

3.5kV FLOATING MICROCHANNEL PLATE POWER SUPPLIES AT UP TO 30kV ISOLATION



HF Series

Application:

Microchannel plates for mass spectrometers & electron microscopes, floating grid & bias voltages

Features:

- 2.5kV, 10kV, 20kV or 30kV isolation
- Remote, ground referenced voltage programming
- 24V ground referenced supply
- Ground referenced voltage monitor
- Flashover & short circuit protected
- High stability, (temp-co <200ppm/°C)



These power supplies are intended to power microchannel plate and imaging detectors, that are isolated by many kV from ground. They give 0 to +3.5 kV and can be floated on voltages up to ± 2.5 kV (HFxx2.5), ± 10 kV (HFxx010), ± 20 kV (HFxx020) & ± 30 kV (HFxx030).

All control and monitor signals are ground referenced.

ELECTRICAL SPECIFICATION: HF SERIES

UNIT TYPE	OUTPUT VOLTAGE ¹	ISOLATION	RIPPLE AT FULL LOAD	INJECTED RIPPLE ²	SIZE (mm)	WEIGHT (kg)
HF003PAL2.5	150V to 3.5kV @ 1mA	$\pm 2.5\text{kV}^3$	<50mV (pk-pk)	<25mV (pk-pk)	210 x 120 x 60	1.1
HF003PAL010	300V to 3.5kV @ 1mA	$\pm 10\text{kV}^4$	<75mV (pk-pk)	<35mV (pk-pk)	210 x 120 x 60	1.3
HF003PAL020	600V to 3.5kV @ 1mA	$\pm 20\text{kV}^4$	<100mV (pk-pk)	<75mV (pk-pk)	210 x 120 x 60	1.5
HF003PAL030	900V to 3.5kV @ 1mA	$\pm 30\text{kV}^5$	<150mV (pk-pk)	<200mV (pk-pk)	210 x 120 x 60	1.5

1. Output voltages controllable down to 100V when biased positive.
2. ripple injected into the power supply providing the floating voltage, measured assuming load capacitance of 1000 pF.
3. resistance to ground 400 Mohm on each output.
4. resistance to ground 600 Mohm on each output.
5. maximum terminal voltage [floating + o/p] is 30kV, i.e. isolation to -30kV & +26.5kV at 3.5kV output.

ELECTRICAL SPECIFICATION

Input:	+24V dc $\pm 10\%$ <0.7A. 0V input common to chassis
Control of output at ground potential:	- 0V to +10V for 0% to 100% $\pm 3\%$, ($Z_{in} = 200\text{Kohm}$) - internal or external potentiometer—see options
Voltage monitor:	0V to +10V $\pm 3\%$ for 0% to 100%. ($Z_{out} = 10\text{k}$)
Line regulation:	<0.1% for 1V change in input voltage
Load regulation:	<0.1% for 100uA to maximum load
Temp co-efficient:	<0.02%/ °C
Drift (after 1 hour warm up):	<0.1% per hour
Protection (all outputs):	Protected against intermittent arcing and continued short circuit to ground

HF Series

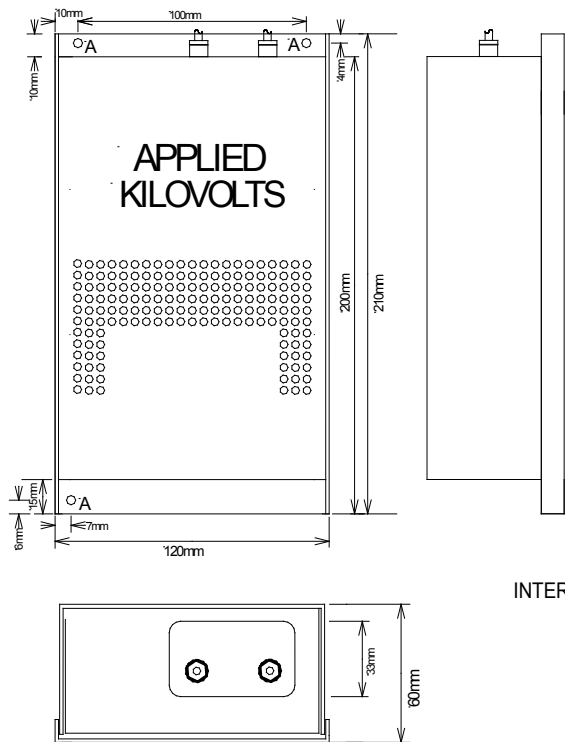
MECHANICAL SPECIFICATION

Mountings:	3 off M4 clearance holes—see outline drg
Input & control:	Molex 0.2" 10 way connector Molex crimps part no 8500108 10 Way housing Molex part no 10011104
Output:	By twin 0.5m flying screened (shielded) leads type URM43 isolation up to 10kV, TV30 for HFxx020/030

ENVIRONMENTAL SPECIFICATION

Temperature, operating:	+10°C to +50°C	Humidity (RH) <30°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.

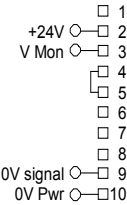


PIN ASSIGNMENTS

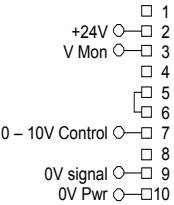
1	nc	6	Control link: See diagram
2	+24Vdc input	7	Voltage control i/p ²
3	Voltage monitor o/p	8	nc
4	Control link: See diagram ¹	9	Signal ground
5	Control link: See diagram ¹	10	Supply 0V

- Notes:
- The internal reference and potentiometer to enable internal or external potentiometer programming of the HF3 Series, are only fitted on the PL option code versions. (See order code details below).
 - Control voltage must be between -0.5V & 10.2V

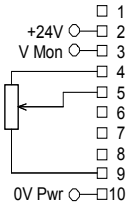
INTERNAL POTENTIOMETER



EXTERNAL 0 to 10V



EXTERNAL POTENTIOMETER



PART NUMBER SELECTION

SERIES CODE: HF

O/P kV	POLARITY	OPTIONS	CODE	ISOLATION VOLTAGE
003 = 3.5kV	P= +ve	AL=Low Injected Ripple		2.5 = 2.5kV
		PL= Pot & Reference fitted		010 = 10kV
				020 = 20kV
				030 = 30kV

Example: HF003PPL010 = 10kV isolated supply with pot and reference option