

**100W HIGH VOLTAGE MODULES**  
**HW001, HW2.5, HW005, HW010, HW015,**  
**HW020, HW030, HW040, HW050**



**HW Series**

**Application:**

Lasers, capacitor charging, ion pumps, X-ray, ion implantation, magnetrons

**Features:**

- 1kV, 2.5kV, 5kV, 10kV, 20kV, 30kV, 40kV & 50kV
- High frequency switch mode
- Internal control or externally programmable
- Flashover proof
- 24 hour burn in
- Safety assessed to EN61010-1



The HW series of high voltage modules covers the range from 1kV to 50kV giving 100 watts of output power. Control of the output voltage is by internal potentiometer or by external potentiometer or by an external 10 volt analogue control voltage. Pins 1 to 10 of the 12 pin Molex input connector are pin compatible with both the high precision HP series and the general purpose KS series (please see separate data sheets).

All units are short circuit proof and include an over-current trip. The units operate from a 24V input and have an efficiency of around 80%.

O/P current control is now available as a 'constant current option', for capacitor charging applications.

**ELECTRICAL SPECIFICATION: HW SERIES**

UNIT TYPE	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE AT FULL LOAD	SIZE (mm)	WEIGHT (kg)
HW001	50V to 1kV	100mA	< 1V (pk to pk)	230 x 135 x 60	3.2
HW2.5	100V to 2.5kV	40mA	< 2.5V (pk to pk)	230 x 135 x 60	3.2
HW005	250V to 5kV	20mA	< 5V (pk to pk)	230 x 135 x 60	3.2
HW010	500V to 10kV	10mA	< 10V (pk to pk)	230 x 135 x 60	3.2
HW015	750V to 15kV	6.66mA	<15V (pk to pk)	280 x 135 x 60	3.3
HW020	1kV to 20kV	5mA	< 20V (pk to pk)	280 x 135 x 60	3.3
HW030	1.5kV to 30kV	3mA	< 30V (pk to pk)	280 x 135 x 60	3.5
HW040	2kV to 40kV	2.5mA	< 200V (pk to pk)	280 x 135 x 60	3.5
HW050	5kV to 50kV	2mA	< 250V (pk to pk)	280 x 135 x 60	3.5

**ELECTRICAL SPECIFICATION**

Input:	+24 volt dc $\pm 10\%$ <6A. 0V input common to HV return and chassis
Control of output:	Internal potentiometer External potentiometer 10V analogue signal. (0 to +10V gives zero to max o/p, tolerance $\pm 2\%$ ). ( $Z_{in} > 440\text{Kohm}$ )
Voltage monitor:	0V to +10V $\pm 3\%$ for 0% to 100%. ( $Z_{out} = 10\text{k}$ )
Current monitor:	0V to +10V $\pm 5\%$ , Offset $< \pm 0.1\%$ of FS for 0% to 100%. ( $Z_{out} = 10\text{k}$ )
Temperature-coefficient:	<300ppm/ $^{\circ}\text{C}$ (<50ppm/ $^{\circ}\text{C}$ temp-co option available for units up to 5kV)
Line regulation:	<0.1% for a 1V change in input voltage
Load regulation:	<0.1% for load changes from 10% to full load
Protection:	Protected against flashover to ground. Trip on over current, reset by on/off

# HW Series

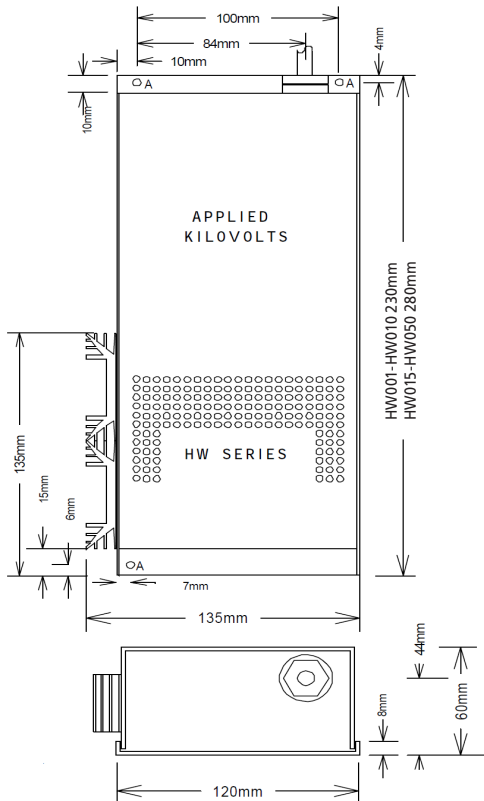
## MECHANICAL SPECIFICATION

Mountings:	centres 3 off M4 Clearance holes 'A'		
Input / control:	12 way 0.2" Molex connector	crimps Molex part no 8500108	12 Way housing Molex part no 10011124
Output:	0.5m of URM43 screened cable (1m TV30 HW030, & 1m TV50 HW040 & HW050)		

## ENVIRONMENTAL SPECIFICATION

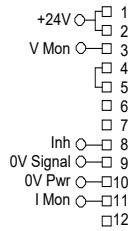
Temperature, operating:	+10°C to +50°C	Humidity (RH) <31°C non-condensing:	80% maximum
Temperature, storage:	-35°C to +85°C	Humidity (RH) >30°C non-condensing:	Decrease linearly to 50% at 40°C
Altitude, operating:	Up to 2,000m	Altitude, storage:	Up to 18,000m

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.  
NOTE — The Inhibit input is NOT to be used as a 'Safety Interlock'

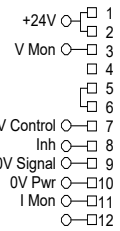


## PIN ASSIGNMENT—FOR VERSION WITHOUT CONSTANT CURRENT OPTION

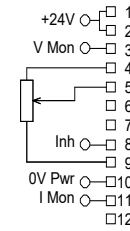
### INTERNAL POTENTIOMETER



### EXTERNAL 0 to 10V



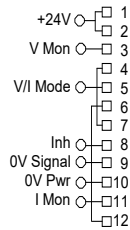
### EXTERNAL POTENTIOMETER



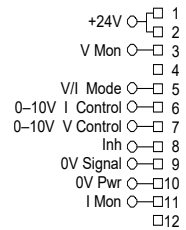
1	+24V 6A dc i/p	5	Control link see diags above	9	0V power return/signal gnd
2	+24V 6A dc i/p	6	Control link see diags above	10	0V power return
3	Voltage monitor Zout=10k 0 to 10V for 0 to max o/p	7	Voltage control Zin>440k 0 to 10V gives 0 to max o/p	11	Current monitor Zout=10k 0 to 10V for 0 to max o/p
4	Control link see diags above	8	Inhibit—NOT a 'Safety Interlock' Low (<1.5V) unit operates & resets trips. High or OC unit OFF	12	nc

## PIN ASSIGNMENT—FOR VERSION WITH CONSTANT CURRENT OPTION

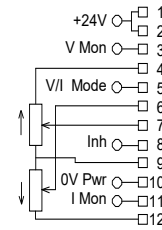
### INTERNAL POTENTIOMETER



### EXTERNAL 0 to 10V



### EXTERNAL POTENTIOMETER



1	+24V 6A dc i/p	5	V/I mode o/p	9	0V power return/signal gnd
2	+24V 6A dc i/p	6	Current control i/p	10	0V power return
3	Voltage monitor Zout=10k 0 to 10V for 0 to max o/p	7	Voltage control Zin>440k 0 to 10V gives 0 to max o/p	11	Current monitor Zout=10k 0 to 10V for 0 to max o/p
4	Control link see diags above	8	Inhibit—NOT a 'Safety Interlock' Low (<1.5V) unit operates & resets trips. High or OC unit OFF	12	Control link see diags above

## PART NUMBER SELECTION

### SERIES CODE: HW

O/P kV	POLARITY	OPTIONS CODE	TEMP-CO/°C
001= 1kV	P= +ve	IP = Precision current monitor	300ppm
Ref Page 1	N= -ve	CP= Constant current control	

Example: +10kV HW series with constant current control: HW010PCP300

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