

SG-Link[®]-LXRS[®]

1000 Ohm Tester Board

Overview

The 1000 Ohm Tester Board (part number 6309-7000) provides a precise instrument to test the differential input channel and the single ended input channel of the SG-Link[®]-LXRS[®]. It can be used with any SG-Link[®]-LXRS[®] that has its differential input channel outfitted as full bridge or ½ bridge with 1000 ohm completion. The Tester Board is used in conjunction with Node Commander[®] software.

Hardware Installation

- Determine the bridge configuration of the SG-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 SG-Link[®]-LXRS[®] power switch off and unplug the battery charger barrel connector to insure the internal battery is not being charged.
- Loosen (by turning counterclockwise) the 8 terminal screws in the green Phoenix connector on the SG-Link[®]-LXRS[®].
- Insert the 8 fingers of the Tester Board into the Phoenix connector as shown in Figure 1.
- Tighten snugly (but do not over-tighten) the 8 terminal screws.
- Turn the SG-Link[®]-LXRS[®] power switch on.



Figure 1: Tester Board

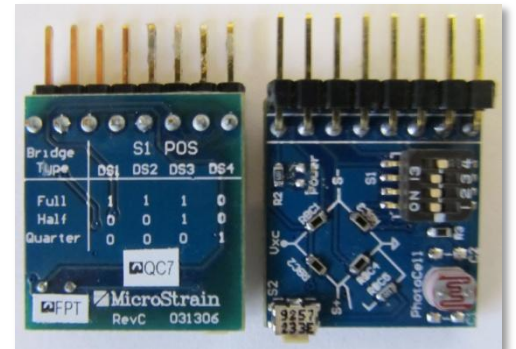


Figure 2: Dip Switches

Software Operation

- Launch Node Commander[®] software and establish communications with the SG-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 channels 1 and 4 by checking the checkboxes.
- Click Apply.
- Click the Configure button for channel 1.
- The Configuration (Channel 1) window will appear.
- Set the Hardware Gain to 503.
- Set the Auto-Balance radio button to Midscale.
- Click the Auto-Balance button.
- An auto-balance will occur and a confirming message will appear.
- Click OK.
- Set the Conversion Coefficients to Strain and μ 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 SG-Link[®]-LXRS[®] 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.

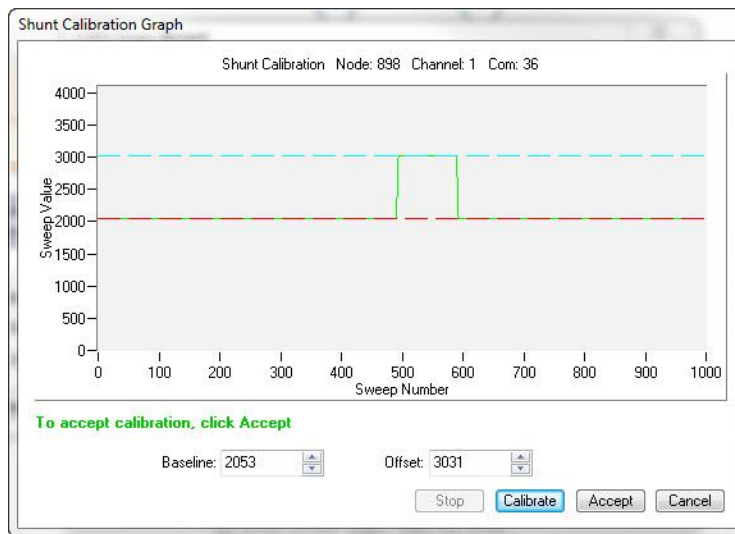


Figure 3: Shunt Calibration Graph

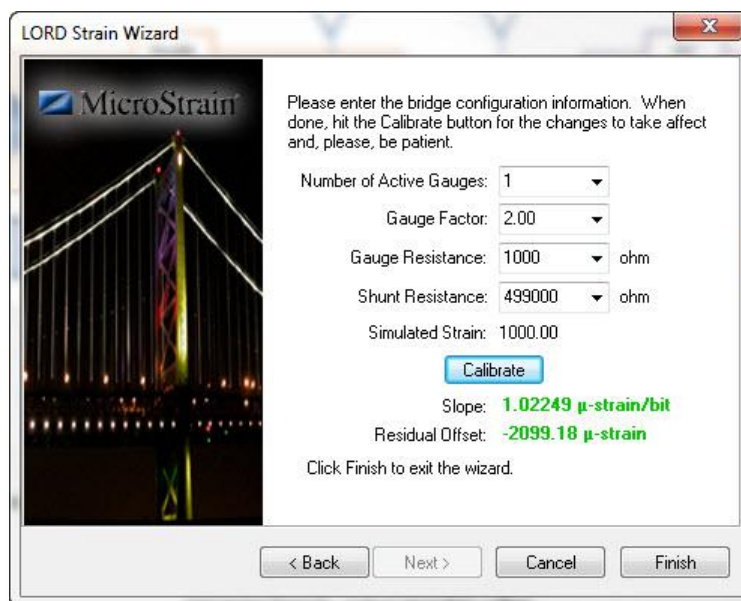


Figure 4: Slope and Residual Offset

- Note that in our example we see a Slope of $\sim 1 \mu\text{-strain/bit}$; we are normally expecting a range of ~ 0.5 to $1.5 \mu\text{-strain/bit}$.
- Note that in our example we see a Residual Offset of $\sim -2099 \mu\text{-strain}$; we are normally expecting a range of -1900 to $-2100 \mu\text{-strain}$.
- Click Finish and the Strain Wizard window will disappear.
- Click OK and the Configuration (Channel 1) window will disappear.
- Click the Configure button for channel 4.
- The Configuration (Channel 4) window will appear.
- Set the Conversion Coefficients to A/D Value and Bits will automatically fill in as Units.
- Click OK and the Configuration (Channel 4) window will disappear.
- Click Apply.
- 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 edge of 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 $\sim 1000 \mu\text{-strain}$.
- During the streaming move your finger over, off and around the photocell to change the light passage. This will appear as a wavy (purple) line as shown in Figure 5.

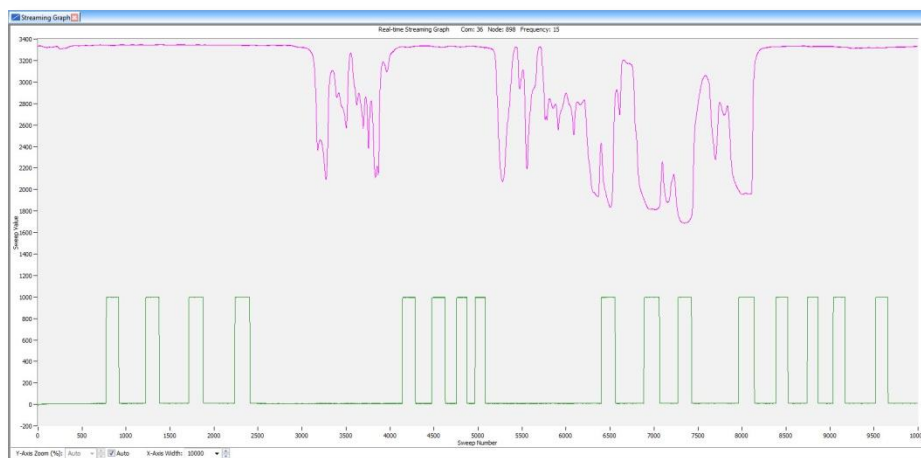


Figure 5: Streaming Graph

Congratulations!

The SG-Link®-LXRS® is functioning properly! You will now want to connect your own sensors to the SG-Link®-LXRS®. Good practice at this point would be to reset the Hardware Gain to 104 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.