



Novel Neutron Detection Solutions for Vehicle Mounted Monitors

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

NeuTruck™ is a fully integrated neutron detection solution designed to be a plug and play replacement of He-3 tubes in Vehicle Mounted Monitors.



NeuTruck™ offers the best overall Portal solution:

Plug & Play

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

Reliable

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

Safe

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

Value

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

Product Technology -

NeuTruck™ 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)

CRYSTALS

The Saint-Gobain logo features a stylized bar chart with five bars of increasing height from left to right, colored in blue, red, and orange. Below the chart, the text "SAINT-GOBAIN" is written in a bold, blue, sans-serif font.

SAINT-GOBAIN



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

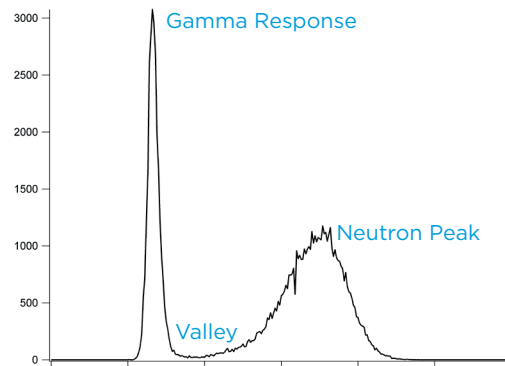


Figure 1. Pulse Shape Discrimination

Typical Design and Performance -

- *NeuTruck* system is a fully integrated system (3.8" [9.7 cm] x 14" [35.6 cm] x 42" [106.7 cm]) designed to replace the standard He-3 tubes commonly used in vehicle mounted monitors
- *NeuTruck* technology is scalable. A variety of designs can be proposed to meet specification requirements and available space.
- Operating temperature: -30°C to +55°C

Typical product performing in a 10mR/hr ⁶⁰Co field -

Model	Neutron Efficiency *	Gamma Rejection
NeuTruck 1600	≥ 1.6 cps/ng	≤ 1 x 10 ⁻⁶

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

Other operating conditions can be considered upon request



Saint-Gobain Crystals

www.crystals.saint-gobain.com

Manufacturer reserves the right to alter specifications.

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