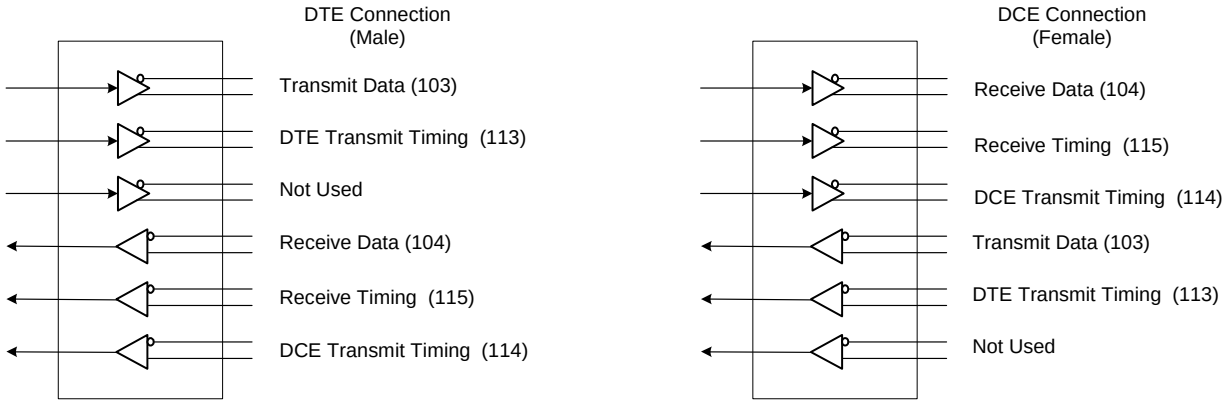
Multiprotocol DTE and DCE Options

Option #1 Use separate connectors for the DTE and DCE

This is the simplest approach both for the designer and the end-user. Signal routing is straightforward and there is less chance that an end-user will plug in the wrong cable gender. Most serial port protocols specify a female connector on DCE and male for DTE. For a DTE route signals direct to the appropriate (male) connector pins. For a DCE route signals to the appropriate (female) connector. The disadvantage of this approach is that there are two connectors, taking up more space on the back-panel.

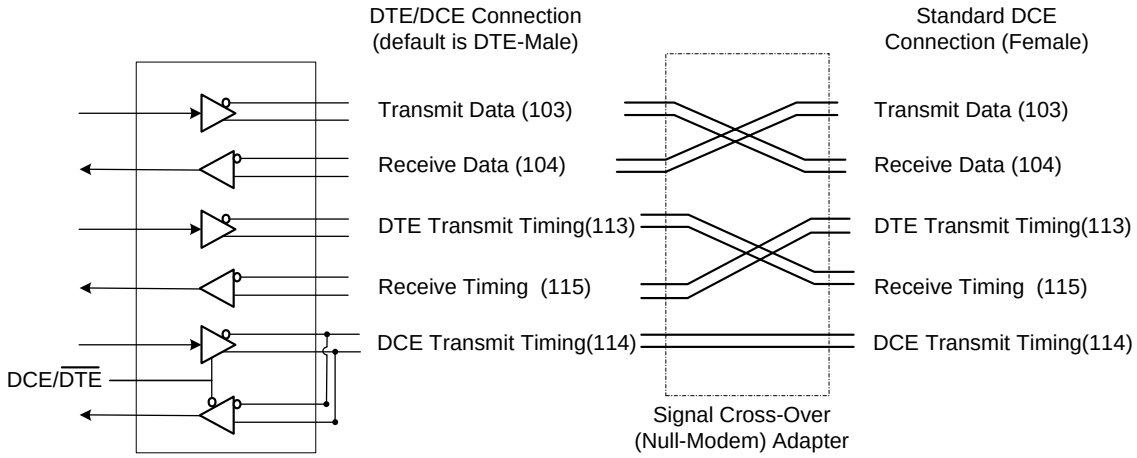


for simplicity, only Data and Timing signals are shown

Option #2 Use a 25 or 26 pin connector plus a null-modem adapter

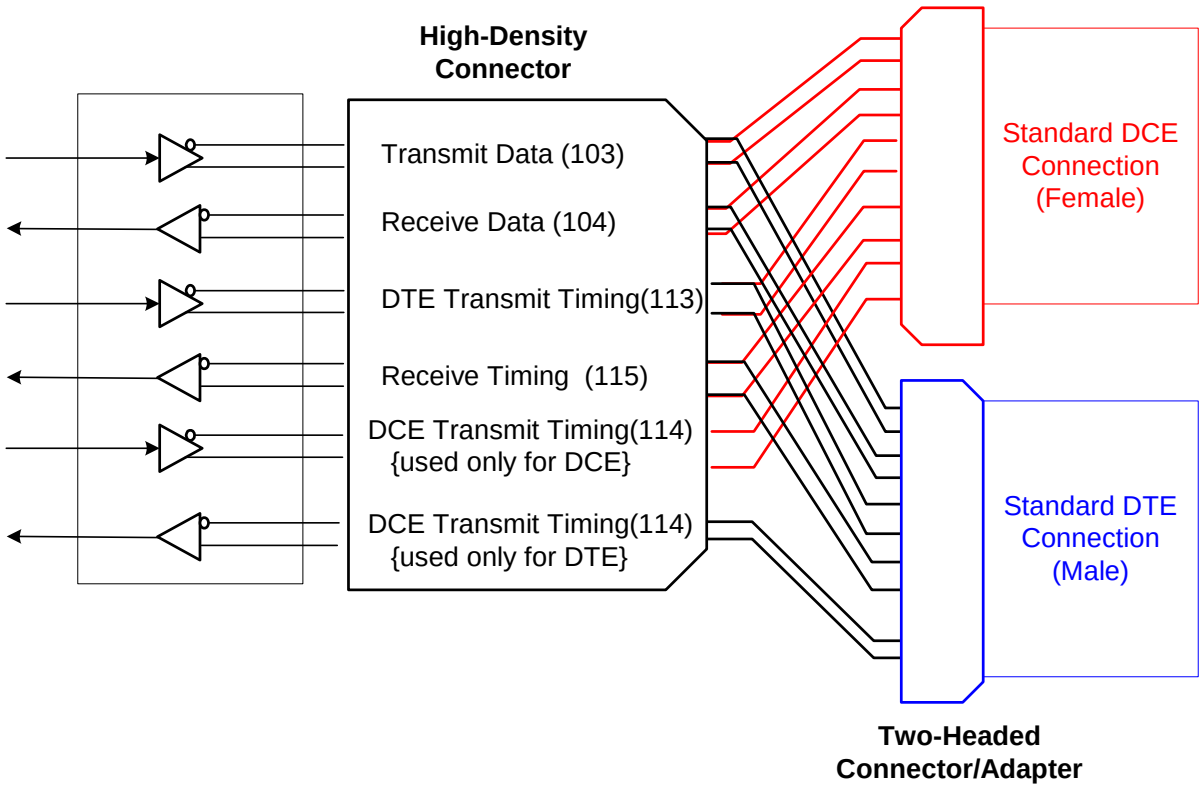
This is a more complicated approach but it has the advantage of only requiring one connector.

Signals are routed to a default-DTE connector. An external cross-over adapter or “null modem” plug is used to rearrange signals and gender-change for DCE operation. But there are not enough pins available on a 25 or 26 pin connector to connect all the signals needed for both DTE and DCE. The solution is to make signals such as #114 (DCE Transmit Timing) bi-directional. The transceiver must have a driver-enable and receiver-enable control in order to use this approach. There is also a risk that end-users will mis-configure the interface, causing bus contention on the bi-directional signals.



Option #3 Use a high density connector with adapters

In most protocols all the pins on the standard connector have a defined purpose. There are no extra pins available to bring out all signals for both a DTE and DCE. A viable option is to use a single higher density connector with enough pins to support all signals. Then use adapter plugs or daughter-cables to connect signals to standard data cables. This approach also simplifies signal routing and prevents accidental cable reversals, but does require special adapters or proprietary cables.



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