



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.

Product Technology –

NeuPort™ system is a ${}^6\text{LiF/ZnS(Ag)}$ 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)



NeuPort™

USA

Saint-Gobain Crystals
 17900 Great Lakes Parkway
 Hiram, OH 44234
 Tel: (440) 834-5600
 Fax: (440) 834-7680

Europe

Saint-Gobain Crystals
 104 Route de Larchant
 BP 521
 77794 Nemours Cedex, France
 Tel: 33 (1) 64 45 10 10
 Fax: 33 (1) 64 45 10 01

P.O. Box 3093
 3760 DB Soest
 The Netherlands
 Tel: 31 35 60 29 700
 Fax: 31 35 60 29 214

Japan

Saint-Gobain KK, Crystals Division
 3-7, Kojimachi, Chiyoda-ku,
 Tokyo 102-0083 Japan
 Tel: 81 (0) 3 3263 0559
 Fax: 81 (0) 3 5212 2196

China

Saint-Gobain (China) Investment Co, Ltd
 15-01 CITIC Building
 19 Jianguomenwai Ave.
 Beijing 100004 China
 Tel: 86 (0) 10 6513 0311
 Fax: 86 (0) 10 6512 9843

India

Saint-Gobain Crystals and Detectors
 Sy. No. 171/2, Maruthi Industrial Estate
 Hoody Rajapalya, Whitefield Main Road
 Bangalore 560048 India
 Tel: 91 80 42468989
 Fax: 91 80 28416501

www.crystals.saint-gobain.com

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

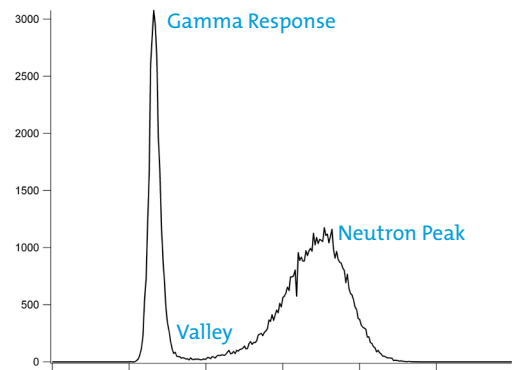


Figure 1. Pulse Shape Discrimination

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 ⁶⁰Co field –

Model	Neutron Efficiency *	Gamma Rejection
NeuPort 3000	≥ 3 cps/ng	≤ 1 x 10 ⁻⁷
NeuPort 2500	≥ 2.5 cps/ng	≤ 1 x 10 ⁻⁷
NeuPort 2000	≥ 1.8 cps/ng	≤ 1 x 10 ⁻⁷

*Measured with ²⁵²Cf moderated source @ 2 meters from the center

Other operating conditions can be considered upon request

Manufacturer reserves the right to alter specifications.

©2011-14 Saint-Gobain Ceramics & Plastics, Inc. All rights reserved.

(03-14)