

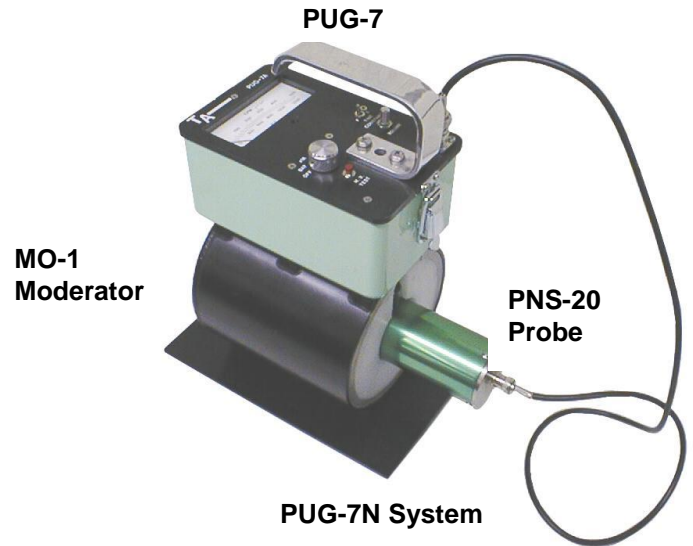
NEUTRON PUG

Model - PUG-7N

System

FEATURES:

- ❖ DETECTS FAST OR SLOW NEUTRONS
- ❖ ANALOG
- ❖ GAMMA REJECTION TO 1R/hr
- ❖ EASY TO CARRY - LESS THAN 9 POUNDS
- ❖ BATTERY OPERATED
- ❖ FOUR RANGES
- ❖ MO-1 MODERATOR
- ❖ PNS-20 NEUTRON PROBE
- ❖ EXTERNAL CONNECTOR FOR GM OR SCINTILLATOR DETECTOR
- ❖ IP 64
- ❖ CE MARK



APPLICATION:

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

DESCRIPTION:

The **PUG-7N** is a complete fast-slow Neutron monitor system. It includes the **PUG-7**, four-range survey meter with attached detection system: the **MO-1** Moderator, and the **PNS-20** Probe.

The **PUG-7N** 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 **PUG-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". See **PUG-7** Spec Sheet for more detailed information.

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



TECHNICAL ASSOCIATES
OVERHOFF TECHNOLOGY

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

tagold@nwc.net

WWW.TECH-ASSOCIATES.COM

Divisions of



US NUCLEAR CORP

NEUTRON PUG

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SPECIFICATIONS:

SENSITIVITY:

Ranges are 0-500; 5,000; 50,000; and 500,000 cpm. Detection system includes PNS-20 plus moderator with polyethylene inner sleeve and cadmium outer shield.

- **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)
- **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
- **Dimensions:** 10.25" L x 10" H x 6" W, including handle
- **Batteries:** (2) 9 Volt batteries.
- **Sensitivity Ranges:** 0-500; 5,000; 50,000; 500,000 cpm
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, 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 System Overview

MODEL:	Includes:	Type:	Application:
PUG-7N	MO-1	Moderator	Detects Fast & Slow Neutrons
	PNS-20	Neutron Scintillator	

Probe Position	Application:
Inside Moderator	Detects Fast Neutrons
Outside Moderator	Detects Slow Neutrons



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