

**Features**

- . Input 90V to 264VAC, 50~60Hz suitable for worldwide use
- . Output voltage optional from 5V to 48Vdc constant voltage
- . Protections: Short Circuit / Overload / Over Voltage Protection
- . 100% full load burn-in test for 2Hrs to make every unit reliable
- . Suitable for BF application with appropriate system consideration
- . Cooling by free air convection, operating temperature -20~40°C
- . Long life and high reliability design with 3 years warranty
- . Low standby consumption power <0.5W
- . No minimum load required and extremely low leakage current

**Safety Standards**

- . IEC60601-1 CB report for worldwide use
- . UL ANSI/AAMI ES60601-1/CAN/CSA-C22.2 for USA
- . TUV BS EN/EN 60601-1 for European Union



**Product Description:**

This is a highly reliable and small size AC/DC on board type 160W medical grade switching power supply solution with wide range 90-264Vac input and designed strictly according to the international medical safety standards. The design is with a very low no load power consumption less than 0.5W and ultra-low leakage current. The entire series supplies different models with output voltages ranging between 5Vdc and 48Vdc that can satisfy the demands for various types of medical equipment such as oral irrigator, hemodialysis machine, medical computer monitors, sleep apnea devices, pumps machine and so on. The 160W PCB type medical switching power supply is built-in full protections of over load / short circuit and over voltage with small and compact size of 127 x 76.2 x34.6mm.

**Technical Specification**

Typ. Model	KRPS-160-5	KRPS-160-12	KRPS-160-15	KRPS-160-24	KRPS-160-48
<b>Output</b>					
Output Voltage	5VDC	12VDC	15VDC	24VDC	48VDC
Rated Current	20A	9.1A	7.3A	4.6A	2.3A
Current Range	0 ~ 20A	0 ~ 9.1A	0 ~ 7.3A	0 ~ 4.6A	0 ~ 2.3A
Output Power	103W Max.	112.2W Max.	112.5W Max.	113.4W Max.	113.4W Max.
Voltage Tolerance	±5%	±3%	±3%	±2%	±2%
Ripple & Noise	100mVp-p	100mVp-p	150mVp-p	200mVp-p	200mVp-p
<b>Input</b>					
Input voltage	90 - 264Vac or 120- 370Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Power Factory (Typ.)	PF>0.93 / 230VAC		PF>0.98 / 115VAC at full load		
Input Current	2A Max. @ 100 ~240Vac 50/60Hz input				
Inrush Current	70A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	86%	87%	87%	87%	88%
Leakage Current	≤0.16mA @ full input range				
<b>Protections</b>					
Over current	105~135% rated output power. Auto-Recovery when the fault is removed				
Short Circuit	No damage. Auto-Recovery when the fault is removed				
Over temperature	Shut down o/p voltage, re-power on to recover				
<b>Environmental</b>					
Operation Temperature	-20°C to +40°C, 20%RH to 90%RH				
Storage Temp, Humidity	-45~ +85°C, 10%RH to 95%RH				
Operation Altitude	≤3000m @ full load and rated operating temperatures				
MTBF	≥50000Hrs @ full load and rated operating temperatures				
<b>Mechanical</b>					
Dimensions (L x W x H)	127.0 x 76.2 x 34.6mm (5.00 x 3.00 x 1.36 inch)				
Unit Weight	330g±20 grams				
Packing Information	36pcs/ Carton, carton dimensions:47*37*20cm, 12.9kgs/ Carton				

## TEST REPORT

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	100mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	44mVp-p	P
2	VOLTAGE TOLERANCE	-5% ~ +5% (Max)	I/P:90VAC~264VAC O/P:FULL~MIN. LOAD / Ta:25°C	-2.35% ~ +2.48% of output voltage	P
3	LINE REGULATION	-0.5% ~ +0.5% (Max)	I/P:90VAC ~264VAC O/P:FULL LOAD / Ta:25°C	-0.13% ~ +0.158% of output voltage	P
4	LOAD REGULATION	-1% ~ +1% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-0.55% ~ +0.65% of output voltage	P
5	OVER/UNDERSHOOT	<±5%	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	0.9%	P
6	SET UP TIME	3500 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	2220 mS	P
7	RISE TIME	30 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	25 mS	P
8	HOLD UP TIME	20 mS (Min)	I/P: 115VAC O/P:FULL LOAD / Ta:25°C	24 mS	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	VOLTAGE RANGE	90VAC~264VAC	I/P:TESTING O/P:FULL LOAD / Ta:25°C	78V~264V	P
2	FREQUENCY RANGE	50HZ - 60HZ (Typ) NO DAMAGE OSC	I/P: 100VAC ~ 240VAC O/P:FULL~MIN LOAD / Ta:25°C	TEST: OK	P
3	EFFICIENCY	86% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	86.88%	P
4	AVERAGE EFFICIENCY	84%	I/P:115/230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	84.56% (115VAC) 85.12% (230VAC)	P
5	AC CURRENT	2A (Max)	I/P:100VAC & O/P:FULL LOAD Ta:25°C	1.23A	P
6	INRUSH CURRENT	<70A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	58.9A	P
7	LEAKAGE CURRENT	<0.16mA	I/P:240VAC & O/P:Min LOAD Ta:25°C	L-FG:0.105mA N-FG:0.106mA	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 ~ 135% (Typ)	I/P:230VAC & O/P:TESTING Ta:25°C	126.1% HICCUP MODE	P
2	OVER VOLTAGE PROTECTION	115 ~ 135% (Typ)	I/P:230VAC O/P:MIN LOAD & Ta:25°C	Hiccup mode ,recovers automatically after fault condition is removed	P
3	SHORT PROTECTION	SHORT OUTPUT 1 HOUR NO DAMAGE	I/P:264VAC O/P:FULL LOAD & Ta:25°C	NO DAMAGE HICCUP MODE	P

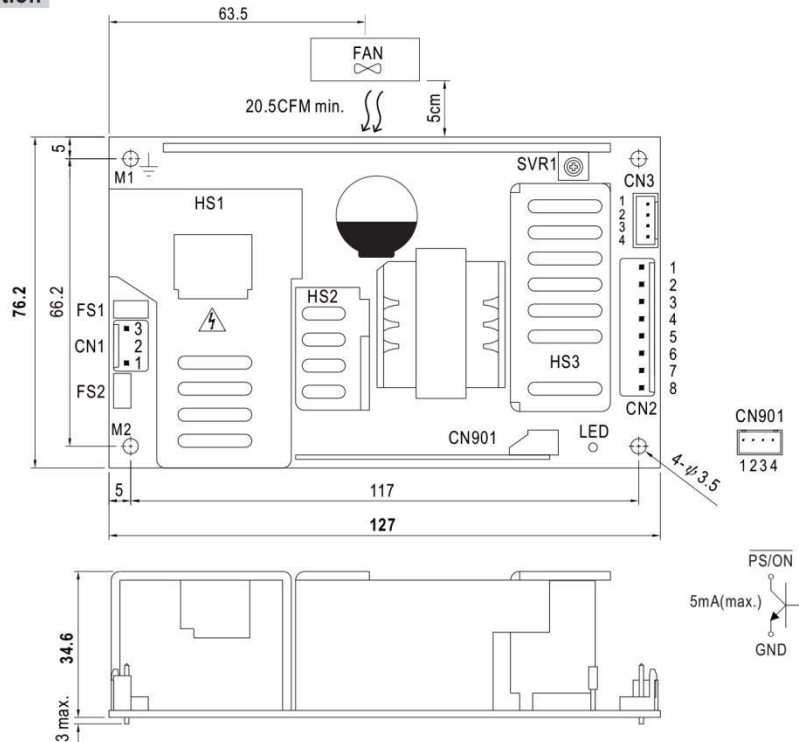
### SAFETY TEST & E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 4KVAC/min I/P- FG: 2KVAC/min O/P-FG: 1.5KVAC/min	I/P-O/P: 4 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 1.8KVAC/min Ta:25°C	I/P-O/P: 2..39mA I/P-FG: 2.28mA O/P-FG: 1.96mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999MΩ NO DAMAGE	P
3	CONDUCTION	BS EN/EN55032(CISPR32), FCC PART 15 / CISPR22 CAN	I/P: 230 VAC (50HZ) O/P: FULL/50% LOAD Ta: 25°C	PASS Test by certified Lab	P
4	RADIATION	BS EN/EN55032(CISPR32), FCC PART 15 / CISPR22 CAN	I/P: 230 VAC (50HZ) O/P: FULL LOAD Ta: 25°C	PASS Test by certified Lab	P
5	SURGE	BS EN/EN61000-4-5 LIGHT INDUSTRY L-N: 1KV	I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA B	P
6	E.S.D	BS EN/EN61000-4-2 LIGHT INDUSTRY AIR: 8KV / Contact: 4KV	I/P: 230 VAC/50HZ O/P: FULL LOAD Ta: 25°C	CRITERIA B	P

TEST RESULT	TESTER	REVIEW	APPROVAL
<b>PASS</b>	<b>ZHU LI</b>	<b>WANG LW</b>	<b>ZHANG DL</b>

**Mechanical Specification**

Unit:mm



AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/L		

Power Good Connector(CN3):JST B4B-XH or equivalent

Pin No.	Status	Mating Housing	Terminal
1	PG	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	GND		
3	-S		
4	+S		

DC Output Connector (CN2) : JST B8P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,3,4	+V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5,6,7,8	-V		

5VSB Connector(CN901) : JST B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PS/ON	JST XHP or equivalent	JST SXH-001T or equivalent
2,4	GND		
3	5VSB		

⊕ : Grounding Required

- ⚠ 1.HS1,HS2,HS3 cannot be shorted.  
2.M1 is safety ground. For better EMC performance,Please secure an electrical connection between M1,M2, and chassis grounding.