



Features

- . Input 90V to 264VAC, 50~60Hz suitable for worldwide use
- . Output voltage optional from 12V 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 -30~35°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 400W 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 12Vdc 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 400W 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 x35mm.

Technical Specification

Typ. Model	KRPS-400-12	KRPS-400-15	KRPS-400-24	KRPS-400-27	KRPS-400-48
Output					
Output Voltage	12VDC	15VDC	24VDC	27VDC	48VDC
Rated Current	20.8A	16.7A	10.5A	9.3A	5.3A
Current Range	0 ~ 20.8A	0 ~ 16.7A	0 ~ 10.5A	0 ~ 9.3A	0 ~ 5.3A
Output Power	249.6W Max.	250.5W Max.	252W Max.	251.1W Max.	254.4W Max.
Voltage Tolerance	±3%	±3%	±3%	±2%	±2%
Ripple & Noise	150mVp-p	150mVp-p	200mVp-p	250mVp-p	300mVp-p
Input					
Input voltage	90 - 264Vac or 120- 370Vdc				
Input Frequency	50-60Hz (When the input is AC)				
Power Factory (Typ.)	PF>0.94 / 230VAC PF>0.98 / 115VAC at full load				
Input Current	4.2A Max. @ 100 ~240Vac 50/60Hz input				
Inrush Current	70A Max. @ 100 ~240Vac 50/60Hz input				
Efficiency (Typ.)	91%	92%	93%	93%	94%
Leakage Current	≤0.20mA @ full input range				
Protections					
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				
Environmental					
Operation Temperature	-30°C to +40°C, 20%RH to 90%RH				
Storage Temp, Humidity	-45~ +85°C, 10%RH to 95%RH				
Operation Altitude	≤2000m @ full load and rated operating temperatures				
MTBF	≥50000Hrs @ full load and rated operating temperatures				
Mechanical					
Dimensions (L x W x H)	127.0 x 76.2 x 35mm (5.00 x 3.00 x 1.37 inch)				
Unit Weight	390g±20 grams				
Packing Information	36pcs/ Carton, carton dimensions:47*37*20cm, 15kgs/ Carton				

TEST REPORT

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDIDTION	RESULT	VERDICT
1	RIPPLE & NOISE	150mVp-p (Max)	I/P:230VAC / O/P:FULL LOAD / Ta:25°C	118mVp-p	P
2	VOLTAGE TOLERANCE	-3% ~ +3% (Max)	I/P:90VAC~264VAC O/P:FULL~MIN. LOAD / Ta:25°C	-0.88% ~ +1.86% of output voltage	P
3	LINE REGULATION	-0.5% ~ +0.5% (Max)	I/P:90VAC ~264VAC O/P:FULL LOAD / Ta:25°C	-0.25% ~ +0.19% of output voltage	P
4	LOAD REGULATION	-1% ~ +1% (Max)	I/P:230VAC O/P:FULL ~MIN LOAD / Ta:25°C	-0.55% ~ +0.62% 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	3000 mS (Max)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	2460 mS	P
7	RISE TIME	30 mS (Max)	I/P: 230VAC O/P:FULL LOAD / Ta:25°C	24 mS	P
8	HOLD UP TIME	13 mS (Min)	I/P: 115VAC O/P:FULL LOAD / Ta:25°C	16 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	85V~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	91% (Typ)	I/P:230VAC O/P:FULL LOAD / Ta:25°C	91.59%	P
4	AVERAGE EFFICIENCY	89%	I/P:115/230VAC & O/P:25%、50%、75%、100% LOAD & Ta:25°C	90.05% (115VAC) 90.79% (230VAC)	P
5	AC CURRENT	4.5A (Max)	I/P:100VAC & O/P:FULL LOAD Ta:25°C	2.57A	P
6	INRUSH CURRENT	<70A COLD START	I/P: 230VAC / O/P:FULL LOAD Ta:25°C	56.8A	P
7	LEAKAGE CURRENT	<0.20mA	I/P:240VAC & O/P:Min LOAD Ta:25°C	L-FG:0.145mA N-FG:0.143mA	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	125.6% 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: 3.33mA I/P-FG: 3.23mA O/P-FG: 2.65mA 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
PASS	ZHU LI	WANG LW	ZHANG DL

■ Mechanical Specification

