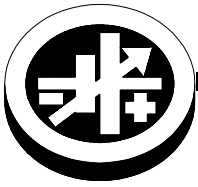


# INSTRUCTION MANUAL



KEPCO An ISO 9001 Company.



## KEPCO 50 WATT HIGH FREQUENCY SWITCHING POWER SUPPLIES

### I — INTRODUCTION

The Kepco FAK 50 Watt Series low profile high frequency switching power supplies employ forward conversion and operate at 80% efficiency with either a-c or d-c input. A thermistor soft-start circuit limits start-up surge. Surface mount technology permits efficient compact topology for minimum mounting space. Four models may be selected for outputs of 5, 12, 15 or 24V. A green "POWER OK" light is provided. A steel cover (Model CA 23) is available as an option. Output voltage may be adjusted with a trimmer accessible near the input-output barrier strip. When the input is cut off, the output is maintained for 20–30 milliseconds (30 milliseconds typical). EMI filtering meets FCC Class B rating. Table 1 contains specifications for each model of the FAK 50 Watt Series. Environmental specifications for each model are the same.

### II — SPECIFICATIONS

The following specifications apply to FAK 50 Watt Series models.

**TABLE 1. OUTPUT RATINGS AND SPECIFICATIONS, FAK 50W SERIES**

MODEL		FAK 5-10K	FAK 12-4.2K	FAK 15-3.4K	FAK 24-2.1K
OUTPUT VOLTS, d-c (NOMINAL)		5.0V	12.0V	15.0V	24.0V
ADJUSTMENT RANGE		4.5-5.5V	10.8-13.2V	13.5-16.5V	21.6-26.4V
OUTPUT CURRENT (NOMINAL)		10.0A	4.2A	3.4A	2.1A
OUTPUT POWER (MAXIMUM)		50.0W	50.4W	51.0W	50.4W
RIPPLE AND NOISE (mV p-p) 0-50°C 10-100% LOAD	source (typ)	20	20	40	30
	source (max)	30	40	40	60
	switching (typ)	25	25	25	25
	switching (max)	50	50	50	60
	spike noise (d-c—50MHz)	120	190	220	310
OVERVOLTAGE SETTING 25°C, NOM. INPUT		6.0-6.9V	13.7-15.7V	17.0-19.0V	27.0-30.5V
OVERCURRENT SETTING 25°C, NOM. INPUT		10.5-12.0A	4.4-5.1A	3.6-4.1A	2.2-2.6A

#### INPUT:

Voltage: 115V a-c nominal; Range 85-132V a-c; 110-170V d-c.  
 Frequency: Nominal 50-60 Hz; Range 47-440Hz (at 440Hz leakage current exceeds UL safety spec. limit).  
 Current: 0.9A typ., 1.1A max. (nominal output at rated load @25°C)  
 Initial Turn-on Surge: 43A max. (one-half of first input cycle)

#### STABILIZATION:

Source Effect: 0.6% typ.; 2.0% max. from minimum to maximum input.  
 Load Effect: 1.2% typ.; 3.0% max. (range: 10%-100% load).  
 Temperature Effect: 0.6% typ.; 2.0% max. (range: 0° to 50°C).  
 Combined Effect: ±1.0% typ.; ±3.0% max. (includes source, load, and temperature effects).  
 Drift: 0.1% typ.; 0.5% max. (1/2 hr—8 hr at 25°C).

**RECOVERY CHARACTERISTICS:** A step load change from 50% to 100% produces less than ±4% output excursion. Recovery occurs to within ±1% of the original setting in <1 ms ( $t_r$  or  $t_f$  equal to or greater than 50μsec at load change).

**START-UP TIME:** 100 ms. maximum.

**HOLD-UP TIME:** 30 ms. typ. (20 ms. min).

#### DIELECTRIC STRENGTH:

Between input and output: 2KV a-c for one minute.  
 Between input and ground terminals: 2KV a-c for one minute.

**LEAKAGE CURRENT** (UL method, 115V a-c, 50-60Hz): 0.5 mA maximum.

**SAFETY:** UL 478 recognized; CSA 1402 certified.

**EMI:** Designed to meet FCC 20780. Class B.

**VIBRATION:** (non-operating, one hour on each one of the three axes):  
 5-10 Hz, 10 mm amplitude.  
 10-55 Hz, 2g acceleration.

**SHOCK:** (non-operating, one-half sinusoidal pulse, three shocks to each axis):  
 Acceleration: 20g  
 Duration: 11ms ±5ms

**OPERATING TEMPERATURE:** See Figure 1.

**STORAGE TEMPERATURE:** -40°C to +75°C.

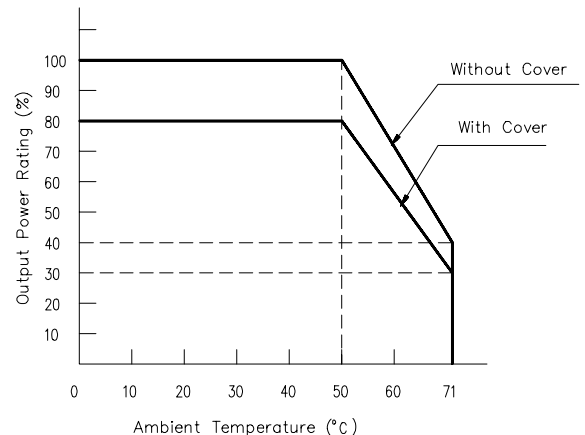
**OPERATING AND STORAGE RELATIVE HUMIDITY:** 20%–95% (non-condensing).

**FUSE:** Medium acting 3.15A, 125V; (5.2 x 20mm), Nagasawa P/N GGS3.15A; Kepco P/N 541-0106.

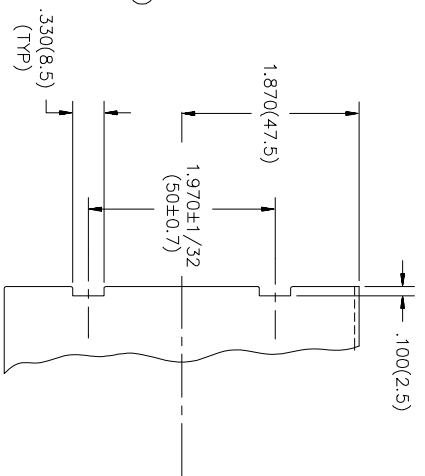
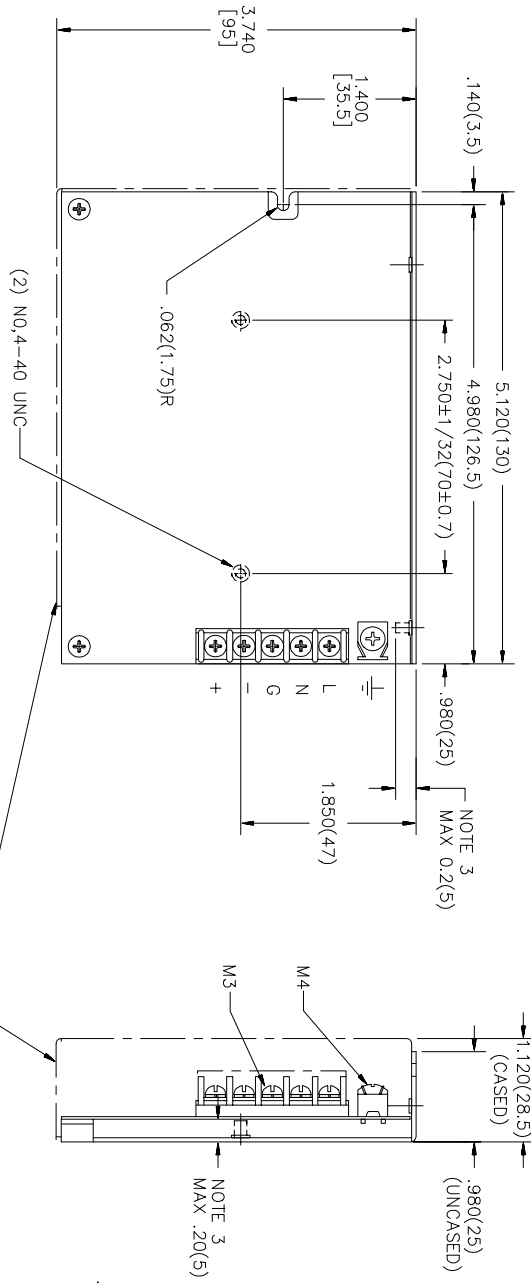
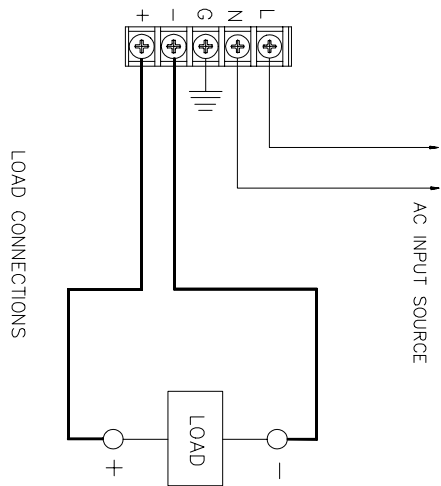
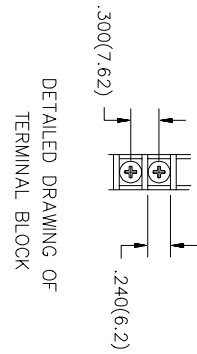
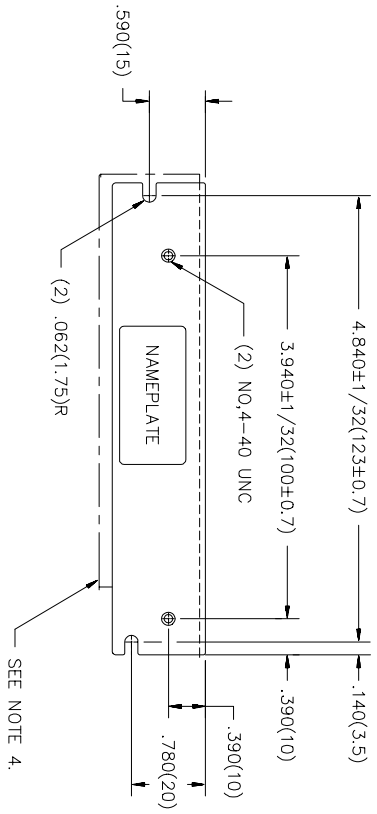
**WARRANTY:** 1 year.

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**FIGURE 1. OUTPUT POWER VS. AMBIENT TEMPERATURE**



NOTES:

1. DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS, OTHERS IN INCHES.
2. TOLERANCES: ±.04 (±1) EXCEPT AS NOTED.
3. MAXIMUM MOUNTING SCREW PENETRATION: 0.2(5)
4. COVER (OPTIONAL) MODEL CA-23.

**MECHANICAL OUTLINE DRAWING**