MEDICAL POWER SUPPLY

KNA220M-SERIES

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1.0 DESCRIPTION

The KNA220M series of AC/DC switching power supplies are for 200 - 220 watts of continuous output power. They are enclosed in a 94V-0 rated polycarbonate case with an inlet to mate with interchangeable cord for world-wide use. All models meet EN55011 and FCC class B emission limits, and are designed for medical applications, not for life-supporting equipment.

2.0 INPUT SPECIFICATIONS

Input voltage:	90 - 264 VAC
Input frequency:	47 - 63 Hz
No load power consumption:	<0,5W
Input current:	2.5 A (rms) for 115 VAC
	1.2 A (rms) for 230 VAC
Earth leakage current:	100 µA max. @ 264 VAC, 63 Hz
Touch current:	100 µA max. @ 264 VAC, 63 Hz

3.0 OUTPUT SPECIFICATIONS

3.1 TABLE 1

Model				Output					Average Efficiency 115/230VAC (%)	Partnumber
	Class I	Class II		Uout (V)	Tol. (%)	Iout (A)	Ripple & Noise (mV)	DC-Output Load Cross Section		
KNA220M	14		P-190J6Q1546VG	19,0	± 5%	10,53	190	AWG18	>87/87	5102-00114
KNA220M		15	P-190J6P1546VG	19,0	± 5%	10,53	190	AWG18	>87/87	5102-00115
KNA220M	14		P-240J2Q1546VF	24,0	± 5%	9,17	240	AWG18	>90/92	5102-00116
KNA220M		15	P-240J2P1546VG	24,0	± 5%	9,17	240	AWG18	>90/92	5102-00117
KNA220M	14		P-280G9Q1546VG	28,0	± 5%	7,86	280	AWG18	>90/92	5102-00118
KNA220M		15	P-280G9P1546VG	28,0	± 5%	7,86	280	AWG18	>90/92	5102-00119
KNA220M	14		P-360F2Q1546VG	36,0	± 5%	6,11	360	AWG18	>90/92	5102-00120
KNA220M		15	P-360F2P1546VG	36,0	± 5%	6,11	360	AWG18	>90/92	5102-00121

3.0 OUTPUT SPECIFICATIONS

Output voltage/current:	See table 1
Maximum output power:	See table 1
Ripple and noise:	1% peak to peak maximum
Overvoltage protection:	Set at 110 - 130% of its nominal output voltage.
Overcurrent protection:	All models protected 110 - 120% of full load conditions
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 µs after a 25% step load change.

4.0 GENERAL SPECIFICATIONS

Power factor:	0.95 typical
Hold-up time:	12 ms minimum at 100 VAC
Turn on delay time:	3 s maximum at 100 VAC
Efficiency:	See table 1
Line regulation:	±0.5% maximum at full load
Incrush current:	100A @ 115 VAC or 200A @ 230 VAC, at 25°C cold start
Withstand voltage:	5600 VAC from input to output (2 MOPP)
	2100 VAC from input to ground (1 MOPP)
	700 VAC from output to ground
	(To verify AC strength, get correct test method to avoid power supply damage)
	For Class II models, 4000 VAC from input to output
MTBF:	100.000 hours at full load at 25°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, ±8 KV air and ±6KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, ±2KV
EN61000-4-5:	Surge, ±1KV diff., ±2KV com.
EN61000-4-6:	Conducted immunity, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 3 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, 60% reduction for 100 ms. and >95% reduction for 10 ms

5.0 ENVIRONMENTAL SPECIFICATIONS

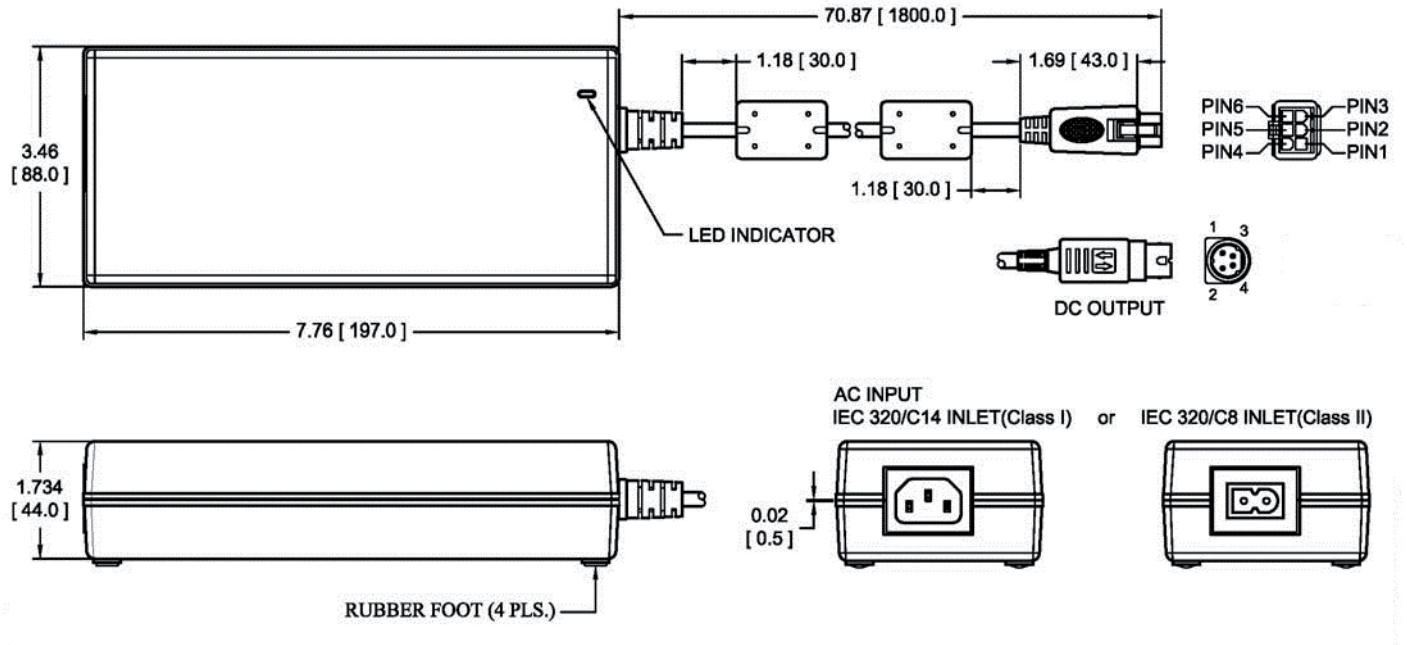
Operation temperature:	0°C to +60°C
Storage temperature:	-20°C to +80°C
Relative humidity:	10% to 90% non-condensing
Derating:	Derate from 100% at +40°C
	Linearly to 50% at +60°C

6.0 SAFETY STANDARDS APPROVALS

UL ES 60601-1, CSA C22.2 No 60601-1

TÜV EN 60601-1

7.0 MECHANICAL SPECIFICATIONS



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 1.0 kg (2.2 lbs) approx
4. Output connector is Molex Mini - Fit receptacle, P/N: 39-01-2060 with female terminal #5556 or equivalent, mating with Molex plug 39-01-2066 and male terminal #5558 or equivalent. It also mates with Molex headers

PIN CHART

PIN	1	2	3	4	5	6
PIN6 PIN5 PIN4 PIN3 PIN2 PIN1	+V1	V1 Return	V1 Return	+V1	+V1	V1 Return

PIN	1	2	3	4	SHELL OF CONNECTOR	
					Class I	Class II
HI (1 3 / 2 4)	+V1		V1 Return		AC Ground	NC