

INSTRUCTION MANUAL



KEPCO

MRW

KEPCO MRW 150KV SWITCHING POWER SUPPLY

Kepeco Model MRW 150KV low profile switching power supply is capable of accepting an input voltage range from 95V a-c to 264V a-c without jumpers or adjustment. The d-c output power is shared between three outputs, +5V, +12V, and -12V. Unit features isolated input and output. They are UL recognized and certified to VDE 0806, IEC (DIN) 380, and CSA C22.2 E.B. No. 1402. EMI meets both FCC Class B and VDE 0871 Class B (10KHz-30MHz). The 5V output is provided with overvoltage protection. When voltage across the 5V terminal exceeds the overvoltage limit range of 5.8V-6.9V all outputs are shut down.

The model is self contained on a PC card and all components are within a 1-inch profile. A steel cover (Model CA-19) is available as an option. A "POWER OK" signal is accessible through a separate plug terminal. Kepeco supplies an optional mating connector kit for all output and input connections.

OUTPUT SPECIFICATIONS

| SPECIFICATIONS | OUTPUT #1 | OUTPUT #2 | OUTPUT #3 | CONDITION |
|--|---|-----------------------------|---------------------------|--|
| Output Voltage | +5V | +12V | -12V | Factory set, nom input, typ load, 25°C |
| Initial Setting | 5.00V ± 20mV | — | — | |
| Adjustment ⁽¹⁾ Range | +5% -3% | — | — | |
| Output Current Amps (See Fig. 1) | 1.0-2.2 (typ) (4.0 max.) | 0.6-1.8 (typ) (2.5 max.) | 0-0.1 (typ) (0.3 max.) | 0-50°C |
| Output power (Watts) | 35.0 | | | 40°C |
| | 35.0 | | | 50°C |
| | 24.5 | | | 60°C |
| | 14.0 | | | 71°C |
| Ripple: ⁽²⁾ Source | 30 | 30 | 10 | Nominal input, typical load |
| Switching | 50 | 50 | 20 | |
| Noise ⁽²⁾ | 150 | 290 | 290 | d-c to 20MHz. |
| Efficiency | 70% typ. | | | Nom input, typ load |
| Source effect ⁽³⁾ | 1% max | | | 95-132V or 190-264V a-c |
| Load effect | 3% max | 5% max | 1% max | min-typ load |
| Cross effect Output #1 | — | 4.0% | 0.5% | Load change from minimum to typical; nominal input, 25°C |
| | Output #2 | 1.5% | — | |
| | Output #3 | 0.5% | 0.5% | |
| Temperature effect | 2% max | 2% max | 1% max | Nom input, typ load 0-50°C |
| Time effect | 0.5% max | | | Nom input, typ load, 25°C, 0.5-8.5 hr drift |
| Combined effect: source, load & temperature | +4%, -2% | +4%, -6% | ±6% | Initial Setting 5.00V ± 20mV |
| Recovery characteristics: Excursion | 4% max | | | Step load change from 50% to 100% of typical load. Nominal input, 25°C |
| | Recovery (within ±1%) 2 msec max | | | |
| Overvoltage protection | 5.8-6.9V ⁽⁴⁾ | — | — | |
| Overcurrent protection | Total maximum output power no more than 38.5 Watts | | | Nominal input, 40°C |

⁽¹⁾ Output #2 follows the variation of output #1 (adjustment) ⁽²⁾ mV p-p max. ⁽³⁾ Typical load, 25°C. ⁽⁴⁾ All outputs are shut down when OVP is activated.

| GENERAL SPECIFICATIONS | | |
|-------------------------|---|-------------------|
| SPECIFICATION | RATING/DESCRIPTION | CONDITION |
| Temperature | 0-71 °C (derate to 40% at + 71 °C) | Operating |
| | - 20 to 75 °C | Storage |
| Humidity | 95% | Non-condensing |
| Shock: | 20g 3 axes (11 msec ± 5 msec pulse duration) | Non-operating |
| Vibration: | 5-10Hz: 10mm 10-55Hz: 2g, 3 axes | Non-operating |
| Isolation | 500V d-c, 100MΩ | Output to chassis |
| Withstand voltage | 2KV a-c for 1 min; 3.75KV a-c, 1 min without Y capacitors | Input to output |
| Dimensions | 3.93 x 6.3 x 1.18 | inches |
| | 100 x 160 x 30 | mm |
| Weight | 12.35/350 | ounces/grams |
| Mounting ⁽¹⁾ | See outline dimensional drawing | |
| Safety | UL 478 Recognized, CSA C22.2 certified. VDE 0806/IEC 380 Certified by TUV Rheinland | |
| Enclosure | Optional metal (see outline dimensional drawing) | |
| Type of construction | PC card | |
| Warranty | Used withing ratings | 1 year |

⁽¹⁾ MRW 150KV (uncased) has the same footprint and mounting holes as Kepco Model MRM 144KV

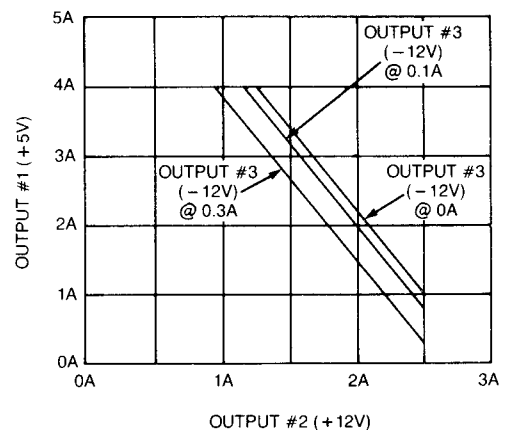
Determining available power from each output: Total output power available from the Model MRW 150KV is 35 Watts at temperatures up to 50°C. The load is distributed to each output. Each output has a different maximum value of current that may be drawn.

NOTE: In all cases the maximum current from an individual output should not allow the total power to exceed 35 Watts. Use the following chart to determine allowable current for each output.

In the chart the vertical scale represents the +5V output (#1) and the horizontal scale represents the +12V (#2) output. The three diagonal lines represent three possible loads for the -12V output (#3). The diagonal lines signify no load (0 Amp), 0.1 Amp, and 0.3 Amp.

To find the available current for output #2 with any desired load on #1 and a selected load on #3, locate the desired load on the vertical scale and move across to the appropriate diagonal. For example, when #1 is loaded with 3 Amp. and #3 is loaded with 0.3 Amp., the available current for #2 will be 1.36 Amp. If #3 is loaded to 0.1 Amp. the available current for #2 increases to 1.56 Amp.

FIG. 1 OUTPUT RATINGS



| INPUT CHARACTERISTICS | | |
|--------------------------------------|-------------------------------|--------------------------------|
| SPECIFICATION | RATING/DESCRIPTION | CONDITION |
| Voltage range | 95-264V a-c | |
| Current | 1.0A | 115V a-c, typ load |
| | 0.5A | 230V a-c, typ load |
| Frequency | 47-63Hz | Single phase |
| Fuse value | 2.5A | |
| Switching frequency | ~ 100KHz | Nominal input, typical load |
| Brownout voltage | 85V a-c | Low operating limit |
| Initial turn-on surge, first ½-cycle | 50A peak (max) | 115V a-c, rated load |
| EMI | FCC Class B, VDE 0871 Class B | Conducted |
| Leakage current | 0.5mA (max) | 25 °C, 115V a-c (UL method) |
| | 0.75mA (max) | 25 °C, 230V a-c (VDE method) |
| Startup time | 400 msec (typ) | 25 °C, nominal input, typ load |
| Holdup time | 20 msec (max) | 25 °C, nominal input, typ load |
| Circuit type | Flyback | |

“POWER OK” Signal Output: The unit supplies a “POWER OK” TTL logic 1 signal at CP54 when the 5V output reaches 4.5 Volts or more. Logic 0 is 0.4V max. Logic 1 is 2.5V min.

Connector types: Refer to the mechanical outline drawing. Mating connector types for CP51, CP52 and CP53 are as follows:

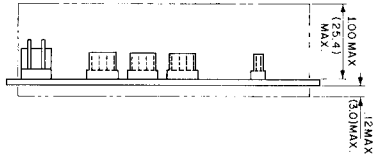
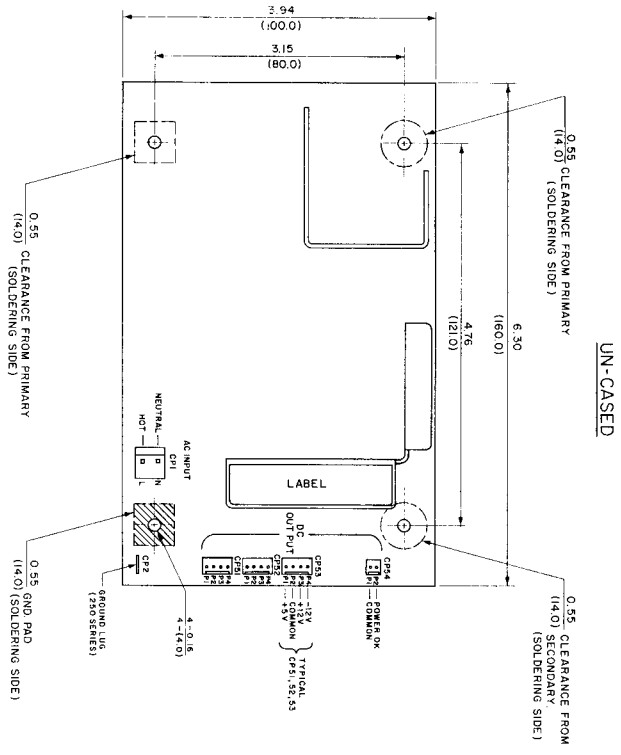
CP51, CP52, CP53, (Output): Mfg. Panduit, P/N CT100F22-4
Cover: P/N TC100F-4

CP54, (POWER OK), Mfg. Panduit, P/N CT10F22-2
Cover: P/N TC100F-2

CP1, (Input): Mfg. Panduit, P/N CT156F-18 Series
Cover: P/N TC156F

CP2, (Ground tab .250” tab): Mfg. AMP. Inc., P/N 42510-2

Connector Kit: Kepco furnishes an optional connector kit with the specified connectors listed above. The kit may be ordered under KEPCO Model Kit 219-0184. The connectors are provided with 1 meter length leads for trimming to desired lengths.



NOTES:

1. DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS
2. SCREWS FOR 8-32 MOUNTING HOLES NOT TO BE SCREWED IN MORE THAN .27(7.0) FROM FRAME SURFACE.
3. ±0.03(14.0) TOLERANCE UNLESS OTHERWISE SPECIFIED.

MECHANICAL OUTLINE DRAWING

