

20-30 WATT MEDICAL POWER SUPPLIES

DESCRIPTION

The series of AC/DC wall mount switching power supplies are for 20-30 watts of continuous output power. They are enclosed in a 94V-0 rated polycarbonate case. The FSP030M series models are shipped with a selected interchangeable AC plug, and additional types of AC plug can be purchased from the factory. All models meet EN55011 and FCC class B emission limits, and are designed for medical applications.

FEATURES

- Operation altitude up to 5000 meters
- BF class insulation
- Interchangeable AC plugs for FSP030M series models
- Fixed AC plug models meet IP21
- Overvoltage protection
- Over-temperature protection
- Short-circuit protection
- 100% burn-in at full rated load
- Compliant with DoE efficiency level VI requirements
- Compliant with RoHS requirements

INPUT SPECIFICATIONS

Input voltage:	80-264 VAC
Input frequency:	47-63 Hz
Input current:	1.0 A (rms) for 115 VAC, 0.6 A (rms) for 230 VAC
Touch current:	100 μ A 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
Overvoltage protection:	Set at 108% to 170% of its nominal output voltage
Overcurrent protection:	Protected to short circuit conditions
Temperature coefficient:	$\pm 0.04\%$ / $^{\circ}$ C maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 μ s after a 25% step load change

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-20 $^{\circ}$ C to +60 $^{\circ}$ C
Storage temperature:	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Relative humidity:	10% to 90% non-condensing
Temperature derating:	Derate from 100% at +40 $^{\circ}$ C linearly to 50% at +60 $^{\circ}$ C

FSP030M SERIES



RoHS



SAFETY STANDARD APPROVALS

GENERAL SPECIFICATIONS

Hold-up time:	8 ms minimum at 115 VAC
Turn on delay time:	3 s maximum at 115 VAC
Efficiency:	Compliant with DoE efficiency level VI requirements (see rating chart)
Line regulation:	$\pm 1\%$ maximum at full load
Inrush current:	60 A @ 115 VAC or 120 A @ 230 VAC at 25 $^{\circ}$ C cold start
Withstand voltage:	4000 VAC from input to output
MTBF:	300,000 hours at full load at 25 $^{\circ}$ C ambient, calculated per MIL-HDBK-217F

EMC Performance (IEC 60601-1-2)

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, ± 15 KV air and ± 8 KV contact
EN61000-4-3:	Radiated immunity, 10 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, 10 Vrms
EN61000-4-8:	Magnetic field immunity, 30 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, and >95% reduction for 10 ms

OUTPUT VOLTAGE/CURRENT RATING CHART

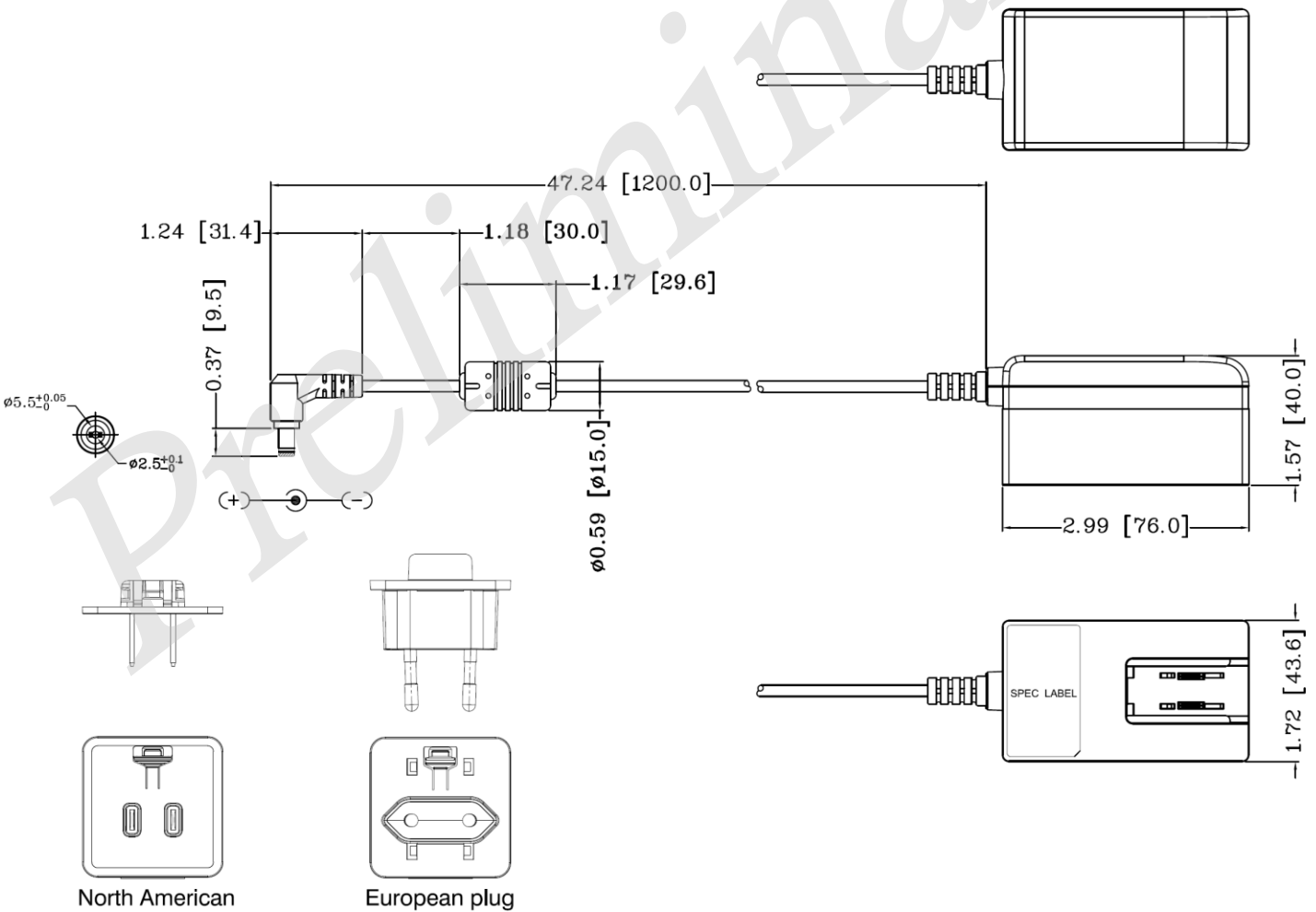
Model ⁽¹⁾			Output					Average Active Efficiency (typical) @ 115 / 230 Vac	
			V1	Min. Current	Max. Current	Tol.	Ripple & Noise ⁽²⁾		Max. Output Power
FSP020M-KPM-U	FSP020M-DPU	FSP020M-DPE	5 V	0 A	4.00 A	±5%	150 mV	20 W	83.2 /83.2%
FSP027M-KRM-U	FSP027M-KRU	FSP027M-KRE	9 V	0 A	3.00 A	±5%	100 mV	27 W	87.0 /87.0%
FSP027M-KSM-U	FSP027M-KSU	FSP027M-KSE	10 V	0 A	2.70 A	±5%	100 mV	27 W	87.0 /87.0%
FSP030M-KHM-U	FSP030M-DHU	FSP030M-DHE	12 V	0 A	2.50 A	±5%	150 mV	30 W	87.0 /87.0%
FSP030M-KGM-U	FSP030M-KGU	FSP030M-KGE	15 V	0 A	2.00 A	±5%	150 mV	30 W	87.5 /87.5%
FSP030M-KDM-U	FSP030M-KDU	FSP030M-KDE	18 V	0 A	1.67 A	±5%	180 mV	30 W	87.5 /87.5%
FSP030M-KAM-U	FSP030M-KAU	FSP030M-KAE	24 V	0 A	1.25 A	±5%	240 mV	30 W	87.5 /87.5%

NOTES:

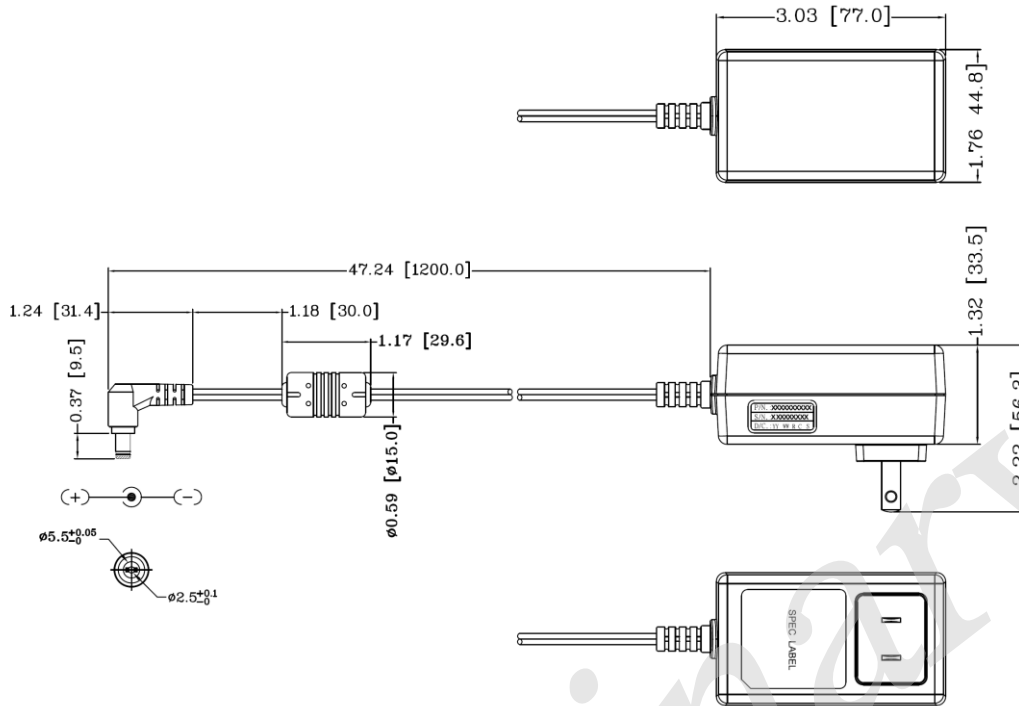
- FSP030M models are for interchangeable AC plugs which are to be ordered a model FSP030M-KxM-U (including the North America AC plugs), If need another AC plugs which are to be order separately by referring available types to note #5 in mechanical specifications below. FSP030M-xxU models are with fixed North American AC plug for safety approval cULus only, and FSP030M-xxE models with fixed European AC plug for safety approval TÜV only.
- 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 tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS

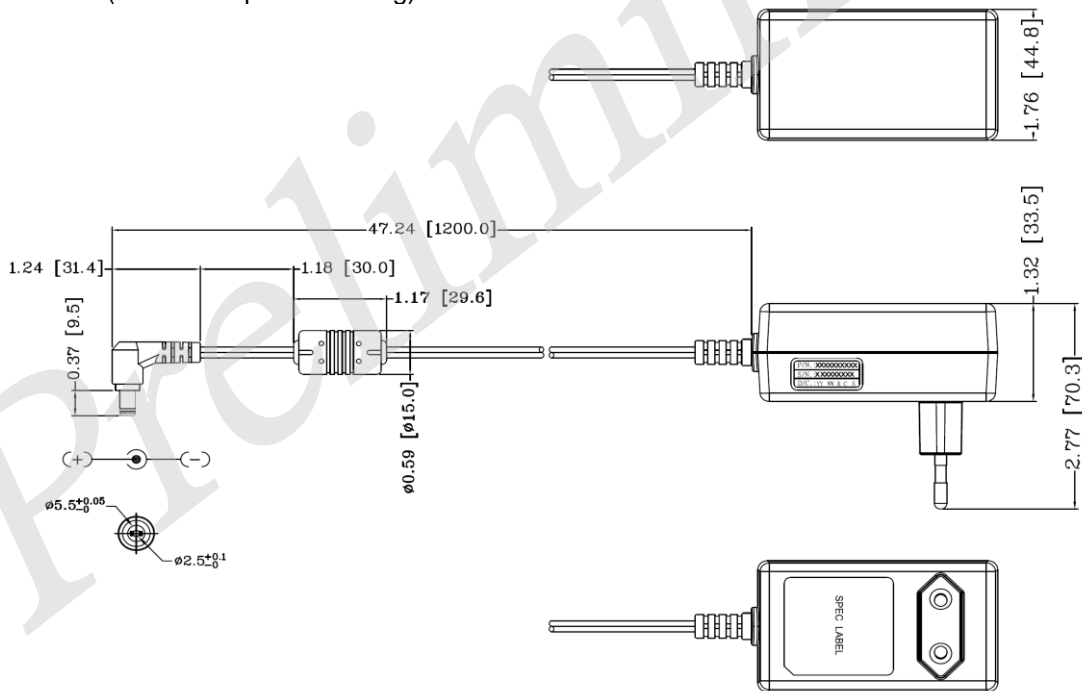
- FSP030M series models (Interchangeable AC Plug)



2. FSP030M series models (Fixed North American AC Plug, Non-Polarization)



3. FSP030M models (Fixed European AC Plug)



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 168 grams (0.37 lbs.) approx.
4. Output connector is 5.5 mm O.D., 2.5 mm I.D., 9.5 mm long barrel female 90° connector, center positive voltage.
5. Interchangeable AC plugs can be ordered by referring to the following ordering numbers:

Type	US plug	European plug	UK plug	Australia plug
Ordering no.	5OE00036	5OE00035	5OE00063	5OE00065
Safety Approved	cULus approved	TÜV approved	None	None