

**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.

**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 “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-00-3004 (2000)
LA-UR-01-3848 (2001)
Neutron Detection Solution

Typical Design and Performance –
The technology is scalable.
A design can be adjusted to meet specification requirements and size available in the enclosure.

Typical product performing in a 10mR/hr $^{60}$Co field –

<table>
<thead>
<tr>
<th>Application</th>
<th>Overall Dimensions</th>
<th>Neutron Efficiency * (cps/ng)</th>
<th>Gamma Rejection</th>
<th>Part Number</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NeuPort</td>
<td>Portal 85” x 12.5” x 4.2”</td>
<td>$\geq$ 2.5</td>
<td>$\leq 1 \times 10^{-6}$</td>
<td>200-8065</td>
<td>Nu85X12.5X4.2-2.5</td>
</tr>
<tr>
<td></td>
<td>85” x 12.5” x 4.2”</td>
<td>$\geq$ 2.8</td>
<td>$\leq 1 \times 10^{-6}$</td>
<td>200-8048</td>
<td>Nu85X12.5X4.2-2.8</td>
</tr>
<tr>
<td>NeuTruck</td>
<td>Mobile 34” x 14” x 4.2”</td>
<td>$\geq$ 1.6</td>
<td>$\leq 1 \times 10^{-6}$</td>
<td>200-8108</td>
<td>Nu34X14X4.2-1.6</td>
</tr>
<tr>
<td></td>
<td>34” x 14” x 4.2”</td>
<td>$\geq$ 2.0</td>
<td>$\leq 1 \times 10^{-6}$</td>
<td>200-8009</td>
<td>Nu34X14X4.2-2.0</td>
</tr>
</tbody>
</table>

*Measured with $^{252}$Cf moderated source at 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](image)