

# SUPERIOR UNIVERSAL ELECTRONICS

Model Series- PUG-7-D

Models – PUG-7-D ~ PUG -7-DF ~ PUG -7-DX (On Board Memory)

## FEATURES:

- PGS-3-1 PROBE – MOST POPULAR
- **OPTIONAL:** ACCEPTS GM AND SCINTILLATION PROBES
- DETECT: ALPHA, BETA, NEUTRON, X-RAY OR GAMMA
- PORTABLE
- BATTERY OPERATED
- DIGITAL
- FIVE DECADES
- ON BOARD MEMORY, DATA ARCHIVE AND RETRIEVAL (**PUG-7-DX**)
- ALARM: FLASHING RED LED AND AUDIBLE SONALERT. PROPORTIONAL TO COUNT RATE.
- NO RANGE SWITCHING REQUIRED
- COMPENSATION FOR COINCIDENCE
- **OPTIONAL:** RECHARGEABLE BATTERIES CHARGER

## PUG-7-D SERIES – (3) MODELS:

- **PUG-7-D** – BUILT-IN, USER SETTABLE ALARM
- **PUG-7-DF** – FULL SYSTEM INCLUDES: ELECTRONICS AND PGS-3-1 GAMMA PROBE
- **PUG-7-DX** – FULL SYSTEM (PUG-7-DF)
  - ALARM - AUDIO/VISUAL USER SETTABLE
  - ALSO IDEAL FOR LONG COUNT - UP TO 24 HOURS OR MORE
  - ON BOARD MEMORY, DATA ARCHIVE AND RETRIEVAL
  - COMPUTER INTERFACE; SERIAL OUTPUT
  - IP 64
- **OPTIONAL:** PUG-7-A AND PUG-7-AF (ANALOG)
  - **SEE PUG-7 SERIES DATA SHEET**



**PUG-7-D ELECTRONICS**



## APPLICATION:

Any Alpha, Beta, Neutron, X-ray or Gamma monitoring program, whether aimed at the measurement or control of radiation levels or of contamination, is served by the versatile PUG-7-D electronics, combined with a T/A probe.

- **This universal instrument can be used with any P series, Geiger, or Scintillation probe in the T/A line.**



**TECHNICAL ASSOCIATES**

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#### DESCRIPTION:

The **PUG-7-D** electronics utilizes continuously adjustable regulated high voltage supply 1500V (2,500 volts Optional) to operate GM or scintillation detectors delivering a one millivolt or above pulse. An adjustable discriminator allows full control over system sensitivity. The pulse input is zener diode protected so that probes may be interchanged without shutting off instrument.

**PUG-7-DF** is a full system and includes PUG-7-D, and a Probe - PGS-3-1 (one inch NaI(Tl) scintillator). Readout is in microR/h (or SI units).

**PUG-7-DX** is a full system (PUG-7-DF) and has on board memory, computer interface, and data archive and retrieval. Use with any P series, Geiger, or Scintillation probe in the T/A line.

Read out on the PUG instrument is in CPS; optionally in SI units or mR/h or other units. Calibration for different probes or situations is accomplished by inputting constant calibration content which can be accomplished using the 2 front panel buttons after unlocking them from standard mode.

The shell of the instrument is smoothly finished, attractive baked enamel over aluminum case. The cover is machined, anodized aluminum with highly visible markings.

#### SENSITIVITY:

- **Ranges:** 5 Decades with no range changing required.  
See chart below for different probe ranges.

**RANGES:** Choose any probe below or any TA or compatible probe including silicone solid state.

Some choices include:

PROBE	DESCRIPTION	RANGE						UNITS
<b>ALL PROBES</b>	ALL PROBES	0.1	1	10	100	1,000	10,000	cps
<b>GM</b>	Thin window Alpha-Beta, Gamma, X-ray,							
<b>P-15</b>	2" dia Pancake		.02	.2	2	20	200	mR/h
<b>P-6LB</b>	Low background		.1	1	10	100	1,000	mR/h
<b>SCINTILLATOR</b>	GAMMA SCINTILLATION							
<b>PGS-3-1</b>	Gamma			.05	.5	5	50	mR/h
<b>PGS-3-1mT</b>	Low Energy Gamma			.01	.1	1	10	mR/h
<b>PGS-3LT</b>	Low/mid Energy Gamma			.03	.3	3	30	mR/h
<b>BGS-2505</b>	Low Energy BGO probe			.01	.1	1	10	mR/h
<b>PNS-20</b>	Neutron Scintillator	0.1	1	10	100	1000	10,000	n/cm <sup>2</sup> /s



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### SPECIFICATIONS:

#### PUG-7-D SERIES

<b>Digital Display:</b>	Length = 6-digit rate, 8-digit total dose Other meter scale markings are available.
<b>Engineering Units:</b>	User can input correct conversion factor and change to any units OR stipulate at time of order.
<b>Front Panel Controls:</b>	On-Off, Alarm-mute, Rate, Integrate, Alarm Set and Reset.
<b>Recessed or Internal:</b>	Discriminator level, high voltage
<b>Other adjustable settings:</b>	See calibration.
<b>Accepts Detectors:</b>	Any GM (P-13, P-15, P-6LB, etc.) or Alpha, Beta, Gamma or Neutron scintillator (PAS-8, PAS-9, PGS-3-1 (Standard), PNS-20, etc.).
<b>Alarm:</b>	Flashing Red LED and Audible Sonalert. Proportional to count rate.
<b>Probe Holder:</b>	Probe Holder is provided for probe purchased.
<b>Input Sensitivity:</b>	Adjustable from less than 1 millivolt to 100 millivolt
<b>Accuracy:</b>	±10%
<b>Anti-Saturation &amp; Dead-time Corrections:</b>	Differentiation circuit provides highly effective compensation for coincidence loss. This allows all five decades to accurately read with scintillation detectors.
<b>Calibration:</b>	Digital input of calibration factor gives high precision adjustment.
<b>Probe Connector:</b>	BNC (optionally MHV) low noise Teflon insulated.
<b>Operating Temperature:</b>	14° F to 122° F (-10°C to +50°C) RH 95%
<b>Battery:</b>	9-volt battery (150-300 hours typical life).
<b>Dimensions:</b>	3-1/4" H, 4-1/4" W, 7-1/4" long excluding probe holder and handle.
<b>Weight:</b>	2 lbs. 4 oz.
<b>Detector:</b>	<b>PGS-3-1:</b> One inch NaI(Tl) scintillator is the popular detector choice with the <b>PUG-7-D</b> and may be removed and separated on a one meter included cable. Comes with a probe mount.
<b><u>PUG-7-DF:</u></b>	Includes Probe - <b>PGS-3-1</b> (1 inch NaI(Tl) GM scintillator).



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### PUG-7-DX – FULL SYSTEM (PUG-7-DF)

- Alarm - Audio/Visual - User Settable
- Also Ideal for Long Count - Up to 24 Hours or More
- Background Subtract
- Engineering Units – mR/h;  $\mu$ S/h - User Settable
- Data Archive And Retrieval with Time Stamp
- Computer Interface; Serial Output
- Use with any P series, Geiger, or Scintillation probe in the T/A line.

### **PUG-7-D Series:**

**PUG-7-DF:** Full system with PUG-7-D (Digital) electronics. Includes Probe **PGS-3-1**.  
**OPTIONAL:** **PUG-7-AF:** Full system with PUG-7-A (**Analog**) electronics. Includes Probe **PGS-3**.

### **Options:**

Rechargeable batteries with charger



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