

HIGH TEMPERATURE UNCOMPENSATED IONIZATION CHAMBER TYPE WL-7606

The WL-7606 is an aluminum cased ionization chamber designed to detect thermal neutrons in the flux range from 2.5×10^4 to 2.5×10^{10} neutrons/cm²/second. Ionization currents are produced by thermal neutrons incident on the sensitive coating, which consists of Boron enriched to 96% in B-10 isotope. The neutron sensitivity of the WL-7606 is 4.4×10^{-14} amperes/neutron/cm²/second and the gamma sensitivity is 5×10^{-11} amperes/Roentgen/hour. The tube is provided with type "HN" connectors and is extremely rugged, being operable in any position and at temperatures up to 500 °F.

The WL-7606 employs a guard ring type of construction. This features minimizes reduction in signal current due to leakage through the insulators.

MECHANICAL:

Maximum Diameter	3	Inches
Maximum Overall Length	13-3/4	Inches
Approx. Sensitive Length	7-1/2	Inches
Connectors §	Hermetically Sealed HN Type	
Net Weight	2-1/2	Pounds
Shipping Weight	10	Pounds

ELECTRICAL:

Interelectrode Capacitances:	
Signal Electrode to Case Ⓢ	250 μμf
High Voltage Electrode to Case Ⓢ	170 μμf
Interelectrode Resistance:	
At 500° F	
Signal Electrode to Case	10 ⁹ min. Ohms
High Voltage Electrode to Case	10 ⁹ min. ohms

MATERIALS:

Body	Aluminum
Insulation	Alumina
Gas Filling	Argon-Nitrogen Mixture at 76 cm Hg
Neutron Sensitive Material	Boron enriched to 96% in B-10

MAXIMUM RATINGS:

Absolute Maximum Values

Interelectrode Voltage	1500 max.	Volts
Thermal Neutron Flux	1.0×10^{11} max.	n/cm ² /sec
Ambient Temperature	500 max.	° F

TYPICAL OPERATING CHARACTERISTICS:

Operating Voltage □	200 to 800	Volts
Thermal Neutron Flux	2.5×10^4 to 2.5×10^{10}	n/cm ² /sec
Neutron Sensitivity	4.4×10^{-14}	amp/n/cm ² /sec
Gamma Sensitivity	5×10^{-11}	amp/R/hr

TYPICAL SATURATION CHARACTERISTICS:

For Neutron Flux of 3×10^9 n/cm ² /sec		
Operating Voltage	250 min.	Volts
Output Current	1.3×10^{-4}	Amperes
For Neutron Flux of 1.5×10^{10} n/cm ² /sec		
Operating Voltage	600 min.	Volts
Output Current	6.6×10^{-4}	Amperes

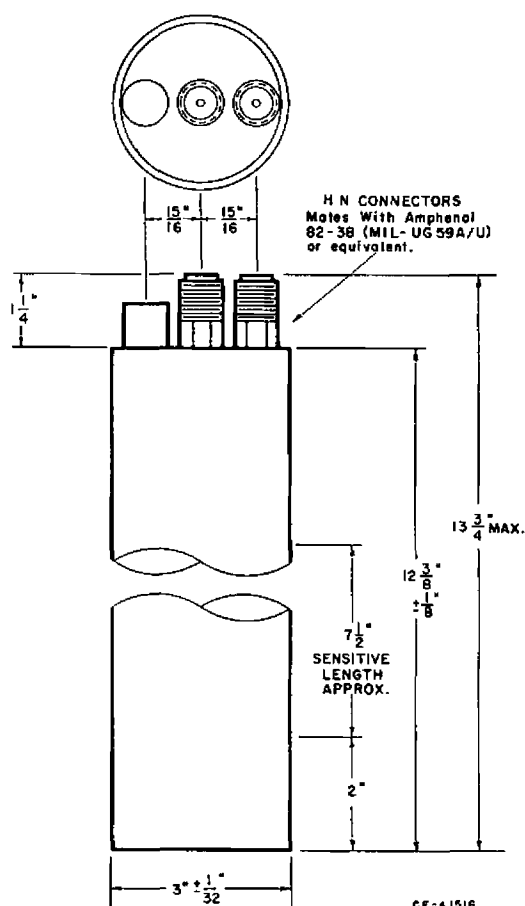
□ Saturation voltage varies with neutron flux. Either positive or negative voltage can be used.

Ⓢ High voltage electrode connected to case.

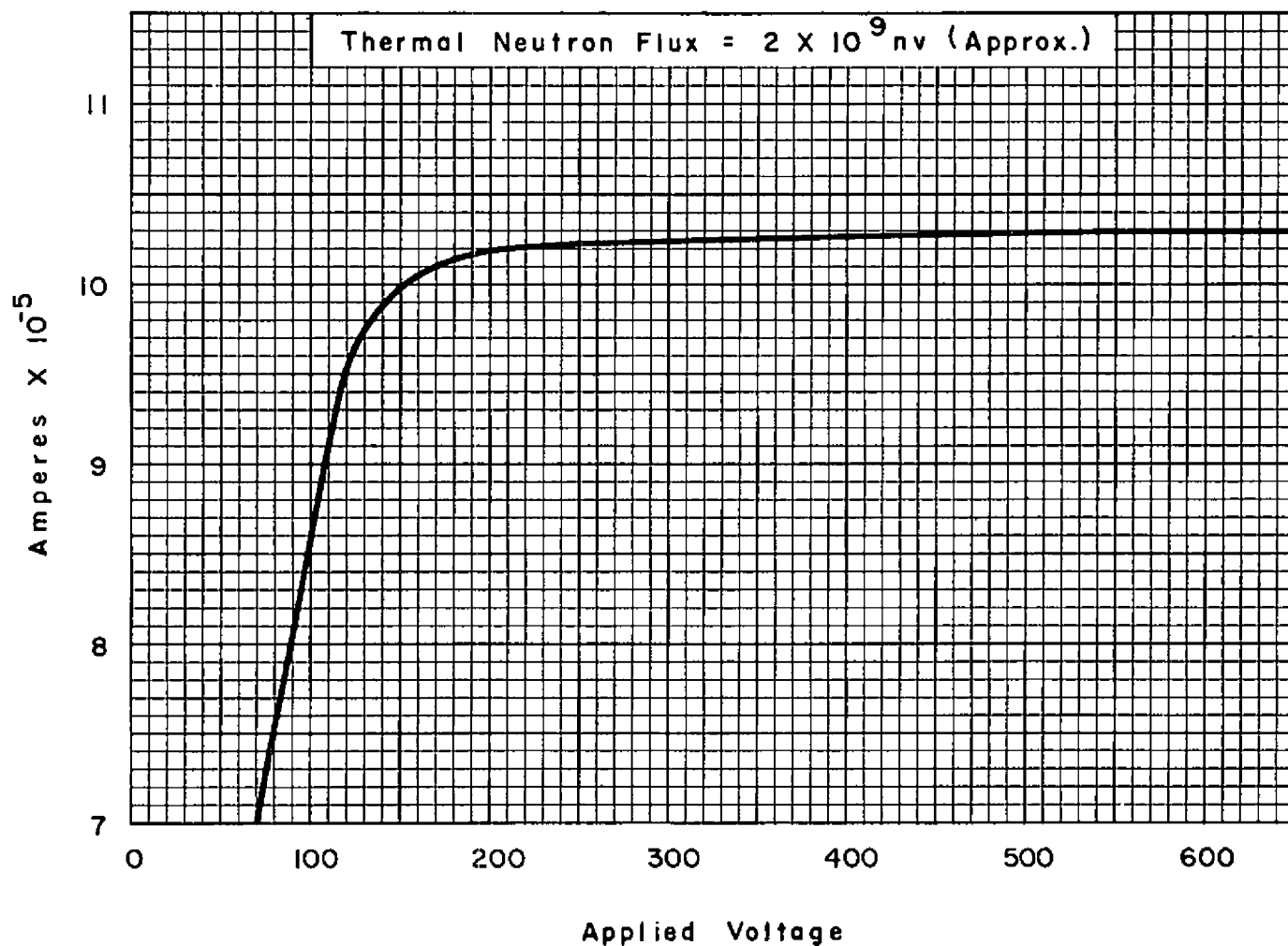
Ⓢ Signal electrode connected to case.

Note: The WL-7606 may not be immersed in water. If the WL-7606 is to be used in a high humidity environment, the connectors joining the cable to the tube must be vapor proof.

§ The connectors may be tightened with the fingers with no precautions. If a tool is used, the connector body must be wrench held to prevent fracturing the vacuum seal between connector body and detector case.



TYPICAL SATURATION CHARACTERISTIC



CE-A1515