RS232 Connector Pin Assignment
RS232 Cable Information
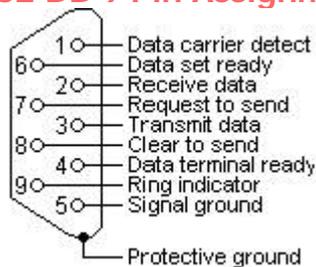## DB 9 and DB 25 Connection

The original pin layout for RS232 was developed for a 25 pins D sub connector. In this pin-out provisions were made for a secondary communication channel. In practice, only one communication channel with accompanying handshaking is present. For that reason the smaller 9 pin version is more commonly used today.

The diagrams show the signals common to both connector types in black. The signals only present on the larger connector are shown in red.
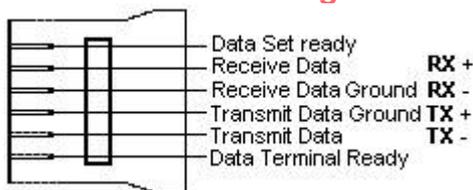
Note: The **protective ground** is assigned to a pin at the large connector, in DB9 version **protective ground** connector to encloser.

For the DEC modified modular jack. Although is differential (the receive and transmit have their own floating ground level) still possible to connect RS232 compatible devices with this interface.
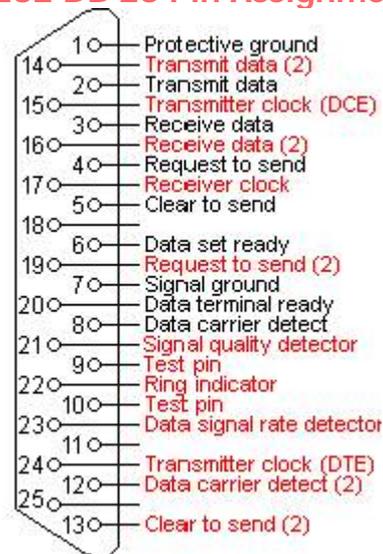
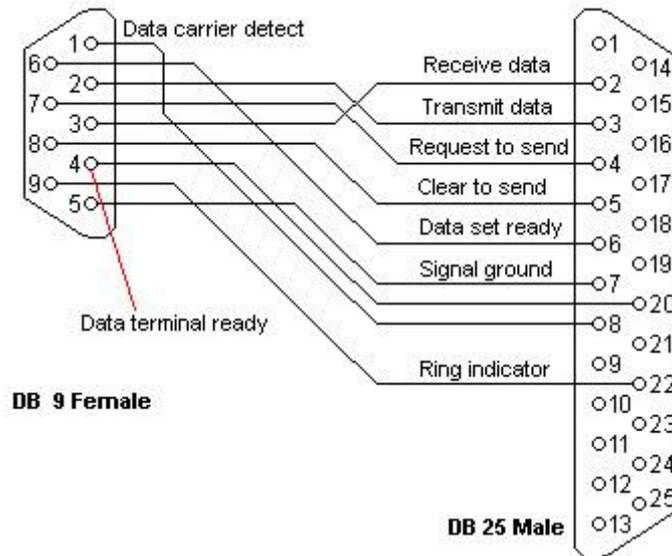### RS232 DB 9 Pin Assignment

RS232 DB 25 Pin Assignment

DEC MMJ Pin Assignment

DB9 to DB25 converter

The original pin layout for RS232 was developed for a 25 pins D sub connector. From IBM-AT machine popular 9 pins connectors are commonly used. RS232 DB9 to DB25 converter cable support mixed applications for 9 to 25 pins.

RS232 DB9 to DB25 converter

DB 9 Female

DB 25 Male

RS232 loop-back test plug

The following connectors can be used to self-test a serial port on your computer. The data and handshake lines have been linked. In this way all data will be sent back immediately. The PC controls its own handshaking.
Download test software from: www.pccompci.com

RS232 loop-back test plug for PCCOM Diagnostics


DB 9 Female   **DB 25 Female**
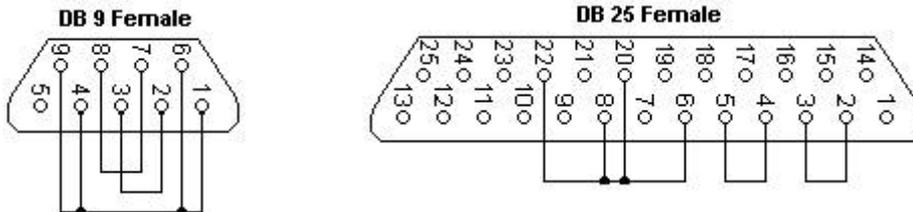
RS232 null modem cables

The using a null modem cable is easiest way to connect two PC's. For simple connections, a three line cable connecting the signal ground and receive and transmit lines is sufficient. Depending of the software used, some sort of handshaking may however be necessary. Use the selection table to find the right cable for each purpose.
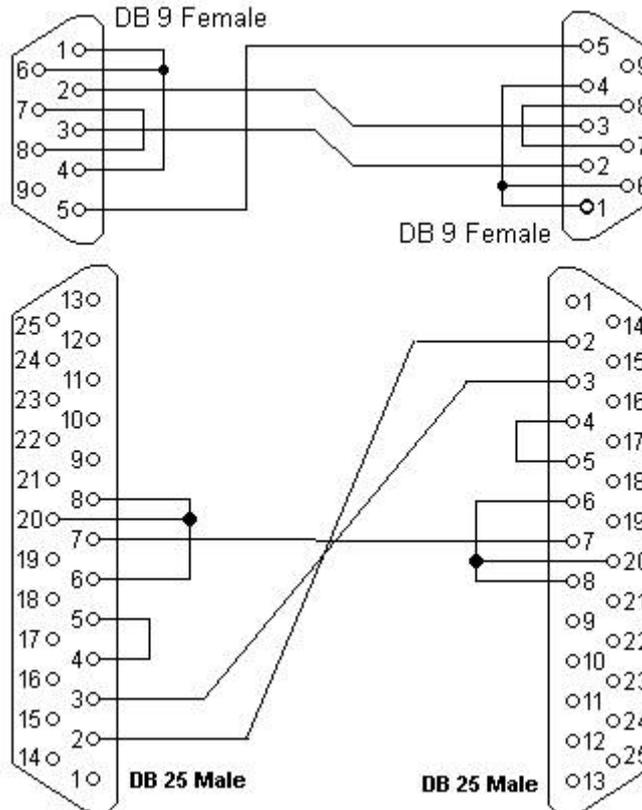
For Microsoft Windows use direct cable connection, the null modem cable with loop back handshaking.

Null modem cables with handshaking can be defined in numerous ways, with loop back handshaking to each PC, or complete handshaking between the two systems. The most common cable types are shown here.
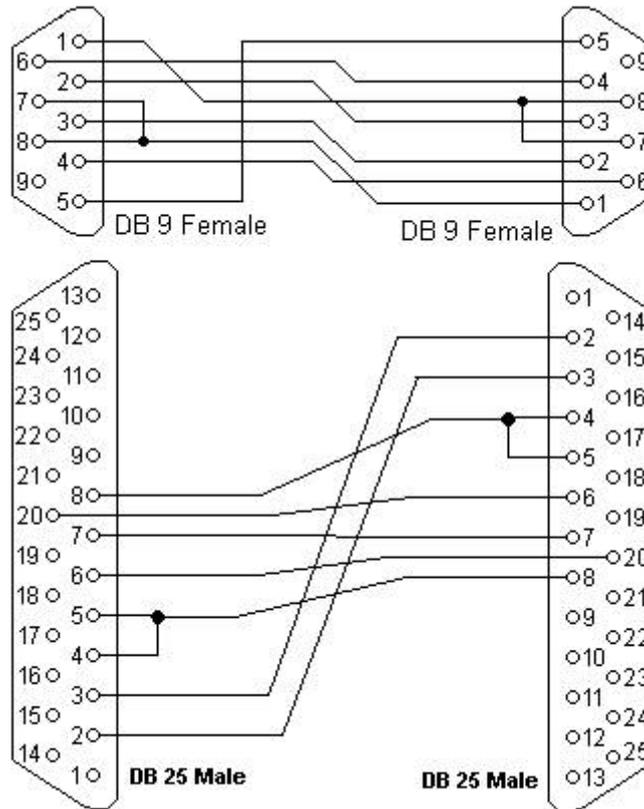
Simple null modem without handshaking
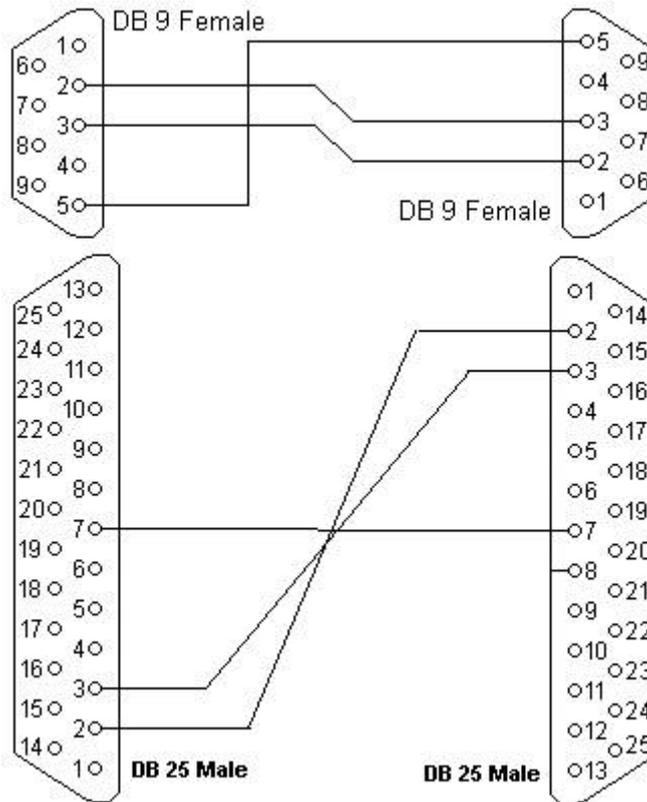
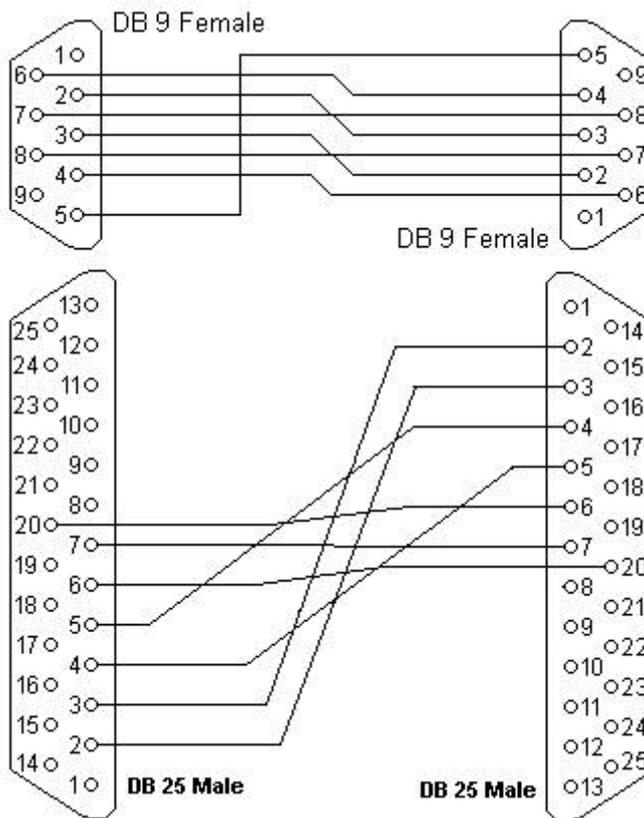**Null modem with loop back handshaking**

Null modem with partial handshaking

DB 9 Female

DB 9 Female

DB 25 Male

DB 25 Male

Null modem with full handshaking

DB 9 Female

DB 9 Female

DB 25 Male

DB 25 Male

Choose your null modem cable

Use	Simple cable Without Handshaking	Cable with Loop back Handshaking	Cable with Partial Handshaking	Cable with Full Handshaking
Software flow control only	xxx	x	x	x
DTE/DCE compatible hardware flow control at low speeds	-	xxx	xx	-
DTE/DCE compatible hardware flow control at high speeds	-	+	xxx	-
High speed communication using special software	-	-	xx	xxx

Note :

    xxx   Recommended cable

    x   Good alternative

    x   Works, but not recommended

    -    Does not work

RS232 printer cable

When a serial printer is connected to a PC, the handshaking is not symmetrical any more. In that case a cable is used where some handshaking lines at the PC side are looped back. On the printer side only the data lines and one handshaking line are used.

DB 9 Female
PC RS232 Port

DB 25 Male
Printer Side
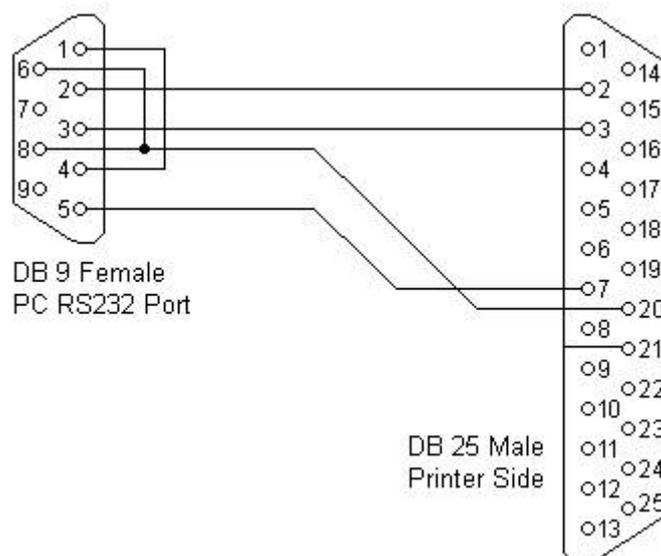
RS232 monitor cable

It is not difficult to monitor the serial communication between two devices with a PC. To do this you need the monitor cable, which is displayed in the next picture. Two sockets are connected straight through. The PC is connected to the third one.

This monitor cable taps communication from both sides. This means that if the two devices happen to talk simultaneously, the monitored information will be garbage. In most circumstances communication software works half duplex, in which case this problem does not exist.