DIGITAL NEUTRON PUG
Model - PUG-7N-D
System

FEATURES:
- DETECTS FAST OR SLOW NEUTRONS
- DIGITAL
- SINGLE RANGE
- FIVE DECADES
- GAMMA REJECTION TO 1R/hr
- MO-1 MODERATOR
- PNS-20 NEUTRON PROBE
- EXTERNAL CONNECTOR FOR GM OR SCINTILLATOR DETECTOR
- EASY TO CARRY - LESS THAN 9 POUNDS
- BATTERY OPERATED
- IP64
- CE MARK

APPLICATION:
Neutron count rate monitoring in and about nuclear reactors, accelerators, neutron sources, neutron generators, customs inspection, etc.

DESCRIPTION:
The PUG-7N-D is a complete fast-slow neutron monitor system. It includes the PRS-7, five-decade survey meter with attached detection system: the MO-1 Moderator, and the PNS-20 Probe.

The PUG-7N-D System, or "Neutron PUG" detects fast or slow neutrons by means of a thermal neutron scintillation detector and a moderator. When the detector (PNS-20) is external to the moderator, thermal neutrons are detected and measured by means of counts produced in the scintillator as read on the meter of the PRS-7 instrument.

The polyethylene moderator is surrounded by a cadmium shield. The cadmium shield absorbs thermal neutrons and allows fast neutrons to enter the moderator. The moderator "thermalizes" the entering neutrons thus allowing them to affect the scintillator.

When the thermal neutron detector is within the moderator, thermal neutrons are excluded by the cadmium layers and the detector measures only fast neutrons which have entered the moderator and been "thermalized".

Direct measurement of thermal neutrons is available due to the removable detector inside the housing.

SENSITIVITY:
Range is 1 to 10,000 cps. Detection system includes PNS-20 plus moderator with polyethylene inner sleeve and cadmium outer shield.
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SPECIFICATIONS:
- **Class:** Portable - Survey Meter used with moderator and probe.
- **Principle of Operation:** Boron-10 in ZnS (Ag) scintillator matrix (Neutron, Alpha reaction) and photomultiplier tube, polyethylene moderator.
- **Energy:** Epithermal to fast (Probe in moderator)
  Thermal (Probe removed from moderator)
- **Electronics:** One Hand Operation; Built-In Speaker; Rugged; Lightweight
- **Probe Size:** (PNS-20) 2” diameter x 8” L
- **Moderator Size:** (MO-1) Approximately 5” diameter x 6” L
- **Total Weight:** 8-3/4 pounds
- **Shipping Weight:** 15 pounds
- **Overall Dimensions:** 10.25” L x 10” H x 6” W, including handle
- **Batteries:** (6) AA batteries.
- **Sensitivity Ranges:** 1 to 10,000 cps (600,000)
Corresponds with 0-8; 80; 800; 8,000 thermal neutrons/cm²/sec.
(Nominal)
- **Gamma Rejection:** Insensitive to Gamma in field up to 1R/hr.
- **Other Probes:** Any Alpha,Bbeta or Gamma probes of the P and PS series can be used with this electronics by unplugging and plugging in their BNC connector and cable.

PUG-7N-D System

<table>
<thead>
<tr>
<th>Probes TA MODELS:</th>
<th>For Use With:</th>
<th>Type:</th>
<th>Application:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUG-7N-D</td>
<td>MO-1</td>
<td>Moderator</td>
<td>Detects Fast &amp; Slow Neutrons</td>
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<tr>
<td></td>
<td>PNS-20</td>
<td>Neutron Scintillator</td>
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</tbody>
</table>

MIX & MATCH NEUTRON SYSTEMS

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<th>For Use With:</th>
<th>Type:</th>
<th>Application:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNS-19</td>
<td>PUG-7 or PRS-7 or LAM-SCA</td>
<td>Neutron Scintillator</td>
<td>Detects Fast Neutrons</td>
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<tr>
<td>PNS-20</td>
<td>PUG-7 or PRS-7 or LAM-SCA</td>
<td>Neutron Scintillator</td>
<td>Detects Slow Neutrons</td>
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</tbody>
</table>

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