



## Novel Neutron Detection Solutions for Portals

**NeuPort™** is part of the **NeuTrack™** family of novel neutron detection solutions in development to detect neutron without He-3.

**NeuPort™** is a fully integrated neutron detection solution designed to be a plug and play replacement of He-3 tubes in Radiation Portal Monitors (RPM).

**NeuPort™** offers the best overall Portal solution:

### Plug & Play

**NeuPort** replaces He-3 systems without modification of existing electronics or significant changes in voltage.

### Fully Integrated

**NeuPort** incorporates the electronics that allows calibration to meet specifications.

### Reliable

**NeuPort** is based upon well established technologies that guarantee product reliability over time.

### Safe

**NeuPort** contains no hazardous materials and does not require secondary containment.

### Value

**NeuPort** provides performance that meets or exceeds ANSI standards at a market-leading price point due to its underlying technology and optimized design.



**NeuPort™**

### Product Technology -

**NeuTrack™** system is a  ${}^6\text{LiF}/\text{ZnS}(\text{Ag})$  based neutron detector incorporating a design concept reported in Los Alamos National Laboratory references\* and successfully applied in multiplicity counters.

The entire assembly is contained within a high density polyethylene moderator box and complies to ANSI 42-35 standards requirements.

\*Ref:

LA-UR-99-4983C1 (1999)

LA-UR-00-3004 (2000)

LA-UR-01-3848 (2001)

CRYSTALS





## Neutron Detection Solution

### System includes -

- Flat packaged neutron sensitive detectors
- Full electronics with pulse shape discrimination (PSD) algorithms
- Proprietary Pulse Shape Discrimination (PSD) algorithm is employed to count neutrons and reject gamma ray events. (Figure 1)
- Gain stabilization
- High density polyethylene moderator enclosure
- Cables and connectors (customizable)

### Electrical Specifications (22°C):

- VDC 5V
- Current 0.8A
- Power 4W
- Signal output: TTL (Transistor Transistor Logic) compatible
- Cable Length: 5 feet
- TTL Pulse every Neutron detected
- TTL Pulse output impedance: 50 ohms
- Connectors: Power Supply: Pigtail  
TTL Out: Male BNC

Custom output and connectors are available

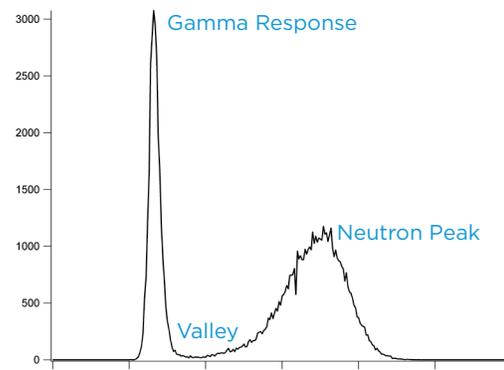


Figure 1. Pulse Shape Discrimination

### Typical Design and Performance -

- **NeuPort** is a fully integrated system (5" [12.7 cm] x 12.5" [31.8 cm] x 85" [215.9 cm]) designed to replace He-3 tubes 2" diameter x 70" long used in RPM
- NeuPort technology is scalable. A variety of designs can be adjusted to meet specification requirements and size available in the RPM enclosure.
- Operating temperature: -30°C to +55°C

### Typical product performing in a 10mR/hr <sup>60</sup>Co field -

Model	Neutron Efficiency *	Gamma Rejection
NeuPort 2500	≥ 2.5 cps/ng	≤ 1 x 10 <sup>-6</sup>
NeuPort 2800	≥ 2.8 cps/ng	≤ 1 x 10 <sup>-6</sup>

\*Measured with <sup>252</sup>Cf moderated source @ 2 meters from the center

Other operating conditions can be considered upon request



Manufacturer reserves the right to alter specifications.

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