

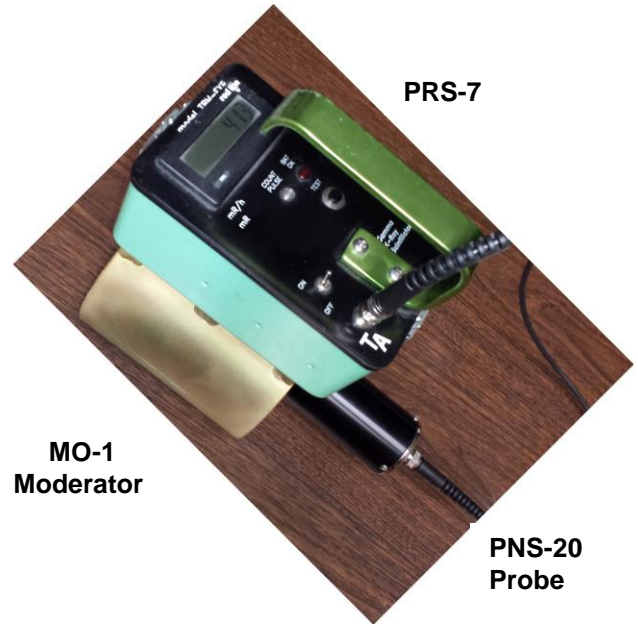
# DIGITAL NEUTRON PUG

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:

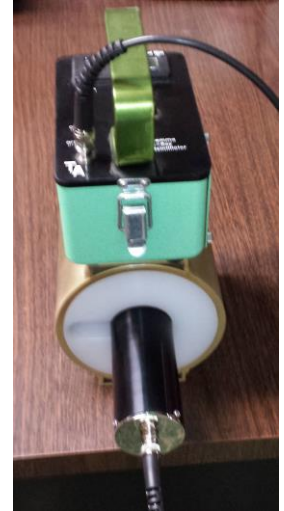
The **PUG-7N-D** is a complete fast-slow neutron monitor system. It includes the **PRS-7**, five-decade survey meter with attached detection system: the **MO-1** Moderator, and the **PNS-20** Probe.

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.



**PUG-7N-D System**

## SENSITIVITY:

Range is 1 to 10,000 cps. Detection system includes PNS-20 plus moderator with polyethylene inner sleeve and cadmium outer shield.



**TECHNICAL ASSOCIATES**  
**OVERHOFF TECHNOLOGY**

7051 Eton Ave., Canoga Park, CA 91303  
818-883-7043 (Phone) 818-883-6103 (Fax)

[tagold@nwc.net](mailto:tagold@nwc.net)

[WWW.TECH-ASSOCIATES.COM](http://WWW.TECH-ASSOCIATES.COM)

Divisions of  US NUCLEAR CORP

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Model - PUG-7N-D

System

## 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/cm<sup>2</sup>/sec. (Nominal)
- **Gamma Rejection:** Insensitive to Gamma in field up to 1R/hr.
- **Other Probes:** Any Alpha, Beta 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

Probes TA MODELS:	For Use With:	Type:	Application:
PUG-7N-D	MO-1	Moderator	Detects Fast & Slow Neutrons
	PNS-20	Neutron Scintillator	

## MIX & MATCH NEUTRON SYSTEMS

Probes TA MODELS:	For Use With:	Type:	Application:
PNS-19	PUG-7 or PRS-7 or LAM-SCA	Neutron Scintillator	Detects Fast Neutrons
PNS-20	PUG-7 or PRS-7 or LAM-SCA	Neutron Scintillator	Detects Slow Neutrons



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