Connecting BDI Strain Transducers to your Data Acquisition System

EFFECTIVE JANUARY 1, 2007: THIS HOOKUP IS FOR BDI TRANSDUCERS WITH SERIAL NUMBERS B1250 AND HIGHER (THESE WILL HAVE EITHER RED OR BLUE CABLES). OTHERWISE, FOR ALL OTHER BDI TRANSDUCERS, INCLUDING ALL TRANSDUCERS WITH GREY CABLES, USE THE WIRING HOOKUP DIAGRAM IN FIGURE 2.

Initial Check-Out: Upon receiving new transducers, it is important to check that they are in proper working order. Using an ohmmeter, read the resistances between the white and green wires and then the red and black wires. (For older transducer versions as described above, read the red and white and then green and black pairs). Both readings should be very close 350Ω. If they are not, the unit may be unusable and should be returned to BDI either for repair or replacement. This test should also performed on a periodic basis, especially if the transducer has been dropped or otherwise mishandled.

Most commercially-available data acquisition systems support the use of a full wheatstone bridge sensor. BDI strain transducers have four active arms consisting of 350Ω strain gages. This configuration provides approximately 3-1/2 times the output of a standard 1/4-arm foil gage installation for a given strain level. The connection sequence is shown in the following figure:

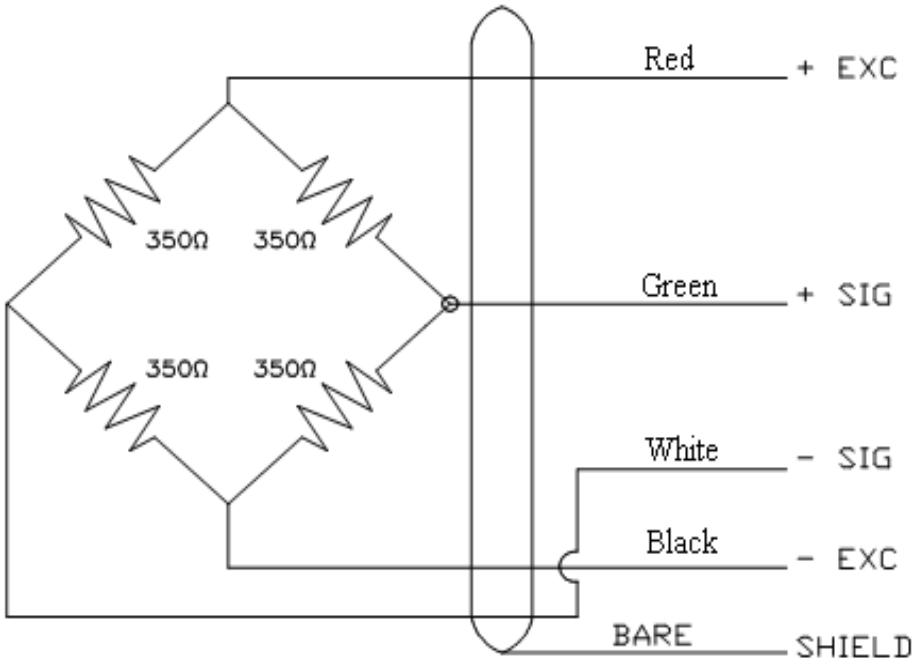

Figure 1 Wiring for transducer serial numbers B1250 and higher.

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The recommended excitation voltage is generally between 3 and 10 volts DC. Once the transducer has been connected to the data acquisition system, the user should verify output by monitoring the signal in real time while gently placing the transducer in tension and compression by hand. This will ensure that tension provides a positive output signal and compression a negative signal. If a tension force provides a negative signal (and vice-versa), the user should either switch the signal leads or make appropriate adjustments to the signal conditioning. Before going to the field, BDI highly recommends that a simple calibration be performed by the user to ensure that signal conditioning, gains, and calibration factors are being properly applied. Please see our informational write-up entitled “Verifying the Accuracy of BDI Strain Transducers” on some of the things to look out for while running your own calibration verification.

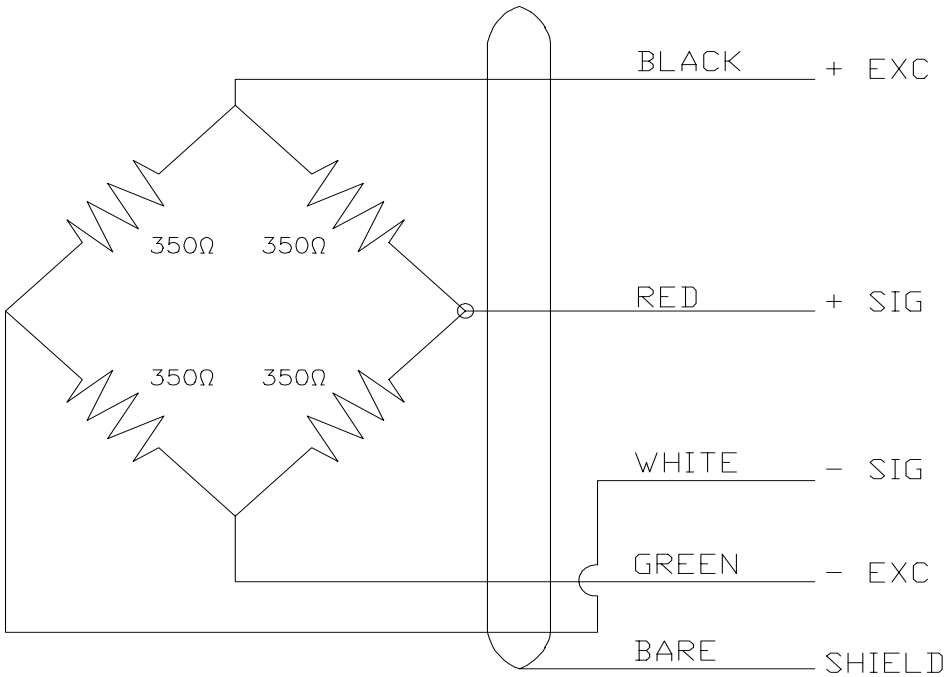

Figure 2 Transducer wiring for serial numbers lower than B1249 and gages with grey cable.