

Proposed TED's use with the standard RJ45 8 pin Connector

Hewlett Packard introduced the use of the RJ45 for use in strain gage applications with the release of the E1529A product. Extensive testing was performed to verify that the RJ45 was not only a very robust connector, but also provided accurate readings while reducing cost over traditional connectors used for this type of application. The RJ45 was readily available, very low cost, and easy to connect and produce cable assemblies due to its crimp on design. Since that time the connector has gone on to become an open standard used by many users. The original design allowed it to be used with standard off the shelf Cat 5 Cable and connectors and was designed to take advantage of the standard twisted pairs for improved noise rejection. One advantage of this configuration is that in 1/4 bridge mode, using a standard 3 wire connection, users connect up the 3 left most pins for easy connection using ribbon cable (pins 1, 2, and 3).

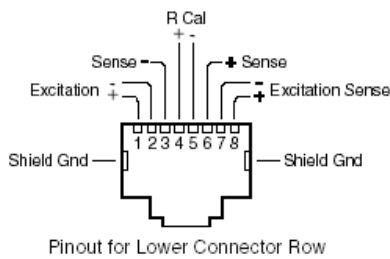


Figure 1, Connection layout for the RJ45 connector the from VXI Technology VT1529B Manual

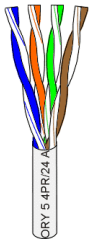


Figure 2, Standard CAT 5 Cable

+Excitation and -Excitation use one twisted pair
 +Bridge Sense and -Bridge Sense use one twisted pair
 +Excitation Sense and -Excitation Sense use one twisted pair
 Shunt Cal uses one of the twisted pairs

(White-Green/Green)
 (White-Orange/Orange)
 (White-Brown/Brown)
 (White-Blue/Blue)

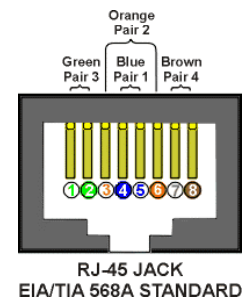
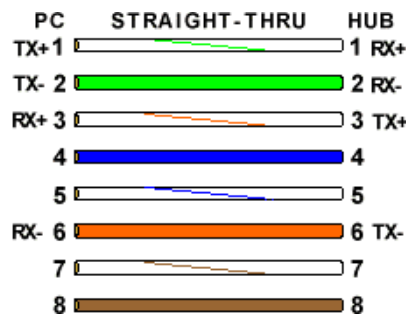


Figure 3, Design is intended for use with standard Straight-Thru connection, not Crossover

VXI Technology has proposed an open TED's design using the RJ45 connector. By using techniques currently employed by other transducers such as Accelerometers, we can maintain the current RJ45 connector pin-out but also add TED's read capability by reverse biasing the existing RCAL lines. This allows users the flexibility of using and implementing TED's capabilities in a number of ways, depending upon what level of functionality is required.

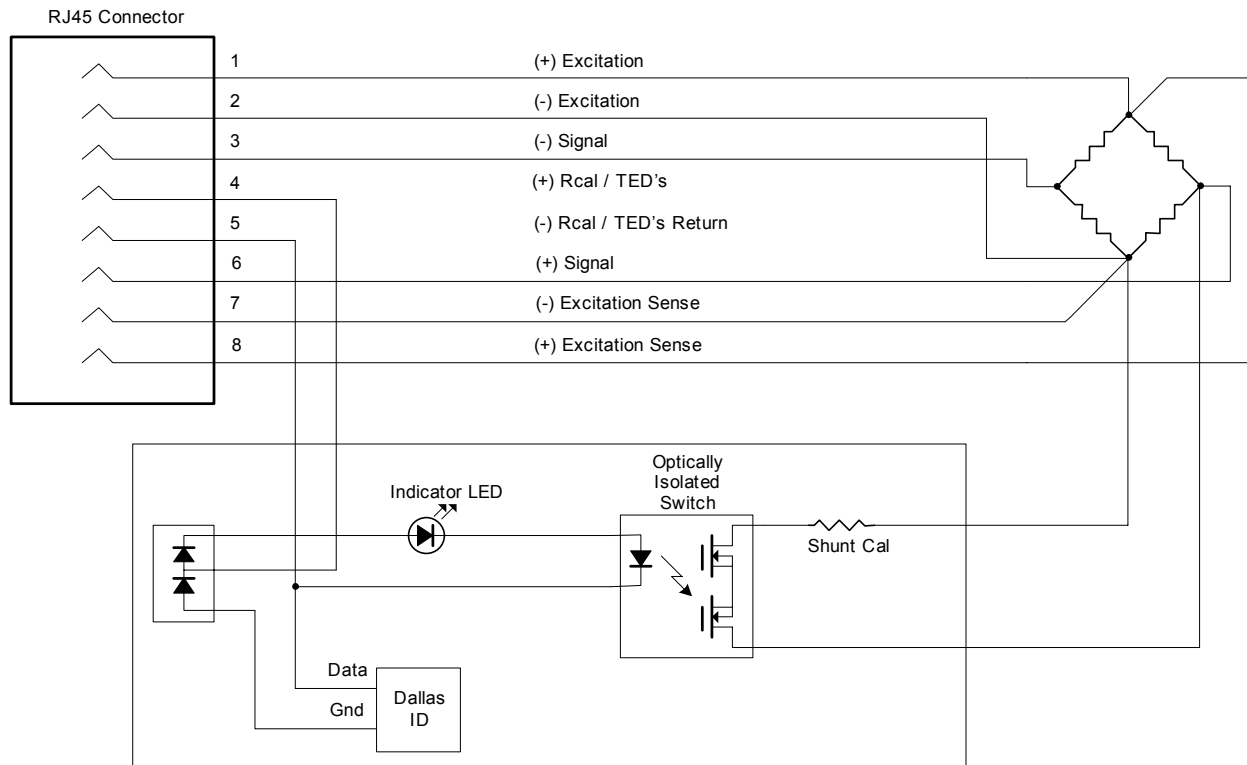


Figure 4, RJ45 Connections with remote shunt and TED's read capability

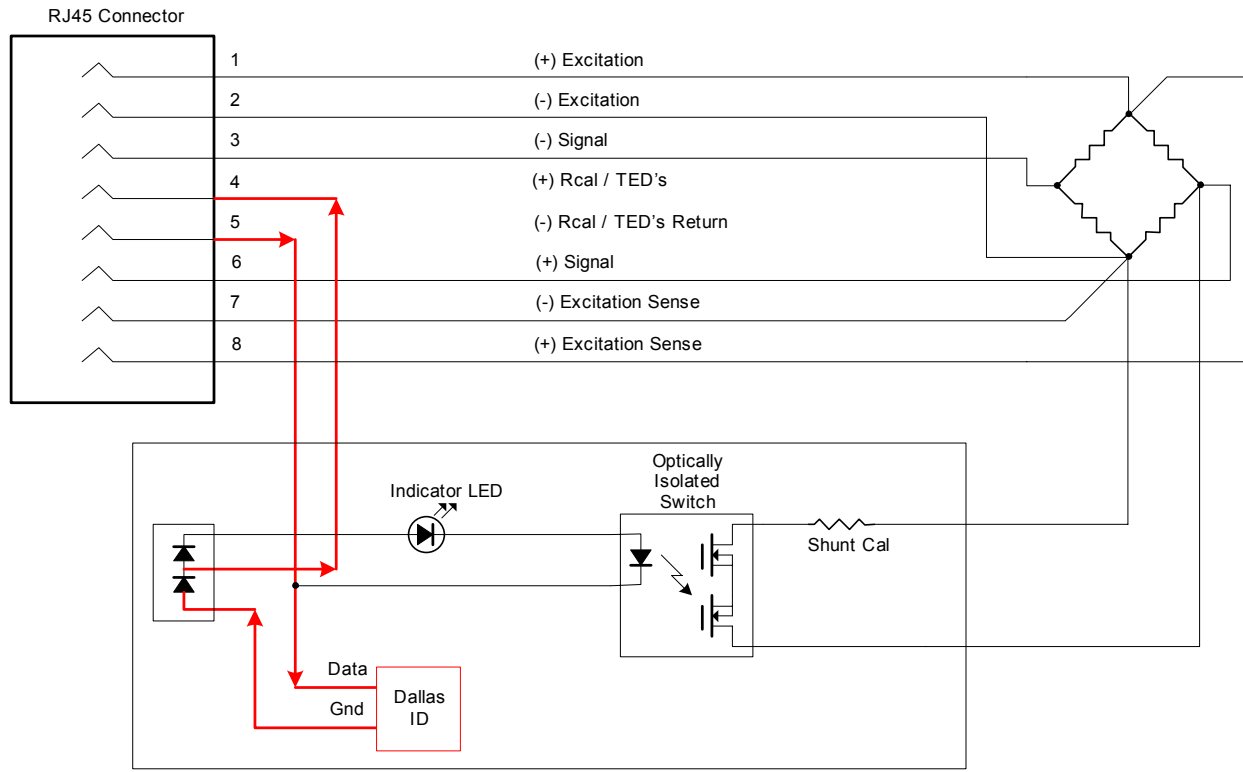


Figure 5, Signal paths with current on pins 4 and 5 Biased to read TED's information

In Figure 5, the signal paths have been highlighted in red to show how the TED's information would be read.

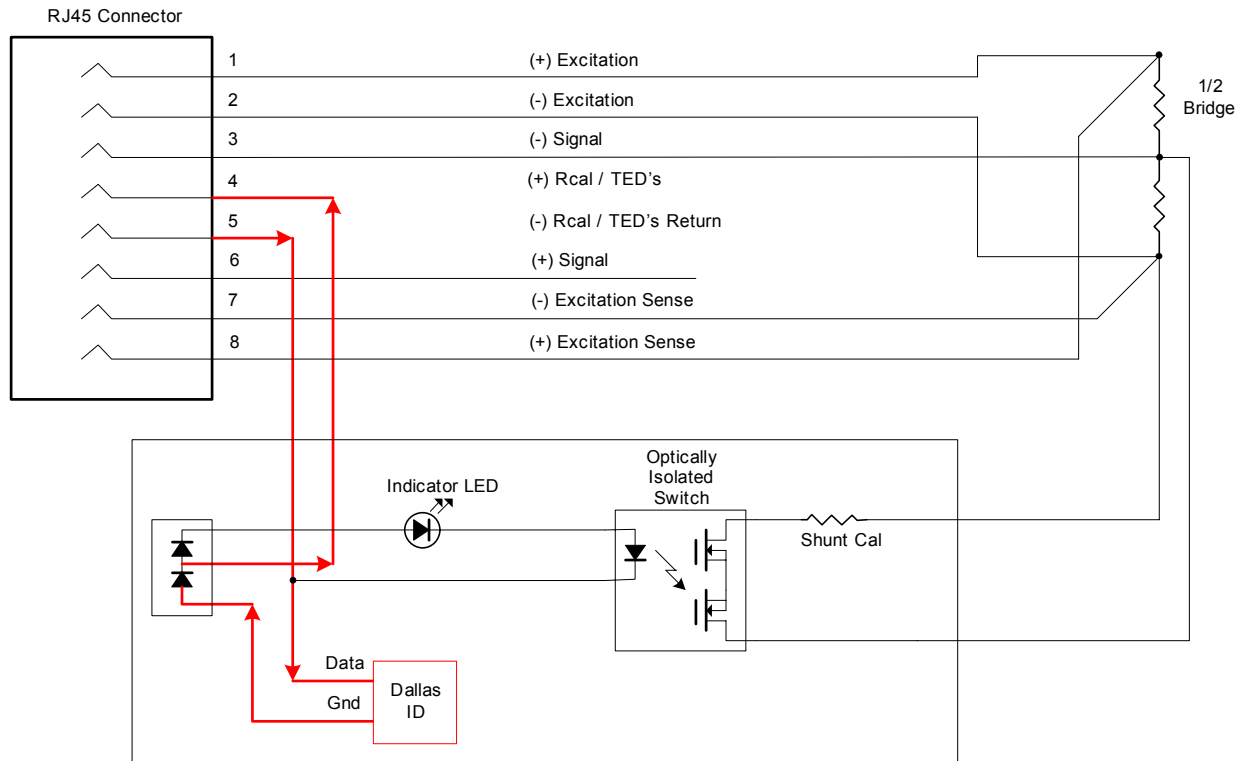


Figure 6, 1/2 Bridge implementation for TED's

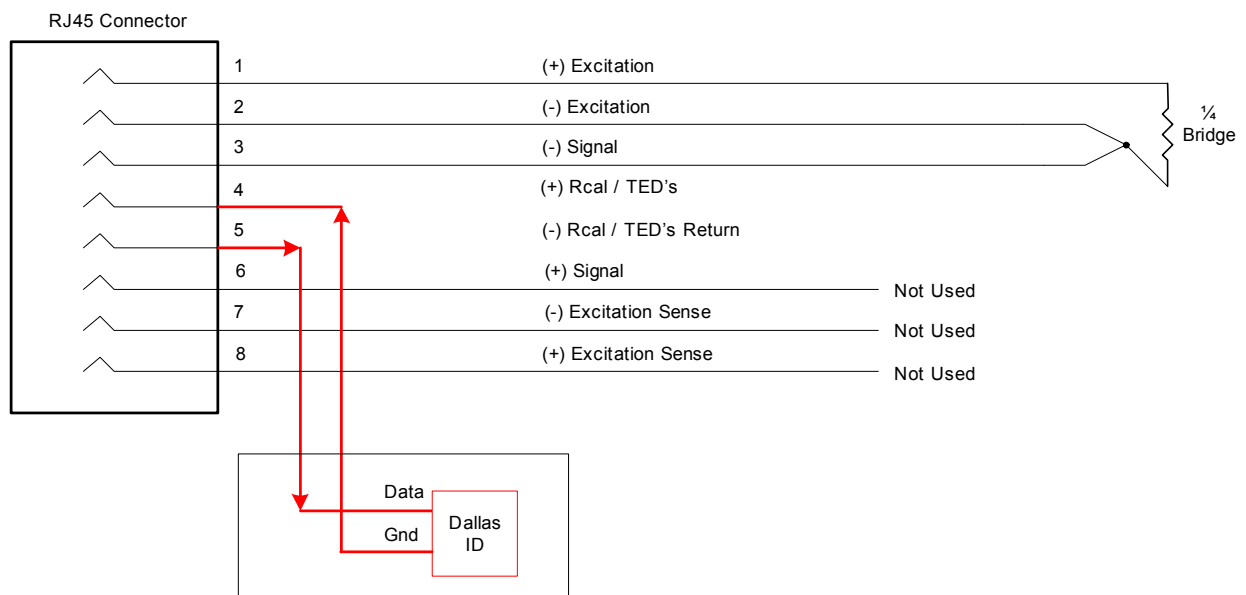


Figure 7, 1/4 Bridge implementation for TED's

Simple low cost implementation for 1/4 bridge TED's only requires the Dallas semiconductor chip for implementation.

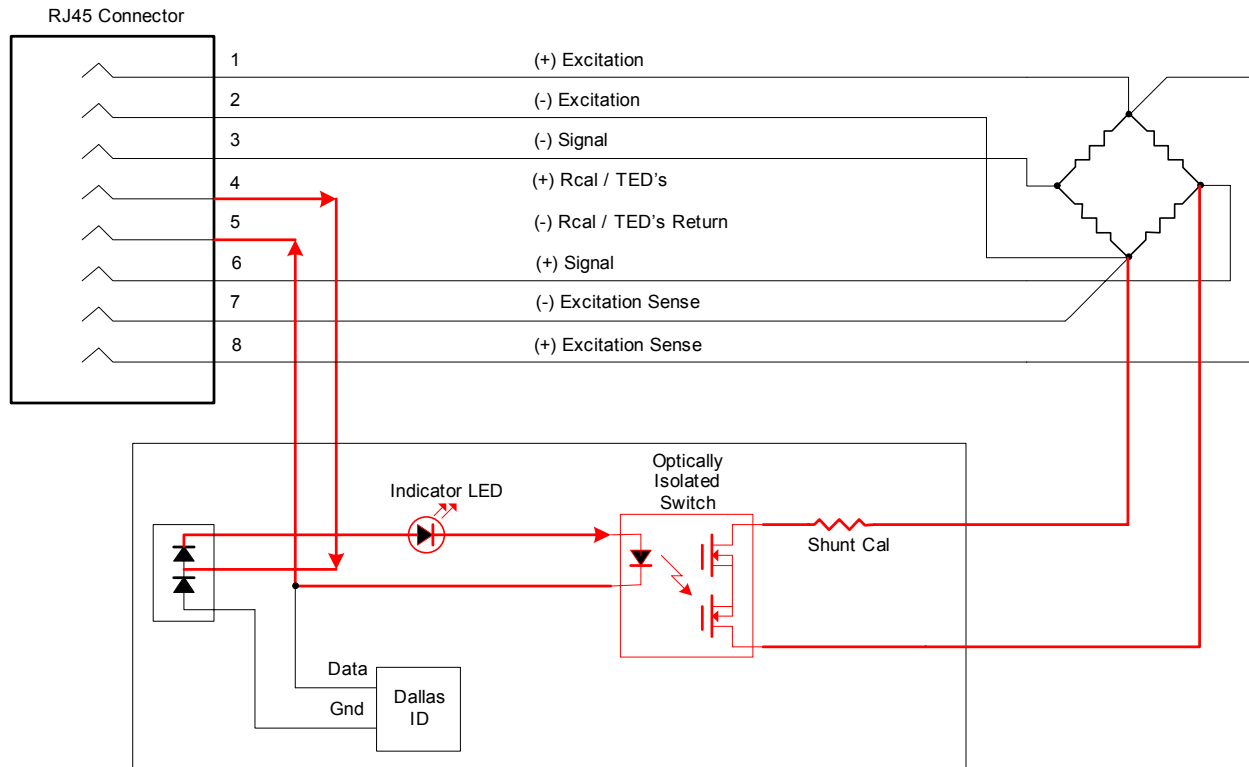


Figure 8, Signal paths with current on pins 4 and 5 Biased to do remote shunt calibration

In Figure 8, the current paths are highlighted in red to show how the remote shunt calibration would be implemented. Note that the ability to provide an LED for channel identification is also provided in this design.