



DIN-RAIL MOUNTABLE

The Family of RCW Models

FEATURES

- Wide range a-c input (85-264V a-c), power factor correction.
- 350W and 1500W models have current sharing for N+1 paralleling. The 750W models are limited to two units in parallel.
- RCW 350W and 1500W accept analog programming from 10% to full output voltage.
- Overcurrent limiter, square type.
- Undervoltage detector shuts down RCW if overload persists for more than 40 seconds.
- Overvoltage protector - immediate shutdown (reset by removing mains power for $\approx$ 40 seconds).
- Trimmable output voltage.
- Remote on/off logic.
- Alarm flags; OV, UV, thermal, fan.
- Power fail alarm (input power failure).
- Output overvoltage and thermal protection indicator (red).
- Output low voltage indication (red).
- Fan alarm indication (red).
- Remote error sensing: 0.15V for 3.3V models, 0.25V for 5.0V models, 0.4V for 12-48V models.
- UL/CSA/TÜV safety approval EN60950.
- FCC Class A and VDE 0871 Class B, EMI filter.
- 350W models are FCC Class B.
- Certified per MIL STD 810E.



The RCW are industrial grade switchers from Kepco/TDK. Available in 3 sizes, 350, 750 and 1500 watts, these models incorporate advanced power factor-corrected wide range input technology. An EMI filter is built in to ensure that the conducted EMI meets the FCC Class A limit. 350W models are filtered to FCC Class B.

Construction conforms to EN60950 (TÜV) as well as UL 1950 and CSA C22.2 No. 234, level 5. The power factor correction circuit ensures that current is drawn over the entire mains cycle to meet the harmonic current limit of EN61000-3-2.

Note: RCW models are form and fit interchangeable with RAX models in the 350W and 1500W sizes.

RCW are rugged, single-output power modules that can be individually installed or may be combined into a custom power assembly for multi-output requirements. Please see pages 131-135 for details on Kepco's Power Assembly Program.



RCW MODEL TABLE

MODEL	OUTPUT VOLTAGE		OVP SETTING	OUTPUT CURRENT			CURRENT LIMIT	RIPPLE		NOISE	EFFICIENCY
	Volts		Volts	Amps			Amps	mV p-p		mV p-p	Percent, typ
	Factory Set	Adjustment Range	Nominal Input 25°C	50°C	60°C	71°C	Factory Set	Source max	Switching max	(Spike) 20MHz	50-100% Load 120/240V
350 WATT											
RCW 3.3-70K	3.3	1.8-3.5	See note 1	70	49	28	73.0~84.0	20	50	100	65/68
RCW 5-70K	5	3.5-5.5	See note 1	70	49	28	73.0~84.0	20	50	100	72/76
RCW 12-30K	12	8.4-13.2	See note 1	30	21	12	31.5~36.0	20	70	150	75/78
RCW 15-24K	15	12.0-16.5	See note 1	24	16.8	9.6	25.2~28.8	20	70	150	75/78
RCW 24-16K	24	16.5-26.4	See note 1	16	11.2	6.4	16.8~19.2	20	100	200	76/79
RCW 28-13K	28	25.2-30.8	See note 1	13	9.1	5.2	13.6~15.6	20	100	200	77/80
RCW 48-7.5K	48	30.8-52.8	See note 1	7.5	5.25	3	7.8~9.0	20	100	300	79/82
750 WATT											
RCW 3.3-150K	3.3	2.7-3.6	3.8-4.6	150	105	60	157.0~175.0	20	50	200	71/73
RCW 5-150K	5	4.0-5.5	6.0-6.9	150	105	60	157.0~175.0	20	50	200	76/79
RCW 12-62K	12	8.4-13.2	13.7-15.7	62.5	43.7	25	65.0~71.0	20	80	250	77/80
RCW 15-50K	15	12.0-16.5	17.0-19.5	50	35	20	52.5~58.5	20	80	250	78/81
RCW 24-31K	24	16.5-26.4	27.0-30.5	31.3	21.9	12.5	32.8~36.0	20	120	300	79/82
RCW 28-26K	28	25.2-30.8	31.4-34.5	26.8	18.7	10.7	28.1~30.8	20	120	300	80/84
RCW 48-15K	48	32.6-52.8	54-59	15.7	11	6.3	16.4~18.1	20	200	500	82/85
1500 WATT											
RCW 3.3-300K	3.3	1.8-3.5	See note 1	300	210	120	315.0~350.0	20	100	200	70/73
RCW 5-300K	5	3.5-5.5	See note 1	300	210	120	315.0~350.0	20	100	200	75/80
RCW 12-125K	12	8.4-13.2	See note 1	125	87.5	50	130.0~140.0	20	100	250	76/81
RCW 15-100K	15	12.0-16.5	See note 1	100	70	40	105.0~115.0	20	100	250	76/81
RCW 24-65K	24	16.5-26.4	See note 1	65	45.5	26	68.0~72.0	20	100	200	78/82
RCW 28-55K	28	25.2-30.8	See note 1	55	38.5	22	57.7~63.2	20	100	200	79/83
RCW 48-32K	48	30.8-52.8	See note 1	32	22.4	12.8	33.8~36.8	20	100	300	80/84

(1) Tracks output setting +20 to +40% above setting voltage. (350W and 1500W models only).



RCW are CE marked per the Low Voltage Directive (LVD), EN60950.

RCW GENERAL SPECIFICATIONS

SPECIFICATION	RATING/DESCRIPTION	CONDITION
Temperature	-10° to +71°C (see model table)	Operating ⁽¹⁾
	-30° to +75°C	Storage
Humidity	0 to 95% RH	Non-condensing Operating & storage
Shock	30g 11(±5) msec half sine (60g without fan)	3-axes 3 shocks each axis
Vibration	5-10Hz 10mm double amplitude	Non-operating 1 hour each axis
	10-55Hz 2g	
Altitude	Sea level to 10,000 ft	
Isolation	Output-Case 500V d-c, 100M Ohm ⁽²⁾	25°C, 65% RH
Withstand Voltage	Input-Output 3000V a-c (1 min)	25°C, 65% RH Y caps removed
	Input-Case 2500V a-c rms (1 min)	
Safety	UL 1950; EN60950 (TÜV); CSA 1402C & CSA 22.2, no. 234	See note 3
Flags	Overvoltage, undervoltage Fan stop, input alarm	Red LEDs
	Output on	Green LED
Cooling	Internal d-c fan	

(1) RCW will start at temperatures as low as -20°C. When self-heating warms them to -10°C and above, normal operation will be obtained.

(2) Surge: withstands 2KV, 1µsec between a-c input and ground.

(3) The 350W models are also listed to UL508 with DIN-Rail mounting kit factory installed.



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RCW INPUT CHARACTERISTICS

SPECIFICATION	RATING/DESCRIPTION			CONDITION
	350 W	750W	1500W	
a-c Voltage nominal	100-120, 200-240V a-c			Single phase
range	85-264V a-c			Wide range
Source Frequency	47-440Hz			Leakage current is higher
d-c Voltage(1) range	125-370V d-c(1)			Polarity insensitive
Brownout Voltage min	80V a-c, 110V d-c			
Fuse Value	10A, 250V	20A, 250V	30A, 250V	
Frequency nominal	50-60Hz			(47-66Hz)
Current 100-120V a-c (max)	5.6A	12A	22A	Maximum
200-240V a-c	2.8A	6A	11A	
Initial 120V a-c	20A	20A	20A	Turn on interval >30 seconds
Turn-on 240V a-c	40A	40A	40A	
Surge (max)				
Power Factor min	0.99			
Efficiency	See model table			100% load
Current Harmonics	Meets EN61000-3-2 limits			
EMI	Meets FCC Class A			
Leakage Current (max)	120V a-c	<0.5mA	<1.0mA	UL method, 50-60Hz
	240V a-c	<0.75A	<2.0mA	VDE method, 2-pole disconnect
Circuit Type	Forward converter			
Soft Start	Resistor-thyristor			
Startup Time typ	500		600	
(msec) max	900			

(1) Safety agency approvals are valid only for a-c input because of the fuse rating.

RCW OUTPUT CHARACTERISTICS

SPECIFICATION		RATING/DESCRIPTION	CONDITION
Source Effect		0.05% typ	Nominal $\pm 15\%$, 0.1% max
Load Effect		0.2% typ	10%-100% load 0.3% max(2)
Temperature Effect		0.5% typ, 1.0% max	Per °C, 0-50°C
Combined Effect		$\pm 0.7\%$ typ, $\pm 1.5\%$ max	-10° to +70°C
Time Effect (drift)		0.2% typ, 0.5% max	0.5-8.5 hours at 25°C
Hold Up Time		30msec typ, 20msec min	120V a-c
Error Sense 3.3/5V		0.15/0.25V	Voltage allowance per wire
Other models		0.4V	
Recovery Excursion		<4% (1)	50-100% load change: 1A/ μ sec <20A 5A/ μ sec >20A
Charac- Recovery Time teristic		<1.0msec	

(1) 1500W models: 1.0 Volts.

(2) 750W models: 0.1% typ, 0.3% max.

RCW CONTROL

SPECIFICATION		RATING/DESCRIPTION	CONDITION
Voltage Set Programming	Internal	Multiturn potentiometer	
	External	Resistance, 5K (10K for RCW 48-15K only)	Shielded wire, 2m maximum
Current Balance		Equalizes the current for paralleled units within 10%	Current 20-90% 3 units max
Remote ON/OFF		TTL level H = on, L = off	Internal pull up supply, isolated



Model RCW 12-30K 350W



Model RCW 5-150K 750W



Model RCW 5-300K 1500W



DIMENSIONS (HxWxD)

350W inches — 4.3 x 5.12 x 8.7
mm — 110 x 130 x 220

750W inches — 4.3 x 7.9 x 9.5
mm — 110 x 200 x 240

1500W inches — 4.3 x 8.0 x 12.6
mm — 110 x 203 x 320

WEIGHT (Packed for shipment)

350W 7.0lbs, 3.2Kg

750W 13.0lbs, 5.9Kg

1500W 17.0lbs, 7.7Kg

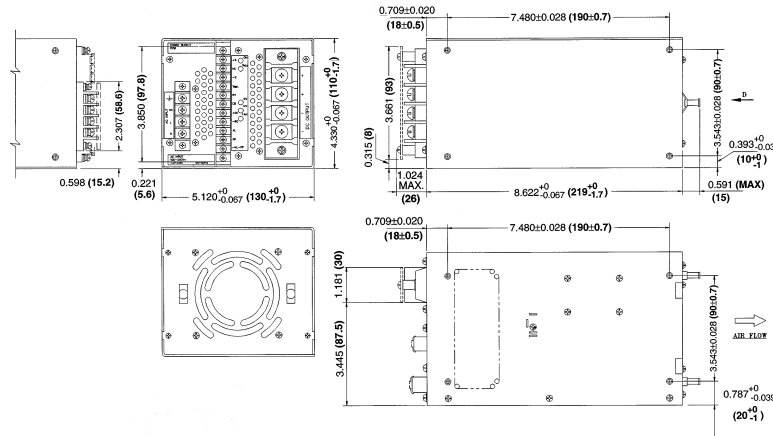
RCW EMC COMPATIBILITY

ARTICLE		RATING/DESCRIPTION	CONDITION
Incoming Noise	Input-Input Input-Ground	1 μ s, 2KV pulse	<5 min. operating
Surge Withstand	Input-Input Input-Ground	1.2 μ s x 50 μ s, 3KV pulse	Operating Series resistor 100 Ω
Immunity to Electrostatic Discharge	Frame Cover-Ground	10KV	Charge capacitor 500pF Series resistor 100 Ω Operating

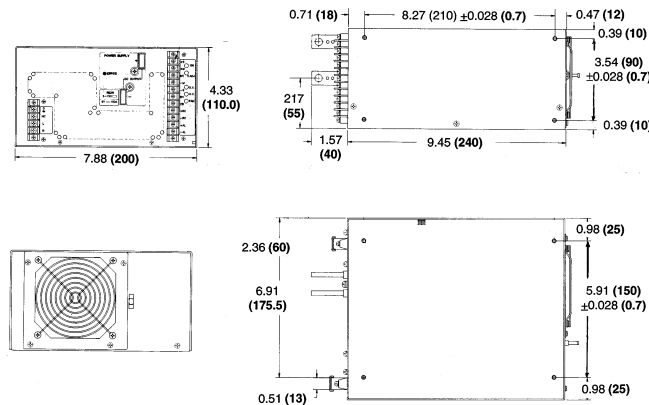
OUTLINE DIMENSIONAL DRAWINGS

Fractional dimensions in light face type are in inches, **dimensions in bold face type are in millimeters.**

RCW 350 Watt Models



RCW 750 Watt Models

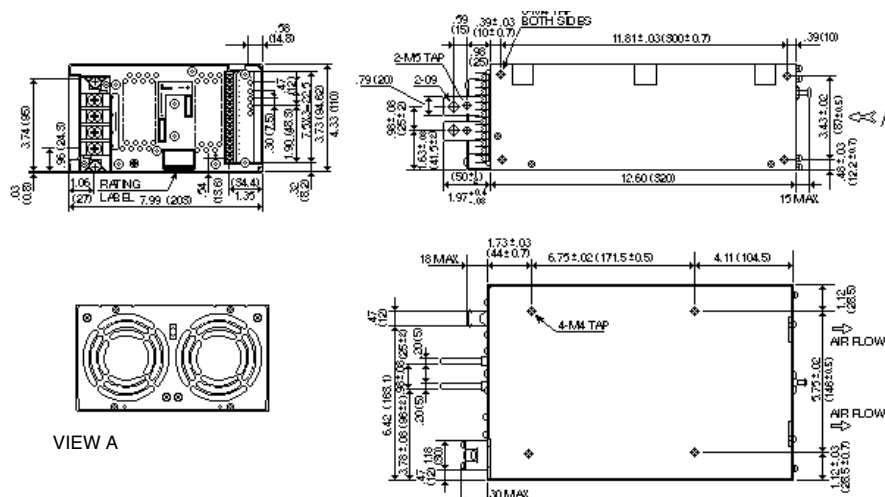


Tolerances:
0.028" (0.7mm)
between
mounting holes,
0.04" (1.0mm)
other dimensions.

Mounting:
**100W, 175W, 350W
and 1500W:**
Metric, M-4 tapped
holes—(4) bottom,
(3) each side;
maximum screw
penetration
0.24" (6mm).

750W:
M-4 tapped holes—
(4) bottom,
(4) each side;
maximum screw
penetration
0.24" (6mm).

RCW 1500 Watt Models



VIEW A