Appendix A
Cabling the 3512 DSU/CSU

Introduction

This appendix describes the cables needed to connect your 3512 DSU/CSU to DTEs, leased lines, dial lines, and a Network Management System, and it describes port, connector, and cable interfaces and pinouts.

Connecting Your 3512 to Data Terminal Equipment (DTEs)

Tables A-1 and A-2 show the most common applications and cables used with the 3512. For more information, contact your Motorola representative.
NOTE: For DTE cable pinouts, refer to your DTE manual.

Caution

EIA 232-C/D computer interface cables connected to a 3512 DSU/CSU must be braided, shielded cables with metal, shielded hoods to ensure compliance with FCC and CISPR requirements relative to emitting Radio Frequency Interference (RFI) to other sensitive electronic equipment. Contact your authorized Motorola sales representative to determine which cables are appropriate.

Table A-1.
Common 3512 DSU/CSU Cables for Port 1

Application	*Electrical Interface*	*Type: DB25 (m) to...*	*Product Code*	*Length*
DCE to DTE	EIA 232	DB25 (f) straight-through adapter	31037	15 ft
DCE to DTE	EIA 232	DB25 (m) straight-through adapter	66186	15 ft
DCE to DCE	EIA 232	DB25 (m) crossover	31034	15 ft
DCE to DTE	V.35	V.35 (f) straight-through adapter	48523	6 ft
DCE to DTE	V.35	V.35 (m) straight-through adapter	77999	6 ft
DCE to DCE	V.35	V.35 (f) straight-through adapter, and V.35 (m) to V.35 (m) crossover	48523 89260	6 ft

Table A-2 shows communications cables for Ports 2, 3, and 4.

Table A-2.
Common 3512 DSU/CSU Communications Cables for Ports 2 - 4

Application	*Electrical Interface*	*Type*	*Product Code*	*Length*
DCE to DTE	EIA 232	DB26 (m) to DB25 (f) straight-through adapter	26975 92075	5 ft 10 ft
DCE to DTE	EIA 232	DB26 (m) to DB25 (m) straight-through adapter	92035	15 ft
DCE to DCE	EIA 232	DB26 (m) to DB25 (m) crossover adapter	48043	
DCE to DCE	EIA 232	DB26 (m) to DB26 (m) crossover adapter	26977	5 ft
DCE to Digital SW56	V.35 (Port 2 only)	DB26 (m) to V.35 (m) crossover to switched digital restoral unit	48032 or 48039	1 ft 5 ft
DCE to DCE Data Unit	EIA 232 (Port 2 only)	DB26 (m) to DB25 (m) A/B switch crossover to restoral unit	48038	1 ft

DB26 refers to the EIA 232-D Alternate 26-pin (subminiature) connector.

Table A-3 shows telco cables that connect the 3512 to DDS wall jacks.

Table A-3.
3512 DSU/CSU - Service Provider Cables

		Product Code			
From Product:	*To:*	*6 ft*	*15 ft*	*30 ft*	*50 ft*
DDS Line Port	DDS Network (Mod-6)[1]		77965		
	DDS Network (Spade)		48601		
	DDS Network (RJ48S Mod-8)		26965		

[1]6-pin modular is mechanically, but not electrically, compatible with RJ11 PSTN connector

Table A-4 shows cables that connect the 3512 NC IN and NC OUT ports to an NMS.

Table A-4.
3512 DSU/CSU Cables to Network Management System

		Product Code			
From Product:	*To:*	*6 ft*	*15 ft*	*30 ft*	*50 ft*
NC IN Port (f, 8-pin DIN, DCE)	9300 Junction Box (SDL8) DTE	92199			
	DB25 (f)		40385	40387	40388
	DB26 (f)		40386	40389	40390
NC OUT Port (f, 8-pin DIN, DTE)	3512 NC IN (f, 8-pin DIN, DCE)	40380	40381	40382	

Table A-5 shows cables that connect the 3512 restoral feature to a service-provider wall jack.

Table A-5.
3512 DSU/CSU Integral Restoral Interface Cables

		Product Code			
From Product:	***To:***	***6 ft***	***15 ft***	***30 ft***	***50 ft***
SLR RJ45S Mod-8 (ALT)	Dial Line (Mod-6)[1]	99068			
	Dial Line (RJ45S Mod-8)		26967		
SW 56 (or DDS) RJ48 Mod-8 (ALT)	4-wire SW 56 or DDS Network:				
	(RJ48S)		26967		
	(Spade)		48601		
	(Mod 6)[1]		77965		

[1]6-pin is mechanically, but not electrically, compatible with the RJ11 PSTN connector.

Table A-6 provides information for ordering network connections and DDS lines.

Table A-6.
Communications Line and Service Ordering Information

Interface	***USOC Jack Connector***	***REN/Service Code***	***Facility Interface Code***
2.4-kbps digital interface	RJ48S	6.0F	04DU5-24
4.8-kbps digital interface	RJ48S	6.0F	04DU5-48
9.6-kbps digital interface	RJ48S	6.0F	04DU5-96
19.2-kbps digital interface	RJ48S	6.0F	04DU5-192
56-kbps digital interface	RJ48S	6.0F	04DU5-56
Public Switched Digital Service (PSDS), for SW 56 feature:			
56-kbps digital interface	RJ48S		PSDS Type 1
Public Switched Telephone Network (PSTN), for SLR feature:			
Permissive	RJ11C	0.2B	02LS2
Programmable	RJ45S or RJ41S	0.2B	02LS2

Table A-7 provides information required when ordering network connections and telephone lines.

Table A-7.
Telecommunications Regulatory-Ordering Information

Country	*3512 DSU/CSU Data Item*	*Value*
U.S.	FCC Registration Number	AT9USA-61595-DD-N
U.S.	Ringer Equivalence Number (REN)	0.2B
Canada	Load Number for 3512 with SLR	4
Canada	DOC Certification Number	725 5221 A
Canada	Connection Arrangement Code	CA45A

In the U.S.A., the REN determines the number of devices that can be connected to a telephone line. Excessive RENs on a line may result in the devices not ringing in response to an incoming call. Contact the service provider to determine the maximum REN sum for the calling area; in general, it should not exceed five.

In Canada, the Load Number assigned to each terminal device denotes the total load percentage to be connected to a telephone loop used by the device to prevent overloading. The loop termination can consist of any combination of devices as long as their total Load Numbers do not exceed 100.

Pin Interfaces

Table A-8 shows the 3512's port pinouts.

Table A-8.
DTE Connector Pinouts

DB25 or DB26 (Ports 1-4)	*EIA/TIA 232-D*	*V.35*
1	Frame Ground	Frame Ground
2	Transmit Data	+Transmit Data
3	Receive Data	+Receive Data
4	Request To Send	Request To Send
5	Clear To Send	Clear To Send
6	Data Set Ready	Data Set Ready
7	Signal Ground	Signal Ground
8	Carrier Detect	Carrier Detect
9	Not used	Not used
10	Not used	Not used
11	Not used	Not used
12	Not used	Not used
13	Not used	–Transmit Data Clock
14	Not used	–Transmit Data
15	Transmit Data Clock	+Transmit Data Clock
16	Not used	-Receive Data
17	Receive Data Clock	+Receive Data Clock
18 (Port 1 only)	Loop 3 Control	Loop 3 Control
19	Not used	– Receive Data Clock
20	Data Terminal Ready	Data Terminal Ready
21	Loop 2 Control	Loop 2 Control
22	Not used	Not used
23	Not used	– External Transmit Clock
24	External Transmit Clock	+ External Transmit Clock
25	Test Mode	Test Mode
26	Not used	Not used

NOTE: Port 1: DB25 connector; Ports 2-4: DB26 subminiature connectors

Table A-9 shows how to connect the 3512's DDS 8-pin RJ48S to an RJ11 wall jack.

Table A-9.
RJ48S to RJ11 Cable Pinouts

RJ48S 8-Pin Modular Jack	Description	RJ11 6-Pin Modular Wall Jack to PSTN
1	Transmit (Ring)	3
2	Transmit (Tip)	4
7	Receive (Tip)	2
8	Receive (Ring)	5

Table A-10 shows the 3512's ALT connector pinouts for SLR and SW 56 operation.

Table A-10.
Service Provider Connector Pinouts

ALT Pin	SLR	Switched 56
1		Transmit (Ring)
2		Transmit (Tip)
3		
4	Ring	
5	Tip	
6		
7	PR	Receive (Tip)
8	PC	Transmit (Ring)

Table A-11 shows NC IN and NC OUT port pin assignments.

Table A-11.
NC Terminal Interface Signal Pinouts (8-pin DIN Connector)

Pin	Signal	Description	NC IN (DCE)	NC OUT (DTE)
2	Transmit Data (TXD)	Transmits serial digital data from DTE.	Input	Output
3	Receive Data (RXD)	Serial digital data available to the DTE receiver. Uses async data; has no clock.	Output	Input
4	Request To Send (RTS)	Active level to the DCE to transmit. Inactive level when transmission is not required.	Input	Output
7	Signal Ground	Common signal and DC power ground (common return).		
8	Data Carrier Detect (DCD)	Active level from the DCE when a received input (analog) signal is detected.	Output	Input

NOTE: The NC connector uses only the pins listed here.