MIRION TECHNOLOGIES

Model 3102D
0-2 kV H.V. Power Supply

Features

- Compact single width NIM package
- Regulated up to ±2000 V dc. 1 mA 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 3102D High Voltage Power Supply is a single-width NIM module designed primarily for use with photomultiplier and electron multiplier tubes. But it can be used with any detector requiring a bias voltage up to 2000 V and a current level of 1 mA or less.

The 3102D allows the user to select from two continuously adjustable outputs, one ranging from ±15 to ±2000 V dc and the other from ±1.5 to ±200 V dc. The output voltage is measured and displayed by a three-digit voltmeter. In addition, this unit allows the user to select the output voltage polarity with an internal control.

The 3102D can withstand any overload or short circuit for an indefinite period of time. It can be set using an internal jumper to allow for a manual reset or an automatic reset when the fault condition is removed.

The 3102D features an output rise time of five seconds to protect preamplifiers and detectors from excessive surge currents while charging.

Specifications

INPUTS

- INPUT POWER – The Model 3102D 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 ≥1.3 V or open circuit enables.

OUTPUTS

- HV OUTPUT – ±15 to ±2000 V dc, continuously adjustable; 1 mA output current capability; rear panel SHV connector.
- ÷10 OUTPUT – ±1.5 to ±200 V dc, continuously adjustable; Z_{out}= 20 MΩ; rear panel SHV connector.

CONTROLS

- ON/OFF – Front panel toggle switch enables or disables output.
- RESET – Pushbutton 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 programming plug sets output polarity.

INDICATORS

- HV OUTPUT – 3-digit panel meter; 0 to 2.00 kV.
- POLARITY – Front panel LEDs indicate polarity continuously.
- INHIBIT – LED indicates Inhibit status.
- OVERLOAD – LED indicates overload status.

Model 3102D 0-2 kV H.V. Power Supply

PERFORMANCE

- RIPPLE AND NOISE – ≤3 mV peak to peak at 1 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 – 1.3 mA maximum.
- DIAL ACCURACY – ±1% of full scale.
- METER ACCURACY – ±0.6% of full scale plus 10 volts.

CONNECTORS

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

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.

CANBERRA