

100W X-RAY TUBE POWER SUPPLY XF025, XF030, XF040, XF050

APPLIED KILOVOLTS

XF Series

Application:

X-ray food inspection, low power X-ray systems

- 25kV, 30kV, 40kV & 50kV
- Flashover proof
- 24 hour burn in
- Beam current control stabilised by filament current
- Controlled turn-on to minimise stress on tube & filament
- Safety assessed to EN61010-1



The XF series is intended to operate an X-ray tube in the grounded anode mode (floating filament) at up to 50 kV 2 mA. It includes a 100W acceleration supply and a 4A 5Vdc isolated filament supply whose power is controlled to stabilise the beam current.

Control of the output voltage & tube's beam current is by 0V to 10 volt analogue control voltages or by external potentiometers. An internal sequence engine ensures controlled, low-stress turn-on. A stand-by filament current can be set via an internal potentiometer.

All units are short circuit proof and use high frequency pulse width modulated switching techniques, in conjunction with a ferrite stepup transformer to control the output voltage and filament current.

ELECTRICAL SPECIFICATIONS: XF SERIES

UNIT TYPE	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE AT FULL LOAD	FILAMENT	FILAMENT RIPPLE	SIZE (mm)	WEIGHT (kg)
XF025NAA300*	1.5kV to 25kV	4mA	< 250V (pk to pk)	4A @ 5V dc	<1V pk to pk	280 x 240 x 70	11.0
XF030NAA300*	1.8kV to 30kV	3mA	< 300V (pk to pk)	4A @ 5V dc	<1V pk to pk	280 x 240 x 70	11.0
XF040NAA300*	2kV to 40kV	2.5mA	< 400V (pk to pk)	4A @ 5V dc	<1V pk to pk	280 x 240 x 70	11.0
XF050NAA300	3kV to 50kV	2mA	< 500V (pk to pk)	4A @ 5V dc	<1V pk to pk	280 x 240 x 70	11.0

ELECTRICAL SPECIFICATION

Input:	+24 volt dc $\pm 1V$ <7.5A. 0V input common to HV return and chassis.
Cathode Voltage Control:	10V analogue signal. (0 to +10V gives zero to max o/p, tolerance $\pm 4\%$). Zin 22Kohm.
Cathode Current Control:	0V to 10V analogue signal. (0 to +10V gives zero to max o/p, tolerance $\pm 5\%$). Zin 22Kohm.
Voltage monitor:	0V to +10V $\pm 4\%$ Offset $\leq \pm 0.4\%$ of FS for 0% to 100%. (Zout= 10k)
Cathode Voltage Temp-Co:	<300ppm / $^{\circ}C$
Current Monitor:	0V to +10V $\pm 5\%$, Offset $\leq \pm 0.5\%$ of FS for 0% to 100%. (Zout= 10k)
Filament Current Monitor:	0V to +10V $\pm 10\%$, Offset $\leq \pm 1\%$ of FS for 0A to 4A. (Zout= 10k)
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.

*Non-preferred options available for volume applications only

XF Series

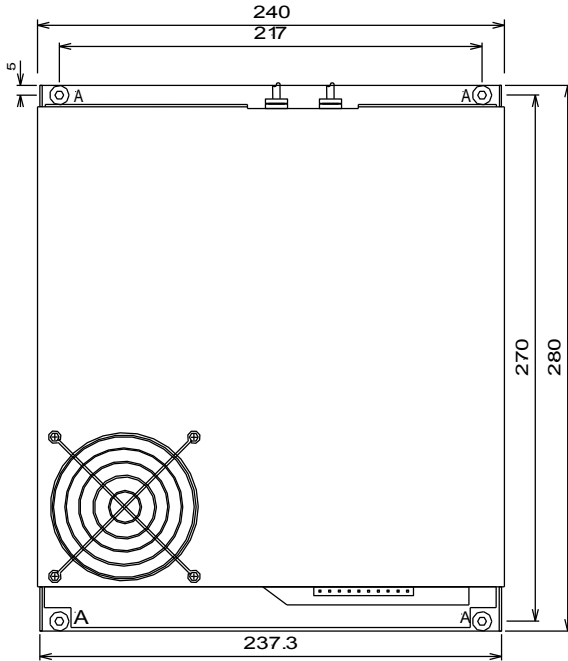
MECHANICAL SPECIFICATION

Mounting:	4 off M4 clearance holes
Power Input:	2 pin Molex socket
Control Input:	10 Way Molex
Output:	Flying leads, 1m of TV50 screened (shielded) cable [One for each side of the filament.]

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.



Fixing holes 'A' M4 4

SIGNAL CONNECTIONS

1	Cathode Current monitor
2	24V test o/p
3	Cathode Voltage Monitor
4	Cathode Voltage Control i/p ¹
5	Inhibit i/p ²
6	Over-current trip o/p ³
7	Over Temp trip o/p ³
8	Filament Current Monitor
9	Cathode Current Control i/p ¹
10	0V Signal

Notes:

- Control Voltages must be between -0.5V & 10.2V
 - Inhibit i/p >2.5V or oc = INH <1.5V = ENABLE
Taking pin 5 Low clears the trips.
INH is NOT a Safety input.
 - open collector transistor o/p
- Molex pins part no 8500108
10 pin socket 10011104

POWER CONNECTIONS

1	+24V dc input
2	0V Power

Molex Part no 44441-2002 is fitted with crimped terminals 43375-1001

PART NUMBER SELECTION

SERIES CODE: XF

O/P kV	POLARITY	OPTIONS CODE	TEMP CO
025= 25kV	N= -ve	AA = Stack Return Current Monitor	300ppm/°C
050= 50kV			

Example: -40kV XF series XF040NAA300

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