

## XF025, XF030, XF040, XF050 25kV to 50kV 100W X-RAY POWER SUPPLIES WITH FLOATING HEATER

### X-ray tubes & Electron guns

#### Features

- -25kV, -30kV, -40kV, or -50 kV at 2 mA
- Heater isolated to 50 kV 5V at 3 Amp
- Short circuit and flashover proof
- High efficiency, 24 hour burn in
- Safety assessed to EN61010-1
- Beam Current Control, stabilised by heater current.
- Controlled turn-on. Minimises turn-on stress to tube and filament.
- Stand-by Heater Current, set by internal potentiometer. 0-100%
- Maximum Heater Current, set by internal potentiometer. 0-100%
- Please contact the factory for special versions of this power supply.



The HW50XF is based on the HW50/2N (data sheet REF/HW97 refers). It includes an isolated filament supply whose power is controlled to stabilise the beam current and is intended to operate an X-ray tube in the grounded anode mode (filament floating) at up to 50 kV 2 mA. Control of the output voltage & current is by internal potentiometers or by external 10 volt analogue control voltages. All units are short circuit proof and use high frequency pulse width modulated switching techniques, in conjunction with a ferrite step-up transformer to control the output voltage.

#### Electrical Specification

UNIT TYPE	OUTPUT VOLTAGE	O/P RIPPLE	FILAMENT	FILAMENT RIPPLE
XF025NAA300	1.5kV to 25kV at 4mA	<1% peak to peak	3A @ 5V DC  Connected to HV -ve	<1V peak to peak,  frequency 60kHz
XF030NAA300	1.8kV to 30kV at 3mA			
XF040NAA300	2kV to 40kV at 2.5mA			
XF050NAA300	3kV to 50kV at 2mA			

Input voltage: 24 volt d.c.  $\pm 10\%$  at 7A.  
Negative input terminal common to HV earth return.

HV Line regulation: Less than 0.1% for input changes of 1 volt.

Voltage Control: INTERNAL potentiometer or 10V analogue signal.  
(0 to +10V gives zero to max kV output). Input impedance > 10 kohm.

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Beam current control: (Beam current stabilised.)	INTERNAL potentiometer or 10V analogue signal. (0 to +10V gives 0 to full o/p. Input impedance > 10 kohm.)
Monitors:	Voltage 0 to +10V represents zero to max kV (Accuracy $\pm 3\%$ , source resistance 10 kohm.)  Current 0 to +10V represents zero to max o/p current (Accuracy $\pm 5\%$ , source resistance 10 kohm.)  Filament 0 to +10V represents zero to 3 Amps (Accuracy $\pm 10\%$ , source resistance 10 kohm.)
Load regulation:	Less than 0.1% for load changes from 10% to maximum. (Measured at maximum voltage).
On/Off:	Output voltage and heater slow rise to set levels when control pin is low (<1.5V). This also resets the trip.
Overload protection:	Flashover and short circuit proof. Trip on over current (both HV & heater turn off) reset by on/off.
Temperature co-efficient:	300ppm per °C.
Operating temperature:	0°C to +45°C. Over temperature cut out.
Storage temperature:	-35°C to +85°C.
R.F.I.:	Choke input filter. Steel case for low radiated magnetic field.
Safety:	Meets or exceeds requirements of EN61010-1.

## **Mechanical Specification**

Size:	280 x 240 x 70 mm.
Output:	By twin 1 metre TV50 screened cable. Use screen of cable as the ground return (shortening this cable will degrade the ripple).
Power input connector:	PCB Mounted Straight Header: Molex Part no 43160-2102
Molex Sabre Series	Mates with Molex Part no 44441-2002 - RS part no 363-9875 Fitted with crimped terminals 43375-1001 - RS part no 364-0055
Control input connector:	Molex 0.1" 10 pin.
Connector Kit Order Code:	CONNECTORKITXF
Cooling:	Internal fan cooling is provided – it is essential this airflow is not blocked.

## **Operating Instructions**

- 1/ Installation should only be undertaken by personnel qualified in high voltages and who are familiar with high voltage safety regulations.
- 2/ Connect tube, 24 volt power input & control inputs (either computer, external potentiometer or link for the use of the internal potentiometers).
- 3/ After setting control potentiometer or control voltage to zero & heater maximum to 50%, turn on power supply.
- 4/ Using the monitor voltages to check the power supply output, increase the output voltage until 10 kV or a safe level is reached.
- 5/ Increase beam current until required beam current is reached (increasing filament maximum if necessary).
- 6/ Set filament maximum potentiometer to limit the filament current to the required level.
- 7/ Set output voltage & beam current to required values.
- 8/ Over current or over temperature trip are reset by the on/off control.