



Novel Neutron Detection Solutions for Vehicle Mounted Monitors

NeuTruck™ is part of the **NeuTrack™** 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 ${}^6\text{LiF}/\text{ZnS}(\text{Ag})$ 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)



NeuTruck™



Neutron Detection Solution



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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

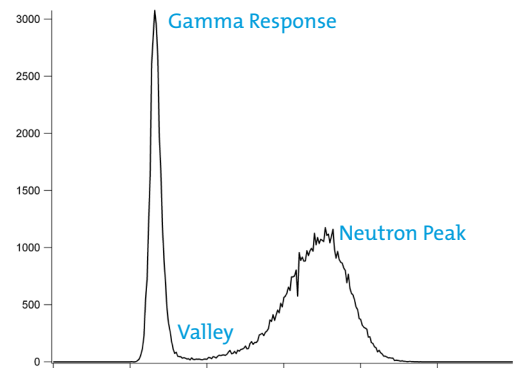


Figure 1. Pulse Shape Discrimination

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 3000	≥ 3 cps/ng	≤ 1 x 10 ⁻⁷
NeuTruck 2500	≥ 2.5 cps/ng	≤ 1 x 10 ⁻⁷
NeuTruck 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.

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