

Connecting devices and converters, DTE and DCE ports.

There exists two types of RS232 ports, DTE and DCE, the signal names and pin numbers are the same but the signal flow is opposite.

Output signals on a DTE port are input on a DCE port and output signals on a DCE port are inputs on a DTE port. The following drawings shows the signal flow.

DTE stands for "Data Terminal Equipment", which includes computers, PLC's, printers and video cameras, and most other devices which are not used to extend communication.

DCE stands for "Data Communications Equipment", which includes modems, PDA's, fiber modems, RS422/RS485 converters, and other converter products.

Modem Cable - Straight Cable DB9 to DB9

DTE Device (Computer) DB9			DTE to DCE Connections	DCE Device (Modem) DB9		
Pin#	DB9	RS-232 Signal Names	Signal Direction	Pin#	DB9	RS-232 Signal Names
#1		Carrier Detector (DCD)	←	#1		Carrier Detector (DCD)
#2		Receive Data (Rx)	←	#2		Receive Data (Rx)
#3		Transmit Data (Tx)	→	#3		Transmit Data (Tx)
#4		Data Terminal Ready	→	#4		Data Terminal Ready
#5		Signal Ground/Common (SG)	←	#5		Signal Ground/Common (SG)
#6		Data Set Ready	←	#6		Data Set Ready
#7		Request to Send	→	#7		Request to Send
#8		Clear to Send	←	#8		Clear to Send
#9		Ring Indicator	←	#9		Ring Indicator
Soldered to DB9 Metal - Shield		FGND	←	Soldered to DB9 Metal - Shield		FGND

Modem Cable - Straight Cable DB25 to DB25

DTE Device (Computer) DB25			DTE to DCE Connections	DCE Device (Modem) DB25		
Pin#	DB25	RS-232 Signal Names	Signal Direction	Pin#	DB25	RS-232 Signal Names
#1		Shield to Frame Ground	←	#1		Shield to Frame Ground
#2		Transmit Data (Tx)	→	#2		Transmit Data (Tx)
#3		Receive Data (Rx)	←	#3		Receive Data (Rx)
#4		Request to Send	→	#4		Request to Send
#5		Clear to Send	←	#5		Clear to Send
#6		Data Set Ready	←	#6		Data Set Ready
#7		Signal Ground/Common (SG)	←	#7		Signal Ground/Common (SG)
#8		Carrier Detector (DCD)	←	#8		Carrier Detector (DCD)
#20		Data Terminal Ready	→	#20		Data Terminal Ready
#22		Ring Indicator	←	#22		Ring Indicator

Are My Devices Wired As DTE or DCE?

Rule of Thumb: If the device plugs into the computer's serial port and works normally, the device is wired as DCE (or the connection cable is a crossover type that makes it work as a DCE). If the device connects to the computer's port using a "null modem" crossover cable, it is wired as DTE.