

# **GXM60 Medical Single Output** 60 Watt-Range Input High Efficiency Desk-Top Supply



# SPECIFICATIONS:

#### AC INPUT

90-264 Vac, 47-63 Hz single phase. Input power is less than 75 W when output power is less than 60 W, 230 Vac in. Meets EN61000-3-2 harmonics standard.

#### OUTPUT POWER

Total continuous output power is 60 W (55 for any unit less than 8 V), 65 W peak for 60 s 10% duty cycle. Total power specified from supply output, derate for cable losses.

#### OUTPUT REGULATION

Supply regulation is +/- 1%. However, actual regulation limits are affected by cable losses on units without remote sense. Final regulation limits must include cable losses. Contact factory for assistance.

#### INPUT CURRENT

Maximum input current at minimum input voltage and output overload will be less than 2.0 A.

#### HOLD-UP TIME

Output voltage stays within regulation for 20 ms from loss of ac input at full load, from 120 Vac input.

#### MINIMUM LOAD

No minimum load required.

## OVERLOAD PROTECTION

Fully protected against short circuit and output overload. Short circuit protection is cycling type power limit and will automatically recover after removal of fault.

#### OUTPUT NOISE

0.5% rms, 1% pk-pk, 20 MHz bandwidth, differential mode. Measured with a scope probe directly across the output connector. Load terminated with a 0.1  $\mu$ F capacitor in parallel with a low Z 10 mF capacitor.

### TRANSIENT RESPONSE

Response at supply is 1.5 ms typical for return to regulation for a 50% load step,  $\Delta i/\Delta t$ < 0.2 A/µs. Maximum voltage deviation is 3.5%. Cable resistance will effect maximum voltage deviation. **OVER VOLTAGE PROTECTION** 

# Prevents output from producing excessive voltage in the event

of a single fault failure. Voltage limited typically to 130% depending upon model. OVP firing reduces output to less than 50% of nominal voltage in less than 50 ms.

### OVERLOAD PROTECTION

Factory set to begin power limiting at approximately 75 W.

## FEATURES:

- Universal Input
- Small size, light weight
- Medically approved to UL2601-1, CSA 22.2 No. 601.1-M90, EN60601-1, and CB certified to IEC601-1.
- Ultra efficient Up to 90%
- Spill proof external enclosure
- 2 year warranty
- CE marked to LVD

#### EFFICIENCY

77 to 90% at full rated load depending upon model and ac line. Units are typically > 85 % @ 230 Vac. Efficiency is measured at the supply output, cabling losses are not considered and will vary with different cables. Contact factory for assistance.

## OVERSHOOT

Less than 3% overshoot at turn-on under nominal conditions. TURN-ON TIME

Less than 1.5 s at 115 Vac, 25 °C

## INPUT PROTECTION

Both lines protected with internal ac fuses, provided on all units. Designed to blow only if a catastrophic failure occurs in the unit — Fuse does not blow on short circuit or overload.

#### INRUSH CURRENT

Inrush is limited by internal thermistor. The inrush at 240 Vac, averaged over the first ac half-cycle under cold start conditions will not exceed 60 A.

## EMI / EMC COMPLIANCE

All models include built-in EMI filtering.

| EN55011, Class B; FCC Class B      |
|------------------------------------|
| EN61000-4-2, 6 kV contact 8 kV air |
| EN61000-4-3, 3V/meter              |
| EN61000-4-4, 2 kV, 5 kHz           |
| EN61000-4-5, 1 kV diff., 2 kV com. |
| EN61000-4-6, 3V                    |
| EN61000-4-11                       |
|                                    |

#### MEDICAL SAFETY AGENCY

All models are approved to UL2601, CSA 22.2 No. 601.1-M90, IEC 601-1 (1988), EN 60601-1

#### LEAKAGE CURRENT

80  $\mu A$  under normal conditions (132 Vac @ 60 Hz ). Maximum under single fault conditions (264 Vac @ 50 Hz) is 170  $\mu A_{\bullet}$ 

| Environmental<br>Specification | Operating                          | Non-operating                    |
|--------------------------------|------------------------------------|----------------------------------|
| Temperature (A)                | 0 to 40°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. Random vibration—10 to 2000 Hz, 6 dB/octave roll-off from 350 to 2000 Hz, 3

orthogonal axes. Tested for 10 min./axis operating and 1 hr./axis non-operating.
C. Shock testing—half-sinusoidal, 10 ± 3 ms duration, ± direction, 3 orthogonal axes, total 6 shocks.

# **GXM60 Medical Single Output**

| Medical<br>Model | Output<br>(V) | Current<br>(I) | Initial (1)<br>Set Point | Total<br>Regulation | Output<br>Harness | Remote<br>Sense | Ripple/<br>Noise |
|------------------|---------------|----------------|--------------------------|---------------------|-------------------|-----------------|------------------|
| GXM60-5A11       | 5 V           | 11 A           | 2%                       | 1%                  | Molex             | Yes             | 1.5%             |
| GXM60-12A01      | 12 V          | 5.0 A          | 2%                       | 1%                  | 2.1 mm            | No              | 1%               |
| GXM60-15A01      | 15 V          | 4.0 A          | 2%                       | 1%                  | 2.1 mm            | No              | 1%               |
| GXM60-24A01      | 24 V          | 2.5 A          | 2%                       | 1%                  | 2.1 mm            | No              | 1%               |
| GXM60-28A01      | 28 V          | 2.2 A          | 2%                       | 1%                  | 2.1 mm            | No              | 1%               |
| GXM60-36A01      | 36 V          | 1.7 A          | 2%                       | 1%                  | 2.1 mm            | No              | 1%               |

#### Typical Standard Model Configurations:

Notes: 1) Initial set point without load. Total regulation shown includes cable losses. When selecting cable options without remote sense, cable drop should be considered.

# MODEL NUMBER CONFIGURATION

# GXM60-XXXXX

Output Cable/Plug Option

A = Beige B = Black

Case Color:

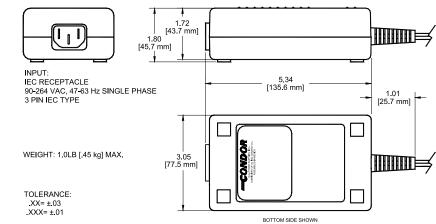
## Output Voltages:

Units are available standard with any output voltage from 5 to 35 Vdc in 1.0 increments. Also available in 0.1 increments data custom order.

| Option<br>No. | Output Cord/Plug                                    | Cable/Plug<br>Maximum Rating |
|---------------|---|------------------------------|
| 01            | Circular 5.6 mm O.D. , 2.1 mm I.D., 18 ga.          | 5 A, 80 V max.               |
| 02            | Circular 5.6 mm O.D., 2.5 mm I.D., 18 ga.           | 5 A, 80 V max.               |
| 03            | Circular 5.6 mm O.D., 2.1 mm I.D., RT angle, 18 ga. | 5 A, 80 V max.               |
| 04            | Circular 5.6 mm O.D., 2.5 mm I.D., RT angle, 18 ga. | 5 A, 80 V max.               |
| 05            | Circular 5.6 mm O.D., 2.1 mm I.D., 18 ga., shielded | 5 A, 80 V max.               |
| 06            | Circular 5.6 mm O.D., 2.5 mm, I.D.,18 ga., shielded | 5 A, 80 V max.               |
| 07            | Mini DIN 20 ga.                                     | 6 A, 36 V max.               |
| 08            | Mini DIN 20 ga. shielded                            | 6 A, 36 V max.               |
| 09            | 5 Pin 20 ga. DIN plug                               | 6 A, 36 V max.               |
| 10            | 5 Pin 20 Ga. DIN plug, shielded                     | 6 A, 36 V max.               |
| 11            | Molex Mini-Fit, 18 ga.                              | 11 A, 480 V max.             |
| 12            | Power DIN   | 11 A, 20 V max.              |
| 13            | Power DIN., shielded                                | 11 A, 20 V max.              |

| GXM60 CABLE OPTION  | SELEC          | TOR       |  |                  |
|---|----------------|-----------|--|------------------|
| DIAGRAM   | BARREL<br>I.D. | SHIELDING | PIN<br>ASSIGNMENT  | OPTION<br>NUMBER |
| *.39 (k.1) .38 (b.0) + 1.38 (b.  | .083<br>[2.1]  | NONE      | ⊖€⊕  | -01              |
|   | .098<br>[2.5]  | NONE      | ⇔∉⊕  | -02              |
| - 4.39 (9.1)<br>AASPEL LD.<br>A 22 (54)<br>VEW A-A.<br>A 10 (20.5)<br>A 10 (20.5  | .083<br>[2.1]  | NONE      | ⊖€⊕  | -03              |
|   | .098<br>[2.5]  | NONE      | ⊖∉⊕  | -04              |
| A.39 (k1) .38 (k3)  | .083<br>[2.1]  | SHEILDED  | ⊖∉⊕  | -05              |
|   | .098<br>[2.5]  | SHIELDED  | ⊖∉⊕  | -06              |
|   |                | NONE      | PIN 1, 5: +V1<br>PIN 2: -V2<br>PIN 3, 6: COM<br>PIN 4: +V3                                       | -07              |
|   |                | SHIELDED  |  | -08              |
| 78.5 [16.0] - 1.94 [49.4]   |                | NONE      | PIN 1, 2: COM<br>PIN 3: +V1<br>PIN 4: -V2<br>PIN 5: +V3  | -09              |
| 2 5 FN STD. DN = 5 STD. 201   |                | SHIELDED  | PIN 1, 2: COM<br>PIN 3: +V1<br>PIN 4: -V2<br>PIN 5: +V3<br>SHELL: SHIELD                         | -10              |
| 78 NCH ± 2 NCH<br>1 2003<br>2 2003<br>2 2003<br>2 2003<br>2 2003<br>2 2004<br>2 200 |                | NONE      | PIN 1:<br>+V1<br>+SENSE<br>PIN 2:<br>+V1<br>PIN 3:<br>V1 RETURN<br>PIN 4:<br>V1 RETURN<br>-SENSE | -11              |

# **MECHANICAL SPECIFICATIONS**



Condor D.C. Power Supplies, Inc., 2311 Statham Parkway, Oxnard, CA 93033 800-235-5929 • 805-486-4565 • FAX 805-487-8911 • www.condorpower.com