

# SPECIFICATION

**P/N: P6400C 1FN8**

**400W ATX Output Power  
Universal AC Input**

**High Quality  
1U Mini  
Switching Power Supply**

\*\*\* Specification Approval \*\*\*

This specification (total 7 pages including drawings) is approved in entirety by:

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Company Name

Print Name

Signature

Date

Specification subject to change without prior notice.



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**1.0 Input Characteristics:****1.1 Input Voltage range:90ac to 264 Vac full range**

MINIMUM	NOMINAL	MAXIMUM	UNITS
90	100-240	264	Vrms

**1.2 Input Frequency**

47Hz ~ 63Hz

**1.3 Maximum input ac current:**

6.3A max.@115Vac ;3A max.@230Vac

**1.4 Inrush current: No damage shall occur to the power supply and the fuse shall not open or exceed its maximum rating:**

100A max @ 230Vac 25 °C cold start.

**1.5 Power Efficiency**

80% (min.) at 20%,50%,100% loading line input.

**1.6 Harmonic distortion production:comply with IEC 1000-3-2 with full load conditions.****1.7 PFC value range :0.9min.@120V/50HZ;0.8min.@240V/50HZ****1.8 LEAKAGE CURRENT**

3.5mA (max.)

**2.0 OUTPUT:**

Voltage	+5V	+12V1	+12V2	+3.3V	-12V	+5Vsb
Max load	18A	18A	18A	18A	0.8A	2.5A
Min load	0.5A	1A	0.5A	1A	0.0A	0.0A
Peak load	---	---	---	---	---	---

<b>Regulation</b>	±4%	±4%	±4%	±4%	±10%	±5%
<b>Ripple</b>	50mV	120mV	120mV	50mV	120mV	50mV
<b>Ripple &amp; Noise</b>	50mV	120mV	120mV	50mV	120mV	50mV

Note:

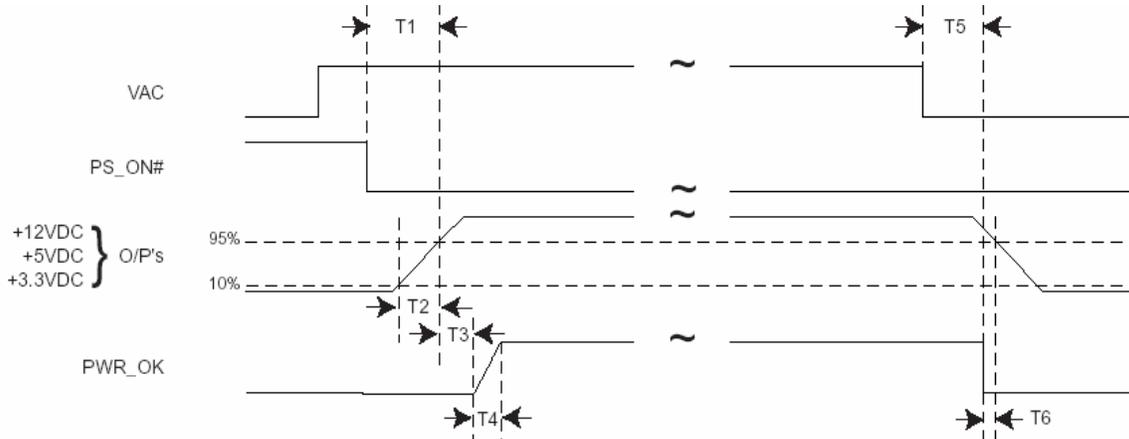
- The continuous total output power is 400W max.
- The combined power of +5V and +3.3V is 140W max.
- The combined power of +12V1 and +12V2 is 32A max.
- Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.
- Noise test—Noise Bandwidth is form DC to 20MHz.

**2.1 Remote On/Off**

TTL High/PS-OFF; TTL Low/PS-ON

$V_{IL}=0.8V_{max}$ ,  $I_{IL}=-1.6mA_{max}$  @ $V_{in}=0.4V$

$V_{IH}=2.0V_{min}$  @ $I_{in}=-200\mu A$ ,  $V_{IH}=5.25V_{max}$  @open ckt



Timing Schematic Diagram

**2.2 Turn-On Delay Time**

100 ~ 500 ms max.( at full load and nominal Input).

### 2.3 Power On Time ( T1 )

The power-on time is defined as the time from when PS\_ON# is pulled low to when the +12 VDC, +5 VDC, and +3.3 VDC outputs are within their regulation ranges. The power-on time shall be less than 500 ms ( $T1 < 500$  ms).

### 2.4 Rise Time ( T2 )

20ms max at full load.

### 2.5 Power Good Delay Time ( T3 )

Test when main output voltages reach their regulation ranges to PG rise up:  
100ms to 500 ms.

### 2.6 Power Good Rise Time ( T4 )

The Power Good Rise Time shall be less than 10 ms ( $T4 < 500$  ms).

### 2.7 Hold-Up Time ( T5 )

16 msec (minimum) at 80% of full load at 115Vac input.

### 2.8 Power Fail Delay Time ( T6 )

Power-down warning  $> 1$  msec.

### 2.9 Transient Over shoot

Summarizes 20% load change output transient step sizes \* ① for each output when at typical load & with following capacitor load on each output terminal ,  
The transient load slew rate is = 0.5 A/ $\mu$ s. Output voltages should not over +/- 10% of nominal value.

+5V	+3.3V	+12V <sub>1</sub>	+12V <sub>2</sub>	+12V <sub>3</sub>	+12V <sub>4</sub>	-12V	+5V <sub>sb</sub>
1000uF	1000uF	2200uF	2200uF	2200uF	2200uF	350uF	350uF

### 3.0 Protections:

If the power supply protection latch off all main output. (when OCP, OVP or short

protection is working ) reset by cycling remote on/off control or AC power .

+5Vsb is Recovery.

#### 3.1 Over Power Protection

Protection at 110%~150% full load

#### 3.2 Over Voltage Protection

+3.3V output  $4.10 \pm 0.40V$

+5.0V output  $6.25 \pm 0.75V$

+12.0V output  $14.6 \pm 1.00V$

#### 3.3 Short Circuit Protection

The power supply shall shut down and latch off for shorting +5V,+12V,-12V,+3.3V rail to ground. Shorting +5Vsb to ground will cause power unit to latch down and automatically recover when the fault condition is removed.

#### 3.4 Over Current Protection

Output	Min	Max	unit
+12V	25	40	A
+5V	25	40	A
+3.3V	25	40	A

#### 3.5 Over Temperature Protection :

The power supply shall shut down when ambient temperature exceed  $60^{\circ}C$

## 4.0 Environment:

- 4.1 OPERATING TEMP.** 0 °C to +50 °C
- 4.2 STORAGE TEMP.** -20 °C to +60 °C
- 4.3 OPERATING HUMIDITY** 10% to 90%,non-condensing at 40 °C
- 4.4 STORAGE HUMIDITY** 5% to 95%, non-condensing at 50 °C
- 4.5 OPERATING ALTITUDE** 0 to 10,000 feet
- 4.6 STORAGE ALTITUDE** 0 to 50,000 feet

### 4.7 Electrostatic Discharge (ESD)

The power supply shall withstand the following ESD conditions at any point on the power supply.

- a) ±8kV with no abnormal operation
- b) ±8kV with no damage to power supply
- c) Transients as defined in IEC 801-2, Level 4

## 5.0 Burn-In:

unit shall be burn in under 45°C±3°C,with 115Vac and outputs at max load

## 6.0 HI-POT (Input/Output isolation)

### 6.1 PRIMARY TO SECONDARY

Primary to secondary 4242Vdc for 1 minute

### 6.2 INSULATION RESISTANCE

Primary to earth ground 500Vdc , 50M ohms Min.

## 7.0 EMI

- 7.1 MEET FCC :** Class B
- 7.2 MEET CISPR 22 :** Class B
- 7.3 MEET VCCI :** Class B

## 8.0 SAFETY

### 8.1 UL/CUL (UL 60950)

### 8.2 TUV EN60950

### 8.3 CB (IEC 60950)

