

**HP001Z, HP2.5Z, HP003Z,  
HP005Z, HP008Z, & HP010Z**  
**ZERO CROSSING REVERSIBLE  
HIGH VOLTAGE MODULES  
UP TO  $\pm 10$  kV**  
**(To  $\pm 15$  kV – consult the factory)**



**Applications**

Bipolar Lens Supplies  
Mass Spectrometers  
Focus & High Voltage Bias  
High Voltage Amplifiers

The HPZ range is a unique family of high voltage power supplies, extending the operation and versatility of Applied Kilovolts High Precision HP series. The HPZ units feature very fast slewing and settling times, together with the ability to slew cleanly through zero. With a differential control input, they operate like a high voltage amplifier with very tight temperature co-efficient of  $<25$  ppm/°C. Note – the HPZ range also features a 4 quadrant output stage, so the unit can source or sink up to its maximum output current, in either polarity.

**Electrical Specification**

UNIT TYPE	OUTPUT	RIPPLE AT FULL LOAD	SLEWING +SETTLING TIME, -FS to +FS
HP001ZIP025	-1kV to +1kV at 1mA	55mV peak to peak	20mSec
HP2.5ZIP025	-2.5 kV to +2.5 kV at 400uA	65 mV peak to peak	
HP003ZIP025	-3 kV to +3 kV at 400uA	75mV peak to peak	40msec
HP005ZIP025	-5 kV to +5 kV at 400uA	170 mV peak to peak	40msec
HP008ZIP025	-8 kV to +8 kV at 400uA	300mV peak to peak	
HP010ZIP025	-10 kV to +10 kV at 400uA	300mV peak to peak	50mSec

Input voltage: +24 V  $\pm 10\%$  at 1 A  
 Output voltage: See table above.  
 Control voltage: -10 V to +10 V gives max. -kV to max. +kV (e.g. -2.5 kV to +2.5 kV).  
 (See Note 1 – page 2) NB: Internal manual potentiometer control not fitted.  
 Voltage Monitor: -10V to +10V for max. -kV to max. +kV  $\pm 2\%$  o/p impedance 10kohms.  
 Load regulation: Less than 100 ppm for zero to max. load.  
 Line regulation: Less than 20 ppm for 1 V change in I/P volts.  
 I monitor: -10V to +10 V represents -100% to +100%.  
 Temperature co-efficient: 25 ppm per °C.  
 Operating temperature: 0 °C to +45 °C.

We manufacture a large number of special versions of these units and would be pleased to discuss your application with you.

Note – the HPZ range features a 4 quadrant output stage, so the unit can source or sink up to its maximum output current, in either polarity:

A high voltage power supply can normally only source current, and does not include a mechanism for sinking significant o/p current.

Our power supply modules are designed to be stable down to zero o/p current, but are only able to sink current via the feedback resistor – a few uA. If the current path is from a higher output voltage, then the output will be pulled to a higher voltage – the unit will lose control, and may well be damaged by the over-voltage.

The HPZ units will not only source current, but they are also able to sink current in either polarity. So if the output is pulled to a higher voltage, the unit will sink that current to maintain the output at the set level, sinking current up to its maximum rating.

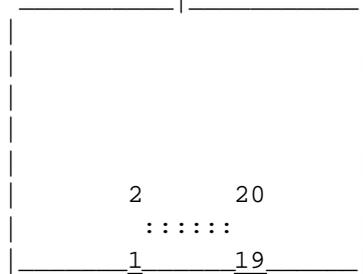
## Mechanical Specification

Size: 159mm X 184.5 mm X 47mm. NB. Grounding of the case is via fixing bolts.  
 Note – height increases to 52mm when Polarity Option is fitted.

Output cable: URM43 length 0.5 metre.

Input Connector: BERG 20 Way IDC header.

HV OUTPUT (connect screen of cable to system ground)



### PIN CONNECTIONS

1	+24V Power i/p	11	Power ground
2	nc	12	Power Ground
3	+24V Power i/p	13	Power Ground
4	V monitor	14	Power Ground
5	+24V Power i/p	15	Power Ground
6	I Monitor	16	nc
7	+24V Power i/p	17	Power Ground
8	+ve control i/p	18	nc <sup>1</sup> (POL i/p H=Positive)
9	+24V Power i/p	19	Power Ground
10	-ve control i/p	20	nc <sup>1</sup> (/INH i/p H=ON)

BERG 20W IDC header Part No 65863-069 for use with ribbon cable.

#### Note 1

These units can be factory configured for 0 to +10V control input in conjunction with a polarity input pin 18. This option also configures Pin 20 as an inhibit input.

This increases the unit height to 52mm.

Order Code: Series Code	o/p kV	Polarity	Options Code	Temp Co
HP	001 = 1kV	Z	IP= standard unit	025
	2.5 = 2.5kV	R if OP	OP=Polarity Option	
	003 = 3kV			
	005 = 5kV			
	008 = 8kV			
	010 = 10kV			

e.g. Order Code: HP003ZIP025 = ±3kV 400µA standard unit  
 HP010ROP025 = ±10kV 400µA + Polarity Option<sup>1</sup>