

# Li-Foil Multiwire Proportional Counter (MWPC) Neutron Detector

LiFo-G3V1-xx-xxx-xxxxx-xxx-xxx-xx-xxx-xxxxxx

## Li-Foil MWPC Neutron Detector Technology

Li-Foil Multi-wire Proportional Counter (MWPC) Neutron Detectors provide an affordable large-area alternative to the <sup>3</sup>He-based and BF<sub>3</sub> detectors, maintaining a high thermal-neutron detection efficiency, at a comparable volume, mass, voltage, and power required. The Li-Foil MWPC can be integrated into existing electronics technology prepared originally for <sup>3</sup>He-based or BF<sub>3</sub> detectors. There is a strong demand for light-weight, large-area, and high efficiency neutron detectors to be integrated into systems as a direct replacement for more expensive or outdated equipment. Li-Foil offers a light-weight solution while maintaining high neutron detection sensitivity and ruggedness that is known of <sup>3</sup>He-based detectors.

### Specifications

- $\gamma$ -reject:  $<1:10^{-8}$
- $E_{\text{thermal}}$  : 40( $\pm 1$ )%
- CTS/sec/nv: 79.5
- $V_{\text{input}}$ : 2.7 – 4.5 V
- $V_{\text{output}}$ : TTL or output driven
- Temp. Range: -40°C to 85°C
- Power: ~150mW total
- Weight: ~1.6lbs
- Standard Size: 19.625" x 2.25" x 1.38"

### Technology Comparison

	Li Foil MWPC	BF <sub>3</sub>	<sup>3</sup> He
Pressure (atm)	0.68	0.52	1.5
Total Length (inch)	19.625	21.24	21.24
Active Length (inch)	18	18	18
Width/Diameter (inch)	2.25 x 1.38	2-inch cyl	2-inch cyl
cps/nv	79.5	~55	~85

### Manufacturing

- The dry room facility at RDT allows for the commercial mass-production of the Li Foil MWPC.
- Capable of manufacturing batches of units with fast end to end throughput.
- RDT strives to maintain units in stock for fast delivery.
- Production is capable of scaling based on demand.
- Integrated electronics reduces overall profile

### Electronics & Interfacing

- Onboard readout electronics provided by RDT includes pulse processing components (e.g. preamp, amp, etc.) with TTL output or output driven signal to interface with customer's GUI.
- Customizable connection interface is available, e.g., USB, M8, SMA.
- **Microphonics rejection** allows for more accurate measurements by cutting unwanted noise from the signal via onboard software.



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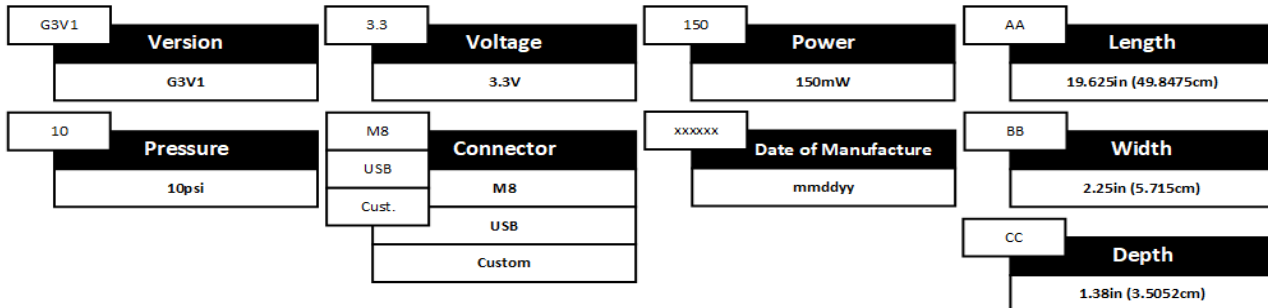


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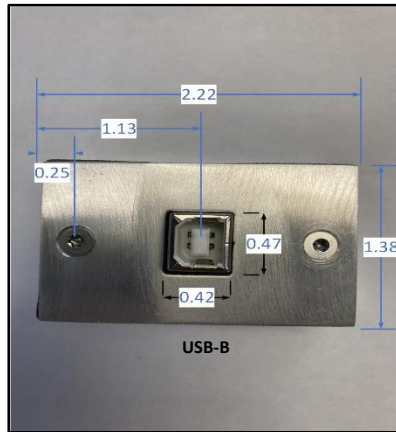
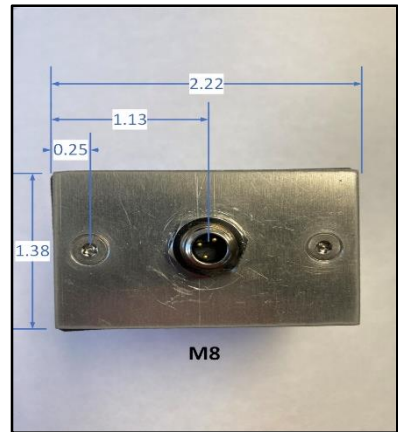
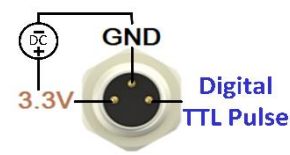
LiFo-G3V1-xx-xxx-xxxxx-xxx-xxx-xx-xxx-xxxxxx

Lithium Foil Multi-Wire Proportional Counter (MWPC) with onboard electronics  
Radiation Detection Technologies, Inc.

Version	Applied Voltage	Power	Length	Width	Depth	Pressure	Connector	Date of Manufacture
G3V1	X	X	X	X	X	X	X	X

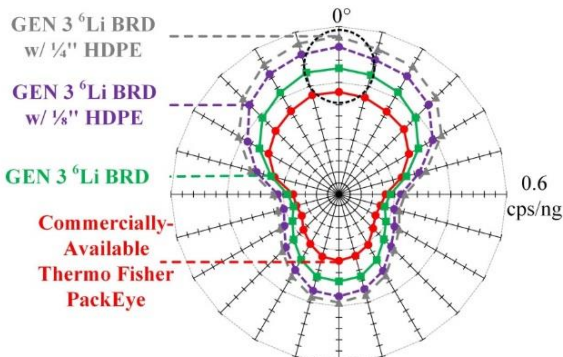


Example: LIMWPC-G3V1-3.3-150-AA-BB-CC-10-M8-xxxxxx



**Interface Connector Options:**  
Readout electronics can be outfitted with an M8 style waterproof connector (3.3V square pulse signal), USB-B (USB Communications Device Class), or other custom interface upon request.

**Technology Note:**  
Backpack configuration response to Cf-252 using four (4) Li-Foil Devices in a panel array



**Technology Note:**  
Li-Foil MWPC pulse height spectrum

