



Cable Guide
For all PortServer[®] TS, Digi Connect[®],
and Digi One[®] Products

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General EIA-232 cable information

Use this information to determine the proper EIA-232 cable requirements for your application.

Physical cable characteristics

EIA-232 serial interface cables should be shielded, low capacitance cables, designed specifically for serial data transmission.

Grounding requirements

EIA-232 interface cables should have the shield grounded at both ends of the cable. Digi recommends Chassis Ground, available on the shell of Digi's DB-25 connectors, and pin 4 of a 10-pin RJ-45 connector.

Environmental requirements

While good shielding provides reasonable protection against "noise" (electromagnetic interference, or EMI), cables should still be routed away from noise sources wherever possible. Avoid laying cables in close proximity to transformers, generators, motors, fluorescent lights, etc.

Data rate information

The maximum data rate that can be used for EIA-232 connections is primarily determined by the quality and length of the interconnecting cable. The quality of the cable (for transmission purposes) is generally determined by the capacitance per foot rating of the cable.

The following table gives the recommended maximum cable length for a given data rate. Longer cables may be implemented at your discretion. Note that not all Digi products support all of the data rates listed below.

Data rate vs. cable length recommendations

Data rate (bps)	Maximum cable length
57,600 or less	100 feet
115,200	80 feet
230,400	40 feet
460,800	20 feet
921,600	10 feet

- The maximum length is the amount of cable that is connected to a Digi supplied interconnect device, such as Quad or Octa cables and boxes.
- The maximum length is based on a cable rated at the following:
 - 12.3 pF/foot, conductor to conductor
 - 22.4 pF/foot conductor to shield
- In situations where low-capacitance cable is unavailable, or very long cable runs are required, “short-haul” modems can be used to increase the effective range of the EIA-232 interface. Short-haul modems are similar to standard modems, except that they are connected directly to each other via a cable instead of going through a telephone circuit.
- Use only externally-powered short-haul modems with Digi products.

Resolving transmission errors

If transmission errors occur, follow this procedure to determine the cause of the problem:

1. Reduce the baud rate.
2. Reduce the cable length.
3. Use a cable with a lower capacitance per foot rating.

Digi DB-25 connector pin assignments

Signal	Description	DTE use	Pin #
GND	Chassis Ground	N/A	Shell
TxD	Transmitted Data	Output	2
RxD	Received Data	Input	3
RTS	Request to Send	Output	4
CTS	Clear to Send	Input	5
DSR	Data Set Ready	Input	6
SG	Signal Ground	reference	7
DCD	Data Carrier Detect	Input	8
DTR	Data Terminal Ready	Output	20
RI	Ring Indicator	Input	22

DB-25 software handshaking (XON/XOFF) cable

The following three-wire cable is often sufficient for a terminal, printer, or other DTE device configured for software flow control.

Simple Terminal/Printer Cable

DB-25 female (Digi end)			DB-25 male (peripheral)	
Signal	Pin		Pin	Signal
TxD	2	connected to	3	RxD
RxD	3	connected to	2	TxD
SG	7	connected to	7	SG
GND	shell	connected to (via shield)	shell	GND

This cable is a three-wire null modem cable. Transmitted data on one end of the cable is connected to received data at the other end, and vice versa. The male DB-25 end can be plugged directly into most serial terminals and printers without any adapters. The female DB-25 end plugs directly into any Digi DB-25 serial port.

DB-25 4-Wire hardware handshaking (DTR) cable

The following four-wire cable is often sufficient for an older terminal, printer, or other DTE device configured for DTR (hardware) flow control. However, some terminals and printers may use a signal other than DTR for flow control. In addition, some terminals and printers may have other cable requirements. Consult your terminal or printer manual for this information. For more universal compatibility, use a full-wired DB-25 terminal/printer cable.

Terminal/printer cable with DTR handshaking

DB-25 female (Digi end)			DB-25 male (peripheral)	
Signal	Pin		Pin	Signal
TxD	2	connected to	3	RxD
RxD	3	connected to	2	TxD
CTS	5	connected to	20	DTR
SG	7	connected to	7	SG
GND	Shell	connected (via shield) to	Shell	GND
	jumpered	4+5	RTS+CTS	

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

DB-25 hardware handshaking (RTS/CTS) cable

A DB-25 hardware handshaking (RTS/CTS) cable is often sufficient for a terminal, printer, or other DTE device configured for RTS/CTS (hardware) flow control. However, some terminals and printers may have other cable requirements. Consult your terminal or printer manual for this information. For more universal compatibility, use a fully-wired DB-25 terminal/printer cable.

Terminal/printer cable with RTS/CTS handshaking

DB-25 female (Digi end)			DB-25 male (peripheral)	
Signal	Pin		Pin	Signal
TxD	2	connected to	3	RxD
RxD	3	connected to	2	TxD
RTS	4	connected to	5	CTS
CTS	5	connected to	4	RTS
DSR+DCD	6+8	connected to	20	DTR
SG	7	connected to	7	SG
DTR	20	connected to	6+8	DSR+DCD
GND	Shell	connected (via shield) to	Shell	GND

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

DB-25 fully-wired terminal/printer cable

A DB-25 fully-wired terminal/printer cable with the following wiring supports most serial terminals or printers with either software or hardware handshaking. This cable is valid with any Digi DB-25 serial port.

Terminal/printer cable for software (XON/XOFF) or hardware (DTR) handshaking

DB-25 (Digi end)			DB-25 male (terminal/printer)	
Signal	Pin		Pin	Signal
RTS	4	connected to	5	CTS
GND	Shell	connected to	Shell	GND
TxD	2	connected to	3	RxD
RxD	3	connected to	2	TxD
SG	7	connected to	7	SG
CTS	5	connected to	20	DTR
DTR	20	connected to	8+6	DCD+DSR
DCD+DSR	8+6	connected to	4	RTS

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

DB-25 modem cable

To connect a DB-25 equipped asynchronous adapter to a modem, use a standard “straight-through” cable. A straight-through cable has a DB-25 female connector at the Digi end, and a DB-25 male connector at the modem end. All 25 pins are connected, 1 to 1, 2 to 2, 3 to 3, etc. Use shielded cable, and connect pin 1 of each connector to the cable shield.

Cable-to-adapter cross-reference

The following cross reference table applies to Digi One, PortServer TS, PortServer II, and Multi-Port Adapters with RJ-45 connectors.

RJ45 to ---	Male or Female	Straight or Crossover	Application	Cable or Adapter	Part Number	Cable Identifier
DB9	F	Crossover	Bay Accelar, Nortel and other DB9 DTE devices	Cable	76000645 (4')	61090048
				Adapter (4-Pack)	76000697	NA
DB9	M	Crossover	DTE devices with DB9 Female Ports	Cable	76000264 (4')	61080048
				Adapter	none	NA
DB9	F	Straight	Modems and other DCE devices with DB9 Male Ports	Cable	76000200 (2') 76000201 (4')	61070024 61070048
				Adapter	none	NA
DB9	M	Straight	Modems and other DCE devices with DB9 Female Ports	Cable	76000239 (2') 76000240 (4')	61060024 61060048
				Adapter (4-Pack)	76000701	NA
DB25	M	Crossover	Sun Sparc, Sun Ultra, terminals, printers and other DTE devices with DB25 Female ports	Cable	76000238 (4')	61040048
				Adapter (4-Pack)	76000698	NA
DB25	F	Crossover	Cisco, IBM and other DTE devices with DB25 Male ports	Cable	76000644 (4')	61050048
				Adapter (4-Pack)	76000699	NA
DB25	M	Straight	Modems and other DCE devices with DB25 Female Ports	Cable	76000129 (2') 76000195 (4')	61020024 61020048
				Adapter (4-Pack)	76000700	NA
DB25	F	Straight	Modems and other DCE devices with DB25 Male Ports	Cable	76000198 (2') 76000199 (4')	61030024 61030048
				Adapter	None	NA
DB25	M	* Special *	For use with Printers. This cable utilizes the DTR signal (instead of RTS) for hardware flow control.	Cable	76000643 (2')	63000196-01
				Adapter (4-Pack)	76000692	NA
RJ45	M	* Special *	For use with Cisco and Sun RJ45 Console ports.	Cable	76000631 (6') 76000632 (qty 8) 76000633 (qty 16)	63000222-02
				Adapter	None	NA

Digi RJ-45 connector pin assignments

10-pin RJ-45 plugs may be difficult to obtain in the retail market. Therefore, most Digi device driver software incorporates an optional feature called ALTPIN, which swaps the logical functions of DSR (Data Set Ready) with DCD (Data Carrier Detect).

When ALTPIN is enabled, DCD becomes available on pin 1 of an 8-pin RJ-45 connector (equivalent to pin 2 of a 10-pin connector).

Signal	Description	DTE use	Pin #
RI	Ring Indicator	Input	1
DSR (DCD ^a)	Data Set Ready (Data Carrier Detect ^a)	Input	2
RTS	Request to Send	Output	3
GND	Chassis Ground	N/A	4
TxD	Transmitted Data	Output	5
RxD	Received Data	Input	6
SG	Signal Ground	reference	7
CTS	Clear to Send	Input	8
DTR	Data Terminal Ready	Output	9
DCD (DSR ^a)	Data Carrier Detect (Data Set Ready ^a)	Input	10

a. When ALTPIN is in effect.

RJ connector types

The following table shows the relationship of various RJ plugs to the Digi RJ-45 10-pin jack. The Digi 10-pin jack can accept any of the listed plug types. The wiring of each plug type corresponds to support of specific capabilities such as software handshaking, hardware handshaking, and the Digi ALTPIN feature.

Digi 10-pin jack	Signal name	RJ-45 10-pin plug	RJ-45 8-pin plug	RJ-11 6-Pin plug	RJ-11 4-Pin plug
1	RI	1			
2	DSR (DCD*) *When ALTPIN is in effect.	2	1		
3	RTS	3	2	1	
4	GND	4	3	2	1
5	TxD	5	4	3	2
6	RxD	6	5	4	3
7	SG	7	6	5	4
8	CTS	8	7	6	
9	DTR	9	8		
10	DCD (DSR*) *When ALTPIN is in effect.	10			

Digi RJ-45 to DB-25/DB-9 cable adapters

RJ-45 to DB-25/DB-9 cable adapters can be purchased from Digi. These adapters consist of a 10-pin RJ-45 plug connected via a two- or four-foot cable to a DB-25 or DB-9 connector. The adapters are fully-wired and provide modem control.

Part numbers for RJ-45 to DB-25 cable adapters:

Cable description	Order #	Number found on cable
Cable RJ45 to DB25M (Male) DTE 24"	76000129	61020024
Cable RJ45 to DB25F (Female) DTE 24"	76000198	61030024
Cable RJ45 to DB25M (Male) DTE 48"	76000195	61020048
Cable RJ45 to DB25M (Male) DCE 48"	76000238	61040048
Cable RJ45 to DB25F (Female) DTE 48"	76000199	63000205-01

Part numbers for RJ-45 to DB-9 cable adapters:

Cable description	Order #	Number found on cable
Cable RJ45 to DB9M (Male) DTE 24"	76000239	61060024
Cable RJ45 to DB9F (Female) DTE 24"	76000200	61070024
Cable RJ45 to DB9M (Male) DTE 48"	76000240	61060048
Cable RJ45 to DB9M (Male) DCE 48"	76000264	61080048
Cable RJ45 to DB9F (Female) DTE 48"	76000201	61070048

Digi RJ-45 to RJ-45 cable adapters: 8-pin

RJ-45 to RJ-45 cable adapters can be purchased from Digi. These adapters consist of an 8-pin RJ-45 plug connected to another 8-pin RJ-45 plug with a crossover cable. These cables are used to connect the Digi devices to the serial console port of Cisco and Sun Netra devices. Pinout information and a graphic is included later in this chapter. See "RJ-45 8-pin crossover cable for Cisco and Sun Netra" on page 27 for pinout and graphic information.

Part numbers for RJ-45 to RJ-45 8-pin crossover cable for Cisco & Sun Netra:

Cable Description	Order #	Number found on cable
Cable RJ45 to RJ45 8-pin (single pack)	76000631	63000222-02
Cable RJ45 to RJ45 8-pin (bulk pack of 8)	76000632	63000222-02
Cable RJ45 to RJ45 8-pin (bulk pack of 16)	76000633	63000222-02

RJ-11 software handshaking (XON/XOFF) cable

The following 3-wire cable is often sufficient for a terminal, printer or other DTE device configured for software flow control.

Simple software handshaking terminal/printer cable (RJ-11)

RJ-11 (Digi end)			DB-25 male (peripheral)	
Signal	Pin		Pin	Signal
TxD	2	connected to	3	RxD
RxD	3	connected to	2	TxD
SG	4	connected to	7	SG
GND	1	connected (via shield) to	1 (or shell)	GND

This cable is a 3-wire null modem cable. Transmitted data on one end of the cable is connected to received data at the other end and vice-versa.

The RJ-11 plug fits into the center of the RJ-45 jack. The male DB-25 end can be plugged directly into most serial terminals and printers without any adapters.

An RJ-45 8-pin connector uses the same wiring with the center pins only—pins 3, 4, 5, and 6. See "RJ connector types" on page 18 for a comparison of various RJ connector types that work with the Digi 10-pin RJ-45 jack.

RJ-45 8-pin plug hardware handshaking (DTR) cable

When an 8-pin plug is used for connections for connecting a terminal, printer, or other DTE device configured for DTR (hardware) flow control, the following cable wiring is often sufficient. However, some terminals and printers may use a signal other than DTR for flow control. In addition, some terminals and printers may have other cable requirements. Consult your terminal or printer manual for this information. For more universal compatibility, use the RJ-45 10-wire terminal/printer cable or a Digi RJ-45 to DB-25 adapter.

Terminal/Printer Cable with DTR Handshaking

RJ-45 (Digi end)			DB-25 male (peripheral)	
Signal	Pin		Pin	Signal
TxD	4	connected to	3	RxD
RxD	5	connected to	2	TxD
CTS	7	connected to	20	DTR
SG	6	connected to	7	SG
GND	3	connected (via shield) to	1 (or shell)	GND
	jumpered	4+5	RTS+CTS	

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

RJ-45 8-pin plug hardware handshaking (RTS/CTS) cable

Using an 8-pin plug, the following cable wiring is often sufficient for a terminal, printer, or other DTE device configured for RTS/CTS (hardware) flow control. However, some terminals and printers may have other cable requirements. Consult your terminal or printer manual for this information. For more universal compatibility, use the RJ-45 10-wire terminal/printer cable or a Digi RJ-45 to DB-25 adapter.

Terminal/printer cable with DTR handshaking

RJ-45 (Digi end)			DB-25 male (peripheral)	
Signal	Pin		Pin	Signal
DSR	1	connected to	20	DTR
RTS	2	connected to	5	CTS
GND	3	connected (via shield) to	1 (or shell)	GND
TxD	4	connected to	3	RxD
RxD	5	connected to	2	TxD
SG	6	connected to	7	SG
CTS	7	connected to	4	RTS
DTR	8	connected to	8	DCD

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

RJ-45 8-wire ALTPIN terminal/printer cable

Using an 8-pin RJ-45 plug, the following cable wiring supports most serial terminals or printers with either software or hardware handshaking using the Digi ALTPIN option.

Most terminals and printers use Request to Send/Clear to Send (RTS/CTS) for hardware handshaking. The cable shown supports this method.

ALTPIN terminal/printer cable for software (XON/XOFF) or hardware (RTS/CTS) handshaking

RJ-45 8-pin (Digi end)		DB-25 male (terminal/printer)		
Signal	Pin		Pin	Signal
DCD*	1	connected to	20	DTR
* ALTPIN must be turned on for pin 1 to be DCD. When ALTPIN is enabled, DCD becomes available on pin 1 of an 8-pin RJ-45 connector (equivalent to pin 2 of a 10-pin connector).				
RTS	2	connected to	5	CTS
GND	3	connected (via shield) to	Shell	GND
TxD	4	connected to	3	RxD
RxD	5	connected to	2	TxD
SG	6	connected to	7	SG
CTS	7	connected to	4	RTS
DTR	8	connected to	6+8	DSR+DCD

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

RJ-45 fully-wired terminal/printer cable

Using a 10-pin RJ-45 plug, the following cable wiring supports most serial terminals or printers with either software or hardware handshaking. This cable is valid with any Digi RJ-45 serial port.

Most terminals and printers use Request to Send/Clear to Send (RTS/CTS) for hardware handshaking. The cable shown supports this method.

Terminal/printer cable for software (XON/XOFF) or hardware (RTS/CTS) handshaking

RJ-45 10-pin (Digi end)			DB-25 male (terminal/printer)	
Signal	Pin		Pin	Signal
DSR+DCD* * ALTPIN must be turned off for DCD to be on pin 10	2+10	connected to	20	DTR
RTS	3	connected to	5	CTS
GND	4	connected (via shield) to	Shell	GND
TxD	5	connected to	3	RxD
RxD	6	connected to	2	TxD
SG	7	connected to	7	SG
CTS	8	connected to	4	RTS
DTR	9	connected to	6+8	DSR+D CD

Note: Some terminal or printer manufacturers may use different methods of flow control. Consult your documentation for specific wiring requirements.

RJ-45 8-pin to modem (ALTPIN option)

The following table shows how to build an 8-wire modem cable using an 8-pin RJ-45 plug. This cable supports the Digi ALTPIN option when plugged into a Digi RJ-45 serial port.

8-Wire modem cable supporting ALTPIN option

RJ-45 (Digi end)			DB-25 male (modem end)	
Signal	Pin		Pin	Signal
DCD	1	connected to	8	DCD
RTS	2	connected to	4	RTS
GND	3	connected (via shield) to	1 (or shell)	GND
RxD	5	connected to	3	RxD
TxD	4	connected to	2	TxD
SG	6	connected to	7	SG
CTS	7	connected to	5	CTS
DTR	8	connected to	20	DTR

When ALTPIN is enabled, DCD becomes available on pin 1 of an 8-pin RJ-45 connector (equivalent to pin 2 of a 10-pin connector).

ALTPIN is not supported for the PortServer product under Windows NT. Use a full 10-wire modem cable in this case.

RJ-45 10-pin plug to DB-25 modem cable

The simplest way to connect a modem to a Digi RJ-45 jack is to use a Digi RJ-45 to DB-25 Cable Adapter. The following table shows how to apply the adapter wiring scheme to custom modem cables.

RJ-45 to DB-25 modem cable (10-wire)

RJ-45 (Digi end)			DB-25 male (modem end)	
Signal	Pin		Pin	Signal
RI	1	connected to	22	RI
DSR	2	connected to	6	DSR
RTS	3	connected to	4	RTS
GND	4	connected (via shield) to	1 (or shell)	GND
TxD	5	connected to	2	TxD
RxD	6	connected to	3	RxD
SG	7	connected to	7	SG
CTS	8	connected to	5	CTS
DTR	9	connected to	20	DTR
DCD	10	connected to	8	DCD

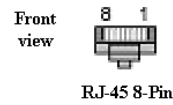
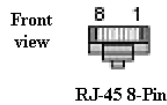
RJ-45 8-pin crossover cable for Cisco and Sun Netra

Below is the pinout information for an RJ-45 8-pin crossover cable for Cisco and Sun Netra serial console ports. Also included is a graphic detailing pin positions on the RJ-45 plug.

RJ-45 to RJ-45 8-pin crossover cable

from RJ-45 port	Signal		Signal	to Cisco/SunNetra RJ-45 port
4	TxD	connected to	RxD	6
5	RxD	connected to	TxD	3
6	GND	connected to	GND	4
8	DTR	connected to	DSR	7
1	DSR	connected to	DTR	2
2	RTS	connected to	CTS	8
7	CTS	connected to	RTS	1

Pin positions for RJ-45



RJ-45 8-Pin Crossover Cable



General EIA-422 cable information

This section applies to Digi products equipped with EIA-422 asynchronous interfaces.

Physical cable characteristics

EIA-422 interface cables should be shielded twisted-pair cables. Each signal requires two leads (one twisted pair of wires) to complete a balanced voltage digital circuit. The shield should be connected to the Chassis Ground of the devices at *both* ends of the interface cable.

Interface signaling

The EIA-422 interface provides four signals:

- Transmitted Data (TxD)
- Received Data (RxD)
- Request To Send (RTS)
- Clear To Send (CTS).

The functions of these signals are identical to their EIA-232 counterparts.

Grounding requirements

EIA-422 interface cables must provide a ground path between the devices to be connected. This ensures the integrity of data transfers and control signals. This should be connected to the Chassis Ground of each device. Digi recommends using the cable shield for this purpose.

Digi EIA-422 connector wiring

A terminal, a serial printer, or a serial port for another computer usually functions as a DTE device. A Digi adapter is also a DTE device. To connect a DTE device to another DTE device a null modem cable or adapter must be used.

Two wires (one twisted pair) are required for each signal: a positive lead (“+”), and a negative lead (“-”). The “+” leads at one end of the cable must be connected to the “+” leads at the other end, and the “-” leads at one end must be connected to the “-” leads at the other end.



Caution: Incorrect wiring could result in damage to the connected devices.

The following table shows the pin configurations for the EIA-422 versions of Digi DB-9, DB-25, and RJ-45 connectors.

Signal	Description	DB-9 pin	DB-25 pin	RJ-45 10-pin	Optional RJ-45 8-pin (2 wire)
TxD+	Transmitted Data (+)	8	2	5	N/A
TxD-	Transmitted Data (-)	9	14	1	1 (Data -)
RxD+	Received Data (+)	6	3	6	5 (Data +)
RxD-	Received Data (-)	7	16	2	N/A
RTS+	Request To Send (+)	2	4	3	N/A
RTS-	Request To Send (-)	3	19	9	N/A
CTS+	Clear To Send (+)	4	5	8	N/A
CTS-	Clear To Send (-)	5	13	10	N/A
GND	Chassis Ground	Shell	Shell	4	N/A
SG	Signal Ground	-	-	7	6

EIA-422 software handshaking (XON/XOFF) cable

Use the following table as a guide for EIA-422 wiring. Pin numbers have been omitted because they vary from product to product. For Digi pin numbers, see the section titled "Digi EIA-422 connector wiring" on page 30. For peripheral device pin numbers, see the documentation for your peripheral device.

DTE (Digi end)			DTE (peripheral)	
Signal	Lead		Lead	Signal
TxD	+	Connected to	+	RxD
	-	Connected to	-	
RxD	+	Connected to	+	TxD
	-	Connected to	-	
GND		Connected to	-	GND
RTS	Jumpered, connect: RTS(+) to CTS(+); RTS(-) to CTS(-)		Jumpered, connect: RTS(+) to CTS(+); RTS(-) to CTS(-)	RTS
CTS				CTS

EIA-422 hardware handshaking (ready/busy) cable

Use the following table as a guide for EIA-422 wiring. Pin numbers have been omitted because they vary from product to product. For Digi pin numbers, see the section titled "Digi EIA-422 connector wiring" on page 30. For peripheral device pin numbers, see the documentation for your peripheral device.

DTE (Digi end)			DTE (peripheral)	
Signal	Lead		Lead	Signal
TxD	+	Connected to	+	RxD
	-	Connected to	-	
RxD	+	Connected to	+	TxD
	-	Connected to	-	
RTS	+	Connected to	+	CTS
	-	Connected to	-	
CTS	+	Connected to	+	RTS
	-	Connected to	-	
GND		Connected to		GND

EIA-422 DTE to DCE (modem) cable

Use the following table as a guide for EIA-422 modem wiring. Pin numbers have been omitted because they vary from product to product. For Digi pin numbers, see the section titled "Digi EIA-422 connector wiring" on page 30. For modem pin numbers, see your modem's documentation.

DTE (Digi end)			DCE (modem)	
Signal	Lead		Lead	Signal
TxD	+	Connected to	+	TxD
	-	Connected to	-	
RxD	+	Connected to	+	RxD
	-	Connected to	-	
RTS	+	Connected to	+	RTS
	-	Connected to	-	
CTS	+	Connected to	+	CTS
	-	Connected to	-	
GND		Connected to		GND

General EIA-485 cable information

This section applies to Digi products equipped with EIA-485 asynchronous interfaces.

Physical cable characteristics

EIA-485 interface cables should be shielded twisted-pair cables with a maximum of 4000 feet in length. Each signal requires two leads (one twisted pair of wires) to complete a balanced voltage digital circuit. The shield should be connected to the Chassis Ground of the devices at *both* ends of the interface cable.

Interface signaling

The EIA-485 interface provides four signals: Transmitted Data (TxD), Received Data (RxD), Request To Send (RTS) and Clear To Send (CTS). The functions of these signals are identical to their EIA-232 counterparts.

Grounding requirements

EIA-485 interface cables must provide a ground path between the devices to be connected. This ensures the integrity of data transfers and control signals. This should be connected to the Chassis Ground of each device. Digi recommends using the cable shield for this purpose.

Termination information

A DIP switch controls the termination of many Digi devices. Termination is recommended in a multi-drop line for the last networked device. Termination also biases the line.

Most Digi devices use the #4 switch to control termination. When the switch is down, termination is off and there is no termination. To set termination on the device, move the #4 switch to the up position.

Check your Digi device for its ohm rating; 100 ohms is the nominal setting in Digi products.

Digi EIA-485 connector wiring

Two wires (one twisted pair) are required for each signal, a positive lead (“+”), and a negative lead (“-”). The “+” leads at one end of the cable must be connected to the “+” leads at the other end, and the “-” leads at one end must be connected to the “-” leads at the other end.



Caution: Incorrect wiring could result in damage to the connected devices. The following tables show the pin configurations for the EIA-485 versions of Digi DB-9 and RJ-45 10-pin connectors.

RJ-45 pinouts

RJ-45 pin	485 half duplex	485 full duplex	Signal description
1	TxD-	TxD-	Transmitted Data (-)
2	RxD-	RxD-	Received Data (-)
3	n/a	RTS+	Request To Send (+)
4	GND	GND	Chassis Ground
5	TxD+	TxD+	Transmitted Data (+)
6	RxD+	RxD+	Received Data (+)
7	SG	SG	Signal Ground
8	n/a	CTS+	Clear To Send (+)
9	n/a	RTS-	Request To Send (-)
10	n/a	CTS-	Clear To Send (-)

DB-9 pinouts

DB-9 pin	Screw terminal	485 half duplex	485 full duplex	Signal description
1	9	Not used	CTS-	Clear To Send (-)
2	6	RxD+	RxD+	Received Data (+)
3	3	TxD+	TxD+	Transmitted Data (+)
4	2	Not used	RTS-	Request To Send (-)
5	5	GND	GND	Chassis Ground
6	7	RxD-	RxD-	Received Data (-)
7	1	Not used	RTS+	Request To Send (+)
8	8	Not used	CTS+	Clear To Send (+)
9	4	TxD-	TxD-	Transmitted Data (-)

RJ-45 8-pin EIA-232/ 22/ 485 PortServer TS 8/16 MEI

The following table shows pin assignments for the RJ-45 connector for EIA-RS 232/422/ 485 wiring.

8 pin EIA- 422/ 485 option available. (See the PortServer User's Guide-Chapter 6 for additional details).

Pin Number	EIA- 232 Signal	Standard 10- Pin EIA-422/485 Signal (4/8 Wire)	Optional 8 Pin EIA-422/ 485 Signal (Alt-4-Wire)	EIA-485 Signal (2-Wire Mode)
01	RI	TXD- (B)		
02	DSR	RxD- (B)	RxD- (B)	Data- (B)
03	RTS	RTS+ (A)	TxD+ (A)	
04	CGND	CGND	CGND	CGND
05	/TxD	TxD+ (A)		
06	/RxD	RxD+ (A)	RxD+ (A)	Data+ (A)
07	SGND	SGND	SGND	SGND
08	CTS	CTS+		
09	DTR	RTS- (B)-	TxD-	
10	DCD	CTS- (B)		

Introduction

The DataFire® SYNC 2000 adapter is an intelligent, high performance synchronous communications adapter that is available in versions for PCI bus and Compact PCI (cPCI) bus-compatible systems. The basic design comes with a Motorola MPC860 PowerQUICC™ (Quad Integrated Communications Controller), with an integrated PowerPC™ RISC processor providing four SCCs on the four-port adapter and two SCCs on the two-port adapter.

DataFire SYNC 2000 adapters offer a Universal Interface Bus (UIB) capable of supporting a different interface on each port. The UIB automatically configures the electrical interface of a port based on the type of Digi cable connected to the port. That is, you can select an interface type for a port just by connecting the appropriate cable between the adapter and the peripheral device. You can use any combination of interface types to connect up to two peripherals to the two-port version, or up to four peripherals to the four-port version.

Features

The DataFire SYNC 2000 adapter has the following features:

- High-speed synchronous communications ports
- Automatic cable detection
- SurgeBlock™ surge protection
- All major electrical interfaces are available as UIB cable options, including X.21, V.28 (V.24)/EIA-232, V.35/RS-449, V.36, EIA-422, and EIA-530
- Available with an optional PowerPC 603 processor, 4 megabytes of RAM, and Frame Relay or X.25 public data network protocols
- The DataFire SYNC 2000 adapter has gained homologation acceptance for most European countries

Cabling information

Each Digi-provided cable has a 68-pin Ultra SCSI connector on one end, which attaches to a port on the Universal Interface Bus. The other end of the cable will provide signals according to the interface standards.

Each port on the SYNC 2000 adapter can be configured to use any one of several cables. Cables are available as V.35, EIA-530/EIA-422, X.21, and EIA-232/V.28. The cable type is automatically detected by the Universal Interface Bus.

If you require multiple cables of one type, you may order additional cables from Digi. To extend the length of a Digi cable, use standard interface cabling between the end of Digi's cable and the peripheral.

Recommendations

- Digi recommends shielded cables (15 pF or less capacitance per foot) for all installations.
- The FCC requires the use of shielded cables to comply with EMI/RFI emission limits. In addition, cables that run long distances or through electrically noisy areas are subject to voltage surges that can cause data errors or equipment damage. EIA-232 specifies a maximum cable length of 50 feet. If you run cables farther than 50 feet, you increase the risk of surge damage and data loss. (However, using shielded cable of 10-15 pF capacitance per foot lessens the risk of data errors somewhat.)
- When routing cables, do not run them parallel to AC wiring or on top of fluorescent light ballasts.
- Bundling several EIA-232 cables is acceptable.

X.21 pinouts

X.21, male DB-15 connector

Pin	CCITT	Description
9	103B	TxD-
2	103A	TxD+
3	105B	RTS-
10	105A	RTS+
4	104A	RxD-
11	104B	RxD+
5	106A	CTS-
12	106B	CTS+
13	115A	RxCLKi-
6	115B	RxCLKi+
7	113A	TxCLKo-
14	113B	TxCLKo+
8	n/a	GND
Shell	n/a	CGND

V.35 pinouts

V.35, male 34-pin connector

Pin	CCITT	Description
A	n/a	CGND
B	n/a	GND
C	105	RTS
D	106	CTS
E	107	DSR
F	109	DCD
H	108	DTR
P	103A	TxD-
S	103B	TxD+
R	104A	RxD-
T	104B	RxD+
V	115A	RxCLKi-
X	115B	RxCLKi+
Y	114A	TxCLKi-
AA	114B	TxCLKi+
U	113A	TxCLKo-
W	113B	TxCLKo+

EIA-232/V.28 pinouts

EIA-232 / V.28 (V.24), male DB-25 connector

Pin	CCITT	Description
2	103	TxD
3	104	RxD
15	114	TxCLKi
17	115	RxCLKi
4	105	RTS
5	106	CTS
Shell	n/a	CGND
20	108	DTR
6	107	DSR
8	109	DCD
24	113	TxCLKo
25	125	RI
7	n/a	GND

EIA-530/422 pinouts

EIA-530/422, male DB-25 connector

Pin	CCITT	Description.
2	103A	TxD-
14	103B	TxD+
3	104A	RxD-
16	104B	RxD+
15	114A	TxCLKi-
12	114B	TxCLKi+
17	115A	RxCLK-
9	115B	RxCLK+
4	105A	RTS-
19	105B	RTS+
5	106A	CTS-
13	106B	CTS+
20	108A	DTE Ready-
23	108B	DTE Ready+
6	107A	DCE-
22	107B	DCE+
8	109A	RLSD-
10	109B	RLSD+
24	113A	TxCLKo-
11	113B	TxCLKo+
7	n/a	GND
Shell	n/a	CGND
25	142	Test Mode

Async cable part numbers

Cable description	DTE Digi part number	DTE cable ID number	DCE Digi part number
Digi quad cable			
DB-9M	76000003	60000211	N/A
DB-9F	76000001	--	N/A
DB-25M	76000008	-	76000007
DB-25F	76000006	--	76000005
Digi quad box			
DB-25M	760000030	--	760000028
DB-25F	760000026	--	760000024
Digi octa cable			
DB-9M	76002042	--	N/A
DB-9F	76000013	--	N/A
DB-25M	76000021	60000183	76000020
DB-25F	76000019	--	76000018
Digi octa box			
DB-25M	76000031	--	76000029
DB-25F	76000027	--	76000025
RJ-45 connector box			
Quad	76000038	--	--
Octa	76000033	--	--
Digi converter options			
RJ-45 to DB-9M	(24") 76000239	--	N/A
RJ-45 to DB-9F	(24") 76000200	--	N/A
RJ-45 to DB-9M	(48") 76000240	--	76000264
RJ-45 to DB-9F	(48") 76000201	61070048	--
RJ-45 to DB-25M	(24") 76000129	--	N/A
RJ-45 to DB-25F	(24") 76000198	--	N/A
RJ-45 to DB-25M	(48") 76000195	--	76000238
RJ-45 to DB-25F	(48") 76000199	61050048-	--
EtherLite and SCSI			
RJ-45 to DB-25M	76000450	--	76000451
DB-9F to RJ-45	76000461	--	N/A
SCSI-2 3' Cable	76000449	--	--

Asynchronous cabling

Cable type	Description	Digi order number	Cable ID number
Non-Intelligent board cables	ClassicBoard ISA:		
	ClassicBoard 16 (16654) Cable	--	62080060
	PC/X:		
	PC/16 Ribbon Cable	10000358 10000359	--
	PC/4 or PC/8 (2 Boards) Daisy Chain Cable	--	60000186
	PC/4 or PC/8 (3 Boards) Daisy Chain Cable	--	60000196
	PC/4 or PC/8 (4 Boards) Daisy Chain Cable	--	60000197
	PC/16 (2 Boards) Daisy Chain Cable	--	60000268
Intelligent board cables	PC/XE and PC/XI Ribbon Cables		
	PC/16e (RJ-45)	10000475 10000476	--
	PC/16e and PC/16i (DB-25)	10000390 10000414	--
	Xem EBI Cables:		
	16" Cable (DB-44)	--	62080016
	60" Cable (DB-44)	--	62080060
	C/X and EPC/X Connectors		
	Old 10' Cable (MtoM) HD-15	--	62020120
	New 10' Cable (MtoF) HD-15	--	62110120
	FL Adapter Domestic Fiber Connector	76000071	--
	EIA-232 Remote Cabling:		
	Host Adapter to Sync Modem	76000211	6240060
	Host Sync Modem to Remote	76000212	6241060
	PortServer II Cables		
	RJ-45 to DB-25 Cable 4'	--	61020004
	*RJ-45 to DB-25M Sync Shield Cable 24" <i>*This cable is only required for Frame Relay</i>	76000252	--

Cable wall mount options

Description	Digi order number
4 Port RJ-45 Wall Mount	76000180
8 Port RJ-45 Wall Mount	76000181

Cross reference cable to order numbers and ID numbers

Device	Click on description to see pinout	Part number <small>*To order Digi Cable or Adapter</small>	Cable ID <small>*Labeled on Cable or Adapter</small>
EtherLite cables	EtherLite RJ-45 to DB-25M Modem Adapter	76000450	
	EtherLite RJ-45 to DB-25M 4-Wire Cable (RS-422)		
	EtherLite RJ-45 to DB-25M Console Adapter	76000451	
	EtherLite RJ-45 to DB-9F Console Adapter	76000461	
	EtherLite and SCSI Terminal Server RJ-45 to DB-9M Modem Cable	76000200 24" 76000201 48"	
	EtherLite and SCSI Terminal Server RJ-45 to DB-9F Terminal Emulator Cable	76000645 48"	
	EtherLite and SCSI Terminal Server RJ-45 to DB-25M Modem Cable	76000195	
	EtherLite RJ-45 to DB-25M DTE Modtap Adapter	76000672	
	EtherLite RJ-45 to DB-25M DCE Modtap Adapter	76000670	
	EtherLite RJ-45 to DB-9F DCE Modtap Adapter	76000702	
	EtherLite and SCSI Terminal Server RJ-45 to RJ-45 Cisco Console Adapter	76000631	
	EtherLite and SCSI Terminal Server RJ-45 to DB-25M Terminal Printer Cable	76000643	

Device	Click on description to see pinout	Part number <small>*To order Digi Cable or Adapter</small>	Cable ID <small>*Labeled on Cable or Adapter</small>	
Digi One, PortServer TS, and Multi-Port Serial Card Adapters	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-9F Cable Adapter	Adapter -4 pack 76000697	N/A	
		Crossover Cable - 4' 76000645	61090048	
	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-9F Modem Adapter and Straight-through Cable	Adapter - None	N/A	
		Straight-through Cable -2' 76000200	61070024	
		Straight-through Cable -4' 76000201	61070048	
	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-9M Modem Adapter and Crossover Cable	Adapter - None	N/A	
		Crossover Cable - 4' 76000264	61080048	
	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25M Printer Adapter and Cable	Adapter - 4 pack 76000692	N/A	
		Cable - 2' 76000643	63000196-01	
	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25M Console Adapter	Adapter - 4 pack 76000699	N/A	
		Crossover Cable - 4' 76000644	61050048	
	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25M Modem Adapter and Crossover Cable	Adapter - 4 pack 76000698	N/A	
		Crossover Cable - 4' 76000238	61040048	
	Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25F Cable Adapter	Adapter - None	N/A	
		Straight-through Cable 2' 76000198	61030024	
		Straight-through Cable 4' 76000195	61020048	
	Digi CM cables and adapters	Digi CM RJ-45 to DB-9F DTE RS-232 Crossover Cable		
		Digi CM RJ-45 to DB-25M Modem Adapter	76000670 -8 pack	63000074-01
Digi CM RJ-45 to DB-9F Console Adapter		76000671 -8 pack	63000075-01	
Digi CM RJ-45 to DB-25M Console Adapter		76000672 -8 pack		
Digi CM RJ-45 to DB-25F Console Adapter		76000673 -8 pack	63000076-01	
Digi CM RJ-45 to DB-9M Modem Adapter		76000702 -8 pack		
Digi CM RJ-45 to DB-25M (DCE RS 232) Straight-Through Cable		76000700		
Digi CM RJ-45 to DB-25M (DTE RS 232) Crossover Cable		76000008	63000074-01	
Digi CM RJ-45 to RJ-45 Sun Netra or Cisco Crossover Cable		76000631		
		76000632 (8 pack) 76000633 (16 pack)		
Digi CM RJ-45 to Sun Mini Din Cable				

Device	Click on description to see pinout	Part number *To order Digi Cable or Adapter	Cable ID *Labeled on Cable or Adapter
Digi One EM	Digi One EM DB-9 Connector Pinouts		63000058-01
	Digi One EM DB-9 and Terminal Block Pinout		63000066-01 63000070-01
Digi One IA RealPort	Digi One IA RealPort DB-9 Connector Pinout		63000084-01
Digi One SP	Digi One SP DB-9 Pinout		63000058-01 63000066-01 63000070-01
	DataFire Sync 2000 SCSI Pinouts		
	EIA 422 DB-25 Pinouts for Sync Boards		
DataFire Sync 2000 X.21 V.11 to DB-15 Cable	Sync V.24 DB-25 Connector Pinout		
	Sync 2000 Single Port V.36/EIA-449 Pinout		
	Sync 2000 Single Port X.21 V.11 DB-15 Cable	77000426	
	Sync 570i UIB 2 Port X.21 V.11 DB-15 Cable	76000294	
	Sync 570i 2 Port X.21 V.11 DB-15 Cable		62500038
	Sync 570i 4 Port (3 Port X.21 V.11 DB-15) Cable		62500048
	Sync 570i 4 Port X.21 V.11 DB-15 Cable		62500047
	Async	Async Conversion RJ-XX to DB-XX	--
Async EIA-422 DB-9 Connector Pinout		76000003	
Async EIA-422 DB-25 Pinout		76000008	
Async RJ-45 to RJ-45 Crossover Cable		76000631	
Cisco Console cable adapter or cable	DB-25F to RJ-45 Cisco Console Cable Adapter		
	SCSI Terminal Server DB-25M to RJ-45 Cisco Console Cable Adapter		
	RJ-45 (Altpin On) to RJ-45 Cisco Console Adapter		
	Digi CM RJ-45 to RJ-45 Sun Netra or Cisco Crossover Cable	76000631 76000632 (8 pack) 76000633 (16 pack)	63000222-02
3 COM Total Control/COMPAQ Microcom Modem cable	SCSI Terminal Server DB-25M to RJ-45 3 COM Total Control/COMPAQ Microcom Modem Cable	76000451	
	DB-9F to RJ-45 3 COM Total Control/COMPAQ Microcom Modem Cable		
	DB-25F to RJ-45 3 COM Total Control/COMPAQ Microcom Modem Cable		
	RJ-45 to RJ-45 (Altpin On) 3 COM Total Control/COMPAQ Microcom Modem Cable	76000631 76000632 (8 pack) 76000633 (16 pack)	
	RJ-45 10 Pin to RJ-45 3 COM Total Control/Compaq Microcom Modem Cable	76000566	63000182-01

Device	Click on description to see pinout	Part number *To order Digi Cable or Adapter	Cable ID *Labeled on Cable or Adapter
Modem cables	DB-9F to DB-9M Modem Cable		
	DB-9F to DB-25M Modem Cable		
	DB-25F to DB-9M Modem Cable		
	DB-25F to DB-25M Modem Cable		
	SCSI Terminal Server DB-25M to DB-9M Modem Cable		
	RJ-45 (Altpin On) to DB-9M Modem Cable	76000239	61090048
	RJ-45 (Altpin On) to DB-25M Modem Cable	76000129	61020024
	RJ-45 10 Pin to DB-9M Modem Cable		
RJ-45 10 Pin to DB-25M Modem Cable			
Terminal emulator cable	DB-9F to DB-9F Terminal Emulator Cable		
	DB-9F to DB-25F Terminal Emulator Cable		
	DB-25F to DB-9F Terminal Emulator Cable		
	DB-25F to DB-25F Terminal Emulator Cable		
	SCSI Terminal Server DB-25M to DB-9F Terminal Emulator Cable		
	SCSI Terminal Server DB-25M to DB-25F Terminal Emulator Cable		
	RJ-11 6 Pin/4-Wire to DB-9F Terminal Emulator Cable		
	RJ-11 6 Pin/4-Wire to DB-25F Terminal Emulator Cable - Software Flow Control Only		
	RJ-11 6 Pin to DB-9F Terminal Emulator Cable		
	RJ-11 6 Pin to DB-25F Terminal Emulator Cable		
	RJ-45 4-Wire to DB-9F Terminal Emulator Cable - Software Flow Control Only		
	RJ-45 4-Wire to DB-25F Terminal Emulator Cable - Software Flow Control Only		
	RJ-45 (Altpin On) to DB-9F Terminal Emulator Cable		
	RJ-45 (Altpin On) to DB-25F Terminal Emulator Cable		
	RJ-45 to DB-9F Terminal Emulator Cable		
RJ-45 10 Pin to DB-9F Terminal Emulator Cable	Crossover Cable - 4' 76000645	61090048	
RJ-45 10 Pin to DB-25F Terminal Emulator Cable			
Miscellaneous	V.35 to DB-25M Cabling		
	V.35 Pinout		62500075 62500076
	Digi AccelePort Xp and NEO HD-68 Pin Ultra SCSI Connector		63000188-03

Device	Click on description to see pinout	Part number <small>*To order Digi Cable or Adapter</small>	Cable ID <small>*Labeled on Cable or Adapter</small>
Terminal Printer Cable	DB-9F to DB-9M Terminal Printer Cable		
	DB-9F to DB-25M Terminal Printer Cable		
	DB-25F to DB-9M Terminal Printer Cable		
	SCSI Terminal Server DB-25M to DB-9M Terminal Printer Cable		
	SCSI Terminal Server DB-25M to DB-25M Terminal Printer Cable		
	RJ-11 6 Pin/4-Wire to DB-9M Terminal Printer Cable		
	RJ-11 6 Pin/4-Wire to DB-25M Terminal Printer Cable		
	RJ-11 6 Pin to DB-9F Terminal Printer Cable		
	RJ-11 6 Pin to DB-25M Terminal Printer Cable		
	RJ-45 4-Wire to DB-9M Terminal Printer Cable - Software Flow Control Only		
	RJ-45 4-Wire to DB-25M Terminal Printer Cable	76000238	
	RJ-45 (Altpin On) to DB-9M Terminal Printer Cable		
	RJ-45 to DB-25M Terminal Printer Cable	76000643	
	RJ-45 to DB-9M Terminal Printer Cable		
RJ-45 10 Pin to DB-9M Terminal Printer Cable			
RJ-45 10 Pin to DB-25M Terminal Printer Cable			
SCSI Terminal Server Cable and Adapters	SCSI Terminal Server DB-25M to DB-9F Terminal Emulator Cable		
	SCSI Terminal Server DB-25M to DB-25F Terminal Emulator Cable		
	SCSI Terminal Server DB-25M to DB-9M Terminal Printer Cable		
	SCSI Terminal Server DB-25M to DB-25M Terminal Printer Cable		
	Digi AccelePort Xp and NEO HD-68 Pin Ultra SCSI Connector		63000188-03
	SCSI Terminal Server DB-25M to RJ-45 Cisco Console Cable Adapter		
	SCSI Terminal Server DB-25M to RJ-45 3 COM Total Control/COMPAQ Microcom Modem Cable		

EIA 232 Information

RS-232 flow control primer

Hardware flow control uses pins RTS and CTS to gate flow back and forth between connected serial devices. The Data Terminal Equipment (DTE) device uses RTS to start and stop flow from the Data Communications Equipment (DCE) device, and the DCE device uses CTS to gate flow from the DTE device. This method is popular for higher-speed connections, where flow control reaction time is more critical. It is also popular where the data stream is such that embedded flow-control characters cannot be tolerated by the protocol running on the link. The cost of this method is running two more wires in the cable.

Software flow control uses special START (XON) and STOP (XOFF) characters embedded in the data stream to gate flow. In other words, the receiving device sends a STOP character, typically Control-S, to the sending device to halt flow. It then later sends a START character, typically Control-Q, to resume flow. This flow-control method is preferred for slower links running a protocol that supports embedded flow-control characters, and because it requires just three wires for the link to function: Receive (RXD), Transmit (TXD), and Ground (GND).

Fiber optic cable specifications and source

CSP, Inc. can provide you with reliable fiber assemblies certified to function properly with DigiBoard equipment.

Fiber is the best solution for transmitting large amounts of data over long distances at high speeds without interference or lost data caused by outside factors such as weather, radio frequency signals or other electrical noise.

The ST connector provides these features as well as strong performance and reliability characteristics. The ST connector also helps maintain close tolerances when mating connectors in an adapter. The ST connector is easily recognizable because of its bayonet style attachment/detachment mechanism.

The ST also offers superior loss characteristics because the ferrules are made of stainless steel or ceramic and the connector has a spring-loaded mating system that exerts consistent pressure on the ferrule tip when inserted in an active device or an adjoining fiber. These impressive characteristics have allowed the ST connector to become the most widely used connector in Local Area Networks (LANs).

CSP fiber optic assemblies are made at the length you specify with or without an optional pulling eye to meet your individual requirements.

CSP assemblies are made with FDDI grade fiber and tested to meet EIA/FOTP specifications. CSP complies with the requirements of the 1990 National Electrical Code (NEC) for Optical Fiber Cables - Article 770.

Specifications:

Fiber Type.....Glass Graded Index
Core Diameter.....62.5 um
Cladding Diameter.....125 um
Tight Buffer Diameter.....900 um
Numerical Aperture.....>.27
Connector.....ST Stainless
Cable Type.....Duplex (Zipcord)
Orange Jacket

Cable Parameters (OFNR, OFNP)

Manufacturer Montrose Montrose
Part Number FBB-022R-2 FBB-022P-2
Weight 15 kg/km 20 kg/km
Diameter 3.0x6.5 mm 3.0x6.5 mm
Jacket PVC Plenum rated

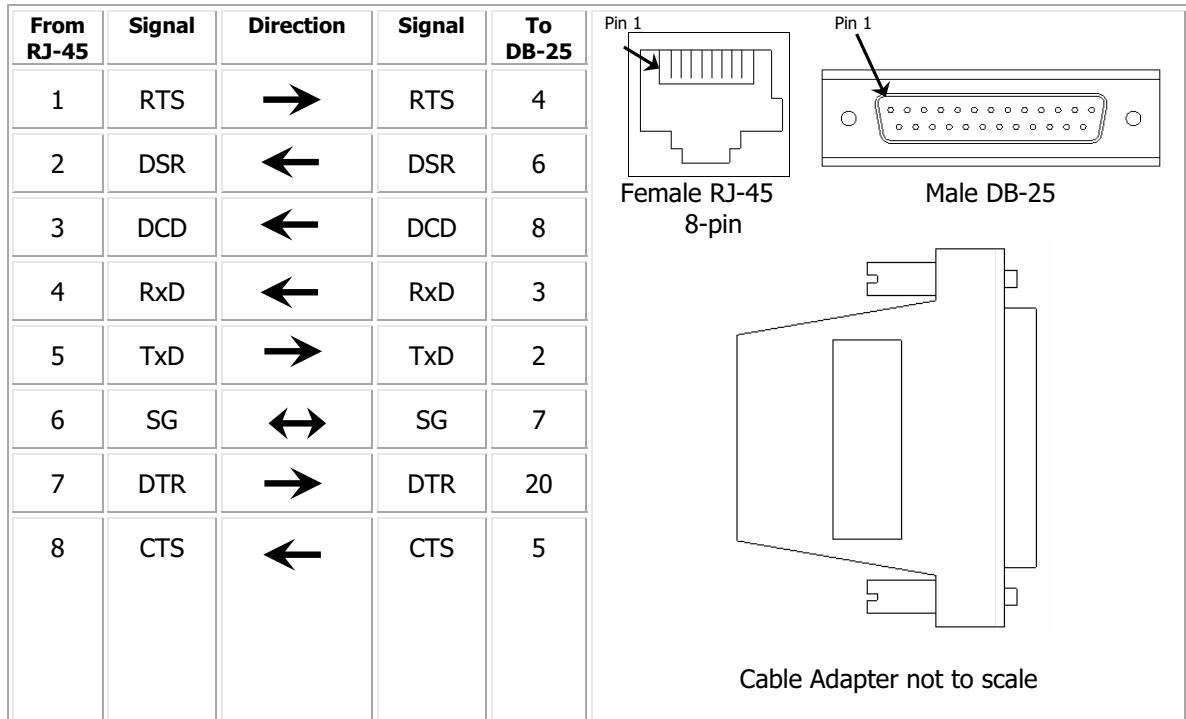
Loopback connector pinouts

DB-15M, DB-25F, DB-25F, DB-15F, DB-25F, RJ-45

Loopback connectors must have the following sets of pins tied together:

DB-15 EIA-232 Male	DB-25 EIA-232 Female	DB-25 V.35 Female	DB-15 X.21 Female	DB-25 EIA-530/422 Female	RJ-45 Telco
2,3	2,3	2, 3	2, 4	2, 3	1, 8
4,5	4,5	4, 5	3, 5	4, 5	2, 7
6, 8, 15	6, 8, 20	6, 8, 20	6, 7	6, 8, 20	
12,13	17, 24	9, 11	9, 11	9, 11	
		14, 16	10, 12	14, 16	
		17, 24	13, 14	17, 24	
				13, 19	
				10, 22, 23	

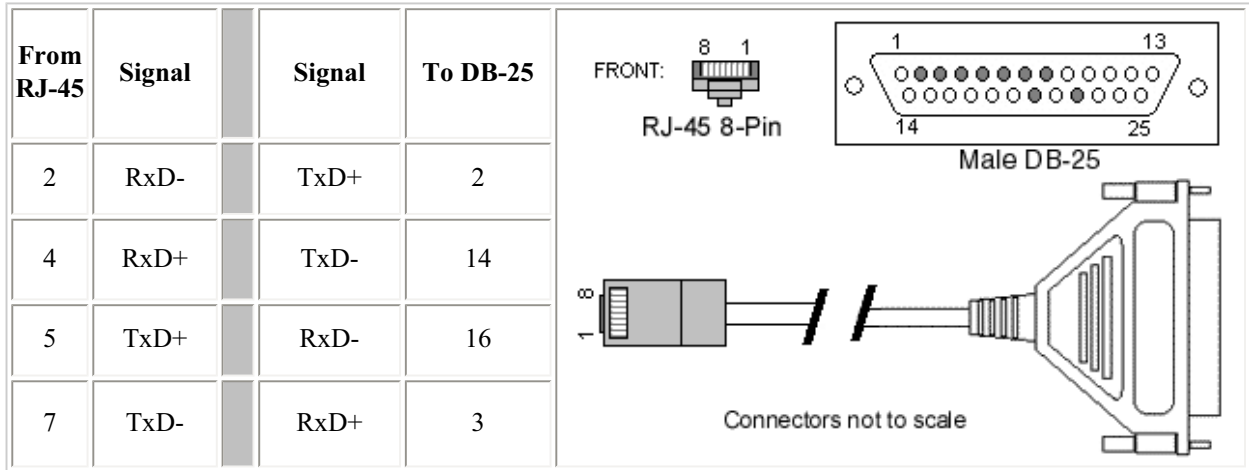
EtherLite RJ-45 to DB-25M modem adapter



Notes:

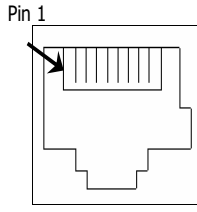
- All RJ45 cable adapters are 8-pin.
- This adapter utilizes the CTS signal of the modem for hardware flow control (RTS / CTS).

EtherLite RJ-45 to DB-25M 4-Wire duplex cable (RS-422)

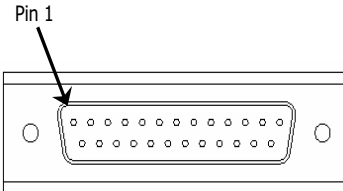


EtherLite RJ-45 to DB-25M console adapter

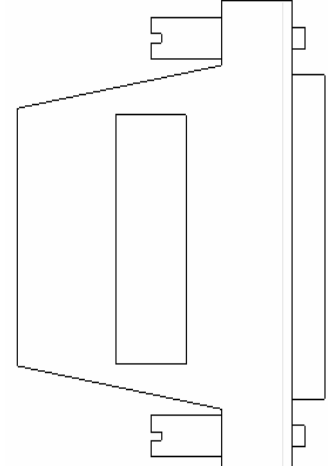
From RJ-45	Signal	Direction	Signal	To DB-25
1	RTS	→	CTS	5
3	DCD	←	DTR	20
4	RxD	←	TxD	2
5	TxD	→	RxD	3
6	SG	↔	SG	7
7	DTR	↔	DSR	6
			DCD	8
8	CTS	←	RTS	4



Female RJ-45
8-pin



Male DB-25



Cable Adapter not to scale

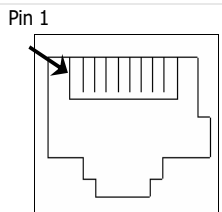
* Arrows indicate which direction the signal is flowing

Notes:

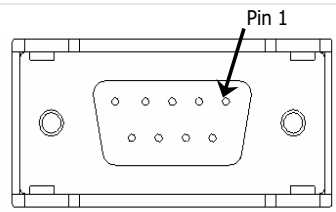
- All RJ45 cable adapters are 8-pin.
- This adapter utilizes the RTS signal of the serial device for hardware flow control (RTS/CTS).

EtherLite RJ-45 to DB-9F console adapter

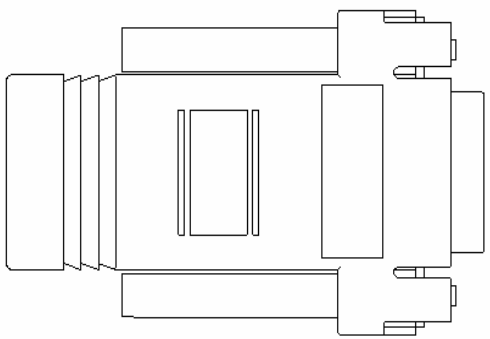
From RJ-45	Signal	Direction	Signal	To DB-9
1	RTS	→	CTS	8
3	DCD	←	DTR	4
4	RxD	←	TxD	3
5	TxD	→	RxD	2
6	SG	↔	SG	5
7	DTR	↗ ↘	DCD	1
			DSR	6
8	CTS	←	RTS	7



Female RJ-45
8-pin



Female DB-9



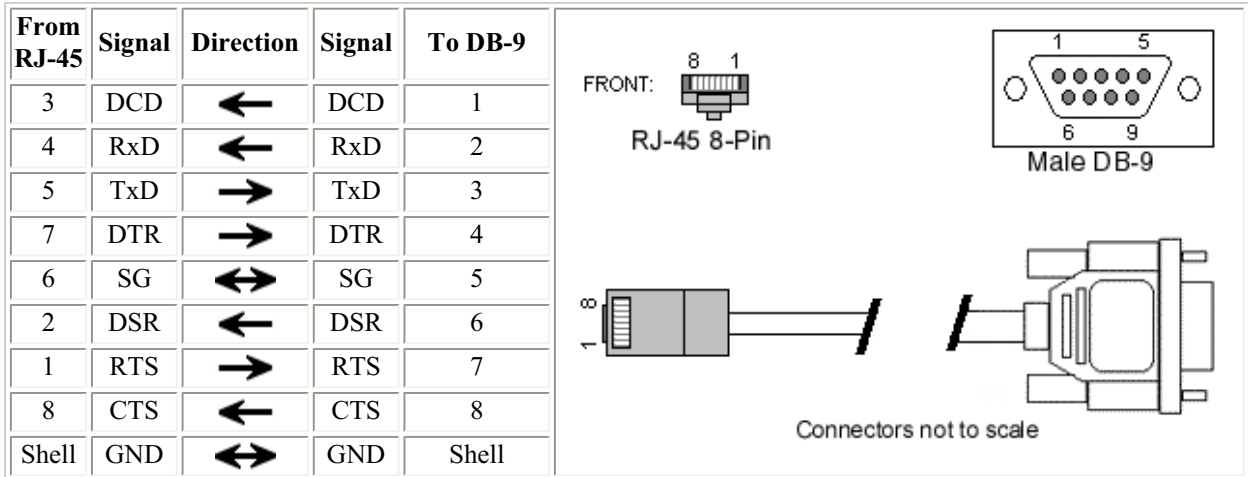
Cable Adapter not to scale

* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.
- This cable utilizes the RTS signal of the serial device for hardware flow control (RTS / CTS).

EtherLite and SCSI Terminal Server RJ-45 to DB-9M modem cable



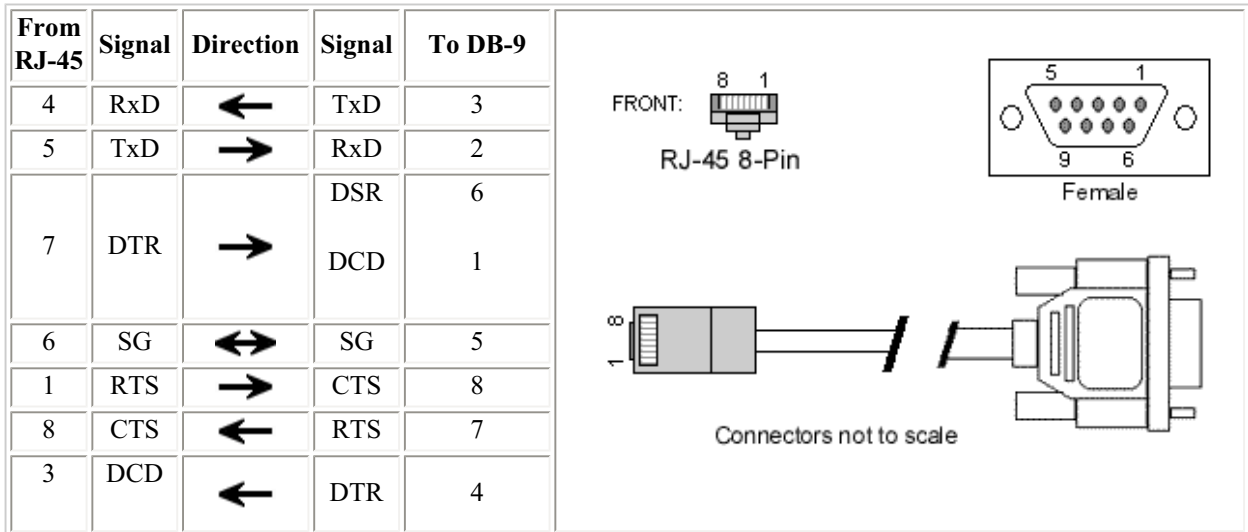
* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).
- EIA-232 cables cannot exceed 2500pF.

EtherLite and SCSI Terminal Server RJ-45 to DB-9F terminal emulator cable

EIA-232 Boards with RJ-45 (Central Data) Cable Connectors - EtherLite 2, EtherLite 8, EtherLite 16, EtherLite 160, EtherLite 32, SCSI Terminal Server 1400, SCSI Terminal Server 1800, SCSI Terminal Server 1610, SCSI Terminal Server 1032.



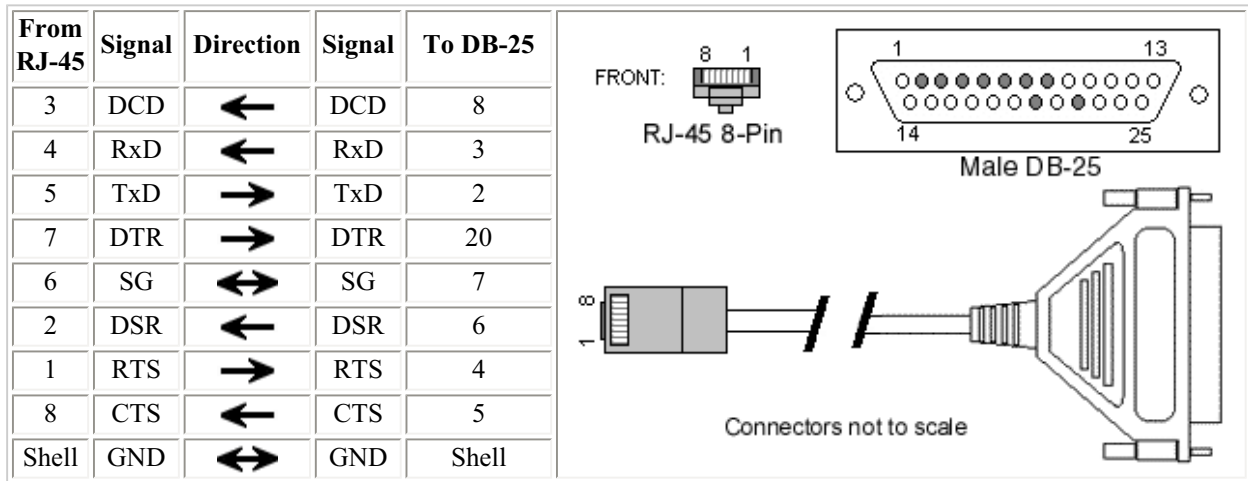
* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).
- EIA-232 cables cannot exceed 2500pF.

EtherLite and SCSI Terminal Server RJ-45 to DB-25M modem cable

EIA-232 Boards with RJ-45 (Central Data) Cable Connectors - EtherLite 2, EtherLite 8, EtherLite 16, EtherLite 160, EtherLite 32, SCSI Terminal Server 1400, SCSI Terminal Server 1800, SCSI Terminal Server 1610, SCSI Terminal Server 1032.



* Arrows indicate which direction the signal is flowing

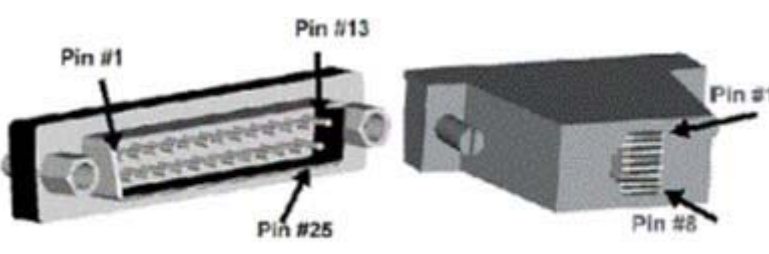
NOTES:

- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).
- EIA-232 cables cannot exceed 2500pF.

EtherLite RJ-45 8-pin to DB-25M DTE modtap adapter

The table shows the wiring diagram for an RJ-45 8-pin to DB-25 DTE modtap. This adapter is used to connect a modem to an EtherLite port, and is available from Digi by ordering part number 76000450.

From RJ-45	Signal	Direction	Signal	To DB-25
1	RTS	→	RTS	4
2	nc	X	DSR	6
3	DCD	←	DCD	8
4	RxD	←	RxD	3
5	TxD	→	TxD	2
6	SG	↔	SG	7
7	DTR	→	DTR	20
8	CTS	←	CTS	5



* Arrows indicate which direction the signal is flowing

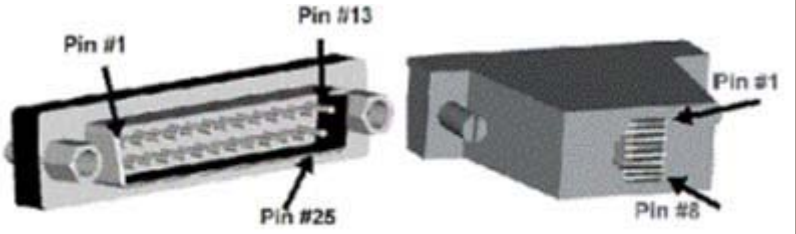
NOTES:

- This cable utilizes the RTS/CTS signals of the modem for hardware flow control.
- A straight-through RJ45 cable is used between Etherlite and modtap adapter.
- EIA-232 cables cannot exceed 2500pF.

EtherLite RJ-45 8-pin to DB-25M DCE modtap adapter

The table shows the wiring diagram for an RJ-45 8-pin to DB-25M DCE modtap adapter. This adapter is used to connect a terminal/printer to an EtherLite port, and is available from Digi by ordering part number 76000451.

From RJ-45	Signal	Direction	Signal	To DB-25
1	RTS	→	CTS	5
2	nc	X	DSR	6
3	DCD	←	DTR	20
4	RxD	←	TxD	2
5	TxD	→	RxD	3
6	SG	↔	SG	7
7	DTR	→	DCD	8
8	CTS	←	RTS	4



* Arrows indicate which direction the signal is flowing

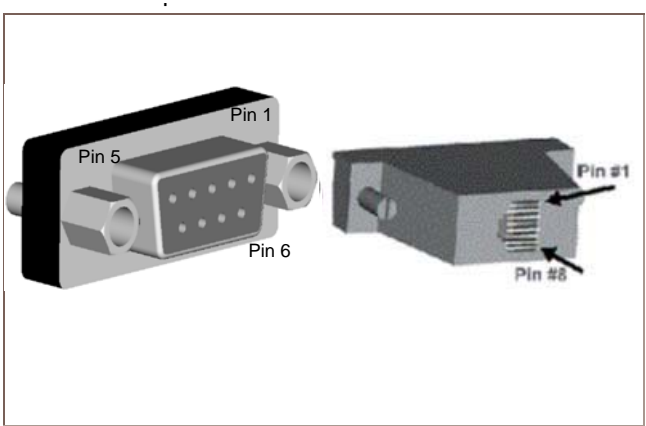
NOTES:

- This cable utilizes the RTS/CTS signals of the terminal/printer for hardware flow control.
- Since null-modem swapping is done within the modtap, a straight-through RJ45 cable is used between EtherLite and modtap adapter.
- EIA-232 cables cannot exceed 2500pF.

EtherLite RJ-45 to DB-9F DCE modtap adapter

The table shows the wiring diagram for an RJ-45 8-pin to DB-9 DCE modtap adapter. This adapter is used to connect a console or com port to an EtherLite port, and is available from Digi by ordering part number 76000461.

From RJ - 45	Signal	Direction	Signal	To DB - 9
1	RTS	→	CTS	8
2	nc	X	DSR	6
3	DCD	←	DTR	4
4	RxD	←	TxD	3
5	TxD	→	RxD	2
6	SG	«	SG	5
7	DTR	→	DCD	1
8	CTS	←	RTS	7



* Arrows indicate which direction the signal is flowing

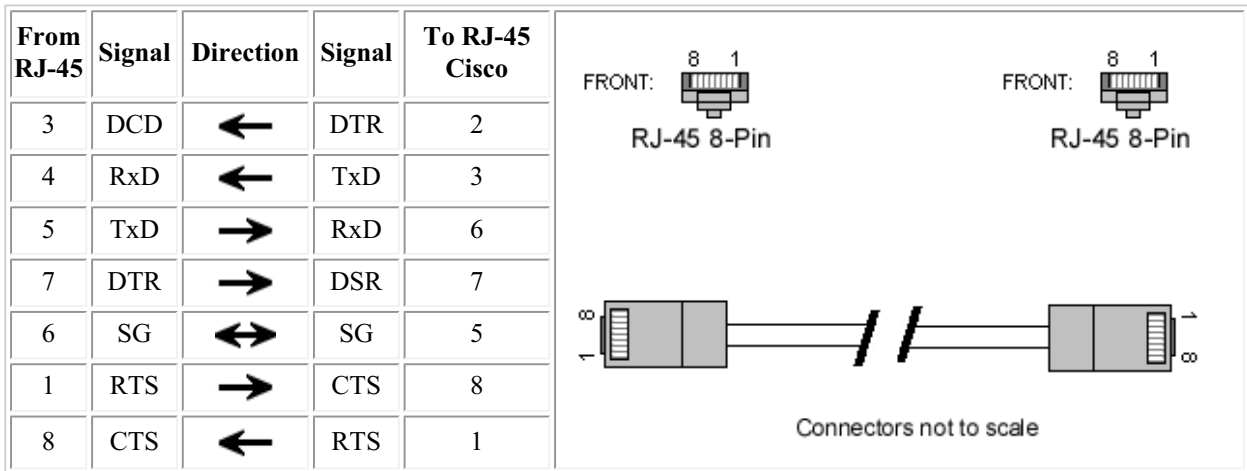
NOTES:

- This cable utilizes the RTS/CTS signals of the console/com port for hardware flow control.
- Since null-modem swapping is done within the modtap, a straight-through RJ45 cable is used between EtherLite and modtap adapter.
- EIA-232 cables cannot exceed 2500pF.

EtherLite and SCSI Terminal Server RJ-45 to RJ-45 Cisco console adapter

EIA-232 boards with RJ-45 cable connectors: EtherLite 2, EtherLite 8, EtherLite 16, EtherLite 160, EtherLite 32, SCSI Terminal Server 1400, SCSI Terminal Server 1800, SCSI Terminal Server 1610, SCSI Terminal Server 1032.

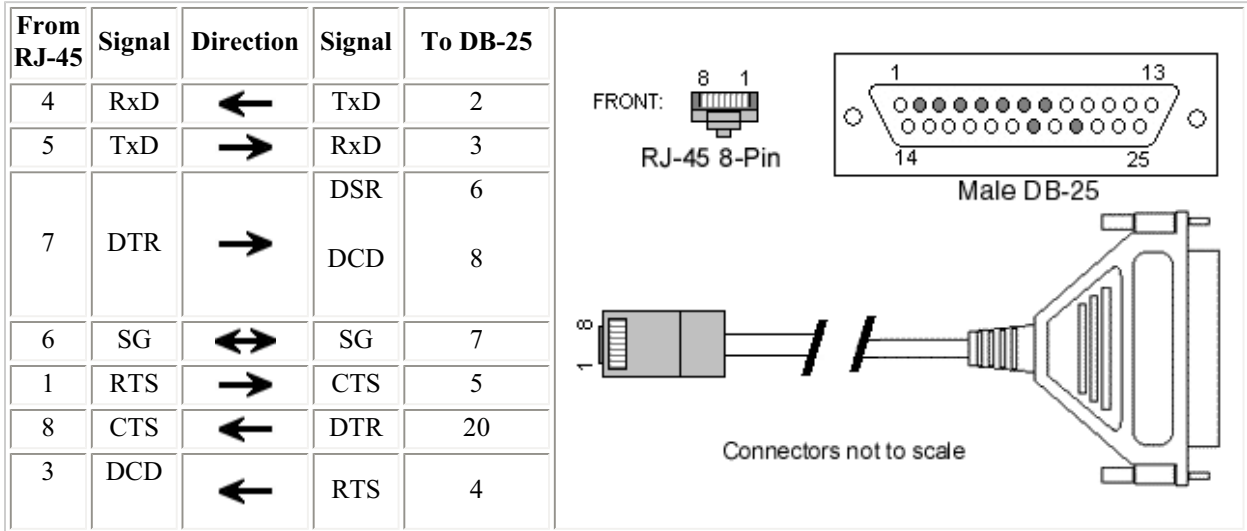
The table shows the wiring diagram for an RJ-45 8-pin to Cisco Console RJ-45 8-pin adapter cable.



- Arrows indicate which direction the signal is flowing

EtherLite and SCSI Terminal Server RJ-45 to DB-25M terminal printer cable

EIA-232 boards with RJ-45 (Central Data) cable connectors: EtherLite 2, EtherLite 8, EtherLite 16, EtherLite 160, EtherLite 32, SCSI Terminal Server 1400, SCSI Terminal Server 1800, SCSI Terminal Server 1610, SCSI Terminal Server 1032.



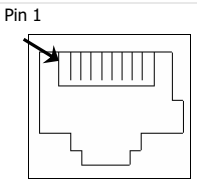
* Arrows indicate which direction the signal is flowing

NOTES:

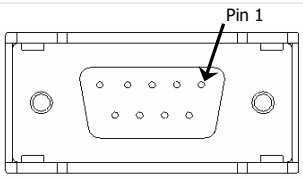
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).
- Okidata printers may use SSD (pin 11) instead of DTR (pin 20) on DB25 side of above diagram. If this is the case, the printer should be set to SSD+.
- EIA-232 cables cannot exceed 2500pF.

Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-9F cable adapter

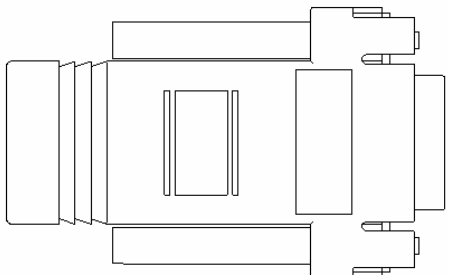
From RJ-45	Signal	Direction	Signal	To DB-9
1	DCD	←	DTR	4
2	RTS	→	CTS	8
3	Ground	↔	Ground	Shell
4	TxD	→	RxD	2
5	RxD	←	TxD	3
6	SG	↔	SG	5
7	CTS	←	RTS	7
8	DTR	↔	DCD	1
			DSR	6



Female RJ-45
8-pin



Female DB-9



Cable Adapter not to scale

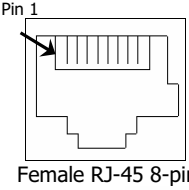
* Arrows indicate which direction the signal is flowing

Notes:

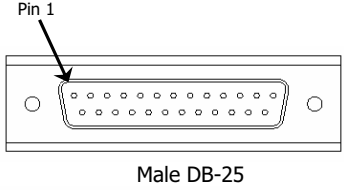
- All RJ45 cable adapters are 8-pin.
- Altpin should be turned on when using this cable adapter so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable adapter utilizes the RTS signal of the serial device for hardware flow control (RTS/CTS).

Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25M console adapter

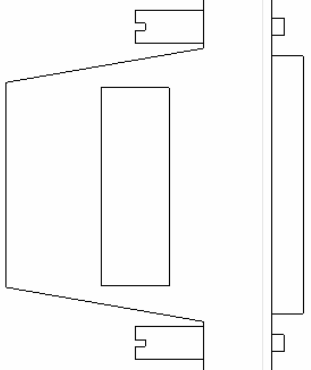
From RJ-45	Signal	Direction	Signal	To DB-25
1	DCD	←	DTR	20
2	RTS	→	CTS	5
3	Ground	↔	Ground	Shell
4	TxD	→	RxD	3
5	RxD	←	TxD	2
6	SG	↔	SG	7
7	CTS	←	RTS	4
8	DTR	↻	DSR	6
			DCD	8



Female RJ-45 8-pin



Male DB-25



Cable Adapter not to scale

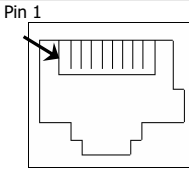
* Arrows indicate which direction the signal is flowing

Notes:

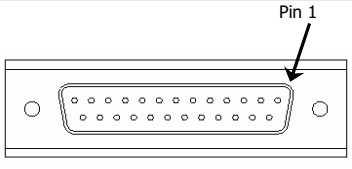
- All RJ45 cable adapters are 8-pin.
- Altpin should be turned on when using this cable adapter so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable adapter utilizes the RTS signal of the serial device for hardware flow control (RTS/CTS).

Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25F cable adapter

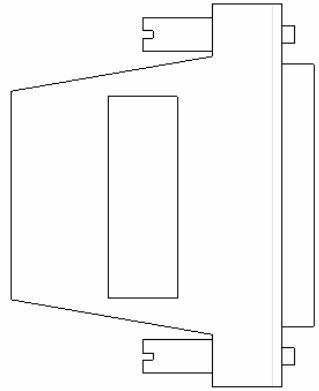
From RJ-45	Signal	Direction	Signal	To DB-25
1	DCD	←	DTR	20
2	RTS	→	CTS	5
3	Ground	↔	Ground	Shell
4	TxD	→	RxD	3
5	RxD	←	TxD	2
6	SG	↔	SG	7
7	CTS	←	RTS	4
8	DTR	↻	DSR	6
			DCD	8



Female RJ-45 8-pin



Female DB-25



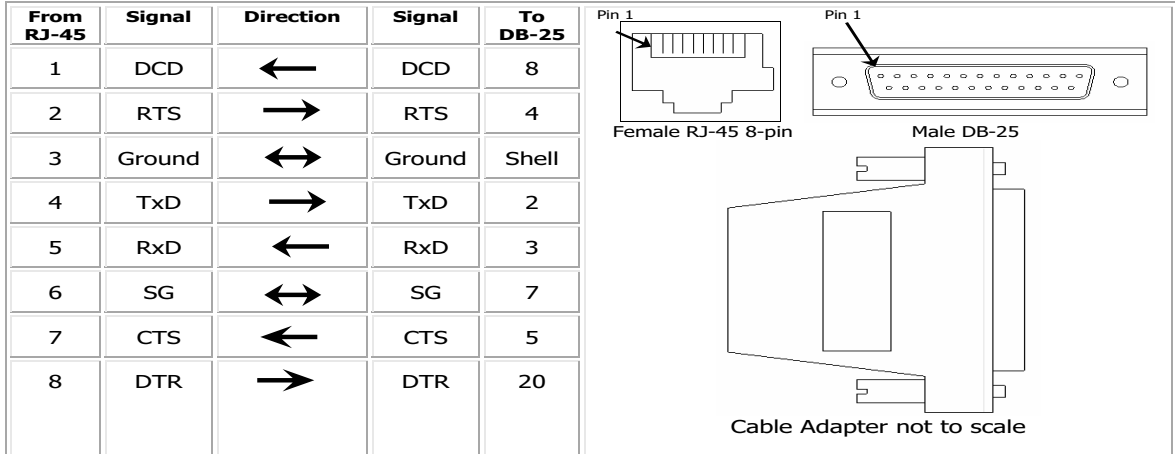
Cable Adapter not to scale

* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.
- Altpin should be turned on when using this cable adapter so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable adapter utilizes the RTS signal of the serial device for hardware flow control (RTS/CTS).

Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25M modem adapter

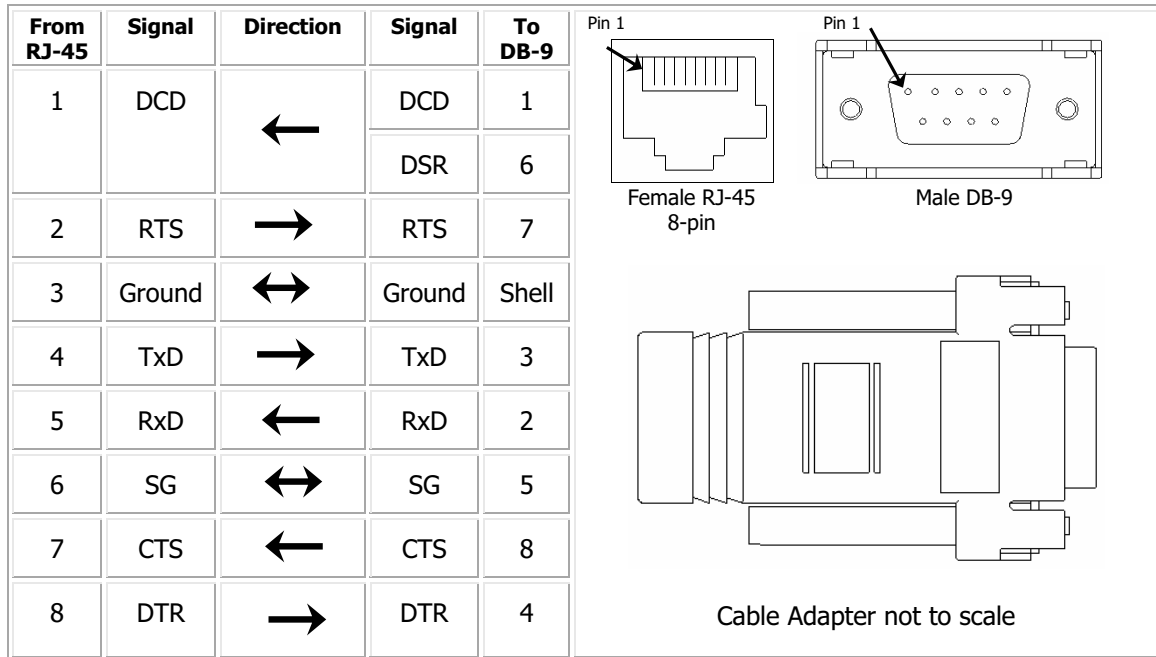


* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.
- When using this adapter with a modem or other applications that require DCD on pin 1, you must turn on altpin.
- If altpin is turned off, the hardware signal on pin 1 becomes DSR instead of DCD.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-9M modem adapter

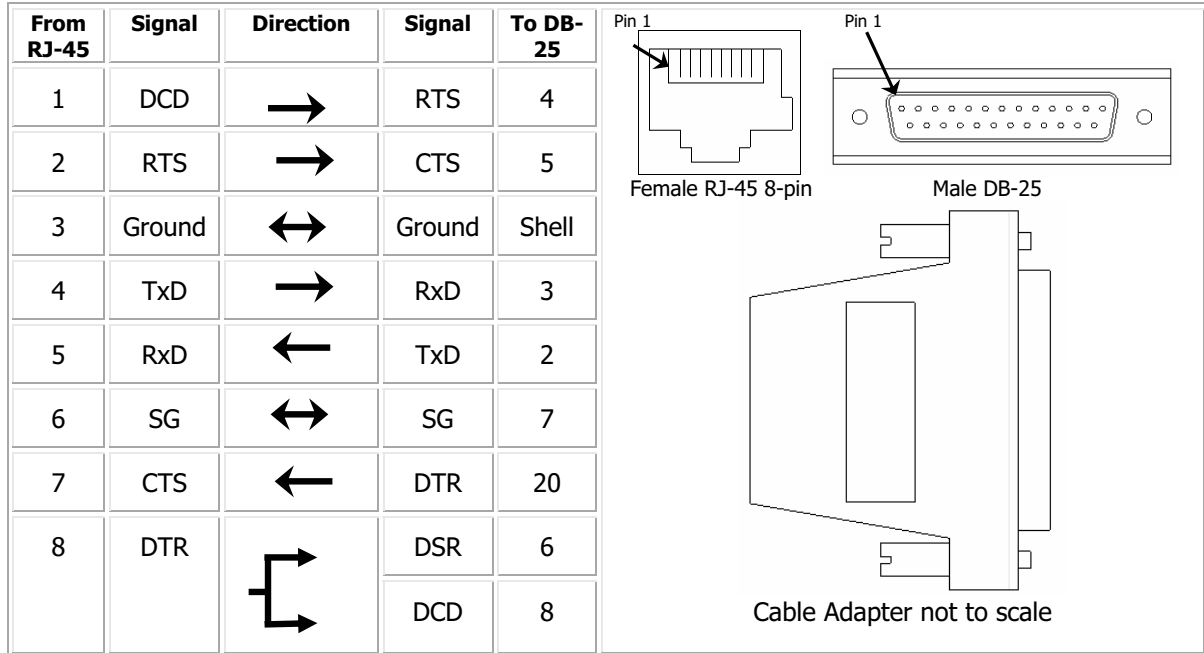


* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.
- When using this adapter with a modem or other applications that require DCD on pin 1, you must turn on altpin.
- If altpin is turned off, the hardware signal on pin 1 becomes DSR instead of DCD.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

Digi One, PortServer TS, and Multi-Port Serial Cards RJ-45 to DB-25M printer adapter



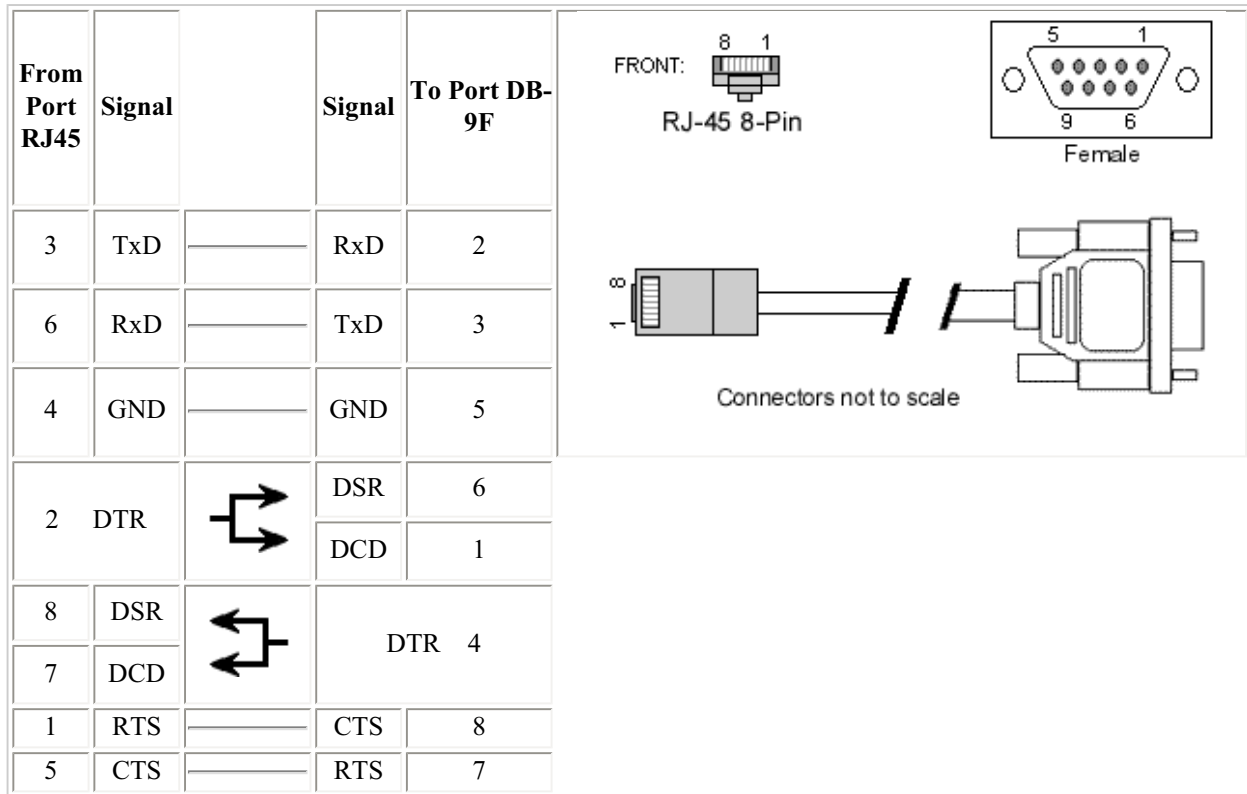
* Arrows indicate which direction the signal is flowing

Notes:

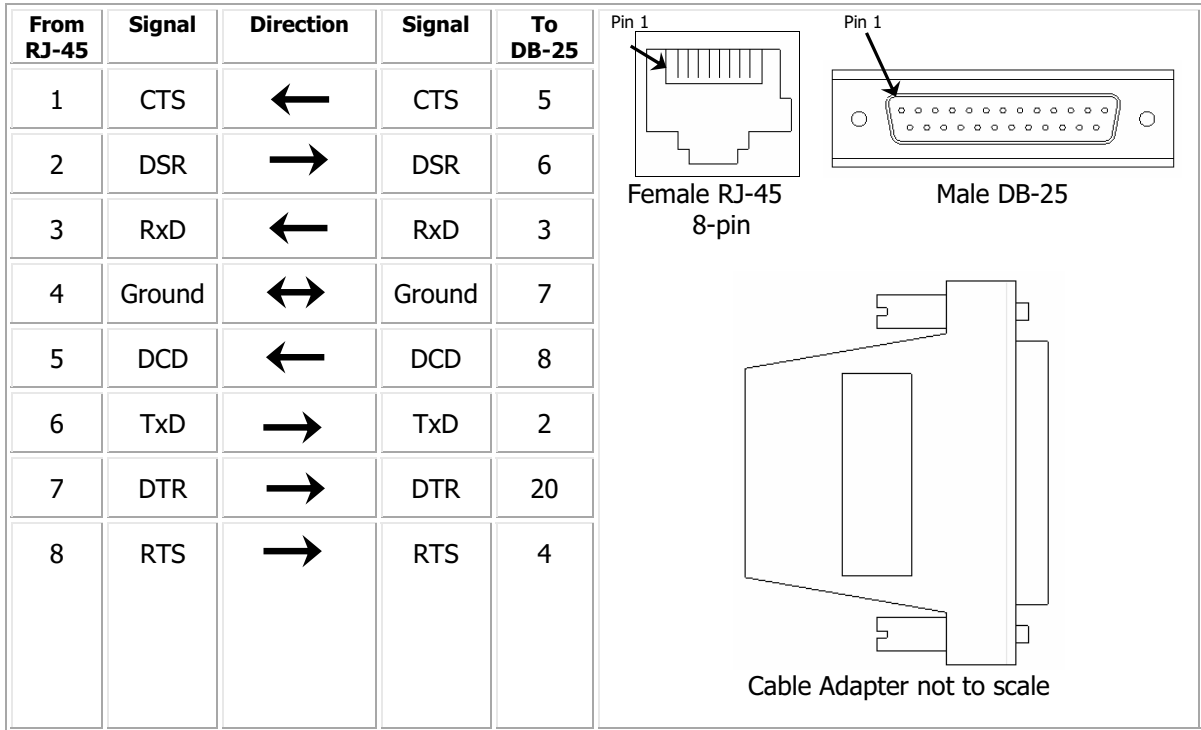
- All RJ45 cable adapters are 8-pin.
- For use with Printers. This adapter utilizes the DTR signal of the serial device (instead of RTS) for hardware flow control (RTS/CTS)
- Okidata printers may use SSD (pin 11) instead of DTR (pin 20) on DB25 side of above diagram. If this is the case, the printer should be set to SSD+.
- Altpin should be turned on when using this cable so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.

Digi CM RJ-45 to DB-9F DTE RS-232 crossover cable

This cable allows connecting from the CM32 serial ports to console ports, terminals, printers, and any other DTE RS-232 device.



Digi CM RJ-45 to DB-25M modem adapter



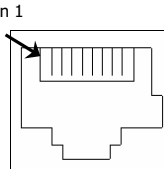
* Arrows indicate which direction the signal is flowing

Notes:

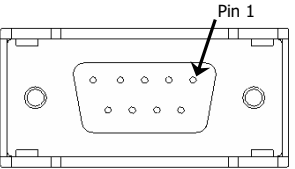
- All RJ45 cable adapters are 8-pin.

Digi CM RJ-45 to DB-9F console adapter

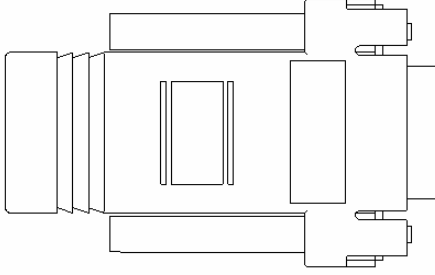
From RJ-45	Signal	Direction	Signal	To DB-9
1	CTS	←	RTS	7
2	DSR	↺ ↻	DTR	4
5	DCD			
3	RxD	←	TxD	3
4	Ground	↔	SG	5
6	TxD	→	RxD	2
8	RTS	→	CTS	8
7	DTR	↻ ↺	DCD	1
			DSR	6



Female RJ-45
8-pin



Female DB-9



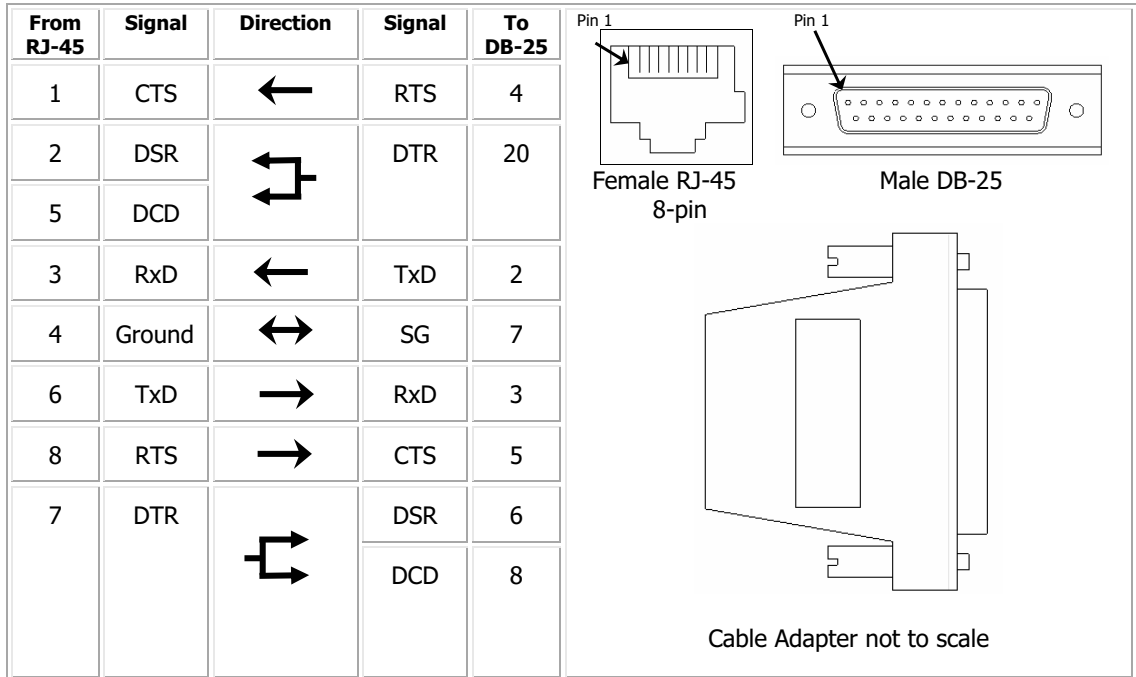
Cable Adapter not to scale

* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.

Digi CM RJ-45 to DB-25M console adapter

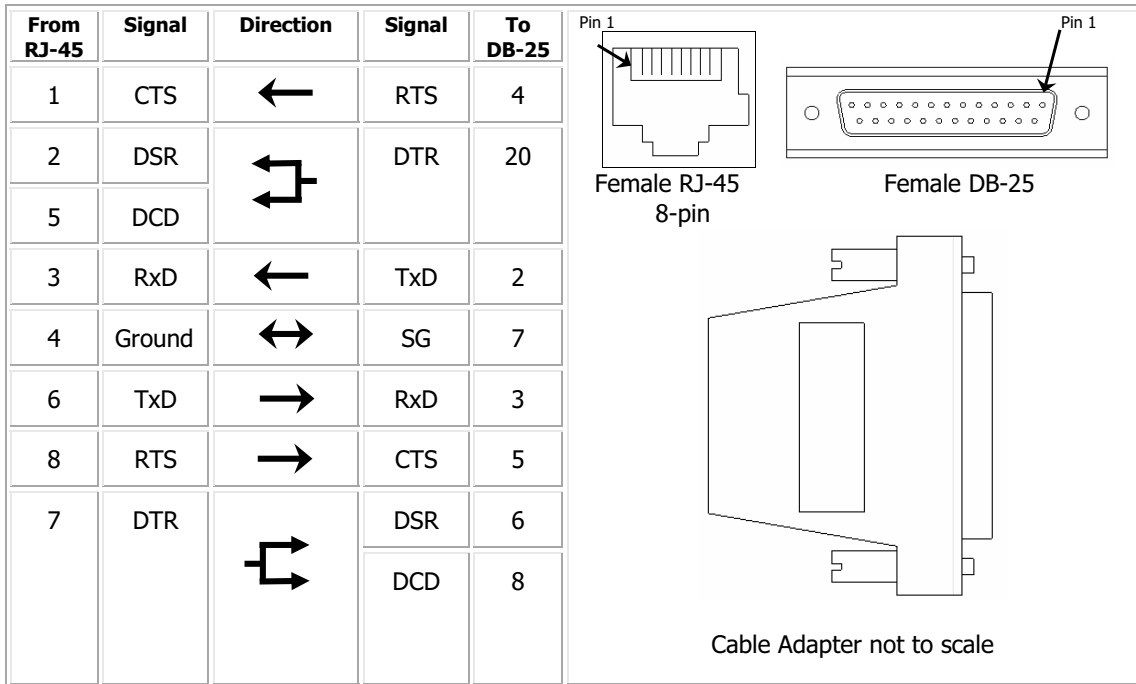


* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.

Digi CM RJ-45 to DB-25F console adapter

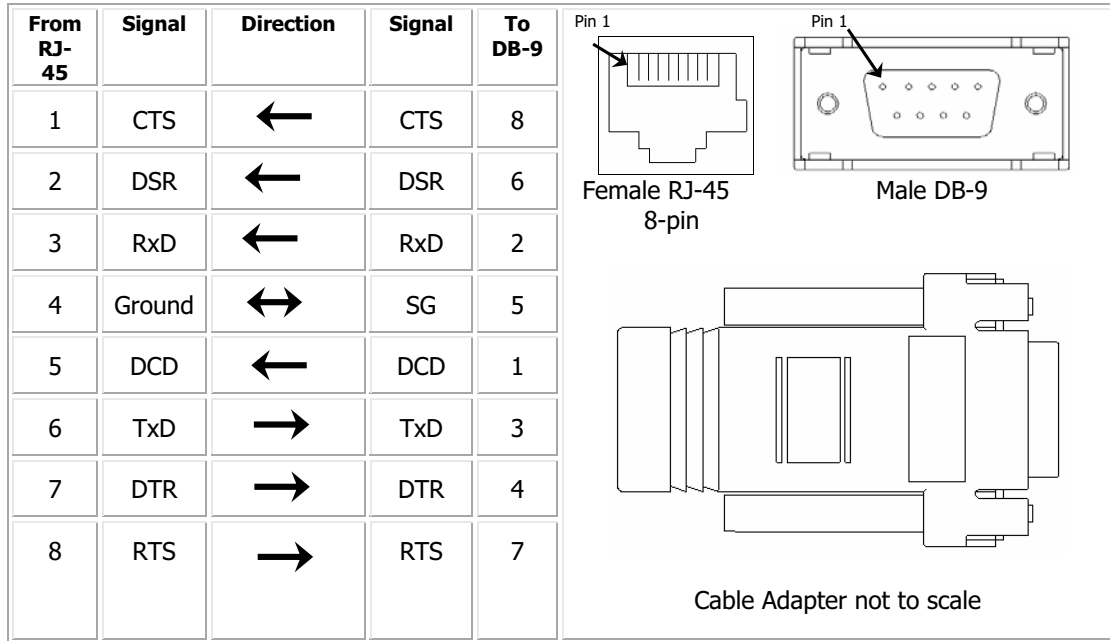


* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.

Digi CM RJ-45 to DB-9M modem adapter



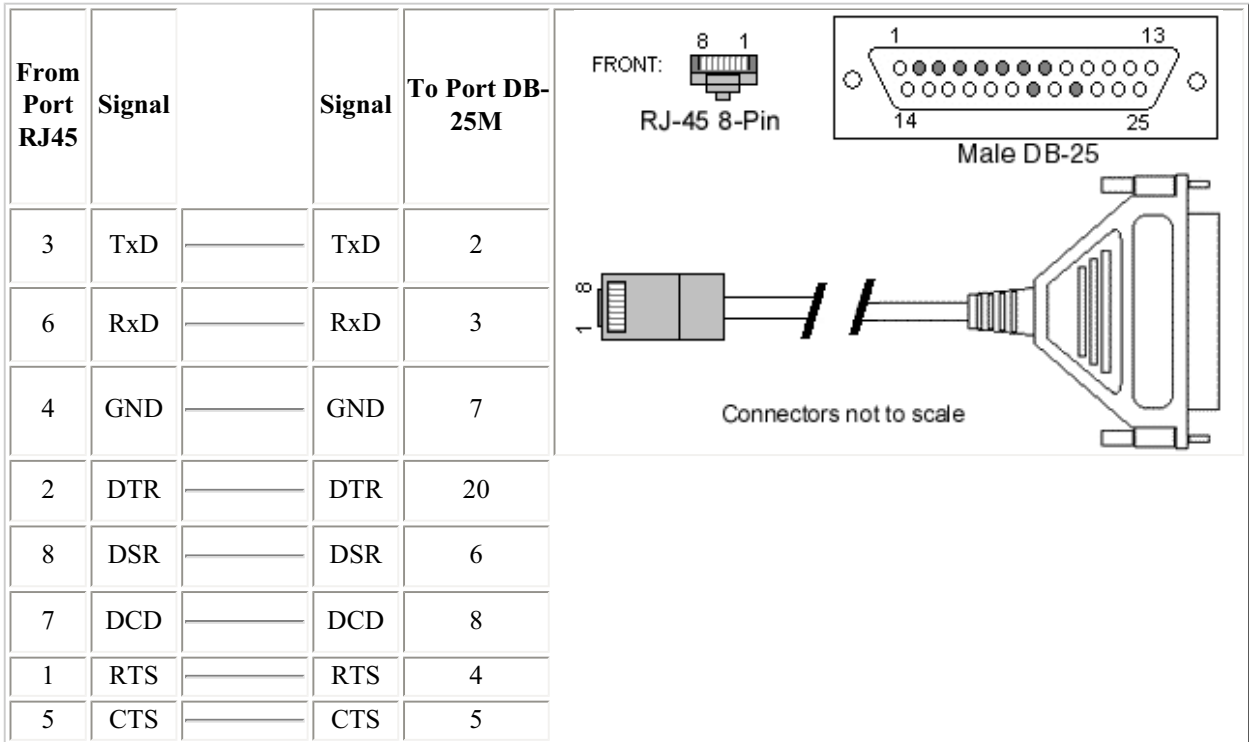
* Arrows indicate which direction the signal is flowing

Notes:

- All RJ45 cable adapters are 8-pin.

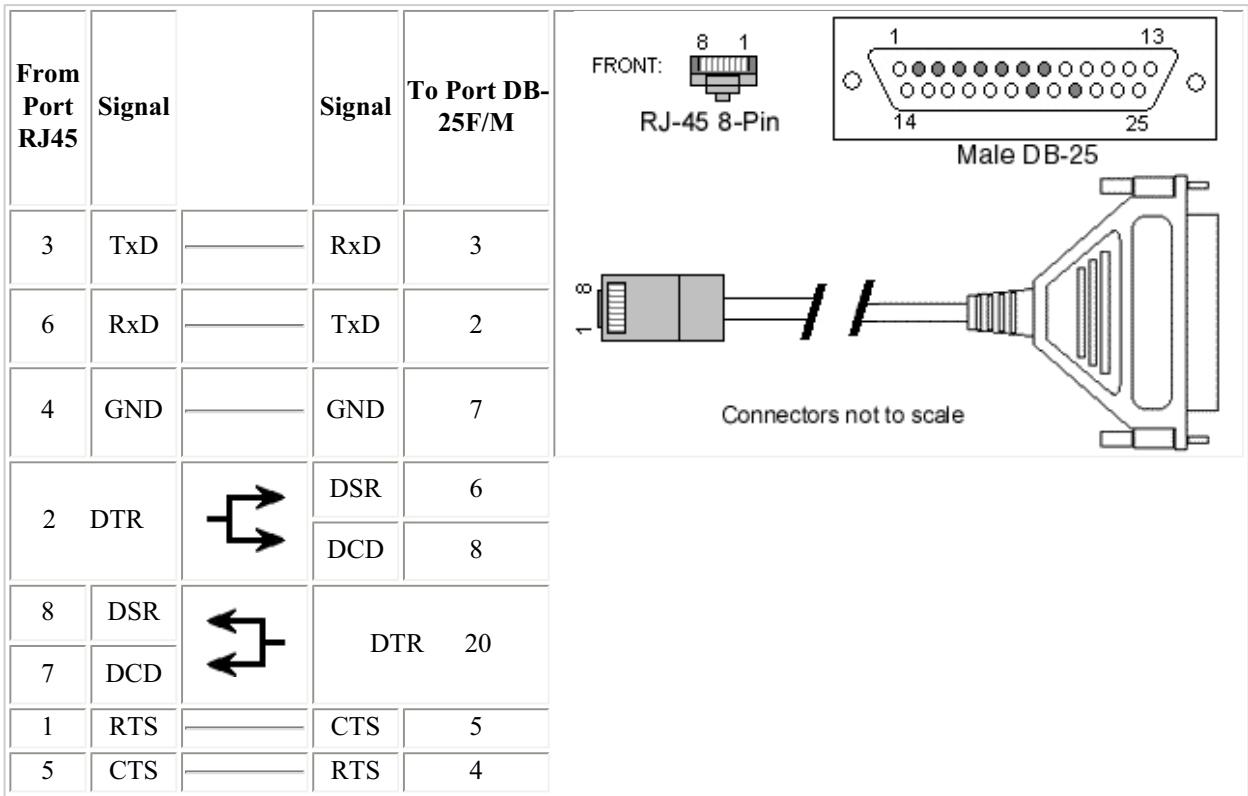
Digi CM RJ-45 to DB-25M (DCE RS 232) straight-through cable

This cable allows connections from the CM32 serial ports to modems and other DCE RS-232 devices.



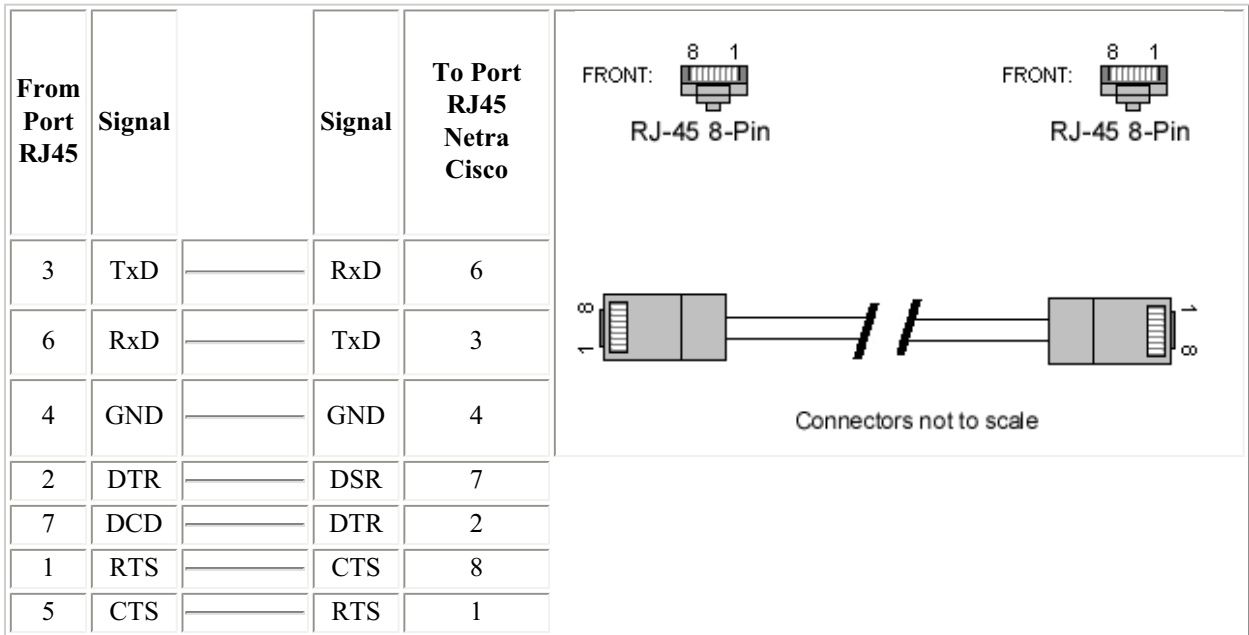
Digi CM EIA-232 RJ-45 to DB-25M (DTE RS 232) crossover cable

This cable allows connections from the CM32 serial ports to console ports, terminals, printers, and any other DTE RS-232 device.



Digi CM RJ-45 to RJ-45 Sun Netra or Cisco crossover cable

This cable allows connections to a Sun Netra server or a Cisco product.



Digi CM RJ-45 to Sun Mini Din cable

The Digi CM uses an RJ45 connector for serial ports. The pin assignment of the RJ 45 connector for serial ports is presented in table 2 below. Each pin has a function according to the serial communication type configuration. The Sun Mini Din 8-pin wiring is as follows:

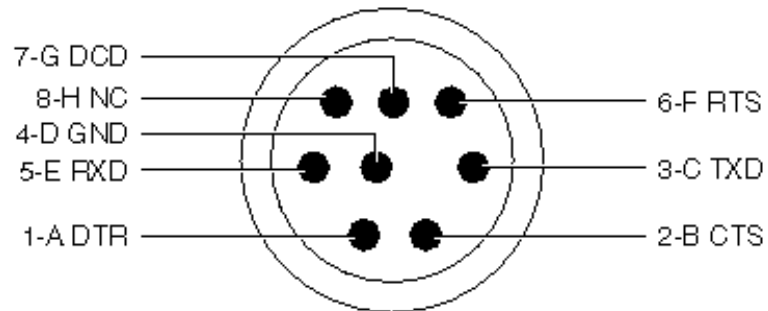
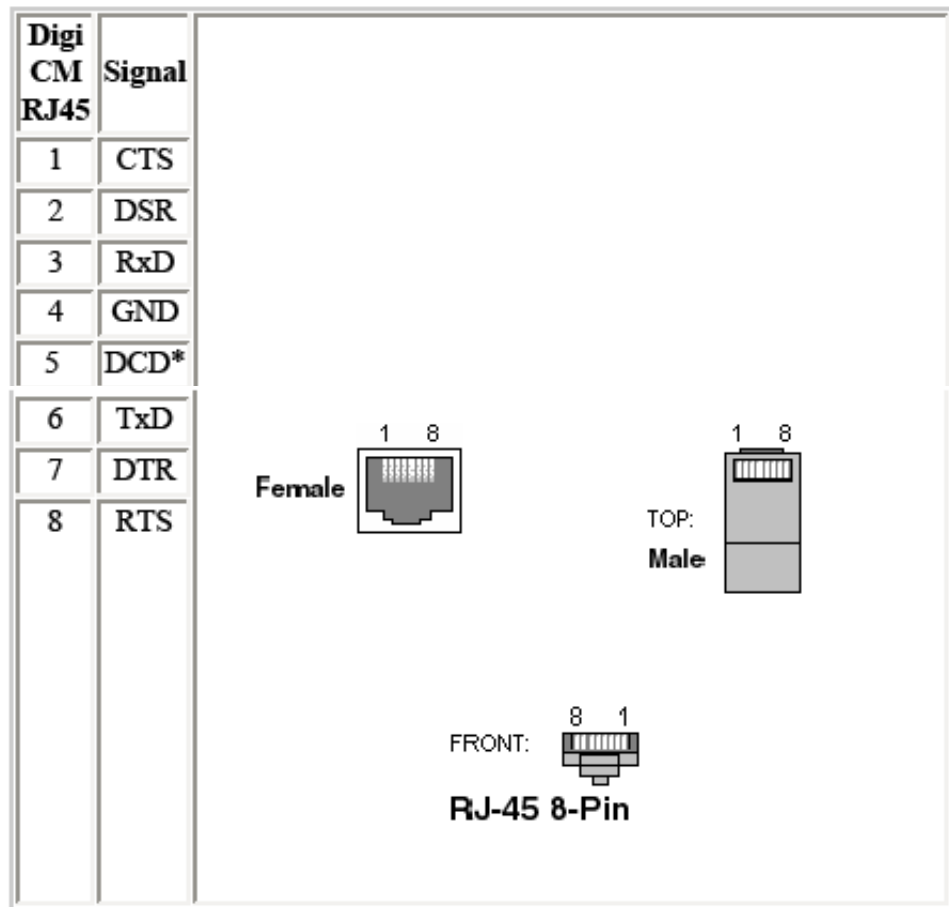


TABLE A-18 Serial Mini Din 8-pin Connector Pinouts

Pin	Signal Name	Pin	Signal Name
1	FP_SER_A_DTR	5	FP_SER_A_RXD
2	FP_SER_A_CTS	6	FP_SER_A_RTS
3	FP_SER_A_TXD	7	FP_SER_A_DCD
4	FP_SER_A_GND	8	GND






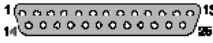

The table shows the Digi CM wiring.



NOTE: inbound signal can also be used as a second ground

Async conversion RJ-XX to DB-XX

Acceleport, Etherlite, and PortServer Families RJXX to DBXX Conversion Sheet

RJ- 11 4-pin	RJ-11 6-pin	RJ-45 8-pin	RJ-45 10-pin	EtherLite 8-pin	Signal Name	DB-25 (Male)	DB-9 (Male)
							
			1-----		RI	-----22	-----9
		1-----	2-----	2-----	DSR	-----6	-----6
	1-----	2-----	3-----	1-----	RTS	-----4	-----7
	-						
1-----	2-----	3-----	4-----	-none-	GND	-----Shell	---Shell
	-						
2-----	3-----	4-----	5-----	5-----	TxD	-----2	-----3
	-						
3-----	4-----	5-----	6-----	4-----	RxD	-----3	-----2
	-						
4-----	5-----	6-----	7-----	6-----	SG	-----7	-----5
	-						
	6-----	7-----	8-----	8-----	CTS	-----5	-----8
	-						
		8-----	9-----	7-----	DTR	-----20	-----4
			10-----	3-----	DCD	-----8	-----1

DCE		DTE
Output-----	RI	-----Input
Output-----	DSR	-----Input
Input-----	RTS	-----Output
Chassis Ground-	GND	-----Chassis Ground
Input-----	TxD	-----Output
Output-----	RxD	-----Input
Signal Ground--	SG	-----Signal Ground
Output-----	CTS	-----Input
Input-----	DTR	-----Output
Output-----	DCD	-----Input

Cable vendors

Below are our recommended cable vendors to make or extend the length of cables

The Whyte haus
260-484-5666
the.whytehaus@verizon.net

DataCable Technologies
630-226-5600
r.j@datacabletech.com
Contact: RJ Clabots

Predator Grizzly Cable
503-292-7151 x1101

Black Box
800-231-3222

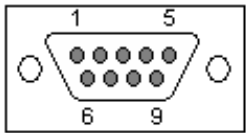
Control Cable Inc.
800-296-4411
sales@controlcable.com
Contact: Valerie Hoffman

DataFire Sync 2000 SCSI pinouts

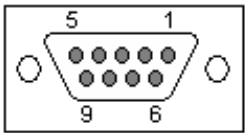
<u>SIGNAL</u>	<u>SCSI J1</u>	<u>SCSI J2</u>	<u>NOTES</u>
ID0	1	--	OPEN
ID1	35	--	OPEN
ID2	2	--	OPEN
ID3	36	--	TIED TO SHELL ON 68 PIN END
GND	SHELL	SHELL,A,B	USE BRAID TO CONNECT SHELLS
103B TxD+	4	S	TWISTED PAIR
103A TxD-	38	P	
113B TxCLKo+	5	W	TWISTED PAIR
113A TxCLKo-	39	U	
105B RTS+	6		
105A RTS-	40		
108B DTR+	7		
108A DTR -	41		
104B RxD+	8	T	TWISTED PAIR
104A TxD-	42	R	
115B RxCLKi+	43	X	TWISTED PAIR
115A RxCLKi-	9	V	
114B TxCLKi+	10	AA	TWISTED PAIR
114A TxCLKi-	44	Y	
106B CTS+	11		
106A CTS-	45		
107B DSR+	12		
107A DSR-	46		
109B DCD+	13		
109A DCD-	47		
107 DSR	14	E	TWISTED PAIR
109 DCD	48	F	
105 RTS	16	C	TWISTED PAIR
108 DTR	50	H	
106 CTS	52	D	TWISTED PAIR
GND	SHELL	SHELL	

Digi One EM DB-9 connector pinouts

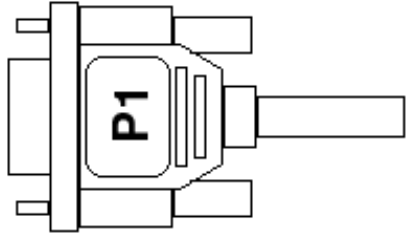
DB-9	Direction	Signal
1	←	DCD
2	←	RxD
3	→	TxD
4	→	DTR
5	↕	SG
6	←	DSR
7	→	RTS
8	←	CTS
9	←	RI



Male



Female



Digi One IA RealPort EIA-232 DB-9 connector pinout

Table 1 shows the wiring diagram for the EIA-232 DB-9 connector. Table 2 shows the terminal block.

Table 1: DB-9 connector

DB-9	Direction	Signal
1	←	DCD
2	←	RxD
3	→	TxD
4	→	DTR
5	↔	SG
6	←	DSR
7	→	RTS
8	←	CTS
9	←	RI

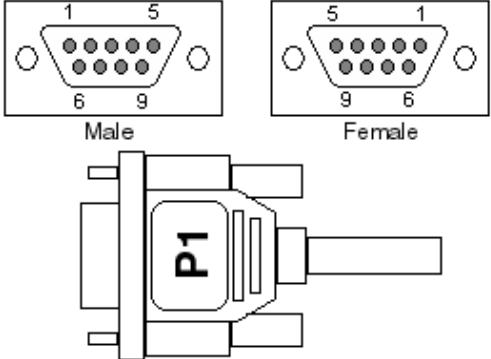


Table 2: Terminal Block

Screw Terminal	Direction	Signal
1	→	RTS
2	→	DTR
3	→	TxD
4		N/A
5	↔	SG
6	←	RxD
7	←	DSR
8	←	CTS
9	←	DCD



Digi One EM EIA-232 DB-9 and terminal block pinout

Table 1 shows the wiring diagram for the EIA-232 DB-9 connector. Table 2 shows the terminal block.

Table 1: DB-9 connector

DB-9	Direction	Signal
1	←	DCD
2	←	RxD
3	→	TxD
4	→	DTR
5	↔	SG
6	←	DSR
7	→	RTS
8	←	CTS
9	←	RI

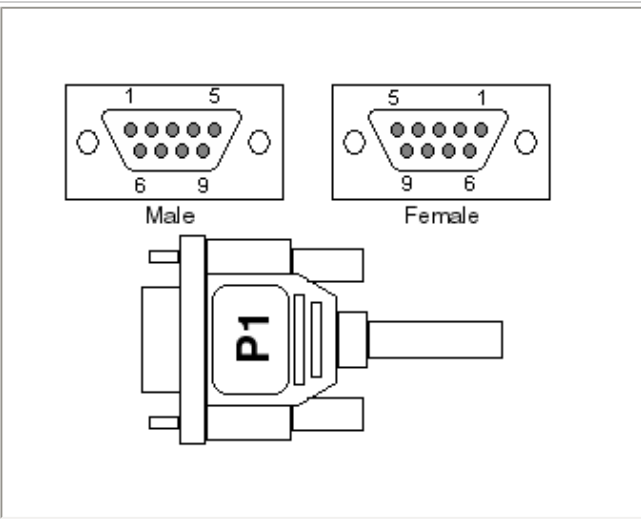
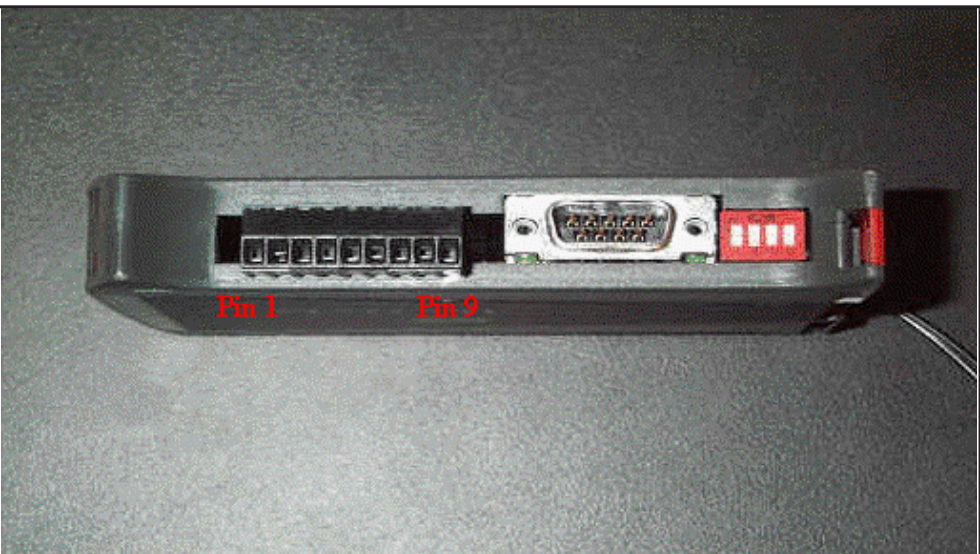


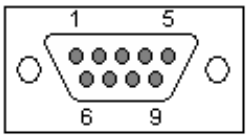
Table 2: Terminal Block

Screw Terminal	Direction	Signal
1	→	RTS
2	→	DTR
3	→	TxD
4		N/A
5	↔	SG
6	←	RxD
7	←	DSR
8	←	CTS
9	←	DCD

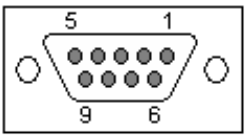


Digi One SP DB-9 pinout

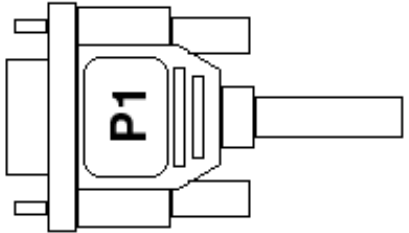
DB-9	Direction	Signal
1	←	DCD
2	←	RxD
3	→	TxD
4	→	DTR
5	↔	SG
6	←	DSR
7	→	RTS
8	←	CTS
9	←	RI



Male



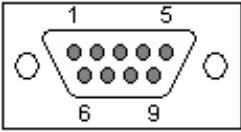
Female



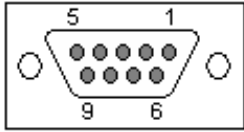
P1

Async EIA-422 DB-9 connector pinout

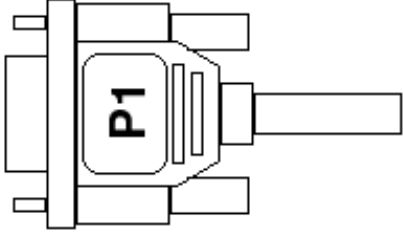
DB-9	Direction	Signal
2	→	RTS+
3	→	RTS-
4	↑	CTS+
5	↑	CTS-
6	↑	RxD+
7	↑	RxD-
8	→	TxD+
9	→	TxD-
Shell	↔	GND



Male

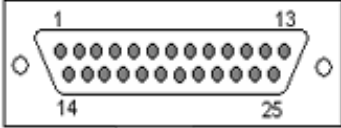


Female

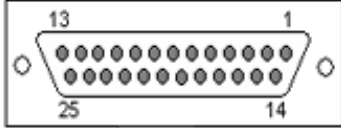


Async EIA-422 DB-25 pinout

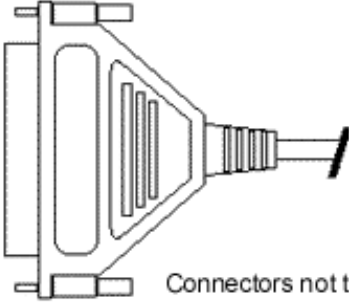
DB-25	Direction	Signal
2	→	TxD+
14	→	TxD-
3	←	RxD+
16	←	RxD-
4	→	RTS+
19	→	RTS-
5	←	CTS+
13	←	CTS-
Shell	↔	GND



Male DB-25



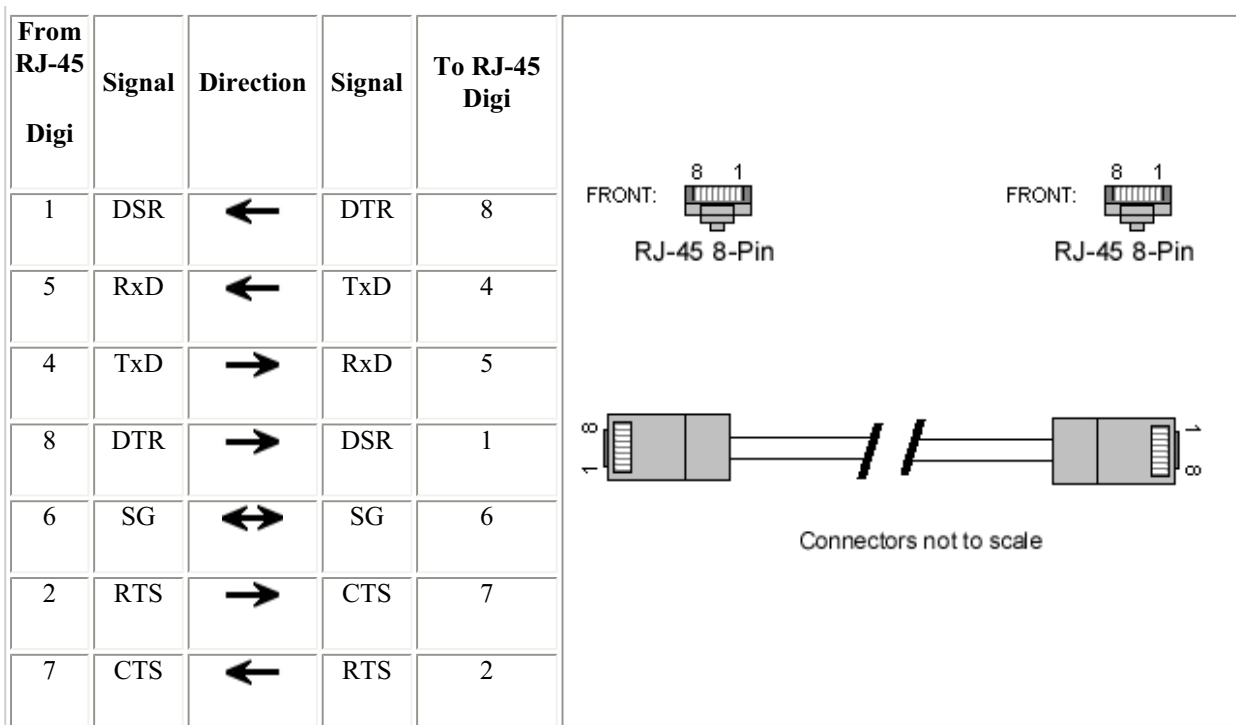
Female DB-25



Connectors not to scale

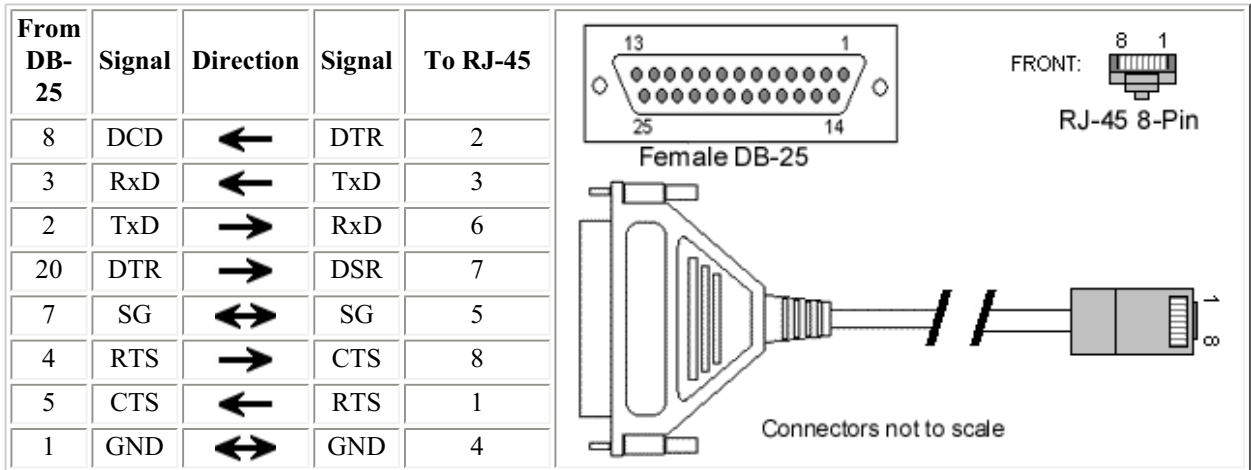
* Arrows indicate which direction the signal is flowing

Async RJ-45 to RJ-45 crossover cable - for cross-connecting Digi asynchronous ports together



- Arrows indicate which direction the signal is flowing

DB-25F to RJ-45 Cisco console cable adapter



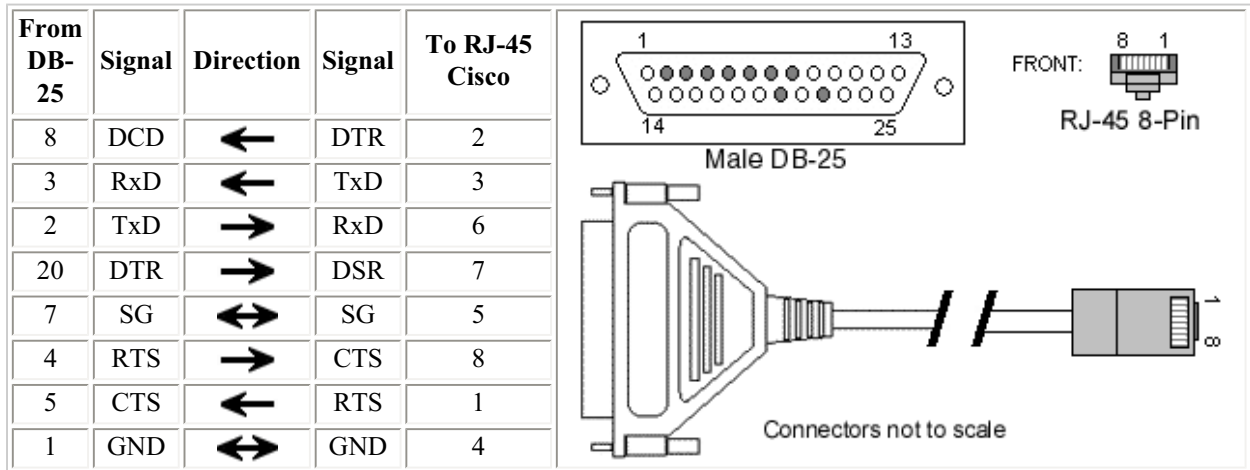
- Arrows indicate which direction the signal is flowing

NOTES:

- Works for most current Cisco routers.
- Altpin should be turned off when using this cable.

SCSI Terminal Server DB-25M to RJ-45 Cisco console cable adapter

EIA-232 boards that require DB-25 Male Cables Assemblies:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



- Arrows indicate which direction the signal is flowing

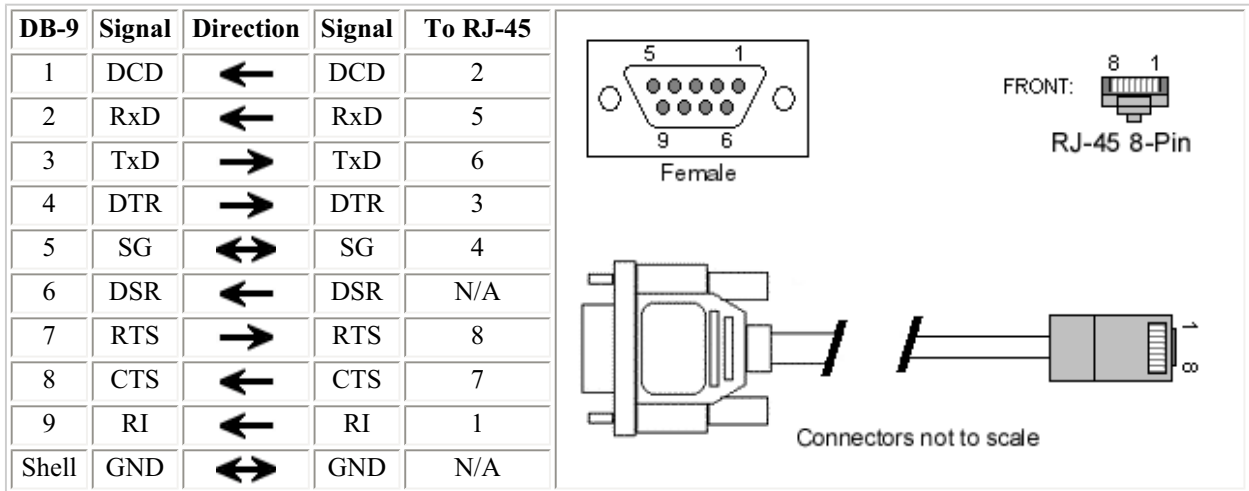
Difference between DTE and DCE

One of the most misunderstood areas of RS-232 communications is the difference between Data Terminal Equipment (DTE) and Data Communications Equipment (DCE). DTE is typically either a dumb terminal or the serial port on a computer/workstation. DCE is typically a modem, Channel Service Unit/Data Service Unit (CSU/DSU), or another data communications unit. This is all most people need to know about these terms and their meanings.

When signal definitions and direction become involved, these terms can get more complicated. For example, when a unit transmits data, it is sent out of the unit. However, in terms of DCE, this transmitted data becomes an input signal. This is because the specification for data transmission is written from the perspective of the DTE end of the link. As another, the Receive Data signal is an input to DTE, but an output from DCE.

Therefore, a straight-through one-to-one cable is all that is necessary between a modem and a standard DTE serial port. However, if it desired to connect two DTE ports together, it is necessary to simulate a pair of DCE devices, typically modems that would normally be between the two DTE devices. To perform this simulation, a null-modem device or cable is used.

DB-9F to RJ-45 3COM Total Control/COMPAQ Microcom modem cable



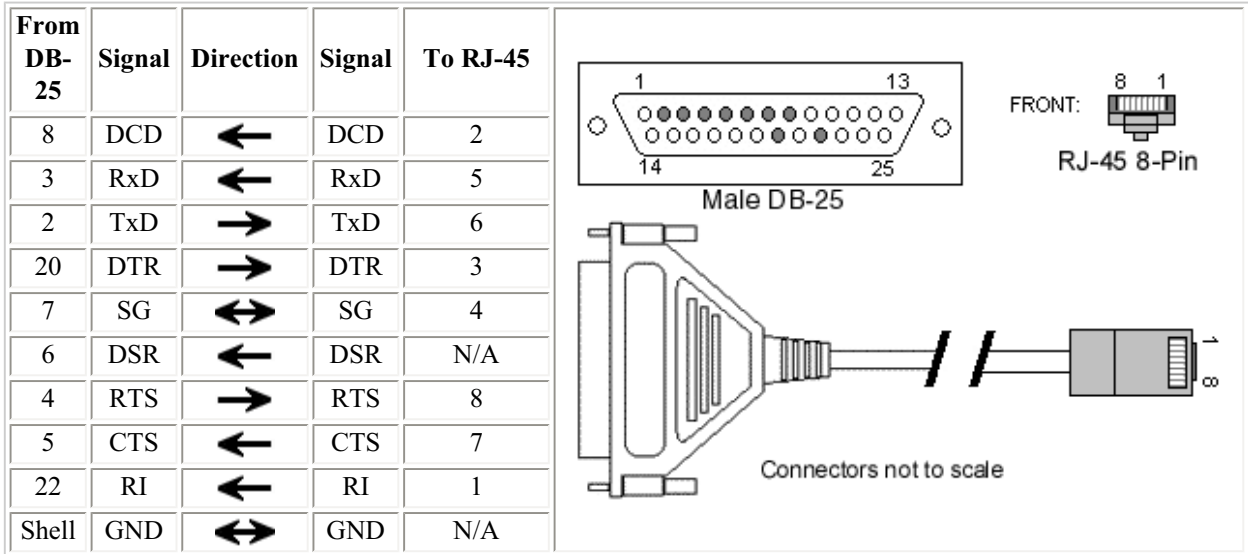
- Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.

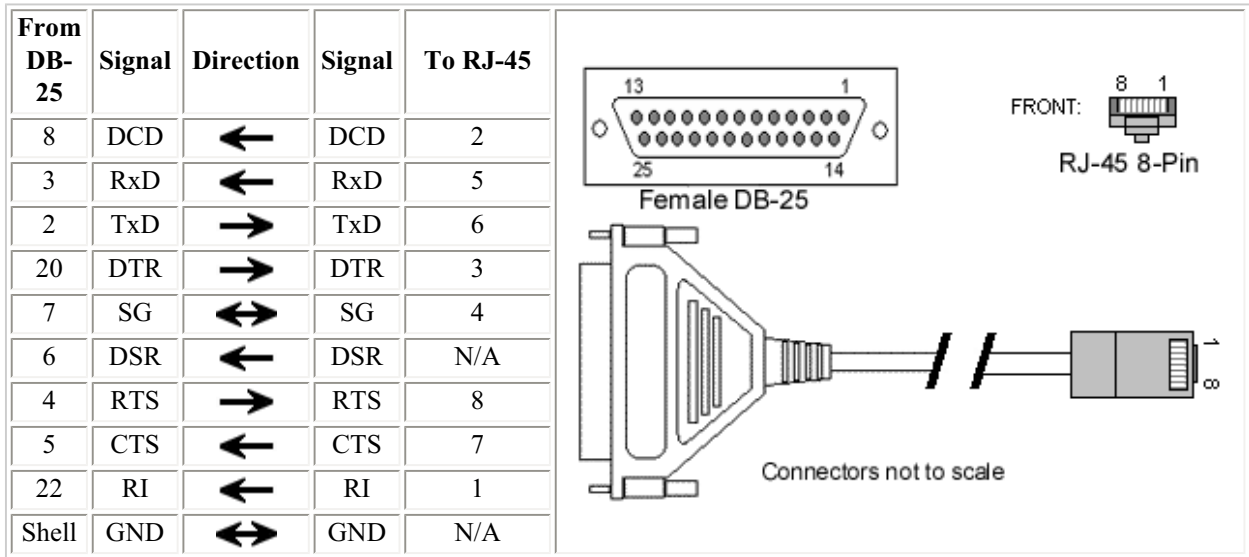
SCSI Terminal Server DB-25M to RJ-45 3COM Total Control/COMPAQ Microcom modem cable

EIA-232 boards that require DB-25 male cable assemblies:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



- Arrows indicate which direction the signal is flowing

DB-25F to RJ-45 3COM Total Control/COMPAQ Microcom modem cable



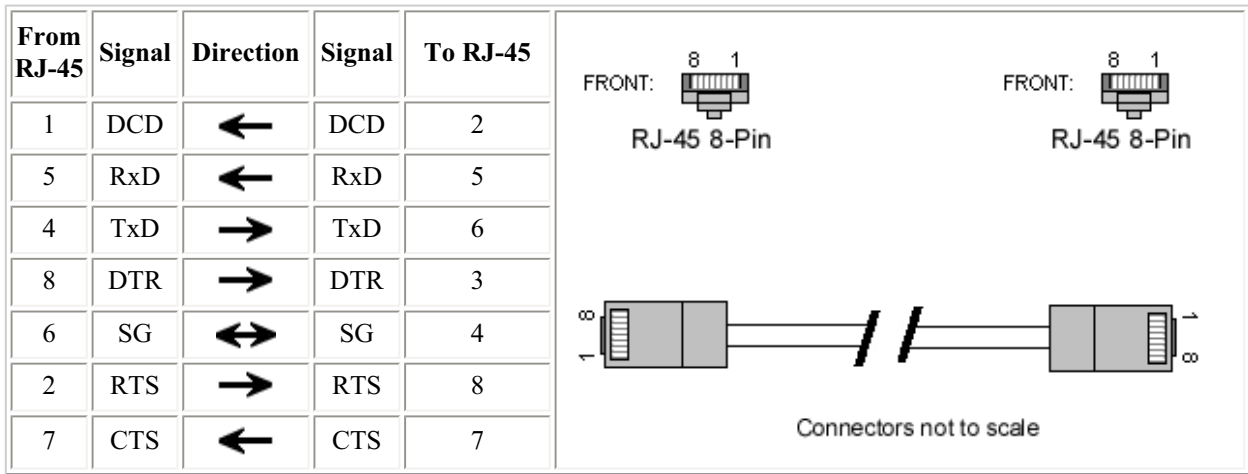
- Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.

RJ-45 to RJ-45 (Altpin on) 3 COM Total Control/COMPAQ Microcom modem cable

The table shows the wiring diagram for an EIA-232 RJ-45 8-pin connector, with Altpin on, to a 3COM Total Control or COMPAQ Microcom RJ-45 8-pin modem cable.

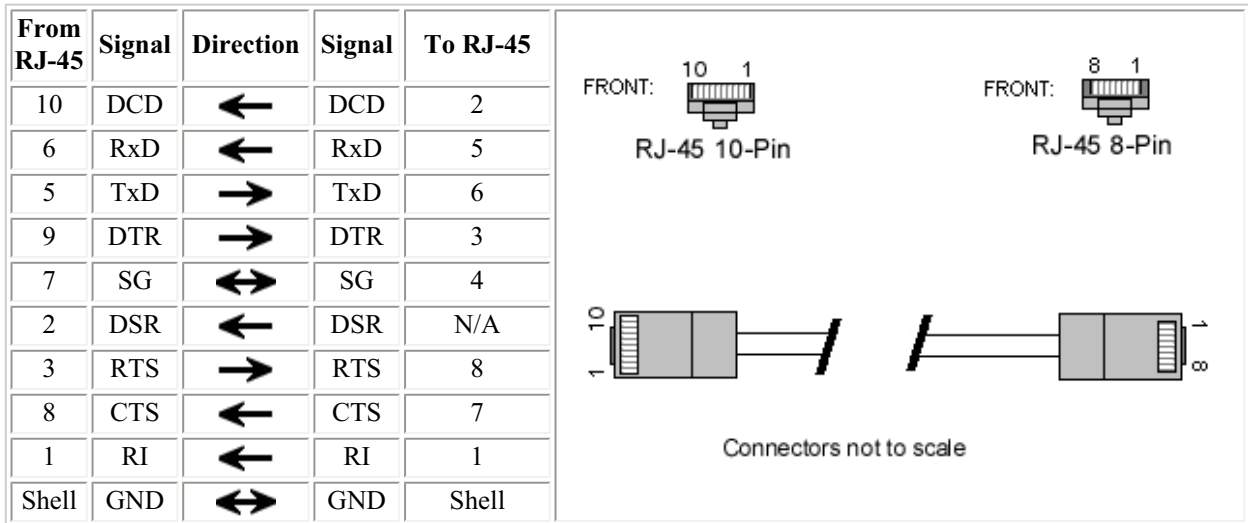


- Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable.

RJ-45 10-pin to RJ-45 3 COM Total Control/Compaq Microcom modem cable

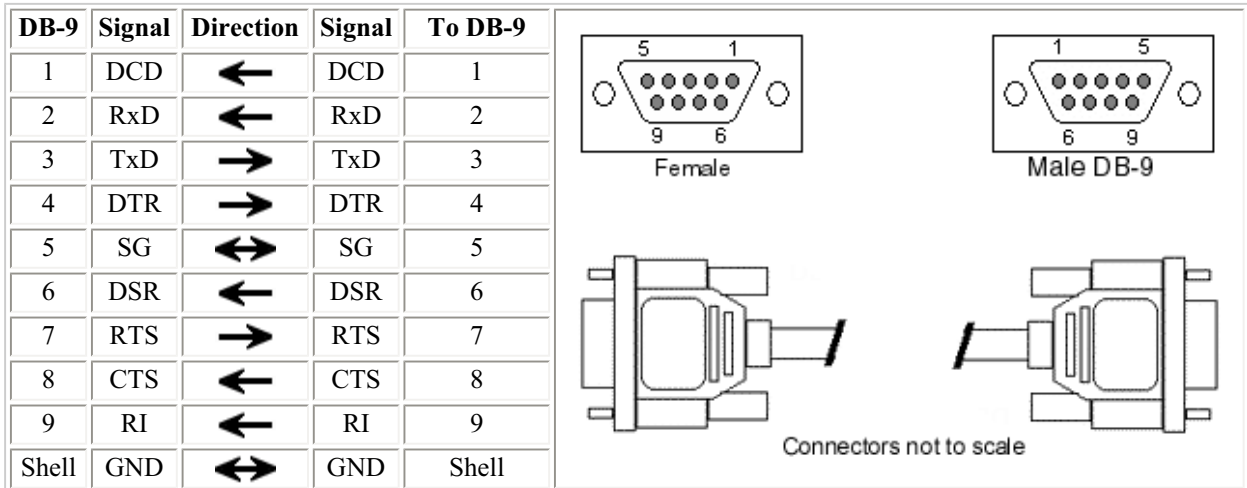


- Arrows indicate which direction the signal is flowing

NOTES:

- If using this cable with RAS under Windows issue `ATS58=1&w` to the modem.
- Altpin should be turned off when using this cable.

DB-9F to DB-9M modem cable



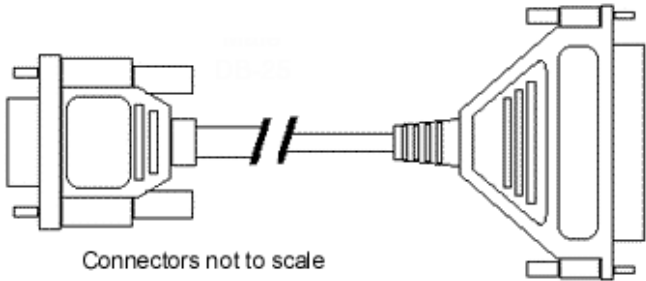
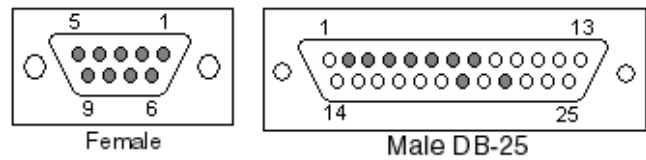
* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

DB-9F to DB-25M modem cable

DB-9	Signal	Direction	Signal	To DB-25
1	DCD	←	DCD	8
2	RxD	←	RxD	3
3	TxD	→	TxD	2
4	DTR	→	DTR	20
5	SG	↔	SG	7
6	DSR	←	DSR	6
7	RTS	→	RTS	4
8	CTS	←	CTS	5
9	RI	←	RI	22
Shell	GND	↔	GND	Shell

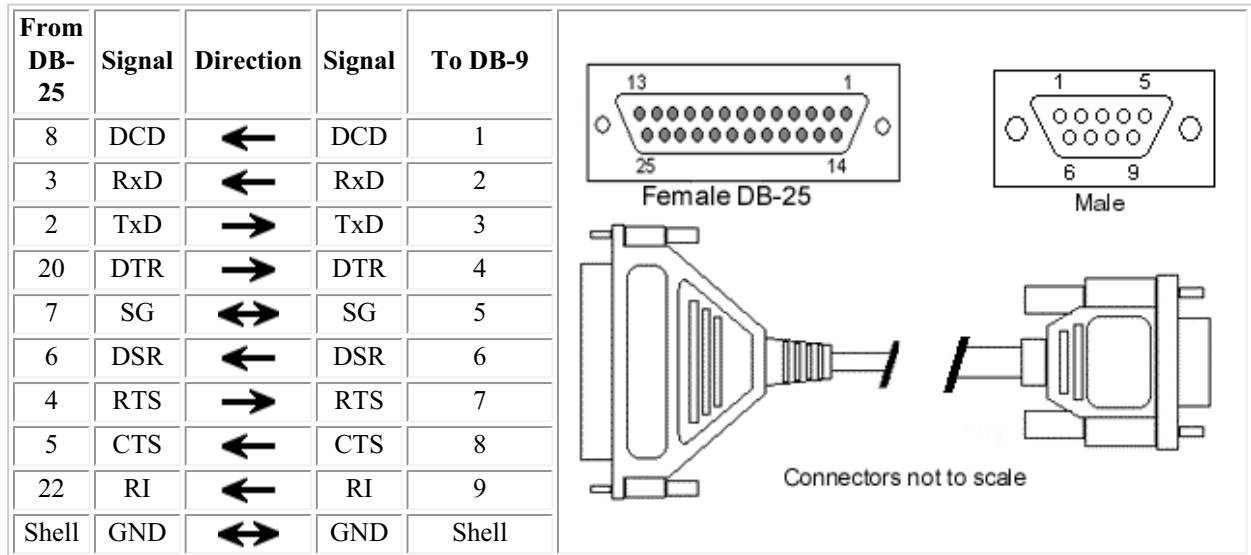


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

DB-25F to DB-9M modem cable



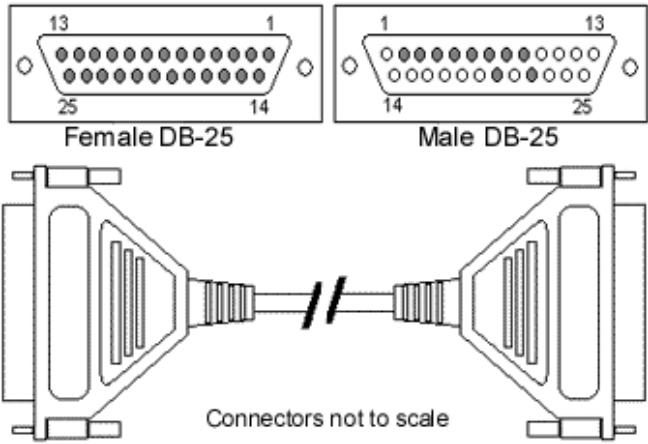
* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

DB-25F to DB-25M modem cable

From DB-25	Signal	Direction	Signal	To DB-25
8	DCD	←	DCD	8
3	RxD	←	RxD	3
2	TxD	→	TxD	2
20	DTR	→	DTR	20
7	SG	↔	SG	7
6	DSR	←	DSR	6
4	RTS	→	RTS	4
5	CTS	←	CTS	5
22	RI	←	RI	22
Shell	GND	↔	GND	Shell



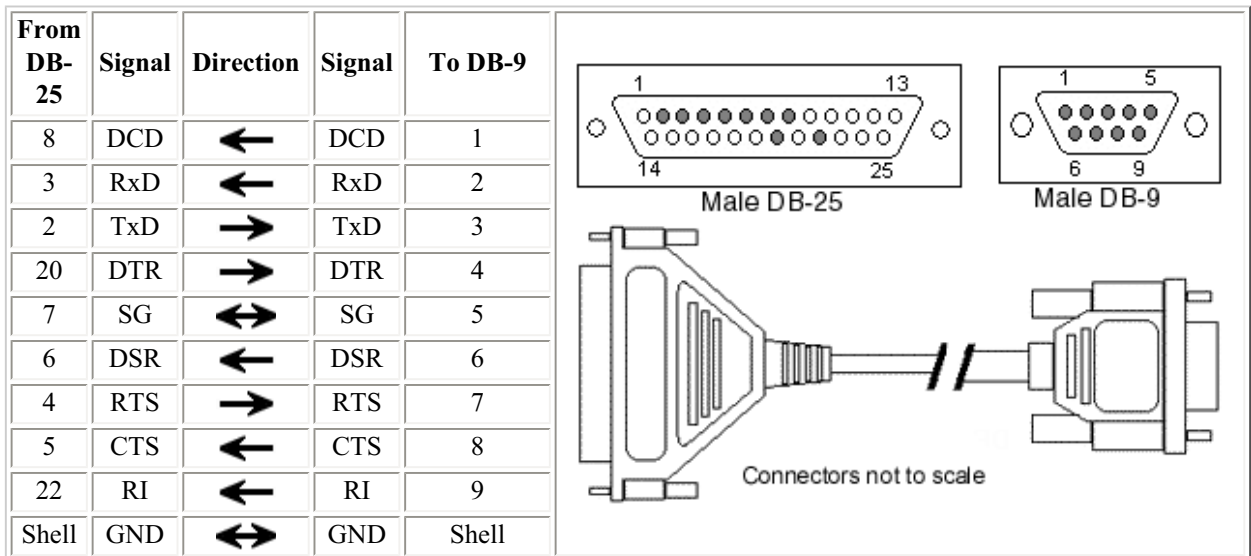
* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).
- EIA-232 cables cannot exceed 2500pF.

SCSI Terminal Server DB-25M to DB-9M modem cable

EIA-232 boards that require DB-25 male cable connectors:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



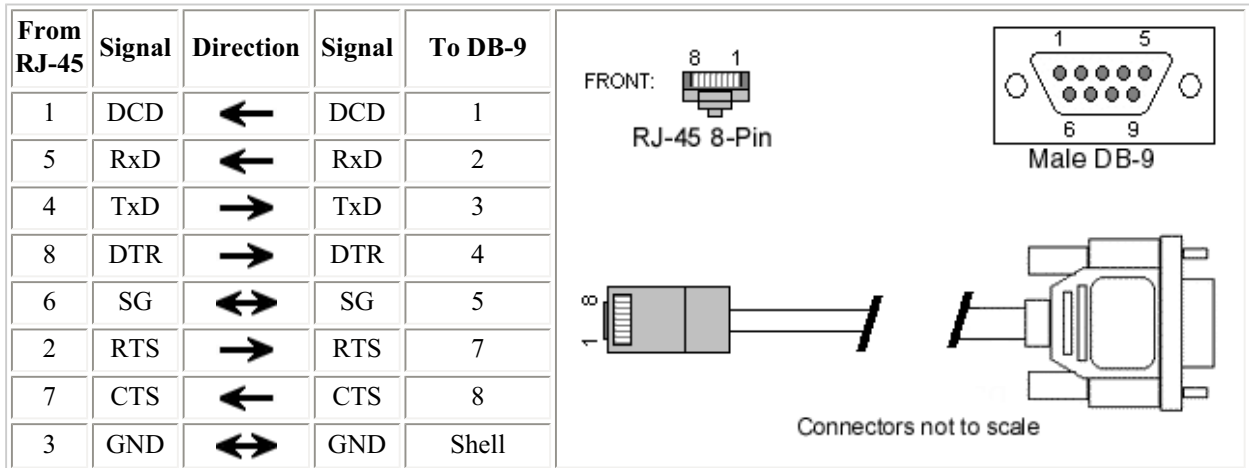
* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

RJ-45 (Altpin on) to DB-9M modem cable

The table shows the wiring diagram for an EIA-232 RJ-45 8-pin connector, with Altpin on, to a DB-9 modem cable.



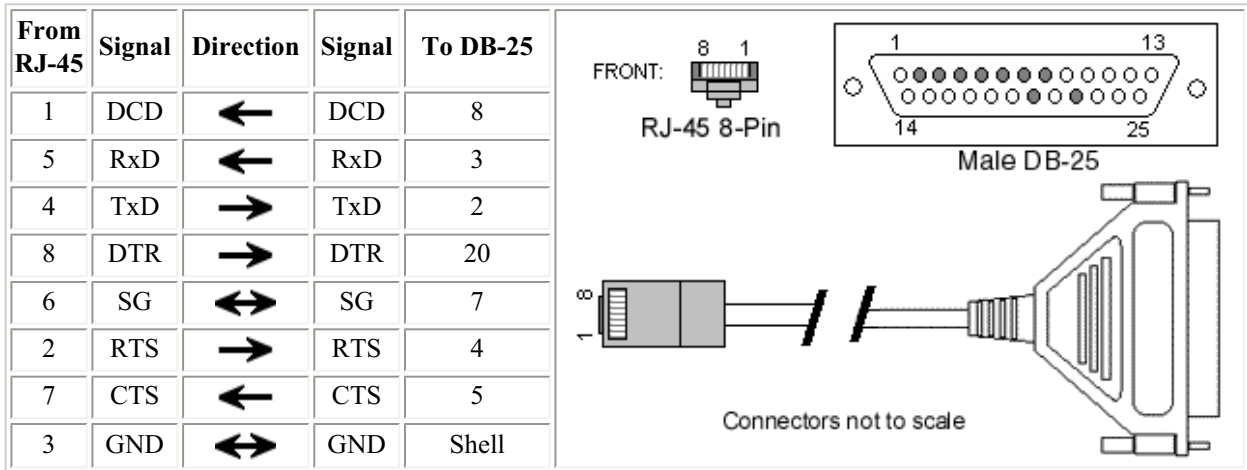
* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

RJ-45 (Altpin on) to DB-25M modem cable

The table shows the wiring diagram for an EIA-232 RJ-45 8-pin connector, with Altpin on, to a DB-25 modem cable.

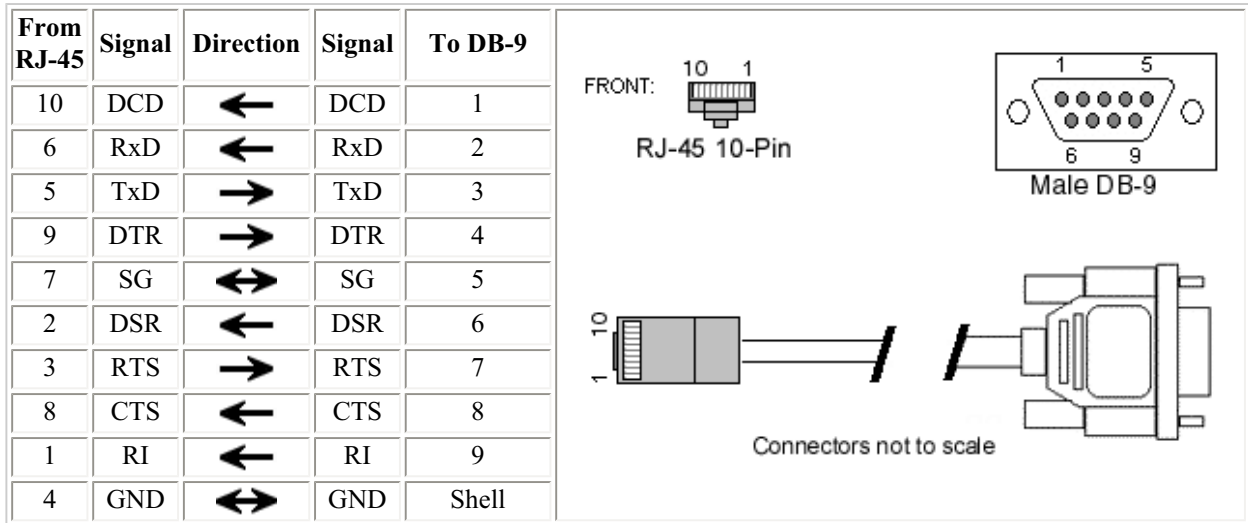


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

RJ-45 10-pin to DB-9M modem cable



* Arrows indicate which direction the signal is flowing

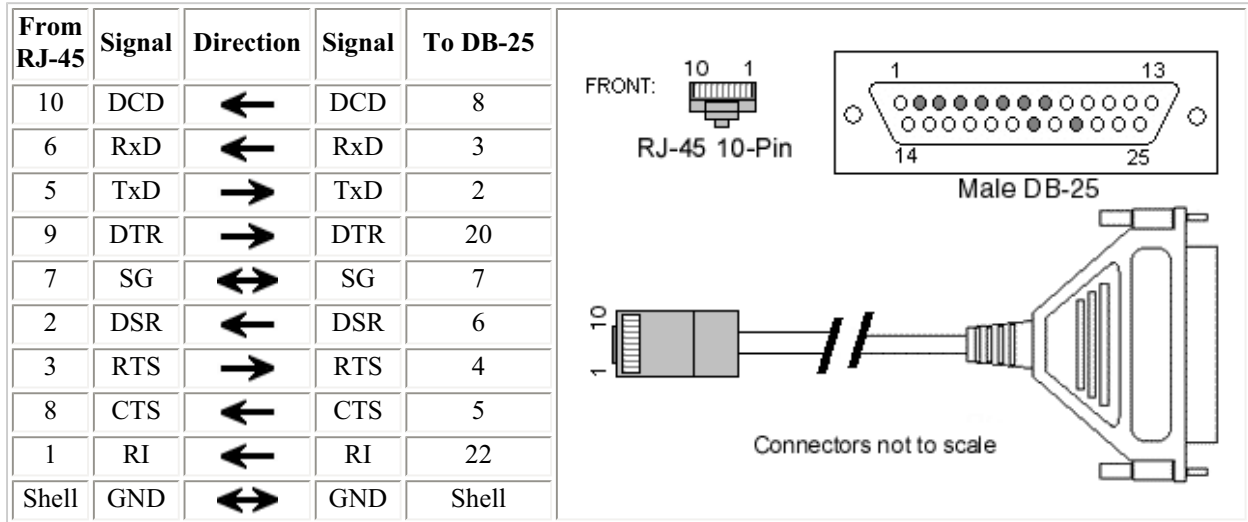
These cables can also be purchased from Digi (See part numbers below).

- 2' RJ-45 10-pin to DB-9 Pin - Part #76000239
- 4' RJ-45 10-pin to DB-9 Pin - Part #76000240

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

RJ-45 10-pin to DB-25M modem cable



* Arrows indicate which direction the signal is flowing

These cables can also be purchased from Digi (See part numbers below).

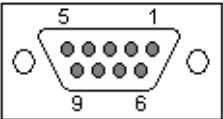
- 2' RJ-45 10-pin to DB-25 Pin - Part #76000129
- 4' RJ-45 10-pin to DB-25 Pin - Part #76000195

NOTES:

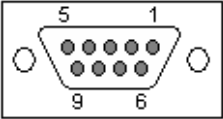
- Altpin should be turned off when using this cable.
- This cable utilizes the CTS signal of the modem for hardware flow control (RTS/CTS).

DB-9F to DB-9F terminal emulator cable

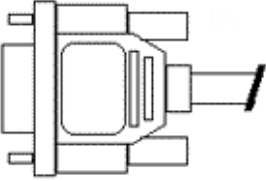
DB-9	Signal	Direction	Signal	To DB-9
2	RxD	←	TxD	3
3	TxD	→	RxD	2
4	DTR	↔	DSR	6
			DCD	1
5	SG	↔	SG	5
6	DSR	↔	DTR	4
1	DCD			
7	RTS	→	CTS	8
8	CTS	←	RTS	7
Shell	GND	↔	GND	Shell

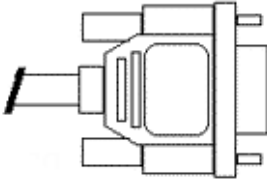


Female DB-9



Female DB-9





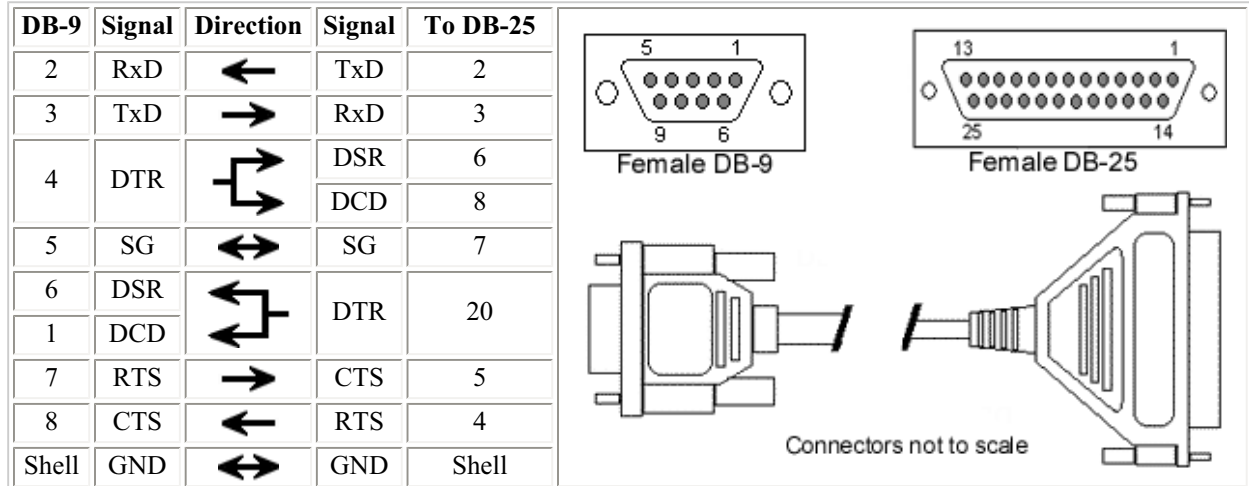
Connectors not to scale

* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

DB-9F to DB-25F terminal emulator cable

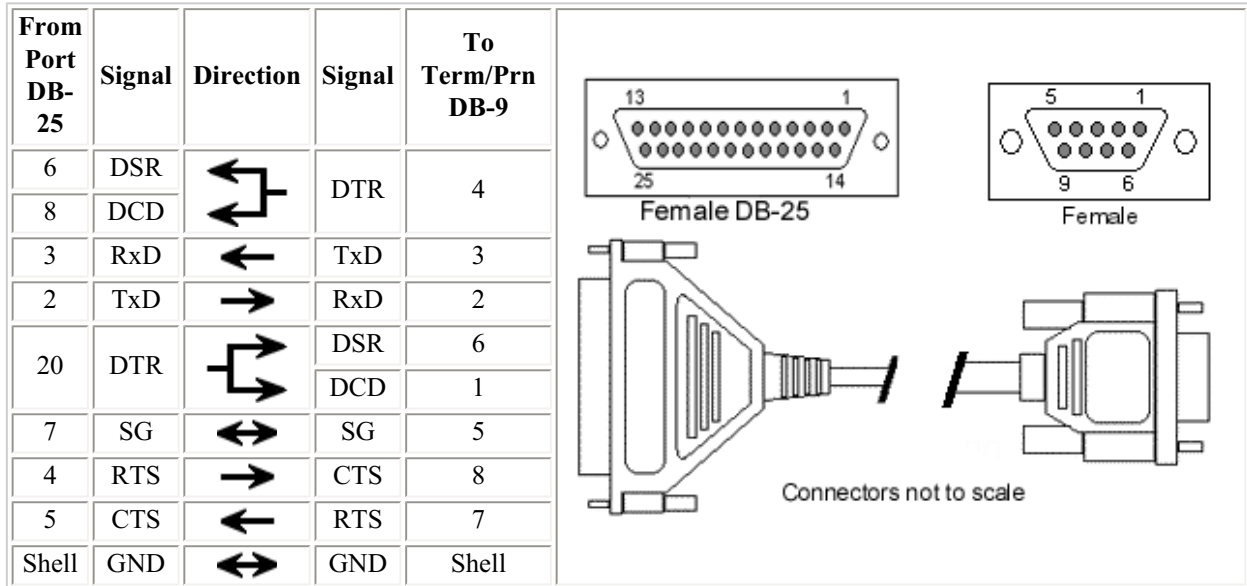


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

DB-25F to DB-9F terminal emulator cable

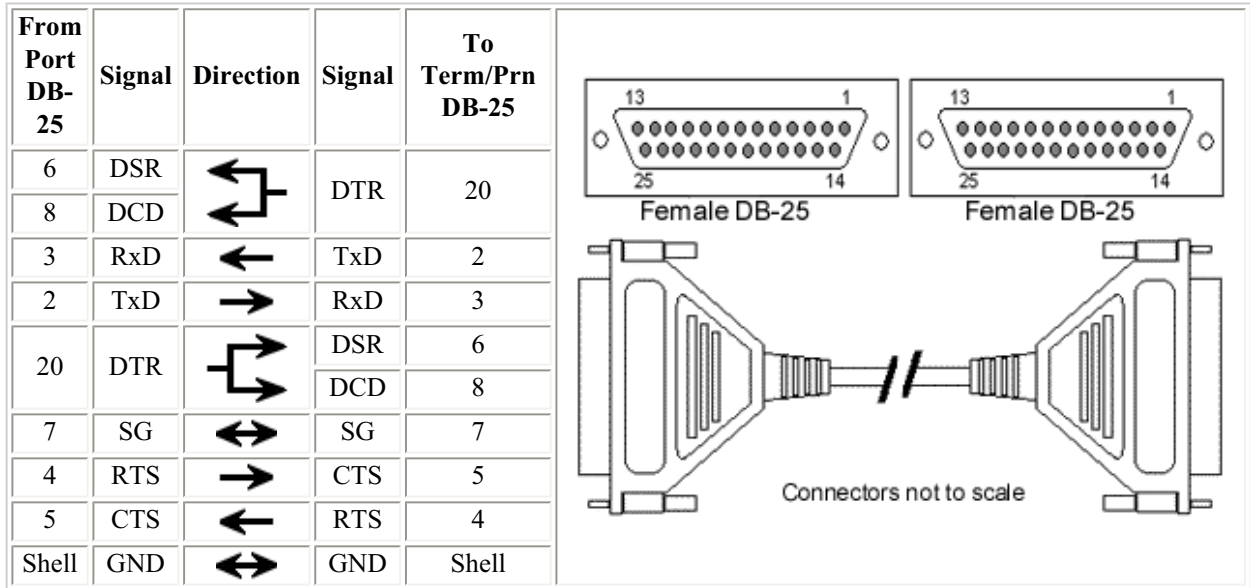


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

DB-25F to DB-25F terminal emulator cable



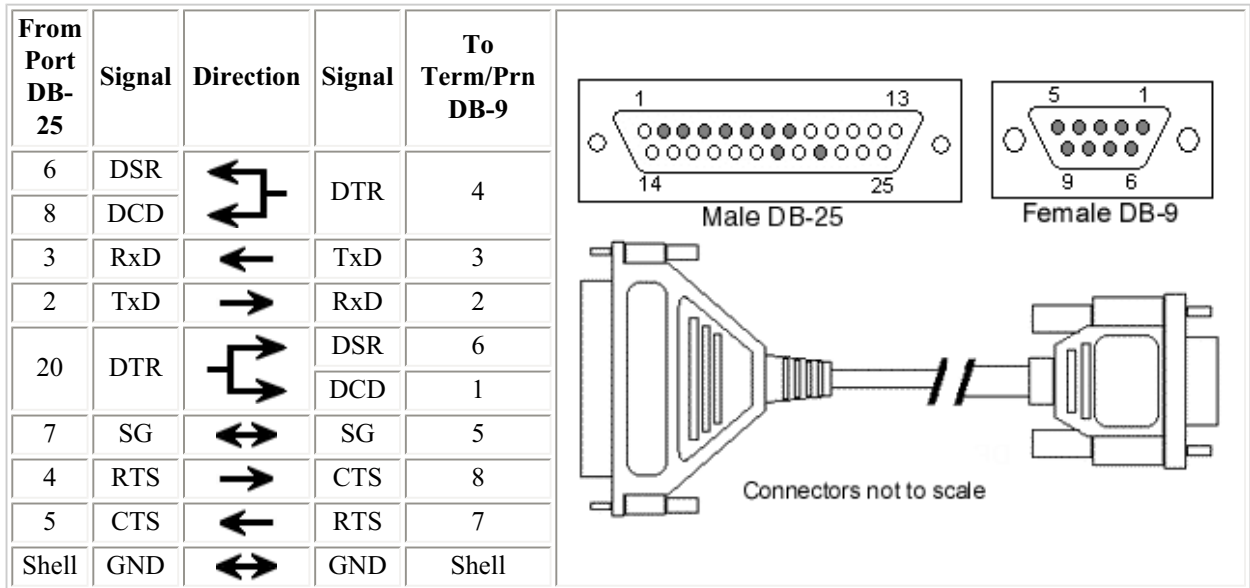
* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

SCSI Terminal Server DB-25M to DB-9F terminal emulator cable

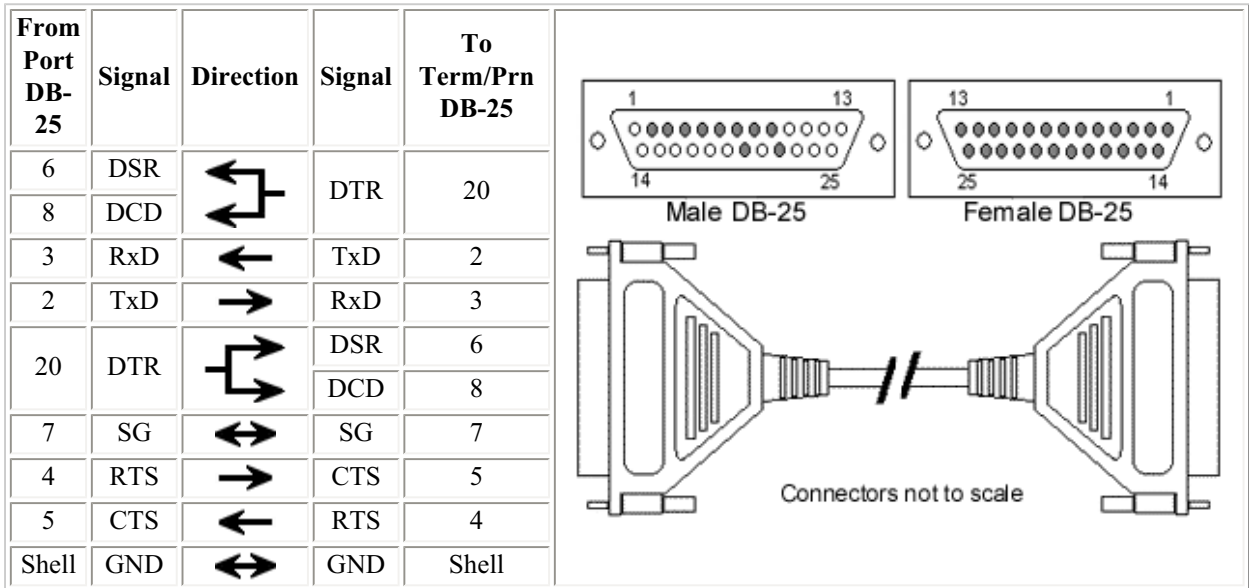
EIA-232 boards that require DB-25 male cable connectors:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



* Arrows indicate which direction the signal is flowing

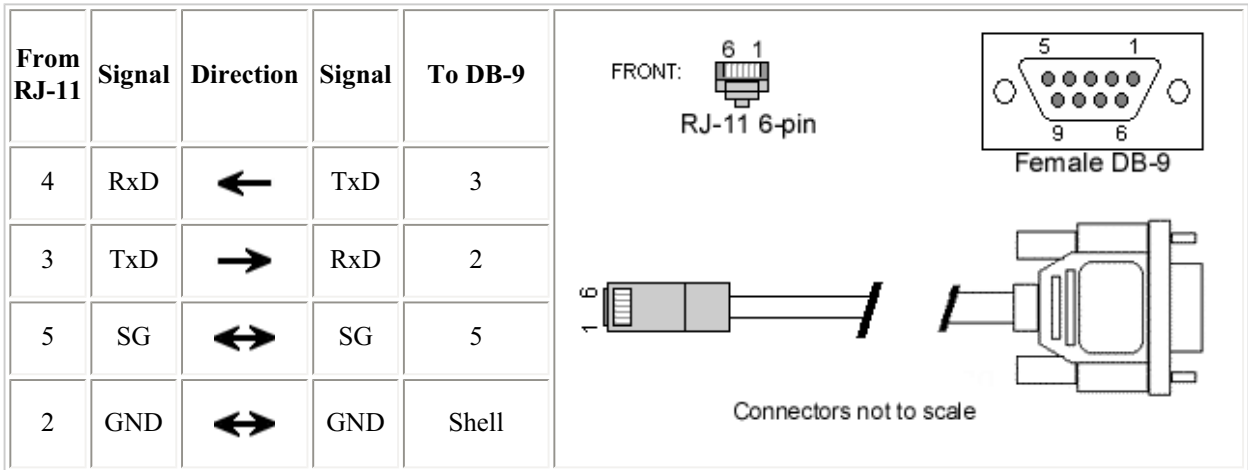
SCSI Terminal Server DB-25M to DB-25F terminal emulator cable

EIA-232 boards that require DB-25 male cable connectors:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



* Arrows indicate which direction the signal is flowing

RJ-11 6-pin/4-wire to DB-9F terminal emulator cable

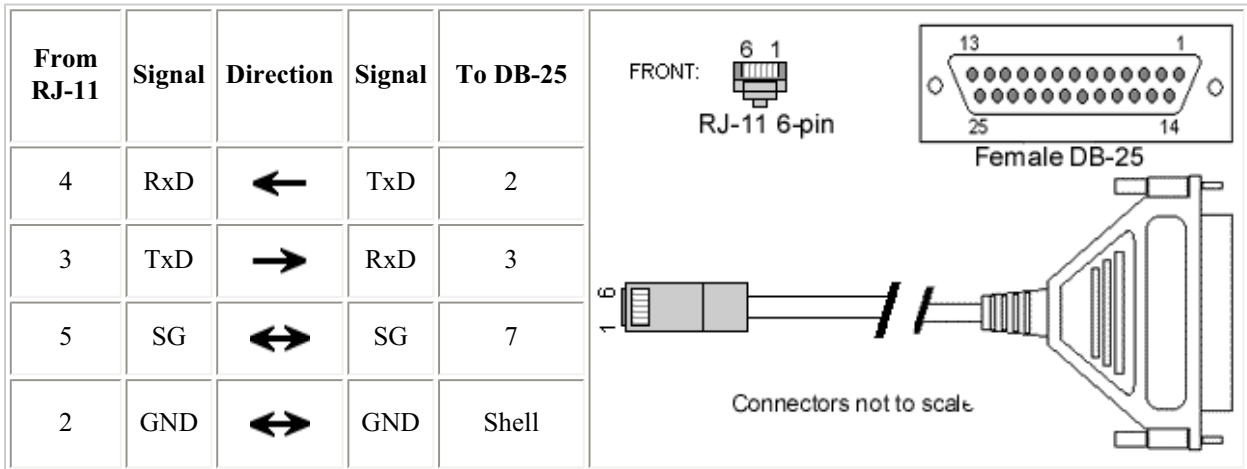


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-11 6-pin/4-wire to DB-25F terminal emulator cable - software flow control only

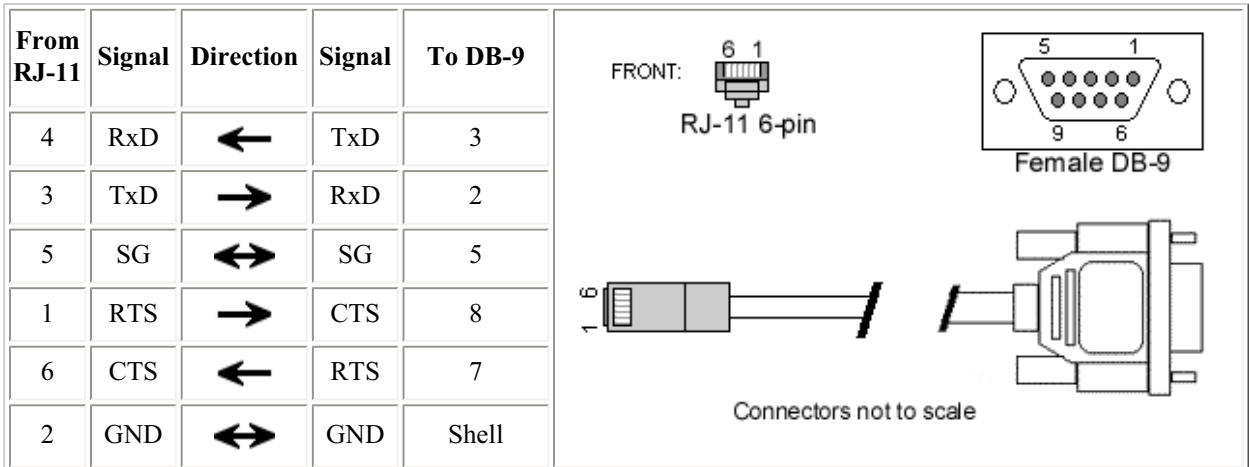


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-11 6-pin to DB-9F terminal emulator cable

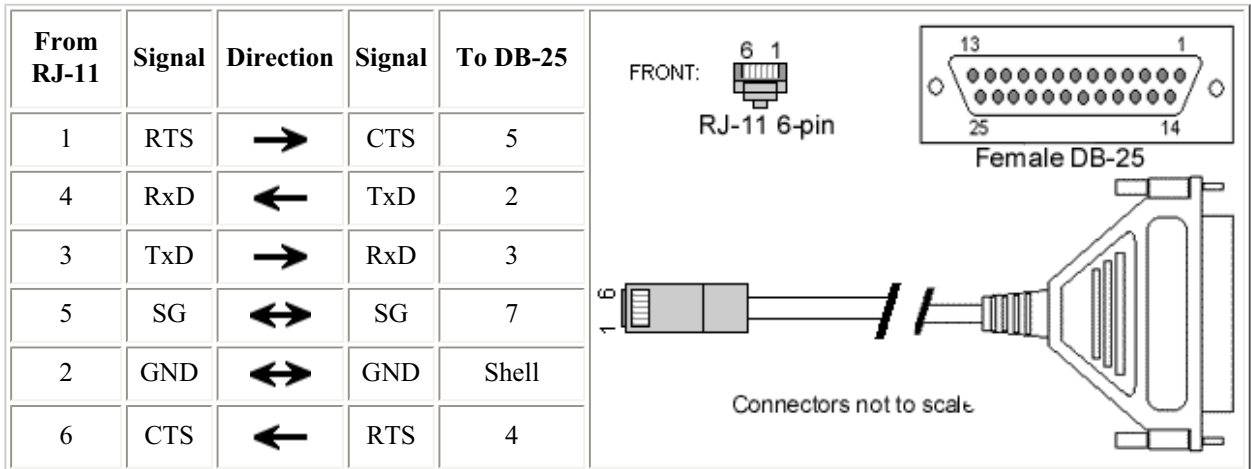


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-11 6-pin to DB-25F PC terminal emulator cable

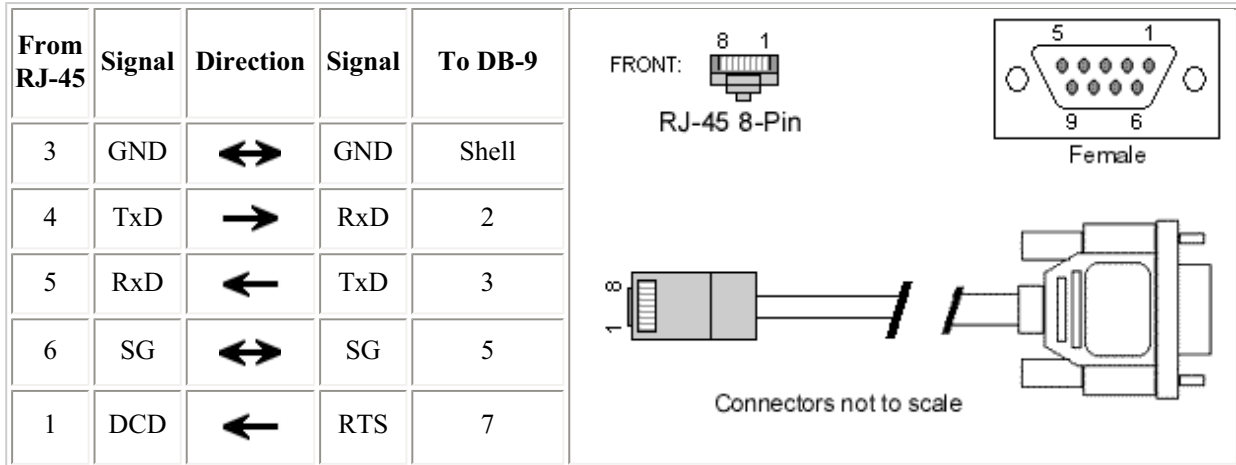


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-45 4-wire to DB-9F terminal emulator cable - software flow control only

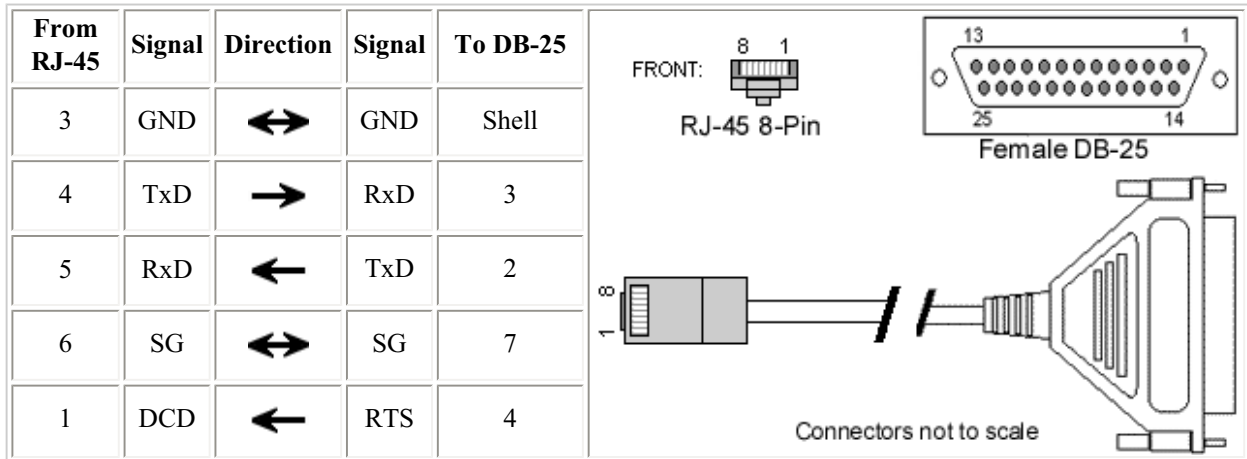


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, altpin must be turned on and the DCD-RTS wire added (in some cases it may be possible to wire DCD-RTS as the fourth wire instead of GND).

RJ-45 4-wire to DB-25F terminal emulator cable - software flow control only

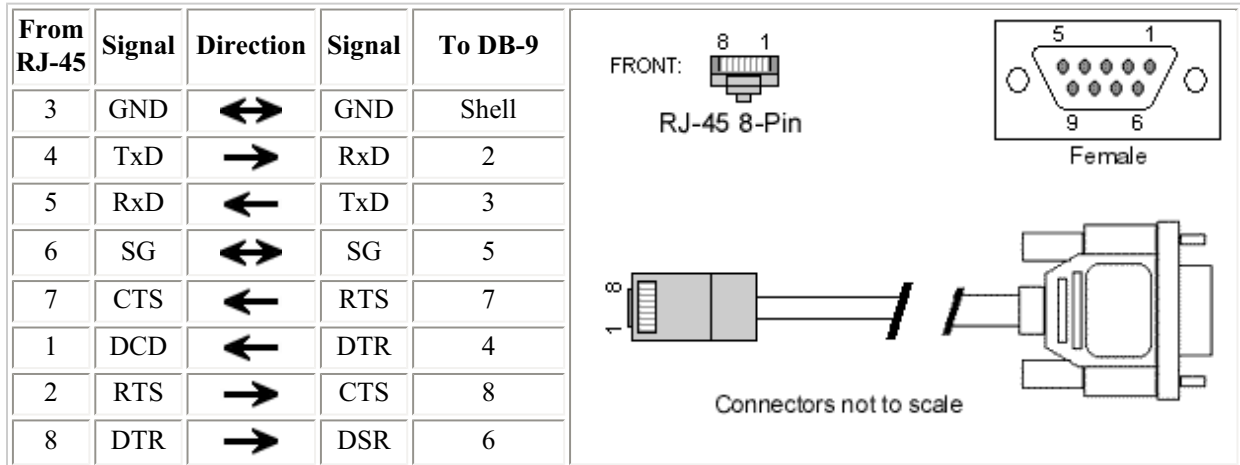


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, altpin must be turned on and the DCD-RTS wire added (in some cases it may be possible to wire DCD-RTS as the fourth wire instead of GND).

RJ-45 (Altpin on) to DB-9F terminal emulator cable

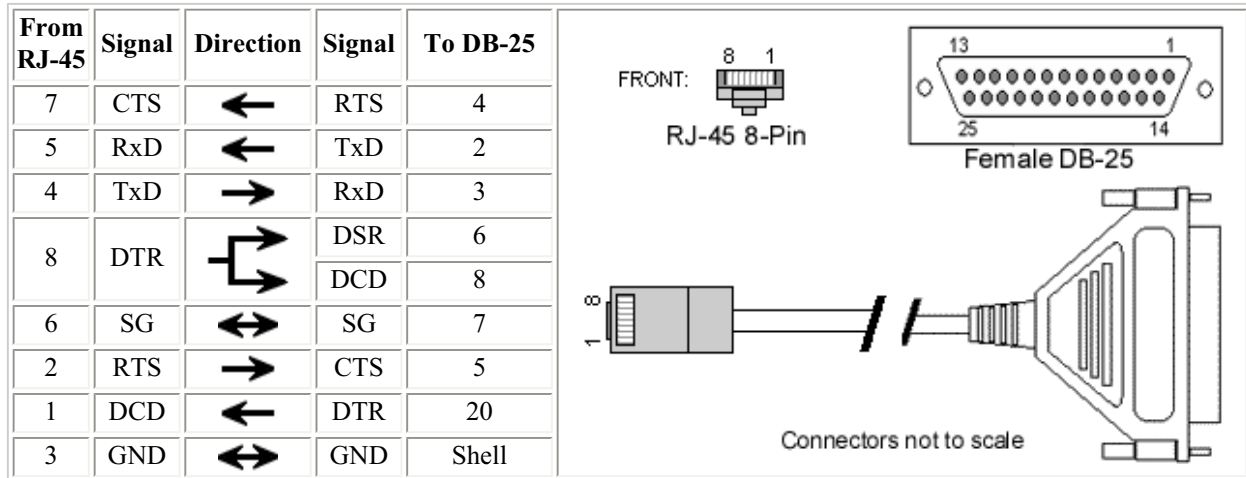


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

RJ-45 (Altpin on) to DB-25F terminal emulator cable

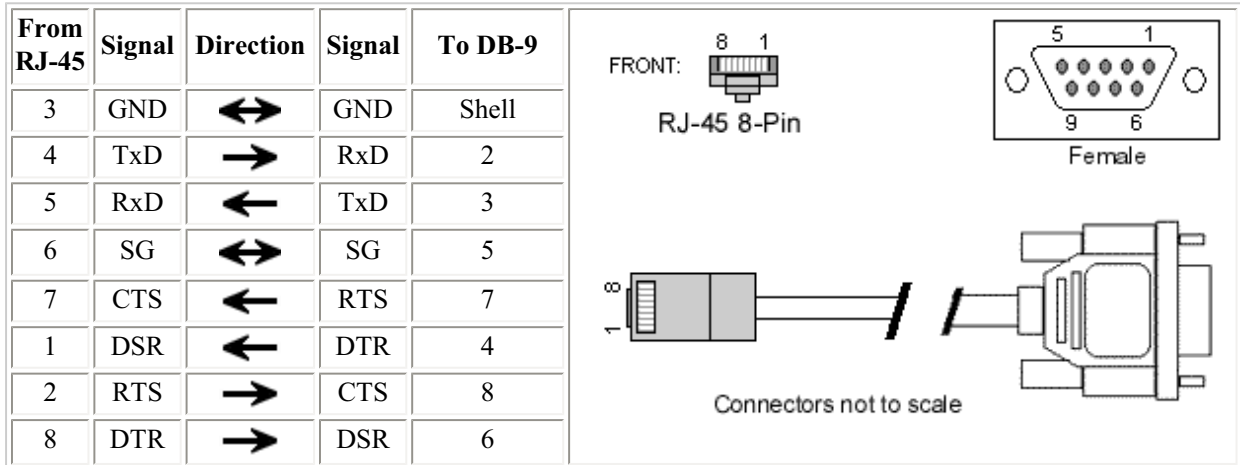


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.

RJ-45 to DB-9F terminal emulator cable

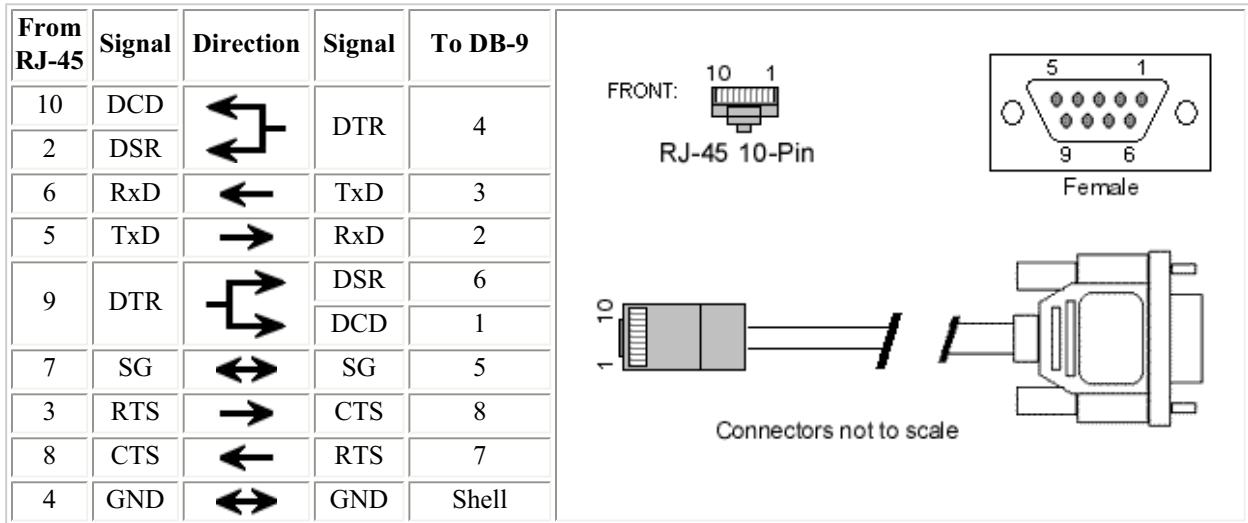


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable so that pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

RJ-45 10-pin to DB-9F terminal emulator cable

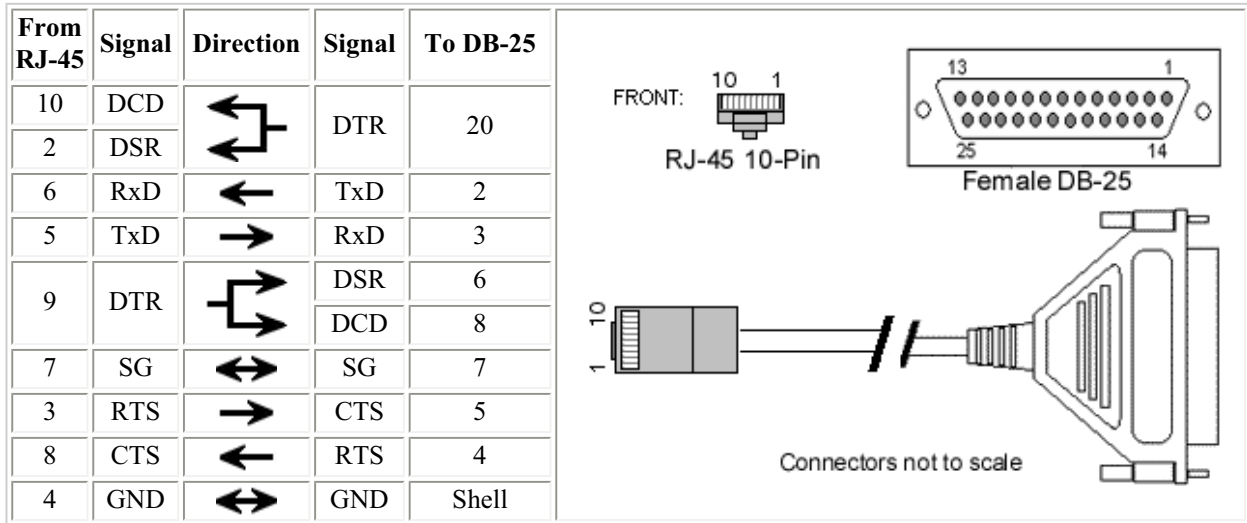


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

RJ-45 10-pin to DB-25F terminal emulator cable



* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).

RJ-45 (Altpin On) to RJ-45 Cisco console adapter

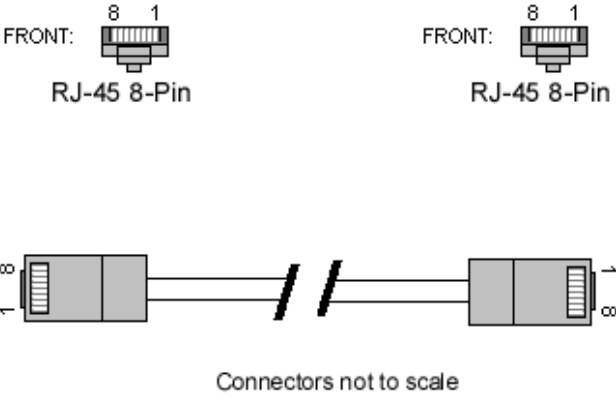
The wiring diagram for an Altpin RJ-45 8-pin to a Cisco Console RJ-45 8-pin adapter cable is shown in Table 1.

The Following cables are available from Digi:

76000631 Qty-1 6' Cisco/SUN Netra
 76000632 Qty-8 6' Cisco/SUN Netra
 76000633 Qty-16 6' Cisco/SUN Netra

Table 1: EIA-232 Altpin RJ-45 to RJ-45

From RJ-45	Signal	Direction	Signal	To RJ-45 Cisco
1	DCD	←	DTR	2
5	RxD	←	TxD	3
4	TxD	→	RxD	6
8	DTR	→	DSR	7
6	SG	↔	SG	5
2	RTS	→	CTS	8
7	CTS	←	RTS	1
3	GND	↔	GND	4



- Arrows indicate which direction the signal is flowing

NOTES:

- Works for most current Cisco routers.
- Be careful not to swap cable ends. One end will go to DIGI and the other to the router.
- Altpin should be turned on when using this cable.

V.35 to DB-25M cabling

V.35 (DB25)	
Pin #	Signal
1	CGND
2	TxD
3	RxD
4	RTS
5	CTS
6	DSR
7	GND
8	DCD
9	RxCLK(A)
11	TxCLOUT(A)
12	TxCLKIN(A)
14	TxD(B)
15	TxCIN
16	RxD(B)
17	RxC
20	DTR
24	TxOUT
Shell	CGND

This V.35 cabling option provides a DB25 Male connector.

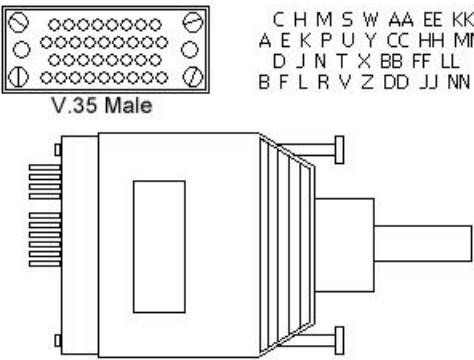
This cable type is capable of handling data rates up to 2.048Mbps (E1) as well as lower speeds (9600, 19200, 56000, etc.).

V.35 pinout

V.35 Boards with Winchester cable assemblies (see part numbers for cables below) - Sync 570 (EIA-232 only), Sync 570i (X.21/EIA-530), Sync 570i (EIA-232/V.35), Sync 570i UIB (PCI boards), Syncport, Sync 2000.

- Sync 2000 single port V.35 cable - Part #77000427
- Sync 570i UIB single port V.35 cable - Part #76000292
- Sync 570i 2 port V.35 cable - Part #62500046
- Sync 570i 4 port V.35 cable - Part #62500051
- DB-25 to Winchester convertor for ISA Sync 570i - Part #62500041

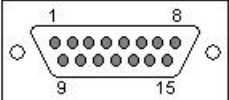
V.35	Direction	Signal
A	↔	CGND
B	↔	GND
C	→	RTS
D	←	CTS
E	←	DSR
F	←	DCD
H	←	DTR
P	→	TxD+
R	←	RxD+
S	→	TxD-
T	←	RxD-
U	→	TXcLK External +
V	←	RxCk+
W	→	TxCk External -
X	←	RxCk-
Y	←	TxCk In +
AA	←	TxCk In -
Shell	↔	GND



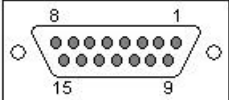
C H M S W AA EE KK
A E K P U Y CC HH MM
D J N T X BB FF LL
B F L R V Z DD JJ NN

X.21 V.11 to DB-15 cable pinout

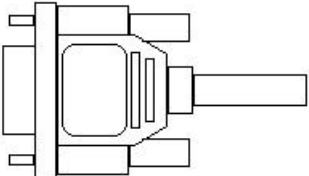
DB-25	Direction	Signal
1	↔	CGND
2	→	TxD+
3	←	RxD+
4	→	RTS+
5	←	CTS+
6	←	DCE Ready +
7	↔	SG
8	←	Received Line Signal Indicator +
9	←	RxClk +
10	←	Received Line Signal Indicator -
11	→	TxClk External +
12	←	TxClk Internal -
13	←	CTS-
14	→	TxD-
15	←	TxClk Internal +
16	←	RxD-
17	←	RxClk-
19	→	RTS-
20	→	DTE Ready +
22	←	DCE Ready +
23	→	DTE Ready -
24	→	TxClk External -
Shell	↔	GND



Male



Female



NOTES:

X.21/V.11 Boards with DB-15 cable assemblies (see part numbers for cables below) - Sync 570 (EIA-232 only), Sync 570i (EIA-232/V.35), Sync 570i UIB (PCI boards), Syncport, Sync 2000.

- Sync 2000 single port X.21/V.11 DB-15 cable - Part #77000426
- Sync 570i UIB single port X.21/V.11 DB-15 cable - Part #76000294
- Sync 570i 2 port X.21/V.11 DB-15 cable - Part #62500038
- Sync 570i 4 port cable (three port X.21/V.11 DB-15) - Part #62500048
- Sync 570i 4 port cable X.21/V.11 DB-15 cable - Part #62500047

Digi AccelePort Xp and NEO HD-68-pin Ultra SCSI connector

The connector provides a connection for the RS232 signals on the PCB to a cable to interface various 4, 8 and 16 port peripheral devices. The first table is for ports 1-8 and the second table is for ports 9-16. The pin-outs for the connector and the asynchronous ports configuration is as follows: see Table 1 for: Ports 1-8 of HD-68 Connector for 4 or 8 port boards. see Table 2 for: Ports 9-16 of second HD-68 Connector when using 16 port board.

Table 1: Ports 1-8 of HD-68 connector for 4, 8 or 16 port boards

68-pin Ultra SCSI	Wire name	Male DB-25 Connector	68-pin Ultra SCSI	Wire name	Male DB-25 Connector
1	Rx-D7	P7-3	35	Rx-D8	P8-3
2	CTS7	P7-5	36	CTS8	P8-5
3	R17	P7-22	37	R18	P8-22
4	RTS7	P7-4	38	RTS8	P8-4
5	DCD7	P7-8	39	DCD8	P8-8
6	DTR7	P7-20	40	DTR8	P8-20
7	DSR7	P7-6	41	DSR8	P8-6
8	TxD7	P7-2	42	TxD8	P8-2
9	GND	P7-7, P5-7	43	GND	P8-7, P6-7
10	TxD5	P5-2	44	TxD6	P5-2
11	DSR5	P5-6	45	DSR6	P6-6
12	DTR5	P5-20	46	DTR6	P6-20
13	DCD5	P5-8	47	DCD6	P6-8
14	RTS5	P5-4	48	RTS6	P6-4
15	R15	P5-22	49	R16	P6-22
16	CTS5	P5-5	50	CTS6	P6-5
17	RXD5	P5-3	51	RXD6	P6-3
18	RxD3	P3-3	52	RxD4	P4-3
19	CTS3	P3-5	53	CTS4	P4-5
20	R13	P3-22	54	R14	P4-22
21	RTS3	P3-4	55	RTS4	P4-4
22	DCD3	P3-8	56	DCD4	P4-8
23	DTR3	P3-20	57	DTR4	P4-20
24	DSR3	P3-6	58	DSR4	P4-6

Table 1: Ports 1-8 of HD-68 connector for 4, 8 or 16 port boards

68-pin Ultra SCSI	Wire name	Male DB-25 Connector	68-pin Ultra SCSI	Wire name	Male DB-25 Connector
25	TxD3	P3-2	59	TxD4	P4-2
26	GND	P3-7, P1-7	60	GND	P4-7, P2-7
27	TxD1	P1-2	61	TxD2	P2-2
28	DSR1	P1-6	62	DSR2	P2-6
29	DTR1	P1-20	63	DTR2	P2-20
30	DCD1	P1-8	64	DCD2	P2-8
31	RTS1	P1-4	65	RTS2	P2-4
32	R11	P1-22	66	R12	P2-22
33	CTS1	P1-5	67	CTS2	P2-5
34	RXD1	P1-3	68	RXD2	P2-3

Table 2: Ports 9-16 of second HD-68 Connector when using 16 port board

68-pin Ultra SCSI	Wire name	Male DB-25 Connector	68-pin Ultra SCSI	Wire name	Male DB-25 Connector
1	RxD15	P15-3	35	RxD16	P16-3
2	CTS15	P15-5	36	CTS16	P16-5
3	RI15	P15-22	37	RI16	P16-22
4	RTS15	P15-4	38	RTS16	P16-4
5	DCD15	P15-8	39	DCD16	P16-8
6	DTR15	P15-20	40	DTR16	P16-20
7	DSR15	P15-6	41	DSR16	P16-6
8	TxD15	P15-2	42	TxD16	P16-2
9	GND	P15-7, P13-7	43	GND	P16-7, P14-7
10	TxD13	P13-2	44	TxD14	P14-2
11	DSR13	P13-6	45	DSR14	P14-6
12	DTR13	P13-20	46	DTR14	P14-20
13	DCD13	P13-8	47	DCD14	P14-8
14	RTS13	P13-4	48	RTS14	P14-4
15	RI13	P13-22	49	RI14	P14-22
16	CTS13	P13-5	50	CTS14	P14-5
17	RXD13	P13-3	51	RXD14	P14-3
18	RxD11	P11-3	52	RxD12	P12-3
19	CTS11	P11-5	53	CTS12	P12-5
20	RI11	P11-22	54	RI12	P12-22
21	RTS11	P11-4	55	RTS12	P12-4
22	DCD11	P11-8	56	DCD12	P12-8
23	DTR11	P11-20	57	DTR12	P12-20
24	DSR11	P11-6	58	DSR12	P12-6
25	TxD11	P11-2	59	TxD12	P12-2
26	GND	P11-7, P9-7	60	GND	P12-7, P10-7
27	TxD9	P9-2	61	TxD10	P10-2
28	DSR9	P9-6	62	DSR10	P10-6
29	DTR9	P9-20	63	DTR10	P10-20
30	DCD9	P9-8	64	DCD10	P10-8

Table 2: Ports 9-16 of second HD-68 Connector when using 16 port board

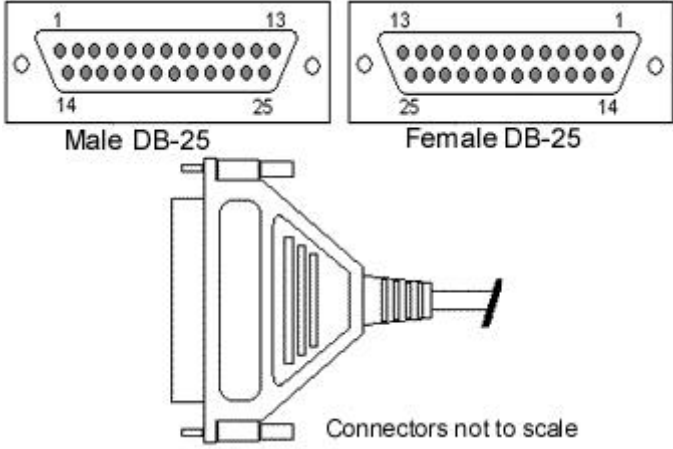
31	RTS9	P9-4	65	RTS10	P10-4
32	RI9	P9-22	66	RI10	P10-22
33	CTS9	P9-5	67	CTS10	P10-5
34	RXD9	P9-3	68	RXD10	P10-3

Sync V.24 DB-25 connector pinout

V.24 (EIA-232) Boards with DB-25 cable assemblies (see part numbers for cables below)
 Sync 570 (EIA-232 only), Sync 570i (EIA-232/V.35), Sync 570i UIB (PCI boards), Syncp
 Sync 2000.

- Sync 2000 single port EIA-232 (V.24) DB-25 cable - Part #77000428
- Sync 570i UIB single port EIA-232 DB-25 cable - Part #76000293
- Sync 570/570i 2 port EIA-232 DB-25 - - Part #62500037
- Sync 570/570i 4 port EIA-232 DB-25 - Part #62500036

DB-25	Direction	Signal
1	↔	CGND
2	→	TxD+
3	←	RxD+
4	→	RTS
5	←	CTS
6	←	DSR
7	↔	GND
8	←	DCD
15	←	TxCk Internal
17	←	RxCk
20	→	DTR
24	→	TxCk External
Shell	↔	GND



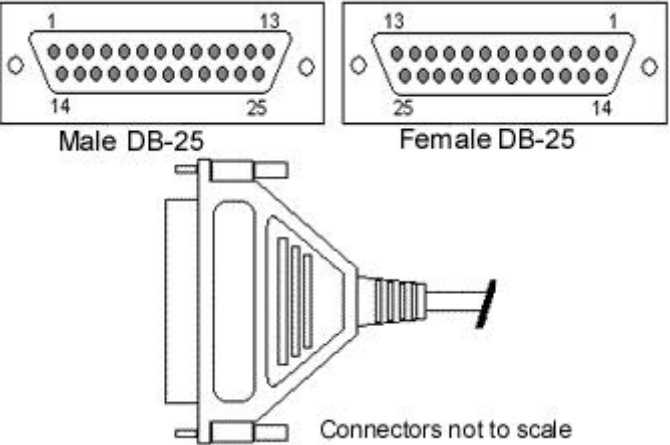
Connectors not to scale

EIA 422 DB-25 pinouts for Sync boards

Sync 570 (EIA-232 only), Sync 570i (EIA-232/V.35), Sync 570i UIB (PCI boards), Syncport, Sync 2000.

- Sync 2000 single port EIA-530/EIA-422 DB-25 cable - Part #77000425
- Sync 570i UIB single port EIA-530/EIA-422 DB-25 cable - Part #76000369
- Sync 570i 2 port EIA-530/EIA-422 DB-25 - - Part #62500039
- Sync 570i 4 port cable (one port EIA-530/EIA-422) - Part #62500048

DB-25	Direction	Signal
1	↔	CGND
2	→	TxD+
3	←	RxD+
4	→	RTS+
5	←	CTS+
6	←	DCE Ready +
7	↔	SG
8	←	Received Line Signal Indicator +
9	←	RxCk +
10	←	Recieved Lne Signal Indicator -
11	→	TxCk External +
12	←	TxCk Internal -
13	←	CTS-
14	→	TxD-
15	←	TxCk Internal +
16	←	RxD-
17	←	RxCk-
19	→	RTS-
20	→	DTE Ready +
22	←	DCE Ready +
23	→	DTE Ready -
24	→	TxCk External -
Shell	↔	GND



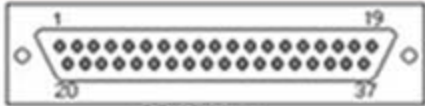
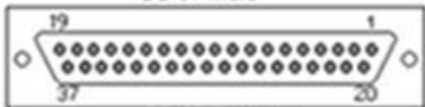
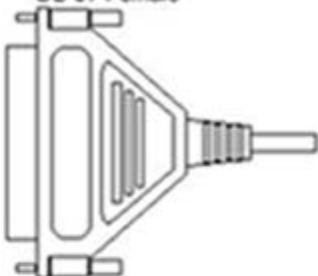
Male DB-25

Female DB-25

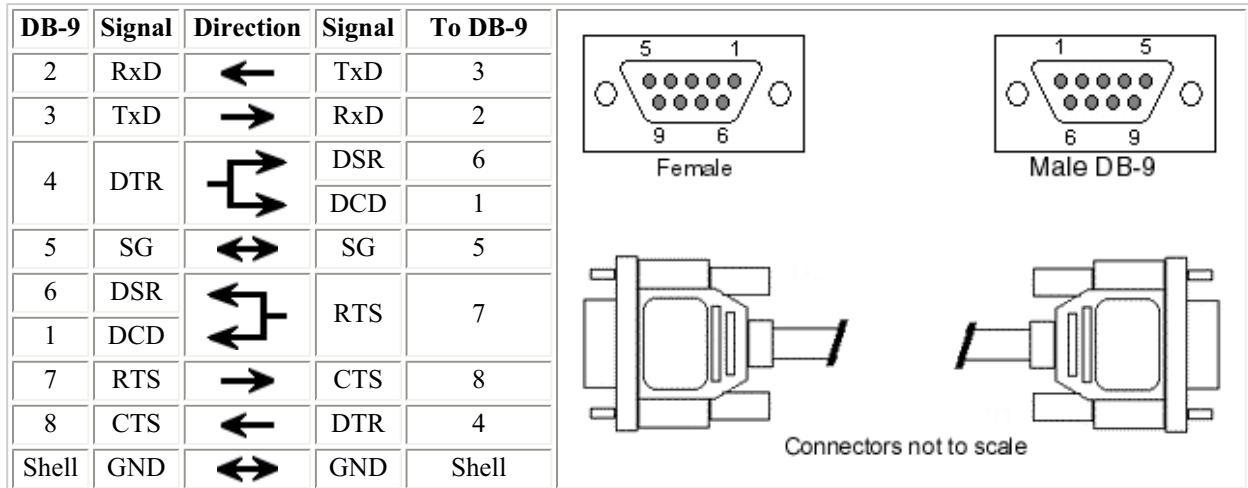
Connectors not to scale

Sync 2000 single-port V.36/EIA-449 pinout

DB-37	Direction	Signal
1	↔	Shield
2	→	Signal Rate Indicator
4	←	Received Data +
5	←	Send Timing +
6	→	Send Data +
7	→	RTS +
8	←	Received Timing +
9	→	CTS +
10	→	Local Loopback
11	←	Data Mode +
12	→	Terminal Ready +
13	→	Receiver Ready +
14	→	Remote Loopback
15	←	Incoming Call
16	←	Select Frequency
17	→	Terminal Timing +
18	←	Test Mode
19	↔	SG
20	↔	Receive Common
22	→	Send Data -
23	←	Send Timing -
24	→	Receive Data -
25	→	RTS-
26	←	Receive Timing -
27	←	CTS-
28	→	Terminal In Service
29	←	Data Mode -
30	→	Terminal Ready -
31	→	Receiver Ready -
32	→	Select Standby
33	←	Signal Quality
34	→	New Signal
35	→	Terminal Timing -
36	←	Standby Indicator
37	↔	Send Common
Shell	↔	GND

DB-9F to DB-9M terminal/printer cable



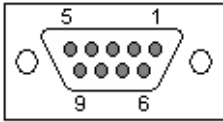
* Arrows indicate which direction the signal is flowing

NOTES:

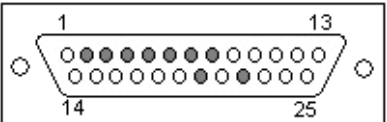
- Altpin should be turned off when using this cable.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).

DB-9F to DB-25M terminal/printer cable

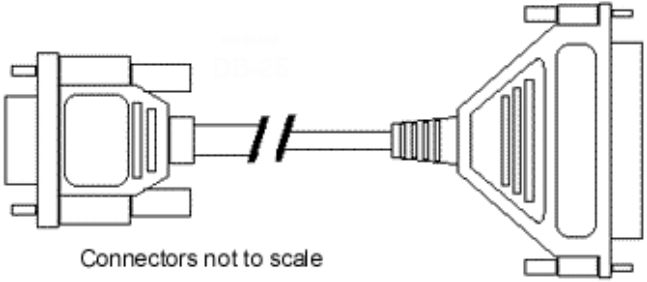
DB-9	Signal	Direction	Signal	To DB-25
2	RxD	←	TxD	2
3	TxD	→	RxD	3
4	DTR	↔	DSR	6
			DCD	8
5	SG	↔	SG	7
6	DSR	↔	RTS	4
1	DCD			
7	RTS	→	CTS	5
8	CTS	←	DTR	20
Shell	GND	↔	GND	Shell



Female



Male DB-25



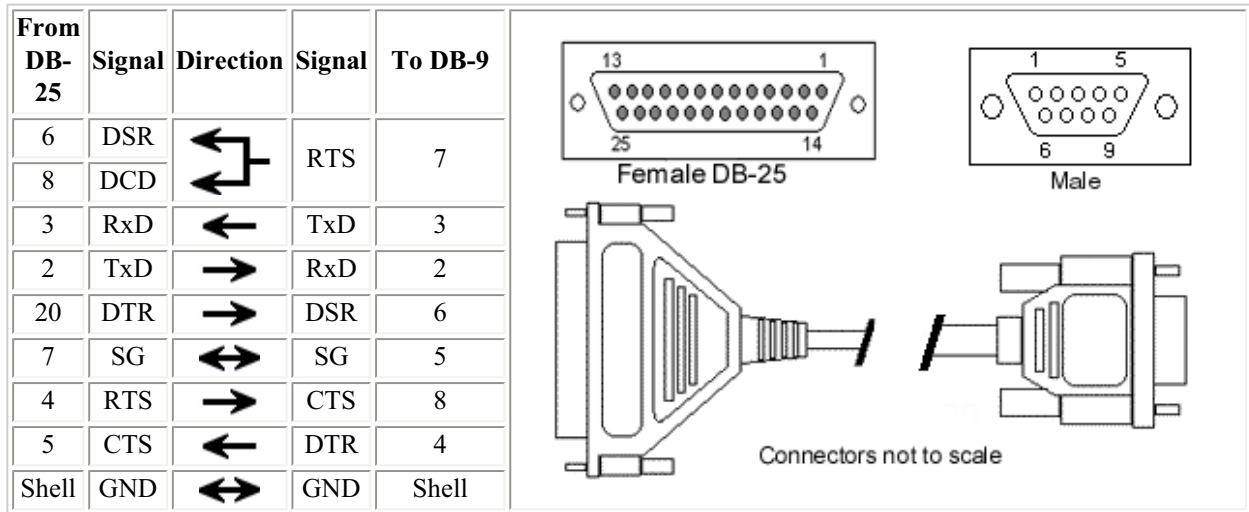
Connectors not to scale

* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).

DB-25F to DB-9M terminal/printer cable

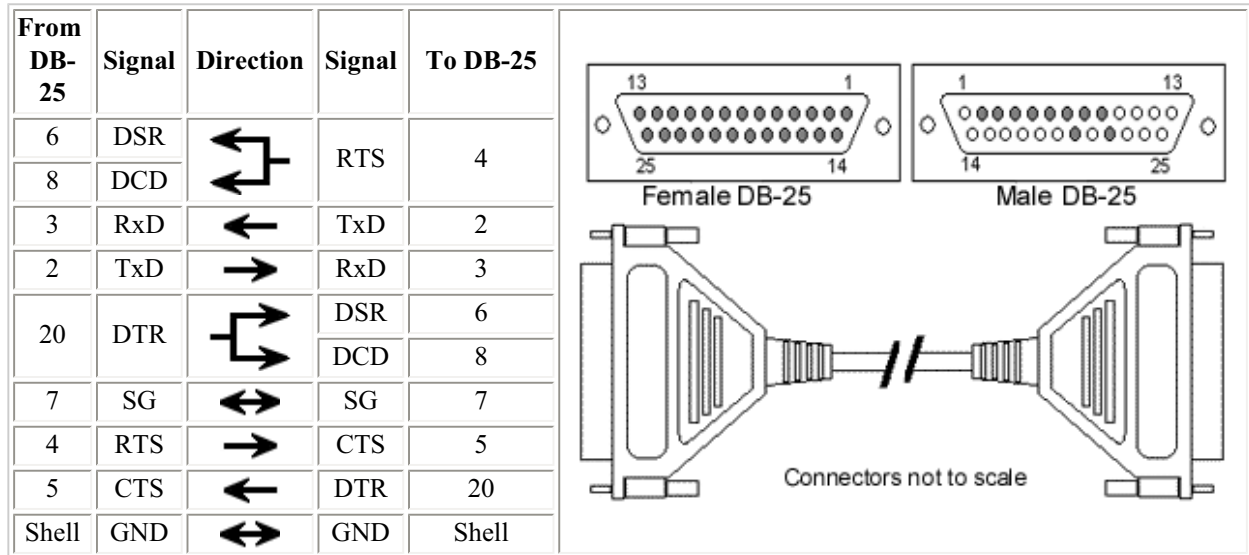


*Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).

DB-25F to DB-25M terminal/printer cable



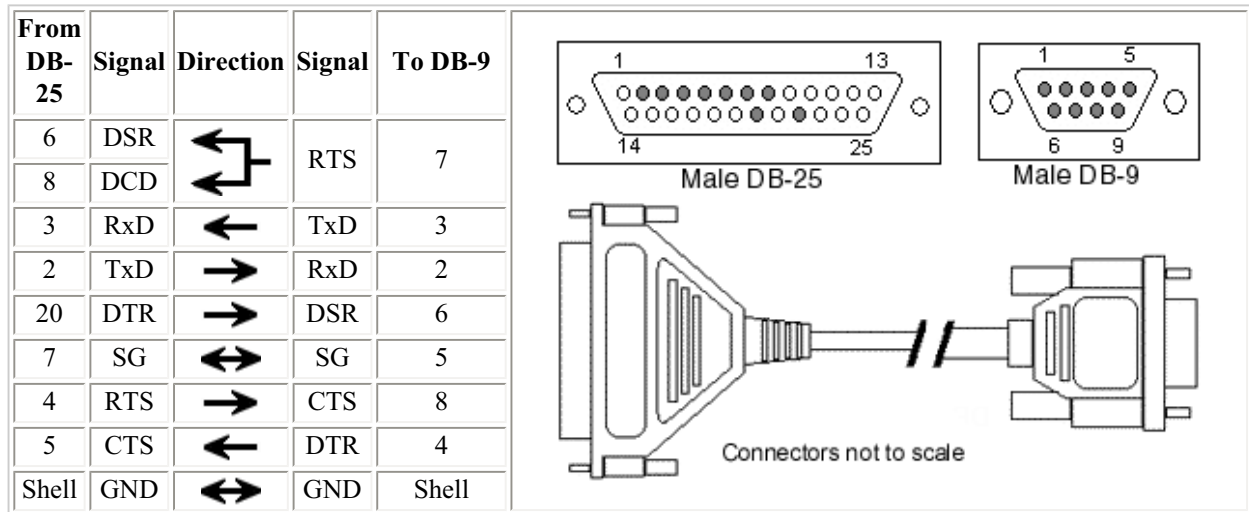
* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).
- Okidata printers may use SSD (pin 11) instead of DTR (pin 20) on Term/Prn DB25 side of above diagram. If this is the case, the printer should be set to SSD+.

SCSI Terminal Server DB-25M to DB-9M terminal/printer cable

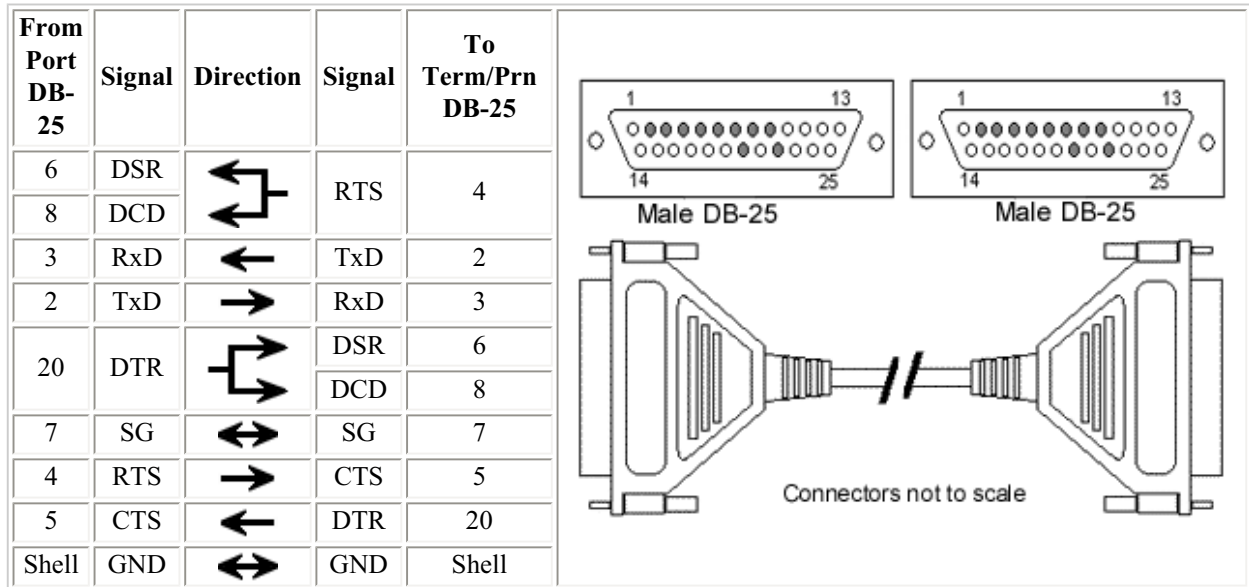
EIA-232 boards that require DB-25 male cable connectors:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



* Arrows indicate which direction the signal is flowing

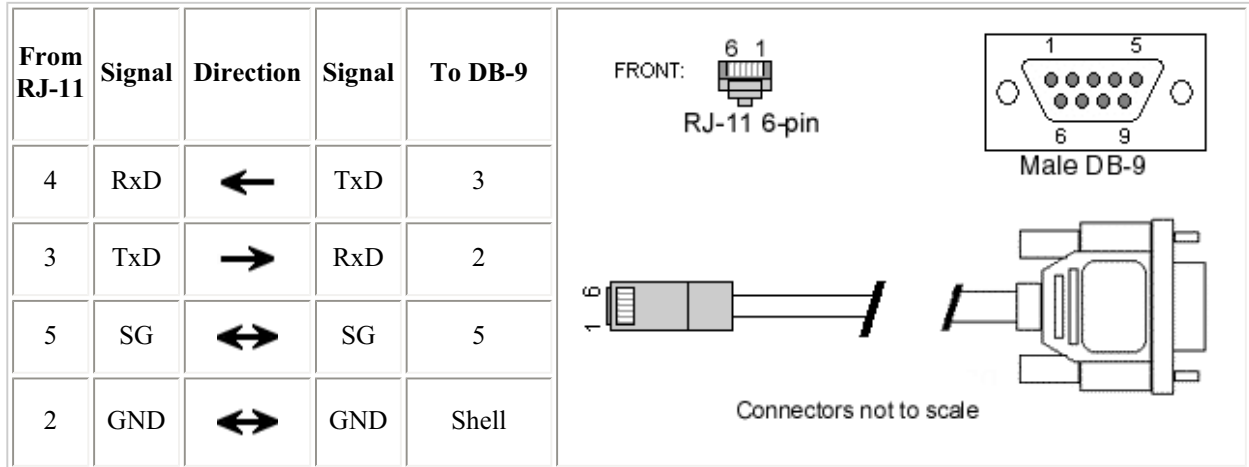
SCSI Terminal Server DB-25M to DB-25M terminal/printer cable

EIA-232 boards that require DB-25 male cable connectors:
 SCSI Terminal Server ST1002, SCSI Terminal Server ST1008,
 SCSI Terminal Server ST1016, SCSI Terminal Server ST1600.



* Arrows indicate which direction the signal is flowing

RJ-11 6-pin/4-wire to DB-9M terminal/printer cable

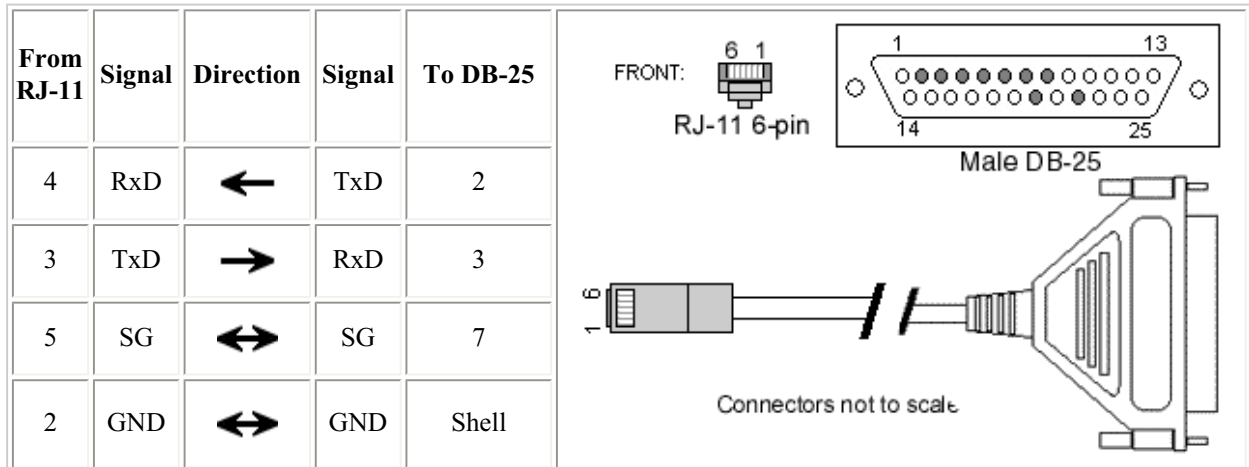


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-11 6-pin/4-wire to DB-25M terminal/printer cable

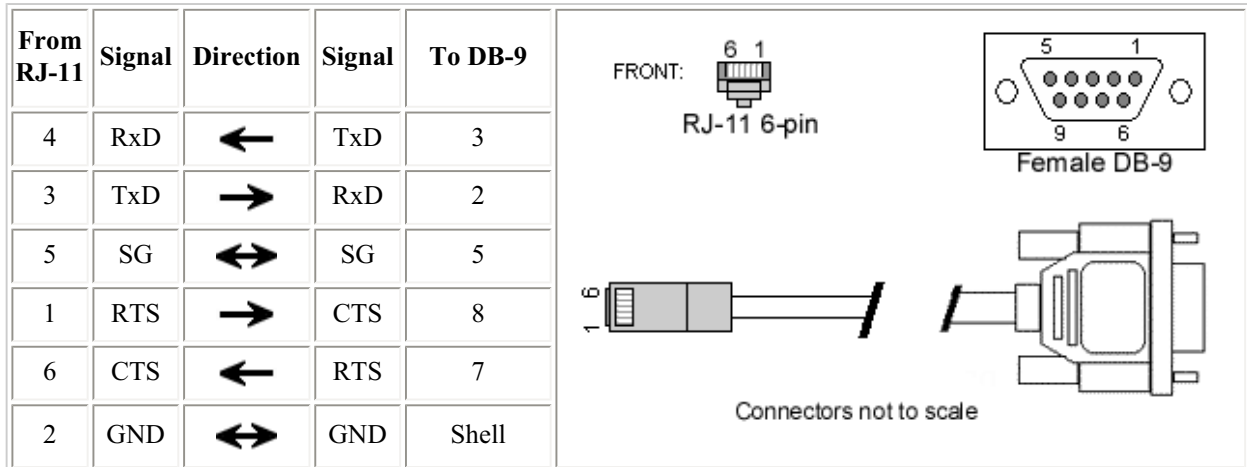


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-11 6-pin to DB-9F terminal/printer cable

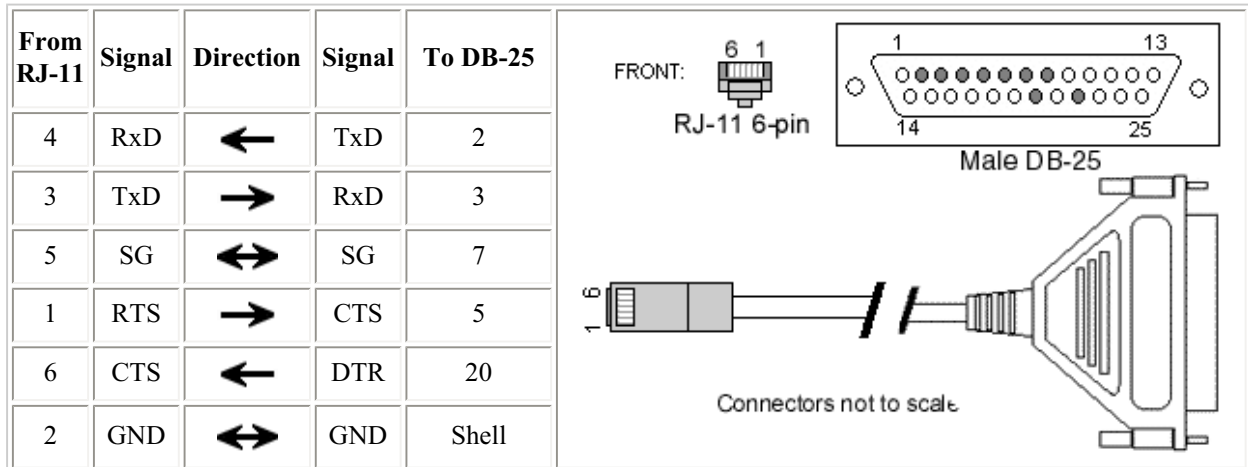


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the RTS signal of the PC terminal emulator for hardware flow control (RTS/CTS).
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-11 6-pin to DB-25M terminal/printer cable

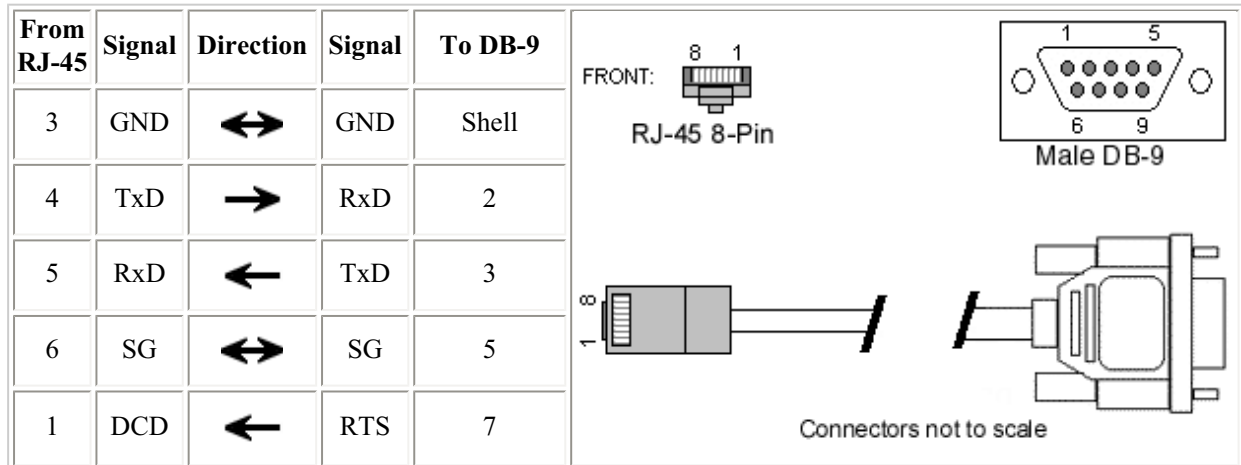


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).
- Okidata printers may use SSD (pin 11) instead of DTR (pin 20) on DB25 side in above diagram. If this is the case, the printer should be set to SSD+.
- Some Unix operating systems require carrier to be present. If this is the case, the `forcedcd` parameter will need to be turned on for this port at the host.

RJ-45 4-wire to DB-9M terminal/printer cable - software flow control only

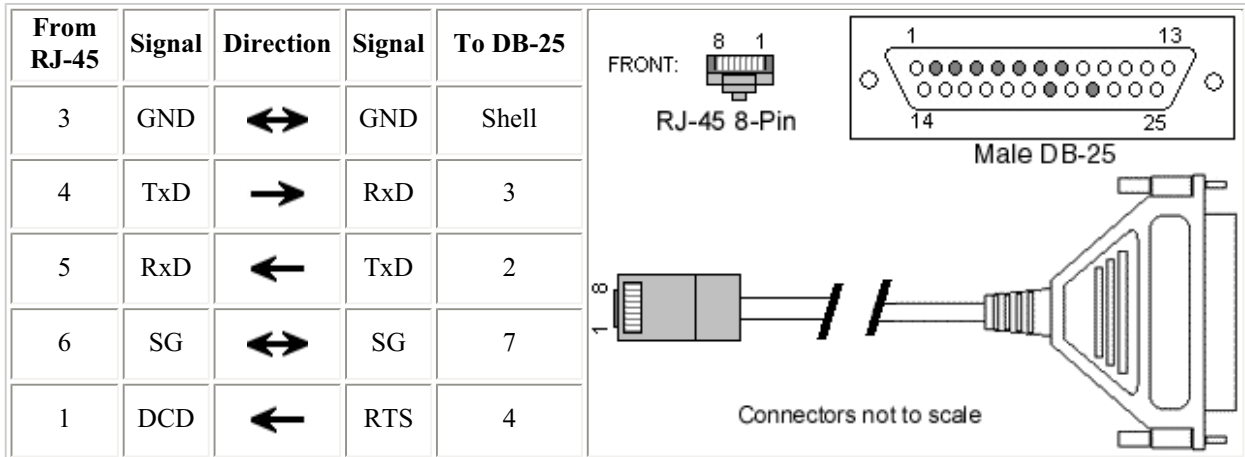


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, altpin must be turned on and the DCD-RTS wire added (in some cases it may be possible to wire DCD-RTS as the fourth wire instead of GND).

RJ-45 4-wire to DB-25M terminal/printer cable

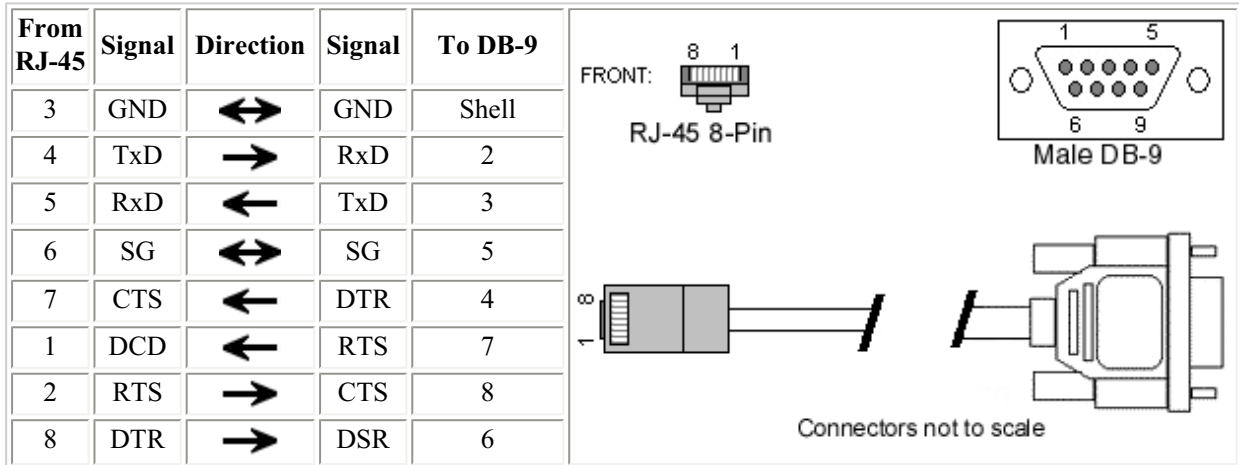


* Arrows indicate which direction the signal is flowing

NOTES:

- This cable can only be used with Software Flow Control (Xon/Xoff).
- Some Unix operating systems require carrier to be present. If this is the case, altpin must be turned on and the DCD-RTS wire added (in some cases it may be possible to wire DCD-RTS as the fourth wire instead of GND).

RJ-45 (Altpin on) to DB-9M terminal/printer cable

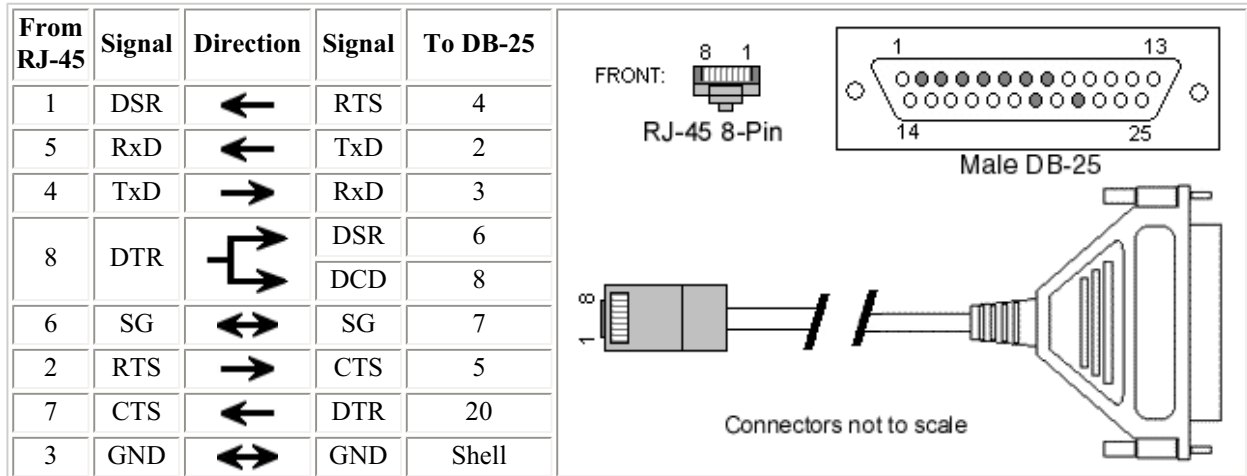


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).
- EIA-232 cables cannot exceed 2500pF.

RJ-45 to DB-25M terminal/printer cable

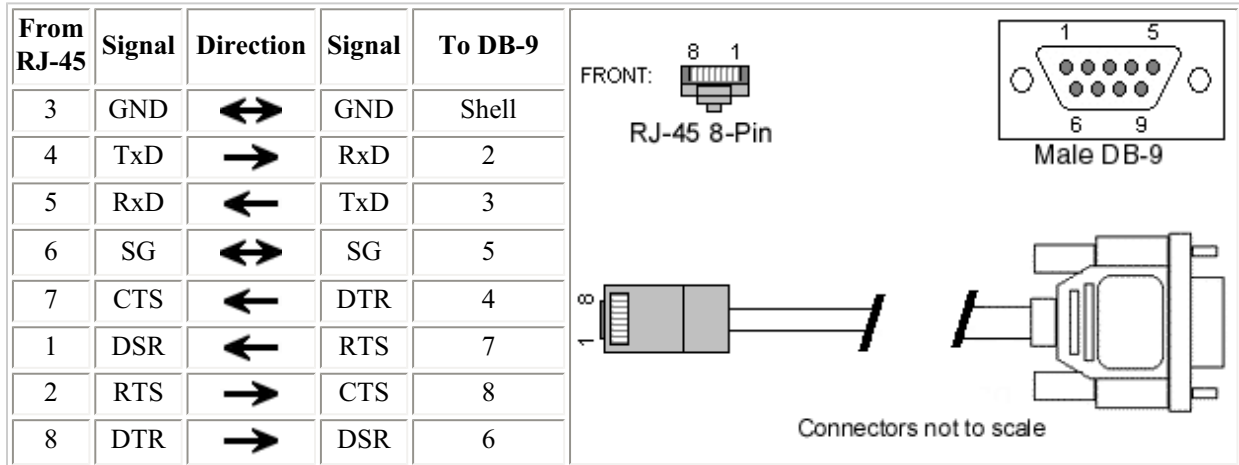


* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned on when using this cable so that DTR will drive DCD (standard usage).
- If altpin is turned off, the hardware signal on RJ45 pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).
- Okidata printers may use SSD (pin 11) instead of DTR (pin 20) on DB25 side of above diagram. If this is the case, the printer should be set to SSD+.

RJ-45 to DB-9M terminal/printer cable



* Arrows indicate which direction the signal is flowing


NOTES:

- Altpin should be turned off when using this cable so that pin 1 becomes DSR instead of DCD. This alternative can be used if DCD is not required, and DSR is needed instead.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).

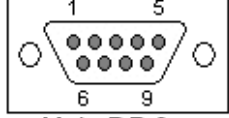
RJ-45 10-pin to DB-9M terminal/printer cable

From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	↔	RTS	7
2	DSR			
6	RxD	←	TxD	3
5	TxD	→	RxD	2
9	DTR	↔	DSR	6
			DCD	1
7	SG	↔	SG	5
3	RTS	→	CTS	8
8	CTS	←	DTR	4
4	GND	↔	GND	Shell

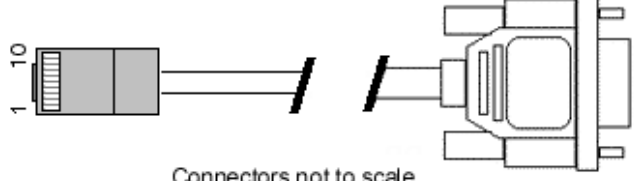
FRONT:



RJ-45 10-Pin



Male DB-9



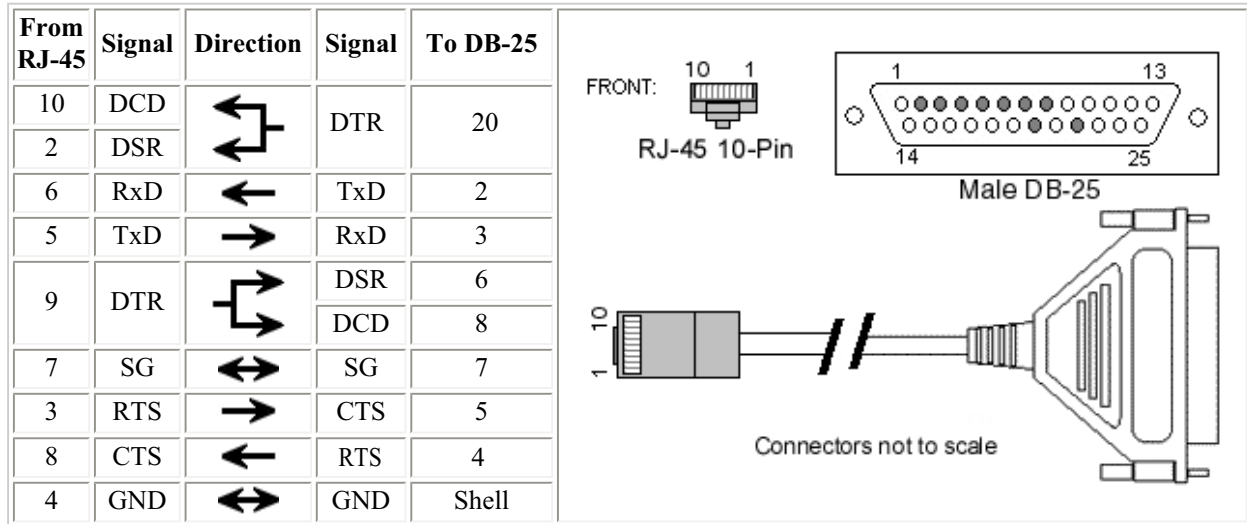
Connectors not to scale

* Arrows indicate which direction the signal is flowing

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).

RJ-45 10-pin to DB-25M terminal/printer cable



* Arrows indicate which direction the signal is flowing

This cable can also be purchased from Digi (see part number below).

- 4' RJ-45 10-pin to DB-25 - Part #76000238

NOTES:

- Altpin should be turned off when using this cable.
- This cable utilizes the DTR signal of the terminal/printer for hardware flow control (RTS/CTS).
- Okidata printers may use SSD (pin 11) instead of DTR (pin 20) on DB25 side of above diagram. If this is the case, the printer should be set to SSD+.

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