

8100 High Voltage Power Supply

The 8100 high voltage power supply is a standard double-width NIM module that provides either polarity of output voltage from 10 to 3000 V, 0 to 10 mA. The 8100 provides the extremely stable, low-noise, high voltage that is required for proper bias of photomultiplier tubes, ionization chambers, and semiconductor detectors. Its accuracy and stability allow it to be used as a high voltage laboratory standard in applications requiring accuracy within $\pm 0.0025\%$ of setting.

1. Specification

1.1. Performance

- Output polarity: Positive or negative, selected by switch on rear panel.
- Output range: 10 to 3000 V
- Output load capacity: $\leq 0.0025\%$ variation in output voltage at constant ambient temperature.
- Temperature instability : $\leq \pm 50 \text{ppm}/^\circ\text{C}$ after 30 minute warm up
- Long- term drift: $\langle 0.01\%$ hour and $\langle 0.03\%$ /24-hour variation in output voltage
- Output ripple: $\langle 10 \text{mV}$ peak-to-peak, 20 Hz to 20 MHz.
- Overload protection: Internal circuitry protects against overloads including short circuit

1.2. Controls

- Power: Front-panel toggle switch energizes unit when power cord is connected to appropriate source, and an adjacent red LED lamp indicates when power is applied.
- Output voltage: By setting a 6-position switch, a 5 position switch and a 10-turn precision potentiometer are created.
- Front panel toggle switch selects display of output voltage in KV or load current in mA.
- Int: Selects the internal reference source; the front-panel controls select the output amplitude.
- Ext: Selects the external reference source; output voltage is proportional to magnitude of reference input.

1.3. Input

- 206-258 V, 47-63Hz, 70 W nominal at full output power
- Fuse rating: 0.75 A, 250 V fuse for 230 Vac operation.
- External control: Full range of output voltage can be based on an external dc reference level furnished through a rear-panel BNC connector; control voltage range is 0 through $\pm 6.9 \text{V}$ dc; control voltage be the same polarity as that selected by the rear-panel polarity switch; this input protected voltages above $\pm 7 \text{V}$. Input impedance is $45 \text{K}\Omega$.

1.4. Outputs

- Regulated DC output
- The adjusted and regulated voltage, with selected polarity, is furnished simultaneously to the two SHV connectors on the rear panel.

1.5. Indicator

Meter: Front panel LCD display indicates output voltage in $kV \pm 10V$ or load current in $mA \pm 10\mu A$

1.6. Electrical and Mechanical

- Power requirements: 230 V ac, 47-63 Hz, 70 W nominally
- Weight: Net 3.6 kg (8 lb) and shipping 4.5kg (10 lb).
- Dimension: standard double –width NIM module

1.7. Related Equipment

Each of the two outputs of the 8100 can be as a power source for any application that is within the operating limits of the power supply. Both output levels are identical and of the same polarity. The load on the 8100 output circuit is the sum of the individual loads connected to the output connectors and the load current can be monitored by the front panel LCD meter.

This power supply is ideal for use with either a detector or a pair of detectors where the voltage level requirements are the same for both detectors. The appropriate types of detectors for which the 8100 is designed include photomultiplier tubes, ionization chambers, and semiconductor detectors.

1.8. Factory Repair

This device, or any other standard IAP product, may be returned to the factory for repair service at a nominal cost. Our standard procedure for repair ensures the same quality control and checkout that are used for a new instrument. Always contact consumer service at IAP, (021) 22779028, before sending in an instrument for repair to obtain shipping instructions and so that required return authorization number can be assigned to the unit. Write this number on the address label and on the package to ensure prompt attention when it reaches the factory.