MIRION TECHNOLOGIES

Model 3106D
0-6 kV H.V. Power Supply

Features

- Compact single width NIM package
- Regulated up to ±6000 V dc, 300 µA output
- Noise and ripple ≤3 mV peak to peak
- Overload and short circuit protected
- Overload, inhibit and polarity status indicators
- Inhibit and overload latching circuits
- Digital front panel meter

Description

The CANBERRA Model 3106D is a NIM high voltage power supply designed primarily for operation with semiconductor detectors. It is particularly well suited for use with high resolution detector systems. By design, the 3106D will accommodate all types of detectors requiring up to 6 kV bias and up to 300 µA of current.

The output voltage is continuously adjustable from ±30 V dc to ±6000 V dc. For low voltage detectors, a secondary output having a range of ±3 V to ±600 V is available. A three-digit volt meter measures and displays the output voltage with a resolution of 10 volts on the normal output and 1 volt on the secondary output. Polarity is selected internally.

The Model 3106D will withstand any overload or short circuit condition for an indefinite period of time. An inhibit input is available for remote shut down of the 3106D. The unit can be programmed by an internal jumper either to resume normal operation after removal of the fault or the inhibit or to require a manual reset.

The 3106D's output rise time of 5 seconds protects preamplifiers and detectors from excessive surge currents while charging.

Specifications

INPUTS

- INPUT POWER – The Model 3106D is powered from a standard NIM Bin and power supply, such as the Model 2100, 2000 or 1000.
- INHIBIT – Logic low or ground inhibits the HV outputs; max logic low ≤0.7 V; logic high ≥2.0 V or open circuit enables.

OUTPUTS

- HV OUTPUT – ±30 to ±6000 V dc, continuously adjustable; 300 µA output current capability; rear panel SHV connector.
- ÷10 OUTPUT – ±3 to ±600 V dc, continuously adjustable; Z_{out} = 20 MΩ; rear panel SHV connector.

CONTROLS

- ON/OFF – Front panel toggle switch to enable or disable output.
- RESET – Restores normal operation following a latched Inhibit and/or Overload fault condition.
- VOLTAGE – Front panel 10-turn control permits continuous adjustment of the output voltage.
- POLARITY – Internal polarity board sets output polarity.

INDICATORS

- HV OUTPUT – 3-digit panel meter; 0 to 6.00 kV.
- POLARITY – Front panel LEDs indicate polarity status continuously.
- INHIBIT – LED to indicate Inhibit status.
- OVERLOAD – LED to indicate Overload status.

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CONNECTORS

- HV OUTPUT – Rear panel SHV.
- ÷10 OUTPUT – Rear panel SHV.
- INHIBIT – Rear panel BNC.

PERFORMANCE

- RIPPLE AND NOISE – ≤3 mV peak to peak at 300 µA.
- OUTPUT STABILITY – Long term drift of output voltage is ≤0.01%/hr. and ≤0.02%/8 hr. at constant input line voltage, load, and ambient temperature after a 30 minute warmup.
- TEMPERATURE COEFFICIENT – ≤±50 ppm/°C after 30 minute warmup, operating range 0 to 50 °C.
- REGULATION – ≤0.001% variation in output voltage over the load range and ≤0.001% for ±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.
- CURRENT LIMIT – 450 µA maximum.
- DIAL ACCURACY – ±1% of full scale.
- METER ACCURACY – ±0.6% of full scale plus 10 volts.

POWER REQUIREMENTS

+24 V dc – 70 mA	+12 V dc – 160 mA*
–24 V dc – 10 mA	–12 V dc – 150 mA

*With Brightness Control J4 set to HI, +12 V will draw 265 mA, which exceeds the normal Bin allotment of 167 mA for a single-width module.

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 – 1.4 kg (3.1 lb).
- SHIPPING WEIGHT – 2.4 kg (5.3 lb).

ENVIRONMENTAL

- OPERATING TEMPERATURE – 0 to 50 °C.
- OPERATING HUMIDITY – 0 to 80% relative, non-condensing.
- Meets the environmental conditions specified by EN 61010, Installation Category I, Pollution Degree 2.

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