

## MODEL NO. ATX1260 (82PLUS,Active PFC)

This specification describes the requirements of **600W** with active P.F.C Switching Power Supply with an ATX form-factor,+5V standby voltage, fan control, ATX 12V Power supply version 2.3,remote on/off control, dual line input capability and forced air cooling characteristics.

### ☛ 1.0 Table1. AC INPUT requirements

The input voltage, current, and frequency requirements for continuous operation are stated below.

Parameter	Min	Nom	Max	Unit
Vin	90	<b>100----240</b>	264	VACrms
Vin Frequency	47	<b>60-----50</b>	63	Hz
Iin		<b>9-----4.5</b>		Arms

#### 1.1 Inrush current limiting

50 A @ 115Vrms } Can not damage during the  
 100 A @ 230Vrms (at 25°C ambient cold start) } ON/OFF test

### ☛ 2.0 DC OUTPUT

#### 2.1 Table 2. DC voltage regulation

Parameter	Range	Min	Nom.	Max	Unit
+3.3V	+/-5%	+3.14	+3.3	+3.47	Volts
+5V	+/-5%	+4.75	+5.0	+5.25	Volts
+12V	+/-5%	+11.40	+12.0	+12.6	Volts
-12V	+/-10%	-10.80	-12.0	-13.2	Volts
+5VSB	+/-5%	+4.75	+5.0	+5.25	Volts

#### 2.2 Load Ranges

##### 2.2.2 Table5 Typical Power Distribution for a 600W ATX12V Configuration

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	0.1	-	<b>20</b>		Amps
+5V	0.2	-	<b>17</b>		Amps
+12V	0.5	-	<b>46</b>		Amps
-12V	0.0	-	<b>0.3</b>		Amps
+5VSB	0.0	-	<b>2.5</b>		Amps

Note:

- ( 1 ) Total combined output load of +3.3V and +5V is  $\leq$  **120W**.
- ( 2 ) +12V Maximum output power should not exceed **552 W**.
- ( 3 ) Maximum continuous total DC output power should not exceed **600W**.
- ( 4 ) When +5V load is over 15A,+12V min load is 2A.
- ( 5 ) When +12V load is over 30A,+5V min load is 4A.
- ( 6 ) Peak DC output power should not exceed **620W for 12 second**.

### 2.3 DC Output Ripple/Noise.

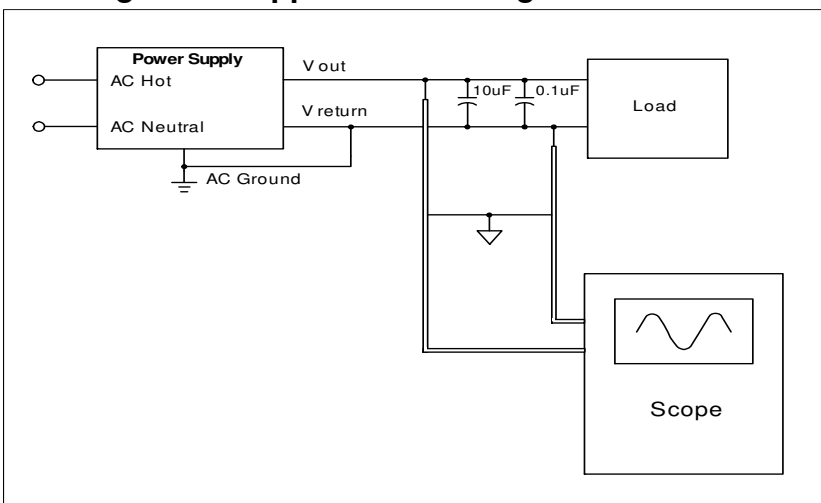
#### 2.3.1 Talbe3 Ripple regulation

Parameter	Ripple&Noise	Unit
+3.3V	50	mVp-p
+5V	50	mVp-p
+12V	120	mVp-p
-12V	120	mVp-p
+5VSB	50	mVp-p

#### 2.3.2 Definition

The ripple voltage of the outputs shall be measured at the pins of the output connector when terminated in the load impedance specified in figure 1. Ripple and noise are measured at the connectors with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading. Ripple shall be measured under any condition of line voltage, output load, line frequency, operation temperature.

#### 2.3.3 Figre3. Ripple/Noise voltage test circuit



### 2.4 Overshoot

Any overshoot at turn on or turn off shall be less 10% of the nominal voltage value, all outputs shall be within the regulation limit of section 2.0 before issuing the power good signal of section 5.0.

### 2.5 Efficiency

Power supply typical efficiency is **82%** under full Load at nominal input voltage of 115VAC or 230VAC.

### 2.6 Remote on/off control

When the logic level "PS-ON" is low, the DC outputs are to be enabled.

When the logic level is high or open collector, the DC outputs are to be disabled.

### ☞ 3.0 PROTECTION

#### 3.1 Over-power protection

The power supply will be shutdown and latch off when output power is 110%~160%.

#### 3.2 Over voltage protection

The over voltage sense circuitry and reference shall reside in packages that are separate and distinct from the regulator control circuitry and reference. No single point fault shall be able to cause a sustained over voltage condition on any or all outputs. The supply shall provide latch-mode over voltage protection as defined in Table.

Output	Minimum	Nominal	Maximum	Unit
+12 VDC	13.4	15.0	17	Volts
+5 VDC	5.74	6.3	7.5	Volts
+3.3 VDC	3.76	4.2	4.8	Volts

#### 3.3 Over Current Protection

Parameter	Min.	Max.	Unit
+12V	50	70	A
+3.3V	24	40	A
+5V	20	40	A

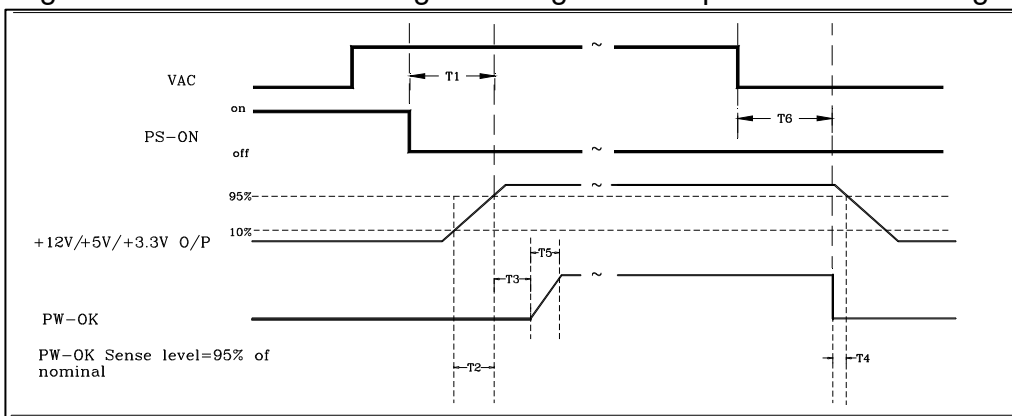
No damage or hazardous condition should occur with all the DC output connectors disconnected from the load. The power supply may latch into the shutdown state.

#### 3.4 Over temperature protection

### ☞ 4.0 TIMING

#### 4.1 Signal timing drawing

Figure 4 is a reference for signal timing for main power connector signals and rails.



**Figure 4. PS-OK Timing Sequence**

- ( 1 )T2: Rise time (0.1ms~20ms)
- ( 2 )T3: Power good turn on delay time (100ms~500ms)
- ( 3 )T4: Power good turn off delay time (1ms min)
- ( 4 )T5: Rise time (10ms max)

### 4.2 Output Transient Response

Table 13. summarizes the expected output transient step sizes for each output. The transient load slew rate is =1.0A/us.

**Table 13. DC Output Transient Step Sizes**

Output	Max.step size (% of rated output amps per Sec 3.2.3) <sup>(1)</sup>	Max.step size (amps)
+12 VDC	40%	
+5 VDC	30%	
+3.3 VDC	30%	
-12 VDC		0.1A
+5 VSB		0.5A

(1) For example, for a rated +5 VDC output of 18A,the transient step would be 30% x 18A=5.4A Output voltages should remain within the regulation limits of Section 2.1,and the power supply should be stable when subjected to load transients per Table 13. from any steady state load, including any or all of the following conditions:

- \* Simultaneous load steps on the +12VDC, +5VDC, and +3.3VDC outputs (all steps occurring in the same direction)
- \* Load-changing repetition rate of 50 Hz to 10 kHz
- \* AC input range per Section 1.0
- \* +5Vsb Loading min 0.1A
- \* +12V loading min 0.6A

### 4.3 Hold up time (T6 of figure 4.)

When the power loss its input power, The output shall maintain **12ms** in regulation ranges **Tested at 80% of maximum load** and AC:115V/60Hz or 230V/50Hz.

### 4.4 Capacitive Load-REQUIRED

The power supply should be able to power up and operate with the regulation limits defined in Table 15,With the following capacitances simultaneously present on the DC outputs.

#### Output Capacitive Loads

Output	Capacitive Load(uF)
+12VDC	10000
+5VDC	10000
+3.3VDC	10000
+5VSB	6000
-12VDC	330

## ☞ 5.0 ENVIRONMENT

### 5.1 Operation

Temperature	<b>0°C to 40°C</b> at AC 100V full Load
Relative Humidity	20 to 85%, non-condensing

### 5.2 Shipping and Storage

Temperature	-10 TO 50°C
Relative Humidity	5 to 90%, non-condensing

### 5.3 Altitude

Operating	2000m
Storage	3000m

## ☞ 6.0 SAFETY

### 6.1 Underwriters Laboratory (UL) recognition.

The power supply designed to meet UL 60950.

### 6.2 The power supply must bear the German Bauart Mark form Nemko.

### 6.3 NEMKO certified by any NORDIC .

## ☞ 7.0 ELECTROMAGNETIC COMPATIBILITY (EMC)

7.1 ELECTROSTATIC DISCHARGE (ESD) – IEC 61000-4-2(EN 61000-4-2).

7.2 RADIATED SUSCEPTIBILITY – IEC 61000-4-3(EN 61000-4-3).

7.3 ELECTRICAL FAST TRANSIENT / BURST ( EFT/B) – IEC 61000-4 -4(EN 61000-4-4).

7.4 SURGE – IEC 61000-4-5(EN 61000-4-5).

7.5 CONDUCTED SUSCEPTIBILITY – IEC 61000-4-6(EN 61000-4-6).

7.6 POWER FREQUENCY MAGNETIC FIELD – IEC 61000-4-8(EN 61000-4-8).

7.7 VOLTAGE DIPS – IEC 61000-4-11(EN 61000-4-11).

7.8 VOLTAGE FLUCTUATIONS – IEC 61000-3-3 (EN 61000-3-3).

7.9 HARMONIC CURRENT EMISSION – IEC61000-3-2(EN 61000-3-2).

7.10 EN55032:Class B Radio interference (CISPR 22).

7.11 ANSI C63.4-2009 / FCC Part 15 Subpart B / ICES-003 Issue 5 Class B 115VAC operation.

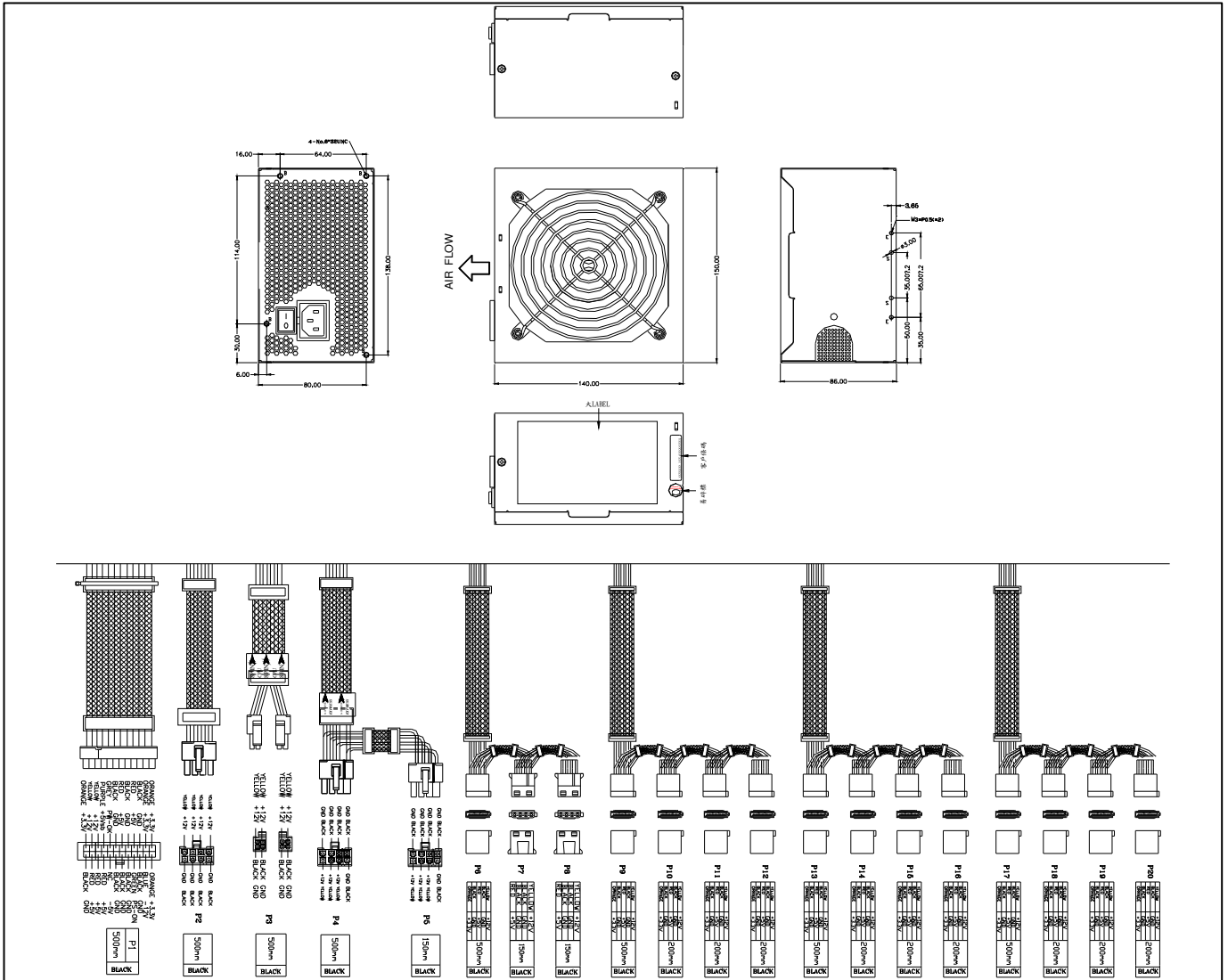
## ☞ 8.0 MTBF

### 8.1 MTBF (MEAN TIME BETWEEN FAILURES) CALCULATION

The demonstrated MTBF shall be 100,000 hours of continuous operation at 25°C,full load, 80% confidence limit and nominal line. The MTBF of the power supply shall be calculated in accordance with MIL-STD-217D/E. The DC FAN is not included.

9.0 MECHANICAL REQUIREMENTS

9.1 Physical Dimension : 150mm\*140mm\*86mm



## 9.2 Connectors (INTEL approved equivalent)

### P1 (Motherboard 24Pin) Power Connector

18AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Orange	+3.3VDC	13	1	+3.3VDC	Orange
Orange(22AWG)	3.3 sense				
Blue(20AWG)	-12VDC	14	2	+3.3VDC	Orange
Black	COM	15	3	COM	Black
				COM	Black(22AWG)
Green(22AWG)	PS-ON	16	4	+5VDC	Red
				+5Vsense	Red(22AWG)
Black	COM	17	5	COM	Black
Black	COM	18	6	+5VDC	Red
Black	COM	19	7	COM	Black
White	NC	20	8	POK	Grey(22AWG)
Red	+5VDC	21	9	+5VSB	Purple
Red	+5VDC	22	10	+12VDC	Yellow
				+12Vsense	Yellow(22AWG)
Red	+5VDC	23	11	+12VDC	Yellow
Black	COM	24	12	+3.3VDC	Orange

### P2 (CPU 4+4 Pin) Power Connector

18 AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Yellow	+12V	A3	A1	COM	Black
Yellow	+12V	A4	A2	COM	Black
Yellow	+12V	B3	B1	COM	Black
Yellow	+12V	B4	B2	COM	Black

### P3,P4 (PCI-e 6+2Pin) Power Connector

18 AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Yellow	+12V	1	4	COM	Black
Yellow	+12V	2	5	COM	Black
Yellow	+12V	3	6	COM	Black
Black	COM	B1	B2	COM	Black

### P10 (Peripheral) Power Connector

18 AWG wire	Signal	Pin
Yellow	+12V	1
Black	COM	2
Black	COM	3
Red	+5V	4

**P5,P6,P7,P8,P9 (S-ATA) Power Connector**

18 AWG wire	Signal	Pin
Orange	+3.3V	5
Black	GND	4
Red	+5V	3
Black	GND	2
Yellow	+12V	1

**☞ 10. FAN SPEED CONTROL(OPTION)**

Main fan voltage varies with the ambient temperature or output power.