V-Link®-LXRS® and SG-Link®-LXRS®

Control a Relay with a Wireless Node

Overview

The LORD MicroStrain® V-Link®-LXRS® Wireless 7 Channel Analog Input Sensor Node and the SG-Link®-LXRS® Wireless 2 Channel Analog Input Sensor Node support a wide range of Wheatstone bridge and analog sensors including acceleration, vibration, strain, load cells, torque, pressure, magnetic fields, displacement, geophones, etc. As a basic function of support for these sensors, the nodes provide +3 volt DC excitation to the sensor circuit. The excitation is initiated when the node is instructed to sample. Because the excitation turns on and turns off as the sampling turns on and turns off, a relay can be switched on and off, and used to control another component in a system. For example, a motor could be turned on and off to coincide with the sensor sampling. This technical note assumes some familiarity with the V-Link®-LXRS®, SG-Link®-LXRS® and Node Commander® software.

Relay

A typical relay for this application is the IXYS Single-Pole, Normally Open Solid State Relay Model CPC1708. The relay has 4 pins. Pin 3 and 4 are the control side of the relay. At 1.2 volts the relay turns the load side on. Pins 1 and 2 are the load side of the relay and will switch 0-60 volts @ up to 4 mA (without heat sink).
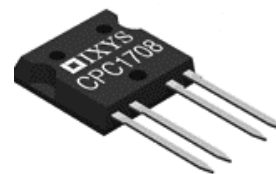
Connect Relay to V-Link®-LXRS®

- Solder a flying lead to Pin 4 (+) of the relay and connect the lead to SP+ (power) on the V-Link®-LXRS®.
- Solder a flying lead to Pin 3 (-) of the relay and connect the lead to GND (ground) on the V-Link®-LXRS®.
- Connect the positive lead (red) of a multi-meter to Pin 2 (-) of the relay.
- Connect the common lead (black) of a multi-meter to Pin 1 (+) of the relay.
- Turn on the multi-meter and set the reading to Continuity Beep.

Connect Relay to SG-Link®-LXRS®

- Solder a flying lead to Pin 4 (+) of the relay and connect the lead to VXC (power) on the SG-Link®-LXRS®.
- Solder a flying lead to Pin 3 (-) of the relay and connect the lead to GND (ground) on the SG-Link®-LXRS®.
- Connect the positive lead (red) of a multi-meter to Pin 2 (-) of the relay.
- Connect the common lead (black) of a multi-meter to Pin 1 (+) of the relay.
- Turn on the multi-meter and set the reading to Continuity Beep.

Demonstrate Relay

For our relay switching example, we will demonstrate Low Duty Cycle sampling on the V-Link®-LXRS®. The same approach is applicable to the SG-Link®-LXRS® and any of the other sampling methods including synchronized sampling, datalogging, streaming, etc.

- Establish communication between the V-Link®-LXRS® and Node Commander® as normal.
- Right-click the Node and a drop-down menu will appear.
- Click Configure.
- Click Configure Node and the Configuration screen will appear.
- Click the Channels tab.
- Enable Channel 8 by clicking the checkbox; disable all other channels.
- Click Apply.
- **Note:** Any channel or combination of channels will cause the excitation to initiate.
- Click the Low Duty Cycle tab.
- Select a Sample Rate of 1 Hz.
- Check the Unlimited Sample Duration checkbox.

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- Click Apply.
- Click OK and the Configuration window will disappear.
- Right-click the Node and a drop-down menu will appear.
- Click Sample.
- Click Low Duty Cycle and the Sampled Data window will appear.
- Channel 8 Temperature data will display AND you will hear a 'beep' every one second indicating that the relay is switching on and off in concert with the temperature channel being excited and sampled.

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