

## UNIVERSAL INPUT

### DESCRIPTION

The SUP350 PFC series comprises single and multiple output models for 350 watts of continuous output power. All models meet EN 61000-3-2. All auxiliary outputs are with magnetic amplifier to keep regulation. The units are constructed on a printed circuit board with a U-bracket for mechanical support and heat sinking. Both "B" and "C" versions are with UL, CSA and TÜV approvals.

### FEATURES

- ◆ Power Factor 0.98 typical
- ◆ Universal input range from 90 to 264 VAC
- ◆ Power Fail Detect (PFD) signal
- ◆ Overvoltage protection
- ◆ Thermal protection
- ◆ Short circuit protection
- ◆ 100% burn-in at full rated load
- ◆ In compliance with EN 55024, EN 61000-3-2 and EN 61000-3-3
- ◆ Remote sense on master output

### INPUT SPECIFICATION

|                  |                                |
|------------------|--------------------------------|
| Input Voltage:   | Leakage Current: 90 to 264 VAC |
| Input Frequency: | 47 to 63 Hz                    |
| Input Current:   | 5.6A (rms) for 115 VAC         |
|                  | 2.8A (rms) for 230 VAC         |
|                  | 0.4mA max. at 115 VAC, 60Hz    |
|                  | 0.8mA max. at 230 VAC, 50Hz    |

**PFD Signal:** TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1mS prior to master output dropping 5% below its nominal value. This signal also provides a min. delay of 100mS after master output is within regulation.

# SUP350P PFC SERIES 350 WATT POWER FACTOR CORRECTED SWITCHING POWER SUPPLIES

### OUTPUT SPECIFICATIONS

|                         |  |
|-------------------------|--|
| Output Voltage/Current: | See Rating Chart   |
| Output Power Range:     | 15 to 200 watts  |
| Ripple and Noise:       | 2% peak to peak max.   |
| Overvoltage Protection: | Provided on output #1 only; set at 112-132% of its nominal output voltage  |
| Overcurrent Protection: | All outputs protected to short circuit conditions  |
| Temp. Coefficient:      | All outputs, $\pm 0.04\%$ / °C maximum   |
| Transient Response:     | Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change |

### GENERAL SPECIFICATIONS

|                       |   |
|-----------------------|---|
| Switching Frequency:  | 76KHz $\pm$ 8 KHz   |
| Power Factor:         | 0.98 typical  |
| Efficiency:           | 70% typical   |
| Hold-up Time:         | 12mS min. at 115 VAC  |
| Line Regulation:      | $\pm 0.5\%$ max. at full load   |
| Inrush Current        | 40A at 115 VAC  |
| (25° C cold start):   | 80A at 230 VAC  |
| Withstand Voltage:    | 3000 VAC input to output  |
|                       | 1500 VAC input to ground  |
|                       | 500 VAC output to ground  |
| MTBF (25° C ambient): | 350,000 hours minimum at full load  |
| EMI Requirement:      | In compliance with EN 55022 and FCC, conducted emissions meeting Class B and radiated emissions meeting Class A |
| Safety Requirements:  | Meets or exceeds:   |
|                       | (1) UL 1950   |
|                       | (2) CSA C22.2 No.950  |
|                       | (3) IEC 950 (EN 60950)  |

### ENVIRONMENTAL SPECIFICATIONS

|                        |  |
|------------------------|--|
| Operating Temperature: | 0° to +70° C   |
| Storage Temperature:   | -40° C to +85° C   |
| Relative Humidity:     | 5% to 95% non-condensing   |
| Derating:              | Derate from 100% at +50°C linearly to 50% at +70°C                                 |
| Cooling:               | 38 CFM forced air, provided on "C" version, to be provided for "B" version by user |

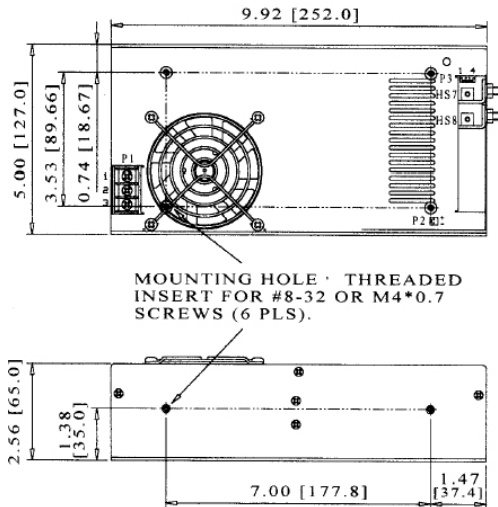


## OUTPUT VOLTAGE/CURRENT RATING CHART

| Model (1)(5) | Output #1 |      |       |      | Output #2 (2) |       |       |       | Output #3 |       |       |       | Output #4 (3) |       |       |       | Max. Power (4) |
|--------------|-----------|------|-------|------|---------------|-------|-------|-------|-----------|-------|-------|-------|---------------|-------|-------|-------|----------------|
|              | Vnom      | Imin | Imax  | Tol. | Vnom          | Imin  | Imax  | Tol.  | Vnom      | Imin  | Imax  | Tol.  | Vnom          | Imin  | Imax  | Tol.  |                |
| SUP350P10    | 5.1V      | 1A   | 53.9A | 2%   | (N/A)         | (N/A) | (N/A) | (N/A) | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 275W           |
| SUP350P12    | 12V       | 0.5A | 29.2A | 2%   | (N/A)         | (N/A) | (N/A) | (N/A) | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P13    | 15V       | 0.4A | 23.4A | 2%   | (N/A)         | (N/A) | (N/A) | (N/A) | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P14    | 24V       | 0.3A | 14.6A | 2%   | (N/A)         | (N/A) | (N/A) | (N/A) | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P16    | 30V       | 0.2A | 11.7A | 2%   | (N/A)         | (N/A) | (N/A) | (N/A) | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P18    | 48V       | 0.1A | 7.3A  | 2%   | (N/A)         | (N/A) | (N/A) | (N/A) | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P23    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 300W           |
| SUP350P24    | +5.1V     | 5A   | 40A   | 2%   | +15V          | 0A    | 8A    | 4%    | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 300W           |
| SUP350P25    | +5.1V     | 5A   | 40A   | 2%   | +24V          | 0A    | 4.5A  | 4%    | (N/A)     | (N/A) | (N/A) | (N/A) | (N/A)         | (N/A) | (N/A) | (N/A) | 300W           |
| SUP350P30    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | -5V       | 0A    | 6A    | 4%    | (N/A)         | (N/A) | (N/A) | (N/A) | 300W           |
| SUP350P31    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | -12V      | 0A    | 4A    | 4%    | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P32    | +5.1V     | 5A   | 40A   | 2%   | +15V          | 0A    | 8A    | 4%    | -15V      | 0A    | 4A    | 4%    | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P33    | +5.1V     | 5A   | 40A   | 2%   | +15V          | 0A    | 8A    | 4%    | -12V      | 0A    | 4A    | 4%    | (N/A)         | (N/A) | (N/A) | (N/A) | 350W           |
| SUP350P40    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | -12V      | 0A    | 4A    | 4%    | 5V            | 0A    | 6A    | 4%    | 350W           |
| SUP350P41    | +5.1V     | 5A   | 40A   | 2%   | +15V          | 0A    | 8A    | 4%    | -15V      | 0A    | 4A    | 4%    | 24V           | 0A    | 4A    | 4%    | 350W           |
| SUP350P42    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | -12V      | 0A    | 4A    | 4%    | 12V           | 0A    | 4A    | 4%    | 350W           |
| SUP350P44    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | -15V      | 0A    | 4A    | 4%    | 15V           | 0A    | 4A    | 4%    | 350W           |
| SUP350P45    | +5.1V     | 5A   | 40A   | 2%   | +12V          | 0A    | 9A    | 4%    | -12V      | 0A    | 4A    | 4%    | 24V           | 0A    | 4A    | 4%    | 350W           |

- Notes: 1) Add suffix "B" for U-bracket format or "C" for enclosed format, e.g., SUP350-45C  
 2) Peak current OF output #2 is limited to 12A on +12V, 9.6A on +15V or 6A on +24V  
 3) Output #4 is floating. It can be connected externally for positive or negative output  
 4) Peak output current with 10% maximum duty cycle for less than 60 seconds. Total peak power must not exceed 350 watts.  
 5) All models may be operated at no-load. At no-load, output voltage tolerance increases to 10%. The output #1 of multiple output models requires 5A to support other outputs at their maximum rated loads.

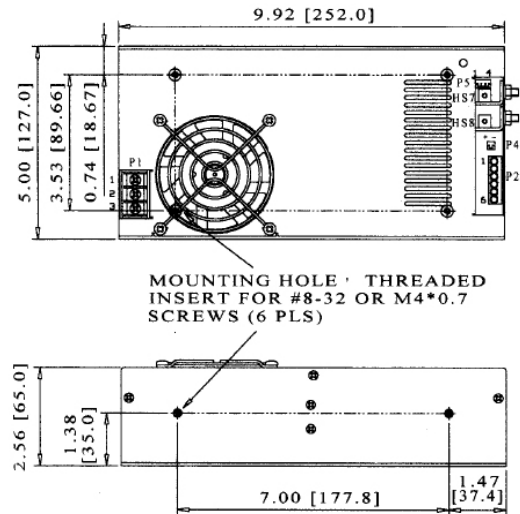
## MECHANICAL SPECIFICATIONS



Single Output Models

### Notes:

- Dimensions shown in inch (mm)
- Tolerance 0.02 (0.5) maximum
- P1 input connector in Beau Inc. P/N 72-5-03C. Screws are #6-32 on 0.375 inch (9.53mm) centers.
- P2 is for DC fan rated 240V/0.12A (models SUP350-14, 16) or 12V/0.22A (all other models).
- P3 connector mates with Molex housing 22-01-1043 and Molex 40445 series crimp terminal.
- Main output studs HS7/HS8 are with M5\*0.8 screws.
- Weight:  
 1.40 Kgs (3.08 Lbs) approx. for "B" version.  
 1.70 Kgs (3.74 Lbs) approx. for "C" version.



Multiple Output Models

### Notes:

- Dimensions shown in inch (mm)
- Tolerance 0.02 (0.5) maximum
- P1 input connector in Beau Inc. P/N 72-5-03C. Screws are #6-32 on 0.375 inch (9.53mm) centers.
- P2 output connector is Dinkle P/N 166-06P.
- P4 is for DC fan rate at 240V/0.12A (model SUP350-25) or 12V/0.22A (all other models).
- P3 connector mates with Molex Molex housing 22-01-1043 and Molex 40445 series crimp terminal.
- Main output studs HS7/HS8 are with M5\*0.8 screws.
- Weight:  
 1.40 Kgs (3.08 Lbs) approx. for "B" version.  
 1.70 Kgs (3.74 Lbs) approx. for "C" version.

# PIN CHART

## Single Output Models

| Connector   |  | P1 (AC) |         |        | P3       |          |      |               | HS7              | HS8       |
|---|--|---------|---------|--------|----------|----------|------|---------------|------------------|-----------|
|   |  | 1       | 2       | 3      | 1        | 2        | 3    | 4             |                  |           |
| Pin   |  | 1       | 2       | 3      | 1        | 2        | 3    | 4             | Output #1 Return | Output #1 |
| Model   |  |         |         |        |          |          |      |               |                  |           |
| SUP350P10   |  | Live    | Neutral | Ground | +S (VO1) | -S (VO1) | PFD  | Common Return | Output #1 Return | Output #1 |
| SUP350P12 SUP350P13<br>SUP350P14 SUP350P16<br>SUP350P18 |  | Live    | Neutral |        | +S (VO1) | -S (VO1) | N.C. | Common Return | Output #1 Return | Output #1 |

## Multiple Output Models

| Connector   |  | P1 (AC) |         |        | P2 (DC Output) |           |           |           |                  | P5       |          |     |           | HS7       | HS8              |
|---|--|---------|---------|--------|----------------|-----------|-----------|-----------|------------------|----------|----------|-----|-----------|-----------|------------------|
|   |  | 1       | 2       | 3      | 1              | 2,3       | 4         | 5         | 6                | 1        | 2        | 3   | 4         |           |                  |
| Pin   |  | 1       | 2       | 3      | 1              | 2,3       | 4         | 5         | 6                | 1        | 2        | 3   | 4         | Output #1 | Output #1 Return |
| Model   |  |         |         |        |                |           |           |           |                  |          |          |     |           |           |                  |
| SUP350P23 SUP350P24<br>SUP350P25 SUP350P24                        |  | Live    | Neutral | Ground | Output #2      | Com. Ret. | N.C.      | N.C.      | N.C.             | +S (VO1) | -S (VO1) | PFD | Com. Ret. | Output #1 | Output #1 Return |
| SUP350P30 SUP350P31<br>SUP350P32 SUP350P33                        |  | Live    | Neutral | Ground | Output #2      | Com. Ret. | Output #3 | N.C.      | N.C.             | +S (VO1) | -S (VO1) | PFD | Com. Ret. |           |                  |
| SUP350P40 SUP350P41<br>SUP350P42 SUP350P44<br>SUP350P45 SUP350P44 |  | Live    | Neutral | Ground | Output #2      | Com. Ret. | Output #3 | Output #4 | Output #4 Return | +S (VO1) | -S (VO1) | PFD | Com. Ret. |           |                  |

