

225 WATTS

SINGLE/MULTI OUTPUT AC-DC

FEATURES:

- Compact 4.75 x 8.0" x 2.0" Size
- 2 Year Warranty
- Universal 85-264V Input
- 1-4 Tightly-Regulated Outputs
- High Efficiency
- 0-70°C Operating Temperature
- RoHS Compliant

- IEC 60601-1 3rd ed. Medical Cert.
- IEC 62368-1 2nd ed. Certification
- IEC 60601-1-2 4th ed. EMC
- Class B Emissions per EN55011/32
- Optional Remote Inhibit/Enable
- Optional Power Fail Warning
- Optional Perforated Cover



CHASSIS/COVER



OPEN CHASSIS

SAFETY SPECIFICATIONS



Underwriters Laboratories
File E137708/E140259

UL 62368-1:2014, 2nd Edition
CAN/CSA-C22.2 No. 62368-1-14, 2nd Edition
AAMI/ANSI ES60601-1:2005/(R) 2012/(R)2021
CAN/CSA-C22.2 No. 60601-1:2014:2022



CB Reports/Certificates (including all
National and Group Deviations)

IEC 62368-1:2014, 2nd Edition
IEC 60601-1:2005/A1:2012



TUV SUD America

EN 62368-1:2014, 2nd Edition
EN 60601-1:2006/A1:2013



Low Voltage Directive (2014/35/EU of February 2014)
RoHS Directive (Recast) (2015/863/EU of March 2015)



Electrical Equipment (Safety) Regulations 2016 SI No. 1101
Restriction of the Use of Certain Hazardous Substances in EEE Regulations
2012 SI No. 3032 + 2019 SI No.492

MODEL LISTING

| MODEL NO. | OUTPUT 1 | OUTPUT 2 | OUTPUT 3 | OUTPUT 4 |
|-------------|---------------------------|--------------------------|----------|----------|
| CE-225-4001 | +3.3V/25A ₍₁₆₎ | +5V/8A ₍₁₆₎ | +12V/2A | -12V/2A |
| CE-225-4002 | +5V/25A ₍₁₆₎ | +3.3V/8A ₍₁₆₎ | +12V/2A | -12V/2A |
| CE-225-4003 | +5V/25A ₍₁₆₎ | +3.3V/8A ₍₁₆₎ | +15V/2A | -15V/2A |
| CE-225-4004 | +5V/25A ₍₁₆₎ | -5.2V/8A ₍₁₆₎ | +12V/2A | -12V/2A |
| CE-225-4005 | +5V/25A ₍₁₆₎ | -5.2V/8A ₍₁₆₎ | +15V/2A | -15V/2A |
| CE-225-4006 | +5V/25A ₍₁₆₎ | +12V/8A ₍₁₆₎ | +12V/2A | -12V/2A |
| CE-225-4007 | +5V/25A ₍₁₆₎ | +12V/8A ₍₁₆₎ | +15V/2A | -15V/2A |
| CE-225-4008 | +5V/25A ₍₁₆₎ | +12V/8A ₍₁₆₎ | +9V/2A | -9V/2A |
| CE-225-4101 | +5V/25A ₍₁₆₎ | +24V/8A ₍₁₆₎ | +12V/2A | -12V/2A |
| CE-225-4102 | +5V/25A ₍₁₆₎ | +24V/8A ₍₁₆₎ | +15V/2A | -15V/2A |
| CE-225-4104 | +24V/6A ₍₁₆₎ | +24V/3A ₍₁₆₎ | +12V/2A | 5V/2A |
| CE-225-3001 | +5V/25A ₍₁₆₎ | +12V/8A ₍₁₆₎ | | -12V/2A |
| CE-225-3002 | +5V/25A ₍₁₆₎ | +15V/8A ₍₁₆₎ | | -15V/2A |
| CE-225-2001 | +12V/10A ₍₁₆₎ | -12V/8A ₍₁₆₎ | | |
| CE-225-2002 | +15V/10A ₍₁₆₎ | -15V/8A ₍₁₆₎ | | |
| CE-225-2003 | +5V/25A ₍₁₆₎ | +12V/8A ₍₁₆₎ | | |
| CE-225-2004 | +5.2V/30A ₍₁₆₎ | -9V/6A | | |
| CE-225-2005 | +3.3V/25A ₍₁₆₎ | +12V/8A ₍₁₆₎ | | |
| CE-225-2101 | +5V/25A ₍₁₆₎ | +24V/8A ₍₁₆₎ | | |
| CE-225-1001 | 3.3V/45A ₍₁₇₎ | | | |
| CE-225-1002 | 5V/45A ₍₁₇₎ | | | |
| CE-225-1003 | 12V/18.8A | | | |
| CE-225-1004 | 15V/15A | | | |
| CE-225-1005 | 24V/9.4A | | | |
| CE-225-1006 | 28V/8A | | | |
| CE-225-1007 | 48V/4.7A | | | |
| CE-225-1008 | 48V/4.7A | | | |
| CE-225-1009 | 39V/5.8A | | | |

ORDERING INFORMATION

Consult factory for alternate output configurations, positive, negative or floating outputs.

Please specify the following optional features when ordering:

CO – Cover

PF – Power Fail

TS – Terminal Strip

WT – Low Temperature Turn On

OVP – Overvoltage Protection

I/O – Isolated Outputs

RE – Remote Inhibit

CE-225

OUTPUT SPECIFICATIONS

| | | |
|---|--|---|
| Total Output Power ₍₁₎ (See Derating Chart) | 150W 225W | Convection Cooled ₍₁₈₎ 300LFM Forced-Air Cooled ₍₁₅₎ |
| Output Voltage Centering | Output 1: Output 2: Output 3: Output 4: | ± 0.25% (All outputs at 50% load) ± 0.25% (X0XX), ± 5.0% (X1XX) ± 2.0% ± 2.0% |
| Output Voltage Adjust Range | Outputs 1-2: Output 1: Output 1: Output 2: | 95 - 105% (X0XX) 95 - 105% (X1XX) 85 - 105% (1001, 4001) 85 - 105% (4002, 4003) |
| Load Regulation | Output 1: Output 2: (X0XX) (X1XX) Output 3: Output 4: | 0.5% (10-100% load change) 0.5% (0-100% load change) 5.0% (10-100% load change) 2.0% (0-100% load change) 2.0% (0-100% load change) |
| Source Regulation | Outputs 1 – 4: | 0.5% |
| Cross Regulation | Outputs 2: Output 3: Output 4: | 0.2% (X0XX), 0.5% (X1XX) 2.0% 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: Shuts down all outputs Cycle input to restart | 110% to 150% |
| Output Overpower Protection | 250 W Min., Output 1 and 2 Outputs, cycle on/off, auto recovery | |
| Output Overcurrent Protection | | 110% Min., Outputs 3 & 4 |
| Hold Up Time | | 20ms min., 225W Output, 120V Input |
| Start Up Time | | 3 Seconds |

INPUT SPECIFICATIONS

| | |
|---------------------|-----------------------------|
| Protection Class | I |
| 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 | 0.68-0.80 (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 |
| Altitude | 3,000m ASL – Operating 12,192m ASL – Non-Operating |

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 1MOPP) |
| Dielectric Strength _(8, 9) | |
| Reinforced Insulation | 5656 VDC, Primary to Secondary |
| Basic Insulation | 2121 VDC, Primary to Ground |
| Operational Insulation | 707 VDC, Secondary to Ground |
| Leakage Current | |
| Earth Leakage | <300µA NC, <1000µA SFC |
| Touch Current | <100µA NC, <500µA SFC |
| Power Fail Signal (optional) ₍₁₄₎ | Logic low with input power failure 10ms minimum prior to Output 1 dropping 1% |
| Remote Inhibit (optional) | Contact closure inhibits all outputs |
| Remote Sense ₍₁₀₎ | 250mV compensation of output cable losses |
| Mean-Time Between Failures | 100,000 Hours min., MIL-HDBK-217F, 25° C, GB |
| Weight | 3.00 Lbs. |

All specifications are maximum at 25°C/225W unless otherwise stated, may vary by model and are subject to change without notice.

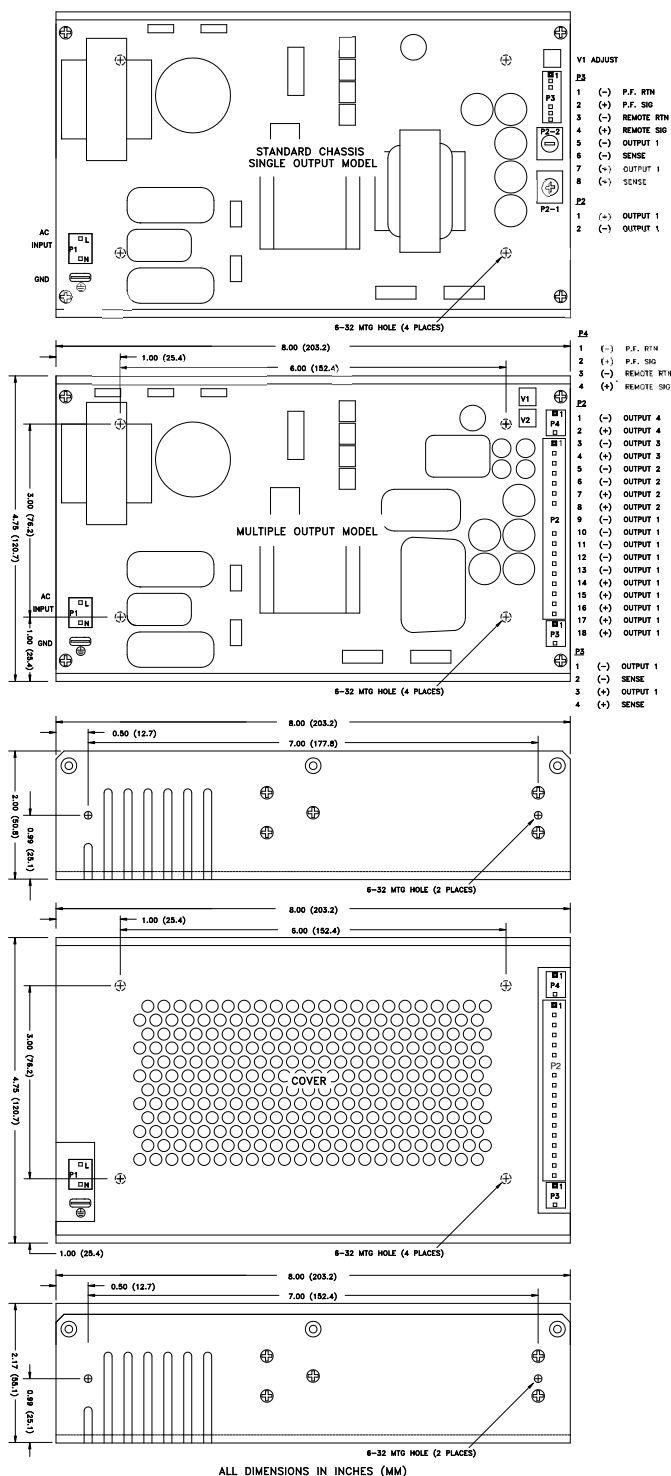


INTEGRATED
POWER DESIGNS

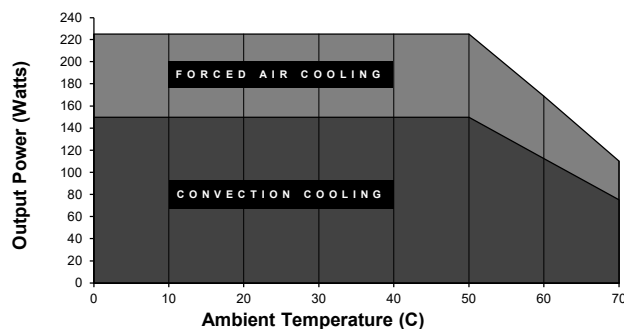
300 Stewart Road ■ Wilkes-Barre, PA 18706 ■ Phone: (570) 824-4666 ■ Fax: (570) 824-4843 ■ Email: sales@ipdpower.com ■ Web: www.ipdpower.com

EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4TH ed./IEC 61000-6-2:2005)

| | | | |
|-----------------------------------|---------------|--|--------------|
| Electrostatic Discharge | EN 61000-4-2 | ±8KV contact / ±15KV air discharge | A |
| Radiated Electromagnetic Field | EN 61000-4-3 | 80MHz-2.7GHz, 10V/m, 80% AM | A |
| Electrical Fast Transients/Bursts | EN 61000-4-4 | ±2 KV, 5KHz/100KHz | A |
| Surge Immunity | EN 61000-4-5 | ±2 KV line to earth / ±1 KV line to line | A |
| Conducted Immunity | EN 61000-4-6 | 0.15 to 80MHz, 10V, 80% AM | A |
| Magnetic Field Immunity | EN 61000-4-8 | 30A/m, 60 Hz. | A |
| Voltage Dips | EN 61000-4-11 | 0% U _T , 0.5 cycles, 0-315° 100/240V A/A 0% U _T , 1 cycles, 0° 100/240V A/A 40% U _T , 10/12 cycles, 0° 100/240V B/A 70% U _T , 25/30 cycles, 0° 100/240V B/A | A |
| Voltage Interruptions | EN 61000-4-11 | 0% U _T , 300 cycles, 0° | 100/240V B/B |
| Radiated Emissions | EN 55011/32 | Class B | |
| Conducted Emissions | EN 55011/32 | Class B | |
| Harmonic Current Emissions | EN 61000-3-2 | Class A | |
| Voltage Fluctuations/Flicker | EN 61000-3-3 | Compliant | |

CE-225 SERIES MECHANICAL SPECIFICATIONS**APPLICATIONS INFORMATION**

- Each output can deliver its rated current but Total Output Power must not exceed 150 or 225W, as determined by the cooling method.
- Generally, adequate cooling is provided when semiconductor case temperatures do not exceed 70°C rise and transformer temperature does not exceed 60°C rise at any specified ambient temperature.
- Sufficient area must be provided around power supply to allow natural movement of air to develop in convection-cooled applications.
- This product is intended for use as a professionally-installed component within information technology, industrial, and medical equipment and is not intended for stand-alone operation.
- A minimum load of 10% is required on Output 1 to ensure proper regulation of remaining outputs.
- 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 neutral conductor of the end product.
- 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 (tip-and-barrel method), 20 MHz bandwidth.
- 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 1st 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.
- Remote-Sense terminals may be used to compensate for cable losses up to 250mV. The use of a twisted pair, decoupling capacitors and an appropriately-rated low-impedance capacitor connected across the load will increase noise immunity.
- Maximum screw penetration into chassis mounting holes is 0.250 inches.
- To comply with emissions specifications, all four mounting hole pads must be electrically connected to a common metal chassis. Chassis/Cover option is recommended. Refer to Operating Instructions for additional information.
- Common RF shielding precautions may need to be taken to assure emissions compliance. Refer to Operating Instructions for additional information.
- Power Fail (AC-Good) feature provides a logic-low warning signal from an open collector transistor output 10ms prior to loss of output from AC failure, 5V/10mA.
- Forced-Air cooling rating of 225W requires an air speed of 300LFM flowing past a point one inch above the main isolation transformer.
- Derated 20% when convection cooled.
- Rated 30A maximum when convection cooled only.
- Free-Air convection cooling, 150W maximum output power.

MAXIMUM OUTPUT POWER vs. AMBIENT TEMPERATURE**CONNECTOR SPECIFICATIONS**

| | |
|-------------------------------|---|
| AC Input | 0.156 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) | 0.156 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 | 0.187 quick disconnect terminal. |
| P3 Option/Sense (Single) | 0.100 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) | 0.100 friction lock header mates with Molex 22-01-2047 or equivalent crimp terminal housing with Molex 6459 or equivalent crimp terminal. |