Industrial Computer
ATX Series

650W 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 650 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 200% peak power (note#6).
* 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	PS-5651-50LG				
Output					
Rated power	650W				
Rated voltage	12V	5V	3.3V	-12V	5Vsb
Rated current	54.1A	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				
Input					
Rated voltage range	100~240Vac				
Operated voltage range	90~264Vac, 300Vac for 5 sec				

Current range (max.)	8A/100Vac (650W)
Inrush current	No component damaged ($<I^2*t$).
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%)
Protection Function	
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
Others	
MTBF (min.) (note#3)	700K hours @ rated load
Environment	
Temperature (note#5)	(operating) 0~50℃ / (storage) -40~85℃
Humidity	(operating) 10~90% RH non-condensing / (storage) 5~95% RH
Altitude (max.)	5000 meters
Mechanical	
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.)	1.9kg
Safety	
Standard	CB/IEC62368-1,TUV62368-1,UL62368-1,EN62368-1
Withstand voltage	Input-Output: 4242VDC / Input-FG: 2150VDC
Isolation resistance(min.)	Input-Output: 100Mohm @ 500VDC, 25℃, 70%RH
EMC	
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

Notes

#1: All specification defined at 230Vac/50Hz, rated power and 25℃ ambient temperature if not mentioned specifically.

#2: Ripple noise is measured with 0.1uF MLCC & 10uF low ESR capacitor.

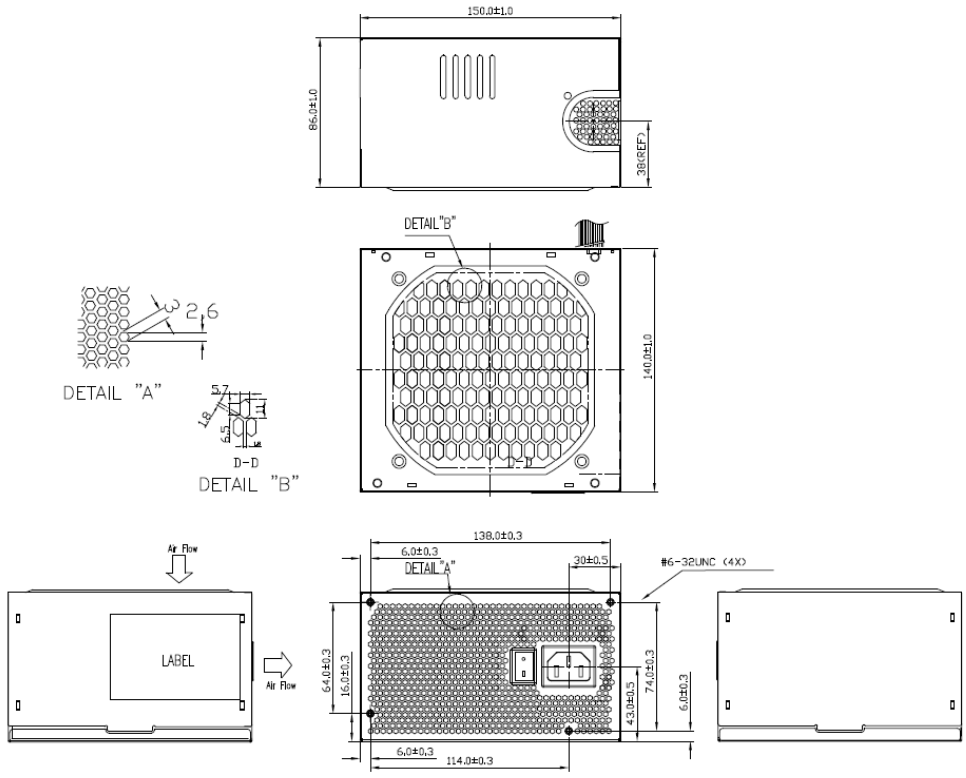
#3: Calculated by Telcordia SR332 at 25℃ ambient temperature.

#4: When operating altitude is higher than 2000m, the environment temperature derating factor is 0.36℃/100m.

#5: Hold up time will be evaluated at 80% of rated load.

#6: With 12V-2x6 connector, it can support 200% peak power. Without 12V-2x6 connector, it can support 150% peak power.

Mechanical Specification



CONNECTOR	PIN #	FUNCTION	WIRE(UL2468) COLOR	WIRE(UL2468) TYPE
P1	1	+3.3V	BLACK	20AWG
	2	+3.3V	BLACK	
	3	COM	BLACK	
	4	+5V	BLACK	
	4-1	+5V Sence	BLACK	
	5	COM	BLACK	
	6	+5V	BLACK	
	7	COM	BLACK	
	8	PGD	BLACK	
	9	+5Vsb	BLACK	
	10	+12V	BLACK	
	10-1	+12V Sence	BLACK	
	11	+12V	BLACK	
	12	+3.3V	BLACK	
	13	+3.3V	BLACK	
	13-1	+3.3V Sence	BLACK	
	14	-12	BLACK	
	15	COM	BLACK	
	15-1	COM	BLACK	
	16	PS ON	BLACK	
	17	COM	BLACK	
	18	COM	BLACK	
	19	COM	BLACK	
	20			
	21	+5V	BLACK	20AWG
	22	+5V	BLACK	
	23	+5V	BLACK	
	24	COM	BLACK	
P2	1	COM	BLACK	18AWG
	2	COM	BLACK	
	3	COM	BLACK	
	4	COM	BLACK	
	5	+12V	BLACK	
	6	+12V	BLACK	
	7	+12V	BLACK	
	8	+12V	BLACK	
P3A& P3B	1&5	COM	BLACK	18AWG
	2&6	COM	BLACK	
	3&7	+12V	BLACK	
	4&8	+12V	BLACK	
P8~P10 & P12~P14	1	+3.3V	BLACK	20AWG
	2	COM	BLACK	
	3	+5V	BLACK	
	4	COM	BLACK	
	5	+12V	BLACK	
P11& P15	1	+12V	BLACK	20AWG
	2	COM	BLACK	
	3	COM	BLACK	
	4	+5V	BLACK	

CONNECTOR	PIN #	FUNCTION	WIRE(UL2468) COLOR	WIRE(UL2468) TYPE
P4~P6	1	+12V	BLACK	18AWG
	2	+12V	BLACK	
	3	+12V	BLACK	
	4	COM	BLACK	
	5	COM	BLACK	
	6	COM	BLACK	
	7	COM	BLACK	
	8	COM	BLACK	
450W	1	+12V	BLACK	UL1430 18AWG
	2	+12V	BLACK	
	3	+12V	BLACK	
	4	+12V	BLACK	
	5	+12V	BLACK	
	6	+12V	BLACK	
	7	COM	BLACK	
	8	COM	BLACK	
	9	COM	BLACK	
	10	COM	BLACK	
	11	COM	BLACK	
	12	COM	BLACK	
	S1	CARD-PWR_STABLE	BLACK	28AWG
	S2	CARD-CBL_PRES	BLACK	
	S3	SENSE 0	BLACK	
	S4	SENSE 1	BLACK