

INSTRUCTION MANUAL



KEPCO

EMR

4-output switching module

Model EMR 400K

I—INTRODUCTION

SCOPE OF MANUAL. This instruction manual contains the specifications and information for installation and operation of the Kepco Model EMR 400K Switching Power Supply.

DESCRIPTION. The Model EMR 400K is a switching power supply with one principal output of (+)5 volt, two (2) auxiliary outputs of (\pm)12 volt, and one of (+)24 volt respectively. The power supply is constructed as a printed circuit board, enclosed by a perforated metal cover. The cover is mounted onto an aluminum base-plate, serving as the mounting surface and heatsink. Two (2) pin-header connectors (See Outline Drawing) are used for input/output connections.

II—SPECIFICATIONS

PARAMETER	CONDITION	SPECIFICATION
A-C Source Voltage	Selectable (See Fig. 1)	85V to 130V a-c or 170V to 260V a-c 47-66 Hz, single phase.
A-C Source Current	at 85V a-c, 25°C, max. load at 170V a-c, 25°C max. load	< 1.7A < 0.9A
Turn-on Half Cycle peak current	at 115V a-c or 230V, 25°C cold start Limited by power thermistor	< 45A
Efficiency	Maximum load, Nominal Source Voltage	> 75%
Hold up time	Maximum load, Minimum Source Voltage	20 msec., Minimum 30 msec., Typical
D-C Output Ratings <i>NOTE: Total power is 53W at 50°C. From 50°C to 70°C, derate linearly to 26.5W.</i>	0°C to 50°C ambient temperature	See Rating Table

D-C OUTPUT VOLTS	MIN. LOAD CURRENT	MAX. LOAD CURRENT
+ 5V ⁽¹⁾ (V1)	2.0A	4.0A
+ 12V (V2)	0.1A	0.5A
- 12V (V3)	0A	0.3A
+ 24V (V4)	0.2A	1.0A

D-C OUTPUT RATINGS

⁽¹⁾ Set to this value at full load at 25°C ambient temperature by means of an internal trim pot. (See Fig. 1). All other outputs are fixed and interdependent.

II—SPECIFICATIONS (Cont'd)

PARAMETER	CONDITION	SPECIFICATION
Source Effect	85V to 130V a-c or 170V to 260V a-c	All outputs < 1%
Load Effect	MIN. LOAD-MAX. LOAD per Rating Table	(V1) + 5V output: < 1.5% (V2) + 12V output: < 6% (V3) - 12V output: < 1% (V4) + 24V output: < 6%
Time Effect	0.5 to 8 hrs, at 25°C, max. load	All outputs: < 0.5%
Combined Effect For all specified changes in Source Voltage, Load- Conditions and Time.	As individually specified.	(V1) + 5V output: < ± 3% (V2) + 12V output: < + 4 - 7% (V3) - 12V output: < ± 5% (V4) + 24V output: < + 7 - 4%
Transient Recovery Time	50% to 100% load change	All outputs: < 2 milliseconds
Temperature Effect	0-50°C	All outputs: 3% maximum
Current Limit Setting	Rectangular Characteristics	(V1) + 5V output: 4.2-5.9A (V2) + 12V output: 0.5-1.0A (V3) - 12V output: 0.5-1.2A (V4) + 24V output: 1.1-2.0A
Over-Voltage	(Reset by removing input power for 50 sec.)	(V1) + 5V output only: 5.8-6.9V
Operating Temperature- Range	Mount vertically on base-plate	0°C to + 50°C. From + 50°C to 70°C, derate linearly to 50% of total rated power.
Storage Temperature- Range	N.A.	- 25°C to + 75°C
Humidity	Non-Condensing	Operating: Up to 85% RH. Non-operating: Up to 95% RH.
Vibration	5-10 Hz.	10 mm, 3 axes
Shock	10-55 Hz. 11 ms ± 5 ms.	2 g, 3 axes 20 g, 3 axes
Size (See also FIG. 2)	inches millimeters	5" x 2.1" x 8.8" 129 x 54 x 223
Weight	unpacked, approximately	2.4 lb (1.1 kg.)
Safety	N.A.	UL 478 recognized CSA C22.2-No. 143 and 154, certified.
EMI	Conducted Noise Radiated Noise	FCC Level B VDE 0875/7.71 (Level N)
ISOLATION	Hi-Pot Test Hi-Pot-Test Isolation Resistance	Input/Output: 2KV a-c, 1 min Input/Ground: 2KV a-c, 1 min Output/Ground: 100 Megohm, 500V d-c
Warranty	Operated within given specifications	1 Year

II—SPECIFICATIONS, CONT'D.

PARAMETER	CONDITION	SPECIFICATION
Ripple Envelope Source and Switching frequency (p-p)	At nominal input voltage and load	All outputs: 50 mV typical 100 mV maximum
Spike - Noise d-c to 15 MHz. (p-p)	At nominal input voltage and load, to 15 MHz.	All outputs: 2% E_o + 50 mV maximum
Cross-Regulation	Minimum to maximum load- change per Rating Table on any other output	(V1) + 5V output: < 1% (V2) + 12V output: < 7% (V3) - 12V output: < 0.5% (V4) + 24V output: < 7%

III—OPERATION

INPUT VOLTAGE SELECTION (See FIG. 1). The Model EMR 400K power supply is delivered for operation on 85 to 130V a-c power lines (wire-jumper in the "115V" position.) For operation on 170-260V a-c power lines, change the jumper to the "230V" position.

TERMINATIONS: See FIG. 1.

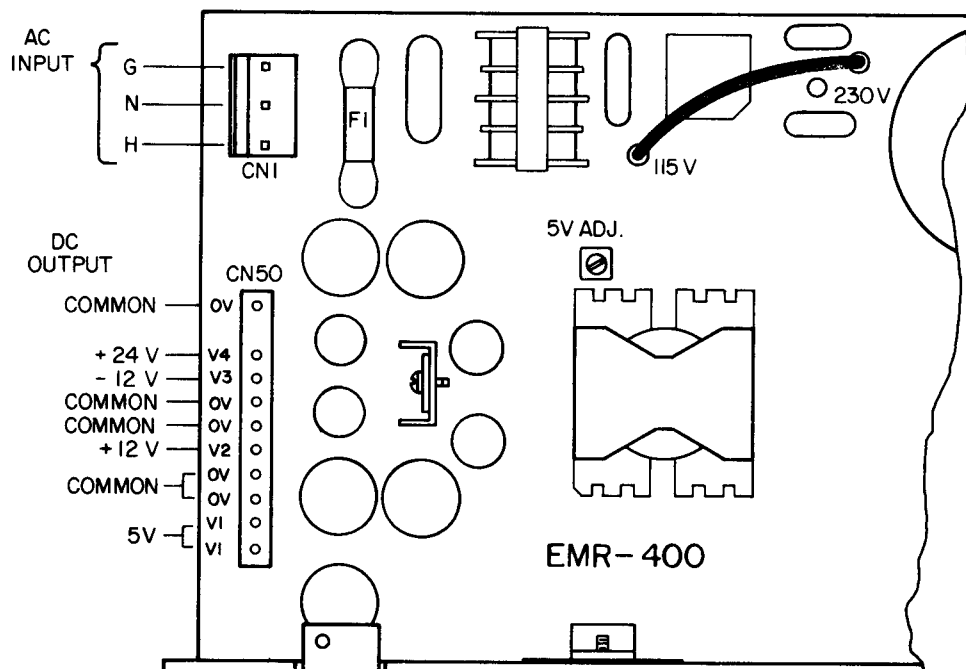


FIG. 1 SIMPLIFIED TOP VIEW, MODEL EMR 400K POWER SUPPLY.

NOTE: F1 is a medium acting fuse, 2.5A-250V, equivalent to SAN-O, P/N ST3-2.5A or LITTELFUSE, P/N 318 02.5

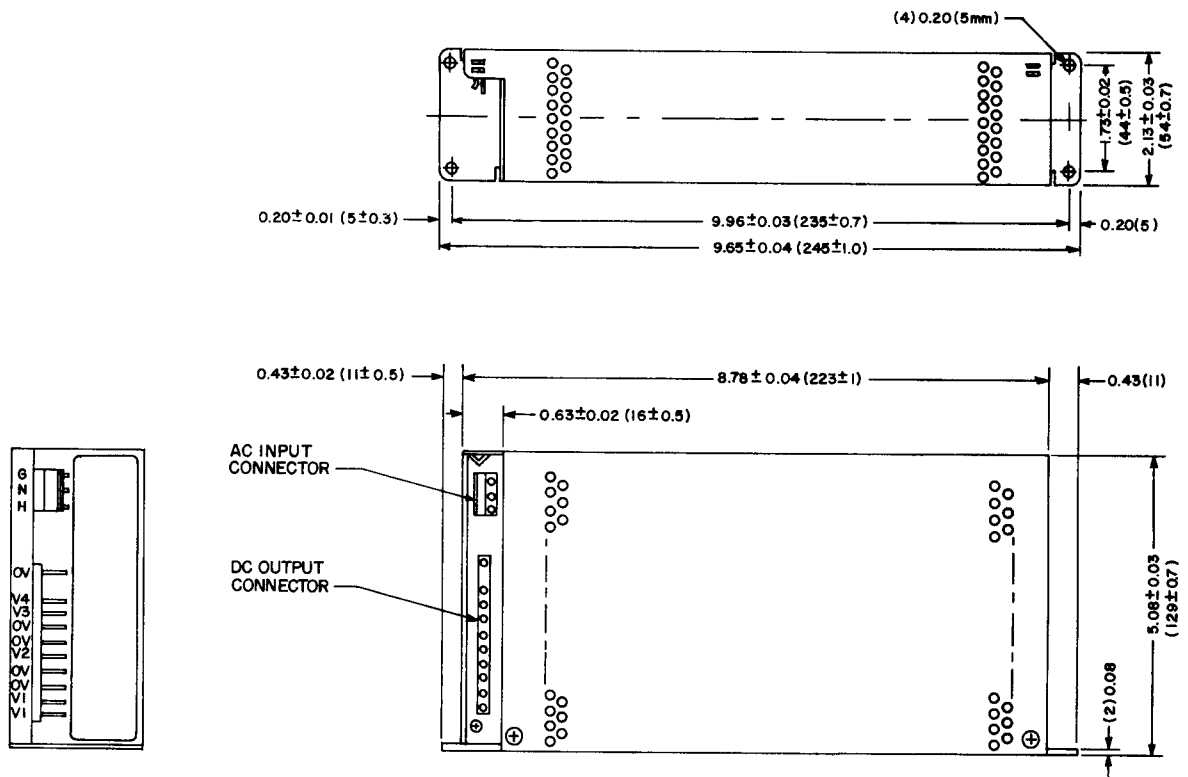


FIG. 2 MECHANICAL OUTLINE DRAWING, MODEL EMR 400K

NOTES:

- 1) DIMENSIONS in parentheses are millimeters, others are inches.
- 2) TOLERANCES: 0.04" (1 mm) unless noted otherwise.
- 3) A-C INPUT CONNECTOR (CN1) Molex "SPOX" system, Series 5277, 0.045" (1.14 mm) square pins, spaced 0.156" (3.96 mm). Mating connector may be selected from Molex Series 2139 or equivalent.
- 4) D-C OUTPUT CONNECTOR (CN50) Molex "SPOX" system, Series 5275, 0.045" (1.14 mm) square pins, spaced 0.156" (3.96 mm). Mating connector may be selected from Molex Series 2139 or equivalent.