



## FEATURES

- 150W high voltage output
- 17W floating filament
- Exceptionally compact size
- Remote operation
- $\text{C}\ \text{C}$  Marked for EU LV Directive 73/23/EEC
- EU RoHS Compliant to 2002/95/EC
- High accuracy and stability

## DESCRIPTION

The Series XR150 has been specifically developed for high performance X-ray applications; the combination of surface mount, superior high voltage stress control and packaging techniques ensures a compact but highly reliable product. The Series XR150 is designed for use in inspection and analytical X-ray systems with floating filament tubes. The filament is automatically controlled by the integral beam loop-control and the power stage utilises a current fed resonant push-pull converter to give high efficiency whilst ensuring reliable operation. The Series XR150 is available with either an analogue or RS232 control interface. If the version you require is not on this datasheet then please enquire as we produce many custom versions for specific requirements.

## SPECIFICATION

### Inputs:

Input Voltage: 24VDC  $\pm$ 1VDC.  
 Input Current: 11A max.

### Outputs:

Voltage: 0 to -60kV. Full spec applies above -3kV.  
 Current: 0 to -2.5mA.  
 Power: Maximum output power 150W.  
 Ripple: Less than 100V peak to peak.  
 Filament: 0 to 3.7A (4.5V max)  
 Controlled by internal beam control loop.

### Controls (Analogue version):

Voltage Demand: 0 to 5VDC demands 0 to -60kV  $\pm$ 0.5%  $\pm$ 100V  
 Current Demand: 0 to 5VDC demands 0 to -2.5mA  $\pm$ 2%  $\pm$ 5 $\mu$ A  
 Filament Limit: Internally settable between 1A and 3.7A

### Controls (RS232 version):

Voltage Demand: 12bit; 0 to FFF demands 0 to -60kV  $\pm$ 0.5%  $\pm$ 100V.  
 Current Demand: 12bit; 0 to FFF demands 0 to -2.5mA  $\pm$ 2%  $\pm$ 5 $\mu$ A.  
 Filament Standby: 12bit; 0 to FFF demands 0 to 3.7A.

### Monitors (Analogue):

Output Voltage: 0 to 5V  $\pm$ 0.5%  $\pm$ 20mV for 0 to -60kV.  
 Beam Current: 0 to 5V  $\pm$ 2%  $\pm$ 20mV for 0 to -2.5mA.  
 Filament Current: 0 to 5V  $\pm$ 5%  $\pm$ 20mV for 0 to 3.7A.  
 Filament Voltage: 0 to 5V  $\pm$ 5%  $\pm$ 20mV for 0 to 5V.

### Monitors (RS232)

Output Voltage: 12bit; 0 to FFF represents 0 to -60kV.  
 Output Current: 12bit; 0 to FFF represents 0 to -2.5mA.  
 Filament Current: 12bit; 0 to FFF represents 0 to 3.7A.  
 Filament Voltage: 12bit; 0 to FFF represents 0 to 5V.

### Load Regulation:

#### Output Voltage:

Static: Less than 60V no load to full load.  
 Dynamic: Less than 3kV, recovery to within 1% of previous setting within 200ms.

Beam Current: Less than  $\pm$ 2 $\mu$ A for a 10% to 100% of change of rated load.

### Line Regulation:

Output Voltage: Less than 60V for a 1V change in the 24V supply.  
 Beam Current: Less than  $\pm$ 2 $\mu$ A for a 1V change in the 24V supply.

### Stability & Drift:

Temperature Coefficient: 100ppm/ $^{\circ}$ C over-operating temperature range.  
 Drift:  $\pm$ 0.1% of rating over an 8-hour period after 30 minutes warm-up.

# Series XR150

## X-RAY POWER SUPPLY



### Environmental:

Operating Temperature: 0 to +40°C.  
 Storage Temperature: -20 to +85 °C.  
 Humidity: 80% 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/s<sup>2</sup> Crossover at 58Hz (Table C.2).  
 Displacement: 0.15mm maximum.  
 Test conditions as defined in Table A.1.  
 Altitude: 0 to 2000m.  
 Installation Environment: Installation Category 1  
 Pollution Degree 2  
 Indoor use only.

### Connectors:

Input DC Power: Deutsch IMC24-1602X.  
 HV Output: HiTek Power designed detachable poke home connector.  
 Filament Output: HiTek Power designed detachable poke home connector.  
 Control Interface: 15-way D-type socket (Analogue)  
 9-way D-type socket (RS232).

### Protection:

Input voltage reverse polarity.  
 Over-temperature.  
 Over-current (continuous short circuit and intermittent arc) on both HV output and filament.  
 Over-voltage on both HV output and filament.

### Cooling:

Fan assisted.

### Safety:

This high voltage module meets the requirements of the Low Voltage Directive (LVD), 2006/95/EC, 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 XR150 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 Specification:

Dimensions: 80mm Wide, 179.5mm High, 320mm Deep (excluding fan)  
 Weight: 8kg.  
 Casing: Aluminium, clear non-chrome passivate finish.  
 See outline drawing (analogue version).

### Ordering Information:

Model no	Output Voltage	Output Current
XR150-603*	-60kV	2.5mA

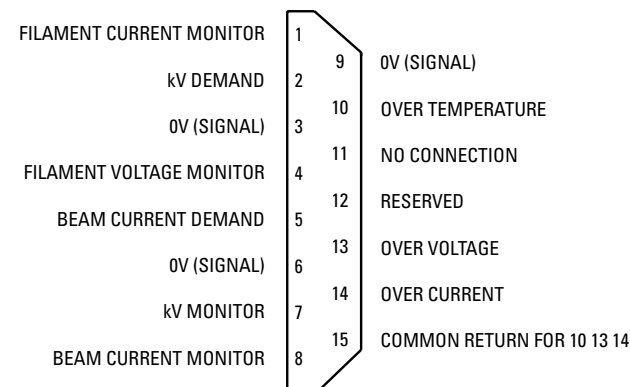
\* Please add the required suffix for control option to the part number:

A Analogue control  
 C RS232 control

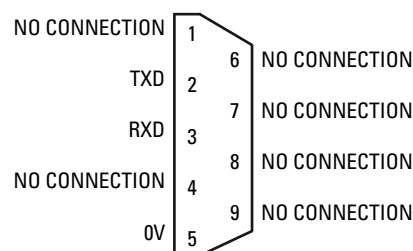
eg XR150-603C for RS232 controlled unit.

### Interface Connection:

Analogue 15-way female D-type connector:

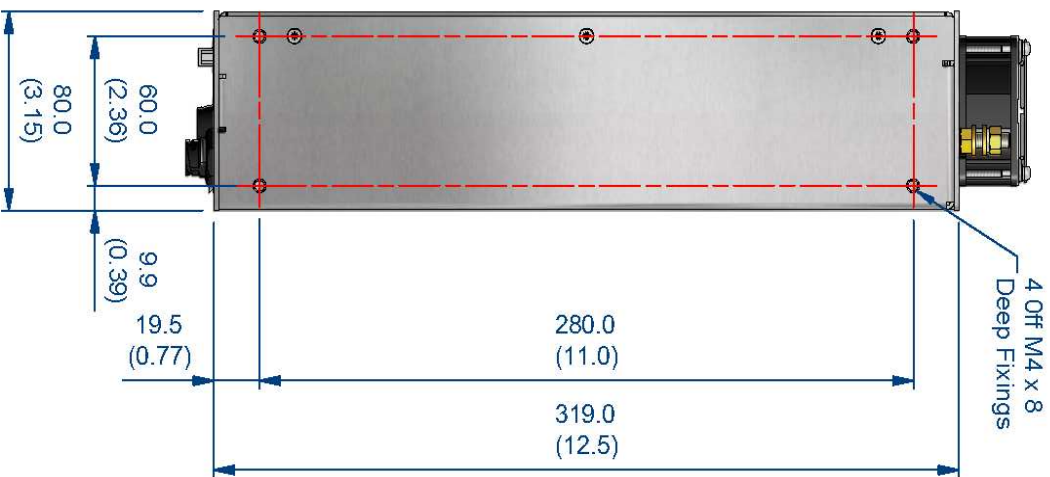
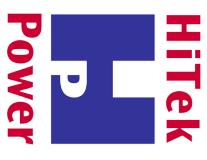


Digital remote control (RS232) 9-way female D-type connector:



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

# Series XR150 X-RAY POWER SUPPLY



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

# HiTek



# Power

*The Power Supply  
Pioneer*

## **UK**

HiTek Power Ltd  
Hawthorn Road, Littlehampton  
West Sussex BN17 7LT  
UK  
Tel: **+44 (0) 1903 712400**  
Fax: **+44 (0) 1903 712500**  
e-mail: [sales.uk@hitekpower.com](mailto:sales.uk@hitekpower.com)

## **USA**

HiTek Power Inc  
124 Jewett Street, Unit #2  
Georgetown, MA 01833-1868  
USA  
Tel: **+1 (978) 352-9100**  
Fax: **+1 (978) 352-9133**  
e-mail: [sales.us@hitekpower.com](mailto:sales.us@hitekpower.com)

## **GERMANY**

HiTek Power GmbH  
Joh.-Friedr.-Boettger-Str. 21  
D-63322 Roedermark  
Germany  
Tel: **+49 (0) 6074 69285 0**  
Fax: **+49 (0) 6074 69285 10**  
e-mail: [sales.de@hitekpower.com](mailto:sales.de@hitekpower.com)

## **JAPAN**

HiTek Power Japan  
1-5-13 Kyutaroumachi  
Chou-ku, Osaka 541-0056  
Japan  
Tel: **+81 (6) 6271 8180**  
Fax: **+81 (6) 6271 8190**  
e-mail: [info@hitekpowerjapan.co.jp](mailto:info@hitekpowerjapan.co.jp)