TECHNICAL DATASHEET

400W Medical ATX Power Supply

PE series

FEATURES

- Flex size with 190 x 82 x 41 mm
- IEC 60601-1 & IEC 62368-1 certified
- Intel ATX12V V3.1 compliance
- Meet EN55011 Class B
- BF class isolation

SAFETY STANDARD APPROVAL

c UL us
E211696

EN 60601-1
IEC 60601-1
TÜVRheinland
CERTIFIED

CE

DESCRIPTION

This PSU of AC/DC switching power supplies in an Flex form factor 190 × 82 × 41 mm is capable of delivering 300 or 400 watts of continuous power. PSU built-in DC/DC converter at +3.3V and +5V output rails to enhance load regulation.

INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	6 A (rms) @115Vac, 60Hz 3 A (rms) @ 230Vac, 50Hz
Earth leakage current:	400 μA max. @ 264 VAC, 63 Hz
Touch current:	100 μA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Maximum output power:	See rating chart.
Ripple and noise:	See rating chart.
Protection	
OVP:	Latch off
OCP & Shorted:	Auto recovery
OTP:	Latch off

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0℃ to +50℃
Storage temperature:	-20℃ to +80℃
Relative humidity:	10% to 95% non-condensing
Derating:	Derate from 100% at +50℃ linearly to 50% at +70℃

GENERAL SPECIFICATIONS

Turn-on delay time:	2 Sec maxi.
Power factor:	0.95 minimum at 115VAC 0.9 minimum at 230VAC
Efficiency:	FSP300M-50PE meet 80PLUS Gold (87%, 90%, 87%) at +3.3 V & +5 V combine output power 80W FSP400M-50PE meet 80PLUS Gold (87%, 90%, 87%) at +3.3 V & +5 V combine output power 90W
Hold-up time:	10 mS minimum at 115VAC 10 mS minimum at 230 VAC
Line regulation:	±1% maximum at full load
Inrush current:	50 A @115 VAC at 25℃ cold start 100 A @ 230 VAC at 25℃ cold start
Withstand voltage:	4000 VAC from input to output (2 MOPP) 1500 VAC from input to ground (1 MOPP) 1500 VAC from output to ground
MTBF:	128,323 hours at full load & 25℃ ambient, calculated MIL-HDBK

EMC Performance (IEC60601-1-2)

EN55011/ EN55022:	Class B conducted, Class B radiated
EN61000-3-2:	Harmonic distortion, Class D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ±15 KV air and ±8 KV contact
EN61000-4-3:	Radiated immunity, 9-28 V/m
EN61000-4-4:	Fast transient/burst, ±2 KV
EN61000-4-5:	Surge, ±1 KV diff., ±2 KV com.
EN61000-4-6:	Conducted immunity, 3-6 Vrms
EN61000-4-8:	Magnetic field immunity, 30 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, >100% reduction for 10 ms

OUTPUT VOLTAGE/CURRENT RATING CHART

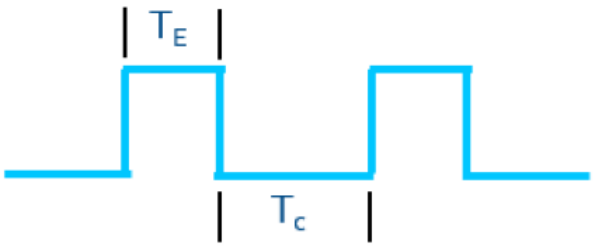
Rating / Outputs	FSP400M-50PE		FSP300M-50PE		Load Regulation	Ripple & Noise
	Mini. Load	Maxi. Load	Mini. Load	Maxi. Load		
+3.3 V	0 A	14 A	0 A	12 A	±5%	50 mV P-P
+ 5 V	0 A	16 A	0 A	14 A	±5%	50 mV P-P
+12 V1	0 A	33 A	0 A	24 A	±5%	120 mV P-P
-12 V	0 A	0.3 A	0 A	0.3 A	±10%	120 mV P-P
+5 Vsb	0 A	3.0 A	0 A	2.5 A	±5%	50 mV P-P
+3.3 V & +5 V Combine Output Power	130W Maxi.		120W Maxi.			
+12V Total Output Power	396W Maxi.		288 A Maxi.			
Total Output Power	400W		300W			

NOTES:
1. Ripple and noise measurements shall be made under all specified load conditions through a single pole low pass filter with 20MHz cutoff frequency. Outputs shall bypassed at the connector with a 0.1uF ceramic disk capacitor and a 10uF electrolytic capacitor to simulate system loading.

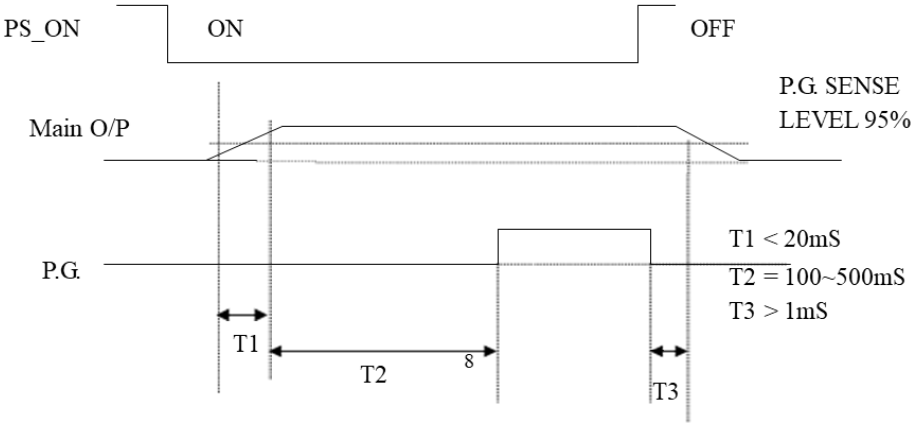
Power Excursion

Based on the power budgets and peak power of both the Processor detailed and the PCIe* Add-in Cards, the following Peak Power Requirements are defined for the Power Supply.

Power Excursion % of PSU Rated Size	Time for Power Excursion (TE)	Testing Duty Cycle	Time Constant (TC)
100%	Infinite		
110%	100ms	25%	300ms
135%	10ms	12.5%	70ms
145%	1ms	8%	11.5ms
150%	100us	5%	1900us

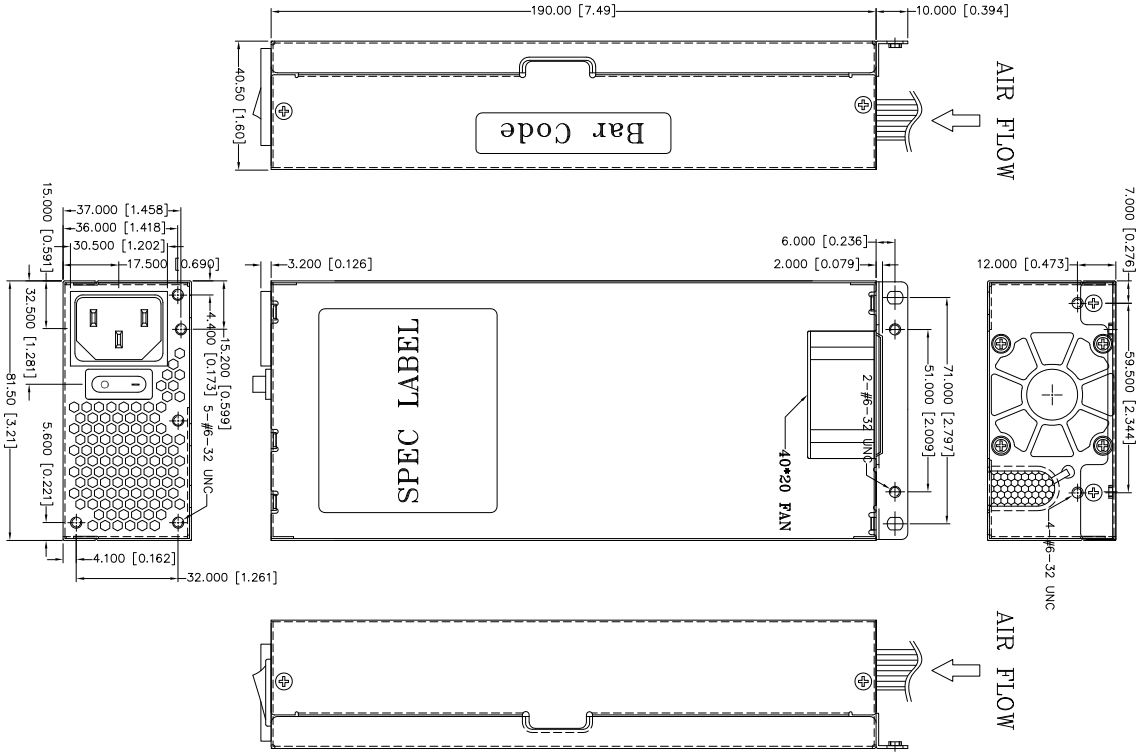


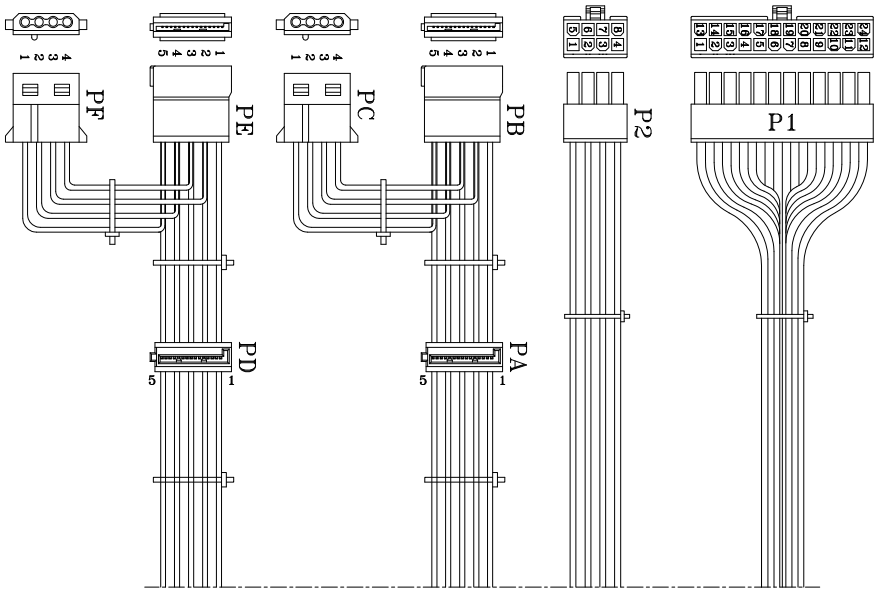
INTERFACE SIGNALS

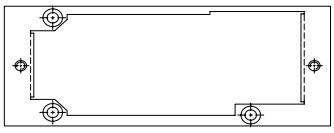


1. T1 : RISE TIME < 20 mS
2. T2 : POWER GOOD DELAY TIME 100 ~ 500 mS
3. T3 : POWER FAIL DELAY TIME > 1 mS

MECHANICAL SPECIFICATIONS







Optional Accessory: Flex-to-1U Bracket

Output connectors	Connector ID.	Cable Length	Output connectors (equivalent)
Mother board 24 pin	P1	350 mm	MOLEX 39-01-2240
CPU 8 pin	P2	350 mm	MOLEX 39-01-2080
SATA + PATA	PA + PB + PC PD + PE + PF	(350+155+155 mm) * 2	MOLEX SD-67926-0311 MOLEX SD-67582-001 WST P4-A10202

NOTES:
1. Unit: mm
2. Weight: 0.93 Kg