

## Zero Crossing Reversible Modules Up to $\pm 10\text{kV}$ High Voltage

- Bipolar lens supplies, mass spectrometers, focus & high voltage bias, high voltage amplifiers, E-chucks
- 1kV, 2.5kV, 5kV, 10kV [15kV consult factory]
- Through zero voltage programming
- Fast reversing, slewing & settling
- Differential control input
- High voltage amplifier
- High stability, temp-co  $<25\text{ppm}/^\circ\text{C}$
- Flashover & short circuit protected
- UL recognized



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  $<25\text{ppm}/^\circ\text{C}$ .

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: HPZ Series

Unit Type	Output voltage	Output current	Ripple at full load	Slewing & settling	Size (mm)	Weight (kg)
HP001ZIP025	–1kV to +1kV	1mA	55mVp-p	20ms	159 x 184.5 x 47	2.3
HP2.5ZIP025	–2.5 kV to +2.5 kV	400 $\mu\text{A}$	65mVp-p	40ms	159 x 184.5 x 47	2.3
HP005ZIP025	–5kV to +5kV	400 $\mu\text{A}$	170mVp-p	40ms	159 x 184.5 x 47	2.3
HP010ZIP025	–10kV to +10kV	400 $\mu\text{A}$	300mVp-p	50ms	159 x 184.5 x 47	2.3

### Electrical Specification

Input	+24V dc $\pm 10\%$ $<1\text{A}$ . 0V input common to HV return and chassis.
Control of output	0V to $\pm 10\text{V}$ for 0% to $\pm 100\%$ $\pm 2\%$ , ( $Z_{\text{in}} = 200\text{k}\Omega$ ) {0V to +10V plus Polarity see option}
Voltage monitor	–10V to +10V $\pm 2\%$ for –100% to +100%. ( $Z_{\text{out}} = 10\text{k}\Omega$ )
Precision Current Monitor	–10V to +10V $\pm 2\%$ , Offset $\pm 0.1\%$ of FS for –100% to +100%. ( $Z_{\text{out}} = 10\text{k}\Omega$ )
Polarity control- OPTION	Low $<0.8\text{V}$ = +ve, High $>2.5\text{V}$ or oc = –ve
Inhibit input	Low $<0.8\text{V}$ = Enable, High $>2.5\text{V}$ or oc = Inhibit [only available with 'POL' option]
Output temperature Co-efficient	$<25\text{ppm}/^\circ\text{C}$
Drift (after 1 hour warm up)	$<0.01\%$ per hour, $<0.05\%$ over an 8 hour period
Line regulation	$<20\text{ppm}$ for 1V change in input voltage
Load regulation	$<100\text{ppm}$ for 100 $\mu\text{A}$ to maximum load

## HPZ Series

### Mechanical Specification

Mountings	4 off M3 blind fasteners - see outline drawing
Input & Control	20-way IDC straight header for use with ribbon cable
Outputs	By 1.0m screened (shielded) lead type URM43

### Environmental Specification

Temperature, operating:	+10°C to +50°C	Humidity (RH) <31°C non-condensing:	80% maximum
Temperature, storage:	-35°C to +85°C	Humidity (RH) >30°C non-condensing:	Decrease linearly to 50% at 40°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 24V dc, impulse limited to overvoltage Category I (of IEC60364-4-443).  
For use in an environment of pollution degree 2.

### Pin Assignments

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:

\*1) 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.

\*2) Control input is fully differential, but  
-0.6V > Control Return pin 10 > +0.6V  
-10.25V < Voltage Control i.e. pin8 - Vpin10 < +10.25V

\*3) Polarity Option - height increases to 52mm  
Pin 8 Control input becomes 0V to +10V only  
Pin 18 becomes polarity input H=Pos  
Pin 20 becomes Inh H=Inh

### Part Number Selection

#### Series Code: HPZ

O/P Kv	Polarity	Options Code	Temp CO
001=1.0kV	Z= Thu Zero	IP= no options	025
2.5=2.5kV	R = Pol option	OP= Polarity Option fitted	
005=5.0kV			
010=10kV			

Example: HP2.5ZIP025 = 2.5kV version with no option fitted.

### Dimensions

Dimensions in mm  
Projection/first angle

