

brandenburg

Model 833

X-Ray Image Intensifier Power Supply 5 Fully Regulated High Voltage Outputs

Features

- 24V nominal input
- Vacuum condition monitor output
- Good line and load regulation
- Low output ripple and noise
- Compact size
- Proof against output short circuits and arcing
- Remote programming of G1,2 & 3 outputs
- High voltage components fully encapsulated

Description

The Brandenburg model 833 has been designed for the special needs of the medical and industrial image intensifier market. This unit employs two high frequency switching regulators to directly generate G3 and G5. The G5 inverter also powers a linear post regulator for G1 and G2, plus a resistive current limited source for G4 (getter). Incoming power is filtered by a linear regulator for excellent line rejection and protection. Control lines (G1, G2, and G3) have good (ground) common mode rejection, with separate power and signal zero rails. A Vacuum Monitor output detects when the G4 (getter) current falls below 1 μ A.

Ordering Information and High Voltage Outputs

Input Voltage	Output Voltage	Output Current	Control	Ordering Code
24 V dc	G1: 75V to 350V	3 μ A	0 to +10V	833
	G2: 400V to 1200V	1 μ A	0 to +10V	
	G3: 2.75kV to 10.3kV	1 μ A	0 to +10V	
	G4: 2.5kV to 3kV	10 μ A	none	
	G5: 30kV (\pm 150)	3 μ A	none	



Electrical Specification

Input

Voltage range +20.4V to 26.4V dc
 Line ripple Up to 0.5V pk/pk
 Regulation $\pm 0.05\%$, between 20.4V and 26.4V
 Current (nominal) 220mA max outputs @ full load
 Current (Maximum) 300mA

Output (G1,2,3 & 5)

Voltage range see Ordering Information and high voltage outputs
 Current see Ordering Information and high voltage outputs
 Control (G1,2 & 3) Outputs are proportionally controlled, each by an analogue input signal, 0 to +10V, with an accuracy of $\pm 2\%$ of demand. The control input impedance is $> 10k\Omega$. The CMRR is $> 40dB$ with a CM range $\pm 0.5V$. The HV range is internally limited to 115% of maximum rating if over driven.
 (G5) None
 Regulation ± 0.3 (load)
 Ripple $< 0.3\%$ pk-pk, over line and load range
 Temperature coefficient $< \pm 0.05\%$ per degC between +5 and +55 degC
 Drift $< \pm 0.5\%$ over 8 hour
 Response time (power on) 5% in < 3 seconds
 range change: G1/G2/G3, < 1 second, min to max demand

Output (G4)

Regulation (load) 2.5kV to 3.0kV output @ $< 10\mu A$ load
 Ripple (lf & hf) $< 1\%$ pk-pk, @ $< 10\mu A$ load
 Protection Proof against output short circuits of any duration

Vacuum condition monitor

Threshold condition When G4= $1\mu A$, ($\pm 20\%$)
 Output Open collector, 30V/20mA max
 Load (typical) External LED & resistor to positive rail
 Status Open: if I (G4) $< 1\mu A$
 Closed if I (G4) $> 1\mu A$

Protection

All HV outputs are protected against intermittent flash-over and continuous short circuit to ground without damage to the HV power supply. The G5 is protected from exceeding 32kV and will shut-down the power supply. An internal, factory fitted (UL) fuse-link protects against failure on the 24V rail or reverse polarity connection.

Mechanical Specification

Dimensions 160 x 52.5 x 115mm (6.3" x 2.1" x 4.5")
 Packaging Aluminium case, black anodized, with resilient encapsulation.
 Input connector 10 way ribbon connector
 Outputs 5 off of type BB-0512-50 HV connector (mating half supplied)
 Mounting Four M3 X 6mm deep inserts on 140 x 102 mm centres.

Environmental Specification

Operating temperature range +5 to +55 deg.C
 Storage temperature range -10 to +70 deg.C
 Humidity 95%, +55 degC Non condensing
 MTBF 35,000 hours

