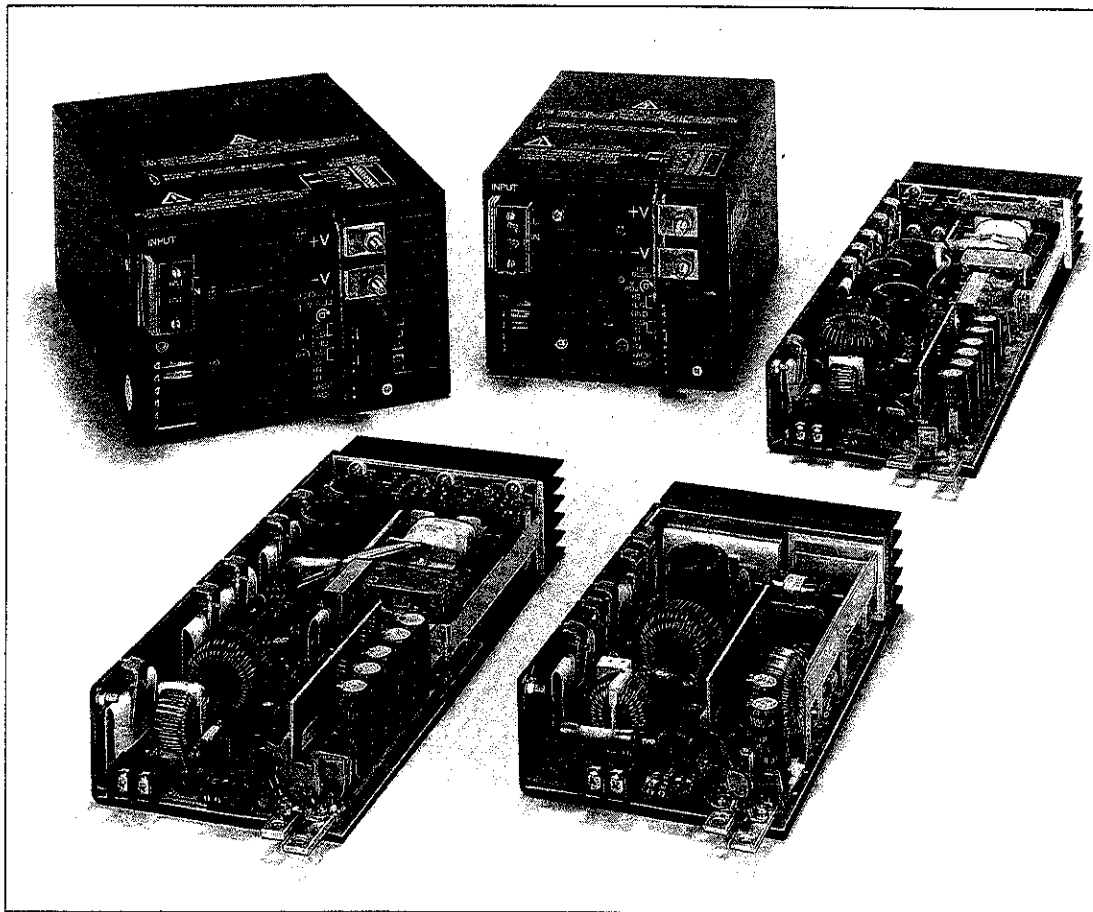


Part I – AC-to-DC Power Supplies

LAMBDA'S RWS-A SERIES



A Complete Line of Universal Input PFHC Power Supplies

Lambda's high density, low cost RWS-A Series power supplies provide harmonic correction which meets IEC 555-2. They also include integral power factor correction to 0.99, universal 85-265 VAC input, and EMI filtering, making the RWS-A Series ideal for worldwide applications.

The RWS-A Series is available in five package sizes from 200W to 1000W, with outputs from 2VDC to 48VDC. Most models carry UL, CSA, IEC Worldwide Safety Agency approvals and are backed by the Lambda Three Year Guarantee.

RWS-A SERIES FEATURES

Power Factor Correction	Power factor correction up to 0.99 thereby providing utility cost savings.
IEC 555.2 Compliant	The RWS-A Series meets European requirements addressing worldwide applications.
85-265 VAC Universal Input	Lambda's RWS-A Series provides continuous input without a jumper change meeting worldwide input requirements, minimizing inventory levels and reducing system integration costs.
Meets Worldwide EMI Requirements	Conducted EMI on the RWS-600A and RWS-1000A conforms to FCC Docket 20780 Class A and VDE 0871 Class A ensuring reliable system performance.
5 Packages Sizes Up to 1000W, Up to 48VDC	Standard off the shelf models with power factor correction from 200W to 1000W provide greater flexibility in addressing system power requirements.
Meets Worldwide Safety Requirements	The RWS-600A and RWS-1000A are approved to UL1950, CSA 22.2 and IEC950 (SELV). The RWS-200A, 300A and 450A are approved to UL1950 (DEV 3), CSA 234 and EN60950.
Device Protection	In order to protect the power supply, as well as the load from adverse conditions, the following features are designed in: • In-rush current limiting • Overvoltage protection • Overcurrent protection • Short circuit protection
Convenience	All units include an AC power good LED and a remote on/off via TTL to simplify system design.

Part I – AC-to-DC Power Supplies

RWS-A SERIES SPECIFICATIONS

AC Input

line85 to 265VAC (universal input), 47-63 Hz.
Single phase.

Efficiency

Package Model	Efficiency (%)
RWS-600A-2; RWS-1000A-2	48
RWS-600A-5, 12, 15; RWS-1000A-5, 12, 15	70
RWS-200A-5; RWS-1000A-5	75
RWS-300A-5; RWS-450A-5	76
RWS-200A-12	77
RWS-200A-15; RWS-300A-12, 15	78
RWS-450A-12, 15	78
RWS-600A-24, 28, 48; RWS-1000A-24, 28, 48	80
RWS-200A-24	81
RWS-300A-24; RWS-450A-24	82

Power Factor and Harmonic Correction

0.98 power factor and harmonic correction at full load per IEC 555-2 for the RWS-600A, 1000A. Total harmonic distortion is 5% on those models. 0.95 at full load for the RWS-200A, 300A, 450A.

EMI

Conducted EMI conforms to FCC Docket 20780 Class A and VDE 0871 Class A on the RWS-600A, 1000A.

In-rush Limiting

14A at 100 VAC, 28A at 200 VAC for the RWS-200A, RWS-300A and RWS-450A; 75A for the RWS-600A and RWS-1000A.

Input Line Transients

IEEE-587, Class A for the RWS-600A, 1000A.

DC Input

125 to 370 VDC for the RWS-600A and RWS-1000A.

DC Output

Voltage range shown in tables.

Regulated Voltage

regulation, line	.85 to 265 VAC.
	0.4% on RWS-200A, 300A, 450A.
	0.1% on RWS-600A, 1000A.
regulation, load	From no load to full load.
	0.4% on RWS-200A, 300A, 450A.
	0.1% on RWS-600A, 1000A.
temperature coefficient	0.02%/°C for the RWS-200A, RWS-300A and RWS-450A. 0.03%/°C for the RWS-600A and RWS-1000A.
remote programming resistance	300 Ω /V nominal on RWS-200A, 300A, 450A.
	1000 Ω /V nominal on RWS-600A, 1000A.
remote programming voltage	Volt per volt.
output adjustment	$\pm 10\%$ for the RWS-200A, RWS-300A and RWS-450A.
	$\pm 5\%$ for the RWS-600A and RWS-1000A.
ripple and noise	Package Model Output Ripple (mV pk-pk)
	RWS-600A-2, 5 75
	RWS-1000A-2, 5 75
	RWS-200A-5 150
	RWS-300A-5; RWS-450A-5 150
	RWS-600A-12, 15, 24, 28 150
	RWS-1000A-12, 15, 24, 28 150
	RWS-200A-12, 15 180
	RWS-300A-12, 15 180
	RWS-450A-12, 15 180
	RWS-600A-48 200
	RWS-1000A-48 200
	RWS-200A-24 240
	RWS-300A-24; RWS-450A-24 240

Thermal Protection

Internal sensing circuitry on the RWS-600A, 1000A.

Overvoltage Protection

Non-crowbar, inverter shutdown type OV protection.

Overload Protection

Automatic electronic self-resetting current limiting circuit.

Short Circuit Protection

30 seconds max for the RWS-200A, RWS-300A and RWS-450A. Indefinite for the RWS-600A and RWS-1000A.

Hold-up Time

20 mSec with Vout (Max), full load; 100VAC.

Remote Sensing

Provisions are made to allow for a 0.25V total drop per output leg. The unit should not exceed total package power at power supply terminals.

Power Good Indication

A green LED illuminates for output power good on the RWS-600A, 1000A.

AC Power Signal

An active TTL signal is provided on the RWS-600A, 1000A.

Remote Turn On/Off

Active high TTL signal for turn-on.

Isolation Ratings

3000V RMS input to output (8mm spacing). 1500V RMS input to ground. 500V RMS output to ground.

Cooling

The RWS-200A, RWS-300A and RWS-450A are convection cooled. The RWS-600A and RWS-1000A are cooled via forced air/internal fan and have reversible air flow.

Operating Temperature Range

Continuous duty from 0°C to 60°C with suitable derating above 40°C. Guaranteed turn-on at -10°C with reduced specifications.

Storage Temperature Range

-30°C to +85°C for the RWS-200A, RWS-300A and RWS-450A.
-55°C to +85°C for the RWS-600A and RWS-1000A.

Physical Data

Package Model	Lbs. Net	Lbs. Ship	Dimensions (inches)
RWS-200A	3.3	4.3	9.18 × 1.97 × 4.77
RWS-300A	4.9	5.9	11.70 × 1.97 × 4.77
RWS-450A	6.2	7.2	15.52 × 1.97 × 4.77
RWS-600A	11.9	12.6	9.00 × 6.00 × 4.88
RWS-1000A	16.0	18.7	11.00 × 7.65 × 4.88

Safety Agency Approvals

The RWS-600A, 1000A are approved for UL1950, CSA-C22-2, IEC950 (SELV). The RWS-200A, 300A, 450A are approved for UL1950 (DEV3), CSA234 and EN60950.

Guaranteed For 3 Years

Three year guarantee includes labor as well as parts. Guarantee applies to operation at full published specifications at end of three years.

Industrial Ratings Table – Single Output

LFS SERIES

- Highest Density to 10W/in²
- Most Cost Effective Industrial Solution
- Current Sharing Above 1000W

RWS SERIES

- IEC 555-2 Compliant
- PFC to 0.95
- Universal Inputs

EWS SERIES

- FCC Class A EMI
- Current Sharing Above 150W
- Wide Range or Auto-Select Input

MAX CURRENT (AMPS) AT AMBIENT TEMPERATURE OF			V _{out} ADJ. RANGE	COMPLETE ELEC. SPEC. PG.	1	UNIT PRICE PER DELIVERED QUANTITY			MODEL
40°C	50°C	60°C				10	25	100	
2V OUTPUT									
120.00	112.00	93.30	4.75-5.25	36	\$ 770	\$ 733	\$ 703	\$ 539	RWS-600A-2
200.00	185.00	157.00	4.75-5.25	36	1060	1010	968	815	RWS-1000A-2

5V OUTPUT

40.00	32.00	24.00	4.50-5.50	36	372	354	339	273	RWS-200A-5
60.00	45.00	30.00	4.50-5.50	36	477	455	437	355	RWS-300A-5
90.00	67.50	45.00	4.50-5.50	36	636	606	581	470	RWS-450A-5
120.00	112.00	93.50	4.75-5.25	36	770	733	703	539	RWS-600A-5
200.00	185.00	157.00	4.75-5.25	36	1060	1010	968	815	RWS-1000A-5

6V OUTPUT

101.00	94.50	79.00	5.70-6.30	36	770	733	730	539	RWS-600A-6
168.00	155.00	132.00	5.70-6.30	36	1060	1010	968	815	RWS-1000A-6

Industrial Ratings Table – Single Output

LFS SERIES

- Highest Density to 10W/in³
- Most Cost Effective Industrial Solution
- Current Sharing Above 1000W

RWS SERIES

- IEC 555-2 Compliant
- PFC to 0.95
- Universal Inputs

EWS SERIES

- FCC Class A EMI
- Current Sharing Above 150W
- Wide Range or Auto-Select Input

MAX CURRENT (AMPS) AT AMBIENT TEMPERATURE OF			Vout ADJ. RANGE	COMPLETE ELEC. SPEC. PG.	1	UNIT PRICE PER DELIVERED QUANTITY			MODEL
40°C	50°C	60°C				10	25	100	
12V OUTPUT									
19.00	15.00	11.40	10.80-13.20	36	372	354	339	273	RWS-200A-12
26.00	19.50	13.00	10.80-13.20	36	477	455	437	355	RWS-300A-12
40.00	30.00	20.00	10.80-13.20	36	636	606	581	470	RWS-450A-12
51.50	48.00	40.00	11.40-12.60	36	770	733	703	539	RWS-600A-12
86.00	79.50	67.50	11.40-12.60	36	1060	1010	968	815	RWS-1000A-12

15V OUTPUT

15.00	12.00	9.00	13.50-16.50	36	372	354	339	273	RWS-200A-15
21.00	15.75	10.50	13.50-16.50	36	477	455	437	355	RWS-300A-15
32.00	24.00	16.00	13.50-16.50	36	636	606	581	470	RWS-450A-15
42.00	39.00	33.00	14.25-15.75	36	770	733	703	539	RWS-600A-15
70.00	64.50	55.00	14.25-15.75	36	1060	1010	968	815	RWS-1000A-15

Industrial Ratings Table – Single Output

LFS SERIES

- Highest Density to 10W/in³
- Most Cost Effective Industrial Solution
- Current Sharing Above 1000W

RWS SERIES

- IEC 555-2 Compliant
- PFC to 0.95
- Universal Inputs

EWS SERIES

- FCC Class A EMI
- Current Sharing Above 150W
- Wide Range or Auto-Select Input

MAX CURRENT (AMPS) AT AMBIENT TEMPERATURE OF			Vout ADJ. RANGE	COMPLETE ELEC. SPEC. PG.	UNIT PRICE PER DELIVERED QUANTITY				MODEL
40°C	50°C	60°C			1	10	25	100	
20V OUTPUT									
32.00	30.00	25.00	19.00-21.00	36	\$ 770	\$ 733	\$ 703	\$ 539	RWS-600A-20
53.00	49.00	41.50	19.00-21.00	36	1060	1010	968	815	RWS-1000A-20

24V OUTPUT

9.00	7.20	5.40	21.60-26.40	36	372	354	339	273	RWS-200A-24
13.00	9.75	6.50	21.60-26.40	36	477	455	437	355	RWS-300A-24
20.00	15.00	10.00	21.60-26.40	36	636	606	581	470	RWS-450A-24
27.00	25.00	21.00	22.80-25.20	36	770	733	703	539	RWS-600A-24
44.50	40.50	35.00	22.80-25.20	36	1060	1010	968	815	RWS-1000A-24

28V OUTPUT

23.00	21.50	18.00	26.60-29.40	36	770	733	703	539	RWS-600A-28
38.50	35.00	30.00	26.60-29.40	36	1060	1010	968	815	RWS-1000A-28

Industrial Ratings Table – Single Output

LFS SERIES

- Highest Density to 10W/in²
- Most Cost Effective Industrial Solution
- Current Sharing Above 1000W

RWS SERIES

- IEC 555-2 Compliant
- PFC to 0.95
- Universal Inputs

EWS SERIES

- FCC Class A EMI
- Current Sharing Above 150W
- Wide Range or Auto-Select Input

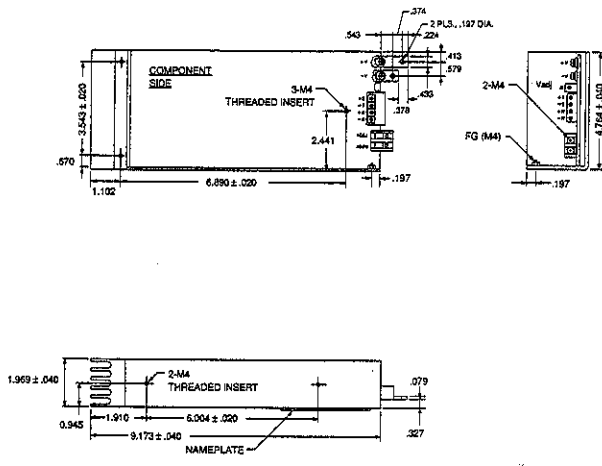
MAX CURRENT (AMPS) AT AMBIENT TEMPERATURE OF			Vout ADJ. RANGE	COMPLETE ELEC. SPEC. PG.	1	UNIT PRICE PER DELIVERED QUANTITY			MODEL
40°C	50°C	60°C				10	25	100	

48V OUTPUT

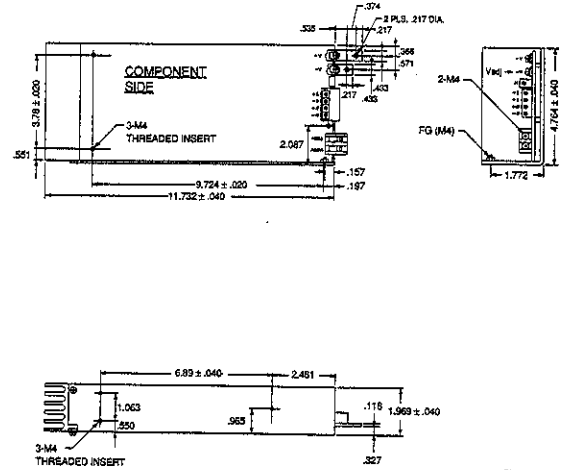
13.50	12.50	10.50	45.60-50.40	36	770	733	703	539	RWS-600A-48
22.50	20.50	17.50	45.60-50.40	36	1060	1010	968	815	RWS-1000A-48

RWS-A SERIES MECHANICAL DRAWINGS

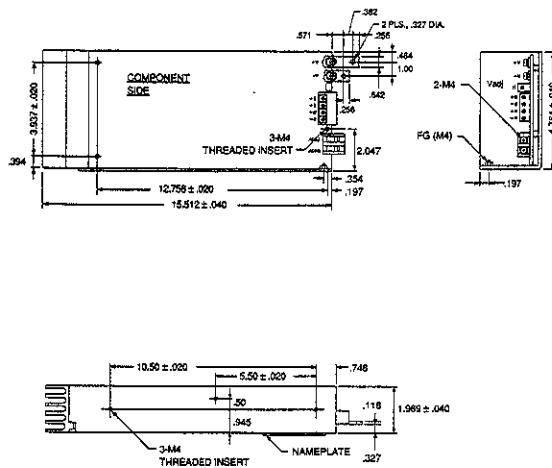
RWS-200A



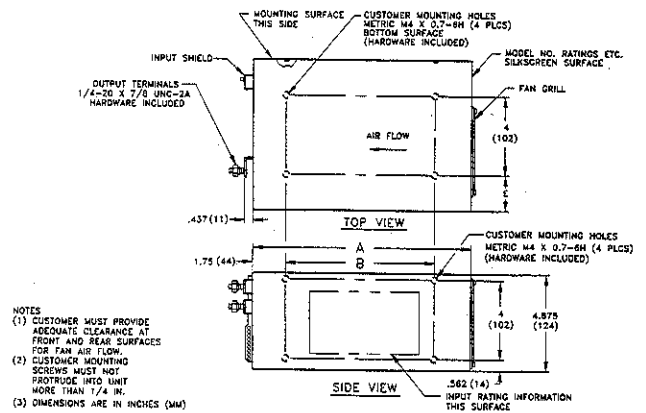
RWS-300A



RWS-450A



RWS-600A
RWS-1000A



MODEL	MM	A	B	C	D	E
RWS1000A	11	7.5	2.825	5.587	1.812	1.912
	(279)	(190)	(193)	(144)	(46)	(48)
RWS600A	9	4.5	6	4.575	1.000	1.000
	(229)	(114)	(152)	(116)	(25)	(25)

