Industrial Computer
Flex ATX Series

450W 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 450 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 Flex ATX (1U) 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-5451-05LG				
Output					
Rated power	450W				
Rated voltage	12V	5V	3.3V	-12V	5Vsb
Rated current	37.5A	18A	15A	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.)	6.5A/100Vac
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	150.0(L)*81.5(W)*40.5 (H) mm
Vibration	10~500 Hz, 5G 20min./1cycle per axis for all axes (X, Y, Z)
Weight (typ.)	860g
Safety	
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℃, 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.

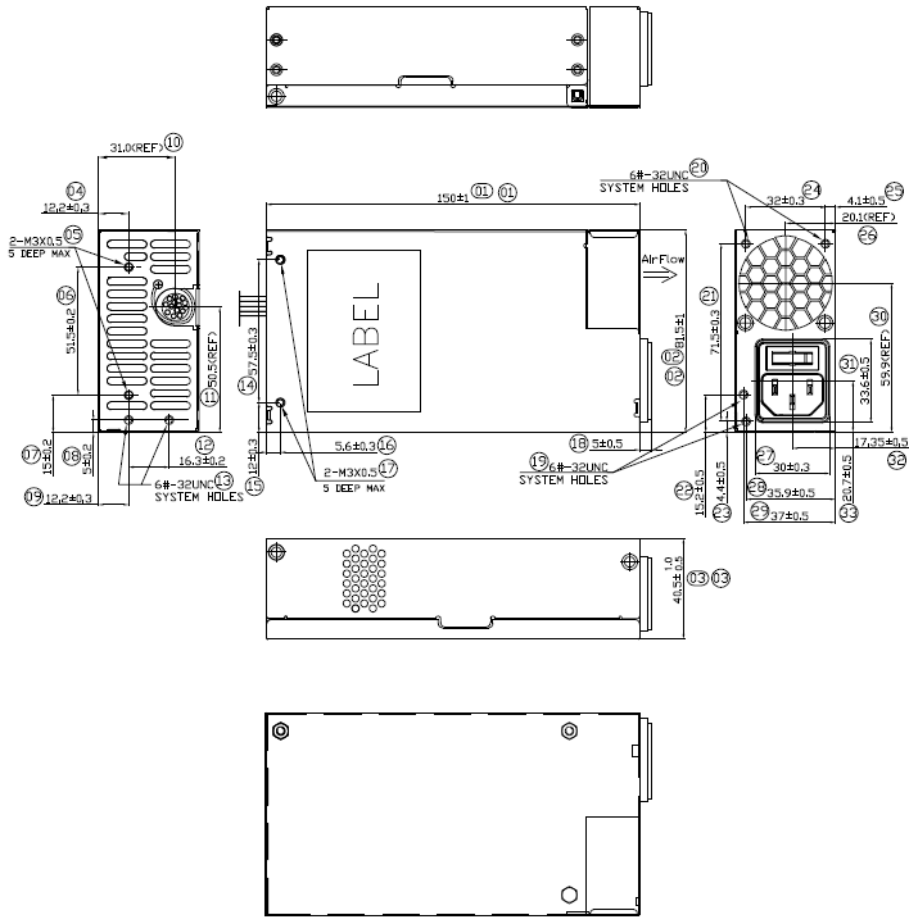
#3: Calculated by Telcordia SR332 at 25℃ ambient temperature.

#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.

Mechanical Specification

(Refer to below drawing for case openings)



CONNE-CTOR	PIN #	FUNCTION	COLOR	TYPE
P1	1	3.3V	ORANGE	20AWG
	2	3.3V	ORANGE	
	3	GND	BLACK	
	4	5V	RED	
	4-1	5V Sense	RED	24AWG
	5	GND	BLACK	20AWG
	6	5V	RED	
	7	GND	BLACK	
	8	PDK	GRAY	24AWG
	9	5Vsb	PURPLE	20AWG
	10	+12 V	YELLOW	
	11	+12 V	YELLOW	
	12	3.3V	ORANGE	
	13	3.3V	ORANGE	
	13-1	3.3Vsense	BROWN	24AWG
	14	-12V	BLUE	
	15	GND	BLACK	20AWG
	16	PS ON	GREEN	24AWG
	17	GND	BLACK	20AWG
	18	GND	BLACK	
	19	GND	BLACK	
	20	——	——	——
	21	5V	RED	20AWG
	22	5V	RED	
	23	5V	RED	
	24	GND	BLACK	
P2 P3	1	GND	BLACK	20AWG
	2	GND	BLACK	
	3	GND	BLACK	
	4	GND	BLACK	
	5	+12V	YELLOW	
	6	+12V	YELLOW	
	7	+12V	YELLOW	
	8	+12V	YELLOW	
P4	1	+12V	YELLOW	20AWG
	2	+12V	YELLOW	
	3	+12V	YELLOW	
	4	GND	BLACK	
	5	GND	BLACK	
	6	GND	BLACK	
	7	GND	BLACK	
	8	GND	BLACK	
PAPB	1	+12V	YELLOW	20AWG
	2	GND	BLACK	
	3	GND	BLACK	
	4	+5V	RED	
PC	1	+5V	RED	22AWG
	2	GND	BLACK	
	3	GND	BLACK	
	4	+12V	YELLOW	
PDPE PFPG	1	3.3V	ORANGE	20AWG
	2	GND	BLACK	
	3	+5V	RED	
	4	GND	BLACK	
	5	+12V	YELLOW