



ELECTRONIC TUBE REFERENCE

1B125

Specialized - Radiation Counter electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

GEIGERMULLERCOUNTER

Metal Geiger-Müller counter for gamma-ray measurement in bore-hole and related field apparatus. Its rugged construction is intended for radiation logging and other measurements performed in demanding inaccessible environments.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 0 GeigerMullerCounter*No fixed ratings recorded.*

1B125 — Metal Counter Tube

The **1B125** (also referred to as the **1B125 Thyrode**) is a metal Geiger-Müller type counter tube designed for radiation detection and measurement. Characterized by its substantial physical length and brass construction, this tube is engineered for applications requiring high sensitivity and robust environmental tolerance.

Physical Construction and Base Configuration

The 1B125 features a rugged metal envelope with a brass wall thickness of 300 mg/cm². It is a physically large device, possessing an active detection length of 16 inches, a body diameter of 1 inch, and an overall length of 18-1/4 inches.

Electrical connection is established via a standard RMA type A1-82 coaxial tube base, which provides a coaxial connection for the Anode (A) and Cathode (K). The tube is designed to be compatible with specific mounting hardware, including Victoreen socket types [380](#) and 500, as well as the Victoreen probe type [389](#).

Electrical Characteristics and Operating Points

For new tubes, the electrical parameters are defined by specific threshold and plateau characteristics:

- **Threshold Voltage:** Maximum of 800 Volts.
- **Plateau Length:** Minimum of 200 Volts.
- **Plateau Slope:** Maximum of 3% per 100 Volts, evaluated over a voltage range (V₀) of 800 to 1000 Volts.
- **Recovery Time:** 150 microseconds.
- **Background Count Rate:** 300 counts per minute (C/M) when operated at a voltage (V₀) of 900 Volts.

The recommended operating voltage range for the 1B125 is between a minimum of 850 Volts and a maximum of 950 Volts.

Environmental Ratings and Service Life

The 1B125 is rated to operate under demanding environmental conditions, making it suitable for field deployment:

Parameter	Limit
Minimum Ambient Temperature	-10 °C
Maximum Ambient Temperature	100 °C
Maximum Relative Humidity	100%

The tube has an expected operating life of 10⁹ counts when operated at a count rate of 6000 C/M and a voltage (V₀) of 900 Volts. The end point of its useful life is reached when the plateau slope degrades to 10% per 100 Volts, measured over a voltage range (V₀) of 850 to 950 Volts.

Applications and Parallel Operation

The physical dimensions and electrical properties of the 1B125 make it highly suited for several specialized radiation detection roles:

- **Cosmic Ray Studies:** The 16-inch active length provides the large cross-sectional area necessary for cosmic ray research.
- **High-Speed Prospecting:** The tube is utilized for searching for radioactive ores from aircraft or fast-moving vehicles, where rapid detection over a wide area is critical.
- **Environmental Monitoring:** It is employed to monitor the radioactive content of both air and water.

- **Parallel Cluster Operation:** Due to their high electrical uniformity, multiple 1B125 tubes can be operated in parallel in a cluster configuration to significantly increase overall detection sensitivity.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1950 Victoreen

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1950 VICTOREEN

Section 0 · GeigerMullerCounter

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ThresholdVoltage	800 V	Max
Operating Voltage	800–900 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PlateauLength	200 V	Minimum
PlateauSlope	30 %/100V	Maximum
RecoveryTime	150 us	—
Background	100 counts/min	—
ActiveLength	16 in	—