INSTRUCTION MANUAL

KEPCO POWER SUPPLIES

Size C-300 Series

PRM MODULAR

Please record the equipment nameplate serial number in the space provided.

Model PRM 2X8.5-18

Serial No.....

GENERAL DESCRIPTION

The Kepco PRM Series 300 modules are a group of voltage stabilized d-c power supplies. The design of PRM power supplies is based on Kepco's patented "FLUX-O-TRAN" ® ferroresonant transformer, which provides output voltage stabilization and output current limiting. Due to their rugged construction and low parts count, Kepco's PRM modules are highly reliable d-c power sources, featuring efficiencies of approximately 65 to 75%.

SPECIFICATIONS, SOURCE INPUT:

a) INPUT REQUIREMENTS (Models without suffix): 115V a-c, ± 15V, 60 Hz ± 5%, single phase.

b) INPUT REQUIREMENTS (Models with suffix "-50"): 104V a-c ± 13.5V a-c or 115V a-c ± 15V a-c or 208V a-c ± 27V a-c or 230V a-c ± 30V a-c, 50 Hz ± 5%, single phase.

Kepco PRM Series 300 Power Supply Modules with suffix "-50" (50 Hz) are shipped for operation on 230V a-c, 50 Hz, single phase lines. The transformer primary connections on these models may be changed for other a-c input voltages, however, by altering the primary jumper connections as shown in FIG. 2.

NOTE: A ± 1% change in source frequency produces approximately ± 1.5% of output voltage change.

SPECIFICATIONS, D-C OUTPUT

a) OUTPUT RATINGS, LOAD EFFECT and RIPPLE:

MODEL	d-c OUTPUT		LOAD EFFECT VOLTS INCREASE		LOAD EFFECT	RIPPLE (max) RMS
	VOLTS	AMPS	100%-50% LOAD	100%-25% LOAD	CURVE (FIG. 4)	VOLTS (FIG. 3)
PRM 2x4.5-20	4.5	0-20	0.5	0.7	1	0.3
PRM 2x4.5-20-50	4.5	0-16	0.5	0.7	1	0.3
PRM 2x5-20	5.2	0-20	0.5	0.7	1	0.3
PRM 2x5-20-50	5.2	0-16	0.5	0.7	1	0.3
PRM 2x6-20	6.3	0-20	0.5	0.7	1	0.3
PRM 2x6-20-50	6.3	0-16	0.5	0.7	1	0.3
PRM 2x8.5-18	8.5	0-18	0.5	0.7	1	0.3
PRM 2x12-12	12	0-12	0.5	0.7	1	0.3
PRM 2x12-12-50	12	0-9.6	0.5	0.7	1	0.3
PRM 2x15-10	15	0-10	0.5	1.0	1	0.3
PRM 2x15-10-50	15	0-8	0.5	1.0	1	0.3
PRM 2x18-8	18	0-8	0.6	1.6	1	0.3
PRM 2x18-8-50	18	0-6.4	0.6	1.6	1	0.3
PRM 2x24-6	24	0-6	0.6	1.0	2	0.3
PRM 2x24-6-50	24	0-4.8	0.6	1.0	2	0.3
PRM 2x28-5	28	0-5	0.7	1.2	2	0.3
PRM 2x28-5-50	28	0-4	0.7	1.2	2	0.3
PRM 2x36-4	36	0-4	0.7	1.2	3	0.3
PRM 2x36-4-50	36	0-3.2	0.7	1.2	3	0.3
PRM 2x48-3	48	0-3	0.8	1.4	3	0.3
PRM 2x48-3-50	48	0-2.4	0.8	1.4	3	0.3
PRM 2x60-2.5	60	0-2.5	1.0	1.7	3	0.3
PRM 2x60-2.5-50	60	0-2	1.0	1.7	3	0.3

TABLE 1 OUTPUT SPECIFICATIONS, PRM 300 SERIES (DUAL OUTPUT).

NOTE: Output voltage accuracy ± 2% or 0.25 volts, at nominal source input, full load and 30°C ambient temperature. Initial (cold) output voltage is 1% higher than the table values.

SPECIFICATIONS, CONT'D.

b) SOURCE EFFECT: Output varies less than ± 1% for the rated source voltage range at full load. At no load, the source effect is ± 1.5% maximum.

c) TIME EFFECT (8-hour drift): Less than 1% or 0.1V, whichever is greater.

d) TEMPERATURE EFFECT (coefficient): Less than 0.05% per °C.

e) DYNAMICS:

1) VOLTAGE RECOVERY: The time required for the stabilized output voltage to recover within the load effect band, following a 50% load step, is less than 400 milliseconds.

2) OUTPUT IMPEDANCE: The output impedance from d-c to 10 KHz is a function of the load effect:

$$Z_o = \Delta E_o / \Delta I_o$$

where ΔE_o is the change in output voltage for a given change in load current (ΔI_o). For frequencies ***above*** 10 KHz, the effect of 0.5 μH series inductance must be added.

SPECIFICATIONS, GENERAL

a) OPERATING TEMPERATURE RANGE: – 20 °C to 55 °C. No derating of the specified output current and no external heat sink is required.

b) STORAGE TEMPERATURE RANGE: – 40 °C to 85 °C.

c) ISOLATION: The circuit of the PRM module is isolated from the chassis and from ground. It may be floated up to 600V d-c (or peak) off ground. The chassis should be grounded for safety. A common mode current of 50 μA rms, 500 μA p-p (at 60 Hz) flows to the ground return of the a-c power source.

NOTE: *Isolation Voltage Limit between output 1 and output 2 is 60V d-c (or peak).*

d) SERIES/PARALLEL: PRM modules can be connected in series up to the 600V isolation limit. Identical models can be paralleled for approximately double current (allow for 10% imbalance).

e) STANDARDS: PRM modules are designed and tested in accord with NEMA standards for stabilized power supplies, d-c output, Publication No. PY-1-1972. 60 Hz PRM models (models without suffix) are recognized by Underwriters Laboratories under the UL Component Recognition Program: UL specifications 114 and 478.

f) SHIPPING WEIGTH: Approximately 38 lbs. (17.3 Kg.).

SPECIFICATIONS, MECHANICAL (See "Mechanical Outline Drawing", FIG. 7)

a) MOUNTING: Three mounting methods are illustrated in the Mechanical Outline Drawing, FIG. 7. The PRM module may also be mounted into a standard (19-inch) instrument rack by means of the following Kepco Rack Adapters:

1) Single-unit Rack Adapter, Kepco Model RA 31-1.
2) Two-unit Rack Adapter, Kepco Model RA 8-2
3) Three-unit Rack Adapter, Kepco Model RA 9-3.

TERMINATIONS AND LOAD CONNECTIONS

A-C input and d-c output connections on the PRM Series 300 power supply are terminated at the barrier strip (TB1) as shown in FIG. 1. The barrier strip terminals are rated for 30 amperes and can accommodate wires to AWG #12. Load wires should be as heavy as practicable, as short as possible and should be tightly twisted to avoid noise pick-up problems. Recommended external fuse (if required): 6A @ 115V a-c, 3A @ 230V a-c, slow-acting type.

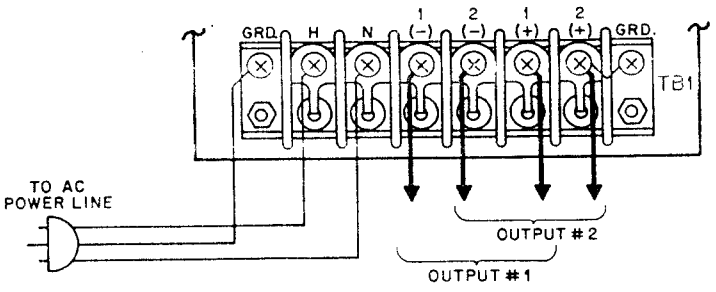
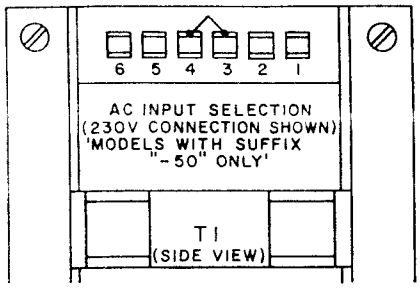


FIG 1 TERMINATIONS AND LOAD CONNECTIONS, PRM SERIES 300.



NOTE:
104V a-c input: Connect (1)-(2) and (5)-(6).
115V a-c input: Connect (2)-(3) and (4)-(5).
208V a-c input: Connect (1)-(6).
230V a-c input: Connect (3)-(4).

FIG. 2 A-C INPUT VOLTAGE SELECTION. (MODELS WITH SUFFIX "—50").

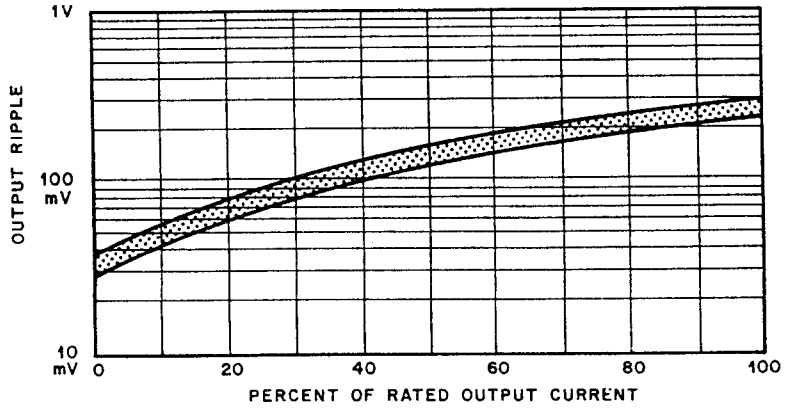


FIG. 3 TYPICAL OUTPUT RIPPLE, PRM SERIES 300.

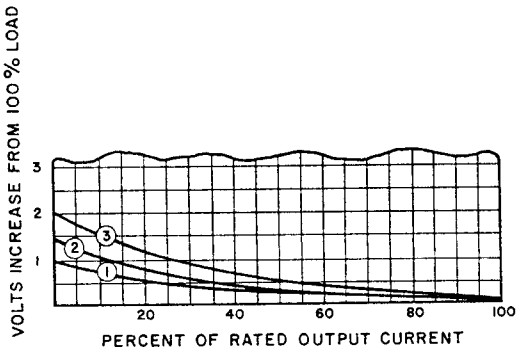


FIG. 4 TYPICAL LOAD EFFECT, PRM SERIES 300.

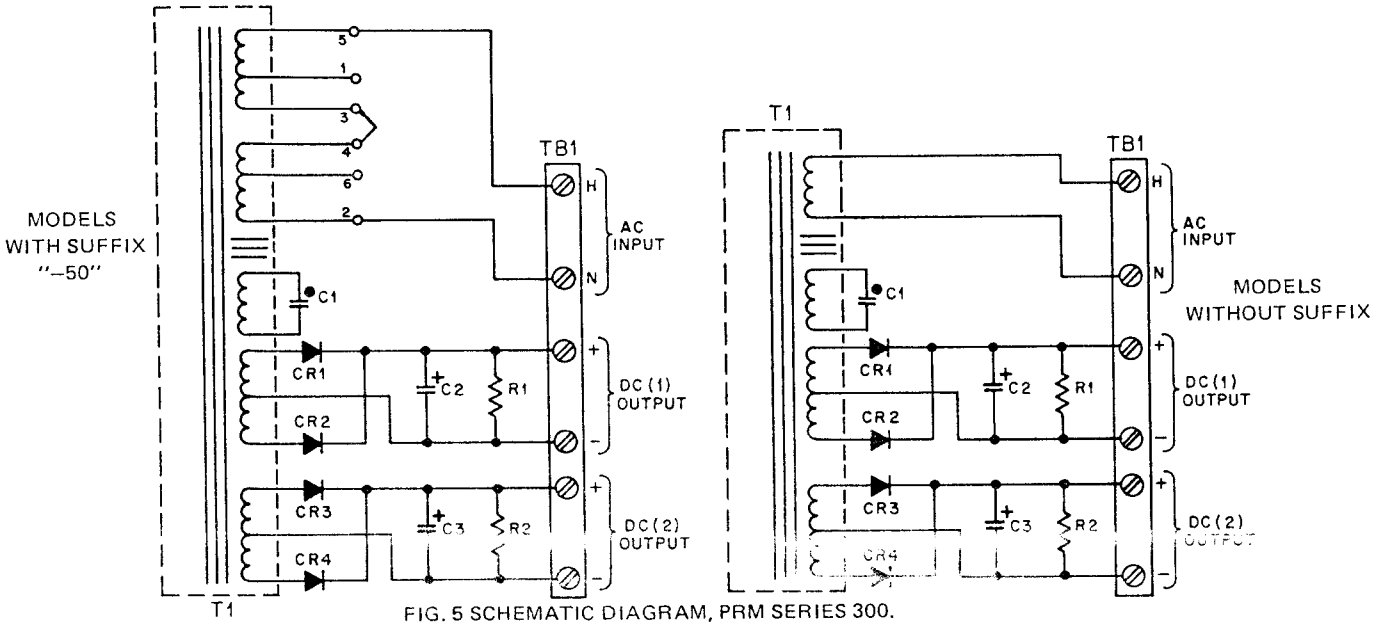
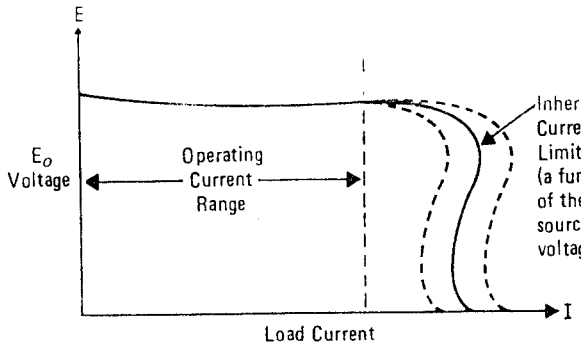


FIG. 5 SCHEMATIC DIAGRAM, PRM SERIES 300.



TYPICAL OUTPUT CHARACTERISTICS, PRM DESIGN GROUP.

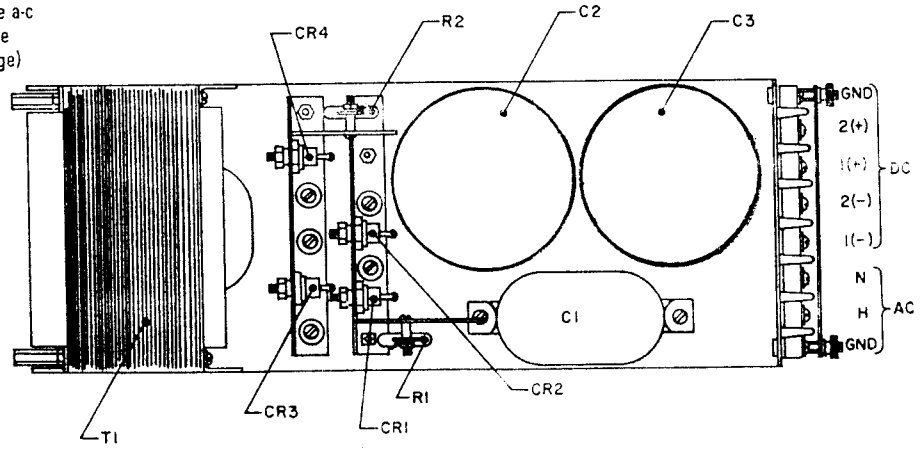
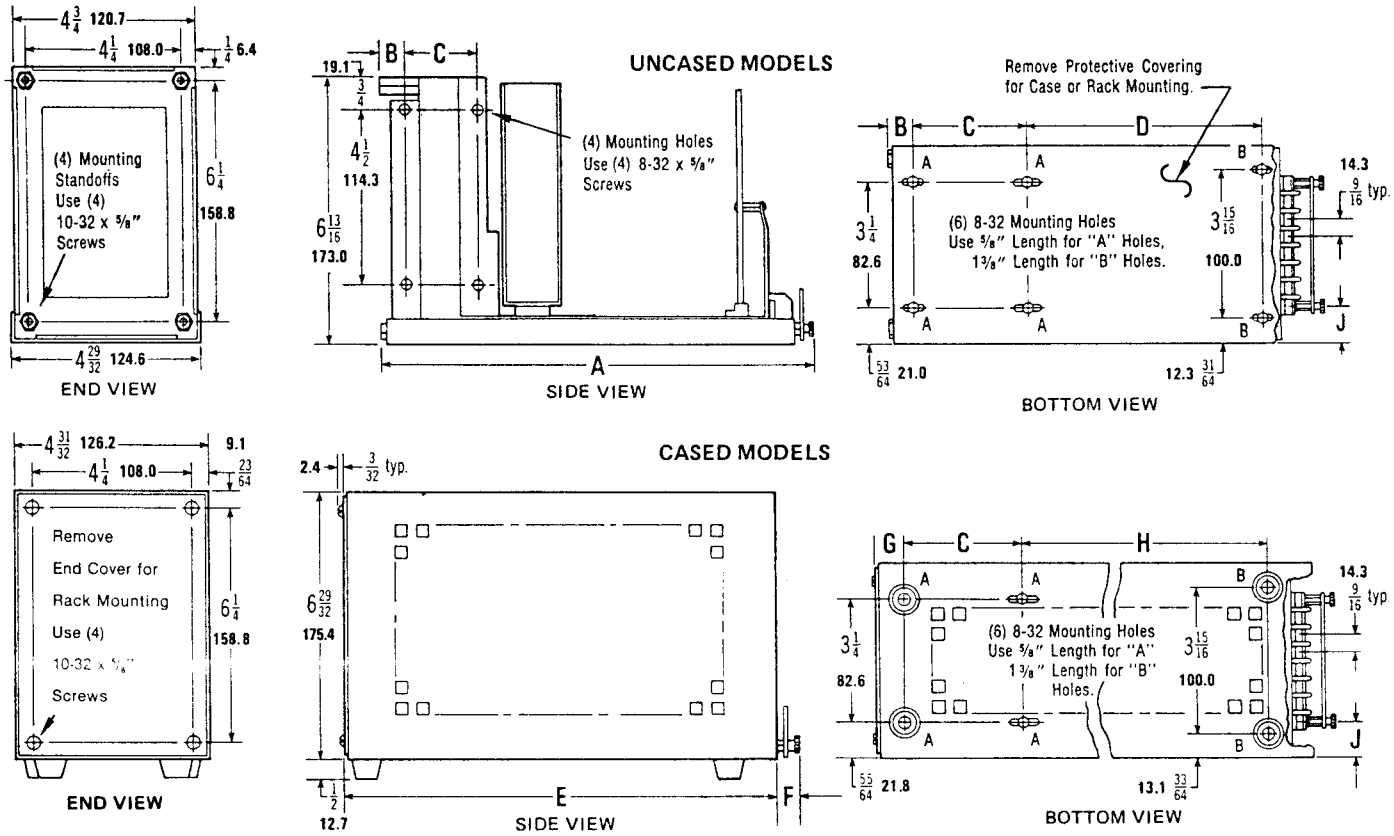


FIG. 6 COMPONENT LOCATION, PRM 300 SERIES.



A	B	C	D	E	F	G	H	J (UNCASED)	J (CASED)
15 1/8 384.2	11/16 17.5	3 11/32 84.9	9 9/16 242.9	14 9/16 369.9	5/8 15.9	3/4 19.1	9 9/16 242.9	1/2 12.7	39/64 15.5

FIG. 7 MECHANICAL OUTLINE DRAWING, PRM 300 SERIES.

Notes:

1) MATERIAL: Chassis, 14 GA-CRS; Case, 16GA - Aluminum.
2) FINISH: Chassis, Cadmium plated with chromate wash; Case, royal blue epoxy paint.
3) Fractional Dimensions (Light Face Type) are in inches.
   Decimal Dimensions **(Bold Face Type)** are in millimeters.
4) TOLERANCES: ± 1/64 (0.4) between mounting holes, except dim "C", ± 1/16 (1.6)
   ± 1/32 (0.8) all other dimensions.

MODEL PRM 2X8.5-18 REPLACEMENT PARTS LIST Code 06-2497

REFERENCE DESIGNATION	QTY	DESCRIPTION	MFRS. NAME & PARTS NO. SEE BOTTOM NOTE	KEPCO PART NO.	REC. SPARE PART QTY.
C1	1	Cap., Paper, Can Oval 6µF, 6%, 660V a-c	General Electric Type 26F	117-0925	1
C2,3	2	Cap., Electrolytic, Can 270K µF, +20 –20%, 10V d-c	United Chemi-Con U36D10LG274M51X92HP	117-1210	1
CR1,2,3,4	4	Rect., Diode, Si., Stud-Type 200V (PIV), 40A	Motorola 1N1186A	124-0555	1
R1,2	2	Res., Fxd., Power Strip 7.5 ohm, 5%, 40W	E-Systems Type ZR	115-1021	1
T1	1	Transformer, Power	Kepco, Inc. 100-2472	100-2472	1

NOTE: REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

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