Model XRF50-503
X-RAY POWER SUPPLY MODULE

FEATURES

- 50W high voltage output
- RS232 remote operation
- Floating DC filament
- Floating grid/bias
- Beam control
- Flashover & short circuit protection
- LED status indication
- EU RoHS Compliant to 2002/95/EC
- CE Marked for EU LV Directive 73/23/EEC

DESCRIPTION

The Model XRF50-503 is a modular X-ray power supply for gridded tubes in industrial and scientific analytical applications. Powered from 24V DC input, the XRF50-503 provides a floating filament and the required floating grid circuitry to enable fast control of a gridded tube. All setting and monitoring is carried out by a detailed RS232 command set.

If the version you require is not on this datasheet then please enquire as we produce many custom versions for specific requirements.

SPECIFICATION

Output Power:
50W maximum output power.

Output Voltage:
-50kV max. Specification applies above 2kV.

Output Current:
0.05mA to 1mA dependent on tube characteristics.

Input Voltage:
24VDC ±1V, 4A maximum.

Ripple:
0.05%, 25V peak to peak maximum.

Filament:
14VDC 1A 3W maximum, controlled by RS232 commands.

Grid:
Bipolar +150V 20mA, -200V 100µA.

Controls:

Voltage Demand:	12 bit 0 to FFF demands 0 to -50kV, accuracy ±0.25%.
Current Demand:	12 bit 0 to FFF demands 0 to 1mA, accuracy ±0.25%.
Filament Demand:	12 bit 0 to FFF demands 0 to 1A, accuracy ±2%.

Monitors:

Voltage Monitor:	12 bit 0 to FFF monitors 0 to -50kV, accuracy ±0.25%.
Current Monitor:	12 bit 0 to FFF monitors 0 to 1mA, accuracy ±0.25%.
Filament I Monitor:	12 bit 0 to FFF monitors 0 to 1A, accuracy ±2%.
Filament V Monitor:	12 bit 0 to FFF monitors 0 to 14V, accuracy ±2%.
Grid I Monitor:	2 bit 0 to FFF monitors 0 to 20mA, positive current only.

Load Regulation:

Static:	Less than 0.01%±1V 0.2mA to 1mA.
Dynamic:	Less than 10V/100µA.
Tube Current:	0.05% of rated output current for a 60% change of rated output voltage.

Line Regulation:

Output Voltage:	Less than 0.01% for 1V change in input voltage.
Tube Current:	0.05% of rated output current for ±1V variation in supply voltage.

Efficiency:
Greater than 70% at max output power.

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HiTek Power

Stability & Drift:

Temperature Coefficient:	100ppm/°C over-operating temperature range.
Drift:	±0.1% of rating over an 8-hour period after 30 minutes warm-up.

Environmental:

Operating Temperature:	0 to +40°C.
Storage Temperature:	-20 to +70 °C.
Humidity:	70% maximum relative humidity up to 31°C, reducing linearly to 50% at 40°C. Non-condensing (ref BS EN61010-1).

Vibration:

	In accordance with BS EN60068-2-6:1995 Transport, when contained in the original packaging.
Frequency range:	10Hz to 500Hz.
Acceleration:	20m/s² Crossover at 58Hz (Table C.2).
Displacement:	0.15mm maximum.
	Test conditions as defined in Table A.1.
Altitude:	0 to 2000m (6500 ft).
Installation Environment:	Installation Category 1 Pollution Degree 2 Indoor use only.

Connectors:

Input DC Power:	2 x ¼" (6.35 mm) push-on spade terminals.
HV Output:	Claymount Mini 75 (HV, Filament and Grid).
Control Interface:	9-way female D-type connector for RS232 control.

Protection:

Over-temperature.
Over-voltage.
Over-current and arc.

Cooling:

Free convection (no fan).

Safety:

This high voltage module meets the requirements of the Low Voltage Directive (LVD), 73/23/EEC, by complying with BS EN61010-1:2001 when it is installed as a component part of other equipment and is CE marked accordingly.

EMC:

This high voltage module is intended for installation as part of a system. Basic EMC filtering is provided.

RoHS:

The Series XRF50 meets the requirements of EU Directive 2002/95/EC on the Restriction of use of certain Hazardous Substances in electrical and electronic equipment (RoHS).

Mechanical:

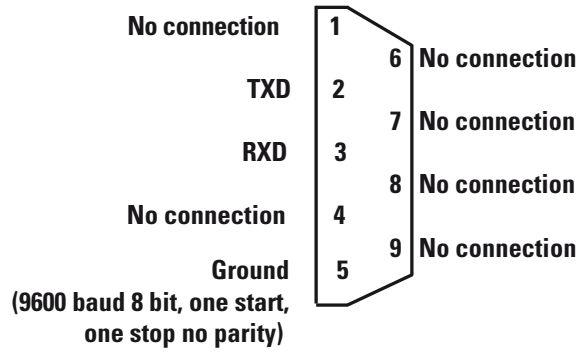
Dimensions:	See outline drawing.
Weight:	5kg (11 lb).

Ordering Information:

Model no	Output Voltage	Output Current	Output Power
XRF50-503	-50kV	1mA	50W

Interface Connection:

RS232 9-way D-type connector:



CE These component power supplies meet the requirements of EC Directive 73/23/EEC (LVD).

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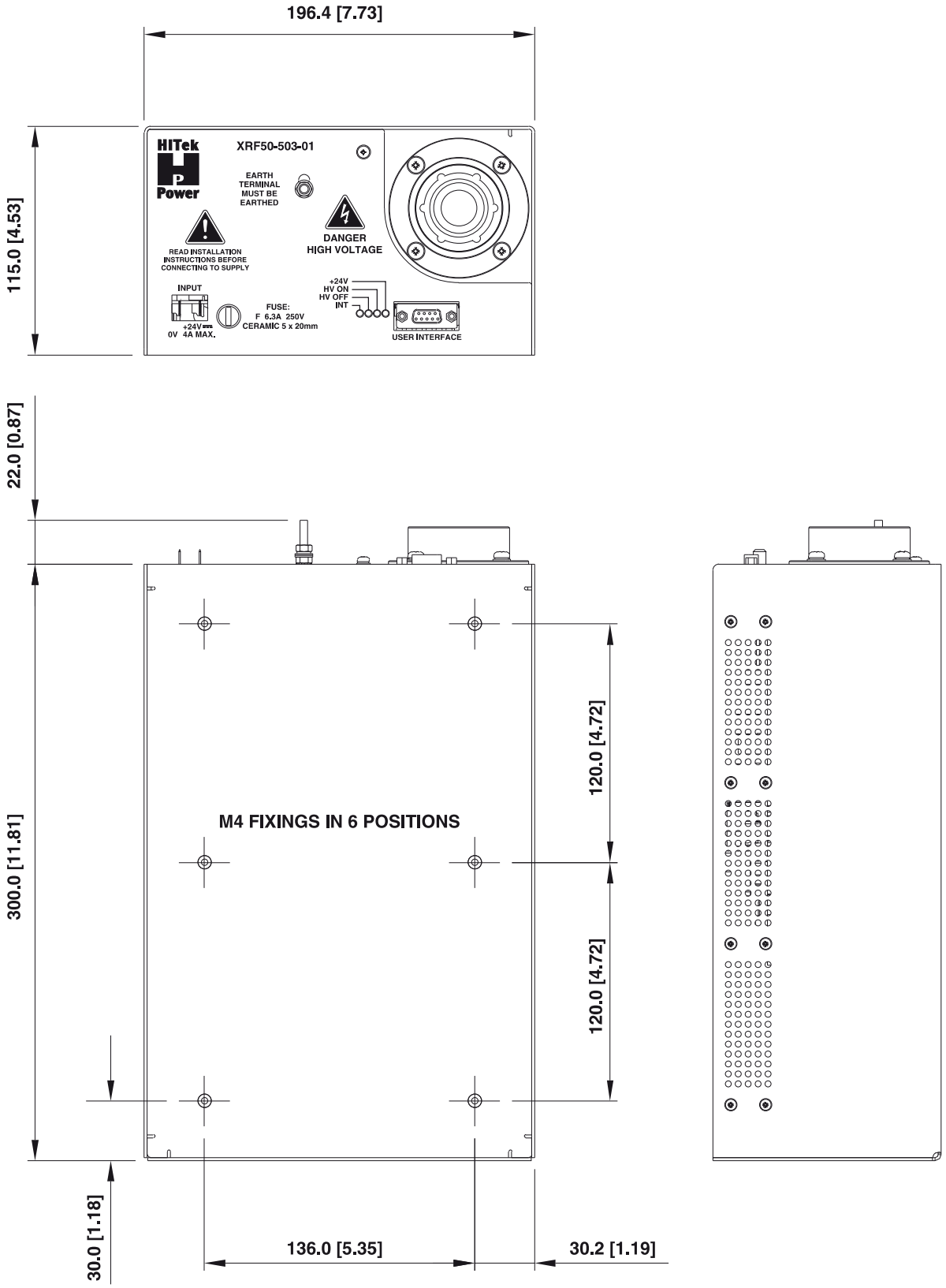

Drawing dimensions are in mm (inches)
Design developments may result in specification changes

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