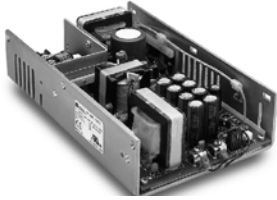


# 225 WATTS

## CE-225 SERIES AC-DC

### FEATURES:

- RoHS Compliant
- Universal 85-264 VAC Input
- Compact 4.75 x 8" x 2.0" Size
- 2 Year Warranty
- One to Four Tightly Regulated Outputs
- EN 60950-1 ITE Certification
- EN 60601-1 Medical Certification
- Class B Emissions per EN 55011/22
- Harmonic Current per EN 61000-3-2
- EMC to EN 61000-6-2 & EN 60601-1-2
- Optional Perforated Cover








OPEN CHASSIS



CHASSIS/COVER

### SAFETY SPECIFICATIONS

General	Protection Class: I	
	Overvoltage Category: II	
	Pollution Degree: 2	
	Underwriters Laboratories File E137708/E140259	UL 60950-1 2 <sup>nd</sup> Edition, 2007 UL 60601-1 1 <sup>st</sup> Edition, 2006 AAMI/ANSI ES 60601-1, 2005
		CB Reports/Certificates (including all National and Group Deviations) IEC 60950-1/A1:2009, Second Edition IEC 60601-1:1988 +A1: +A2:1995 IEC 60601-1:2005 Third Edition
	UL Recognition Mark for Canada File E137708/E140259	CAN/CSA-C22.2 No. 60950-1-07, 2 <sup>nd</sup> Edition CAN/CSA-C22.2 No. 601-1-M90, 2005 CAN/CSA-C22.2 No. 60601-1:2008
	TUV	EN 60950-1/A12:2011 EN 60601-1/A2:1995 EN 60601-1:2006
	Low Voltage Directive RoHS Directive (Recast)	(2006/95/EC of December 2006) (2011/65/EU of June 2011)

### MODEL LISTING

MODEL NO.	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
CE-225-4001	+3.3V/25A(1)	+5V/8A(1)	+12V/2A	-12V/2A
CE-225-4002	+5V/25A(1)	+3.3V/8A(1)	+12V/2A	-12V/2A
CE-225-4003	+5V/25A(1)	+3.3V/8A(1)	+15V/2A	-15V/2A
CE-225-4004	+5V/25A(1)	-5.2V/8A(1)	+12V/2A	-12V/2A
CE-225-4005	+5V/25A(1)	-5.2V/8A(1)	+15V/2A	-15V/2A
CE-225-4006	+5V/25A(1)	+12V/8A(1)	+12V/2A	-12V/2A
CE-225-4007	+5V/25A(1)	+12V/8A(1)	+15V/2A	-15V/2A
CE-225-4008	+5V/25A(1)	+12V/8A(1)	+9V/2A	-9V/2A
CE-225-4101	+5V/25A(1)	+24V/8A(1)	+12V/2A	-12V/2A
CE-225-4102	+5V/25A(1)	+24V/8A(1)	+15V/2A	-15V/2A
CE-225-4104	+24V/6A(1)	+24V/3A(1)	+12V/2A	5V/2A
CE-225-3001	+5V/25A(1)	+12V/8A(1)		-12V/2A
CE-225-3002	+5V/25A(1)	+15V/8A(1)		-15V/2A
CE-225-2001	+12V/10A(1)	-12V/8A(1)		
CE-225-2002	+15V/10A(1)	-15V/8A(1)		
CE-225-2003	+5V/25A(1)	+12V/8A(1)		
CE-225-2004	+5.2V/30A(1)	-9V/6A		
CE-225-2005	+3.3V/25A(1)	+12V/8A(1)		
CE-225-2101	+5V/25A(1)	+24V/8A(1)		
CE-225-1001	3.3V/45A(3)			
CE-225-1002	5V/45A(3)			
CE-225-1003	12V/18.8A(1)			
CE-225-1004	15V/15A(1)			
CE-225-1005	24V/9.4A(1)			
CE-225-1006	28V/8A(1)			
CE-225-1007	48V/4.7A(1)			
CE-225-1008	48V/4.7A(1)			
CE-225-1009	39V/5.8A(1)			

### OUTPUT SPECIFICATIONS

Total Output Power	150W 225W	Convection Cooled 300 LFM Forced Air
Output Voltage Centering	Output 1: ± 0.25% (All outputs at 50% load) Output 2: ± 0.25% (X0XX), ± 5.0% (X1XX) Output 3: ± 2.0% Output 4: ± 2.0%	
Output Voltage Adjust Range	Outputs 1-2: 95 - 105% (X0XX) Output 1: 95 - 105% (X1XX) Output 1: 85 - 105% (1001, 4001) Output 2: 85 - 105% (4002, 4003)	
Load Regulation	Output 1: 0.5% (10-100% load change) Output 2: (X0XX) 0.5% (0-100% load change) (X1XX) 5.0% (10-100% load change) Output 3: 2.0% (0-100% load change) Output 4: 2.0% (0-100% load change)	
Source Regulation	Outputs 1 - 4: 0.5%	
Cross Regulation	Outputs 2: 0.2% (X0XX), 0.5% (X1XX) Output 3: 2.0% Output 4: 2.0%	
Output Noise	Outputs 1 - 4: 1.0%	
Turn on Overshoot	None	
Transient Response	Outputs 1 - 4	
Voltage Deviation	5.0%	
Recovery Time	500µS	
Load Change	50% to 100%	
Output Overvoltage Protection (Optional)	Output 1: 110% to 150% Shuts down all outputs Cycle input to restart	
Output Overpower Protection	250 W Min., Output 1 Outputs, cycle on/off, auto recovery	
Output Overcurrent Protection	110% Min., Outputs 2,3 & 4	
Hold Up Time	20 mS min., 225W Output, 120V Input	
Start Up Time	3 Seconds	

### INPUT SPECIFICATIONS

Source Voltage	85 - 264 Volts AC
Frequency Range	47 - 63 Hz
Source Current	
True RMS	4.25A at 85V Input
Peak Inrush	30A
Peak Repetitive	6.0A at 85V Input
Harmonic Distortion	0.05
Efficiency	.68-.80 (varies by model)
Power Factor	0.92 (225 Watts, 230V)

### ENVIRONMENTAL SPECIFICATIONS

Ambient Operating	0° C to + 70° C
Temperature Range	Derating: See Power Rating Chart
Ambient Storage Temp. Range	- 40° C to + 85° C
Temperature Coefficient	Outputs 1 - 4: 0.02%/°C

### GENERAL SPECIFICATIONS

Means of Protection	
Primary to Secondary	2MOPP (Means of Patient Protection)
Primary to Ground	1MOPP (Means of Patient Protection)
Secondary to Ground	Operational Insulation (Consult factory for 1MOOP or 1MOPP)
Dielectric Strength(14)	
Reinforced Insulation	5656 VDC, Primary to Secondary, 1 Sec.
Basic Isulation	2545 VDC, Primary to Ground, 1 Sec.
Operational Insulation	707 VDC, Secondary to Ground, 1 Sec.
Leakage Current	
Earth Leakage	<300uA NC, <1000uA SFC
Touch Current	<100uA NC, <500uA SFC
Power Fail Signal (optional)	Logic low with input power failure 10 mS minimum prior to Output 1 drooping 1%
Remote On/Off (optional)	Contact closure shuts off all outputs
Remote Sense	250mV compensation of output cable losses
Mean-Time Between Failures	100,000 Hours min., MIL-HDBK-217F, 25° C, GB
Weight	3.00 Lbs.

### NOTES

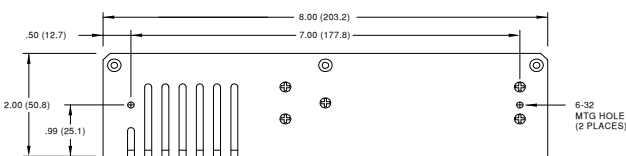
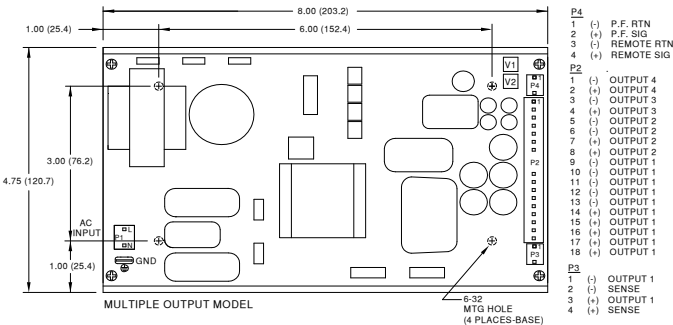
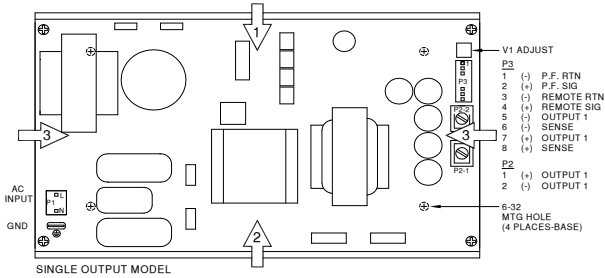
Consult factory for alternate output configurations.  
Consult factory for positive, negative or floating outputs.  
Refer to Applications Information for complete output power ratings.  
All specifications are maximum at 25° C, 225W unless otherwise stated, may vary by model and are subject to change without notice.  
Specify optional perforated cover, power fail, overvoltage protection or remote on/off when ordering.

## ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

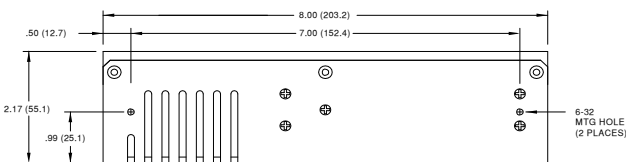
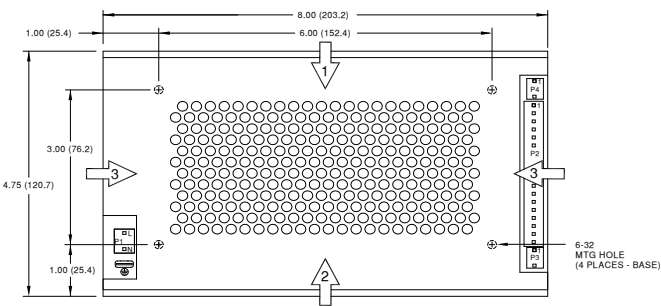
Electrostatic Discharge	EN 61000-4-2	±8kV Contact Discharge ±8kV Air Discharge
Radiated Electromagnetic Field	EN 61000-4-3	80MHz-2.5GHz, 10V/m, 80% AM
EFT/Bursts	EN 61000-4-4	±2 kV
Surges	EN 61000-4-5	±1 kV Differential Mode ±2 kV Common Mode
Conducted Immunity	EN 61000-4-6	.15 to 80MHz, 3VM, 80% AM
Voltage Dips and Interruptions	EN 61000-4-11	30% Reduction, 500mS 95% Reduction, 10mS 60% Reduction, 1s (Criteria B) 95% Reduction, 5000ms
Radiated Emissions	EN 55022/11	Class B
Conducted Emissions	EN 55022/11	Class B
Harmonic Current Emissions	EN 61000-3-2	

## CE-225 SERIES MECHANICAL SPECIFICATIONS

STANDARD CHASSIS



OPTIONAL COVER

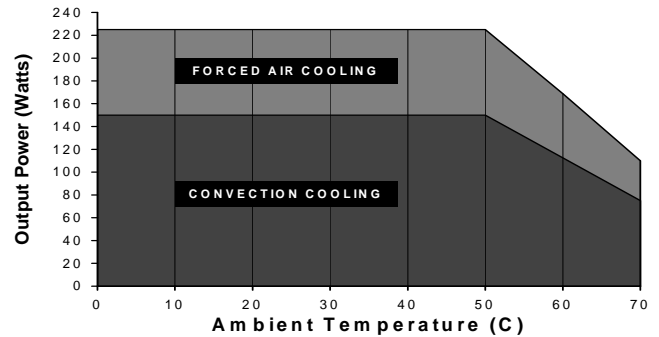


ALL DIMENSIONS IN INCHES (MM)

## APPLICATIONS INFORMATION

- Derated 20% when convection cooled.
- Each output can deliver its rated current but total output power must not exceed 150 or 225 watts as determined by the cooling method.
- Rated 30A maximum when convection cooled only.
- Free air convection cooling, 150 watts maximum output power.
- Forced air cooling rating of 225 watts requires an air speed of 300 linear feet per minute flowing past a point one inch above the main isolation transformer.
- Semiconductor case temperatures must not exceed 110°C.
- Sufficient area must be provided around convection cooled power supplies to allow natural movement of air to develop.
- 300 linear feet per minute of airflow must be maintained one inch above any point of the heatsink in the direction shown when forced air cooling is required.
- This product is intended for use as a professionally installed component within information technology and medical equipment.
- A minimum load of 10% is required on output one to ensure proper regulation of remaining outputs.
- Remote sense terminals may be used to compensate for cable losses up to 250mV. The use of a twisted pair is recommended as well as a decoupling capacitor (0.1 - 10µF) and a capacitor of 100µF/amp connected across the load side.
- Peak to peak output ripple and noise is measured directly at the output terminals of the power supply, without the use of the probe ground lead or retractable tip, 20 MHz bandwidth.
- This product includes only one fuse in the input circuit. In consideration of Clause 8.11.5 of IEC 60601-1:2005, a second fuse may be required in the end product.
- This product was type tested and safety certified using the dielectric strength test voltages listed in Table 6 of IEC 60601-1:2005. In consideration of Clause 8.8.3, care must be taken to insure that the voltage applied to a reinforced insulation does not overstress different types and levels of insulation. Primary and secondary to ground capacitors may need to be disconnected prior to performing a dielectric strength test on the power supply or the end product. It is highly recommended that the DC test voltages listed in DVB.1, Annex DVB of UL 60601-1 1<sup>st</sup> Edition are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
- This power supply has been safety approved and final tested using a DC dielectric strength test. Please consult factory before performing an AC dielectric strength test.
- Maximum screw penetration into chassis mounting holes is .250 inches.

## MAXIMUM OUTPUT POWER VS. AMBIENT TEMPERATURE



## CONNECTOR SPECIFICATIONS

AC Input	.156 friction lock header mates with Molex 09-50-3031 or equivalent crimp terminal housing with Molex 08-50-0189 or equivalent crimp terminal.
P2 DC Output (Single)	6-32 screw down terminal mates with #6 ring tongue terminal.
P2 DC Output (Multiple)	.156 friction lock header mates with Molex 09-50-3181 or equivalent crimp terminal housing with Molex 08-50-0189 or equivalent crimp terminal.
G Ground	.187 quick disconnect terminal.
P3 Option/Sense (Single)	.100 friction lock header mates with Molex 22-01-2087 or equivalent crimp terminal housing with Molex 6459 or equivalent crimp terminal.
P3/P4 Option/Sense (Multiple)	.100 friction lock header mates with Molex 22-01-2047 or equivalent crimp terminal housing with Molex 6459 or equivalent crimp terminal.

## RECOMMENDED AIR FLOW DIRECTION

- 1 – Optimum    2 – Good    3 – Fair