

# FSP120M-K Series

### FEATURES

- Wide input range 80 to 264 VAC
- No load power consumption less than 0.15W
- Meet Energy Start EPS2.0 /ErP EC No 278/2009 (Lot 7)
- Meet EU CoC EPS V5 Tier 2
- Class II model meet IEC 60601-1-11
- Low profile at 28mm
- IP54



### SAFETY STANDARD APPROVAL



### DESCRIPTION

FSP120M-K series of AC/DC switching power supplies are for 120 watts of continuous output power. They are enclosed in a 94V-0 rated polycarbonate case with an IEC320/C14 (Class-I) or C8 (Class-II) inlet to mate with interchangeable cord for world-wide use. All models meet EN55011 class B emission limits, and are designed for medical applications.

### INPUT SPECIFICATIONS

Input voltage:	80-264 VAC
Power derating:	Derate linearly from 100% at 90 VAC to 90% at 85Vac and 80% at 80 VAC
Input frequency:	47-63 Hz
Input current:	1.60 A (rms) for 115 VAC 0.80 A (rms) for 230 VAC
Earth leakage current:	180 $\mu$ A max. @ 264 VAC, 63 Hz
Touch current:	100 $\mu$ A max. @ 264 VAC, 63 Hz

### OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart
Maximum output power:	See rating chart
Ripple and noise:	1% peak to peak maximum
Protection:	
Over voltage:	Provided and set at 112-140% of its nominal output voltage, latching by recycle input to reset
Short circuit:	Automatic recovery
Over temperature:	Latching by recycle input to reset
Temperature coefficient:	All outputs $\pm$ 0.04% / $^{\circ}$ C maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change.

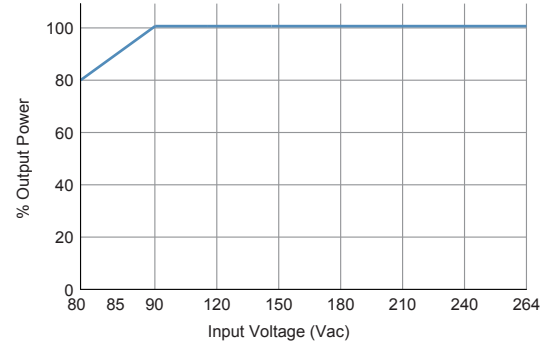
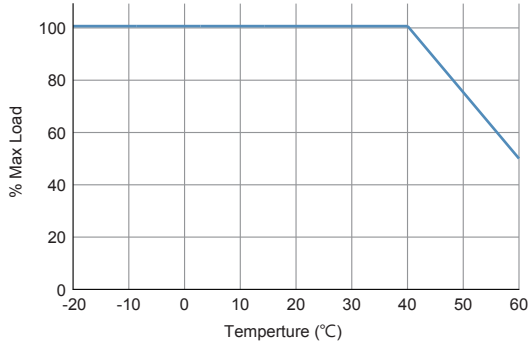
### ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-20 $^{\circ}$ C to +60 $^{\circ}$ C
Atmospheric pressure	540 hPa to 1060 hPa
Altitude sea level	5000M operation
Storage temperature:	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Relative humidity:	5% to 95% non-condensing
Temperature derating:	Derate from 100% at +40 $^{\circ}$ C linearly to 50% at +60 $^{\circ}$ C
Ingress protection:	IP54

### GENERAL SPECIFICATIONS

Switching frequency:	50-130 KHz
Power factor:	0.98 Typical at 115 VAC
Efficiency:	88% min. at full load
Hold-up time:	20 ms minimum at 100 VAC
Line regulation:	$\pm$ 0.5% maximum at full load
Inrush current:	90 A @ 115 VAC or 180 A @ 230 VAC, at 25 $^{\circ}$ C cold start
Withstand voltage:	4000 VAC from input to output (2 MOPP) 1500 VAC from input to ground (1 MOPP) 500 VAC from output to ground (Class-I models)
MTBF:	100,000 hours at full load at 25 $^{\circ}$ C ambient, calculated per MIL-HDBK-217F
EMC Performance (IEC60601-1-2)	
EN55011:	Class B conducted, class B radiated
FCC:	Class B conducted, class B radiated
VCCI:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, $\pm$ 15 KV air and $\pm$ 8 KV contact
EN61000-4-3:	Radiated immunity, 10 V/m
EN61000-4-4:	Fast transient/burst, $\pm$ 2 KV
EN61000-4-5:	Surge, $\pm$ 1 KV diff., $\pm$ 2 KV com.
EN61000-4-6:	Conducted immunity, 10 Vrms
EN61000-4-8:	Magnetic field immunity, 30 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms (criteria A @ 230VAC, criteria B @ 100VAC), 60% reduction for 100 ms (criteria A @ 230VAC, criteria B @ 100VAC) > 95% reduction for 20 ms

### OUTPUT POWER DERATING CURVE



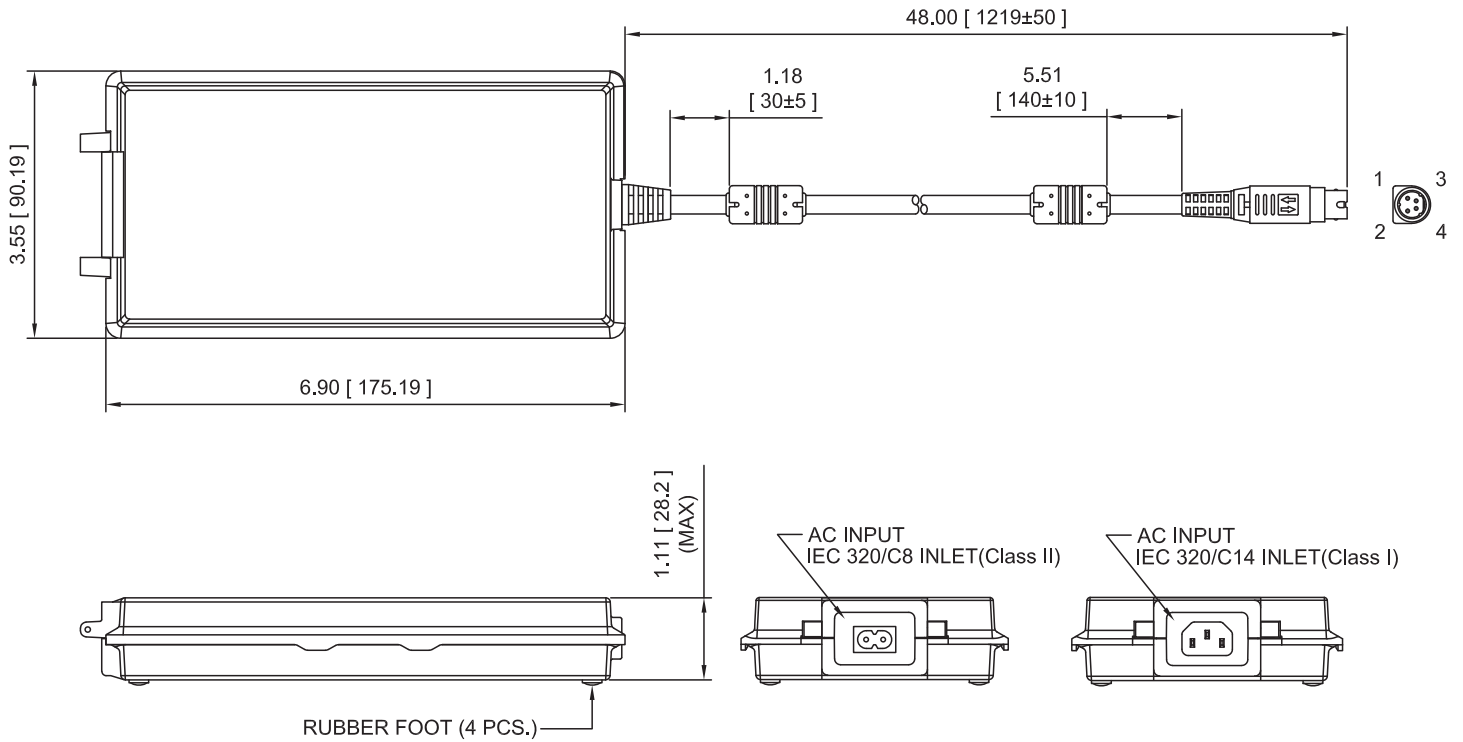
### OUTPUT VOLTAGE/CURRENT RATING CHART

Model		Output						Average Active Efficiency (typical) @ 115 / 230 VAC
Class-I <sup>(1)</sup>	Class-II <sup>(2)</sup>	V1	Min. Current	Max. Current	Tolerance	Ripple & Noise <sup>(3)</sup>	Max. Power	
FSP120M-KBA	FSP120M-KBC	19 V	0 A	6.32 A	±5%	190 mV	120 W	89 / 89%
FSP120M-KAA	FSP120M-KAC	24 V	0 A	5.00 A	±5%	240 mV	120 W	90 / 90%
FSP120M-KEA	FSP120M-KEC	36 V	0 A	3.34 A	±5%	360 mV	120 W	90 / 90%
FSP120M-KFA	FSP120M-KFC	48 V	0 A	2.50 A	±5%	480 mV	120 W	90 / 90%

NOTES:

1. The standard Class I models are equipped with IEC320/C14 inlet.
2. The standard Class II models are equipped with IEC320/C8 inlet.
3. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 47 µF electrolytic capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

### MECHANICAL SPECIFICATIONS



**NOTES:**

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 681 grams (1.505 lbs.) approx.
4. Output connector is 4 pin plug without lock, mating with Kycon P/N KPJX-4S-S socket or equivalent.

### PIN CHART

Pin No.	1	2	3	4
Polarity	V1 Return	+V1	V1 Return	+V1