V-Link®-LXRS®

350 Ohm Tester Board

Overview

The 350 Ohm Tester Board (part number 6313-9000) provides a precise instrument to test the differential input channels of the V-Link®-LXRS®. It can be used with any V-Link®-LXRS® that has its differential input channels outfitted as full bridge, or ½ bridge with 350 ohm completion, or ¼ bridge with 350 ohm completion. The Tester Board is used in conjunction with Node Commander® software.

Figure 1: Tester Board

Hardware Installation

- Determine the bridge configuration of the V-Link®-LXRS® by reviewing its accompanying certificates and documentation.
- Set the appropriate dip switch settings for the bridge configuration using the guide (bottom of the Tester Board). For our example we will use a FULL bridge configuration.
- Set switches 1, 2 and 3 to ON and switch 4 to OFF. As you view Figure 2, switches 1, 2 and 3 would be to the left and switch 4 would be to the right.
- Note: The dip switches may come with a brown protective film over their surface; simply peel the film off to access the white levers.
- Turn the V-Link®-LXRS® power switch off and unplug the battery charger barrel connector to insure the internal battery is not being charged.
- Remove the black 15-pin terminal connector from the top of the V-Link®-LXRS®.
- Insert the Tester Board's black 5-pin terminal connector into *SP+ S1+ S1- GND S1 S* as shown in Figure 1.
- Turn the V-Link®-LXRS® power switch on.

Figure 2: Dip Switches

Software Operation

- Launch Node Commander® software and establish communications with the V-Link®-LXRS® as normal.
- Right-click the node and a drop-down menu will appear.
- Click Configure.
- Click Configure Node and the Configuration window will appear.
- Click the Channels tab.
- Enable channel 1 only by checking the checkbox.
- Click Apply.
- Click the Configure button for channel 1.
- The Configuration (Channel 1) window will appear.
- Set the Input Range to +/-2.5 mV [569].
- Set the Auto-Balance radio button to Midscale.
- Click the Auto-Balance button.

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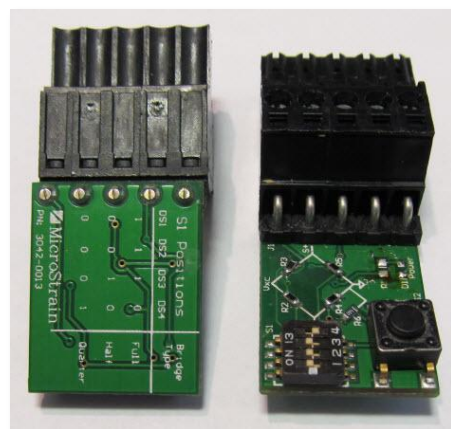**SENSING SYSTEMS**

- An auto-balance will occur and a confirming message will appear.
- Click OK.
- Set the Conversion Coefficients to Strain and µStrain will automatically fill in as Units.
- Click the Strain Wizard button.
- The Strain Wizard window will appear
- Set the Bridge Type to Full Bridge.
- Click Next to move to the next view.
- Click Use Strain Measurement Wizard.
- Click Next to move to the next view.
- Enter the following values into the drop-down boxes:
    o Number of Active Gauges = 1
    o Gauge Factor = 2.00
    o Gauge Resistance = 350 ohm
    o Shunt Resistance = 499000 ohm
- Click Calibrate and the view will change to the Shunt Calibration Graph.
- Click Calibrate and the V-Link®-LXRS® will stream momentarily and automatically perform the shunt.
- The resultant graph will appear as exampled in Figure 3.
- Click Accept to move to the next view as exampled in Figure 4.

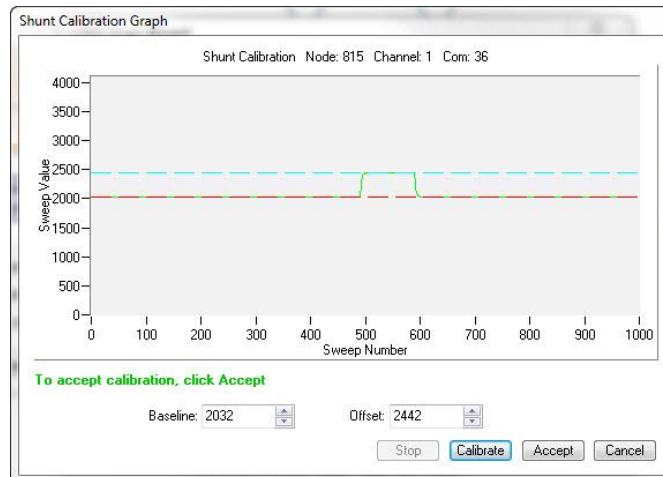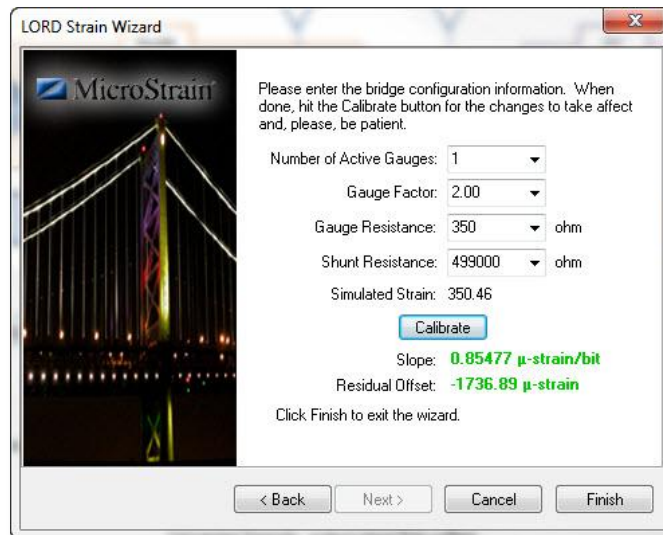**Figure 3:** *Shunt Calibration Graph*

Figure 4: *Slope and Residual Offset*

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- Note that in our example we see a Slope of 0.85477 µ-strain/bit; we are normally expecting a range of ~0.5 to 1.5 µ-strain/bit.
- Note that in our example we see a Residual Offset of -1736.89 µ-strain; we are normally expecting a range of -1700 to -2300 µ-strain.
- Click Finish and the Strain Wizard window will disappear.
- Click OK and the Configuration (Channel 1) window will disappear.
- Click the Streaming tab.
- Uncheck Continuous Streaming.
- Enter a Sweeps value of 10000.
- Click Apply. Click OK and the Configuration window will disappear.
- Right-click the node and a drop-down menu will appear.
- Click Stream. Click Start and the node will stream for ~14 seconds.
- During the streaming, push and release the button on the Tester Board to shunt the 350 ohm resistor in and out of the stream. This will appear as a stepped (green) line as shown in Figure 5. As expected, steps will be ~350 µ-strain.
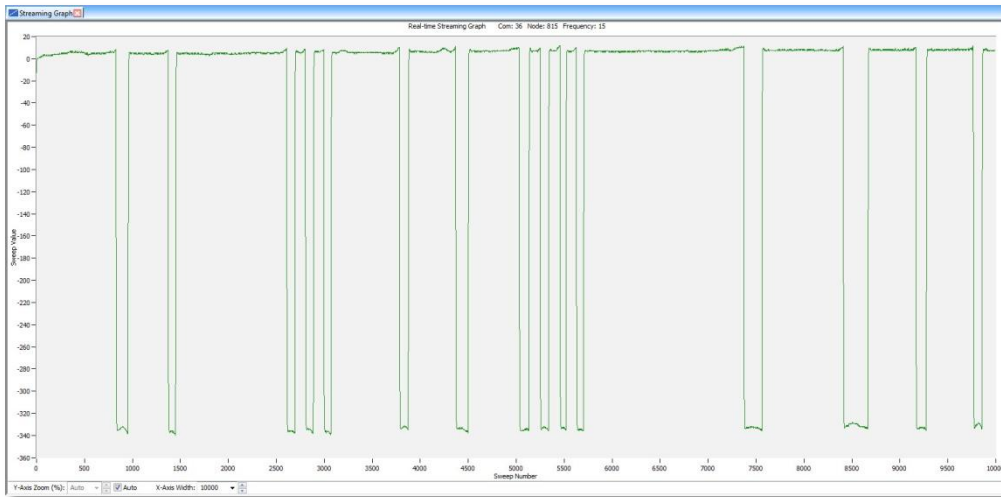

Figure 5: Streaming Graph

Congratulations!

The V-Link®-LXRS® is functioning properly! You will now want to connect your own sensors to the V-Link®-LXRS®. Good practice at this point would be to reset the Input Range to +/-70 mV [21] and the Conversion Coefficients to A/D Bits. These are the default settings. This will remove the Tester Board's configuration and allow you to start fresh with your own sensors.

Support

LORD MicroStrain® support engineers are always available to expand on this subject and support you in any way we can.