

Users Manual

HIGH VOLATGE POWER SUPPLY

Model: EHT-11

Manufactured by

SCIENTIFIC EQUIPMENT & SERVICES

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- Continuously variable
- Electronically regulated
- Fully solid state circuit
- Low power consumption

Power supply, EHT-11 principle of operation is entirely different from conventional supplies, and thereby eliminating many drawbacks; bulky high voltage transformer, need of high voltage components and excessive heating of components etc., associated with them. This power supply consists of a stable power oscillator whose output is controlled by an input signal. The output of this oscillator is boosted with the help of a set-up transformer and then rectified and filtered. A portion of this output is compared with a high stability, temperature compensated reference and the error signal is used in the feedback path to control the oscillator output. There is a built-in protection against accidental overloading.

For high reliability, compactness and ruggedness, integrated circuits are extensively used along with a few discrete silicon devices. The components are mounted in a glass epoxy printed circuit card.

Applications

EHT-11 is designed to meet the power requirements of a broad range of radiation detectors: G.M. Counters, Ionization Chambers, Scintillation Detectors, Photo multiplier Tubes and any application where a high voltage source with high degree of regulation and stability is required.

Specifications

Output	0-1500V continuously adjustable
Current	1mA (Max.)
Polarity	+ve or -ve, as required
Regulation	±0.05% for 1 to 1mA load
Stabilization	±0.02% for ±10% mains variation
Display	3 ¹ / ₂ digit, 7 segment LED DPM
Connection	Output through a amphenol connector on the front panel
Protection	Fully protected against overload and short circuit by current limiting technique
Power requirement	220V ±10%, 50Hz
Weight	5Kg
Dimensions	240mm X 390mm X 130mm

INSTALLATIONS

When unpacking the instrument inspect for any damage during transit. Any such damage should be intimated to the factory for appropriate action.

The EHT supply is designed for mains operation. Before connecting the equipment it may be ensured that the supply voltage is in the range 200-240 volt a c.

FUNCTIONS OF CONTROL AND METER :

1. Output Connector : For connecting high voltage supply to the load.
2. Digital Voltmeter : Measures the output voltage upto 1500 volt directly.
3. Voltage Control : Adjustment of voltage to any desired value - 10 turn pot.
4. ON-OFF Switch : For switching ON-OFF the mains.

OPERATING INSTRUCTIONS :

THE INSTRUMENT GENERATES HIGH VOLTAGE UPTO 2000 VOLTS, IF HANDLED CARELESSLY AN EXTREMELY DANGEROUS / FATAL SHOCK MIGHT RESULT. FOLLOWING INSTRUCTIONS MUST, THEREFORE, BE STRICTLY FOLLOWED.

1. The instrument uses a 3-pin power plug. For the sake of safety, the chassis and the cabinet are earthed. Use only 3- pin power socket having a proper earth.
2. Turn the 'Voltage Control' knob till the extreme anti clockwise position. Connect the load (e.g. photomultiplier circuit etc.) using the high voltage cable provided.
3. Switch ON the supply. The voltage may now be set to the desired value. If at any stage below 1500 volts the voltage can not be increased, an over-loading is indicated. In case of overloading the supply should be switched OFF and the load circuit checked for possible faults.
4. Before switching OFF the supply, the output voltage should be reduced to the minimum value. Wait for about 30 seconds before disconnecting the load. UNDER NO

CIRCUMSTANCES THE LOAD SHOULD BE CONNECTED OR DISCONNECTED WHILE THE SUPPLY IS 'ON'.

5. The supply is electronically protected against all sorts of overloading including short circuiting of the output terminals. However, the supply should not be operated under overloaded condition because the regulation becomes very poor under such conditions.
6. THE CABINET OF THE EHT SUPPLY MUST NOT BE OPENED WHILE THE POWER IS 'ON'. THE HIGH VOLTAGE CIRCUITS INSIDE OPERATE AT VOLTAGES EXCEEDING 2000 VOLT, PARTICULARLY UNDER FAULT CONDITIONS.

CIRCUIT DIAGRAM :

The functional diagram of the high voltage supply (positive ground) is given on the next page. To avoid unnecessary confusion the standard circuit diagrams of the IC voltage regulator 723 and power supply, balancing and compensation details of IC amplifier 741's are not indicated. These are available in the data sheets of these Integrated Circuits

