

GEM600

600W Single Output Economy/Technology Switchers

Commercial and Medical



2 Year Warranty

- 600W Single Output AC-DC Power Supply
- Universal Input 90-264 VAC
- Standard: Active PFC, OVP, Power Fail and Inhibit (low)
- Modified and Customized Designs also available
- Complies with EMI/RFI Standards
- Approved to EN/IEC/UL/CSA 60950-1 for ITE
- Approved to EN/IEC/UL60601-1 for Medical
- CE Compliant (LVD, RoHS)



International Safety Standard Approvals



Specifications

All Specifications are typical at nominal input, full load at 25°C unless otherwise stated.

AC Input 90-264VAC, 47-63 Hz single phase.	Turn On Time Less than 2 seconds under all rated load conditions.
Input Current 120VAC: 9A, 230VAC: 4.5A.	Hold-up Time ≥20 ms from loss of AC input at 600W load, 120VAC input.
Inrush Current Limited by internal thermistor. The inrush at 240VAC, averaged over the first AC half-cycle under cold start conditions will not exceed 40A.	Over/Undershoot 3.5% max. at turn-on, 1% max. at turn-off.
Input Fuse F1, F2: 12A, 250VAC fuses provided on all models.	Output Overload & Short Circuit Protection Foldback, then cycle-by-cycle current limiting, automatic recovery.
Power Factor 0.99 typical, 0.96 minimum.	Overvoltage Protection Latching type, recycle AC input to reset. See chart for trip levels.
Earth Leakage Current 120VAC: 75µA max. NC, 120µA max. SFC. 264VAC: 160µA max. NC, 300µA max. SFC.	Ripple and Noise 1% pk-pk max., 20MHz BW, differential mode. Measured with noise probe directly across output terminals.
Output Power 600W continuous.	ITE Safety Standards CSA/EN/IEC/UL 60950-1
Peak Output Power 650W for 1 minute, 10% duty cycle.	Medical Safety Standards EN/IEC/UL 60601-1
Output Voltage See chart.	Efficiency >80% typical at full rated load
Voltage Adjustability Adjustable potentiometer, capable of ±5% change from nominal.	Switching Frequency 140KHz main inverter and 70kHz PFC (synchronized).
Minimum Load Not required.	MTBF 208K hours per Telcordia.
Total Regulation See chart.	Overtemperature Protection Automatic.
Transient Response 500µs max., 50% load step, $\Delta i/\Delta t < 0.2A/\mu s$.	Weight 3.75 lbs. (1.70kg)
Enclosure Dimensions See outline drawing	Signals AC Power Fail: TTL "0" 10ms before the output drops to <97% of nom. Inhibit: Short inhibit pin to output common to Inhibit.

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Model Number	Volts (V)	Output Current		Ripple & Noise	Total Regulation	OVP Threshold
		Nominal	Peak			
GEM600-24G	24V	25.0A	27.0A	240mV	±1.0%	30.0 ± 2V
GEM600-28G	28V	21.5A	23.5A	280mV	±1.0%	33.0 ± 3V
GEM600-36G	36V	16.7A	18.0A	360mV	±1.0%	43.0 ± 3V
GEM600-48G	48V	12.5A	13.5A	480mV	±1.0%	56.0 ± 4V

Environmental Specifications

Operating Temperature -20° to 70°C. Derate output power for operation above 50°C. Fan integral to the power supply.	Temperature Coefficient 0.03% per °C typical on all units.
Storage Temperature -40 to +85°C	Output Power Derating Derate Output Power by 2.5% per °C up to 70°C maximum.
Relative Humidity 5% to 95%, non-condensing	Thermal Shutdown Provided to avoid prolonged over-temperature condition.
Vibration Operating: 0.003 g ² /Hz, 1.5 g _{rms} overall, 3 axes, 10 min. / axis Non-Operating: 0.026 g ² /Hz, 5.0 g _{rms} overall, 3 axes, 1 hr. / axis	Operating Altitude -500 to 10,000 ft.
Shock Operating: Half-sine, 20 g _{pk} , 10 ms, 3 axes, 6 shocks total Non-Operating: Half-sine, 40 g _{pk} , 10 ms, 3 axes, 6 shocks total	Non-operating Altitude -500 to 40,000 ft.

EMI/EMC Compliance

RF Emissions	EN55011/22 and FCC Part 15, radiated Class A, conducted Class B.
Static Discharge Immunity	EN61000-4-2, 6kV Contact Discharge, 8kV air discharge
Radiated RF Immunity	EN61000-4-3, 3V/m.
EFT/Burst Immunity	EN61000-4-4, 2kV/5kHz..
Line Surge Immunity	EN61000-4-5, 1kV differential, 2kV common-mode
Conducted RF Immunity	EN61000-4-6, 3V
Power Frequency Magnetic Field Immunity	EN61000-4-8, 3A/m
Voltage Dip Immunity	EN61000-4-11, see EN60601-1-2: 2001 chart below.
Line Frequency Harmonics	EN61000-3-2, Class A
Voltage Fluctuations/Flicker	EN61000-3-3, Complies (clause 5b)

EN60601-1-2: 2001 Voltage Sag Compliance

Voltage Test Level Input Voltage	Voltage Dip Input Voltage	Duration Periods	Output Voltage Deviation
100VAC	<5 VAC	10mS	<3.5%
100VAC	40 VAC	100mS	<3.5%
100VAC	70 VAC	500mS	<3.5%
240VAC	<12 VAC	10mS	<3.5%
240VAC	96 VAC	100mS	<3.5%
240VAC	168 VAC	500mS	<3.5%

Note:

During 100mS voltage dip (5 cycles at 40%VAC), the AC Power Fail warning may trigger. During low line 100mS voltage dip, reduced loading to 50% rated load is required to meet the deviation requirement and regulation.

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Connector Information

INPUT CONNECTOR (TB1):

Option:	Pin 1	Pin 2	Pin 3	Manufacturer's P/N:
A	AC Line	Neutral	Ground	EBY P/N 6002-03-N-01
T	Ground	Neutral	AC Line	Phoenix Contact P/N 1706785

MATING CONNECTORS:

Option:	Mate For:	Manufacturer's P/N:
C	TB2, TB3	Phoenix Contact P/N 1913523
All	J4	AMP P/N 1375820-4

All other options' connector is a terminal block or has a direct wire connection.

DC OUTPUT CONNECTORS (TB2, TB3):

Option:	TB2 All Pins	TB3 All Pins	Manufacturer's P/N:
A	+Vout	-Vout	EBY P/N 6002-03-N-01
B	+Vout	-Vout	Bussbar #10-32UNC x 0.375 Screw
C	+Vout	-Vout	Phoenix Contact P/N 1998959
D	+Vout	-Vout	Phoenix Contact P/N 1731721

SIGNAL CONNECTOR (J4) (all options):

Pin 1	Pin 2	Pin 3	Pin 4	Manufacturer's P/N:
Pwr Good	Pwr Fail	N/C	Inhibit	AMP P/N 640456-4

"A" Option Input Connector:



"T" Option Input Connector:



"A" Option Output Connectors:



"C" Option Output Connector:

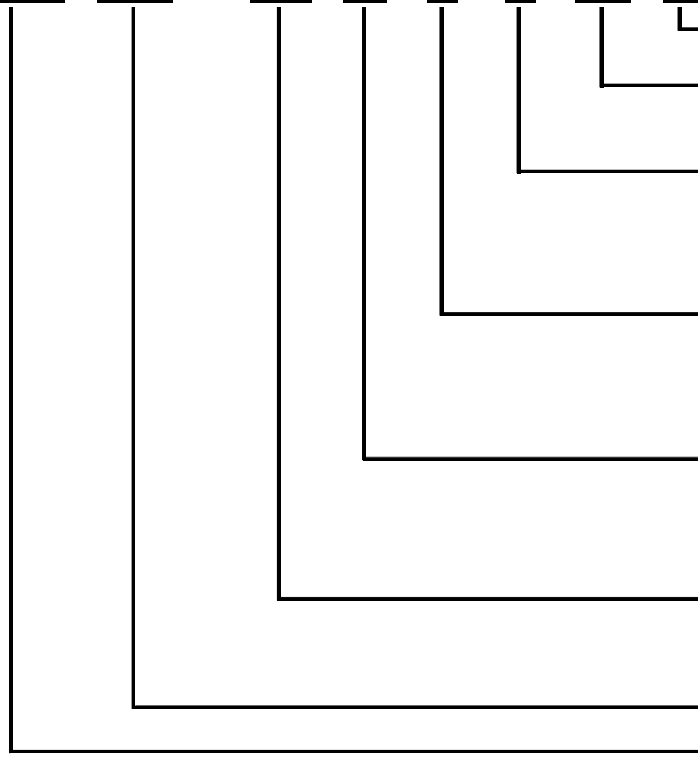


"D" Option Output Connector:



Model Number Configuration

GEM 600 - VV W X Y ZZ G



ROHS COMPLIANT

VALUE-ADDED CONFIGURATIONS:
Blank = Standard Model

OPTIONAL DIODE:
Blank = None
D = N+1 OR'ing Diode

OUTPUT CONNECTOR:
A = EBY P/N 6002-03-N-01
B = Buss Bars 10-32 UNC x 0.375 SCREWS
C = Phoenix Contact P/N 1998959
D = Phoenix Contact P/N 1731721

INPUT CONNECTOR:
A = EBY P/N 5000-03-N-12
T = Phoenix Contact P/N: 1706785

OUTPUT VOLTAGE:
24 = 24Vdc @ 31.2A
28 = 28Vdc @ 26.8A
36 = 36Vdc @ 20.8A
48 = 48Vdc @ 17.0A

OUTPUT POWER

MODEL SERIES

GEM600

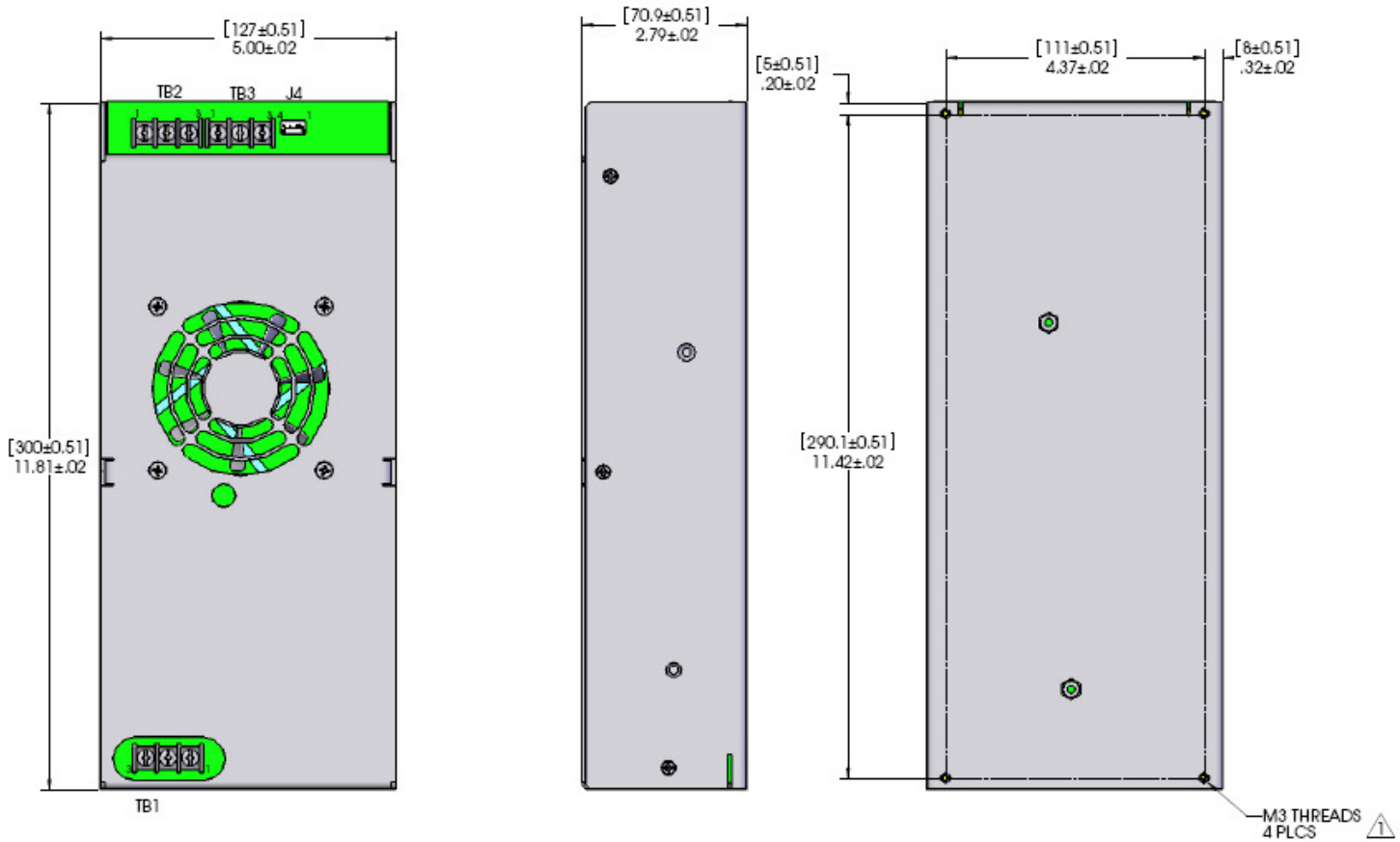
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Mechanical Specifications



NOTES: Unless otherwise specified.

1 MAX MOUNTING SCREW DEPTH .25" [6.4] FROM OUTSIDE OF CHASSIS.