

## V-Link<sup>®</sup>-LXRS<sup>®</sup>

### 1000 Ohm Tester Board

#### Overview

The 1000 Ohm Tester Board (part number 6313-8000) provides a precise instrument to test the differential input channels of the V-Link<sup>®</sup>-LXRS<sup>®</sup>. It can be used with any V-Link<sup>®</sup>-LXRS<sup>®</sup> that has its differential input channels outfitted as full bridge, or ½ bridge with 1000 ohm completion, or ¼ bridge with 1000 ohm completion. The Tester Board is used in conjunction with Node Commander<sup>®</sup> software.

#### Hardware Installation

- Determine the bridge configuration of the V-Link<sup>®</sup>-LXRS<sup>®</sup> 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<sup>®</sup>-LXRS<sup>®</sup> 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<sup>®</sup>-LXRS<sup>®</sup>.
- 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<sup>®</sup>-LXRS<sup>®</sup> power switch on.

#### Software Operation

- Launch Node Commander<sup>®</sup> software and establish communications with the V-Link<sup>®</sup>-LXRS<sup>®</sup> 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.



Figure 1: Tester Board

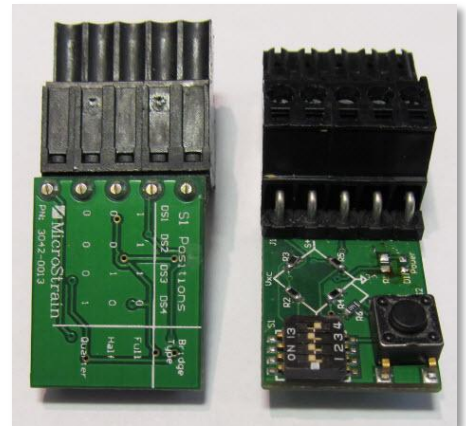


Figure 2: Dip Switches

- An auto-balance will occur and a confirming message will appear.
- Click OK.
- Set the Conversion Coefficients to Strain and  $\mu$ Strain 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:
  - Number of Active Gauges = 1
  - Gauge Factor = 2.00
  - Gauge Resistance = 1000 ohm
  - Shunt Resistance = 499000 ohm
- Click Calibrate and the view will change to the Shunt Calibration Graph.
- Click Calibrate and the V-Link<sup>®</sup>-LXRS<sup>®</sup> will stream momentarily and automatically perform the shunt.
- The resultant graph will appear as exemplified in Figure 3.
- Click Accept to move to the next view as exemplified in Figure 4.

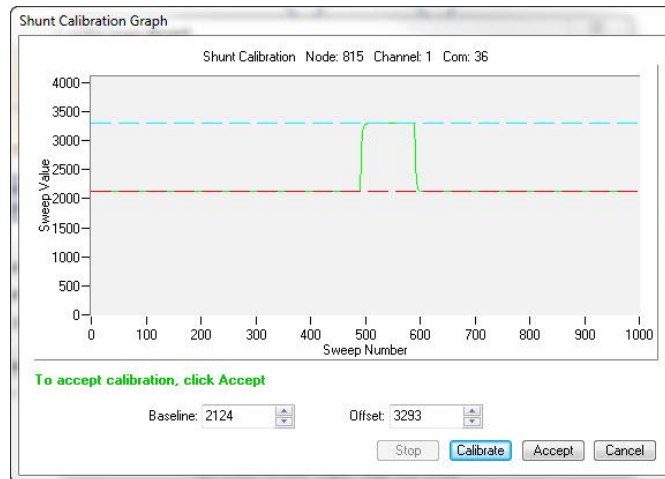


Figure 3: Shunt Calibration Graph

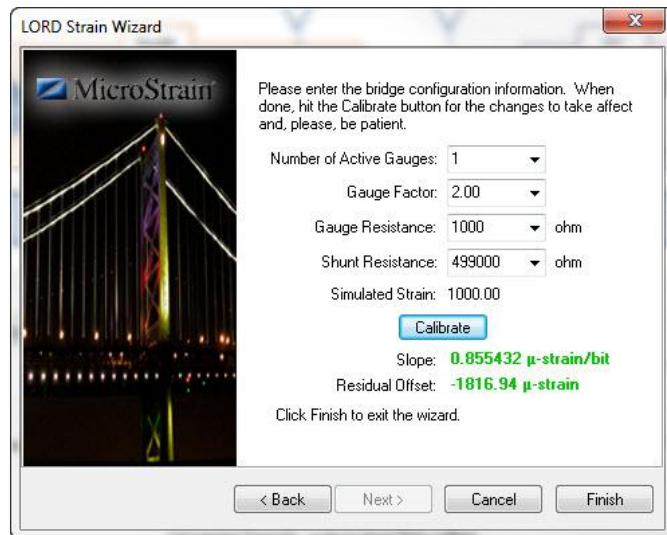
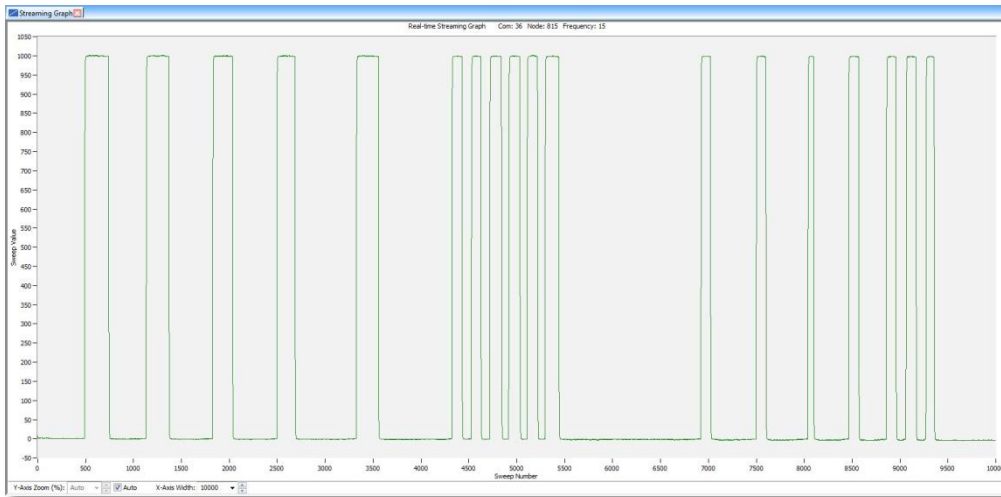


Figure 4: Slope and Residual Offset

- Note that in our example we see a Slope of 0.855432  $\mu$ -strain/bit; we are normally expecting a range of  $\sim$ 0.5 to 1.5  $\mu$ -strain/bit.
- Note that in our example we see a Residual Offset of -1816.94  $\mu$ -strain; we are normally expecting a range of -1700 to -2300  $\mu$ -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  $\sim$ 14 seconds.
- During the streaming, push and release the button on the Tester Board to shunt the 1000 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  $\sim$ 1000  $\mu$ -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  $\pm$ 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.