

OPERATOR'S MANUAL

RCW 750W SERIES

POWER SUPPLY

SINGLE OUTPUT, UNIVERSAL INPUT
SINGLE PHASE, 0.99 POWER FACTOR

KEPCO INC.
An ISO 9001 Company.

MODEL

RCW 750W SERIES

POWER SUPPLY MODELS

**RCW 3.3-150K, RCW 5-150K, RCW 12-62K,
RCW 15-50K, RCW 24-31K, RCW 28-26K,
RCW 48-15K**

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1.1 SCOPE OF MANUAL

This Operator's Manual covers the installation and operation of the Kepco RCW 750W Series of Switching Power Supplies. For service information, write directly to: Kepco Inc., 131-38 Sanford Avenue, Flushing, New York, 11352, U.S.A. Please state Model Designation and Serial Number of your RCW Power Supply. This information can be found on the nameplate of the unit.

1.2 DESCRIPTION

The Kepco RCW 750W Series consists of seven models of Switching Power Supplies, with a single output as shown in Table 1. RCW power supplies are compliant with the Low Voltage Directive (LVD) and carry the CE Mark. Units are designed to operate with a universal input voltage within the range of 85 to 264V AC and may be operated with either 100-120V AC, or 200-240V AC (100 to 240 volts nominal input range), 50-60 Hz (47-66 Hz) input. They will also operate on 125V to 370V dc input. The RCW 750W Series employs a light weight ferrite core transformer with 160 KHz typical (140 KHz typical for the RCW 48-15K model) switching frequency. The Power Factor Correction Circuit has a typical switching of 60 KHz. Regulation is provided by pulse width modulation. A FET power stage, operating in the forward conversion mode provides a smooth isolated dc output. A resistor and thyristor "soft-start" circuit prevents excessive turn-on current surge. Overvoltage protection and optically isolated remote TTL ON-OFF control are provided. Current limiting with automatic recovery from short circuit is featured. Units are enclosed in a wrap-around aluminum case with a green LED "output present" light visible on the terminal side of the case.

2.0 SPECIFICATIONS

Table 1 contains specifications and operating limits of individual RCW 750W Series models. Table 2 contains specifications and operating limits common to all RCW 750W Series Models. These specifications are at nominal input voltages at 25°C unless otherwise specified.

TABLE 1. OUTPUT RATINGS AND SPECIFICATIONS

MODEL RCW 750W	RCW 3.3-150K	RCW 5-150K	RCW 12-62K	RCW 15-50K	RCW 24-31K	RCW 28-26K	RCW 48-15K	
Output Volts d-c ⁽⁵⁾	3.3V	5V	12V	15V	24V	28V	48V	
Adjustment Range	2.7~3.6	4.0~5.5	8.4~13.2	12.0~16.5	16.8~26.4	22.4~30.8	32.6~52.8	
Maximum Output Ratings (Amps, Watts)	50°C, amb	150.0A 495.0W	150.0A 750.0W	62.5A 750.0W	50.0A 750.0W	31.3A 751.2W	26.8A 750.4W	15.7A 753.6W
	60°C, amb	105.0A 346.5W	105.0A 346.5W	43.75A 525.0W	35.0A 525.0W	21.9A 525.84W	18.76A 525.28W	11.0A 527.52W
	70°C, amb	60.0A 198.0W	60.0A 300.0W	25.0A 300.0W	20.0A 300.0W	12.52A 300.48W	10.72A 300.16W	6.28A 301.44W
Current Limit (Amps) ⁽¹⁾	157 ~ 175	157~175	65.0~71.0	52.5~58.5	32.8~36.0	28.1~30.8	16.4~18.1	
OVP Settings (Volts) ⁽²⁾	3.8 ~ 4.6	6.0~6.9	13.7~15.7	17.0~19.5	27.0~30.5	31.4~34.5	54.0~59.0	
Efficiency % typ	AC Input 120V	71	76	77	78	79	80	82
	AC Input 240V	73	79	80	81	82	84	85
Ripple & Noise ⁽³⁾ (mV, p-p)	source(max)	20	20	20	20	20	20	20
	switching (max)	50	50	80	80	120	120	200
	spike noise (max) ⁽⁴⁾	200	200	250	250	300	300	500
Transient Recovery ⁽⁶⁾	Excursion ±V typ	1.0	1.0	0.5	0.5	0.5	0.5	0.15
	Rec'y to within 1% (<μs)	100	100	75	75	50	50	500

¹⁾ The Power Supply has a square type overcurrent characteristic, shutdown by undervoltage detection.

²⁾ The Power Supply has a shut-down type overvoltage characteristic. Recovery time to reset 40 seconds minimum.

³⁾ Source component 2x source frequency and switching component approximately 160 KHz, 10 to 100% load and ambient Ta = 25°C.

⁴⁾ Measure with a 50MHz bandwidth, 10 to 100% load and ambient Ta= 25°C.

⁵⁾ Output voltage setting = ±1%.

⁶⁾ A step load change from 50% to 100% of rated load current (with the following tr, if load changes) produces no more than the output voltage excursions listed in the above table; tr, tf of load change: 3.3V and 5V ≥ 15μs, 12V ≥ 6.25μs, 15V ≥ 5μs, 24V ≥ 3.13μs, 28V ≥ 2.68μs, 48V ≥ 7.85μs

TABLE 2. POWER SUPPLY RATINGS AND SPECIFICATION

SPECIFICATION	DESCRIPTION			
Input Voltage	Nominal: 100-120Vac or 200-240Vac	Range: 85-264 Vac		
	Range 125-370 Vdc			
Input Source Frequency	Nominal 50/60 Hz, Range 47-66 Hz. (At 400 Hz the leakage current exceeds the VDE safety leakage specification limit).			
Brownout Voltage	80 V ac min			
Input Current: (Maximum Load At 50°C with Nominal Output Voltage)	120V ac	12.0A RMS max., and 8.0A RMS max for the 3.3V output model		
	240V ac	6.0A RMS max., and 4.0A RMS max for the 3.3V output model		
Input Protection	Units Are Protected Against Shorts By An Input Fuse. Fuse Value 20.0A At 250 Volts			
Input Surge at 25° C from cold start; resistor and thyristor soft start circuit reduces start-up surge. (see Figure1)	120V ac	20.0A max. first surge		
	240V ac	40.0A max. first surge		
Stabilization	Source Effect (min - max) (85 to 132 V ac, 170 to 264V ac)	Typical	Maximum	
		0.05% ⁽¹⁾	0.1% ⁽¹⁾	
	Load Effect, measured at sensing terminals (0%-100% load change)	0.1% ⁽²⁾	0.3% ⁽²⁾	
	Temperature Effect (-10° to 71°C)	0.5%	1.0%	
	Combined Effect (envelope, Source, Load and Temperature)	± 0.7%	± 1.5%	
	Drift (8 hours at 25°C)	0.2%	0.5%	
Output Holding Time:	Output is maintained for 30 milliseconds typical upon input interruption (20 milliseconds minimum) with nominal 120 volts AC input voltage and output load at 50°C current rating.			
Start-up Time	900 msec maximum, 500 typical.			
Overvoltage Protection	When the Power Supply goes into an overvoltage condition, the output is cut OFF. To restart (reset) the unit, it is necessary to remove the AC input power, wait 40 seconds, and then to reconnect the AC input power.			
Operating Temperature:	-10 to 70°C (see Figure 2)			
Storage Temperature:	-25°C to +75°C			
Humidity:	10% to 95% relative humidity, noncondensing, Wet Bulb temperature <35°C			
Isolation (at 25°C ambient, 65% relative humidity)	Between input and case, 2000 Vac for 1 minute Between input and output terminal, 2000 Vac for 1 minute, and 3000 Vac with Y capacitors removed. Cutout current is 20mA			
Insulation Resistance: (at 25°C, 65% relative humidity)	Between output and case, input and case, and input and output, 100 Megohms minimum (500 Vdc)			
Leakage Current:	0.50 mA max at 120 Vac (U.L. Method 50 to 60 Hz) 0.75 mA max at 240Vdc (VDE Method 50 to 60 Hz, two terminal connection)			
Vibration: (non-operating 1 hour on each of three axes, Power Supply is fixed on its bottom side)	5-10 Hz., 10mm amplitude, 10-200 Hz., 64.3ft./s ² (19.6M/s ²)			
1) 2 mV typ, 4mV maximum for the 3.3 volt Model 2) 10mV typ, 25mV maximum for the 3.3 volt Model				
Shock: (non-operating, 1/2 sine pulse, three shocks on each axis, Power Supply is fixed on its bottom side)	964.6ft./s ² (294M/s ²), 11ms ± 5 msec pulse duration			

TABLE 2. POWER SUPPLY RATINGS AND SPECIFICATION (CONTINUED)

SPECIFICATION	DESCRIPTION
Input Transient:	The RCW Power Supply (with a 50 ohm termination) should operate trouble free when a 1us, 2K Volt, 50–60 Hz input is applied between the input and ground terminals.
EMI Conducted:	FCC Class A
Safety:	UL 1950 Recognized, CSA Electrical Bulletin 22.2, No. 234, Level 5 Certified and EN 60 950 (TUV) Approved, CE marked per Low Voltage Directive (LVD)
Remote Error Sensing:	The RCW 750W Power Supply will compensate up to 0.15 Volts max per load wire for the RCW 3.3-150K, and up to 0.25 Volts per load wire for the RCW 5-150K, and up to 0.4 Volts per load wire for all other RCW Models (see Figure 5).
Remote Control ON/OFF:	"High", 2.4V to 24V (or open), unit ON "Low", 0.0V to 0.4V (or closed), unit OFF- Fan Off Source current is 1.6mA maximum The (±)RC terminals are isolated from the AC input terminal and the DC output terminals. Under normal conditions the (±)RC terminals are high, so when the function is not used the terminals should be left open.
Power Factor	0.99 typical, satisfies EN61000-3-2 Requirements
Dimensions:	4.33 in. (110 mm) x 7.87in. (200 mm) x 9.45 in. (240 mm)
Mounting:	No. M4x8 tapped holes
Maximum Screw Penetration:	0.28 in. (7 mm)
Cooling:	Forced air flow - one fan
Frame Material/Cover Material:	Aluminum
Weight:	4.6 Kg (10.14 Lbs) Typical, 5.0 Kg (11.02 Lbs) wih cover

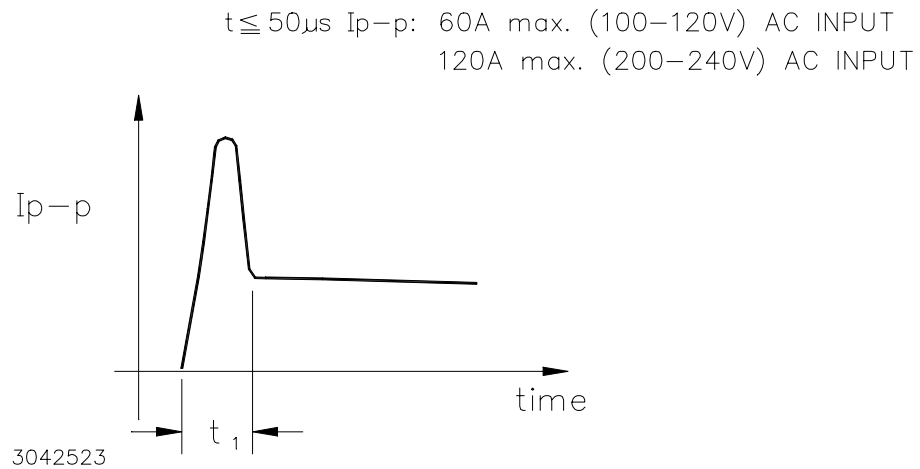


FIGURE 1 RCW 750W POWER SUPPLY PEAK TO PEAK INPUT SURGE CURRENT FOR $T \leq 50\mu\text{s}$

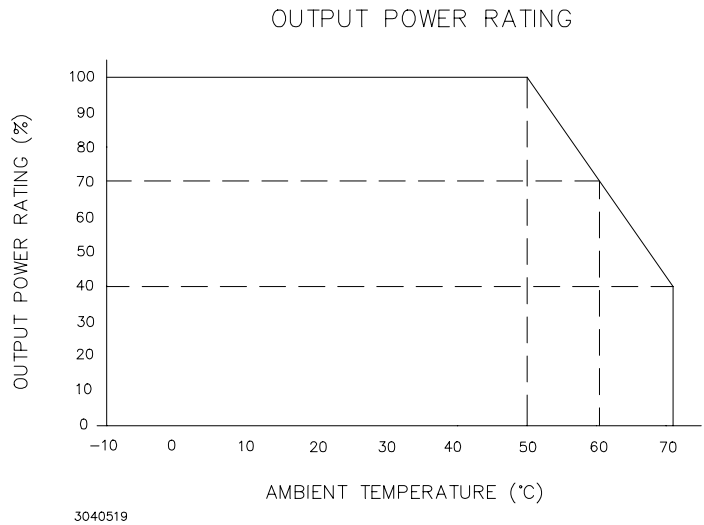


FIGURE 2 PERCENT POWER RATING VERSUS AMBIENT TEMPERATURE

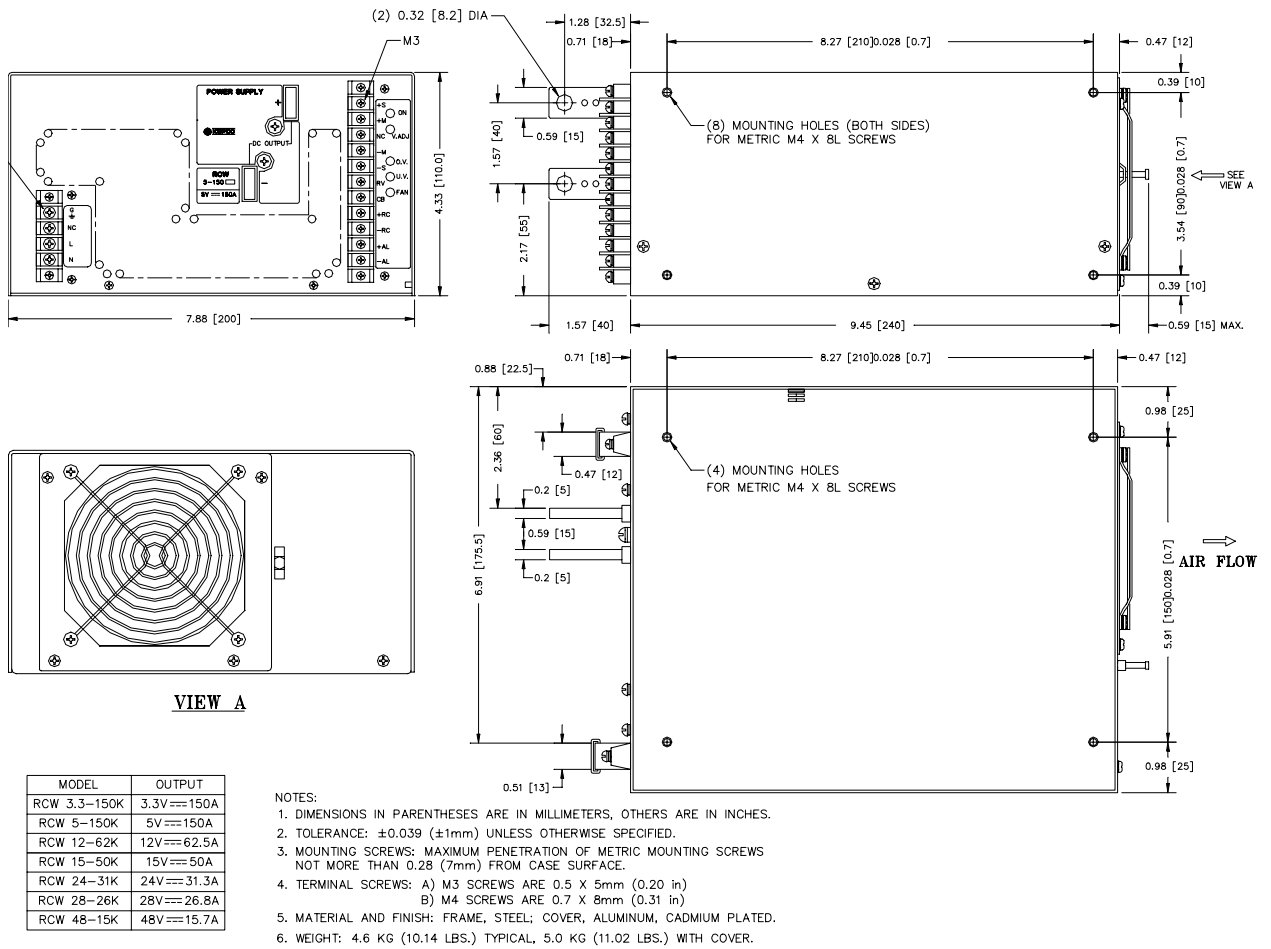
3.0 OPERATION

3.1 INSTALLING THE POWER SUPPLY

The unit may be mounted in accordance with the Mechanical Outline Drawing, Figure 3 (mounting holes are provided). The temperature of the air surrounding the Power Supply must not exceed the ambient values given in the Specifications Table 1. See Figure 4 for horizontal and vertical mounting of the RCW 750W Power Supply.

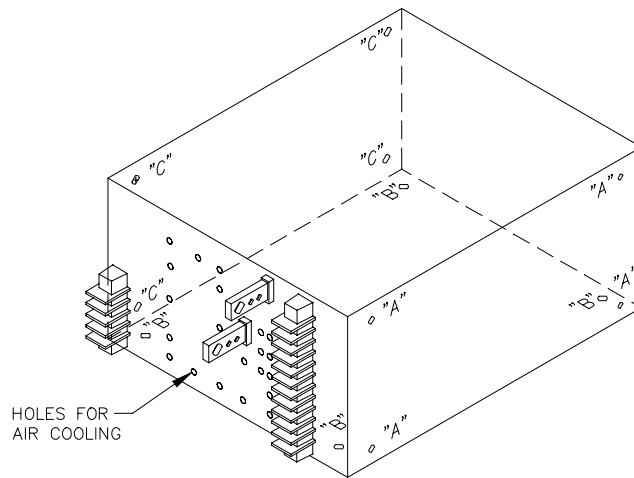
The RCW 750 has four tapped Metric M4x8L mounting holes on the bottom side of the unit for horizontal installation as well as eight tapped Metric M4x8L mounting hole on the side surfaces for vertical installation. Free air space must be provided at the rear of the unit to allow for maximum ventilation and exhaust of the fan. Power Supply specifications should be derated for certain operating temperatures

Referring to Figure 4, the air cooling holes on the front panel of the unit and on the top, and in front of the fan should be kept clear at least 1 inch (20mm) from adjacent equipment and in a well ventilated area.

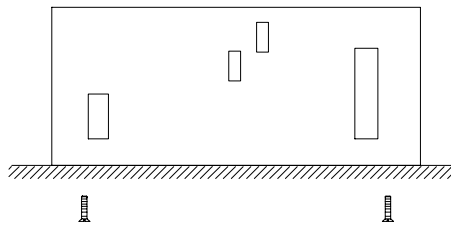


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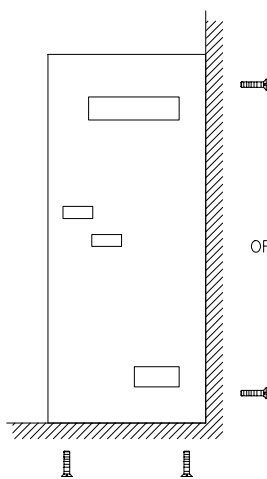
FIGURE 3 MECHANICAL OUTLINE DRAWING OF THE RCW 750W POWER SUPPLY



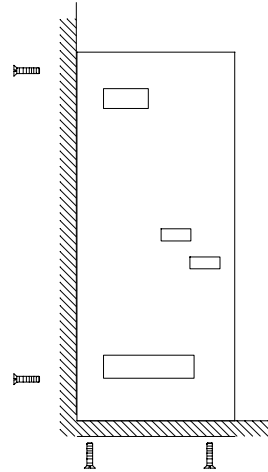
NOTE: MOUNTING HOLES "A", "B" & "C" FOR THE RCW 750W POWER SUPPLY WHEN "A", "B" & "C" TAPPED HOLES ARE USED FOR MOUNTING, VENTILATION HOLE AREA MUST BE MAINTAINED FOR COOLING.



USE "B" MOUNTING HOLES (FOUR METRIC M4 X 8L THREAD) FOR HORIZONTAL INSTALLATION OF THE RCW 750W POWER SUPPLY



USE "B" & "C" MOUNTING HOLES (EIGHT METRIC M4 X 8L THREAD) FOR VERTICAL INSTALLATION OF THE RCW 750W POWER SUPPLY



USE "A" & "B" MOUNTING HOLES (EIGHT METRIC M4 X 8L THREAD) FOR VERTICAL INSTALLATION OF THE RCW 750W POWER SUPPLY

NOTE: AIR COOLING HOLES AND FANS SHOULD BE SPACED ABOUT 1 INCH (20 mm) MINIMUM FROM OTHER EQUIPMENT (IN A WELL-VENTILATED AREA).

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FIGURE 4 MOUNTING POSITIONS FOR THE RCW 750W POWER SUPPLY

3.2 CONNECTING THE LOAD (LOCAL SENSE)

To connect the load for local sensing, the shorting links must be maintained between the (+) S and (+) M terminals, and between the (-) S and (-) M terminals. The load is connected across the DC output (+) and (-) terminals.

3.3 CONNECTING THE LOAD (REMOTE SENSE)

The load is connected as shown in Figure 5. Error sensing may be done at the load terminals to compensate for voltage loss in the connecting wires. The shorting links must be removed from the (\pm) S Sense terminals and from the respective (\pm) M terminals..

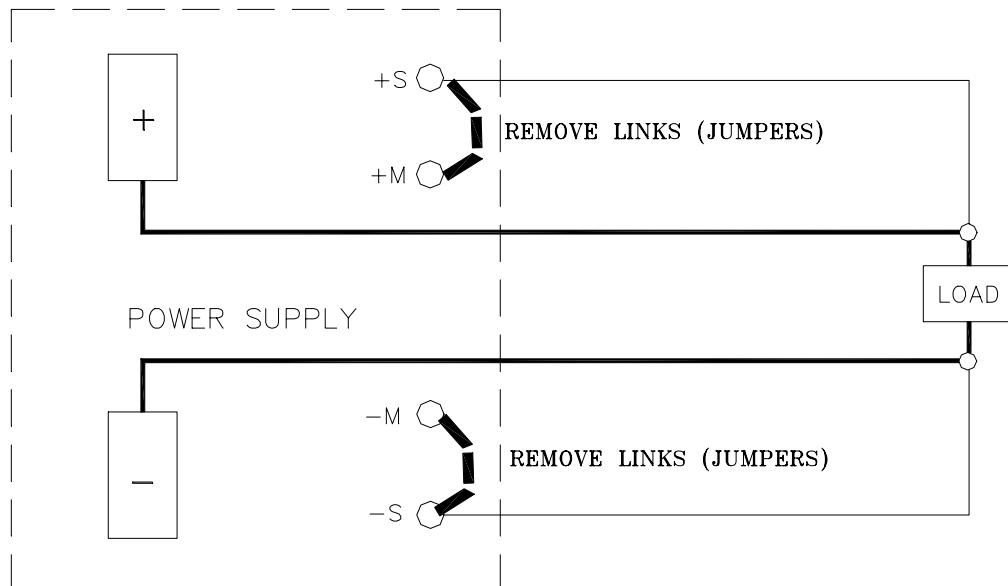
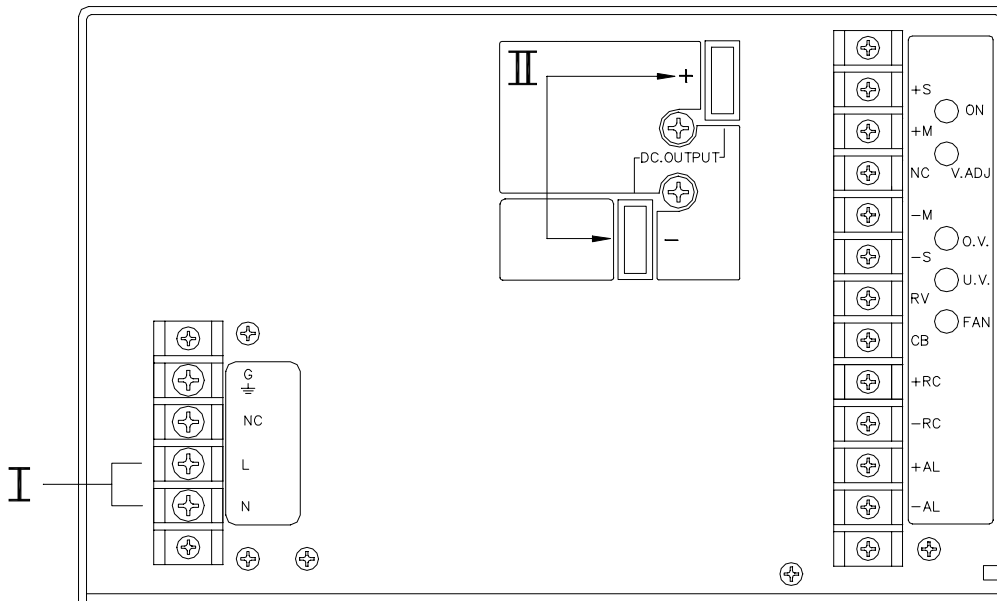


FIGURE 5 CONNECTIONS FOR REMOTE SENSING WITH THE RCW 750W POWER SUPPLY

3.4 VOLTAGE ADJUSTMENT

The unit is provided with a voltage adjustment control (V_{adj}) (see Mechanical Outline Drawing, Figure 3). To adjust voltage, first place the unit under an operating load, then monitor the (+) S and (-) S Sense terminals with a precision voltmeter and turn the voltage control to the desired operating value. Refer to Table 1 for Adjustment Range of all the RCW 750W Models (see Figure 6).



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DESIGNATION / FUNCTION

ON: OUTPUT VOLTAGE "ON" INDICATION (GREEN LED).

Vadj.: OUTPUT VOLTAGE ADJUSTMENT TRIMMER.

O.V.: OUTPUT OVERVOLTAGE INDICATION (RED LED).
(OVERTEMPERATURE)

U.V.: OUTPUT LOW VOLTAGE INDICATION (RED LED).

FAN: FAN ALARM INDICATION (RED LED).

(+) S, (-) S: REMOTE SENSING TERMINALS.

(+) M, (-) M: OUTPUT VOLTAGE MONITOR TERMINALS.

RV: REMOTE OUTPUT VOLTAGE CONTROL TERMINAL.

CB: CURRENT BALANCE TERMINAL.

(+) RC, (-) RC: REMOTE ON/OFF TERMINALS.

(+) AL, (-) AL: ALARM TERMINALS.

NC: NO CONNECTION.

\equiv : GROUND TERMINAL.

I : AC INPUT TERMINALS.

II : DC OUTPUT TERMINALS.

FIGURE 6 TERMINAL LOCATIONS OF THE RCW 750W POWER SUPPLY

3.5 REMOTE VOLTAGE CONTROL

The use of the RV terminal allows for the output voltage to be adjusted by a trimmer pot (see Figure 7). Use a shielded wire, 2m maximum in length, for connection to the trimmer control (the voltage rise time is slower when this function is used). Remove the shorting link between the (+) S and (+) M terminals, turn the Vadj trimmer to the left end and connect the external trimmer between the (+) M and (+) RV terminals (see Terminal Location for the RCW 750W Power Supply, Figure 6). Suggested values for the trimmer control are 10K ohms for the 48 Volt model and 5K ohms for all other models.

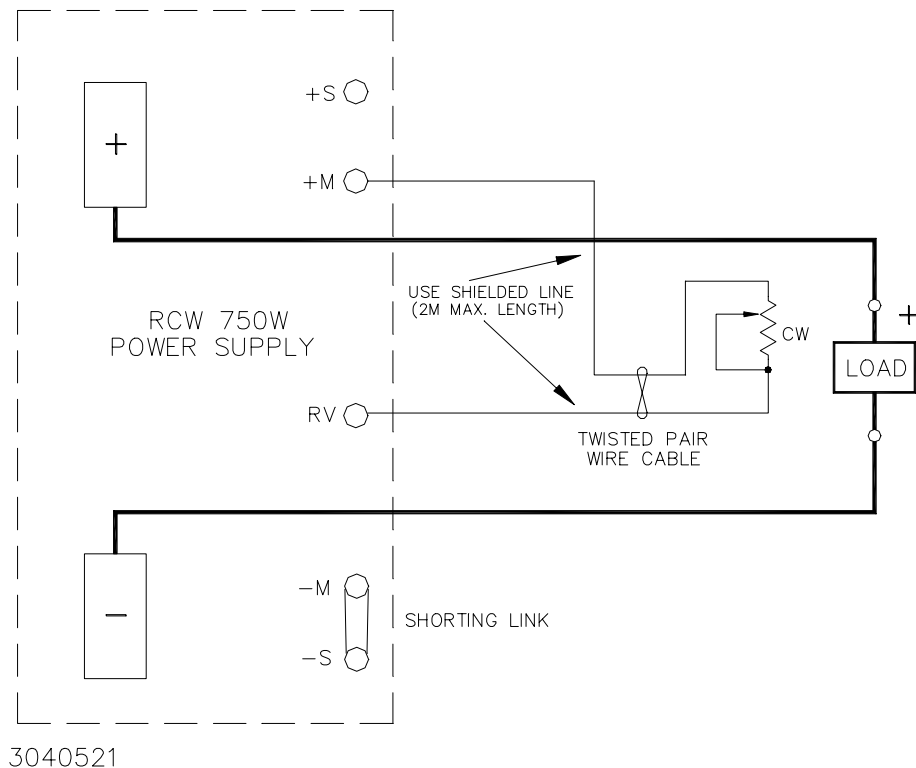


FIGURE 7 CONNECTIONS FOR REMOTE VOLTAGE CONTROL OF THE RCW 750W POWER SUPPLY

3.6 REMOTE TURN-ON TURN-OFF

When power is ON at the source, the output may be turned ON or OFF with the remote control feature. The remote ON/OFF RC (Remote Control) terminals can be controlled by a logic level (2.4V to 24V "high" and 0.0 to 0.4V "low"), or a contact closure. When the RC terminals (on the front panel) are short circuited by using either a mechanical switch or a low level logic signal, the RCW 750W output is cut OFF. At low level logic, the maximum sink current is 1.6mA. With the RC terminals open the RCW 750W output returns to within specifications. The RC terminals should remain open if not used (see Figure 6).

The RC terminals are isolated from the AC input and DC output terminals.

3.7 PARALLEL OPERATION

Identical RCW 750W Power Supplies can be connected in parallel. The output current of each Power Supply can be balanced by connecting together all the CB terminals, connecting together all the (-) S terminals and connecting together all the (+) S terminals of up to two RCW 750W Power Supply units (see Figure 8). The current tolerance with up to two RCW 750W units in parallel should be within (\pm) 10% of the rated output current. With two RCW 750W units in parallel, the output voltage of any Power Supply individually must be within 5% of the other power supply output voltages. The output current range is 20 to 90% of the nominal output current.

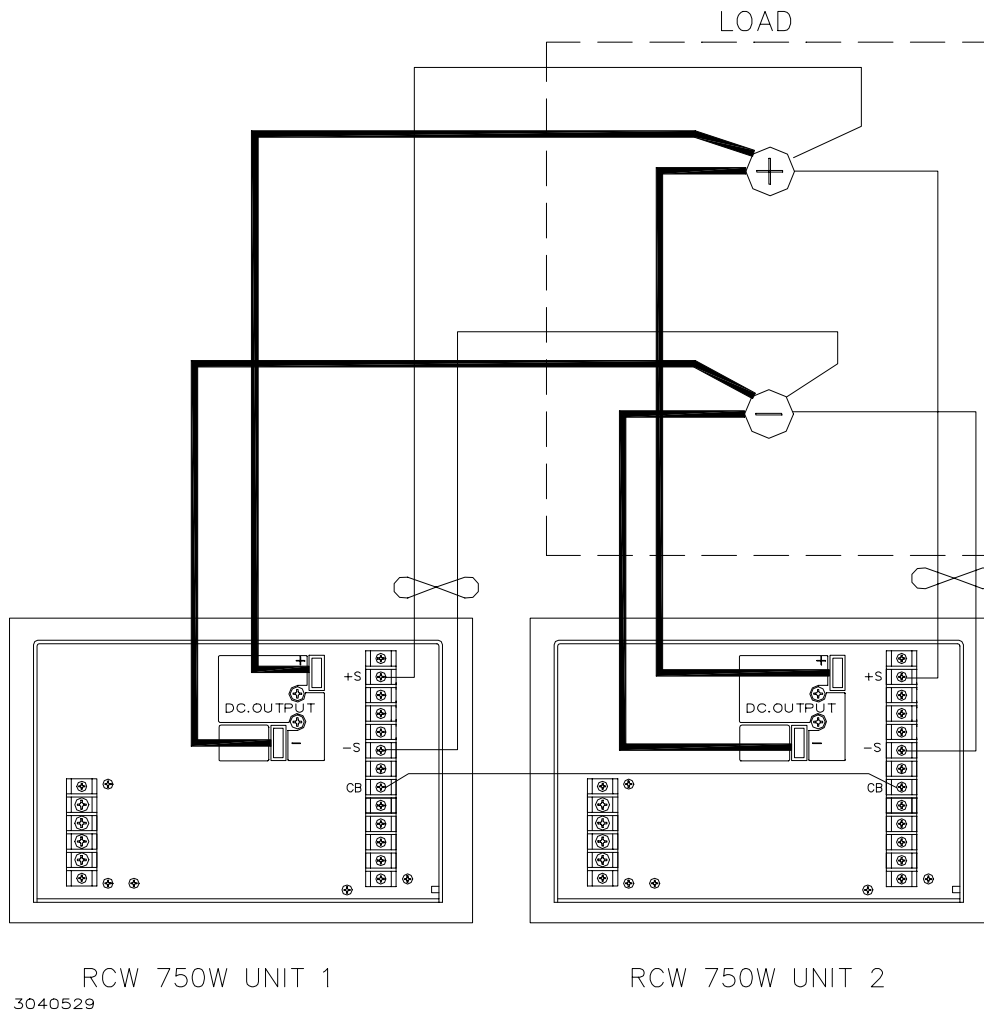


FIGURE 8 PARALLEL CONNECTION OF TWO RCW POWER SUPPLIES

- 1) Remove connecting links between the (+) M and (+) S terminals and between the (-) M and (-) S terminal.
- 2) Set voltage of unit 1 to the desired voltage at the load.
- 3) With two RCW 750W units in parallel the output voltage of each Power Supply must be set to less than 5% of each other
- 4) When the Current Balance function is used with the Remote ON/OFF function, connect all the (+) RC terminals together and all the (-) RC terminals together.
- 5) Use the same length and wire size for load connecting wires from the (+) and (-) Bus Bar of each RCW 750W Power Supply to the load terminals
- 6) Use the same length and wire size for the twisted pair Sensing wires from the (+) S and (-) S Sense terminals of each RCW 750W Power Supply to the load terminals

The conditions for current equalization are:

$$\frac{\text{Maximum Voltage} - \text{Minimum Voltage}}{\text{Rated Voltage}} \leq 5\%$$

Output current is 20 to 90% of the total rated output current

Equalization Rate: The output current range in each switching Power Supply under condition 1 complies with the following: $\frac{\text{Maximum Current} - \text{Minimum Current}}{(\text{Rated Current})/(\text{Number of Units in Parallel})} \leq 10\%$

Two units are the maximum allowed.

When the current balance function is used together with the Remote ON/OFF function, connect together all the (+) RC terminals and connect together all the (-) RC terminals.

3.8 PRELIMINARY ELECTRICAL CHECK

Connect an adjustable load across the power supply output terminals, on the center (+) and (-) bus bars (on the front panel, see Figure 9). The load must have a dissipation rating of at least 1500 Watts. Connect a voltmeter and an oscilloscope across the power supply Monitor terminals, (+) M and (-) M, located on the right side terminal block (on the front panel). The oscilloscope must be isolated from the source and grounded at the load. Use an isolation transformer between the test equipment and the AC input power (see Figure 9).

Connect the AC input power to the line, neutral and ground terminals of the left side terminal barrier strip (on the front panel). Turn the unit ON and check the output voltage with and without load. The output voltage can be adjusted within the published range by using the front panel voltage control trimmer.

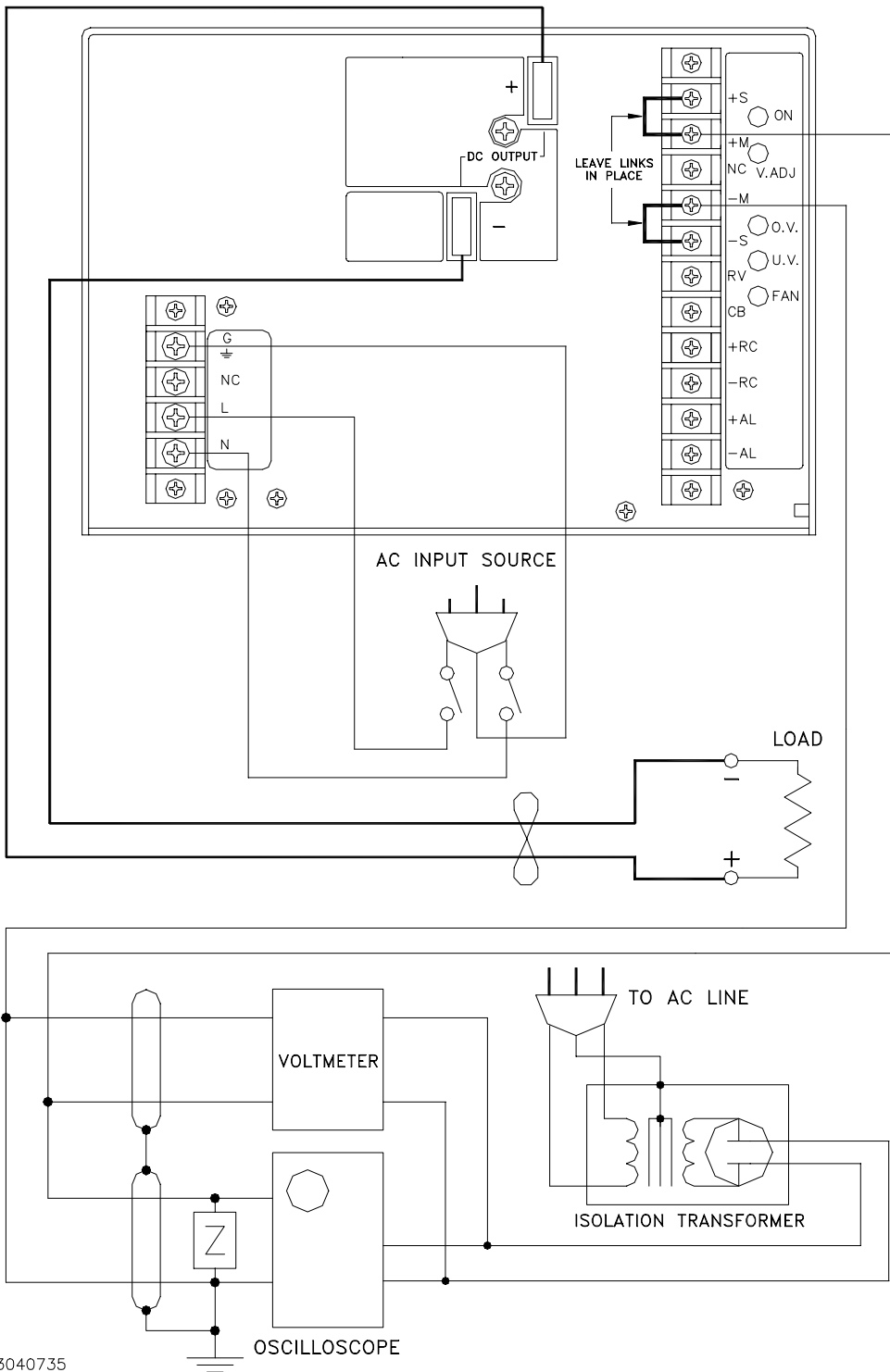


FIGURE 9 FUNCTIONAL CHECKOUT OF THE RCW 750W POWER SUPPLY

4.0 ALARM FUNCTIONS

4.1 OVERVOLTAGE AND OVERTEMPERATURE PROTECTION

When the output voltage or the internal temperature of the RCW 750W Power Supply increases beyond the specified values (see Table 1), the output is cut OFF and the fan turns OFF. To restart (reset) the unit it is necessary to remove the ac input power, wait 40 seconds and then to reapply the AC input power. However, when the Power Supply shuts down due to an increase in internal temperature, the restart cycle (Power ON) should not begin until the temperature returns to within specifications. Indication of an overvoltage or overtemperature condition is provided by a red LED and a logic alarm output (at the \pm AL terminals) that is attributable to an open collector-emitter circuit of an optical coupler.

During normal operation, the optocoupler transistor is in full conduction (saturation) while during alarm condition the transistor is open (stops conducting, see Figure 10).

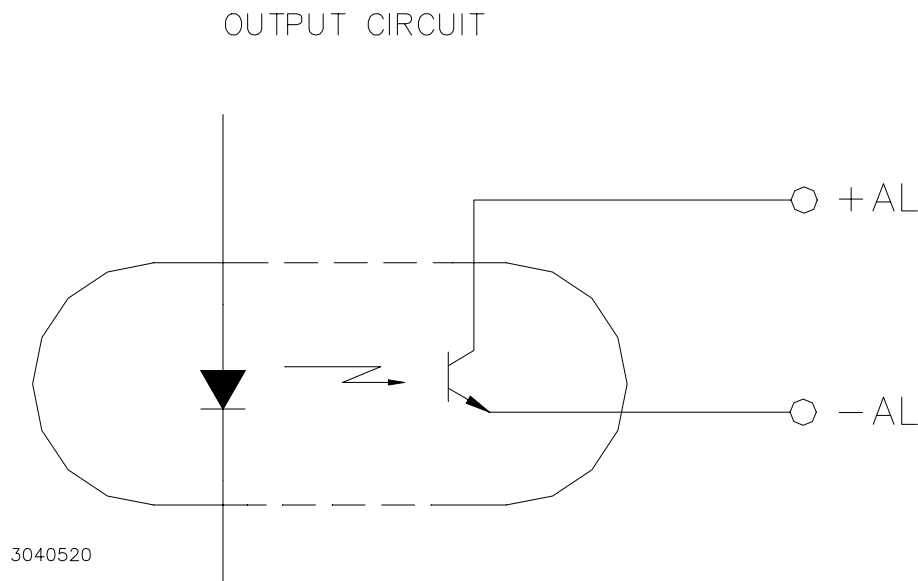


FIGURE 10 LOGIC ALARM OPTICAL COUPLER OUTPUT FOR THE RCW 750W POWER SUPPLY

4.2 UNDERVOLTAGE PROTECTION

When the output voltage falls to less than 60% of the rated output voltage for more than 40 seconds, (for the RCW 3.3-150K it is less than 45% for more than 40 seconds) the output is cut OFF and the fan stops automatically. To restart (reset) the unit it is necessary to remove the ac input power, wait 40 seconds and then to reapply the AC input power. An indication of undervoltage is provided by a red LED and a logic alarm output (at the \pm AL terminals) that is derived from open collector-emitter circuit of an optical coupler.

During normal operation, the optocoupler transistor is in full conduction (saturation) while during alarm condition the transistor is open (stops conducting).

4.3 FAN FAILURE

A decrease in fan speed causes the output to shut down and the fans to turn OFF. To restart (reset) the unit it is necessary to remove the ac input power, wait 40 seconds and then to reapply the AC input power. Fan failure is indicated by a red LED and logic alarm output (at the \pm AL terminals) from an open collector-emitter circuit of an optical coupler.

During normal operation, the optocoupler transistor is in full conduction (saturation) while during alarm condition the transistor is open (stops conducting).

5.0 FAN REPLACEMENT

To replace the fan on the back panel of the RCW 750W Power Supply, the following steps are required:

1. Remove the four Phillips Head screws holding the rear back panel in place (this is the one covering the front of the fan). Pull off the back panel and disconnect the fan connector from its mating connector. Make sure there are no other wires attached to the fan before removing it from the unit (see Figure 3).
2. When reinstalling the fan in the power supply make sure that the fan connector is securely fastened and that the fan cable does not touch the rotating member of the fan assembly.

6.0 FAN MAINTENANCE

Do not use the fan in an environment of high temperature and high humidity, particularly in one that exceeds the temperature and humidity limits given in the Power Supply Specifications (see Table 1). Avoid an environment where corrosive gas may be present. If the Power Supply is used in an open or dirty area, a filter should be installed on the air intake side of the fan to prevent the inflow of dust particles. If the Power Supply is used in briny air care should be taken to keep the salt from entering the Power Supply.

You must register your product to comply with the terms of the warranty. Either fill out the form below and mail or fax to Kepco, or for rapid on-line registration go to:

<http://www.kepcopower.com/warranty.htm>

PRODUCT PURCHASED:

Model Number) _____

Serial Number _____

PURCHASE INFORMATION:

Date Purchased: _____

Date Received: _____

REQUEST ADDITIONAL INFORMATION

Send complete Catalog

Have Sales Engineer Call

Contact via: E-Mail Telephone Fax S-mail

REGISTER TO:

Registered by: _____

Company Name: _____

Street: _____

City: _____

State: _____

Country: _____

Zip: _____

E-mail: _____

FAX: _____

Phone: _____

WHAT INFLUENCED YOUR CHOICE OF THIS POWER SUPPLY?

Previous Experience (which Kepco Models do you have?) _____

Magazines (which ones?) _____

Trade Shows (which ones?) _____

Directory? _____

Kepco Catalog or Brochure? _____

Sales Representative?

Web Site

Other (please explain): _____

What products would you like to see Kepco make?

CUT HERE

Kepco 5 Year Warranty

This is to certify that we, KEPCO, INC., (hereinafter called "Company"), Flushing, NY 11352 USA, warrants for a period of FIVE YEARS, this instrument known as:

MODEL: _____

SERIAL NO. _____

The Company's products are warranted for a period of five years from date of delivery to be free from defects in materials and workmanship and to conform to the specifications furnished or approved by the Company. Liability under this warranty shall be limited to the repair or replacement of any defective product at Company's option.

If any defect within this warranty appears within the warranty period, the Purchaser shall promptly notify the Company in writing. No material will be accepted for repair or replacement without written authorization of the Company.

Upon such authorization, and in accordance with instructions of the Company, parts or materials for which replacement is requested shall be returned to the Company for examination, with shipping charges prepaid by the Purchaser. Final determination as to whether a product is actually defective rests with the Company.

This warranty does not extend to any product which has been subjected to misuse, neglect, accident, improper installation, or use in violation of instructions furnished by the Company. The warranty does not extend to, or apply to, any unit which has been repaired or altered outside of the Company's factory by persons not expressly approved by the Company.

THE WARRANTY HEREIN CONTAINED IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION THE WARRANTY OF MERCHANTABILITY.

THIS KEPCO PRODUCT IS WARRANTED FOR FIVE YEARS!

KEPCO, INC. • 131-38 SANFORD AVENUE, FLUSHING, NY 11352 USA • Tel. 718-461-7000 • Fax. 718-767-1102
E-mail: hq@kepcopower.com • URL: <http://www.kepcopower.com>



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KEPCO, INC.

131-38 SANFORD AVE.
FLUSHING, NY 11352 USA

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