

150 WATTS

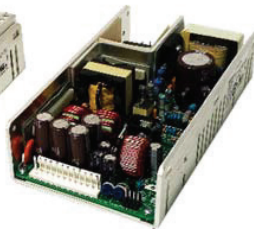
SINGLE/MULTI OUTPUT AC-DC

FEATURES:

- Compact 4.0" x 7.0" x 1.75" 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 60950-1 2nd ed. ITE 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 60950-1:2007, 2 nd Edition AAMI/ANSI ES60601-1:2005/(R) 2012 |
| | TECEE CB SCHEME | CB Reports/Certificates (including all National and Group Deviations) IEC 60950-1/A2:2013, 2 nd Edition IEC 60601-1:2005/A1:2012 |
| | UL Recognition Mark for Canada File E137708/E140259 | CAN/CSA-C22.2 No. 60950-1-07, 2 nd Edition CAN/CSA-C22.2 No. 60601-1:2014 |
| | TUV | EN 60950-1/A2:2013, 2 nd Edition EN 60601-1:2006/A1:2013 |
| | Low Voltage Directive RoHS Directive (Recast) | (2014/35/EU of February 2014) (2011/65/EU of June 2011) |

MODEL LISTING

| MODEL NO. | OUTPUT 1 | OUTPUT 2 | OUTPUT 3 | OUTPUT 4 |
|---------------|--------------------------|---------------|-----------|----------|
| CE-150-4001 | +3.3V/15A | +5V/5A | +12V/2A | -12V/2A |
| CE-150-4002 | +5V/15A | +3.3V/5A | +12V/2A | -12V/2A |
| CE-150-4003 | +5V/15A | +3.3V/5A | +15V/2A | -15V/2A |
| CE-150-4004 | +5V/15A | -5.2V/5A | +12V/2A | -12V/2A |
| CE-150-4005 | +5V/15A | -5.2V/5A | +15V/2A | -15V/2A |
| CE-150-4006 | +5V/15A | +12V/5A | +12V/2A | -12V/2A |
| CE-150-4007 | +5V/15A | +12V/5A | +15V/2A | -15V/2A |
| CE-150-4008 | +15V/5A | -15V/5A | 24V/1A | 24V/1A |
| CE-150-4009 | +5V/15A | +12V/5A | +15V/2A | -12V/2A |
| CE-150-4011 | +5V/15A | +12V/5A | -5V/1A | -12V/1A |
| CE-150-4101 | +5V/15A | +24V/5A | +12V/2A | -12V/2A |
| CE-150-4102 | +5V/15A | +24V/5A | +15V/2A | -15V/2A |
| CE-150-4103IT | +5V/15A | +24V/5A(6Apk) | +12V/2A | -12V/2A |
| CE-150-3001 | +5V/15A | +12V/5A | | -12V/2A |
| CE-150-3002 | +5V/15A | +15V/5A | | -15V/2A |
| CE-150-3003 | +15V/5A | -15V/5A | +5V/2A | |
| CE-150-3004 | +5V/15A | +15V/5A | +36V/2.5A | |
| CE-150-2001 | +12V/7.5A | -12V/5A | | |
| CE-150-2002 | +15V/5A | -15V/5A | | |
| CE-150-2003 | +5V/15A | +12V/6A | | |
| CE-150-2101 | +5V/15A | +24V/5A | | |
| CE-150-1001 | 3.3V/30A ⁽¹⁸⁾ | | | |
| CE-150-1002 | 5V/30A ⁽¹⁸⁾ | | | |
| CE-150-1003 | 12V/12.5A | | | |
| CE-150-1004 | 15V/10A | | | |
| CE-150-1005 | 24V/6.25A | | | |
| CE-150-1006 | 28V/5.4A | | | |
| CE-150-1007 | 48V/3.1A | | | |

ORDERING INFORMATION

Consult factory for alternate output configurations.
Consult factory for positive, negative or floating outputs.
Please specify the following optional features when ordering:

CO – Cover
PF – Power Fail
TS – Terminal Strip

OVP – Overvoltage Protection
I/O – Isolated Outputs
RE – Remote Inhibit

CE-150

OUTPUT SPECIFICATIONS

| | | |
|---|--|---|
| Total Output Power ⁽¹⁾ (See Derating Chart) | 100W 125W 150W | Convection Cooled ⁽¹⁶⁾ Convection Cooled, w/1Sq. ft. Baseplate ⁽¹⁷⁾ 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), ±3.0% (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% (0-100% load change) 0.5% (0-100% load change) 3.0% (10-100% load change) 2.0% (10-100% load change) 2.0% (0-100% load change) |
| Source Regulation | Outputs 1 – 4: | 0.5% |
| Cross Regulation (Output 1 load varied 50-100%) | Output 2: Output 3: Output 4: | 0.2% (X0XX) 5.0% (X1XX) 2.0% (Output 1 load varied 50-100%) 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 | 165 W Min., Outputs 1 and 2, Outputs cycle on/off, auto recovery | |
| Output Overcurrent Protection | 110% Min., Outputs 3 and 4 | |
| Hold Up Time | 20mS min., 150W, 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 | 3A at 85V Input |
| Peak Inrush | 30A |
| Peak Repetitive | 4.25A at 85V Input |
| Harmonic Distortion | 0.05 |
| Efficiency | 0.68-0.80(varies by model) |
| Power Factor | 0.90 (150 W, 230V) |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-------------------------------------|--|
| Ambient Operating Temperature Range | 0°C to +70°C 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 ^(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 ⁽¹⁴⁾ (Optional) | Logic low with input power failure 10 ms minimum prior to Output 1 drooping 1% |
| Remote Inhibit (optional) | Contact closure inhibits all outputs |
| Remote Sense(Single models) ⁽¹⁰⁾ | 250mV compensation of output cable losses |
| Mean-Time Between Failures | 150,000 Hours min., MIL-HDBK-217F, 25° C, GB |
| Weight | 2.0 Lbs. |

All specifications are maximum at 25°C/150W unless otherwise stated, may vary by model and are subject to change without notice.

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Power Sources Unlimited, Inc.
200 Stonewall Boulevard, Suite 4
Wrentham, MA 02093-2210
WWW.PSUI.COM

1-800-966-PSUI (7784)
Outside U.S. 508-384-1419
Fax: 508-384-1896
info@psui.com

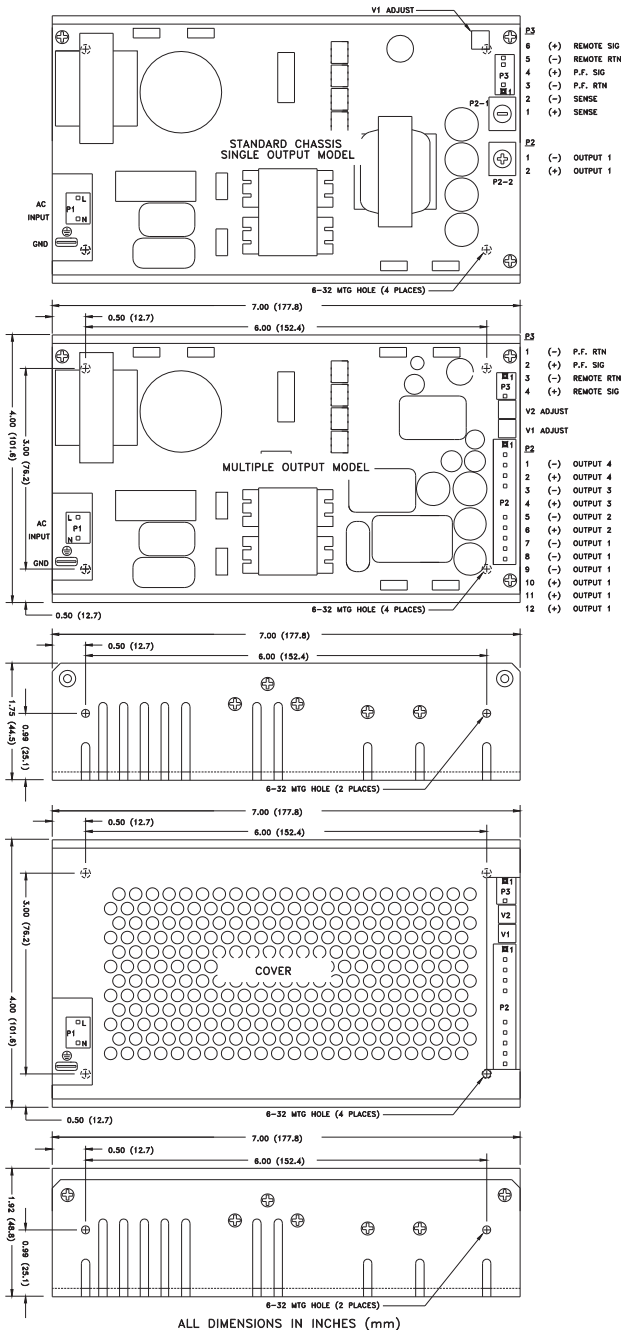
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EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4TH ed./IEC 61000-6-2:2005)

| | | | |
|-----------------------------------|---------------|--|--------------|
| 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 _r , 0.5 cycles, 0-315° | 100/240V A/A |
| | | 0% U _r , 1 cycles, 0° | 100/240V A/A |
| | | 40% U _r , 10/12 cycles, 0° | 100/240V B/A |
| | | 70% U _r , 25/30 cycles, 0° | 100/240V B/A |
| Voltage Interruptions | EN 61000-4-11 | 0% U _r , 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 | |

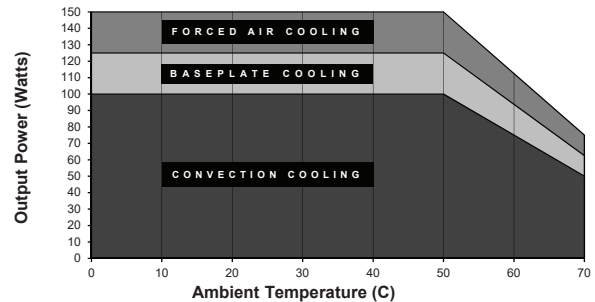
CE-150 SERIES MECHANICAL SPECIFICATIONS



APPLICATIONS INFORMATION

- Each output can deliver its rated current but Total Output Power must not exceed 100, 125 or 150W, 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 UL60601-1 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 150W requires an air speed of 300LFM flowing past a point one inch above the main isolation transformer.
- Free-Air convection cooling, 100W maximum output power.
- Baseplate-cooled rating of 125W requires a one-square-foot 0.09"-thick aluminum area attached to bottom four mounting holes.
- Rated 20A maximum when convection cooled only.

MAXIMUM OUTPUT POWER vs. AMBIENT TEMPERATURE



CONNECTOR SPECIFICATIONS

| | | |
|----|-------------------------|---|
| P1 | 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. (10 in-lb max) |
| P2 | DC Output (Multiple) | 0.156 friction lock header mates with Molex 09-50-3121 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 22-01-2067 or equivalent crimp terminal housing with Molex 6459 or equivalent crimp terminal. |
| P3 | 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. |

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Wrentham, MA 02093-2210
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