FOCUS APPLIED TECHNOLOGIES LOAD CELL TESTING AND TROUBLE SHOOTING

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LOAD CELL TEST

The load cell and amplifier can easily be tested together by observing the voltage (amplifier output which should be fed into Torque Input terminals on the back of the controller) while changing the load on the load cell. Unloaded the amplifier should have a small DC voltage (the "zero voltage"). As load is applied this voltage should increase linearly proportional to the applied load. If the voltage *decreases* when applying load in the nominal loading direction, reverse the **Sig +** and **Sig –** lines on the amplifier; this will cause the voltage to increase with applied load. When the load is removed the voltage should decrease back to the initial "zero voltage". If the assembly does not behave as indicated, it is likely that there is a problem with the load cell wiring, and you should proceed to the following "Load Cell Trouble Shooting" section.

LOAD CELL TROUBLE SHOOTING

The amplifier in this unit is designed to work with standard Wheatstone bridge configuration 4-wire load cells with resistance between 100 and 450 ohms. The excitation voltage (**Excite +** relative to **Excite -**) is either 5 or 10V depending on the Voltage Selector switch on the back of the amplifier. When functional the **Sig +** and **Sig –** lines should both be at approximately ½ the excitation voltage. Connecting a voltmeter (set to the DC mV scale) between **Sig +** and **Sig –** you should see a very small voltage (a few mV) which changes linearly with load. If the excitation voltage is properly applied, and you do not get a repeatable and linear change in the **Sig +** to **Sig –** voltage, it is likely that your load cell is either improperly hooked up, one of the leads is broken, or the load cell itself is damaged.

The most common problems associated with strain gages are:

1) Disconnected Leads – One of the wires is not properly connected
2) Shorted Leads – One or more of the leads is shorted together or to a shield ground
3) Internal Connection Breakage – One of the wire bonds to the actual strain element is broken

Any one of these faults may lead to signal drift, noise, no signal or signal pegged high or low. If your system is exhibiting these faults, you should check the resistance of between the leads and compare them to the table below.

RESISTANCE MEASUREMENTS

Leads	**Resistance**
Excite + to Excite -	R
Sig + to Sig -	R
Excite (+ or -) to Sig (+ or -)	3R/4
Shield to any other lead	Infinite

For further information on this or other products please contact us via the following:

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