

Model 3125 0-2/0-5 kV Dual H.V. Power Supply

Features

- Two independent high voltage power supplies
- Compact single width NIM
- Regulated 0 to ± 5000 V dc, 0 to 300 μ A output
- Voltage limit protection
- Polarity indication with preview
- Overload and short circuit protected
- Front panel meters
- Remote control capability

Description

The CANBERRA Model 3125 is a compact dual NIM high voltage power supply accommodating all types of detectors requiring up to 5 kV bias and up to 300 μ A of current. Its low noise and excellent stability make it well suited for high resolution detector systems.

The 3125 will withstand overload or direct output short-circuit for an indefinite period and provide normal output after the fault is removed. Each supply is continuously adjustable over the full range from 0 to ± 5000 V. With the application of an external input dc level or logic signal, the output voltage can be controlled over its full range or gated off, respectively. Front panel meters monitor the output voltage of each supply.

An internal jumper plug can be set limiting the maximum output voltage to ± 2000 V dc. For photomultiplier applications, this feature guards against inadvertent application of higher voltages which can result in permanent tube damage.

A polarity selector plug provides selection of positive or negative output polarity. To prevent inadvertent polarity reversal, the polarity selector plug is located inside the module. In addition, the polarity status is indicated by illumination of a front panel LED which can be previewed prior to activation of the power supply.



Specifications

INPUTS

- INPUT POWER – Powered from a standard NIM Bin and power supply.
- PROGRAM (REMOTE) – Each supply independently accepts an external reference input to set output voltage when REMOTE/LOCAL switch is in REMOTE. 0 to -5 V input provides 0 to ± 5000 V dc output; max. input ± 12 V; no output for positive voltages; $Z_{in} > 2$ M Ω ; rear panel LRN connector.
- INHIBIT – Each supply independently accepts an external inhibit signal to provide remote shutdown; logic low inhibits; max. logic low ≤ 0.7 V at ≤ 4 mA; open circuit or logic high ≥ 6 V resumes normal operation; open input pulled up to $+12$ V; max. input $+12$ V; rear panel Winchester connector or BNC connector.

OUTPUTS

- HV (Regulated High Voltage) – Continuously adjustable, 0 to ± 5 kV, or 0 to ± 2 kV, (internally selected); 0 to 300 μ A output current capability; one rear panel SHV connector for each supply.

CONTROLS

- ON/OFF – Front panel locking toggle switches to independently enable or disable each output.
- OUTPUT VOLTAGE – Two front panel five-turn precision direct readout dials permit independent and continuous adjustment of each output voltage, ± 0 to 5000 V dc.
- POLARITY – Internal selector plugs change the output polarity of each supply independently by reversing orientation.

Phone contact information

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- REMOTE/LOCAL – Rear panel toggle switches to select LOCAL (manual) operation or REMOTE (external) reference input to determine output voltage for each supply.
- 2 kV LIMIT – Two internal jumper plugs for each power supply allow full 5 kV operation or limit each power supply output to 2 kV $\pm 10\%$.

INDICATORS

- OUTPUT VOLTAGE – Independent output voltage meters for each supply.
- POLARITY – Front panel LED indicators provide polarity status of each supply; operates when ON or OFF providing a polarity preview when the module is energized.

PERFORMANCE (Each Supply)

- RIPPLE AND NOISE – ≤ 3 mV peak to peak at 100 μ A; ≤ 10 mV peak to peak at 300 μ A.
- OUTPUT STABILITY – Long term drift of output voltage is $\leq 0.01\%/hr.$ and $\leq 0.02\%/8$ hr. at constant input line voltage, load, and ambient temperature, after a 30 minute warmup.
- TEMPERATURE COEFFICIENT – $\leq \pm 50$ ppm/ $^{\circ}$ C after 30 minute warmup, operating range 0 to 50 $^{\circ}$ C.
- REGULATION – $\leq 0.002\%$ variation in output voltage over the load range and $\leq 0.001\%$ output variation for $\pm 0.1\%$ input voltage change within the operating range at constant ambient temperature.
- OVERLOAD PROTECTION – Power supply will withstand any overload, including a short circuit for an indefinite period, and will resume normal operation upon removal of the fault.
- CURRENT LIMIT – 600 μ A maximum.
- DIAL ACCURACY – $\pm 0.5\%$ of full scale.

CONNECTORS

- OUTPUT VOLTAGE – Rear panel SHV for each supply.
- PROGRAM – Rear panel Winchester M9SLRN connector; Winchester M9PLS mating plug provided.
- INHIBIT – Rear panel BNC Connector for each supply.

POWER REQUIREMENTS

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|----------------|---------------|
| +24 V – 160 mA | +12 V – 60 mA |
| -24 V – 160 mA | -12 V – 60 mA |
- (Both supplies at maximum loads.)

PHYSICAL

- SIZE – Standard single-width NIM module 3.43 x 22.12 cm (1.35 x 8.71 in.) per DOE/ER-0457T.
- NET WEIGHT – 1.9 kg (4.2 lb).
- SHIPPING WEIGHT – 2.9 kg (6.4 lb).

