INSTRUCTION SHEET

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MRW

KEPCO MRW171KV SWITCHING POWER SUPPLY

Kepco Model MRW171KV is a PC card style, triple-output switching power supply. The Kepco MRW171KV Power Supply can be operated with universal a-c and d-c power sources (90-264 Vac or 130-370 Vdc). DC output power is shared between +5V, +15.8 and -15.8 (65W, combined). The +5V output has overvoltage protection; all MRW171KV outputs shutdown when the +5V output exceeds the overvoltage limit range (5.8 - 6.9V). Model MRW171KV features isolation between input and output power. The MRW Series is UL 1950 recognized, certified to CSA E.B. No. 1402 C level 3 and VDE EN6-950 approved by TÜV Rheinland. EMI meets both FCC 20780, Class B and VDE 0871, Class B (10KHz - 30MHz).

Its 100 x 160mm (3.94" x 6.3") footprint and 35mm (1.38") height allow installation in confined areas. An optional steel cover (CA-20) and mating connector kit (P/N 219-0239) are available.

OUTPUT SPECIFICATIONS

SPECIFICATION	OUTPUT #1	OUTPUT #2	OUTPUT #3	CONDITIONS
Output Voltage	+5V	+15.8	-15.8	Factory set, nom input, typ load, 25°C
Initial Setting[3]	5.0 ±20mV	+15.8 ±20mV	-15.8 ±20mV	115 Vac, typ load, 25°C
Adjustment[1] Range	4.75 - 5.25V	–	–	115 Vac, typ load, 25°C
Output Current Amps (See Figures 1 thru 3)	0.8 min. 5.0 typ. 7.0 max.	0.3 min. 1.3 typ. 2.0 max.	0.3 min. 1.3 typ. 2.0 max.	0–50°C
Output Power (Watts, maximum, see Figure 4)	65.0			40°C
	65.0			50°C
	45.5			60°C
	26.0			70°C
Ripple:[2] Source	30	30	30	Nom. input voltage, minimum to maximum load
Ripple:[2] Switching	50	50	50	Nom. input voltage, minimum to maximum load
Noise[2] (maximum)	150	250	250	DC to 20MHz
Efficiency (typical)	70%			Nom. input, typ. load
Source Effect (maximum)	1%			90-132Vac or 180-264Vac, typ load, 25°C
Load Effect (maximum)	3.5%	5.0%	5.0%	min. - max load
Cross Effect (maximum)				25°C, other outputs at typical load
Output #1 5V load change min to typ	–	±5.0%	±5.0%	
Output #2 15.8V load change min to typ	±3.0	–	±5.0%	
Output #3 -15.8 load change min to typ	±3.0	±5.0%	–	
Temperature Effect (maximum)	2%	3.5%	3.5%	0–50°C
Time Effect (maximum)	0.5%			Nom. input, typ. load, 25°C, 0.5–8.5 hr drift
Combined Effect: source, load, typical cross effect and temperature	-4%	+8%, -7%	+8%, -7%	Maximum
Recovery Characteristics				Step load change from 50% to 100% of typ. load, nom. input, 25°C, t_r=t_f=1A/µsec
Excursion	±4% max			
Recovery (within 1%)	<2 msec			
Overvoltage Protection	5.8–6.9V[4]			V1 only
Overcurrent Protection (minimum)	Total maximum output power limit 65.0 Watts (see Figure 4) Overcurrent setting = min 66.0W			Nominal input, 40°C

[1] Output #2 and #3 follows the adjustment of output #1 [2] mV p-p max. [3] V1: 5.0A, V2 :1.3A, V3 :1.3A

GENERAL SPECIFICATIONS

SPECIFICATION	RATING/DESCRIPTION	CONDITION
Temperature	0-70°C (derate output power linearly from 100% at 50°C to 40% at 70°C)	Operating power derating required for 50 to 70°C
	-40°C to 85°C	Storage
Humidity (maximum)	95% RH	Wet Bulb temperature < 35°C, Non-condensing
Shock	20G 3 axes (11 msec ±5 msec pulse duration)	Non-Operating 3 shocks each axis 1/2 sine pulse
Vibration	5-10Hz; 10mm 10-55Hz: 2G,	Non-Operating sinusoidal vibration in each of 3 axes for 1 hour
Isolation	500 Vdc, >100MΩ minimum	Between input and output, ground and output, ground and input
Withstand Voltage	2K Vac for 1 min	Input to output and input to ground
	3K Vac, 1 min. with Y capacitors removed	Input to output
Dimensions (see Figure 5)	3.94 x 6.3 x 1.38	inches
	100 x 160 x 35	mm
Weight	13.40 typical, 15.87 maximum	ounces
	380gr typical, 450gr maximum	grams
Mounting (see Figure 5)	four 4mm holes	
Safety	UL 1950 Recognized, CSA E.B. No. 1402C, Level 3 Certified. EN 60950, Approved by TÜV Rheinland	
Enclosure	Optional metal cover	CA-20
Type of Construction	PC card	
Warranty	Used within ratings	1 year

INPUT CHARACTERISTICS

SPECIFICATION	RATING/DESCRIPTION	CONDITION
Nominal Voltage	115, 230 , 240 Vac	
Voltage Range	90-264Vac, 130-370 Vdc	
Current	1.0A typ, 1.5A max	115 Vac, typ load
	0.6A typ, 0.8A max	230 Vac, typ load
Frequency	50~60 Hz (47~440 Hz)[1]	Single Phase
Fuse Value	3A, 250V	
Switching Frequency	~100 KHz (typ)	
Brownout Voltage	85 Vac, 120 Vdc	typical load
Initial turn-on surge, first ½ cycle	50A peak (max)	115 Vac, rated load, cold start
	100A peak (max.)	230 Vac, rated load, cold start
EMI	FCC 20780, Class B, VDE 0871 Class B	120 Vac input, 240 Vac input
Leakage current	0.5mA (max)	25°C, 115 Vac (UL method, 50 to 60 Hz)
	0.75mA (max)	25°C, 230 Vac (VDE method, 50 to 60 Hz)
Startup time	600 msec (typ)	25°C, 115 Vac nominal input, typical load
Holdup time	20 ms typ, 15 msec (min)	25°C, 115 Vac nominal input, typical load
Circuit type	Flyback	
Soft Start Circuit	Thermistor Limiter	

[1] At 440Hz the leakage current exceeds the UL/VDE safety specification limit.

Determining available power from each output: Total output power available from the Model MRW171KV is 65 Watts at temperatures up to 50°C.

Connector Cable Kit: An optional connector cable kit (P/N 219-0239) with the connectors specified above is available. The connectors are provided with 1 meter length leads for trimming to desired lengths.

PART NO.	HEADER	HOUSING (mating)	CONTACT (mating)
CP1 Input	Faston Tab 250 Series		Faston 250 Series
CP2 Input	Molex No. 10-31-1028 (5289-02A)	Molex No. 09-50-1021 (5199-02)	Molex No. 08-70-1031 (5194/5225)
CP51 Output	Molex No. 09-65-2068 (5273-06A)	Molex No. 09-52-4064 (5195-06)	Molex No. 08-70-0018 (5194/5225)

The MRW171KV can draw a maximum of 65W total power from the three output rails (+5V, +15.8, -15.8). Figures 1 through 3 show the interrelationship between power extracted from the rails. Note the effect of the secondary voltage dropping when the primary output's load is reduced below its minimum value (the stabilization of the secondary is degraded).

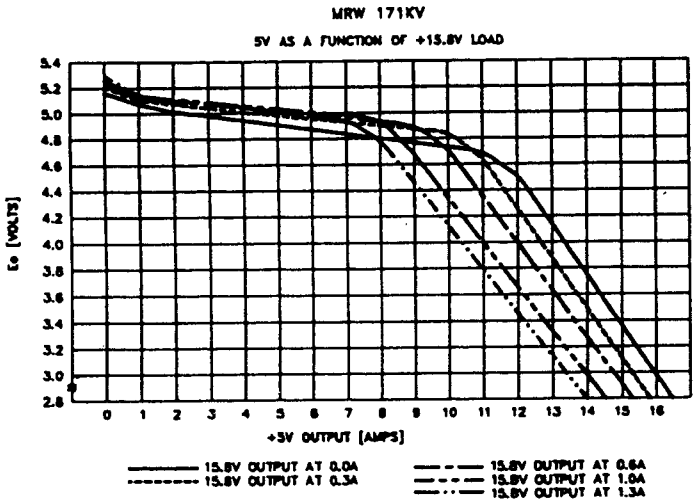


FIGURE 1 +5 V OUTPUT AS A FUNCTION OF THE +15.8 LOAD (-15.8 LOAD SIMILAR)

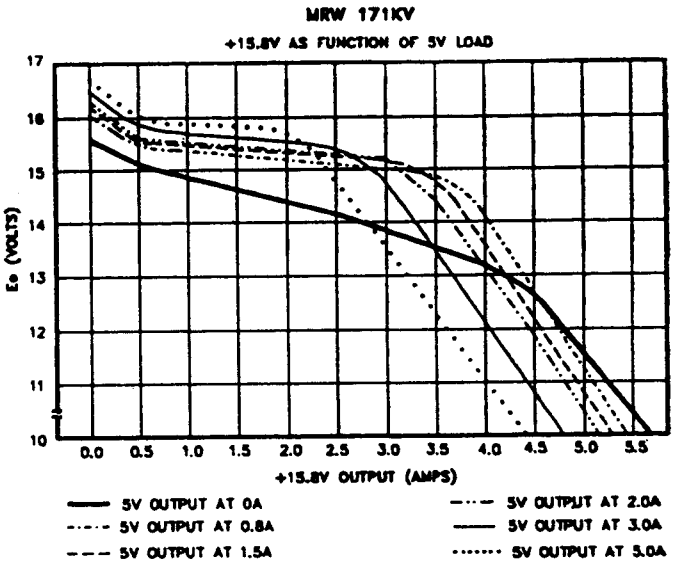


FIGURE 2 +12 VOLT OUTPUT AS A FUNCTION OF THE +5V LOAD (-15.8 LOAD SIMILAR)

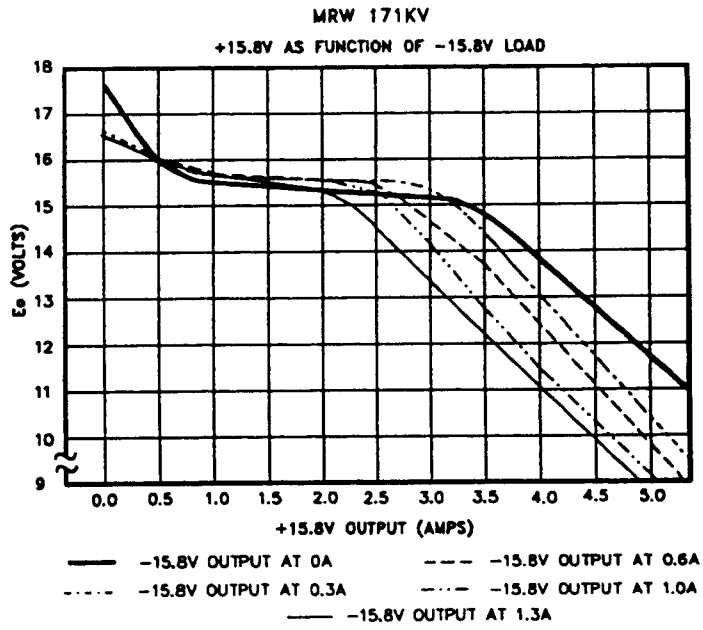


FIGURE 3 +15.8 OUTPUT AS A FUNCTION OF -15.8 LOAD (-15.8 OUTPUT vs. +15.8 LOAD SIMILAR)

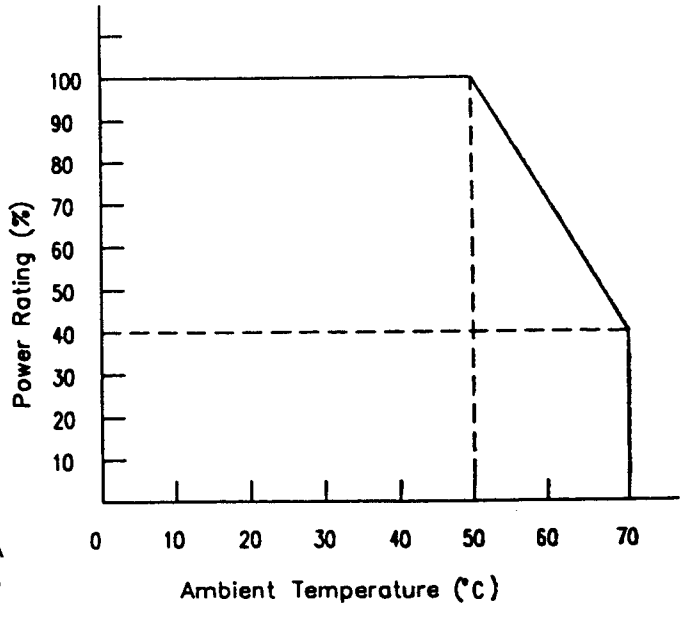
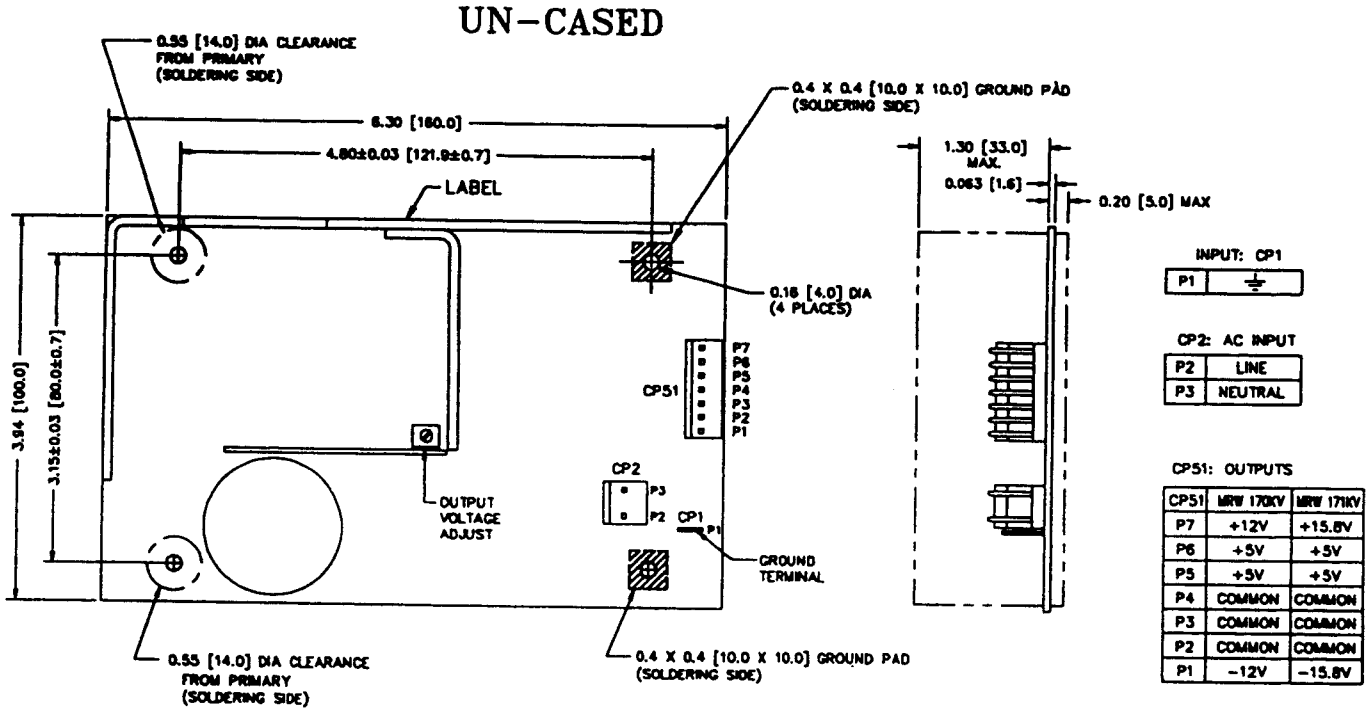


FIGURE 4 PERCENT OUTPUT POWER vs. AMBIENT TEMPERATURE



NOTES:

1. DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS.
2. ± 0.04 (±1) TOLERANCE UNLESS OTHERWISE SPECIFIED.
3. MAXIMUM PENETRATION OF SCREWS FOR 8-32 MOUNTING HOLES NOT MORE THAN 0.27" (7.0) FROM FRAME SURFACE.

FIGURE 5 MECHANICAL OUTLINE DRAWING OF THE MRW171KV POWER SUPPLY

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