

Using External Power With Wireless Sensor Nodes



Overview

Certain MicroStrain wireless sensor nodes contain an internal rechargeable battery which in some cases may not satisfy the long term power requirements of remote installations. An interstate bridge superstructure, the canopy of a rain forest, a traveling belt in a 24 hour factory, or the nacelle of a windmill are examples of hard-to-reach installations where an extended interval may be needed between battery recharges. To solve this issue, these nodes may be powered externally with larger capacity batteries or other power sources to extend the maintenance intervals. By simply switching the internal/external power switch to external, the node will draw from the external source. This technical note assumes the user has some familiarity with MicroStrain [Wireless Sensor Networks](#).

General Instructions

- The V-Link[®]-LXRS[™] and SG-Link[®]-LXRS[™] have two external power paths; one is through the power jack in the enclosure sidewall and the other is through the green Phoenix connectors.
- The G-Link[®]-LXRS[™], TC-Link[®]-1CH-LXRS[™] and DVRT[®]-Link-LXRS[™] have one external power path through the power jack in the enclosure sidewall.
- The TC-Link[®]-6CH-LXRS[™] has two external power paths; one is through the power jack in the enclosure sidewall and the other is through the AA battery holder mounted on the circuit board.
- **Good Practice:** Remove the external power source before switching the internal/external power switch to internal.
- Refer to the data sheet of the particular node to confirm the external power range, e.g., V-Link[®]-LXRS[™] accepts +3.2 to +9.0 VDC.
- The instructions refer to the example barrel connector and 2-lead connector shown at the end of this technical note.
- The internal/external power switch is a 2-position switch. It may be possible to position the switch half-way in between which would cause the node to become inoperable. To rectify, just push the switch fully to either side.
- When using the internal rechargeable battery for operation or when charging the internal rechargeable battery, remember to move the switch back to the internal position.

Instructions by Node

V-Link® -LXRS™ through the power jack

Step 1

- Remove the 4 screws holding the top cover in place.
- Remove the top cover.
- Switch to the EXTERNAL position.
- Reinstall the cover and screws.



Step 2

- Plug the external power barrel connector into the power jack.
- Turn the node ON using its ON/OFF switch.



V-Link® -LXRS™ through the green Phoenix connector

Step 1

- Remove the 4 screws holding the top cover in place.
- Remove the top cover.
- Switch to the EXTERNAL position.
- Reinstall the cover and screws.



Step 2

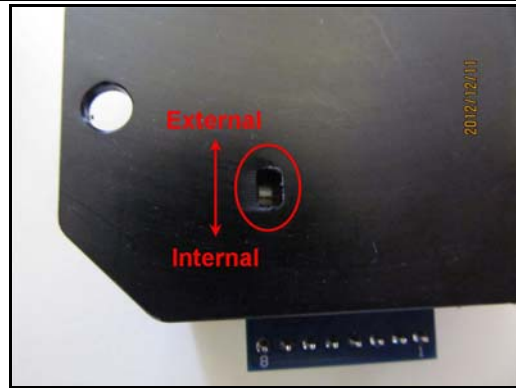
- Connect the red lead (power) to Vjck.
- Connect the black lead (ground) to GND.
- Turn the node ON using its ON/OFF switch.



SG-Link®-LXRS™ through the power jack

Step 1

- Locate the external/internal power switch on the back of the enclosure.
- Switch to the EXTERNAL position.



Step 2

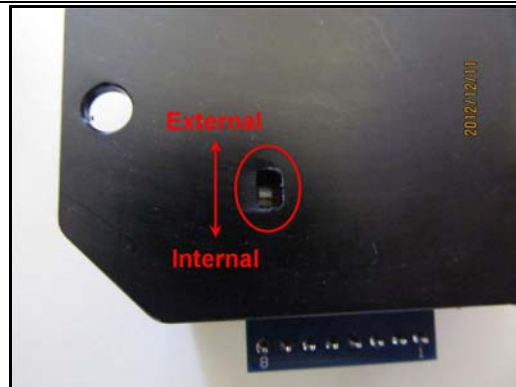
- Plug the external power barrel connector into the power jack.
- Turn the node ON using its ON/OFF switch.



SG-Link®-LXRS™ through the green Phoenix connector

Step 1

- Locate the external/internal power switch on the back of the enclosure.
- Switch to the EXTERNAL position.



Step 2

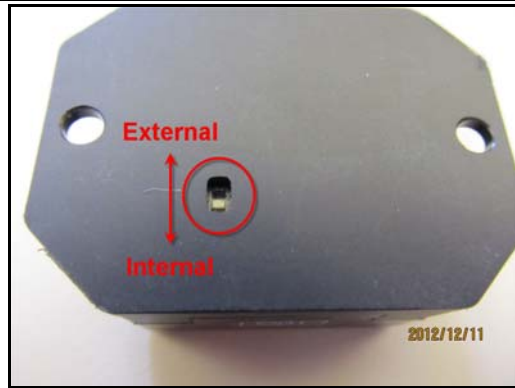
- Connect the red lead (power) to Vjck.
- Connect the black lead (ground) to GND.
- Turn the node ON using its ON/OFF switch.



G-Link®-LXRS™ through the power jack

Step 1

- Locate the external/internal power switch on the back of the enclosure.
- Switch to the EXTERNAL position.



Step 2

- Plug the external power barrel connector into the power jack.
- Turn the node ON using its ON/OFF switch.



TC-Link®-1CH-LXRS™ through the power jack

Step 1

- Locate the external/internal power switch on the back of the enclosure.
- Switch to the EXTERNAL position.



Step 2

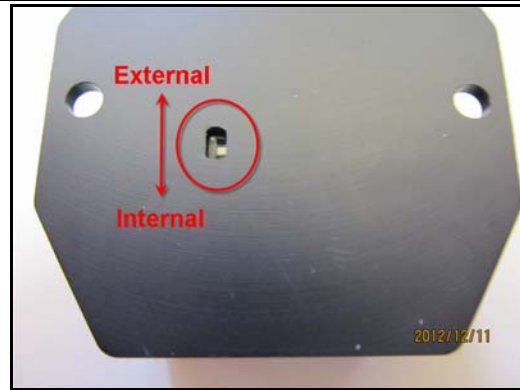
- Plug the external power barrel connector into the power jack.
- Turn the node ON using its ON/OFF switch.



DVRT[®]-Link-LXRS[™] through the power jack

Step 1

- Locate the external/internal power switch on the back of the enclosure.
- Switch to the EXTERNAL position.



Step 2

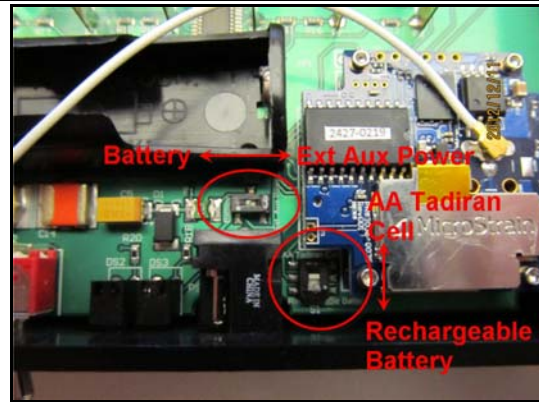
- Plug the external power barrel connector into the power jack.
- Turn the node ON using its ON/OFF switch.



TC-Link® -6CH-LXRS™ through the power jack

Step 1

- Remove the 4 screws holding the top cover in place.
- Remove the top cover.
- Locate switch SW1 and set it to *Ext Aux Power* position.
- Locate switch S1 and set it to *AA Tadiran Cell* position.
- Reinstall the cover and screws.



Step 2

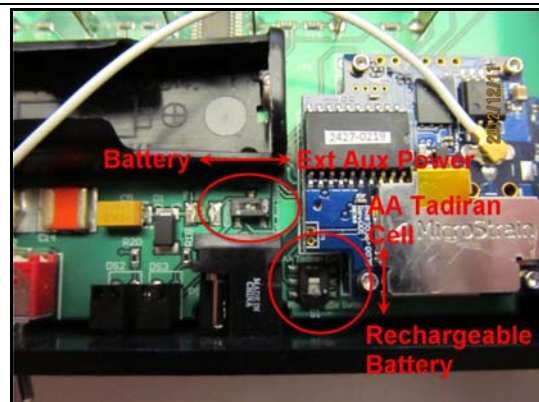
- Plug the external power barrel connector into the power jack.
- Turn the node ON using its ON/OFF switch.



TC-Link® -6CH-LXRS™ through the AA battery holder

Step 1

- Remove the 4 screws holding the top cover in place.
- Remove the top cover.
- Locate switch SW1 and set it to *Battery* position.
- Locate switch S1 and set it to *AA Tadiran Cell* position.



Step 2

- Install 3.7 volt AA Tadiran battery in the battery holder, observing correct polarity.
- Reinstall the cover and screws.
- Turn the node ON using its ON/OFF switch.



Example barrel connector

Figure 1 shows a typical D-cell battery and battery holder wired to present a barrel connector.

- The V-Link[®]-LXRS[™] and TC-Link[®]-6CH-LXRS[™] require a barrel connector meeting these specifications: <http://www.tensility.com/pdf/CA-2189.pdf>.
- The SG-Link[®]-LXRS[™], G-Link[®]-LXRS[™], TC-Link[®]-1CH-LXRS[™] and DVRT[®]-Link-LXRS[™] require a barrel connector meeting these specifications: <http://www.calradstore.com/30-340.html>. This particular adapter is used in conjunction with the adapter described above.



Figure 1: D-cell, battery holder and barrel connector

Example 2-lead connector

Figure 2 shows a typical D-cell battery and battery holder wired to present a two wire pigtail.



Figure 2: D-cell, battery holder and two wire pigtail

Support

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

8401-0004
Copyright © 2012 LORD Corporation

LORD Corporation

MicroStrain Sensing Systems
459 Hurricane Lane, Unit 102 ph: 800-449-3878
Williston, VT 05495 USA fax: 802-863-4093
www.microstrain.com support@microstrain.com

MicroStrain[®], Node Commander[®], LXRS[™], MathEngine[®], mXRS[®], EH-Link[®], SensorCloud[®], TC-Link[®], G-Link[®], V-Link[®], SG-Link[®], Strain Wizard[®], HS-Link[®], WSDA[®], and Little Sensors, Big Ideas[®] are trademarks of LORD Corporation.