

Measuring Uniaxial Stress with bending compensation (2 off 120Ω Gauges) on Long Cables

Although this type of connection is not supported directly on board (no jumpers or completion resistors) it is still possible to configure Fylde Transducer Amplifiers for this connection.

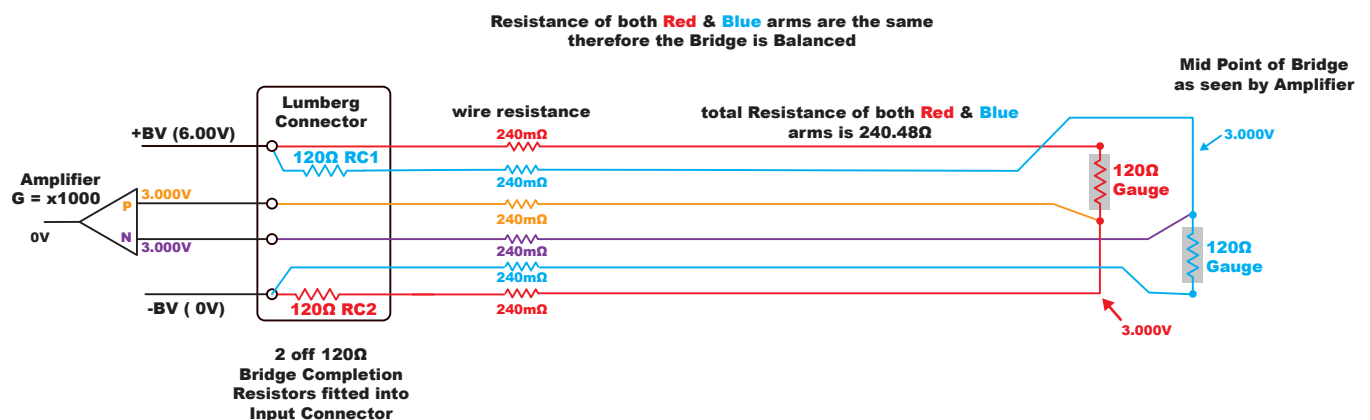
This connection can be thought of as two remote 1/4 Bridges, one connected to the P input and the other to the N input.

It is very important that the wiring to the gauges is kept symmetrical and balanced so that there is equal wire resistance joining the Gauge to the Amplifier (more info can be found in our Application Note on Quarter Bridge Wiring).

Two 120Ω completion resistors should be fitted inside the Input Connector housing, one connected to the Positive Bridge Volts (B.V.) supply pin and the other to the Negative B.V. supply pin.

Six separate wires need taking to the two Gauges, three for each Gauge. Two for the Bridge connection & one to carry the return the signal into the high impedance Amplifiers input.

Following the wiring diagram below ensures that there are equal lengths of wire and therefore equal resistance in series with the two Gauges. This also ensures that the two centre points of each half Bridge are at half the Bridge Supply voltage. This connection ensures that the Bridge should always be able to be balanced, even with long cables and that any errors due to cable resistance changing with the ambient temperature can be virtually ignored.



Another option is to place the completion resistors as close to the gauges as possible, this leads to the same result as above. Fylde part number FE-349-BA offers a small box containing the completion resistors (240R standard, other values available on request) and 2 connectors to interface to the gauges (plug type Weald Electronics SM2SN).

