

HPZ Series Data Sheet

UP TO ± 10 kV HIGH VOLTAGE
ZERO CROSSING REVERSIBLE MODULES

Application:

Bipolar Lens Supplies, Mass Spectrometers, Focus & High Voltage Bias, High Voltage Amplifiers, E-Chucks

- 1kV, 2.5kV, 3kV, 5kV, 8kV, 10kV, [15kV consult factory]
- Through Zero voltage programming & settling
- Fast reversing, slewing & settling
- Differential Control input
- High Voltage Amplifier
- High Stability, temp-co <25 ppm/ $^{\circ}$ C
- Flashover & short circuit protected



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/ $^{\circ}$ 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 Voltage	O/P Current	Ripple at Full Load	Slewing & Settling Time, -FS to +FS	Size (mm)	Weight (kg)
HP001ZIP025	-1kV to +1kV	1mA	55mV (pk to pk)	20mSec	159 x 184.5 x 47	2.3
HP2.5ZIP025	-2.5 kV to +2.5 kV	400 μ A	65 mV (pk to pk)		159 x 184.5 x 47	2.3
HP003ZIP025	-3 kV to +3 kV	400 μ A	75mV (pk to pk)	40msec	159 x 184.5 x 47	2.3
HP005ZIP025	-5 kV to +5 kV	400 μ A	170 mV (pk to pk)	40msec	159 x 184.5 x 47	2.3
HP008ZIP025	-8 kV to +8 kV	400 μ A	300mV (pk to pk)		159 x 184.5 x 47	2.3
HP010ZIP025	-10 kV to +10 kV	400 μ A	300mV (pk to pk)	50msec	159 x 184.5 x 47	2.3

Input	+24V dc $\pm 10\%$ <1 A. 0V input common to HV return and chassis.
Control of output	0V to ± 10 V for 0% to $\pm 100\% \pm 2\%$, ($Z_{in} = 200$ Kohm) {0V to +10V plus Polarity see option} potentiometer options not available
Voltage monitor	-10V to +10V $\pm 2\%$ for -100% to +100%. ($Z_{out} = 10$ k)
Polarity Control — OPTION	Low <0.8 V = +ve, High >2.5 V or oc = -ve
Precision Current Monitor	-10V to +10V $\pm 2\%$, Offset $\pm 0.1\%$ of FS for -100% to +100%. ($Z_{out} = 10$ k)
Output Temperature Co-efficient	<25 ppm/ $^{\circ}$ C
Drift (after 1 hour warm up)	$<0.01\%$ per hour, $<0.05\%$ over an 8 hour period
Line regulation	<10 ppm for 1V change in input voltage
Load regulation	<10 ppm for 100 μ A to maximum load
Protection (all outputs)	Protected against intermittent arcing and continued short circuit to ground

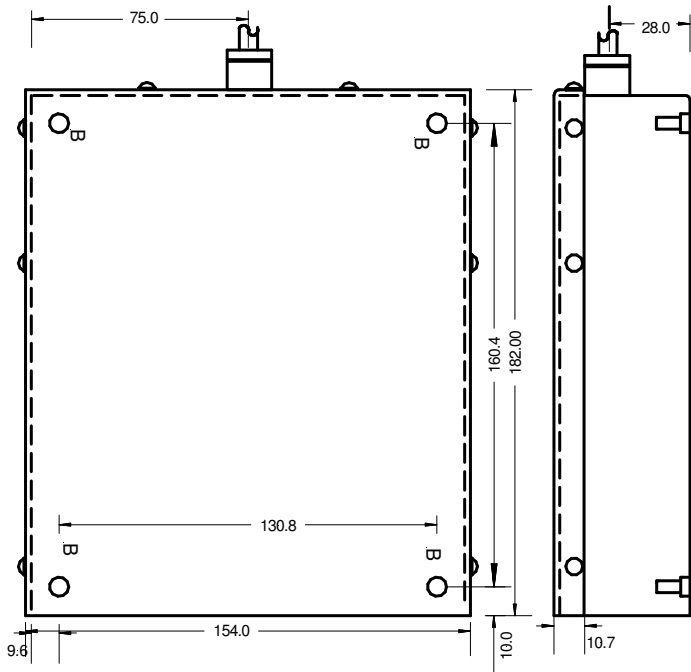
Mechanical Specification

Mountings	4 off M3 blind fasteners—see outline drg
Input & control	Berg 20Way IDC header Part No 65863-069 for use with ribbon cable.
Outputs	By 0.5m screened (shielded) lead type URM43

Environmental Specification

Temperature, operating	+10°C to +50°C.	Humidity (RH) <31°C	80% maximum
Temperature, storage	-35°C to +85°C.	Humidity (RH) >30°C	Decrease linearly to 50°C
Altitude, operating	Up to 2,000m.	Altitude, storage	Up to 18,000m

The unit is to be supplied from a current limited supply providing 24Vdc, impulse limited to overvoltage Category I (of IEC60364-4-443) . For use in an environment of pollution degree 2.

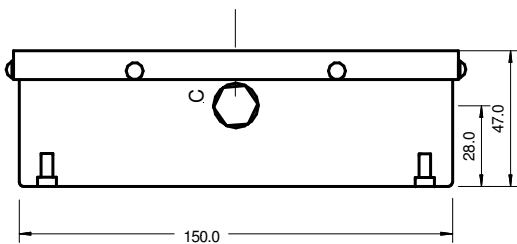


Pin Assignment

1 +24V dc input ¹	11 Supply 0V ¹
2 nc	12 Supply 0V ¹
3 +24V dc input ¹	13 Supply 0V ¹
4 Voltage Monitor o/p	14 Signal ground
5 +24V dc input ¹	15 Supply 0V ¹
6 Current Monitor o/p	16 nc
7 +24V dc input ¹	17 Supply 0V ¹
8 Voltage Control i/p ²	18 nc ³ Polarity i/p
9 +24V dc input ¹	19 Supply 0V
10 Control Return ²	20 nc ³ TTL Inhibit (H= Inhibit)

Notes:

- The input connector pins are not rated at the full input current of the power supply. Please use at least 2 pins in parallel for the +24V power supply input & the power ground.
- Control input is fully differential, but $-0.6V > \text{Control Return} > +0.6V$
 $-10.25V < V_{pin8} - V_{pin10} < 10.25V$
- Polarity Option – height increases to 52mm:
Pin 8 Control input becomes 0V to +10V only.
Pin 18 becomes Polarity Input H= Pos



Mounting

'B' 4 off M3 threaded fastenings in the base

Part Number Selection

Series Code	HP	o/p kV 001 = 1.0kV 2.5=2.5kV 010=10kV	Polarity Z = Thu Zero R if Pol option	Options Code IP= no options OP= Polarity Option fitted	Temp Co 25
Example:		HP2.5ZIP025 = 10kV version with no options fitted.			

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