HVP
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ULTRAVOLT, INC.®

Operator Manual – BT-GP Series
High Voltage Power System (DC Input)

Important Notice

Only trained personnel should install and service this unit.
Mains voltages are present within the electronics enclosure and extreme care should be taken when servicing.

1) Do not operate the equipment uncovered.
2) Switch off and allow time for capacitors to discharge at the high voltage output before servicing.

Note: This equipment must be earthed for safe operation.

Specification

Input Voltage:	22-26VDC (Pins 1 and 2 of the Control Connector)
Fuses:	2.5A F
Efficiency:	>70%
Output Voltage:	0 to 10kV, 20kV or 30kV DC with respect to ground.
Polarity:	Positive or Negative
Rated Output Current:	1.0mA
Rated Output Power:	30W
Ripple:	<0.3% peak to peak at full load
Voltage Regulation:	<0.01% over specified load range
Temperature Coefficient:	<200ppm/°C

Protection:

Overload and Short-circuit faults will cause the unit to operate in Constant Current mode (Max. Current <= 2mA)

Arcing faults will cause the unit to shut down and re-start until the fault is cleared.

Voltage Adjustment:

LOCAL MODE

Output voltage or current can be adjusted by the 10-turn potentiometer on the front panel

REMOTE MODE

A voltage of 0 to +10VDC applied between Pins 6 and 7 of the Control connector will vary the output from 0 to 30kV or 0 to 1mA. NOTE: Pins 6 and 7 form a differential input; Pin 7 is not connected to 0V.

Voltage Monitor:

A 3½ digit LED meter on the front panel. The display resolution is 100 volts/0.01mA.

Connections:

INPUT/CONTROL

The 24VDC input and control connections are via a 7-pin DIN connector on the Front Panel: see table below for Pin Functions

Pin Number	Wire Color	Function
Pin 1	Red	+24VDC Input
Pin 2	Black/White	+24V Return (0V)
Pin 3	Brown	FAULT: Low=24VDC Faulty
Pin 4	Yellow	HV Enable: 0V=HV On
Pin 5	Green	HV OK: Low=HV OK
Pin 6	Blue	HV Demand to 0 to +10V
Pin 7	Violet	HV Demand Return

HIGH VOLTAGE OUTPUT

The output connection is by means of a UltraVolt proprietary connector: a mating half and suitable high voltage cable is supplied.

Working Temperature: 0 to +40°C

Storage Temperature: -20°C to +60°C

Humidity: <90%

Dimension (LxWxH):	11.81 L x 6.30 W x 3.94 H in (300.0 L x 160.0 W x 100.0 H mm)
Weight:	7.94lbs (3.6kg)

Operation

Check the following items before operation:

1. The power supply is clean and dry.

2. No unnecessary object is near the high voltage output connector or high voltage load.

3. Turn the voltage potentiometer fully anticlockwise. This will adjust the high voltage output to zero when the power supply is switched on.

4. When connecting a load ensure that the output current returns through the M6 ground bolt on the rear panel.

   The POWER switch on the front panel switches the +24Vdc input to the unit. To enable the HV Output connect Pin 4 of the Input connector to 0V.

   The LOCAL / REMOTE switch setting determines the source of the voltage control – see above.

   The VOLTAGE / CURRENT switch selects the HV function which is controlled by the Front Panel potentiometer or the HV Demand signal

      In VOLTAGE mode the HV Output Voltage is controlled from 0 to 30kV and output current is limited to 1mA.

      In CURRENT mode the HV Output Current is controlled from 0 to 1mA and output voltage is limited to 30kV.

SIGNALS :-

   HV OK : This pin will go ‘High’ when the HV fails e.g when arcing. This is an Open Collector output with 2k2 in series.

   FAULT : This pin will go ‘Low’ when the 24Vdc input is too low to maintain correct operation. This is an Open Collector output with 2k2 in series. Signals are suitable for driving LEDs or other uses.