 DCE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	V.35 Pin	Signal Name
J1-22 J1-23	MODE_1 MODE_0	Local connections			
Drain wire		Shield	—	J2-A	Shield_GND
J1-06 J1-19	B_DCD/DCD+ GND+	Twisted pair no. 1	—> —	J2-F	RLSD GND
J1-13 J1-26	B_LL/LL+ GND	Twisted pair no. 3	—> —	J2-K J2-B	LT GND
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 5	<— <—	J2-P J2-S	SD+ SD-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 9	—> —>	J2-R J2-T	RD+ RD-
J1-11 J1-12	I_CTS/RTS+ I_DSR/DTR+	Twisted pair no. 4	<— <—	J2-C J2-H	RTS DSR
J1-08 J1-07	O_RTS/CTS O_DTR/DSR+	Twisted pair no. 2	—> —>	J2-D J2-E	CTS DSR
J1-04 J1-17	I_RXC/TXCE+ I_RXC/TXCE-	Twisted pair no. 6	<— <—	J2-U J2-W	SCTE+ SCTE-

Table B-24 V.35 DCE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	V.35 Pin	Signal Name
J1-02 J1-15	O_TCXE/RXC + 0_TXCE/RXC -	Twisted pair no. 8	—> —>	J2-V J2-X	SCR+ SCR-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	—> —>	J2-Y J2-AA	SCT+ SCT-

EIA-530 Smart Serial Cable Assembly

Table B-25 lists the DTE pinout and Table B-26 lists the DCE pinout for the EIA-530 Smart Serial cable. Arrows indicate signal direction: —> means DTE to DCE and <— means DCE to DTE.

Table B-25 EIA-530 DTE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-21 J1-23 J1-24	MODE_2 MODE_0 MODE_DCE	Local connections			
Drain wire		Shield	—	J2-01	Shield_GND
J1-06 J1-19	B_DCD/DCD+ B_DCD/DCD-	Twisted pair no. 11	<— <—	J2-08 j2-10	CF(A); DCD+ CF(B); DCD-
J1-13 J1-26	B_LL/LL+ GND	Twisted pair no. 12	—> —	J2-18 J2-07	LL GND
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 9	<— <—	J2-03 J2-16	BB(A); RXD+ BB(B); RXD-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 5	—> —>	J2-02 J2-14	BA(A); TXD+ BA(B); TXD-
J1-11 J1-10	I_CTS/RTS+ I_DSR/RTS-	Twisted pair no. 4	<— <—	J2-05 J2-13	CB(A); CTS+ CB(B); CTS-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	<— <—	J2-15 J2-12	DB(A); TXC+ DB(B); TXC-
J1-12 J1-25	I_DSR/DTR+ I_DSR/DTR-	Twisted pair no. 10	<— <—	J2-06 J2-22	CC(A); DSR+ CC(B); DSR-
J1-08 J1-09	O_RTS/CTS O_RTS/CTS-	Twisted pair no. 1	—> —>	J2-04 J2-19	CA(A); RTS+ CA(B); RTS-
J1-04 J1-17	I_RXC/TXCE + I_RXC/TXCE-	Twisted pair no. 8	<— <—	J2-17 J2-09	DD(A); RXC+ DD(B); RXC-

Table B-25 EIA-530 DTE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-02 J1-15	O_TCXE/RXC + O_TXCE/RXC -	Twisted pair no. 6	—> —>	J2-24 J2-11	DB(A); TXCE+ DB(B); TXCE-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	<— <—	J2-15 J2-12	DB(A); TXC+ DB(B); TXC-
J1-07 J1-20	O_DTR/DSR+ O_DTR/DSR-	Twisted pair no. 3	—> —>	J2-20 J2-23	CD(A); DTR+ CD(B); DTR-
	Not used	Twisted pair no. 2			Not used

Table B-26 RS-530A DCE Smart Serial Cable Pinout

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-21 J1-22 J1-24	MODE_2 MODE_1 MODE_DCE	Local connections			
Drain wire		Shield	—	J2-01	Shield_GND
J1-06 J1-19	B_DCD/DCD+ B_DCD/DCD-	Twisted pair no. 11	<— <—	J2-08 j2-10	CF(A); DCD+ CF(B); DCD-
J1-13 J1-26	B_LL/LL+ GND	Twisted pair no. 12	—> —	J2-18 J2-07	LL AB; GND
J1-05 J1-18	I_RXD/TXD+ I_RXD/TXD-	Twisted pair no. 9	<— <—	J2-03 J2-16	BB(A); RXD+ BB(B); RXD-
J1-01 J1-14	O_TXD/RXD+ O_TXD/RXD-	Twisted pair no. 5	—> —>	J2-02 J2-14	BA(A); TXD+ BA(B); TXD-
J1-11 J1-10	I_CTS/RTS+ I_DSR/RTS-	Twisted pair no. 4	<— <—	J2-05 J2-13	CB(A); CTS+ CB(B); CTS-
J1-12 J1-25	I_DSR/DTR+ GND	Twisted pair no. 10	<— —	J2-06	CC(A); DSR+ AC; GND
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	<— <—	J2-15 J2-12	DB(A); TXC+ DB(B); TXCS-
J1-08 J1-09	O_RTS/CTS O_RTS/CTS-	Twisted pair no. 1	—> —>	J2-04 J2-19	CA(A); RTS+ CA(B); RTS-
J1-04 J1-17	I_RXC/TXCE + I_RXC/TXCE-	Twisted pair no. 8	<— <—	J2-17 J2-09	DD(A); RXC+ DD(B); RXC-

Table B-26 RS-530A DCE Smart Serial Cable Pinout (continued)

26-Pin	Signal Name	Note	Direction	DB-25 Pin	Signal Name
J1-02 J1-15	O_TCXE/RXC + 0_TXCE/RXC -	Twisted pair no. 6	—> —>	J2-24 J2-11	DB(A); TXCE+ DB(B); TXCE-
J1-03 J1-16	B_TXC/TXC+ B_TXC/TXC-	Twisted pair no. 7	<— <—	J2-15 J2-12	DB(A); TXC+ DB(B); TXC—
J1-07 J1-20	O_DTR/DSR+ GND+	Twisted pair no. 3	—> —	J2-20 J2-23	CD(A); DTR+ AC; GND
	Not used	Twisted pair no. 2			Not used

