

SPECIFICATION

300W

NLX (ATX), Passive PFC

Industrial Grade
Power Supply

Model: P6300H F

Specification subject to change without prior notice.



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MODEL NO. P6300H F

This specification describes the requirements of 300W/360W/400W Switching Power Supply with a NLX (ATX) form-factor, +5V standby voltage, fan control Passive P.F.C, ATX2.1 ver, remote on/off control, dual line input capability and forced air cooling characteristics.

☞ 1. AC INPUT

1.1 AC input requirements

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

P6300H F (300Watts&360Watts&400Watts)

Parameter	Min	Nom.	Max	Unit
V _{in} (110VAC)	103	115	127	VACrms
V _{in} (220VAC)	200	230	253	VACrms
V _{in} Frequency	47		63	Hz
I _{in} (110VAC,300W&360W OUTLET)			8A	A
I _{in} (220VAC,300W&360W OUTLET)			4.5A	A
I _{in} (110VAC,400W OUTLET)			9A	A
I _{in} (220VAC,400W OUTLET)			5A	A
I _{in} (110VAC,300W&360W OUTLET)			10A	A
I _{in} (220VAC,300W&360W OUTLET)			5.5A	A
I _{in} (110VAC,400W OUTLET)			10A	A
I _{in} (220VAC,400W OUTLET)			6A	A

A manual switch shall be provided to select the appropriate voltage range (optional).

1.2 Inrush current regulation

50 A @ 115Vrms
 100 A @ 230Vrms (at 25°C ambient cold start).

☞ 2. DC OUTPUT

2.1 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%	+11.4	+12.0	+12.6	Volts
-5V(optional)	+/-10%	-4.5	-5.0	-5.5	Volts
-12V	+/-10%	-10.8	-12.0	-13.2	Volts
+5VSb	+/-5%	+4.75	+5.0	+5.25	Volts

2.2 Load ranges**P6300H F**

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	0.5	-	15.0	20.0	Amps
+5V	0.5	-	15.0		Amps
+12V	1.0	-	10.0		Amps
-5V(optional)	0.0	-	0.5		Amps
-12V	0.0	-	0.8		Amps
+5VSb	0.0	-	2.0		Amps

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	1.0	-	28.0	20.0	Amps
+5V	5.0	-	30.0		Amps
+12V	8.0	-	18.0		Amps
-5V(optional)	0.0	-	0.5		Amps
-12V	0.0	-	0.8		Amps
+5VSb	0.0	-	2.0		Amps

Notes:

- (1) The maximum continuous average DC outputs power shall not exceed 300W.
- (2) The maximum continuous average load on +3.3V and +5V outputs shall not exceed 195W.
- (3) +3.3V and +5V and +12V combined load shall not exceed 280W.
- (4) When +3.3V and +5V and +12V combined load exceed 220W, -12V minimum load is 0.1A,
- (5) The maximum total combined current on -12V and -5V is 0.8A.
- (6) When +5V peak +12 VDC outputs power shall not exceed 15 seconds in duration , and other output shall not exceed 75% load.

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Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	0.5	-	15.0	20.0	Amps
+5V	0.5	-	20.0		Amps
+12V	1.0	-	10.0		Amps
-5V(optional)	0.0	-	0.5		Amps
-12V	0.0	-	0.8		Amps
+5VSb	0.0	-	2.0		Amps

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	1.0	-	28.0	20.0	Amps
+5V	5.0	-	35.0		Amps
+12V	8.0	-	18.0		Amps
-5V(optional)	0.0	-	0.5		Amps
-12V	0.0	-	0.8		Amps
+5VSb	0.0	-	2.0		Amps

Notes:

- (1) The maximum continuous average DC outputs power shall not exceed 360W.
- (2) The maximum continuous average load on +3.3V and +5V outputs shall not exceed 230W.
- (3) +3.3V and +5V and +12V combined load shall not exceed 340W.
- (4)When +3.3V and +5V and +12V combined load exceed 220W,-12V minimum load is 0.1A,
- (5) The maximum total combined current on -12V and -5V is 0.8A.
- (6) When +5V peak +12 VDC outputs power shall not exceed 15 seconds in duration , and other output shall not exceed 75% load.

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Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	0.5	-	15.0	20.0	Amps
+5V	0.5	-	25.0		Amps
+12V	1.0	-	10.0		Amps
-5V(optional)	0.0	-	0.5		Amps
-12V	0.0	-	0.8		Amps
+5VSb	0.0	-	2.0		Amps

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	1.0	-	28.0	20.0	Amps
+5V	5.0	-	38.0		Amps
+12V	2	-	18.0		Amps
-5V(optional)	0.0	-	0.5		Amps
-12V	0.0	-	0.8		Amps
+5VSb	0.0	-	2.0		Amps

Notes:

- (1) The maximum continuous average DC outputs power shall not exceed 400W.
- (2) The maximum continuous average load on +3.3V and +5V outputs shall not exceed 240W.
- (3) +3.3V and +5V and +12V combined load shall not exceed 380W.
- (4)When +3.3V and +5V and +12V combined load exceed 220W,-12V minimum load is 0.1A,
When +3.3V and +5V and +12V combined load exceed 340W,-12V minimum load is 0.1A and regulation is +20%/-15%,
- (5) The maximum total combined current on -12V and -5V is 0.8A.
- (6) When +5V peak +12 VDC outputs power shall not exceed 15 seconds in duration , and other output shall not exceed 75% load.

2.3 Output Ripple

2.3.1 Ripple regulation

Parameter	Ripple+Noise	Unit
+3.3V	100	mVp-p
+5V	100	mVp-p
+12V	150	mVp-p
-5V(optional)	100	mVp-p
-12V	150	mVp-p
+5VSb	100	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 Ripple voltage test circuit

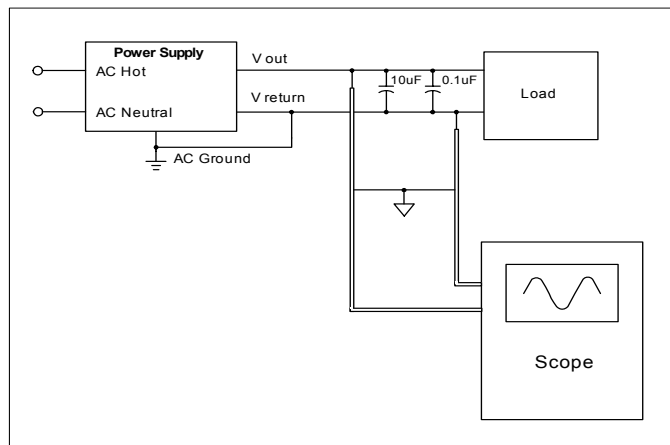


Figure 1. Ripple voltage test circuit

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 efficiency typical 65% at normal AC main voltage and full load on all outputs.

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. PROTECTION

3.1 Over-power protection

The power supply will be shutdown and latch off when output power within 120% ~ 150% of rated DC output.

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	15.6	Volts
+5 VDC	5.74	6.3	7.0	Volts
+3.3 VDC	3.76	4.2	4.3	Volts

3.3 Short circuit

An output short circuit is defined as any output impedance of less than 0.1 ohms. The power supply shall shut down and latch off for shorting the +3.3 VDC, +5 VDC, or +12 VDC rails to return or any other rail. Shorts between main output rails and +5VSB shall not cause any damage to the power supply. The power supply shall either shut down and latch off or fold back for shorting the negative rails. +5VSB must be capable of being shorted indefinitely, but when the short is removed, the power supply shall recover automatically or by cycling PS_ON#. The power supply shall be capable of withstanding a continuous short-circuit to the output without damage or overstress to the unit.

3.4 No load operation

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.

4. TIMING

4.1 Signal timing drawing

Figure 2 is a reference for signal timing for main power connector signals and rails.

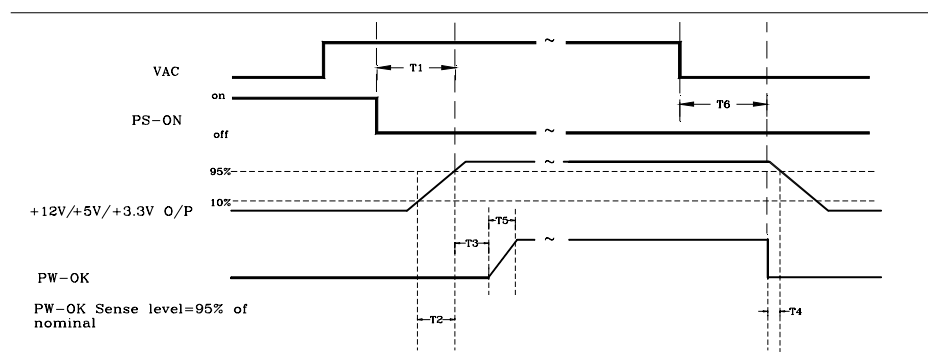


Figure 2. PS-OK Timing Sequence

- (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 Hold up time (T6 of figure 2.)

When the power loss its input power, it shall maintain 14ms in regulation limit at nominal input voltage. (AC:115V/60Hz or 230V/50Hz)

5. ENVIRONMENT

5.1 Operation

Temperature	5°C to 40°C
Relative Humidity	20 to 85%, non-condensing

5.2 Shipping and Storage

Temperature	-40 TO 70°C
Relative Humidity	5 to 90%, non-condensing

5.3 Altitude

Operating	3,000FT max.
Storage	15,000FT max.

6. SAFETY

6.1 Underwriters Laboratory (UL) recognition.

The power supply designed to meet UL 1950.

6.2 The power supply must bear the German Bauart Mark from TUV.

7.0 ELECTROMAGNETIC COMPATIBILITY (EMC)

7.1 IEC 1000-4-2 ESD LEVEL X20KV4.

7.2 IEC 1000-4-3 Radiated electrical field requirement.

7.3 IEC 1000-4-4 BURST .

7.4 IEC 1000-4-5 Surge Voltages.

7.5 EN61000-3-2 harmonic current emissions.

If applicable to sales in Japan or Europe, the power supply shall meet the requirements of EN 61000-3-2 Class D and the Guidelines for the Suppression of Harmonics in Appliances and General Use Equipment Class D for harmonic line current content at full-rated power.

7.6 EN55022 Class B Radio interference (CISPR 22).

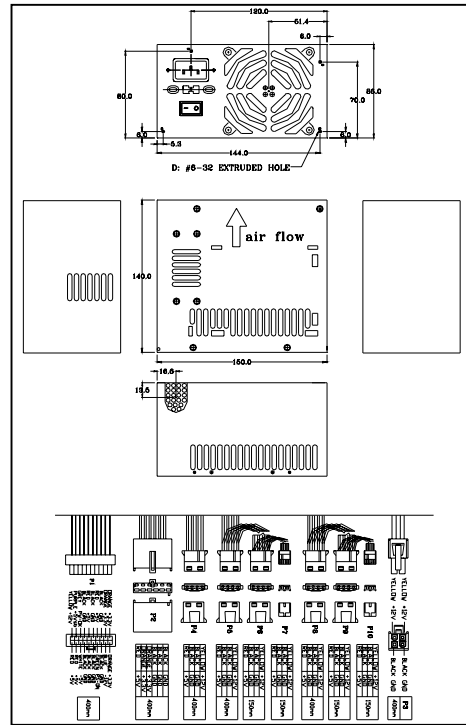
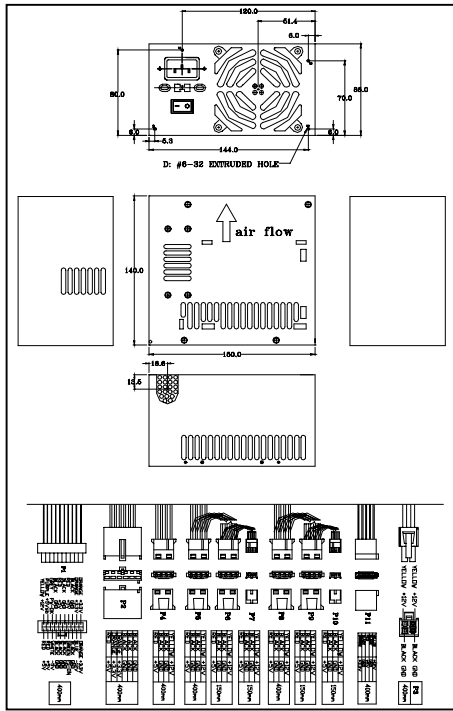
7.7 FCC Part 15, Subpart J class B 115VAC operation.

8. MTBF**8.1 MTBF (MEAN TIME BETWEEN FAILURES) CALCULATION**

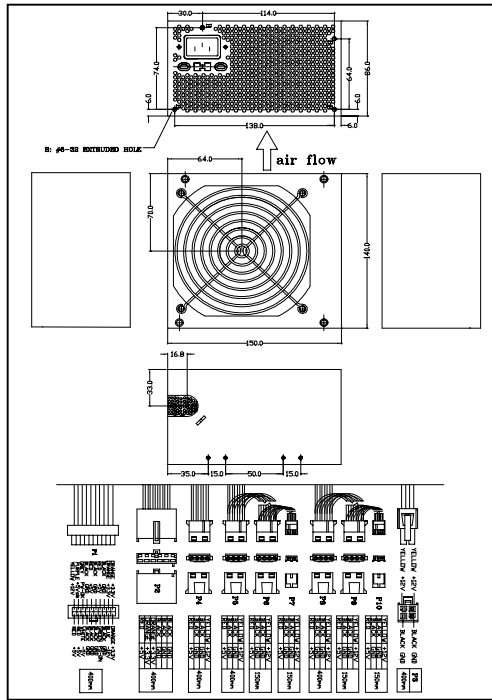
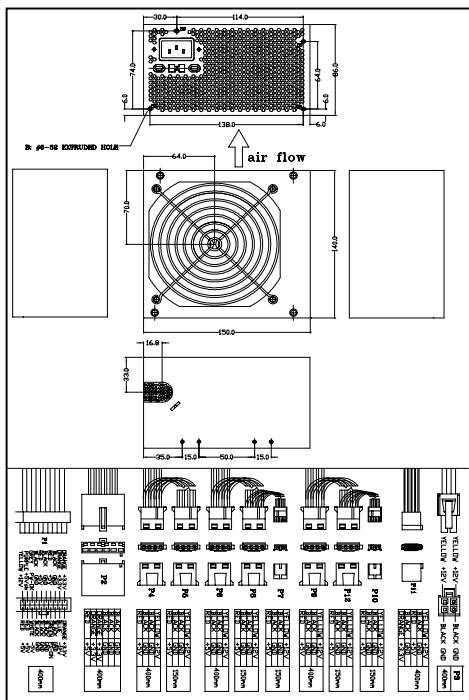
The demonstrated MTBF shall be 100,000 hours of continuous operation at 25°C, full load, 80% confidence limit and nominal line. The MTBF of the power supply shall be calculated in accordance with MIL-STD-217D/E. The DC FAN is not included.

9. MECHANICAL REQUIREMENTS

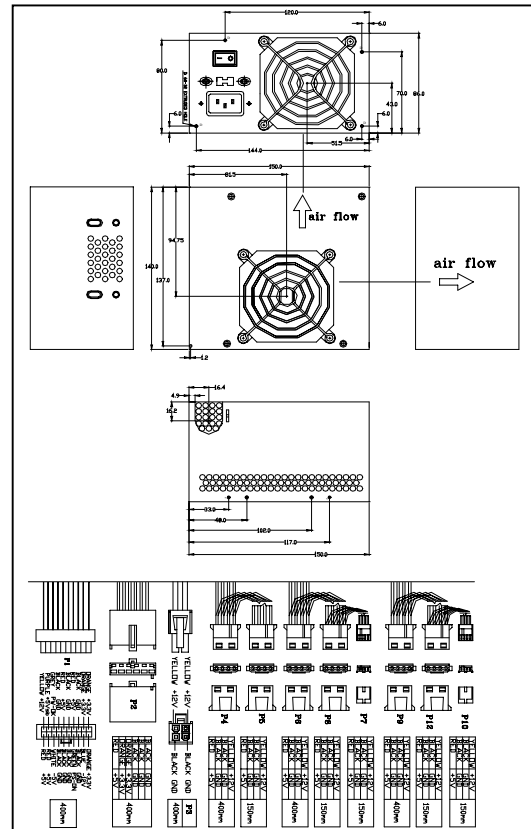
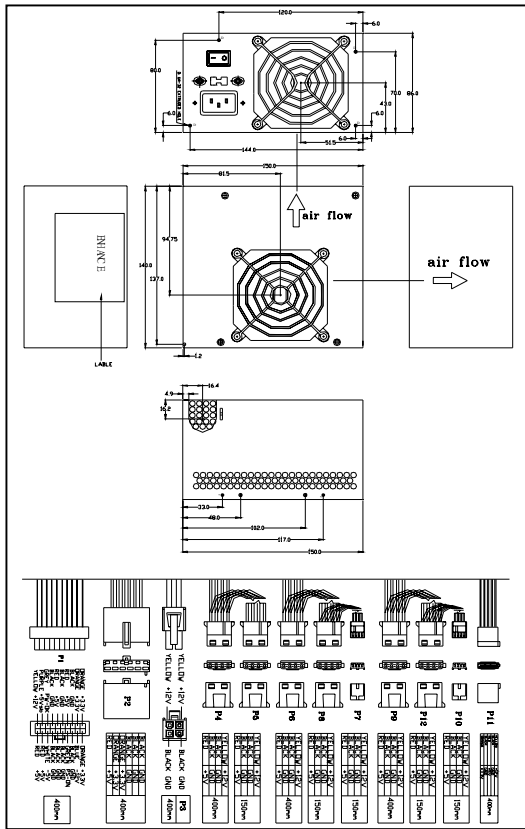
9.1 Physical Dimension



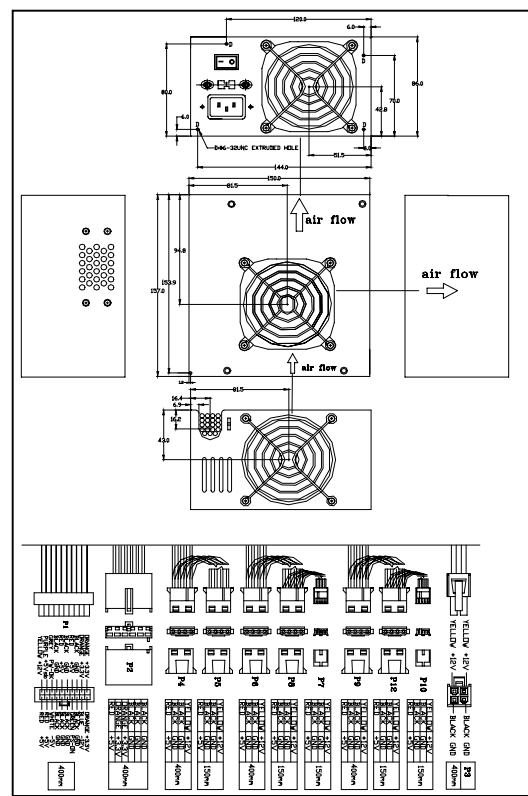
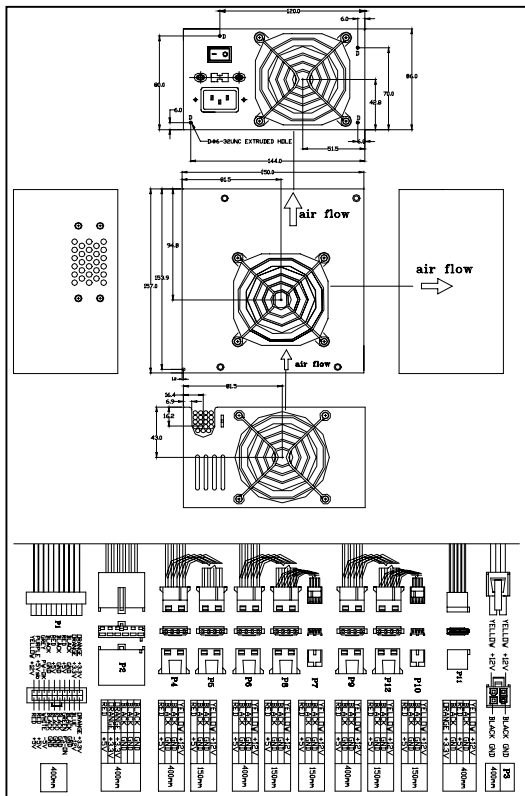
Mechanical diagram for P6300H F (8cm One fan , SATA is optional)



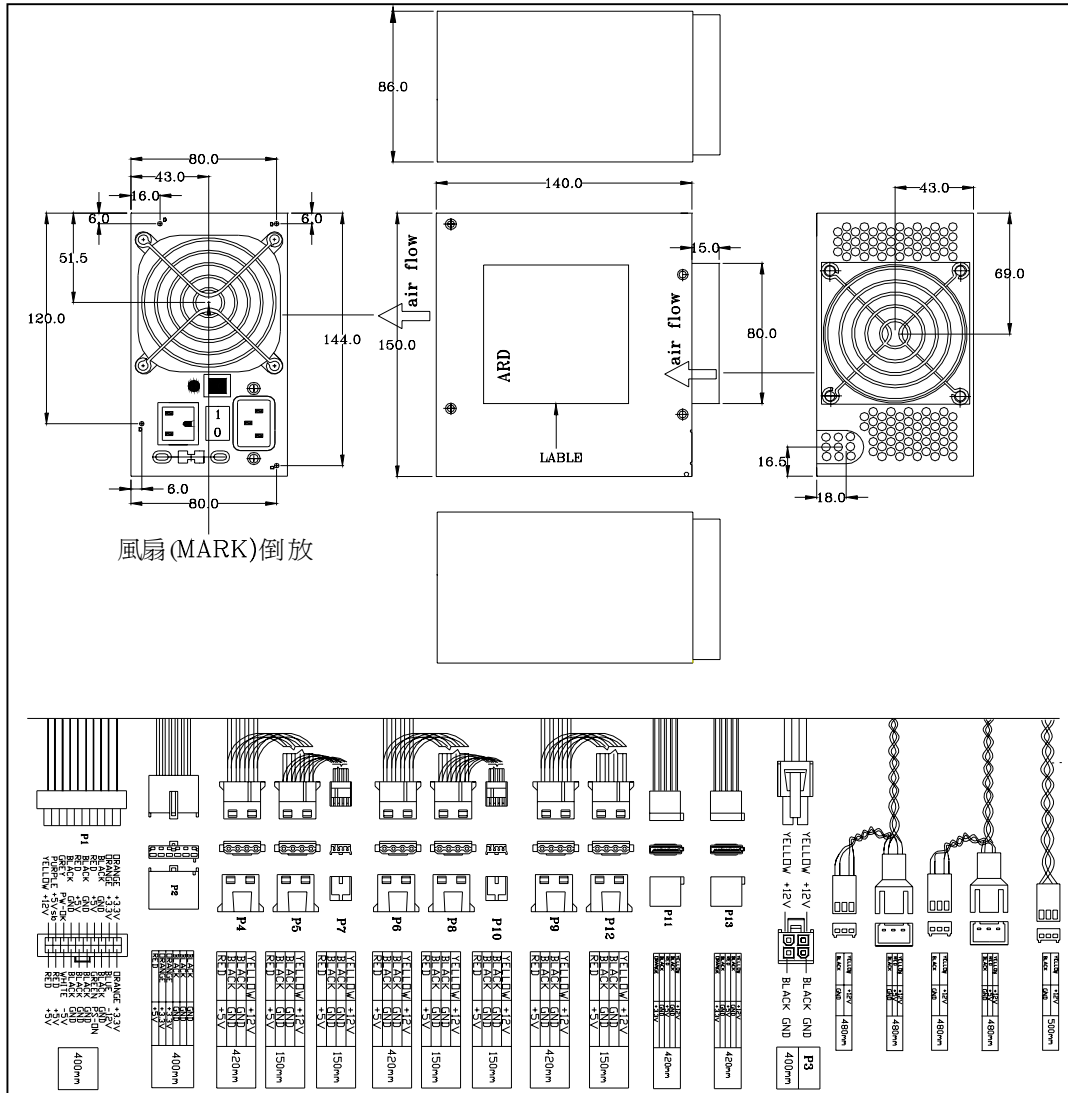
Mechanical diagram for P6300H F(12cm One fan , SATA is optional)



Mechanical diagram for P6300H F (Dual fan , SATA is optional)



Mechanical diagram for P6300H F (Three fan , SATA is optional)



Mechanical diagram for P6300H F(Dual fan , SATA is optional)

9.2 Connectors (INTEL approved equivalent)

P1 Connector (Molex 39-01-2200 or Equivalent)

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

P2 Connector (Molex 90331-0010 or Equivalent)

16 AWG wire	Signal	Pin	Pin	Signal	16 AWG wire
Red	+5VDC	1	4	COM	Black
Orange	+3.3VDC	2	5	COM	Black
Orange	+3.3VDC	3	6	COM	Black

P3 Connector(Molex 39-01-2040 or Equivalent)

18 AWG wire	Signal	Pin	Pin	Signal	18AWG wire
Black	GND	1	3	Yellow	+12V
Black	GND	2	4	Yellow	+12V

P4,P5,P6,P8,P9,P12 (AMP 1-480424-0 or Molex 8981-04P or Equivalent)

P7,P10 (AMP 171822-4 or Equivalent)

18 AWG wire	Signal	Pin	Pin	Signal	22AWG wire
Yellow	+12VDC	1	1	+5VDC	Red
Black	COM	2	2	COM	Black
Black	COM	3	3	COM	Black
Red	+5VDC	4	4	+12VDC	Yellow

P11,P13 (optional) SATA Power Connector (Molex* 88751 or equivalent)

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

P14 Connector (24PIN: Molex 39-01-2240 or Equivalent)

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

P15 Connector (8PIN : Molex 39-01-2080 or Equivalent)

16AWG wire	Signal	Pin	Pin	Signal	16AWG wire
Black	COM	5	1	+5V DC	Red
Yellow	+12V DC	6	2	PG	Grey (20AWG)
Yellow	+12V DC	7	3	COM	Black
Yellow	+12V DC	8	4	COM	Black

10. OPTIONS

10.1 FAN SPEED CONTROL and FAN MONITOR

- (1.) Main fan voltage varies with the ambient temperature or output power.
- (2.) When power over-heated, alarm occurs ,then the spare fan can sense it and work; press RESET button to stop alarm;When the inner temperature lowed, the spare fan can sense it and stop working.
- (3.) When the main fan out of work, alarm occurs and the spare fan shall work immediately. Press RESET button to stop alarm and after the main fan recovered, the spare fan can sense it and stop working.

10.2 Relay board

After AC Voltage input power supplied,power operating,there is DC Voltage.So relay works, then,output AC Voltage of receptacle will come into being.