

Neutron Detection Solutions

NeuTruck™ and **NeuPort™** are a family of novel neutron detection solutions developed to detect neutron without He-3.

These are fully integrated neutron detection solution designed to be a plug and play replacement of He-3 tubes.

for Vehicle Mounted Monitors



for Radiation Portal Monitors



Plug & Play

Replaces He-3 systems without modification of existing electronics or significant changes in voltage.

Fully Integrated

Incorporates the electronics that allows calibration to meet specifications.

Reliable

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

Safe

Contains **no hazardous materials** and does not require secondary containment.

Value

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

Product Technology -

NeuTruck™ and **NeuPort™** systems are a ${}^6\text{LiF/ZnS(Ag)}$ based neutron detector incorporating a design concept reported in LANL 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

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Neutron Detection Solution

Typical Design and Performance -

The technology is scalable.

A designs can be adjusted to meet specification requirements and size available in the enclosure.

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

STANDARD DESIGNS						
	Application	Overall Dimensions	Neutron Efficiency * (cps/ng)	Gamma Rejection	Part Number	Model Number
NeuPort	Portal	85" x 12.5" x 4.2"	≥ 2.5	≤ 1 x 10 ⁻⁶	200-8065	Nu85X12.5X4.2-2.5
		85" x 12.5" x 4.2"	≥ 2.8	≤ 1 x 10 ⁻⁶	200-8048	Nu85X12.5X4.2-2.8
NeuTruck	Mobile	34" x 14" x 4.2"	≥ 1.6	≤ 1 x 10 ⁻⁶	200-8108	Nu34X14X4.2-1.6
		34" x 14" x 4.2"	≥ 2.3	≤ 1 x 10 ⁻⁶	200-8009	Nu34X14X4.2-2.3

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

Other operating conditions can be considered upon request

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
- Operating temperature: -30°C to +55°C

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)

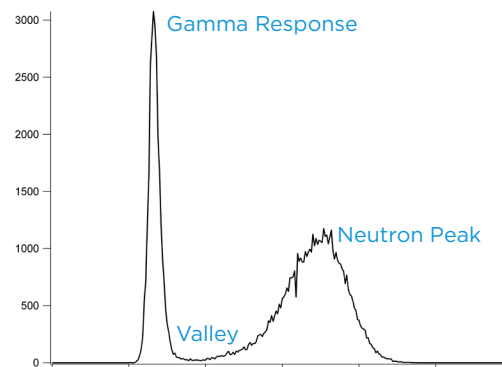


Figure 1. Pulse Shape Discrimination



Manufacturer reserves the right to alter specifications.

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