Neutron Scattering

Versatile technology, systems and electronics with a legacy of detectors you can count on

Rooted in proven technology

At the forefront of neutron and gamma detection technologies for over 6 decades, Reuter-Stokes leads the industry in the research, design and manufacturing of quality detectors for a variety of radiation monitoring applications.

To best serve the neutron scattering research community, Reuter-Stokes offers a combination of ^{3}He filled position-sensitive proportional counters or standard ^{3}He detectors such as the NeuAcq™ Electronics System and the ^{3}He Detector 8Pack. All provide high-efficiency neutron detection with high-speed electronics in all-vacuum, partial-vacuum and non-vacuum applications.

NeuAcq™ Electronics System

Reuter-Stokes offers the NeuAcq™ Electronics System, the next generation data acquisition electronics system for neutron scattering. NeuAcq™ provides superior speed and accuracy for time-stamping and processing neutron events. NeuAcq™ is a Linux and Ethernet-based system with Precision Time Protocol (PTP), Power over Ethernet (POE) and standard TCP/IP network communications to stream high-count rate neutron event data. Compliant with the ADARA communication protocol, NeuAcq™ supports the EPICS control system and is compatible with Mantid visualization and data processing software.

^{3}He Position Sensitive Detectors

Reuter-Stokes offers ^{3}He filled position-sensitive proportional counters, otherwise known as Position Sensitive Detectors or PSDs, and standard ^{3}He detectors for the neutron scattering industry. These Reuter-Stokes detectors, used in neutron scattering facilities throughout the world, are the industry's benchmark detectors, providing scalable solutions for every instrument from SANS to Time-of-Flight.

^{3}He Detector 8Pack System

For turnkey needs, Reuter-Stokes offers a ^{3}He detector 8Pack system that combines high-efficiency neutron detection with high-speed electronics in a sealed enclosure. This 8Pack offering delivers the added benefits of NeuAcq™ Electronics in an easy-to-install 8Pack module. The 8Pack enables cutting-edge science in all-vacuum, partial-vacuum and non-vacuum instruments.

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Standard Detector Configurations

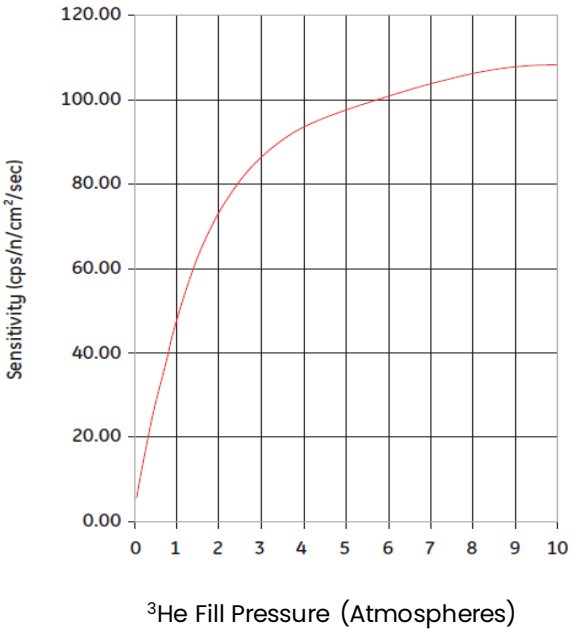
Mechanical
- Nominal diameter up to 2 inches*
- Active lengths up to 72 inches*
- Connector HN (MHV and SHV optional)*
- All welded and brazed construction

Material
- Outer shell stainless steel to provide the lowest inherent background possible, Aluminum optional
- Teflon connector and Alumina ceramic detector
- Neutron sensitive material: ^{3}He
- Fill pressures up to 20 atmospheres

Maximum Ratings
- Operating temperature 100° C
- Voltage 2,500 volts

Typical Operating Characteristics
- Thermal neutron efficiency >60%
- Plateau lengths > 200 volts
- Gamma discrimination of dose rates > 100 mR/hr

Thermal Neutron Sensitivity Per 12 Inches of Active Length



Specifications

Active Length*	^{3}He Pressure (atm)*	Sensitivity (cps/nv)
24"	2	157
	2.5	174
	3	185
	4	202
36"	2	236
	2.5	260
	3	278
	4	303
48"	2	315
	2.5	347
	3	371
	4	405
60"	2	393
	2.5	434
	3	464
	4	506
72"	2	472
	2.5	521
	3	557
	4	607

*Please contact us for additional connections, diameters, dimensions and pressures

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