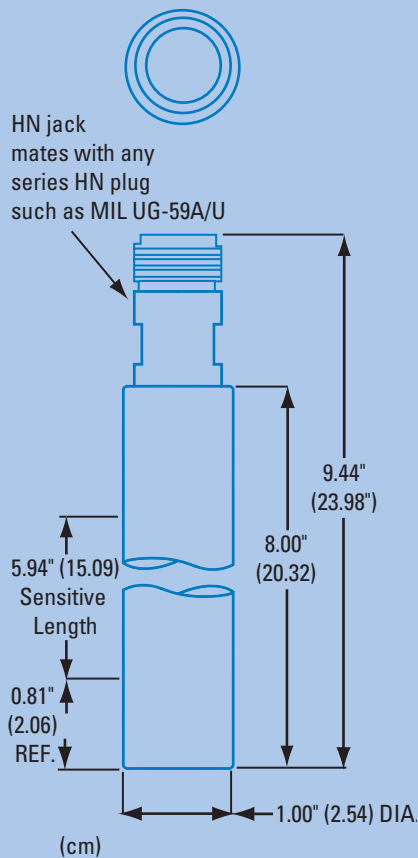


Typical Benefits

- Plateau slope <2% per 100 volts over a minimum of 200 volts range.
- At least 100 volts common plateau between room temperature and +175°C with <2% count rate shift.



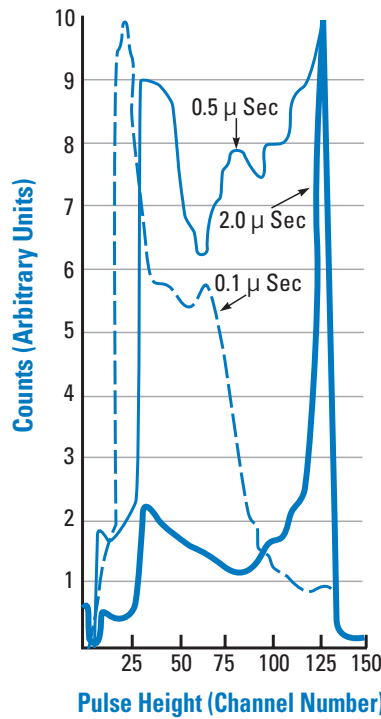
Thermal Neutron Counting for Formation Evaluation

Oil and Gas Exploration

The GE Energy Reuter-Stokes Helium-3 filled neutron detector is built to operate in extreme environments such as high or low temperatures, high pressures and high shock and vibration. In addition to oil and gas exploration, the sensor is designed for use in mineral exploration and industrial counting applications.

Time Tested Reliability

This detector incorporates over 30 years of experience in developing instruments for rugged and high temperature applications.



Comparative spectra shows that better resolution is achieved by proper choice of the time constants in the pulse amplifier.

If the time constants are too short, the neutron pulse may be clipped before the complete charge appears on the anode. Alternately, if the time constants are too long, the contribution from unwanted noise increases. Both situations result in poorer resolution and may introduce undesirable spectra features.

In addition, the counting rate capability is reduced with a longer time constant, while higher counting rate is obtained with shorter time constants. Hence, resolution and counting rate are a compromise.

Spectral resolution is an important parameter, and poorer resolution tends to scatter the pulses over a wider portion of the spectrum. This results in a narrower valley in which to set the discriminator. If the discriminator is set in a wide valley, there is margin for other sources of instability without shifting the counting rate.

Counters filled with higher gas pressure or counters of larger diameter require a longer time constant than lower pressure, smaller diameter counters.



GE Energy

Specifications

Maximum Ratings

- Voltage 2500 V
- Temperature 200°C

Vibration (Typical)

- 20G Sine, 10-1000Hz counts per second not to exceed background count rate
- Other customer specified vibrational requirements can be accommodated.

Shock (Typical)

- 250 G – 2msec duration
- Other customer specified shock requirements can be accommodated.

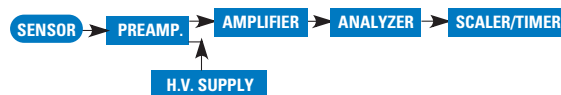
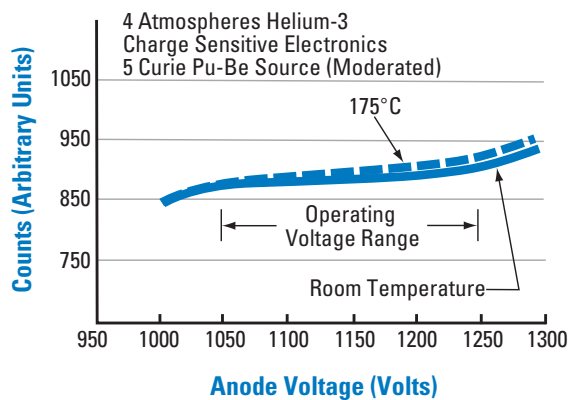
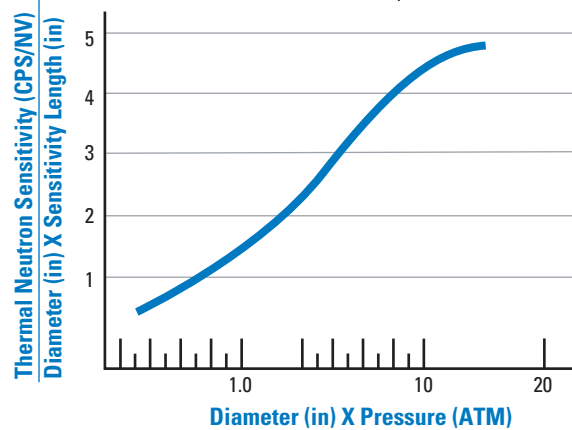
Precision Performance

Patented Helium-3 purification techniques and manufacturing process controls were developed to ensure precise matching of operating characteristics among large batches of detectors. This permits parallel operation of large numbers of detectors without need for separate power supplies or gain matching.

Custom Design

This detector is a sample of one of over 10,000 neutron counter designs we have manufactured. Please contact us if your application requires modification of the specifications given here.

This curve can be used to approximate thermal neutron sensitivity obtained from various counter diameters and pressures.



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Contact your GE Energy representative today for complete product specification and ordering information.