

XL025, XL030, XL035 50kV to 70kV 100W X-RAY POWER SUPPLIES WITH FLOATING HEATER

High Voltage Section in OIL

Features

- Bipolar High Voltage Section for 70kV X-ray Tubes
- High Voltage Section mounts next to X-ray tube
- Heater isolated to 35 kV 5V at 4 Amp
- Short circuit and flashover proof
- High efficiency, 24 hour burn in
- Safety: conforms to EN61010-1
- Beam Current Control, stabilised by filament 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.
- LED Fault Diagnostics



The XL series is based on the HW, and XF series. It includes a 100W bipolar acceleration supply, and an isolated filament supply whose power is controlled to stabilise the beam current. It is intended to operate an X-ray tube in bipolar mode which minimises the voltage potentials with respect to Ground. The High Voltage section being mounted in the oil tank adjacent to the X-ray tube, eliminates the need for high voltage connectors. Control of the output voltage & current is 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 Bipolar - +ve & -ve | X-Ray Tube Voltage | O/P RIPPLE | FILAMENT |
|-------------|---------------------------------------|-----------------------|---------------------|-----------------------------------|
| XL025BIP404 | 3kV to 25kV at 2mA | 6kV to 50kV | <1% peak to peak | 4A @ 4V AC Connected to HV -ve |
| XL030BIP404 | 3.5kV to 30kV at 1.6mA | 7kV to 60kV | | |
| XL035BIP404 | 4kV to 35kV at 1.4mA | 8kV to 70kV | | |

We manufacture a large number of customized OEM versions of this PSU, and would be pleased to discuss your application with you.

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APPLIED KILOVOLTS

| | |
|---|---|
| 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: | 10V analogue signal. Input impedance > 10 kohm. (0 to +10V gives zero to max kV output $\pm 5\%$). |
| Beam current control: (Beam current stabilised.) | 10V analogue signal. Input impedance > 10 kohm. (0 to +10V gives 0 to full o/p. |
| 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 4 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 filament slow rise to set levels when control pin is low (<1.5V). This also resets the trips. |
| 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. 70°C Over temperature cut out in oil. |
| Storage temperature: | -35°C to +85°C. |
| R.F.I.: | Choke input filter. |
| Safety: | Meets or exceeds requirements of EN61010-1. |

Mechanical Specification

| | | |
|---------------------------|---|--------------------|
| Size: | HV In Oil Tank | 260 x 125 x 80 mm. |
| | Low Voltage Plate | 300 x 120 x 48 mm |
| Output: | By three 200mm 60kV cables. | |
| 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 | |

LED Status Indication

| | | |
|----------------------------|---------------|----------|
| Unit Enabled | Green | |
| Low KV [<75% of demand] | Amber Warning | Red Trip |
| Low ma [<75% of demand] | Amber Warning | Red Trip |
| Overcurrent [>110% of Max] | Amber warning | Red Trip |
| Over temperature | | Red Trip |