

## ABC450 SERIES 450W AC/DC



### FEATURES

- 300W convection cooled
- 4.0" x 6.5" x 1.6" (101.6 x 165 x 41 mm)
- Universal AC input
- Conducted EMI EN 55022-B, FCC Part 15 Level B
- CE marked LVD
- 5 V s/b and 12 V fan outputs standard
- ITE Safety Agency Approvals
- RoHS Compliant

### APPLICATIONS

- Instrumentation
- Lighting
- Industrial Applications
- Test and Measurement
- Robotics
- Renewable Energy
- Data Comm.
- Applied Computing
- Process Control
- Wireless

## TECHNICAL DATA:

### Input

| PARAMETER                   | DESCRIPTION/CONDITION                            |                               |
|-----------------------------|--|-------------------------------|
| Input Voltage Range         | Universal Input                                  | 90 - 264 VAC<br>120 – 390 VDC |
| Input Frequency Range       | 47-63 Hz   |                               |
| Input Protection            | Dual fusing, T8A/250 V in AC Line and AC Neutral |                               |
| Input Current               | 120 VAC<br>230 VAC                               | 4.5 A<br>2.3 A                |
| No Load Power               | 120 VAC<br>230 VAC                               | 0.4 W<br>0.8 W                |
| Inrush Current (Cold Start) | 120 VAC<br>230 VAC                               | 40 A<br>75 A                  |

### Output

| PARAMETER                         | DESCRIPTION/CONDITION   |   |
|-----------------------------------|---|---|
| Power                             | 155 W to 450 W steady state depending upon output voltage. Peak power of 475 W for 24 V, 30 V & 500 W for 48 V model for 5 seconds, maximum duty cycle 10%. |   |
| Voltage Adjustment                | V1  | ± 3%                                    |
| Transient Response                | <10%, 50 to 100% load change, 50 Hz, 50% duty cycle, 0.1 A / uSec, recovery under 5 mSec  |   |
| Over Voltage Protection (V1 only) | >114% min   | Unit will latch off until AC is cycled. |
| Over Current Protection           | 120 to 150%   |   |
| Short Circuit Protection          | Hiccup mode   | +5Vs/b shall remain normal.             |
| Over Temperature Protection       | Automatic recovery  | 130°C primary heat sink +/-5%           |
| Set point tolerance               | ±0.5%   |   |
| Rise Time                         | <100 mSec   | From 10% to 90% of V1 nominal rating    |

### Ordering Information

| PRODUCT FAMILY            | VOLTS (VDC) | MAX LOAD CONVECTION (3) | MAX LOAD 300 LFM (3) | MINIMUM LOAD (A) | RIPPLE & NOISE (2) | TOTAL REGULATION |
|---------------------------|-------------|-------------------------|----------------------|------------------|--------------------|------------------|
| ABC450-1T05G              | 5           | 31.0 A                  | 55.0 A               | 0                | 2%                 | ± 3.5%           |
| ABC450-1T12G              | 12          | 20.83 A                 | 37.5 A               | 0                | 2%                 | ± 3.5%           |
| ABC450-1T15G              | 15          | 16.66 A                 | 30.0 A               | 0                | 2%                 | ± 3.5%           |
| ABC450-1T24G              | 24          | 12.30 A                 | 18.75 A              | 0                | 2%                 | ± 3.5%           |
| ABC450-1T30G              | 30          | 10.0 A                  | 15.0 A               | 0                | 2%                 | ± 3.5%           |
| ABC450-1T48G              | 48          | 6.25 A                  | 9.37 A               | 0                | 2%                 | ± 3.5%           |
| <b>Vfan (all models)</b>  | <b>12</b>   | <b>0.5 A</b>            | <b>0.5 A</b>         | <b>0</b>         | <b>10%</b>         | <b>± 30%</b>     |
| <b>V s/b (all models)</b> | <b>5</b>    | <b>1.5 A</b>            | <b>2.0 A</b>         | <b>0</b>         | <b>5%</b>          | <b>± 5%</b>      |

**Notes:**

1. Peak current rating on V1 is 120% of max, lasting < 30 Sec with max of 10% duty cycle.
2. Ripple is peak to peak with 20MHz bandwidth and 10uF (Tantalum capacitor) in parallel with a 0.1uF ceramic capacitor at rated line voltage and load ranges.
3. Combined output power of V1 plus fan supply and standby supply should not exceed max, power rating.
4. Standby output voltage tolerance including set point.
5. Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-30% and needs min. 1% load on V1 output to be within regulation band. Ripple and noise is less than 10%.
6. Specifications are for nominal input voltage, 25°C unless otherwise stated.
7. Power supply is shipped with J3 housing, pins 9 and 10 shorted to enable V1, main output.
8. Derate output power linearly to 80% from 90 Vac to 80 Vac input.
9. For ordering Side Fan or Top Fan mounting option product add -S or -T suffix with the model name.
10. Specifications subject to change without notice.
11. Air flow over long edge (either direction) required for air flow rating. See mechanical drawing below.
12. Warranty 2 years.

**General Specifications**

| PARAMETER              | DESCRIPTION/CONDITION                      |  |
|------------------------|--|--|
| Hold Up Time           | 120 VAC                                    | 10 mSec  |
|                        | 230 VAC                                    | 10 mSec  |
| Power Factor           | 120 VAC                                    | 0.98   |
|                        | 230 VAC                                    | 0.95   |
| Efficiency (Full Load) | 120 VAC                                    | 88% (24V, 48V, 30V), 86% (12V, 15V), 83% (5V) typical    |
|                        | 230 VAC                                    | 90% (24V, 48V, 30V), 86% (12V, 15V), 83% (5V) typical    |
| MTBF                   | >250 khrs                                  | Bellcore TR-332  |
| Switching Frequency    | PFC converter: Variable, 45-160kHz typical | Resonant converter: Variable, 35-250 kHz, 90 kHz typical |
| Isolation Voltage      | 4242 VDC                                   | Input to Output  |
|                        | 2121 VDC                                   | Input to Earth   |
| Weight                 | 900g (1.98 lbs)                            |  |

**Environmental**

| PARAMETER               | DESCRIPTION/CONDITION              |                                |
|-------------------------|------------------------------------|--------------------------------|
| Operating Temperature   | -20 to 70 °C                       | See derating charts below.     |
| Storage Temperature     | -40 to 85 °C                       |                                |
| Relative Humidity       | 95% RH, non-condensing             |                                |
| Altitude                | Operating 10,000 ft.               | Non-operation 40,000 ft.       |
| CE Mark                 | Complies with LVD Directive        |                                |
| Conducted Emissions:    | EN55022-B, CISPR22-B, FCC PART15-B |                                |
| Static Discharge        | EN61000-4-2                        | Level 3                        |
| RF Field Susceptibility | EN61000-4-3                        | Level 3                        |
| Fast Transients/Bursts  | EN61000-4-4                        | Level 3                        |
| Radiated Emissions      | EN55022-B, CISPR22-B, FCC PART15-B | To be controlled in end system |
| Surge Susceptibility    | EN61000-4-5                        | Level 3                        |
| Harmonic Current        | EN61000-3-2                        | Class D                        |

**Signals**

| PARAMETER      | DESCRIPTION/CONDITION   |
|----------------|---|
| DC OK          | Goes high approximately 100 mSec after V1 reached regulation limit. Upon failure this TTL signal goes low after V1 drops more than 5% of nominal (10% for 5 V output). Signal has a 10 k pull-up resistor between the signal and the +5 Vs/b.   |
| Remote Sense   | Compensates for 200 mV of cable drop.   |
| I-Share Signal | Allows sharing of 2 or more power supplies within +/-10%. Current sharing with internal OR-ing diodes /MOSFETS for redundancy. A defective supply that is connected to the output voltage bus will have no adverse effect on the operation of the remaining functional supply (supplies). |
| DC OK          | Signal goes high approximately 100 mSec after V1 output reaches 90% of nominal rating.  |
| Remote Inhibit | Inhibit V1 with high/open between pins 9 and 10. Apply active low between pins 9 and 10 to enable output. Unit shipped with pin 9 shorted to pin 10. Does not inhibit the 5 Vs/b output.  |
| Power Fail     | Goes high when AC line drops below minimum level giving minimum of 10 mSec notification before output goes out of specified regulation limits.  |

**Safety**

| PARAMETER     | DESCRIPTION/CONDITION   |
|---------------|---|
| EN / UL / CSA | EN60950-1, IEC60950-1 2 <sup>nd</sup> , UL60950 2 <sup>nd</sup> , CSA-22.2 No 60950-01 2 <sup>nd</sup> , Class 1 SELV |

Figure 1 Output Power Vs. Temperature

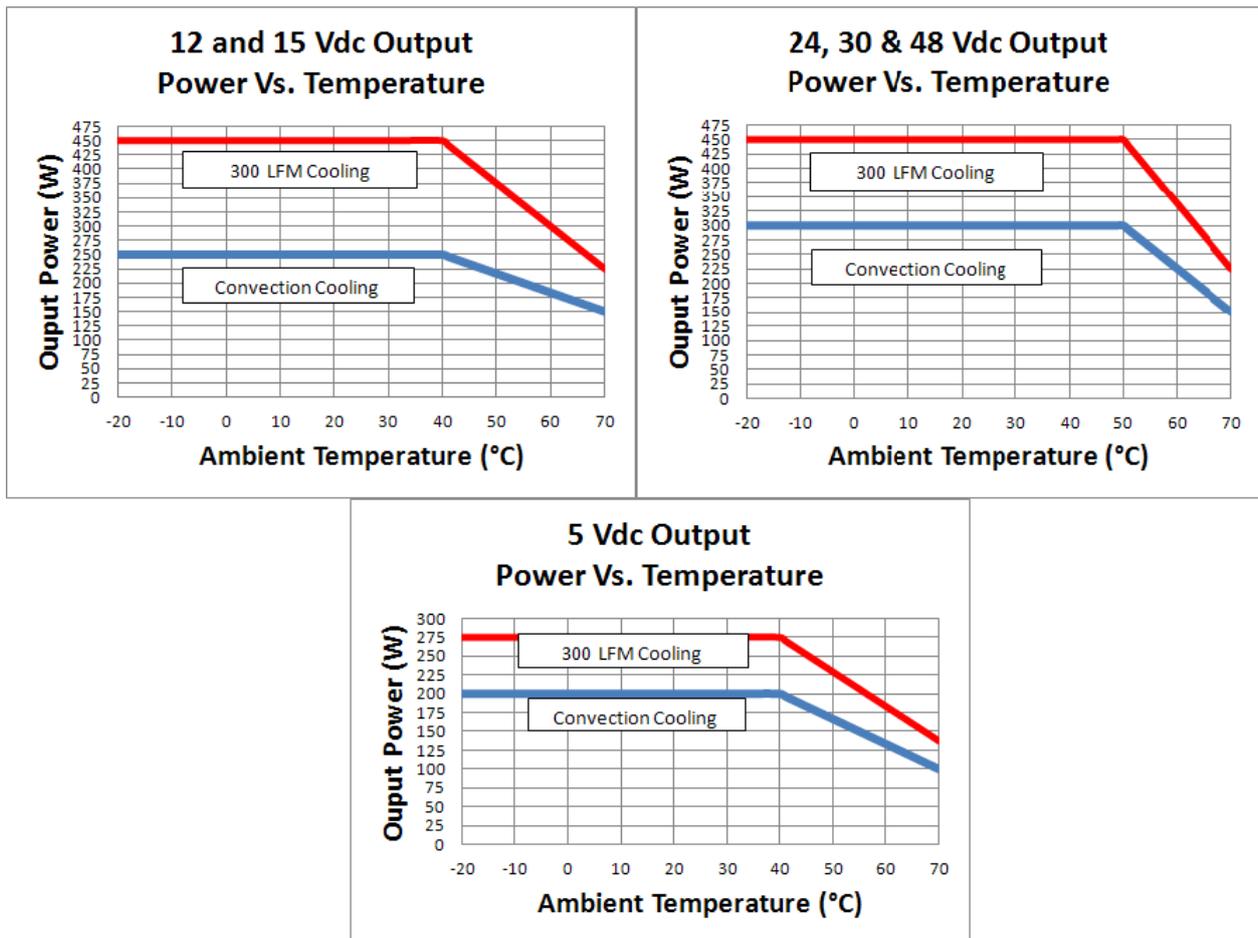


Figure 2 Dimensions Drawing (Without Fan Mounting)

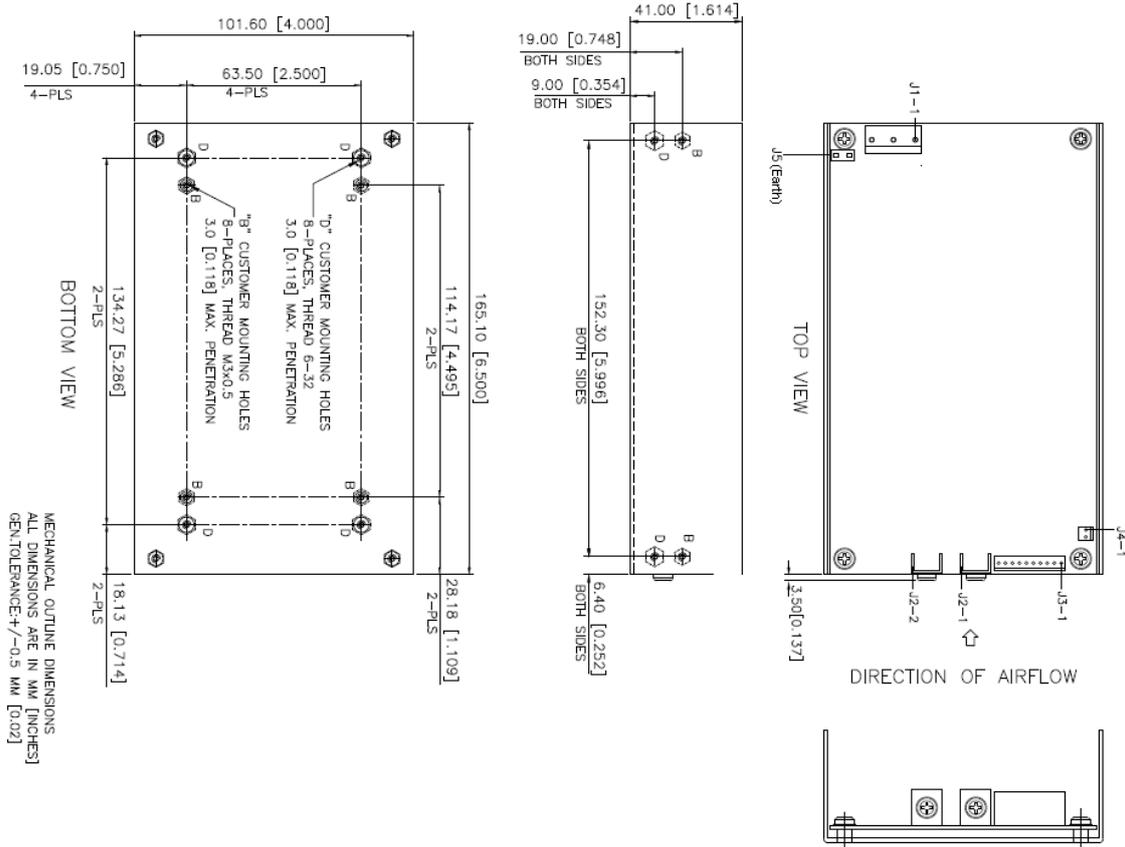


Figure 3 Dimensions Drawing (With Top Fan Mounting)

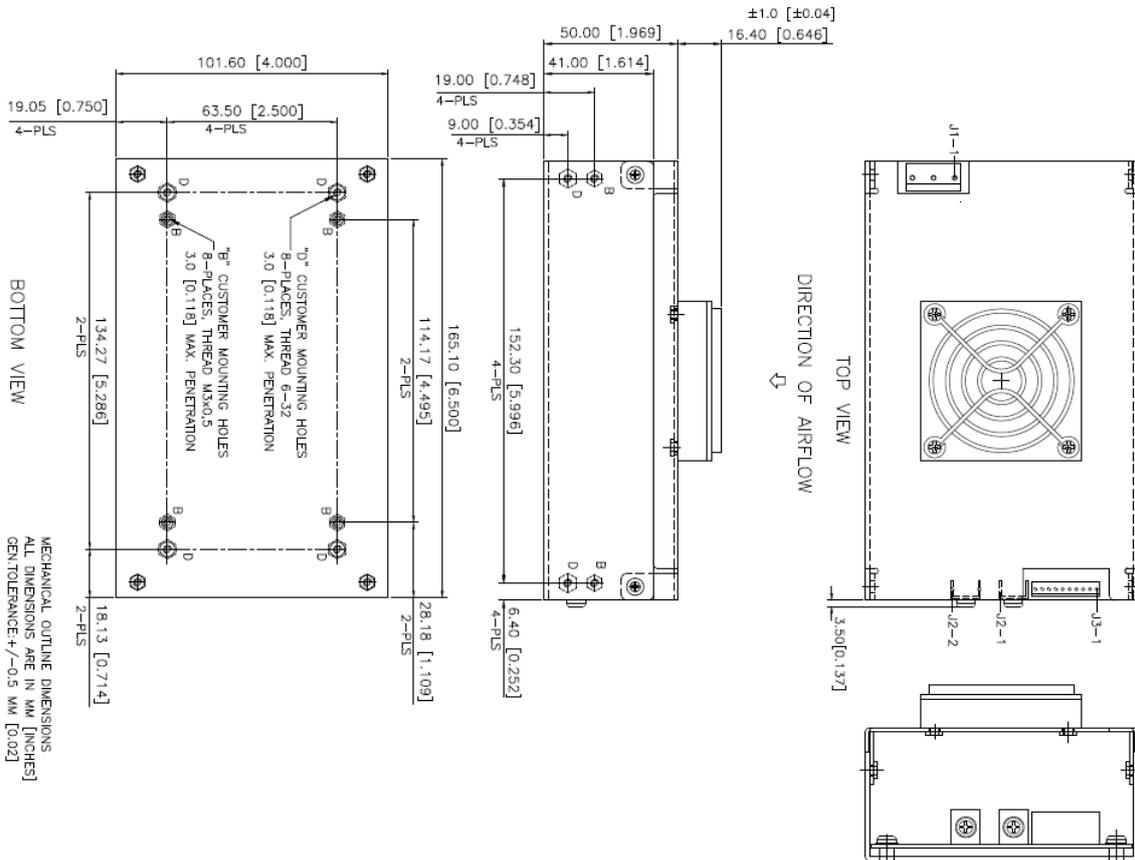
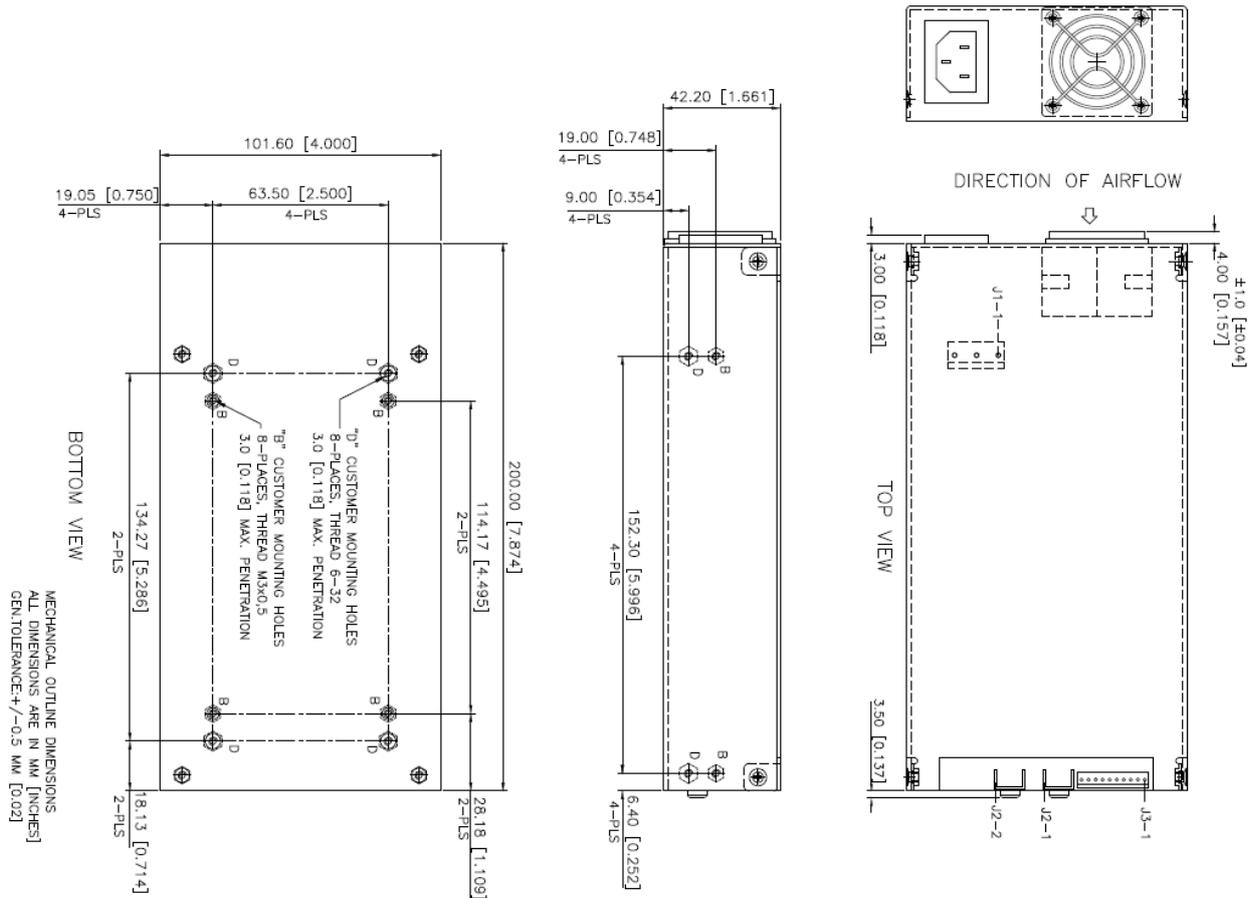


Figure 4 Dimensions Drawing (With Side Fan Mounting)



**Mechanical**

| INPUT = J1   | OUTPUT = J2  | FAN = J4  | EARTH = J5                           | SIGNALS = J3  |   |
|--|--|---|--------------------------------------|---|---|
| Pin 1 = AC line<br>Pin 3 = AC neutral<br>Pin 5 = Earth<br>(5 position connector with pins 2 and 4 removed) | Two lugs, each with a 6-32 pan head screw. Lug 1 is +V1 and lug 2 is for Return.   | J4-1: +12 V<br>J4-2: Return                           |                                      | Pin 1 = NC<br>Pin 2 = Power Fail<br>Pin 3 = DC OK<br>Pin 4 = Return<br>Pin 5 = +5Vs/b | Pin 6 = +Remote Sense<br>Pin 7 = -Remote Sense<br>Pin 8 = I-Share<br>Pin 9 = Return<br>Pin 10 = Inhibit |
| Mating Connector: Tyco 1-1123722-5<br>Mating Pin: Tyco 1318912-2   | J2 = 6-32 screw terminal. Mating part no: MOLEX 19141-0058/0063/0083 or equivalent | Mating Connector: Molex 22-01-2025, Pins = 08-50-0113 | Molex: 19705-4301; Mating: 190030001 | Mating Connector: Molex 22-01-2087, Pins Molex 08-50-0113                             |   |

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