

Cable Specifications and Information

This appendix provides the connector and pinout information you need for making or purchasing cables used with Cisco VG224 voice gateway. To order cables from Cisco, see the “[Obtaining Technical Assistance](#)” section on page xvi. This appendix contains the following sections:

- [Console and Auxiliary Port Cables and Pinouts](#), page A-1
- [Fast Ethernet Port Pinouts \(RJ-45\)](#), page A-6
- [Analog Voice Multiport Pinouts \(RJ-21X/CA21A\)](#), page A-7

The following list shows you which table to see for pinout information:

Cisco VG224 Voice Gateway Port and Connection Type	Pinout Information
Console Port to PC—Cable Pinouts (RJ-45 to DB-9)	Table A-1 on page A-3
Console Port to ASCII Terminal—Cable Pinouts (RJ-45 to DB-25)	Table A-2 on page A-4
Auxiliary Port to Modem—Cable Pinouts (RJ-45 to DB-25)	Table A-3 on page A-5
Alternative Terminal and Modem Connections	Table A-4 on page A-5
Fast Ethernet Port Pinouts (RJ-45)	Table A-5 on page A-6

Console and Auxiliary Port Cables and Pinouts

Your Cisco VG224 voice gateway comes with the cable and adapters you need to connect a PC, an ASCII terminal, or a modem to your Cisco VG224 voice gateway. The cable kit includes:

- RJ-45-to-RJ-45 rollover cable
- RJ-45-to-DB-9 adapter cable for console connection
- RJ-45-to-DB-25 adapter cable for modem connection

The following illustrations and tables provide cable pinout information:

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

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

Identifying a Rollover Cable

You can identify a rollover cable by holding the plugs side by side, with the tab at the back and comparing the modular plugs at the two ends of the cable. The wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug. (See [Figure A-1 on page A-2](#).)

If your cable comes from Cisco Systems, pin 1 is white on one plug, and pin 8 is white on the opposite plug. (A rollover cable reverses the wire connections at the opposite ends: 1 to 8, 2 to 7, 3 to 6, 4 to 5, 5 to 4, 6 to 3, 7 to 2, and 8 to 1.)

Figure A-1 *Identifying a Rollover Cable*



Console Port to PC

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

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



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

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

1. Pin 1 is connected to pin 8 inside the Cisco VG224 voice gateway.

Console Port to ASCII Terminal

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

Figure A-3 Console Port to ASCII Terminal—Cable and Adapter



Table A-2 Console Port to ASCII Terminal—Cable Pinouts (RJ-45 to DB-25)

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

1. Pin 1 is connected to pin 8 inside the Cisco VG224 voice gateway.

Auxiliary Port to Modem

Figure A-4 shows the RJ-45-to-RJ-45 rollover cable assembly and the RJ-45-to-DB-25 male DCE adapter (labeled MODEM); Table A-3 on page A-5 lists the pinouts.

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



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

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

Alternative Connections to Terminal and Modem

Your Cisco VG224 voice gateway ships with an RJ-45-to-RJ-45 rollover cable and two adapters for connection to a PC, a terminal, or a modem. If you want to use an RJ-45 straight-through cable or other adapters, see Table A-4 for usable cable and adapter combinations.

Table A-4 Alternative Terminal and Modem Connections

Cisco VG224 Port Connection	RJ-45 Cable Type	Adapter
Console port to PC	Straight-through	DCE, DB-9 female
Auxiliary port to modem	Rollover ¹	DCE ² , DB-25, male
	Straight-through	DTE ² , DB-25, male

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

Fast Ethernet Port Pinouts (RJ-45)

Figure A-5 shows the RJ-45 connector wiring for the Fast Ethernet cable; Figure A-5 lists the pinouts.

**Note**

Pinout shown is for category 3, 4, or 5 10/100BASE-T connection to an Fast Ethernet switch.

Figure A-5 RJ-45 Connector Wiring

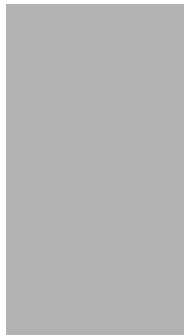


Table A-5 Fast Ethernet Port Pinouts (RJ-45)

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

1. Any pin not referenced is not connected.

Analog Voice Multiport Pinouts (RJ-21X/CA21A)

Figure A-6 shows the RJ-21 connector wiring for the cable used for the multiport analog voice interface.

Figure A-6 RJ-21 Connector Wiring



Table A-6 lists the pinouts for the RJ-21 connector.

Table A-6 RJ-21 Connector Pinouts

Port Number	Connector Pin Number	Signal	Port Number	Connector Pin Number	Signal
1	1 26	Ring Tip	13	13 38	Ring Tip
2	2 27	Ring Tip	14	14 39	Ring Tip
3	3 28	Ring Tip	15	15 40	Ring Tip
4	4 29	Ring Tip	16	16 41	Ring Tip
5	5 30	Ring Tip	17	17 42	Ring Tip
6	6 31	Ring Tip	18	18 43	Ring Tip
7	7 32	Ring Tip	19	19 44	Ring Tip
8	8 33	Ring Tip	20	20 45	Ring Tip
9	9 34	Ring Tip	21	21 46	Ring Tip
10	10 35	Ring Tip	22	22 47	Ring Tip
11	11 36	Ring Tip	23	23 48	Ring Tip

Table A-6 RJ-21 Connector Pinouts

Port Number	Connector Pin Number	Signal	Port Number	Connector Pin Number	Signal
12	12 37	Ring Tip	24	24 49	Ring Tip
—	—	—	—	25, 50, 51, 52	GND

EIA/TIA-232 Connections

The EIA/TIA-232 standard supports unbalanced circuits at signal speeds up to 64 kbps.

For connection to a Cisco VG224 voice gateway serial port, use the EIA/TIA-232 serial transition cable with the Cisco 12-in-1 connector on one end and a DB-25 connector (as shown in [Figure A-7](#)) on the other. The DB-25 connector can be male for DTE or female for DCE. To order a cable, see the “[Obtaining Technical Assistance](#)” section on page xvi.

Figure A-7 EIA/TIA-232 Serial Transition Cable Connectors

EIA/TIA-449 Connections

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

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

To make a connection to a Cisco VG224 voice gateway serial port, use the EIA/TIA-449 serial transition cable with the Cisco 12-in-1 connector on one end and a DB-37 connector (as shown in [Figure A-8](#)) on the other. The DB-37 connector can be male for DTE or female for DCE. To order a cable, see the “[Obtaining Technical Assistance](#)” section on page xvi.

Figure A-8 EIA/TIA-449 Serial Transition Cable Connectors

V.35 Connections

The V.35 standard is recommended for speeds up to 48 kbps, although in practice it is used successfully at 4 Mbps. The Cisco VG224 voice gateway supports speeds up to 2.048 Mbps.

Use the V.35 serial transition cable (not included) with the Cisco 12-in-1 connector on one end and a standard 34-pin Winchester-type connector (as shown in [Figure A-9](#)) on the other. The 34-pin Winchester-type connector can be male for DTE or female for DCE. To order a cable, see the “[Obtaining Technical Assistance](#)” section on page xvi.

Figure A-9 V.35 Serial Transition Cable Connectors



X.21 Connections

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

Use the X.21 serial transition cable (not included) with the Cisco 12-in-1 connector on one end and a DB-15 connector (as shown in [Figure A-10](#)) on the other. The DB-15 connector can be male for DTE or female for DCE. To order a cable, see the “[Obtaining Technical Assistance](#)” section on page xvi.

Figure A-10 X.21 Serial Transition Cable Connectors



EIA/TIA-530 Connections

The EIA/TIA-530 standard, which supports balanced transmission, provides the increased functionality, speed, and distance of EIA/TIA-449 on the smaller, DB-25 connector used for EIA/TIA-232. Like EIA/TIA-449, EIA/TIA-530 refers to the electrical specifications of EIA/TIA-422 and EIA/TIA-423. Although the specification recommends a maximum speed of 2 Mbps, EIA/TIA-530 is used successfully at 4 Mbps or faster speeds over short distances. Cisco VG224 voice gateway supports speeds up to 2.048 Mbps.

Use the EIA/TIA-530 serial transition cable (not included) with the Cisco 12-in-1 connector on one end and a DB-25 connector (as shown in [Figure A-11](#)) on the other. The DB-25 connector can be male for DTE or female for DCE. To order a cable, see the “[Obtaining Technical Assistance](#)” section on page xvi.

Figure A-11 EIA/TIA-530 Serial Transition Cable Connectors

