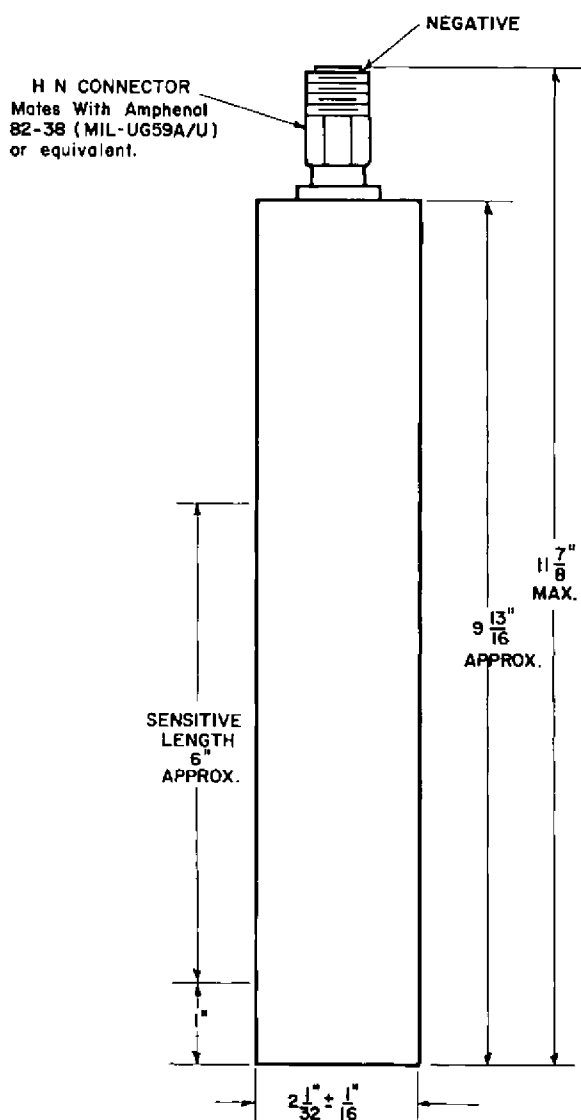


April 10, 1958

UNCOMPENSATED IONIZATION CHAMBER TYPES WL-6941 AND WL-6941A

The WL-6941 and WL-6941A are aluminum cased ionization chambers designed to detect thermal neutrons in the flux range from 5×10^5 to 5×10^{10} neutrons/cm²/second. Ionization currents are produced in the nitrogen-argon atmosphere by fission fragments resulting from thermal neutrons incident on the sensitive coating, consisting of uranium oxide highly enriched in U-235 isotope. The neutron sensitivity of these types is 2.6×10^{-14} amperes/neutron/cm²/second and the gamma sensitivity is 3×10^{-11} ampere/Roentgen/hour. These tubes are provided with a type "HN" connector and are extremely rugged* being operable in any position.

The WL-6941 may be operated or stored in ambient temperatures not exceeding 175°F; similarly, the maximum ambient temperature for the WL-6941A is 300°F.



MECHANICAL:

Maximum Diameter	2-3/32	Inches
Maximum Overall Length	11-7/8	Inches
Approx. Sensitive Length	6	Inches
Net Weight	1-3/4	Pounds
Shipping Weight	12	Pounds

MATERIALS:

Body	Aluminum
Insulation	Polystyrene & Alumina
Gas Filling	Argon-Nitrogen Mixture at 76 cm Hg
Neutron Sensitive Coating:	
Content	U ₃ O ₈ enriched to more than 90% in U-235
Thickness	2.0 mg/cm ²
Total Amount of U-235	0.4 gm

MAXIMUM RATINGS:

Absolute Maximum Values		
Interelectrode Voltage (dc)	1000 max.	Volts
Thermal Neutron Flux	5×10^{10} max.	n/cm ² /sec
Total Integrated Flux	1×10^{17} max.	n/cm ² (nvt)
Ambient Temperature:		
WL-6941	175 max.	°F
WL-6941A	300 max.	°F

TYPICAL OPERATING CHARACTERISTICS:

Voltage Between Electrodes [□]	300 to 800	Volts
Neutron Flux Range [⊗]	5×10^9 to 5×10^{10}	n/cm ² /sec
Neutron Sensitivity	2.6×10^{-14}	amp/n/cm ² /sec
Gamma Sensitivity	3×10^{-11}	amp/R/hr
Leakage Resistance	10^9 min.	ohms
Capacitance Signal Electrode to Case	180	uuf

TYPICAL SATURATION CHARACTERISTICS:

For Thermal Neutron Flux of 3×10^9 n/cm ² /sec		
Operating Voltage	200 min.	Volts
Output Current	8×10^{-8}	Amperes
For Thermal Neutron Flux of 2.5×10^{10} n/cm ² /sec		
Operating Voltage	800 min.	Volts
Output Current	6.5×10^{-4}	Amperes

- Saturation voltage varies with neutron flux.
- ⊗ Lower level limited by alpha background current of approximately 3×10^{-9} amperes.
- ⊕ The WL-6941 and WL-6941A have passed Military Specifications MIL-S-901 for shock and MIL-Std-167 (Type 1) for vibration.

NOTE: These tubes may not be immersed in water and high humidity environments should be avoided since they may impair performance.

CE-A1253

TYPICAL SATURATION CHARACTERISTIC

