

Helium-3 (^3He) filled position sensitive proportional counter

(RS-P4-0424-201)

Small angle neutron scattering, powder diffraction, nuclear material assay and industrial process control

Precision performance

^3He purification techniques and manufacturing process control were developed to ensure precise matching of operating characteristics among large batches of counters.

This allows parallel operation of numerous detectors without the need to separate power supplies.

Position sensitive

This proportional counter uses a highly resistive anode of nickelchrome, which helps determine positioning of the neutron event along the anode. Position resolution is typically 2.5mm to 5.0mm, and the charge division method of determining position resolution is recommended. It is important to properly match the detector preamplifier-amplifier electrical characteristics to determine accurate position resolution.

Product configurations

Proportional counters are available in diameters of 0.5" to 2.0" and sensitive lengths of 4.0" to 120.0". Construction can be either 304 stainless steel or 1100 aluminum.

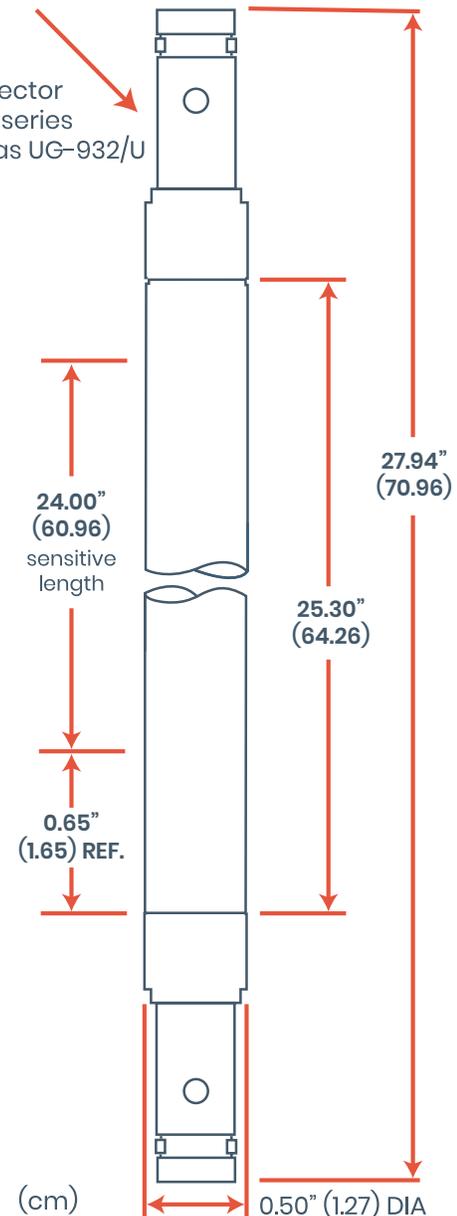
This proportional counter is a sample of one of over 10,000+ neutron counter designs we have manufactured.

Visit reuter-stokes.com/helium-3 to find the detector that best meets your project's specifications.

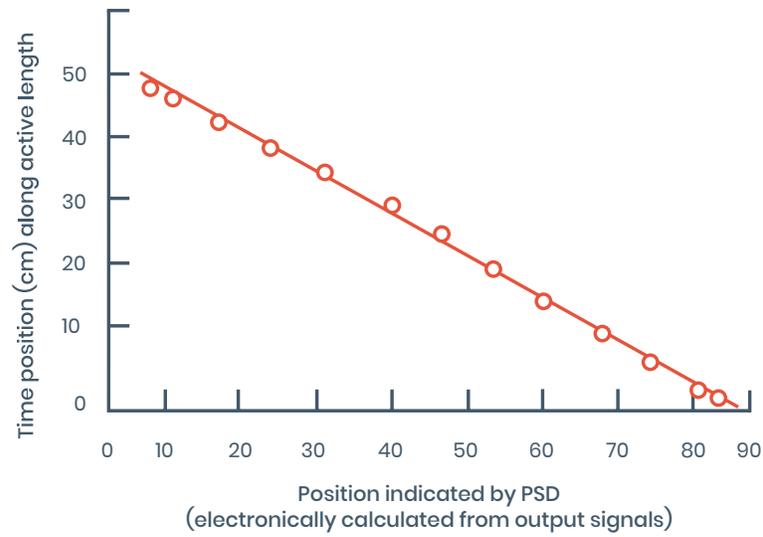
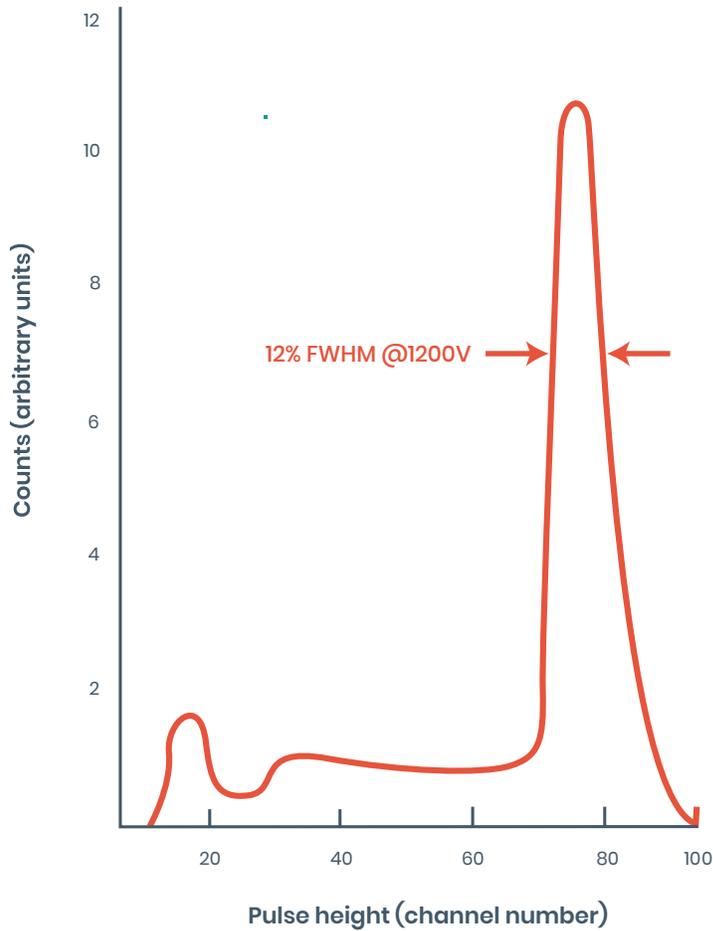
If your application requires modification of the available configurations, our engineers can build you a custom solution.



Type MHV Connector mates with any series MHV plug such as UG-932/U



A plot of true positions as measured with a 3mm collimator vs. PSD measurement typical counting arrangement



Specifications

Mechanical

- **Maximum diameter:** 1.32 cm.
- **Maximum overall length:** 71.3 cm.
- **Connectors (2) type:** MHV
- **Net weight:** 0.5 kg.

Material

- **Outer shell:** 304 stainless steel
- **Insulation:** Alumina ceramic
- **Anode:** Nickel-chrome
- **Neutron sensitive material:** ³He
- **Fill pressure:** 10 atmospheres ³He

Capacitance

- 10 pf

Resistance @ 25°C

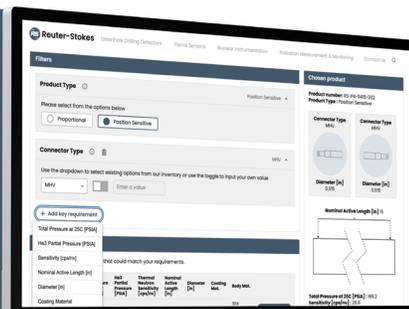
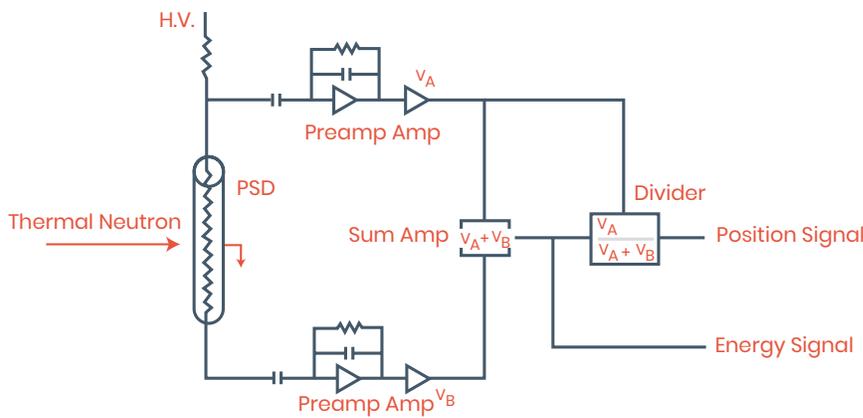
- **Detector:** 10¹² ohms
- **Anode:** (@140 ohms/in): 3900 ohms

Maximum ratings

- **Voltage:** 2000 V
- **Temperature:** 150°C (302°F)

Typical operating characteristics

- **Voltage range:** 1200-1800 volts
- **Energy resolution (FWHM):** 10-12%
- **Position resolution:** 2.5-5mm



Note: Position resolution is greatly dependent on electronics used.

Try our Helium-3 Product Configurator at reuter-stokes.com/helium-3