

OPERATOR'S MANUAL

RKW 300W SERIES

POWER SUPPLY

SINGLE OUTPUT, UNIVERSAL INPUT
SINGLE PHASE, 0.99 POWER FACTOR

KEPCO INC.
An ISO 9001 Company.

MODEL

RKW 300W SERIES

POWER SUPPLY MODELS

**RKW 3.3-70K, RKW 5-60K, RKW 12-27K,
RKW 15-22K, RKW 24-14K, RKW 28-12K,
RKW 48-7K**

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1. INTRODUCTION

1.1 SCOPE OF MANUAL

This Operator's Manual covers the installation and operation of the Kepco RKW 300W 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 RKW Power Supply. This information can be found on the nameplate of the unit.

1.2 DESCRIPTION

The Kepco RKW 300W Series consists of seven models of switching power supplies, each with a single output as shown in Table 1. Units may be operated with a nominal 100V a-c to 240V a-c (input voltage range 85 to 265 Va-c), 50-60 Hz (input frequency range 47-66Hz). They will also operate on 110V to 370V d-c input. The RKW 300W Series employs a light weight ferrite core with 200 KHz switching frequency. Regulation is provided by pulse width modulation. A power stage with a MOSFET on each side of the primary winding, operating in the forward mode provides a smooth isolated d-c output. A thyristor circuit prevents excessive turn-on current surge. Overvoltage protection and an isolated remote TTL ON-OFF control are provided. An LED "output voltage ON" light and an output voltage adjust trimmer are visible near the output terminals (upper right side of the front panel). Units are manufactured on a steel frame with a steel cover.

2. SPECIFICATIONS

Table 1 contains specifications and operating limits of individual RKW 300W Series models. Table 2 contains specifications and operating limits common to all RKW 300W Series Models. These specifications are at nominal input voltages at 25°C unless otherwise specified.

TABLE 1. OUTPUT RATINGS AND SPECIFICATIONS

MODEL RKW 300W		3.3-70K	5-60K	12-27K	15-22K	24-14K	28-12K	48-7K	
Output Volts d-c		3.3V	5V	12V	15V	24V	28V	48V	
Adjustment Range		1.8-3.6	3.5-6.0	7.2-14.4	10.5-18.0	16.8-28.8	19.6-33.6	33.6-52.8	
Voltage Setting		3.3 ±0.03	5 ±0.05	12 ±0.12	15 ±0.15	24 ±0.24	28 ±0.28	48 ±0.48	
Maximum Output Ratings (A,W)	-10°C to 40°C	Amps	70	60	27	22	14	12	7
		Watts	231	300	324	330	336	336	336
	50°C amb	Amps	61.6	60	27	22	14	12	7
		Watts	203.3	300	324	330	336	336	336
	56°C amb	Amps	56	52.8	23.8	19.4	12.3	10.6	6.2
		Watts	184.8	264	285.1	290.4	295.7	295.7	295.7
	60°C, amb	Amps	53.2	48	21.6	17.6	11.2	9.6	5.6
		Watts	175.6	240	259.2	264	268.8	268.8	268.8
	65°C, amb	Amps	49	42	16.2	15.4	9.8	8.4	4.9
		Watts	161.7	210	226.8	231	235.2	235.2	235.2
	Overcurrent Setting (Amps) ⁽¹⁾		73.5-91	63-78	28.4-35.1	23.1-28.6	14.7-18.2	12.6-15.6	7.4-9.1
	Current Short Circuit		90	82	35	29	20	17	11
OVP Setting (Volts) ⁽²⁾		3.96-4.62 (5 max)	6-7 (8 max)	14.4-16.8 (19 max)	18-21 (25 max)	28.8- 33.6 (39 max)	33.6- 38.4 (44 max)	50.5- 58 (60 max)	
Efficiency % typical	AC Input 100V	68	74	76	77	80	80	81	
	AC Input 200V	72	78	80	81	84	84	85	
Ripple & Noise ⁽³⁾ (mV, p-p)	ripple	80	80	120	120	150	200	200	
	ripple noise	120	120	150	150	200	200	300	

(1) Square type. If overcurrent condition continues for beyond 30 seconds, the output is shut OFF. Recovery is by removing power and reapplying power after 40 seconds or by opening and reclosing the RC terminals .

(2) When overvoltage is detected, output is shut OFF. Recovery is by removing power and reapplying power after 40 seconds or by opening and reclosing the RC terminals .

(3) Ripple and noise specifications is 1.5 times the indicated values for a temperature range of -10 to 0°C. Ripple and noise levels above are satisfied when conditions are 0 to 100% load, 0 to 65°C, and bandwidth <= 100MHz.

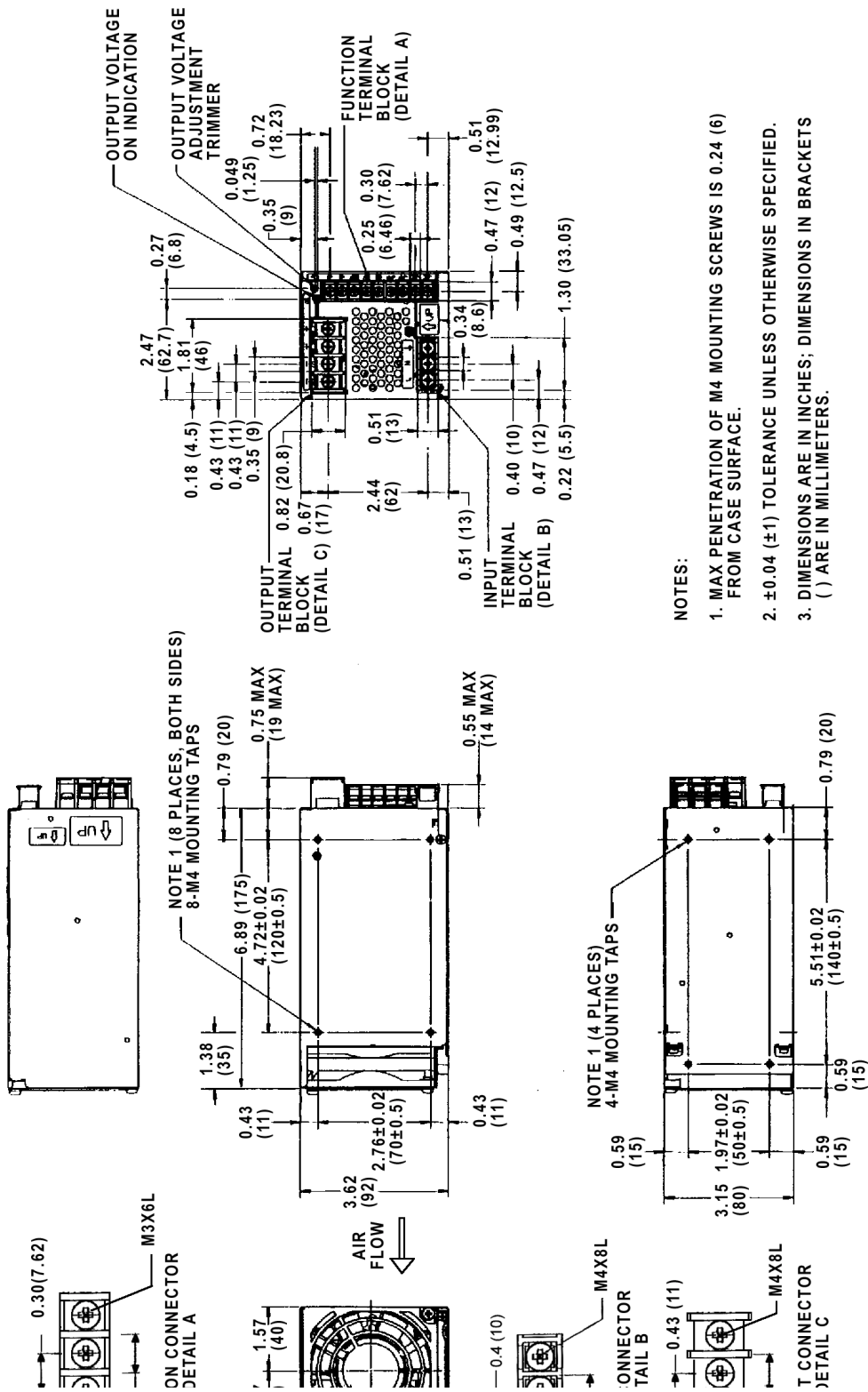
TABLE 2. POWER SUPPLY RATINGS AND SPECIFICATIONS

SPECIFICATION	DESCRIPTION		
Input Voltage	85-265V a-c	(0 to 100% load, -10 to 65°C)	
	110-370 Vdc	(0 to 100% load, -10 to 65°C)	
Input Source Frequency	50-to 60 Hz	47-66 Hz. (At 440 Hz the leakage current exceeds the UL leakage safety specification limit).	
Input Current: (Maximum Load At 25°C with Nominal Output Voltage)	4.4A rms max. (3.6A rms max for the 3.3V model)	100 - 120V a-c	
	2.2A rms max. (1.8A rms max for the 3.3V model)	200 - 240V a-c	
Input Protection	A limiting resistor in series with a resistor fuse (and thyristor circuit) reduces start-up surge. Units are protected against shorts by an input fuse. Fuse value 10.0A At 250 Volts		
Input Surge cold start, interval > 30 sec ⁽¹⁾	15A typ., 20A max. first surge	100 - 120V ac	
	30A typ., 40 max. first surge	200- 240 V ac	
Leakage Current:	024mA typ., 0.3mA max. at 120V a-c, 60Hz (per IEC 950 and UL1950) 0.31mA typ., 0.38mA max. at 240V a-c, 60Hz (per IEC 950 and UL1950)		
Power Factor	0.99 typical	rated output, rated input	
Stabilization	Source Effect (min - max) (85 to 132 V a-c, 170 to 265V a-c)	Typical	Maximum
		0.1% (5 mV for 3.3V Model)	0.2% (10 mV for 3.3V Model)
	Load Effect, measured at sensing terminals (0%-100% load change)	0.2% (10mV for 3.3V Model)	0.4% 20mV for 3.3V Model)
	Temperature Effect (-10° to 65°C)	0.5%	1.0%
	Combined Effect (envelope, Source, Load and Temperature)	±0.9%	±1.8%
Drift (8 hours at 25°C)	0.2%	0.5%	
Remote Error Sensing:	Compensation up to 0.4 Volts per load wire (0.15 Volts for RKW 3.3-70K, 0.25 Volts for RKW 5-60K) (see Figure 8). Transient recovery specs may not be satisfied with this function used.		
Transient Recovery characteristic	excursion	±4% maximum	50% to 100% load, transient time >50µsec
	recovery time	1 ms maximum	
Start-up Time	350 msec maximum, 280 msec typical.	100V a-c	
	210 msec maximum, 150 msec typical.	240V a-c	
Output Hold-up Time	30 msec typical, 20 msec minimum.	100V a-c	
	40 msec typical, 20 msec minimum.	240V a-c	
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 a-c input power, wait 40 seconds, and then to reconnect the a-c input power or to open and then reclose the RC terminals.		

(1) First surge only, not including current flow into EMI filter

TABLE 2. POWER SUPPLY RATINGS AND SPECIFICATIONS (CONTINUED)

SPECIFICATION	DESCRIPTION	
Remote Control ON/OFF:	"High", 2.4V to 24V (or open), unit OFF- Fan Off ; "Low", 0.0V to 0.4V (or closed), unit ON. Source current is 1.6mA maximum at low level, and sink current is 1.0 mA maximum at high level. The \pm RC terminals are isolated from the a-c input terminal and the DC output terminals. When remote ON/OFF is not in use, \pm RC terminals must be shorted (use shorting link supplied) for unit to operate.	
Operating Temperature:	-10 to 65°C (see figures 2 and 3)	
Startup Temperature	-20 to -10°C (see Figure 2)	
Storage Temperature:	-30°C to +75°C	
Withstanding voltage : (at 15-35°C ambient, 10-85% relative humidity)	2000Va-c for 1 minute. Cutout current is 20mA	Between input and ground
	500Va-c for 1 minute. Cutout current is 100mA	Between output and ground
	3000Va-c for 1 minute. Cutout current is 20mA	Between input and output terminal
Insulation Resistance: (at 25°C, 65% relative humidity)	Between output and ground, input and ground, and input and output, 100 Megohms minimum (500Vdc)	
Humidity:	10% to 95% relative humidity, noncondensing, Wet Bulb temperature \leq 35°C	operating and non-operating
Vibration:	5-10 Hz., 10mm amplitude, 10-200 Hz., acceleration 64.3ft./s ² (19.6M/s ²) (2g)	non-operating 1 hr. on each of 3 axes, sweep time 10 minutes
Shock: (non-operating, 1/2 sine pulse, three shocks on each axis, Power Supply is fixed on its bottom side)	Acceleration: 964.6ft./s ² (294M/s ²) (30g), Pulse Duration: 11ms \pm 5 msec	
Safety:	All units designed to meet UL1950, CSA Electrical Bulletin 22.2 No.950-95 (certified by UL), and TÜV Rheinland EN60950 (ambient temp.50°C max.). RKW 300W units are CE marked per the Low Voltage Directive (LVD), 73/23/EEC and 93/68/EEC. [The standards do not apply with DC input operation]	
EMI Conducted:	FCC Class B, VCCI-Class B, EN55011-B, EN55022-B	
EMI Radiated:	FCC Class B, VCCI-Class B, EN55011-B, EN55022-B	
ESD immunity:	EN61000-4-2, level 4	normal operation
Electrical fast transient burst:	EN61000-4-4 level 3	normal operation
Surge withstand:	EN61000-4-5, level 4	normal operation
Power Frequency Magnetic Field:	EN61000-4-8, level 4	normal operation
Radiated susceptibility:	EN61000-4-3 level 3	normal operation
Conducted susceptibility:	EN61000-4-6 level 3	normal operation
Voltage dips interruptions and variations	EN61000-4-11	normal operation
Input harmonics current:	EN61000-3-2	
Dimensions:	3.62 in. (92 mm) x 3.15 in. (80 mm) x 6.89 in. (175 mm)	
Mounting:	Four No. M4 tapped holes on the sides and the bottom	
Maximum Screw Penetration:	0.24 in. (6 mm)	
Cooling:	Forced air flow - one fan	
Frame Material/Cover Material:	Steel	
Weight	3.3 lbs. (1.5Kg) typ., 3.97 lbs.(1.8 Kg) maximum	



NOTES:

1. MAX PENETRATION OF M4 MOUNTING SCREWS IS 0.24 (6) FROM CASE SURFACE.
2. ±0.04 (±1) TOLERANCE UNLESS OTHERWISE SPECIFIED.
3. DIMENSIONS ARE IN INCHES; DIMENSIONS IN BRACKETS () ARE IN MILLIMETERS.

FIGURE 1. MECHANICAL OUTLINE DRAWING OF THE RKW 300W POWER SUPPLY

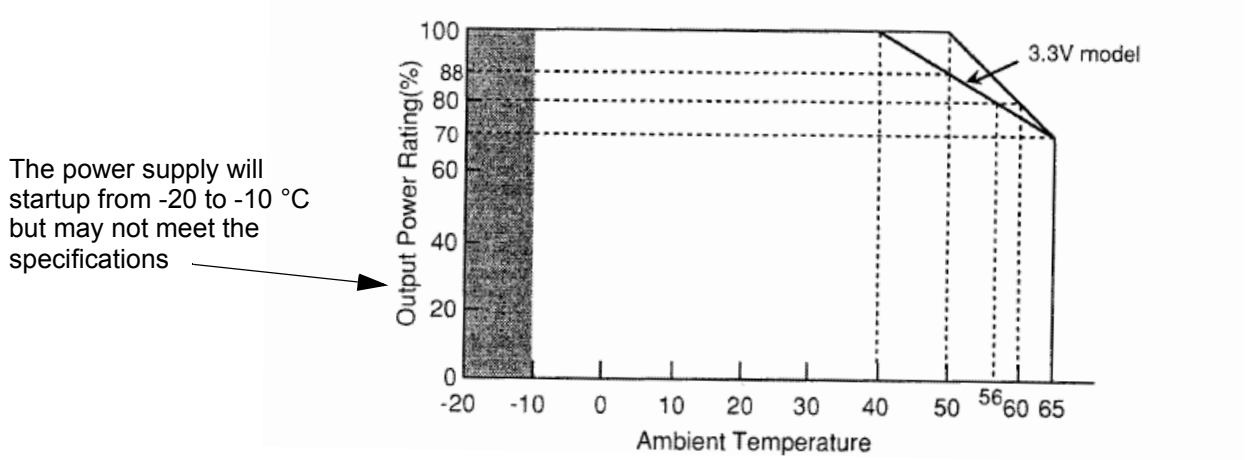
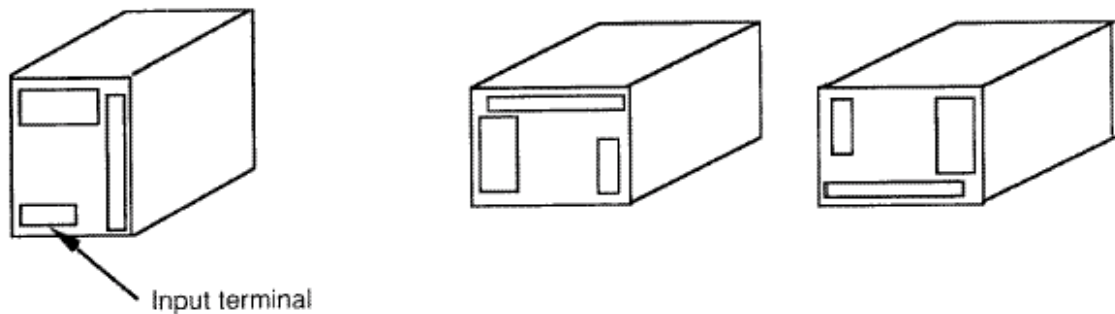


FIGURE 2. POWER RATING VS. TEMPERATURE



Maintain a 1.25 in. (30 mm) min. distance between ventilation holes, fan surface and surrounding equipment and install to provide heat-outside air exchange

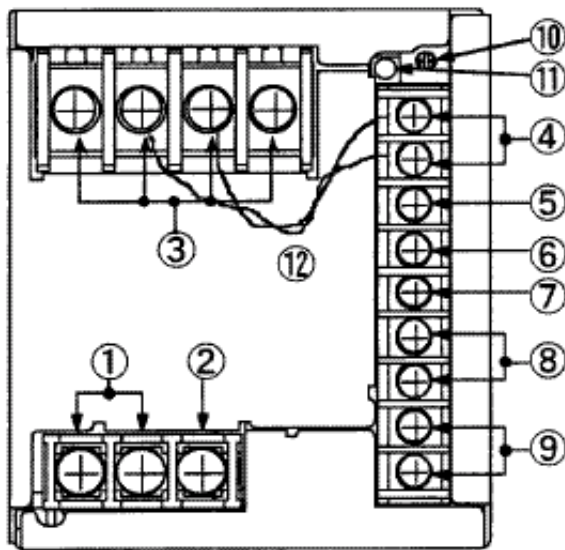
FIGURE 3. MOUNTING POSITIONS FOR THE RKW 300W POWER SUPPLY

3. OPERATION

Figure 4 shows the location of all operating controls and input/output terminals followed by an explanation of each. The unit is shipped with shorting links installed connecting the following terminals: +RC to -RC and REF to RV; and sensing cables connecting +d-c Output with +S and -d-c Output with -S for local sensing.

NOTES:

- a. **+S and -S MUST be connected for the unit to operate. For local sensing, leave local sensing cables in place (refer to PAR. 6.1). For remote sensing (at the load), refer to PAR. 6.2.**
- b. **If remote ON/OFF is not being used, ±RC terminals must be connected (use shorting link supplied) for unit to operate.**



LEGEND:

1. A-C Input (L, N)
2. Frame Ground (earth)
3. D-C Output (+, -) (40A max. per terminal)
4. Sense (+S, -S)
5. Reference Voltage (REF)
6. Output Voltage Adjust (RV)
7. Current Balance (CB)
8. Power Failure (+PF, -PF)
9. Remote ON-OFF (+RC, -RC)
10. Output Voltage Trim Adjust (Vadj)
11. Output Voltage ON indicator (green)
12. Local Sensing cable kit

NOTE Unit is shipped with shorting links (not shown) connecting +RC to -RC (see PAR. 3.3) and REF to RV (see PAR. 3.2) and with local sensing cables installed (connects +DC Output to +S and -DC Output to -S) (see PAR. 6.2)

FIGURE 4. LOCATIONS OF OPERATING CONTROLS, INDICATORS AND TERMINALS

1. AC input terminals (L, N) - Connect to AC.100 to 240V input line.
2. Frame ground terminal - Connect to earth ground. This terminal is connected to the case.
3. DC output terminals (+, -) - Connect to load (see Figure 8).
4. Remote sensing terminals (+S, -S) These terminals are used to compensate voltage loss in the connecting lines from the output terminal to a load; they are connected to DC output terminals for local sensing (see Figure 8).
5. Voltage Reference terminal- With the use of the REF terminal (together with the RV terminal) all the output voltages of slave power supplies can be controlled by one voltage adjustment of a master power supply (normally it is shorted with a metal shorting link to the RV terminal).
6. Remote voltage adjustment terminal (RV) - This terminal (together with the REF terminal) is used for remotely controlling output voltage (see PAR. 3.2).
7. Current balance terminal (CB) - This terminal is used when several power supplies are connected in parallel (see PAR. 6.3).
8. Power failure terminal (+PF, -PF) - These terminals output an open logic signal if output voltage drops to 80 % or lower of a set voltage, or if output voltage is shut down due to overvoltage or overcurrent protection, fan speed failure, or overheating. (see Figures 6 and 7).
9. Remote ON-OFF terminals (+RC, -RC) Output is turned ON-OFF by opening-shorting the RC terminals (output OFF when open). RC terminals are isolated from input and output terminals. Normally, ±RC terminals are shorted with a metal shorting link (see PAR. 3.3).
10. Output voltage adjustment trimmer (V.ADJ) - Adjusts output voltage.
11. Output ON indicator - This green LED lights when output voltage is present.

3.1 VOLTAGE ADJUSTMENT

Output voltage can be manually adjusted with the voltage adjustment control, Vadj (see Figure 4). 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 the recommended Adjustment Range of all the RKW 300W Models

3.2 REMOTE VOLTAGE CONTROL

The unit is shipped with a shorting link in place between RV and REF terminals. Removal of this link allows the output voltage to be adjusted by either a trimmer pot (resistance) or by an external variable voltage source across the RV terminal and –S terminals.

NOTE: If remote voltage control is not implemented, the shorting link between RV and REF must be in place

Use either local sensing (PAR. 6.1) or remote sensing (PAR. 6.2). If remote sensing is used, the impedance of the load wires connecting the power supply to the load should be the same. It is possible that the overvoltage protection may be triggered if the output voltage is decreased to a low level very quickly when the power supply is at a low load condition.

RESISTANCE: Use a shielded wire 6.6 feet (2M) maximum in length, for connection (of REF, RV, and –S terminals) to the trimmer control. Connect the external trimmer as shown in Figure 5 (A). Suggested value for the trimmer control is 5K ohms). With the external trimmer control at its maximum clockwise position, set the output voltage to the desired maximum value by adjusting V_{adj} clockwise. The value should range from 0 to 120% of E_o nominal (from 0 to 110% for the 48-volt model, and for the 3-volt model). The remote voltage control may not be able to go down to zero volts because of the residual resistance of the potentiometer (could be about 10%).

VOLTAGE. By adjusting an external 0-6V voltage source (0-5.5V for the 48-volt model, the 3.3-volt model can be adjusted to 3.6V) from minimum to maximum, the maximum output voltage can be adjusted from 0 to 120% (V) (for the 3.3 volt and 48 volt models 110%). Remove the shorting link between the REF and RV terminal. Connect the voltage source across the RV and (–)S terminals as shown in Figure 5 (B).

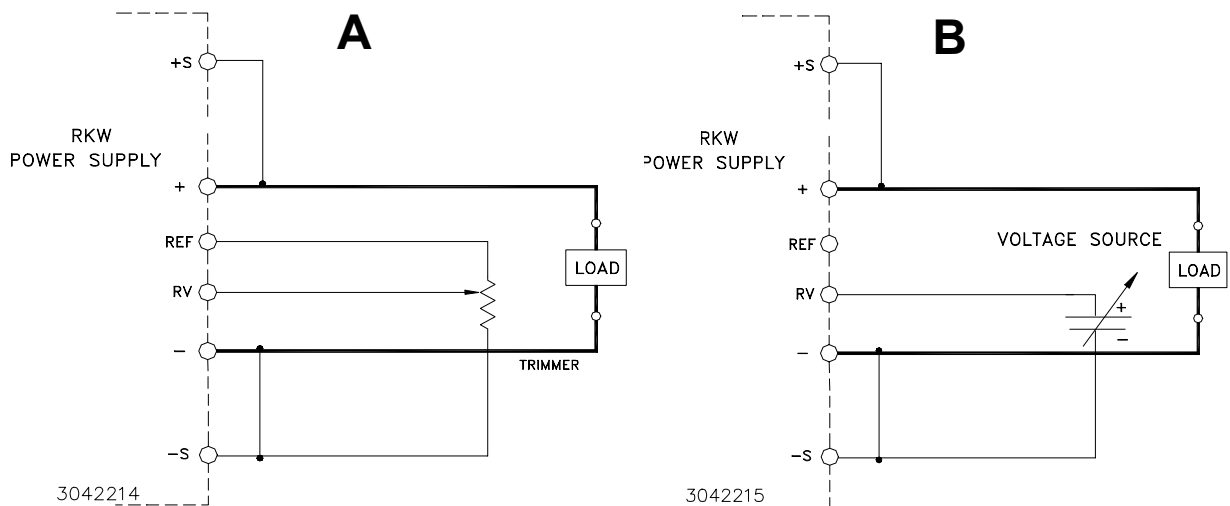


FIGURE 5. CONNECTIONS FOR REMOTE VOLTAGE CONTROL

3.3 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 using the $\pm RC$ terminals (see Figure 4). These terminals accept a logic level (2.4V to 24V "high" and 0.0 to 0.4V "low"), or a contact closure. When the $\pm RC$ terminals are open, using either a mechanical switch or a high level logic signal, the RKW 300W output is cut OFF. When the RC terminals are shorted, the output returns to within specifications. At low level logic, the maximum

source current is 1.6mA and at high level the sink current is 1.0mA. The RC terminals must remain shorted if remote ON-OFF is not used. The RC terminals are isolated from both the AC input and DC output terminals.

4. ALARM FUNCTIONS

4.1 OVERVOLTAGE AND OVERTEMPERATURE PROTECTION

When the output voltage of the RKW 300W 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, remove AC input power, wait 40 seconds, then reconnect AC input power; or to open the RC terminals and then to reclose the terminals.

When the internal temperature of the RKW 300W Power Supply increases beyond the specified values (see Table 1), the output is cut OFF and the fans turn OFF. The restart cycle (Power ON) should not begin until the temperature returns to within specifications. To restart (reset) the unit, remove AC input power, wait 40 seconds, then reconnect AC input power.

The alarm circuit is a diode transistor optical coupler. The transistor is normally conducting. When the alarm is activated, the transistor cuts off and the collector emitter circuit is open (see Figure 2)

4.2 OVERCURRENT PROTECTION

The output characteristic of the power supply is a square type, and the unit is set to shut down if output current exceeds specifications (see Table 1) for more than 30 seconds. To restart (reset) the unit, remove AC input power, wait 40 seconds, then reconnect AC input power. or open the RC terminals and then reclose the terminals. (see PAR. 3.3).

4.3 FAN FAILURE

A cut off of the rotation supply voltage causes the output to shut down and the fan to turn OFF. Fan failure and all the other protection circuit operations are indicated by an open circuit across the (\pm) PF terminals. To restart (reset) the unit remove the AC input power, wait 40 seconds, then reconnect AC input power; or open the RC terminals and then reclose the terminals. If fan rotation is out of specification the power supply will not recover

5. OPTICAL COUPLER OUTPUT ALARM CIRCUIT

When the output voltage falls to less than about 80 percent of programmed output voltage the alarm is activated (a high logic level will appear at the \pm PF terminals). The default state of the alarm is logic low. The sink current is 2mA maximum, the maximum collector to emitter saturation voltage is 0.40 Volts, and the collector to emitter voltage is 40 volts maximum. The PF terminals are isolated from the AC input and DC output terminals. Insulation resistance between the PF terminals and the AC input terminals is the same as the insulation resistance between the input and output. Insulation resistance between the PF terminals and the output terminals is the same as the insulation resistance between the output and ground.

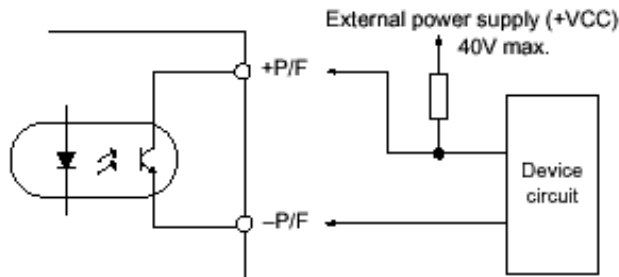


FIGURE 6. OUTPUT ALARM CIRCUIT OPTICALLY ISOLATED

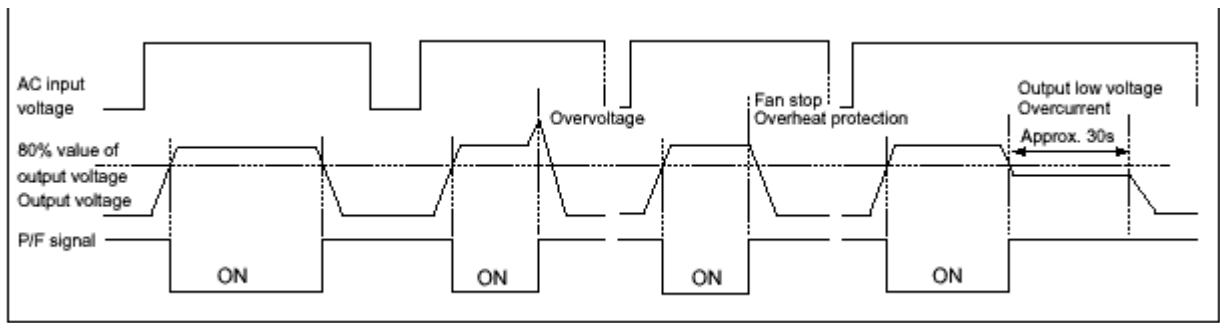


FIGURE 7. RKW 300W POWER FAILURE TIMING DIAGRAM

5.1 UNDERVOLTAGE

If the output voltage of the power supply falls below 80 percent of the programmed voltage the power failure alarm will go to the high logic state. Sink current is 2ma maximum and collector emitter voltage is 40 volts maximum. The \pm P/F terminals are insulated from AC input terminals and the DC output terminals. Insulation resistance between the \pm P/F terminals and the output terminals is the same as insulation resistance from output to ground of the power supply. Insulation resistance between the AC input terminals and \pm P/F terminals is the same as insulation resistance from the input terminals to the output terminals of the power supply.

6. LOAD CONNECTION

6.1 CONNECTING THE LOAD USING LOCAL SENSING

To connect the load for local sensing, connect the +S to (+) terminals and -S to (-) terminals. The load is connected across DC output (+) and (-) terminals (see Figure 8). For the RKW 3.3-70K and RKW 5-60K use the two high and the two low output terminals.

6.2 CONNECTING THE LOAD USING REMOTE SENSING

For remote sensing the load is connected as shown in Figure 8. Remote error sensing at the load terminals compensates for voltage loss in the connecting wires as indicated in Table 2. For remote sensing, the sensing cables must be removed from the +S to (+) and -S to (-) terminals. NOTE: If oscillations set off the overvoltage protection, install one external electrolytic capacitor, rated 470 μ F min. between the (+) and +S terminals and one between the (-) and -S terminals.

6.3 PARALLEL CONNECTION

RKW 300W Power Supplies can be connected in parallel (with or without N+1 redundancy). Use twisted or shielded wire for connection to RV and -S terminals. The impedance of the load wires between each power supply and load should be the same.

For a single remote ON-OFF signal to turn off all parallel-connected units, connect together all +RC terminals and connect together all -RC terminals. Figure 9 illustrates connection of up to four (maximum) power supplies in parallel. Output current for a parallel connection operating into a single load is equalized by connecting the CB terminals as shown.

The current equalization with up to four RKW 300W units in parallel should be within 20 to 90% of the total output current rating. The output voltage of any Power Supply individually must be within 2% maximum of the other power supply output voltage setting. The expected current sharing is such that the output current variation for each power supply is less than or equal to 10% of each power supply rated output current.

N+1 Redundancy. An N+1 system requires one additional power supply than necessary to supply the load. If one of the parallel-connected units fail, the others will continue to provide power to the load without down time. For redundancy, add isolation diodes as shown in Figure 9.

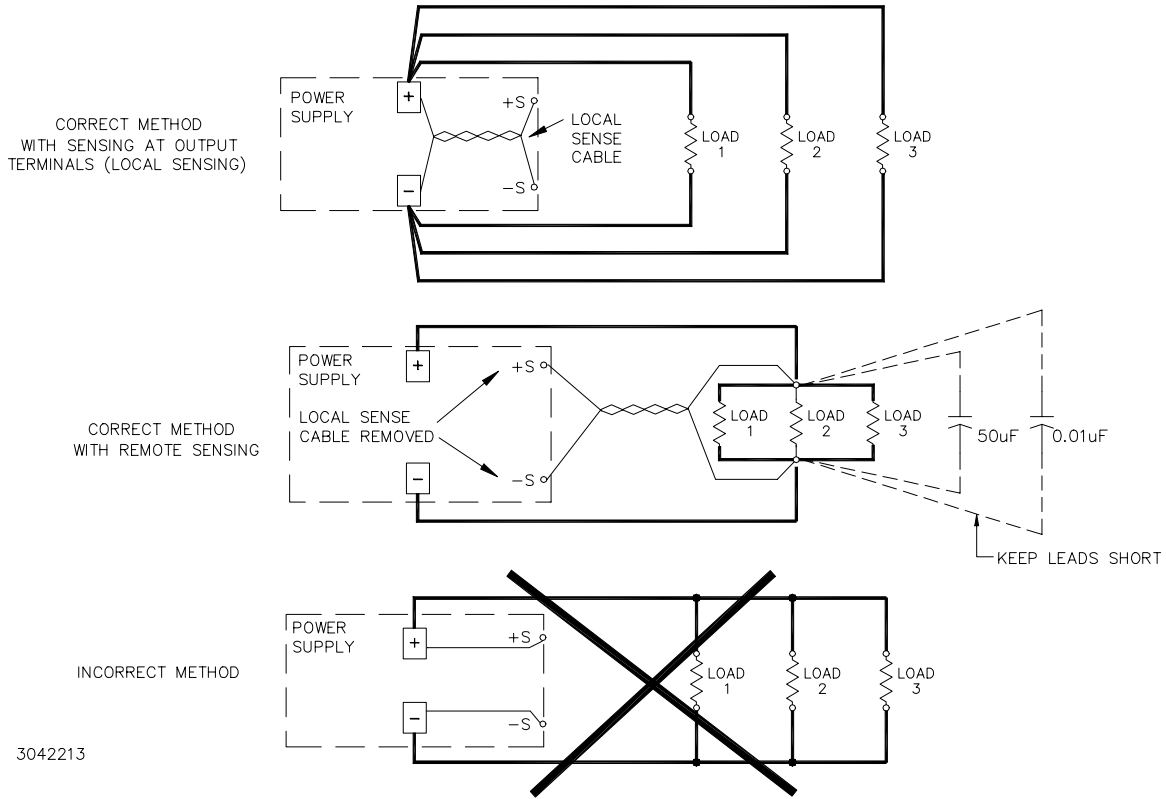


FIGURE 8. CORRECT AND INCORRECT METHODS OF LOAD CONNECTION

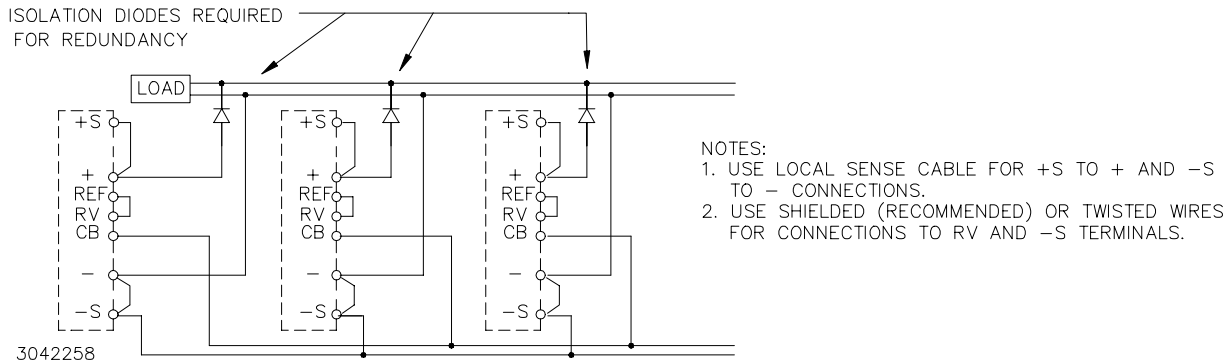


FIGURE 9. PARALLEL CONNECTION WITH CURRENT BALANCING

6.3.1 CURRENT BALANCING

The conditions for current equalization are:

$$\frac{\text{Maximum Voltage} - \text{Minimum Voltage}}{\text{Rated Voltage}} = 2\% \text{ variation of output voltage in each power supply}$$

The maximum output current: Rated output current of each power supply x (number of power supplies) x (0.90).

Variation of output current < ±10 % of each rated output current

6.3.2 MASTER-SLAVE CONFIGURATIONS

Master-slave operation allows the output voltage of all the power supplies connected in parallel to be adjusted at the same time by using the Vadj control on the designated master power supply.

6.3.2.1 MASTER-SLAVE, MULTIPLE LOADS

Figure 10 shows the master-slave connection of three power supplies in parallel, each having an independent load, with output voltage controlled by the Vadj control of the master power supply. Use shielded wire (recommended) or twisted wires for connections to RV and -S terminals.

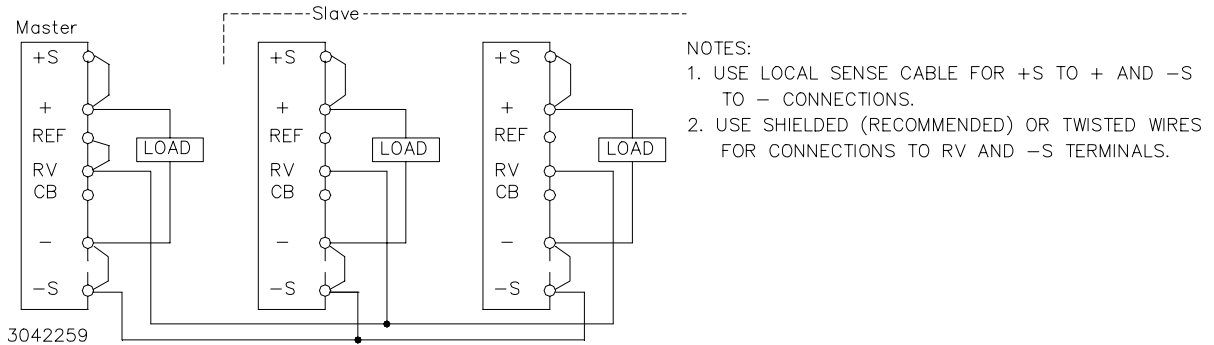


FIGURE 10. PARALLEL CONNECTION, MASTER-SLAVE, MULTIPLE LOADS

6.3.2.2 MASTER-SLAVE, SINGLE LOAD

Figure 11 shows the connection of three power supplies in parallel to a single load. The output voltage of all power supplies is controlled by Vadj of the master. Current balancing is implemented to equalize the load current (see PAR. 6.3.2). NOTE: Use shielded wire (recommended) or twisted wires for connections to RV and -S terminals. Match impedance of load wires between each power supply and load by using the same wire lengths and wire sizes.

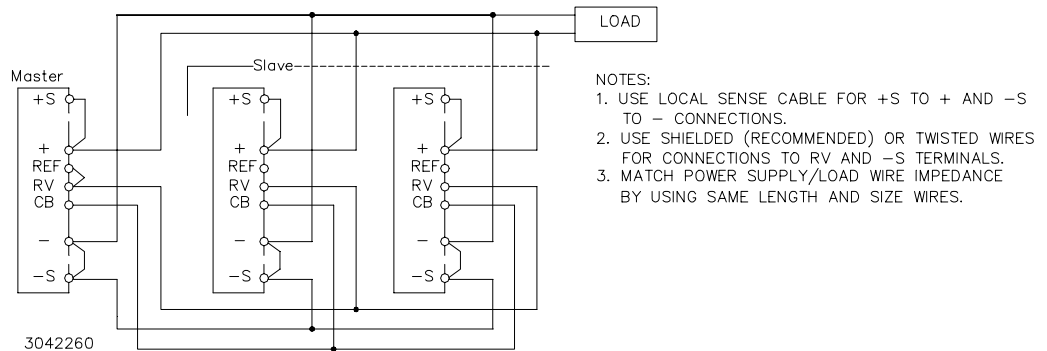
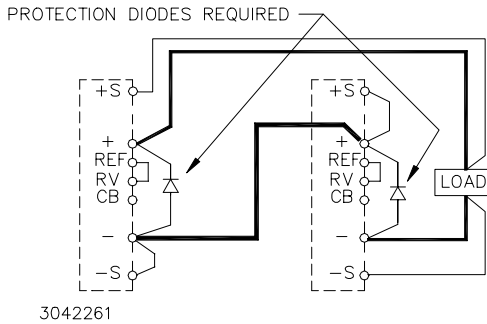


FIGURE 11. PARALLEL CONNECTION, MASTER-SLAVE, SINGLE LOAD

6.4 SERIES CONNECTION

Units may be connected in series to obtain higher voltages. When a number of power supplies are operating in series, the current rating is to be limited to the rating of the power supply with the lowest rating. Each Power Supply in series should be protected by a diode connected in parallel with the output as shown in Figure 12. The diode protects against reverse voltages. It should be rated for typically, $V_{REVERSE} \geq 2 \times \Sigma V_{OUT}$ of the series connection, $I_{FORWARD} \geq 2 \times I_{OUT}$ of the series connection).



NOTES:

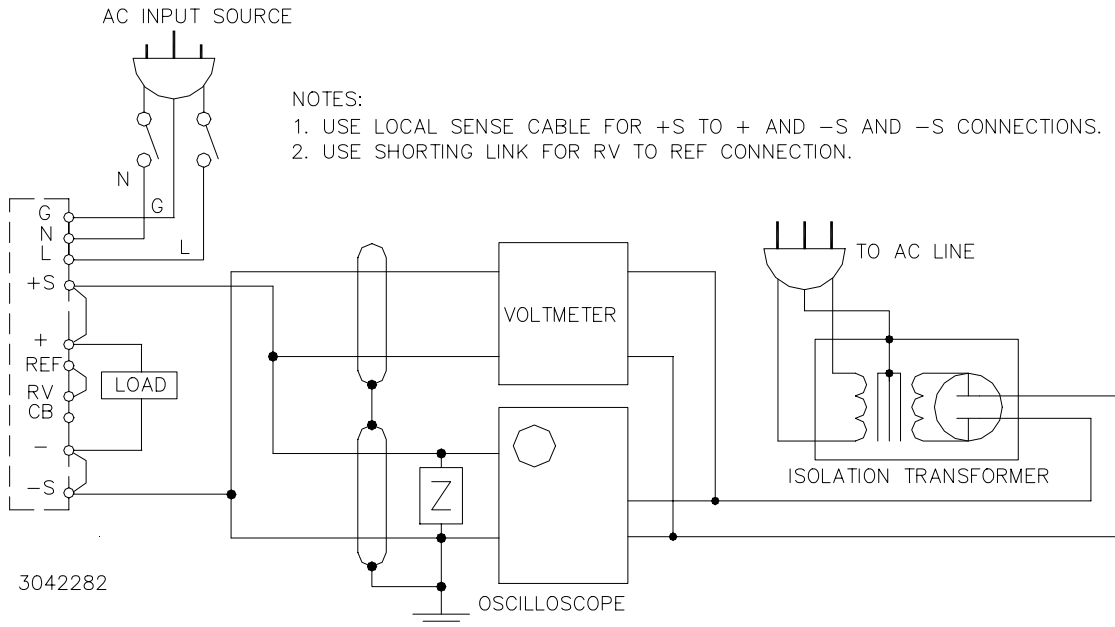
1. REMOVE SENSING SHOWN. FOR LOCAL SENSING, REMOVE SENSE CONNECTIONS FROM THE LOAD AND INSTALL LOCAL SENSE CABLES (+S TO +, AND -S TO -) ON BOTH POWER SUPPLIES.
2. USE SHIELDED (RECOMMENDED) OR TWISTED WIRES. FOR CONNECTIONS TO +S AND -S TERMINALS.

FIGURE 12. SERIES CONNECTION

6.5 PRELIMINARY ELECTRICAL CHECK

Connect an adjustable load across the power supply output terminals, on the top side of the front panel (see Figure 4). The load must have a dissipation rating of at least 600 Watts. Connect a voltmeter and an oscilloscope across the power supply output terminals (should be linked to the respective sensing terminals, +S and -S). 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 13).

Connect the AC input power to the line, neutral and ground terminals (see Figure 4). Turn source power on and check the output voltage both with and without load. The output voltage can be adjusted within the published range by using the front panel voltage control trimmer Vadj



NOTES:

1. USE LOCAL SENSE CABLE FOR +S TO + AND -S AND -S CONNECTIONS.
2. USE SHORTING LINK FOR RV TO REF CONNECTION.

FIGURE 13. FUNCTIONAL CHECKOUT

7. FAN MAINTENANCE

Under most conditions the fan requires no maintenance. Do not use the fan in an environment of high temperature and high humidity that exceeds the temperature and humidity limits given in the Power Supply Specifications (see Table 2). 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!

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E-mail: hq@kepcopower.com • URL: <http://www.kepcopower.com>



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