

# Industrial Computer ATX Series



## 500W Multiple Output Active PFC Data Sheet

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### Description

This is a high-power factor (PF), multiple-output AC to DC switching mode power supply unit which can provide up to 500 watts continuous with forced cooling by a smart FSC (fan speed control) circuitry. There is a built-in auxiliary converter (5VSB) for better energy saving. It complies with 80+gold as well as worldwide safety and EMC regulations (refer to details below). It is suitable for various industrial PC applications.

### Features

- \* Full AC input voltage range design.
- \* High power factor and less fictitious power.
- \* Withstand 300Vac surge voltage for 5 seconds.
- \* Full Protections: Short-circuit/ Over-voltage/ Over-current/ Over temperature.
- \* INTEL® standard ATX form factor.
- \* Meet 80+gold and support 150% peak power.
- \* IEC/EN 62368-1 design compliance.
- \* Up to 5000 meters operating altitude (note#4)
- \* High efficiency and high reliability.
- \* REM\_ON/OFF and PWR\_OK signal



### Electrical Specification

Model Name	HS-5501-12A1				
<b>Output</b>					
Rated power	500W				
Rated voltage	12V	5V	3.3V	-12V	5Vsb
Rated current	41A	20A	20A	0.3A	3A
Ripple & Noise(max.) (note #2)	120mV	50mV	50mV	120mV	50mV
Line & load regulation	±5%	±5%	±5%	±10%	±5%
Hold-up time(typ.) (note #5)	16ms				
Timing: AC ON delay / rising (max.)	2 sec / 20ms				
<b>Input</b>					
Rated voltage range	100~240Vac				
Operated voltage range	90~264Vac, 300Vac for 5 sec				

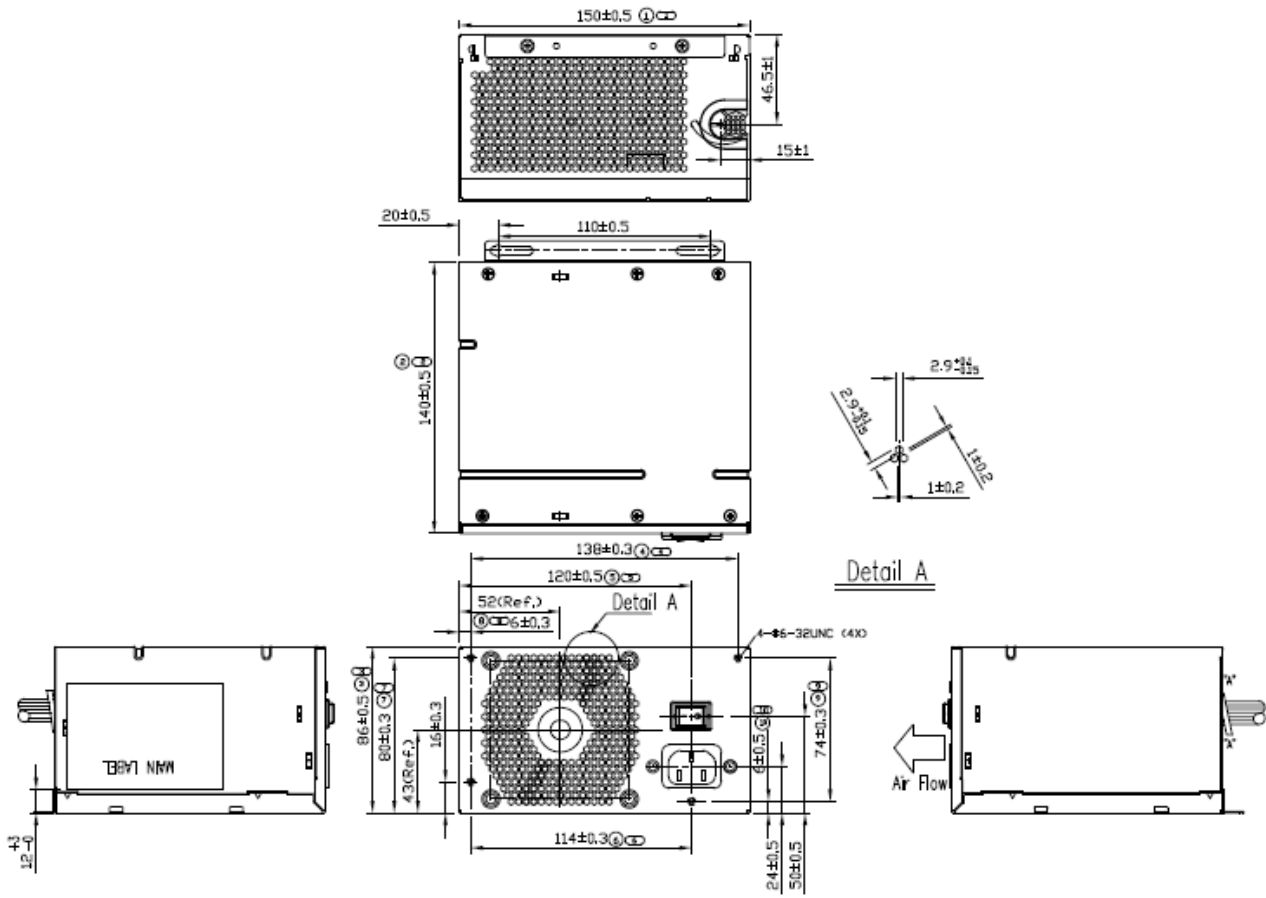
Current range (max.)	8.0A/100Vac
Inrush current	No component damaged (<math>i^2 \cdot t</math>).
Frequency range	50-60Hz
Leakage current (max.)	3.5mA at 240Vac
Efficiency (min.)	87% - 90% - 87% (at 20% - 50% - 100% of rated loading)
Standby power saving (min.)	Pin<1W at 5Vsb/0.1A Pin<0.5W at Po=0.25W (at REM_OFF, efficiency>50%)
<b>Protection Function</b>	
Over voltage (max.)	140% of rated voltage, latch-off protection (for +12V/+5V/+3.3V)
Over current (max.)	Latch-off protection (for +12V/+5V/+3.3V)
Short circuit at O/P	Latch-off protection (for +12V/+5V/+3.3V)
Over temperature	Latch-off protection
<b>Others</b>	
MTBF (min.) (note#3)	700K hours @ rated load
<b>Environment</b>	
Temperature (note#5)	(operating) 0~50°C / (storage) -40~85°C
Humidity	(operating) 10~90% RH non-condensing / (storage) 5~95% RH
Altitude (max.)	5000 meters
<b>Mechanical</b>	
Dimension	150(L)*140(W)*86 (H) mm
Vibration	10~500 Hz, 5G 20min./1cycle per axis for all axes (X, Y, Z)
Weight (typ.)	1550g
<b>Safety</b>	
Standard	CB/IEC62368-1,TUV62368-1,UL62368-1,EN62368-1, CCC GB4943.1,BSMI CNS15598-1,KC62368-1
Withstand voltage	Input-Output: 4242VDC / Input-FG: 2150VDC
Isolation resistance(min.)	Input-Output: 100Mohm @ 500VDC, 25°C, 70%RH
<b>EMC</b>	
EN55032 (CISPR32)	Conducted EMI: class B / Radiated EMI: class B
FCC	Conducted EMI: class B / Radiated EMI: class B
EN61000-3-2	Harmonic distortion: Class D
EN61000-4-2	ESD: ±8KV contact discharge / ±15KV contact discharge
EN61000-4-3	Radiated RF immunity: 3V/m
EN61000-4-4	EFT: ±1KV (AC port)
EN61000-4-5	Surge: ±1KV DM / ±2KV CM
EN61000-4-6	Conducted RF immunity: 3V/m
EN61000-4-8	Magnetic field immunity: 3A/m

EN61000-4-11	Voltage dip immunity
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**Notes**

- #1: All specification defined at 230Vac/50Hz, rated power and 25°C ambient temperature if not mentioned specifically.
- #2: Ripple noise is measured with 0.1uF MLCC & 10uF low ESR capacitor.
- #3: Calculated by Telcordia SR332 at 25°C ambient temperature.
- #4: When operating altitude is higher than 2000m, the environment temperature derating factor is 0.36°C/100m.
- #5: Hold up time will be evaluated at 80% of rated load.

**Mechanical Specification**



CONNECTOR	PIN #	FUNCTION	COLOR		TYPE					
P1 Minifit 20+4pin	1	3.3V	DRANGE		20AWG #1007	PA-PF, PK, PL B4P	1	+12V	YELLOW	20AWG #1007
	2	3.3V	DRANGE				2	GND	BLACK	
	3	GND	BLACK				3	GND	BLACK	
	4	5V	RED				4	+5V	RED	
	5	GND	BLACK		20AWG #1007	PG PI SATA	1	3.3V	DRANGE	20AWG #1007
	6	5V	RED				2	GND	BLACK	
	7	GND	BLACK				3	+5V	RED	
	8	POK	GRAY				4	GND	BLACK	
	9	5Vsb	PURPLE				5	+12V	YELLOW	
	10	+12 V	YELLOW		20AWG #1007	PH PJ SATA	1	3.3V	DRANGE	20AWG #1007
	11	+12V	YELLOW				2	GND	BLACK	
	12	3.3V	DRANGE				3	+5V	RED	
	13	3.3V	DRANGE				4	GND	BLACK	
	13-1	3.3Vsense	BROWN		22AWG #1007	PM S4P	1	+5V	RED	22AWG #1007
	14	-12V	BLUE				2	GND	BLACK	
	15	GND	BLACK				3	GND	BLACK	
	15-1	GND	BLACK				4	+12V	YELLOW	
	16	PS ON	GREEN		20AWG #1007		17	GND	BLACK	
	17	GND	BLACK				18	GND	BLACK	
	18	GND	BLACK				19	GND	BLACK	
	19	GND	BLACK				20			
	20						21	5V	RED	
	21	5V	RED				22	5V	RED	
	22	5V	RED				23	5V	RED	
23	5V	RED		24			GND	BLACK		
P2 P3 Minifit 4+4pin	1	GND	BLACK		18AWG #1007		1	+12V	YELLOW	18AWG #1007
	2	GND	BLACK				2	+12V	YELLOW	
	3	GND	BLACK				3	+12V	YELLOW	
	4	GND	BLACK				4	GND	BLACK	
	5	+12V	YELLOW				5	GND	BLACK	
P4 PCIE 6+2pin	6	+12V	YELLOW		18AWG #1007		6	+12V	YELLOW	18AWG #1007
	7	+12V	YELLOW				7	GND	BLACK	
	8	+12V	YELLOW				8	GND	BLACK	
	1	+12V	YELLOW				9	GND	BLACK	
	2	+12V	YELLOW				10	GND	BLACK	
	3	+12V	YELLOW				11	GND	BLACK	
	4	GND	BLACK				12	GND	BLACK	
	5	GND	BLACK				13	GND	BLACK	
6	GND	BLACK		14	GND	BLACK				
7	GND	BLACK		15	GND	BLACK				
8	GND	BLACK		16	GND	BLACK				

