

# **GLD150 Gold Performance Medical Switchers**

150 Watt Multiple Output

# PERFORMANCE MEDICAL SWITCHERS

# **FEATURES:**

- Compact 4.5" x 7" x 1.7" size
- Power factor corrected to IEC 1000-3-2 Class A
- Less than 300 µA leakage
- EMI compliance to CISPR11, FCC Class B
- Power fail and remote sense standard
- Medical Approved to UL2601-1, IEC601-1/60601-1 and CSA-C22.2 No. 601.1
- 2 year warranty
- RoHS Compliant Model Available (G suffix)



# **SPECIFICATIONS**

#### Ac Input

85-264 Vac, 47-63 Hz single phase.

#### Input Current

2.8 A line current maximum, at 90 Vac, 60 Hz with full rated load, power factor .99 typical, .96 minimum. Input current harmonic content meets the requirements of IEC1000-3-2.

#### **Output Power**

150 W with convection cooling, 180 W with fan cooling. Peak ratings are for 60 s maximum duration, 10% duty cycle.

#### Efficiency

Minimum 80% at full rated load with 230 Vac Input. Approximately 3% less at 115 Vac.

## Hold-Up Time

Outputs will remain within regulation limits for 25 ms minimum from loss of ac input at full load, 10 ms before Power Fail indication.

#### **Output Regulation**

Total regulation is the maximum deviation from the nominal voltage for all steady state loading conditions.

#### **Overload Protection**

Fully protected against short circuit and output overload. Short circuit protection is cycling type power limit.

#### Minimum Load

No minimum load required to maintain output specifications.

## **Output Noise**

0.5% rms, 1% pk-pk, 20 MHz Bandwidth, differential mode. Measured with noise probe directly across output terminals of the power supply.

#### **Transient Response**

Main Output - 500  $\mu$ s typical response time for return to within 0.5% of final value for a 50% load step change, di/dt< 0.2 A  $\mu$ s. Maximum voltage deviation is 3%.

#### **Remote Sense**

Standard feature on all models, includes open sense lead protection.

### **Overvoltage Protection**

Built in on all models.

#### Input Protection

Internal ac fuses provided on both lines on all units.

#### Voltage Adjustment

Output Voltage is adjustable +/- 5% with user adjustable potentiometer.

#### **Temperature Coefficient**

0.03% / °C typical on all outputs.

## Overshoot

Less than 2% overshoot at turn-on under all conditions, less than 1% overshoot at turn-off under all conditions.

## Inhibit Inhibit signa

Inhibit signal is pulled to the V1 output common to reduce average output voltage to less than 5% of nominal.

#### EMI/EMC Compliance All models include built-in EMI filtering to meet the EMC requirements of IEC601-1. Unless otherwise stated, all tests are done at full load and 115 and 230 Vac input.

EMI SPECIFICATIONS	COMPLIANCE LEVEL
Conducted Emissions Static Discharge	EN55011, Class B; FCC Class B EN61000-4-2, 6 kV contact 8 kV air
RF Field Susceptibility	EN61000-4-3, 3V/meter
Fast Transients/Bursts	EN61000-4-4, 2 kV, 5 kHz
Surge Susceptibility	EN61000-4-5, 1 kV diff., 2 kV com.
Conducted RF Susceptibility	EN61000-4-6, 3V
Voltage Sags & Surges	EN61000-4-11

#### Inrush Current

Inrush 240 Vac is less than 37 A, averaged over the first ac halfcycle under cold start conditions. Limiting provided by internal thermistors.

## Fan Output

An additional 12 Vdc, 250 mA output suitable for powering a dc fan is included in all models. The fan output is both current limited and thermally protected.

#### Thermal Shutdown

Provided as a standard feature. Designed to protect unit from prolonged over temperature.

#### Power Fail

TTL / CMOS compatible output goes low (<0.5 V) 8 ms before output voltage drops more than 4% below nominal voltage upon loss of ac power.

#### Power Good

TTL / CMOS compatible output goes high more than 100 ms after V1 reaches regulation and should assure that sufficient energy is stored in the input section to provide normal power fail/shutdown.

#### Medical Approvals

All models are Certified to be in compliance with the applicable requirements of UL2601-1, CSA-C22.2 No. 601.1, IEC601-1/60601-1.

#### Leakage Current

70  $\mu A,$  132 Vac @ 60 Hz normal conditions. Single fault conditions, 130  $\mu A,$  254 Vac @ 50 Hz.

#### **Design Verification Documents**

The "Gold" series has undergone rigorous review and design analysis. The following product documentation is available upon request;

- 1. MTBF study
- 2. DVT Data
- 3. EMC / Susceptibility test results

Medical Model	RoHS Suffix*	Output Voltage	Output Current (A)	Output Current (B)	Voltage Adjustment	Total Regulation	OVP Setpoint	Ripple and Noise
GLD150-12	G	12 V	12.5 A	15 A	± 5%	2%	$14 \pm 1.1 \text{ V}$	1%
GLD150-15	G	15 V	10 A	12 A	± 5%	2%	18.5 ± 1.5 V	1%
GLD150-24	G	24 V	6.2 A	7.5 A	± 5%	2%	28 ± 2.5 V	1%
GLD150-28	G	28 V	5.3 A	6.4 A	± 5%	2%	$34 \pm 2.8$ V	1%
GLD150-48	G	48 V	3.2 A	3.75 A	± 5%	2%	$55 \pm 4.0  V$	1%

Notes:

\* Add "G" suffix to part number for RoHS compliant model. Contact factory for availability.

A. Maximum continuous current rating for unrestricted convection cooling.

B. Maximum continuous current rating with 150 LFM air or peak rating.

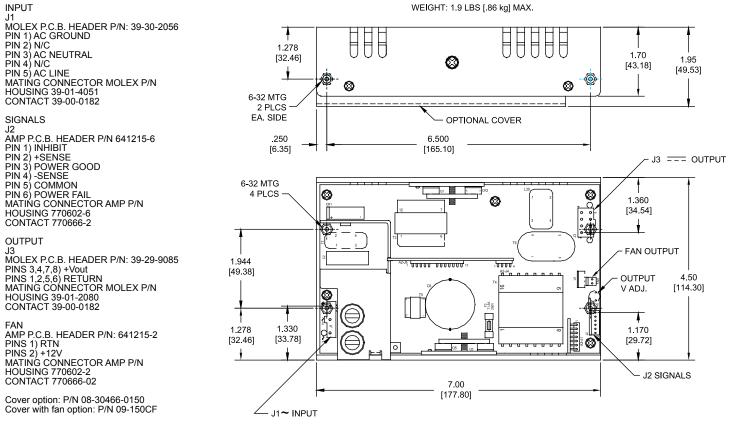
C. Add "C" suffix for cover option and derate convection rating to 130 W.

# **GLD150 MECHANICAL SPECIFICATIONS**

INPUT J1

J2

FAN



ENVIRONMENTAL SPECIFICATIONS	OPERATING	NON-OPERATING
Temperature (A, D)	0 to +50°C	-40 to +85°C
Humidity (A)	0 to 95% RH	0 to 95% RH
Shock (B)	20 g <sub>pk</sub>	40 g <sub>pk</sub>
Altitude	-500 to 10,000 ft	-500 to 40,000 ft
Vibration (C)	1.5 g <sub>rms'</sub> 0.003 g²/Hz	5 g <sub>rms'</sub> 0.026 g²/Hz

A. Units should be allowed to warm up/operate under non-condensing conditions before application of power.

B. Shock testing—half-sinusoidal,  $10 \pm 3$  ms duration,  $\pm$  direction, 3 orthogonal axes, total 6 shocks.

C. Random vibration—10 to 2000Hz, 6dB/octave roll-off from 350 to 2000Hz, 3 orthogonal axes. Tested for 10 min./axis operating and 1 hr./axis non-operating.

D. Derate output power to 50% at 70°C.

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