

# GPFM115 Medical

## 115 Watt Global Performance Switchers



### FEATURES:

- 115 Watts of continuous power with forced air
- Power factor corrected
- 74-81% efficiency
- Small package 3.3" x 5.25" x 1.5" inches
- Power fail warning, remote sense
- Optional cover with cooling fan
- Medical Approval to UL2601-1, CSA-C22.2 No. 601.1, EN60601-1
- $\text{CE}$  marked to LVD

### SPECIFICATIONS:

#### Ac Input

85-264 Vac, 47-63 Hz single phase

#### Output Power

Continuous rating is 80 W with unrestricted natural convection, or 115 W with forced convection. All models capable of 110% of rated power for 60 sec., 10% duty cycle maximum.

#### Input Current

Maximum input current at 90 Vac, 60 Hz with full rated load is 1.7 A. Input current harmonic content meets the requirements of IEC1000-3-2 for all load conditions at 230 Vac input. Active input circuitry provides high power factor of .96 min, .99 typical.

#### Inrush Current

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

#### Holdup Time

25 ms minimum from loss of ac input at full load.

#### 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. The signal is factory set to trip before there is insufficient power stored in the primary to sustain the output. Signal can sink 1.6 mA or source 400  $\mu$ A at 2.7 V (Fan-out = 1).

#### Efficiency

74 to 81% depending upon model

#### DC Output Specification

Total regulation is the maximum deviation from the nominal voltage for all steady state loading conditions. Peak ratings are for 60 s maximum duration, 10% duty cycle. Consult factory for application assistance.

#### Remote Sense

Provided as a standard feature on all models. Capable of compensating for 0.25 V total of cabling losses.

#### Overload Protection

Fully protected against short circuit and output overload. Short circuit protection is cycling type power limit. Recovery after fault is automatic. Consult factory for specific condition limits.

#### Overvoltage Protection

Built in on all models - See voltage and current chart for individual model output limits. When OVP fires, the output converter stops providing input power to output. Output voltage decay is dependent upon loading.

#### 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,  $\Delta i/\Delta t < 0.2$  A/ $\mu$ s. Maximum voltage deviation is 3.5%.

#### Minimum Load

No minimum load required to maintain output specifications. An abrupt change in output current from > 90% to < 2% load may cause a false triggering of the power fail signal.

#### Voltage Adjustment

Main output  $\pm 5\%$ .

#### Temperature Coefficient

0.03%/°C typical on all outputs.

#### Thermal Shutdown

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

#### Fan Output

An additional 12 Vdc, 100 mA output suitable for powering a dc fan is included in all models. The fan output is referenced to +out. Due to high pk-pk noise and low regulation, it is not recommended that this output be used for any other purpose.

#### Input Protection

Internal ac fuse provided on all models. Fuse does not blow on overload or short circuit -- fuse blows only if a catastrophic failure occurs in the unit.

#### EMI/EMC Compliance

All models include built-in EMI filtering to meet the following emissions requirements:

EMC SPECIFICATION	COMPLIANCE LEVEL
Conducted Emissions	EN55011, Class B; FCC Class B
Static Discharge	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

#### Leakage Current

90  $\mu$ A normal conditions (132 Vac @ 60 Hz input) or 250  $\mu$ A (264 Vac) single fault.

#### Medical Safety

All models are Certified to be in compliance with the applicable requirements of UL 2601, CSA 22.2 No. 601.1-M90, IEC 601-1 (1988), EN 60601-1: 1990. (Consult factory for approval status)

# GPFM115 Medical 115 Watt Single Output

Medical Model	Voltage Output	Output Adjustment Adjustment	Output Maximum (A)	Maximum (B)	Output Peak	Total Regulation	OVP Setpoint	Ripple/Noise	Notes
GPFM115-5	5.1 V	±5%	12 A	20 A	25 A	2%	6.2 ± 0.6 V	1%	C
GPFM115-12	12 V	±5%	6.7 A	9.6 A	10.8 A	2%	14 ± 1.1 V	1%	C
GPFM115-13	13 V	±5%	6.2 A	8.8 A	9.9 A	2%	15 ± 1.1 V	1%	C
GPFM115-15	15 V	±5%	5.3 A	7.7 A	8.7 A	2%	18.5 ± 1.5 V	1%	C
GPFM115-24	24 V	±5%	3.3 A	4.8 A	5.4 A	2%	28 ± 2.5 V	1%	C
GPFM115-28	28 V	±5%	2.9 A	4.1 A	4.6 A	2%	34 ± 2.8 V	1%	C
GPFM115-48	48 V	±5%	1.7 A	2.4 A	2.7 A	2%	55 ± 4.0 V	1%	C

**Notes:**

- A. Maximum continuous current rating for unrestricted convection cooling.
- B. Maximum continuous current rating with 150 LFM air or cover option.
- C. Add "-C" suffix for cover with fan option.

## GPFM115 MECHANICAL SPECIFICATIONS

WEIGHT: 1.9 LBS [0.86 kg] MAX.

**JI INPUT: (AMP P.C.B. HEADER P/N 640445-5)**

- PIN 1) AC LINE
- PIN 2) = N/C
- PIN 3) = AC NEUTRAL
- PIN 4) = N/C
- PIN 5) = AC GROUND

**SIGNALS: J2**

- AMP P.C.B. HEADER P/N 640456-4
- MATING CONNECTOR P/N 640621-4
- PIN 1) POWER FAIL
- PIN 2) -SENSE
- PIN 3) +SENSE
- PIN 4) COMMON

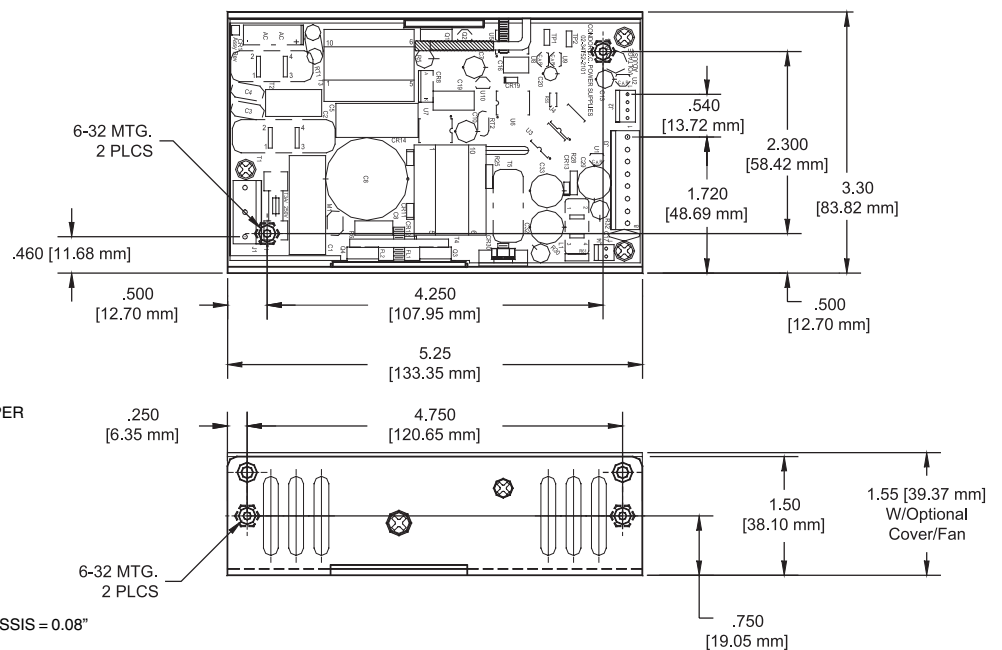
**FAN: J4**

- AMP P.C.B. HEADER P/N 640456-2
- MATING CONNECTOR P/N 640621-2
- PIN 1) -
- PIN 2) +

**OUTPUT**

- J3- 5A MAXIMUM CONTINUOUS CURRENT PER CONNECTOR PIN.
- AMP P.C.B. HEADER P/N 640445-8
- PIN 1-4) +Vout
- PINS 5-8) RETURN
- OUTPUT-MATING CONNECTOR AMP P/N HOUSING 640250-8
- CONTACT 770476-1
- INPUT MATING CONNECTOR AMP P/N HOUSING 640250-5
- CONTACT 770476-1
- MAX. SCREW PROTRUSION THROUGH CHASSIS = 0.08" [2 MM], CHASSIS THICKNESS = 0.080" [2 MM]

OPTIONAL COVER/FAN ASSEMBLY  
AVAILABLE P/N 09-115CF



Environmental Specification	Operating	Non-operating
Temperature (A)	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 g <sup>2</sup> /Hz	5 g <sub>rms</sub> , 0.026 g <sup>2</sup> /Hz

- A. Units should be allowed to warm up/operate under non-condensing conditions before application of power. Derate output current and total output power by 2.5% per °C above 50°C. For operation in a confined space, moving air may be required. Under all conditions, the cooling vs. load profile should be such that chassis temperatures do not exceed 90°C for extended periods.
- B. Shock testing—half-sinusoidal, 10 ± 3 ms duration, ± 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.