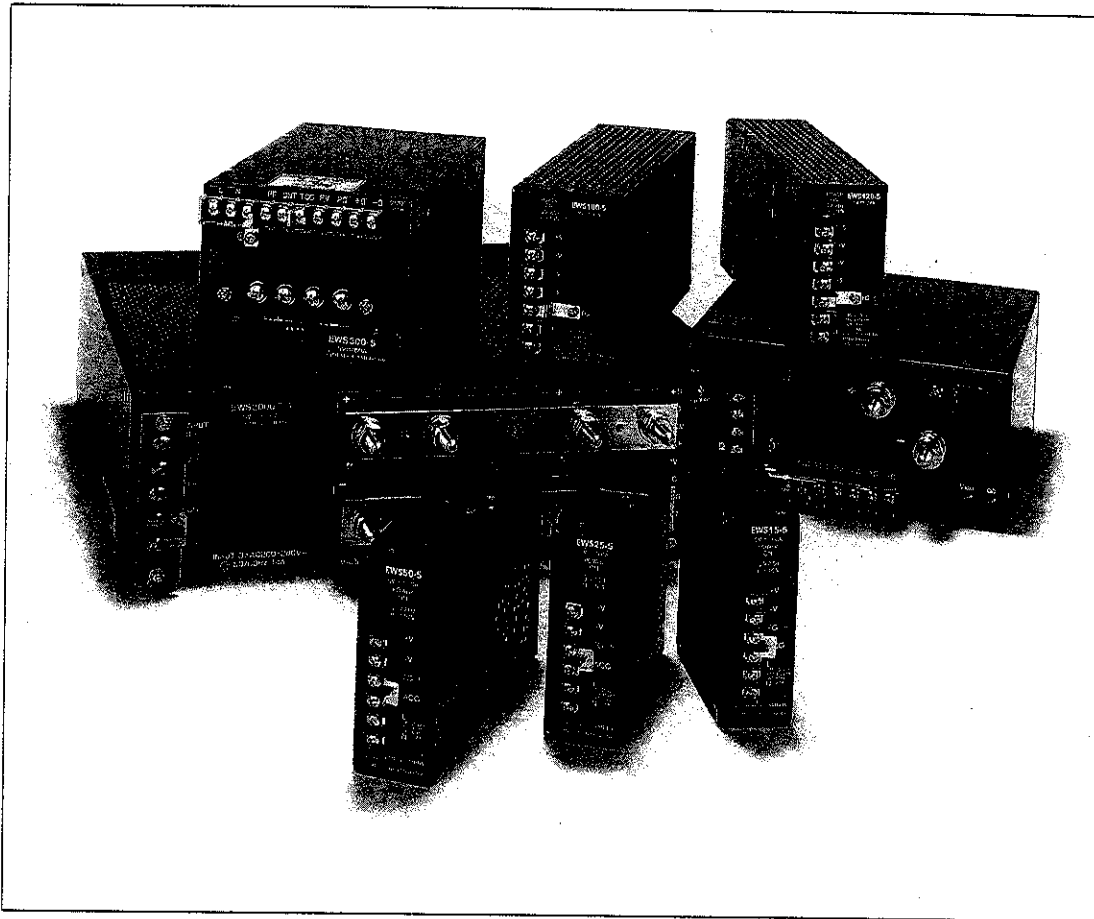


Part I – AC-to-DC Power Supplies

LAMBDA'S EWS SERIES



High Grade Industrial Solutions Up to 1500W

An integral EMI filter to meet FCC Class A, VDE 0871 Class A, and wide range or auto-selectable input below 600W, makes the EWS Series an ideal choice for trouble-free worldwide operations.

There are 41 models in the EWS family, up to 48V, up to 300A. Their 3.82-inch maximum height, and current sharing capability (above 300W) allows for maximum design flexibility. And all have worldwide safety agency approvals. From 15W to 1.5KW, Lambda's EWS Series is the ideal choice for process control, factory automation, and industrial computer systems.

EWS SERIES SPECIFICATIONS

AC Input

line 85-265VAC, 47-440Hz.
 85-132VAC/170-265VAC, 47-63Hz for EWS
 1500. (auto selectable) 47-440Hz for
 EWS100, 150, 300, 600. 170-265VAC,
 47-63Hz three phase for EWS3000T.

RMS Current

| Package Model | Typical Input Current (A RMS) | |
|------------------------------|-------------------------------|---------------|
| | 100VAC Input* | 200VAC Input* |
| EWS15 | 0.4 | 0.2 |
| EWS25 | 0.6 | 0.3 |
| EWS50 | 1.2 | 0.6 |
| EWS100 | 2.5 | 1.4 |
| EWS150 | 3.7 | 2.1 |
| EWS300-2 | 3.5 | 1.7 |
| EWS300 (Except 2V), EWS600-2 | 7.0 | 3.5 |
| EWS600 (Except 2V) | 14.0 | 7.0 |
| EWS1500 | 32.0 | 16.0 |

Efficiency

Typical. 70% on 5V models of EWS15. 74% on 5V, 12V, 15V models of EWS25 and 5V models of EWS300. 75% on 5V models of EWS50, 600; 12V, 15V models of EWS25. 76% on 12V models of EWS50, 24V and 28V models of EWS15. 77% on 15V model of EWS50; 24V model of EWS25. 78% on 5V models of EWS100, 150; 24V model of EWS50, 28V model of EWS25; 80% on 5V models of EWS1500; 12V and 15V models of EWS100, 150, 300, 600; 28V model of EWS50. 81% on 12V models of EWS1500. 82% on 15V model of EWS1500; 24V, 28V models of EWS100, 150, 300; 83% on 24V, 28V, 48V models of EWS600; 24V models of EWS1500. 84% on 48V model of EWS1500.

DC Input

110 to 330 VDC on EWS15, 25, 50.
 230 to 350 VDC on EWS100, 150.

DC Output

Voltage range shown in table.

Regulated Voltage

regulation, line 0.4%.
 regulation, load 0.6% for load changes from zero to full load and from full load to zero on EWS300 and EWS600, and 5V through 24V models of EWS1500. 0.8% on EWS15, 25, 50, 100, 150.
 ripple and noise EWS15, 25, 50: 120mV pk-pk on 5V models; 150mV pk-pk on 12V and 15V models; 200mV pk-pk on 24V and 28V models. EWS100, 150: 150mV pk-pk on 5V models; 200mV pk-pk on 12V and 15V models; 250mV pk-pk on 24V and 28V models. EWS300, 600, 1500: 100mV pk-pk on 5V models; 200mV pk-pk on 12V through 28V models; 300mV pk-pk on 48V models.
 temperature coefficient 0.02%/°C.
 remote programming resistance 1000Ω/V on EWS100, 150, 300, 600
 remote programming voltage volt per volt on EWS100, 150, 300, 600.
 Output voltage on EWS1500 can be programmed from 0% to 120% of nominal via a 0 to 6V external signal. Output current derating is required for operation below 10% of nominal voltage. Contact factory for complete information.

EMI

Conducted EMI conforms to FCC Docket 20780 Class A.

In-Rush Current Limiting

| Package Model | Typical In-Rush | |
|---------------|-----------------|--------------|
| | 100VAC Input | 200VAC Input |
| EWS15 | 14 | 28 |
| EWS25 | 3.5 | 9 |
| EWS50 | 6.8 | 13.5 |
| EWS100, 150 | 14 | 28 |
| EWS300 | 25 | 50 |
| EWS600, 1500 | 30 | 60 |

Hold Up Time

16 msec minimum at 100VAC/200VAC when operating at full load (20 msec on EWS100, 150, 300, 600 and 1500).

Overshoot

No overshoot at turn-on, turn-off or power failure.

Overload Protection

Automatic self-resetting electronic current limiting circuit.

Overvoltage Protection

Non-crowbar, inverter shutdown type protection is standard on all models.

Remote Turn-On/Turn-Off

TTL compatible signal enables remote turn-on/turn-off of the power supply. An open circuit or voltage of 2.0V to 5.0V applied to remote on/off terminals will initiate turn-off. Short circuit condition, or a zero to 0.8V signal will cause turn-on on EWS300, 600 and 1500.

Remote Sensing

Provision is made for remote sensing on EWS100, 150, 300, 600, 1500.

Isolation Rating

3750V RMS input to output (8mm spacing). 2500V RMS input to ground. 500V RMS output to ground.

Cooling

The EWS15, 25, 50, 100, 150 are convection cooled. The EWS300, 600, 1500 are fan cooled.

Operating Temperature Range

Continuous duty from 0°C to 60°C with suitable derating (see table). Guaranteed turn-on at -10°C with reduced specifications.

Monitoring Signal

DC Power fail (open collector output) signal available on EWS300, 600, 1500.

DC Output Controls

Simple screwdriver adjustment over the entire voltage range.

Input and Output Connections

All connections are made via terminal blocks. DC output connections are made via studs on EWS600, 1500.

Mounting

One mounting surface and one mounting position on EWS15, 25, 50, 100, 150. Two mounting surfaces and two mounting positions on EWS300, 600, 1500.

Physical Data

| Package Model | Lbs. Net | Lbs. Ship | Size Inches |
|---------------|----------|-----------|---------------------|
| EWS15 | 0.66 | 1.00 | 1.38 × 3.82 × 3.54 |
| EWS25 | 0.87 | 1.25 | 1.38 × 3.82 × 4.53 |
| EWS50 | 1.10 | 1.60 | 1.46 × 3.82 × 6.02 |
| EWS100 | 1.90 | 2.50 | 2.13 × 3.82 × 7.87 |
| EWS150 | 2.20 | 3.00 | 2.56 × 3.82 × 7.87 |
| EWS300 | 6.20 | 7.20 | 4.72 × 3.62 × 7.48 |
| EWS600 | 10.00 | 11.00 | 7.48 × 3.62 × 7.87 |
| EWS1500 | 15.40 | 17.00 | 7.87 × 3.82 × 11.81 |

Accessories

LRA-15, LRA-17 Rack Adapters available. See pages 152-153.

UL/CSA/TUV/IEC

Most units have received formal agency approval or have passed all tests and are waiting for formal notification. Contact factory for status of specific models.

Guaranteed for 3 Years

Three year guarantee includes labor as well as parts. Guarantee applies to operation at full published specifications at the 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 | |
| 5V OUTPUT | | | | | | | | | |
| 3.00 | 3.00 | 1.50 | 4.50-5.50 | 39 | 110 | 106 | 101 | 86 | EWS15-5 |
| 5.00 | 5.00 | 2.50 | 4.50-5.50 | 39 | 148 | 141 | 135 | 115 | EWS25-5 |
| 10.00 | 10.00 | 5.00 | 4.50-5.50 | 39 | 215 | 206 | 197 | 162 | EWS50-5 |
| 20.00 | 20.00 | 9.60 | 4.50-5.50 | 39 | 279 | 264 | 255 | 206 | EWS100-5 |
| 30.00 | 30.00 | 14.40 | 4.50-5.50 | 39 | 375 | 358 | 344 | 283 | EWS150-5 |
| 60.00 | 60.00 | 42.00 | 4.00-6.00 | 39 | 585 | 557 | 535 | 441 | EWS300-5 |
| 120.00 | 120.00 | 84.00 | 4.00-6.00 | 39 | 937 | 892 | 857 | 654 | EWS600-5 |
| 300.00 | 300.00 | 210.00 | 4.00-6.00 | 36 | 1712 | 1630 | 1565 | 1180 | EWS1500-5 |

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 | V _{out} | | | COMPLETE ELEC. SPEC. PG. | 1 | UNIT PRICE PER DELIVERED QUANTITY | | | MODEL |
|---|------------------|-------|-------------|--------------------------------|--------|--------------------------------------|--------|-------|------------|
| | 40°C | 50°C | 60°C | | | ADJ. RANGE | 10 | 25 | |
| 12V OUTPUT | | | | | | | | | |
| 1.40 | 1.40 | 0.70 | 10.80-13.20 | 39 | \$ 110 | \$ 106 | \$ 101 | \$ 86 | EWS15-12 |
| 2.20 | 2.20 | 1.10 | 10.80-13.20 | 39 | 148 | 141 | 135 | 115 | EWS25-12 |
| 4.40 | 4.40 | 2.20 | 10.80-13.20 | 39 | 215 | 206 | 197 | 162 | EWS50-12 |
| 8.40 | 8.40 | 4.00 | 10.80-13.20 | 39 | 279 | 264 | 255 | 206 | EWS100-12 |
| 12.50 | 12.50 | 6.00 | 10.80-13.20 | 39 | 375 | 358 | 344 | 283 | EWS150-12 |
| 27.00 | 27.00 | 18.90 | 9.60-14.40 | 39 | 585 | 557 | 535 | 441 | EWS300-12 |
| 53.00 | 53.00 | 37.10 | 9.60-14.40 | 39 | 937 | 892 | 857 | 654 | EWS600-12 |
| 125.00 | 125.00 | 87.50 | 9.60-14.40 | 39 | 1712 | 1630 | 1565 | 1180 | EWS1500-12 |
| 15V OUTPUT | | | | | | | | | |
| 1.10 | 1.10 | 0.55 | 13.50-16.50 | 39 | 110 | 106 | 101 | 86 | EWS15-15 |
| 1.80 | 1.80 | 0.90 | 13.50-16.50 | 39 | 148 | 141 | 135 | 115 | EWS25-15 |
| 3.60 | 3.60 | 1.80 | 13.50-16.50 | 39 | 215 | 206 | 197 | 162 | EWS50-15 |
| 6.70 | 6.70 | 3.20 | 13.50-16.50 | 39 | 279 | 264 | 255 | 206 | EWS100-15 |
| 10.00 | 10.00 | 4.80 | 13.50-16.50 | 39 | 375 | 358 | 344 | 283 | EWS150-15 |
| 22.00 | 22.00 | 15.40 | 12.00-18.00 | 39 | 585 | 557 | 535 | 441 | EWS300-15 |
| 43.00 | 43.00 | 30.00 | 12.00-18.00 | 39 | 937 | 892 | 857 | 654 | EWS600-15 |
| 100.00 | 100.00 | 70.00 | 12.00-18.00 | 39 | 1712 | 1630 | 1565 | 1180 | EWS1500-15 |

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 | | | V _{out} ADJ. RANGE | COMPLETE ELEC. SPEC. PG. | 1 | UNIT PRICE PER DELIVERED QUANTITY | | | | MODEL |
|---|-------|-------|--------------------------------|--------------------------------|------|--------------------------------------|------|------|------------|-------|
| 40°C | 50°C | 60°C | | | | 10 | 25 | 100 | | |
| 24V OUTPUT | | | | | | | | | | |
| 0.70 | 0.70 | 0.35 | 21.60-26.40 | 39 | 110 | 106 | 101 | 86 | EWS15-24 | |
| 1.20 | 1.20 | 0.60 | 21.60-26.40 | 39 | 148 | 141 | 135 | 115 | EWS25-24 | |
| 2.40 | 2.40 | 1.20 | 21.60-26.40 | 39 | 215 | 206 | 197 | 162 | EWS50-24 | |
| 4.20 | 4.20 | 2.00 | 21.60-26.40 | 39 | 279 | 264 | 255 | 206 | EWS100-24 | |
| 6.30 | 6.30 | 3.00 | 21.60-26.40 | 39 | 375 | 358 | 344 | 283 | EWS150-24 | |
| 14.00 | 14.00 | 9.80 | 19.20-28.80 | 39 | 585 | 557 | 535 | 441 | EWS300-24 | |
| 27.00 | 27.00 | 18.90 | 19.20-28.80 | 39 | 937 | 892 | 857 | 654 | EWS600-24 | |
| 63.00 | 63.00 | 44.10 | 19.20-28.80 | 39 | 1712 | 1630 | 1565 | 1180 | EWS1500-24 | |
| 28V OUTPUT | | | | | | | | | | |
| 0.60 | 0.60 | 0.30 | 25.20-30.80 | 39 | 110 | 106 | 101 | 86 | EWS15-28 | |
| 1.00 | 1.00 | 0.50 | 25.20-30.80 | 39 | 148 | 141 | 135 | 115 | EWS25-28 | |
| 2.00 | 2.00 | 1.00 | 25.20-30.80 | 39 | 215 | 206 | 197 | 162 | EWS50-28 | |
| 3.60 | 3.60 | 1.70 | 25.20-30.80 | 39 | 279 | 264 | 255 | 206 | EWS100-28 | |
| 5.40 | 5.40 | 2.60 | 25.20-30.80 | 39 | 375 | 358 | 344 | 283 | EWS150-28 | |
| 12.00 | 12.00 | 8.40 | 22.40-33.60 | 39 | 585 | 557 | 535 | 441 | EWS300-28 | |
| 23.00 | 23.00 | 16.10 | 22.40-33.60 | 39 | 937 | 892 | 857 | 654 | EWS600-28 | |

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 | |

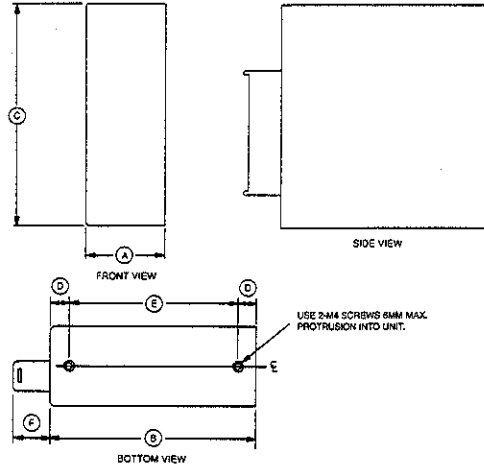
48V OUTPUT

| | | | | | | | | | |
|-------|-------|------|-------------|----|-----|-----|-----|-----|-----------|
| 1.20 | 1.20 | 0.60 | 43.20-52.80 | 39 | 215 | 206 | 197 | 162 | EWS50-48 |
| 13.00 | 13.00 | 9.10 | 38.40-57.60 | 39 | 937 | 892 | 857 | 654 | EWS600-48 |

Part I – AC-to-DC Power Supplies

EWS SERIES MECHANICAL DRAWINGS

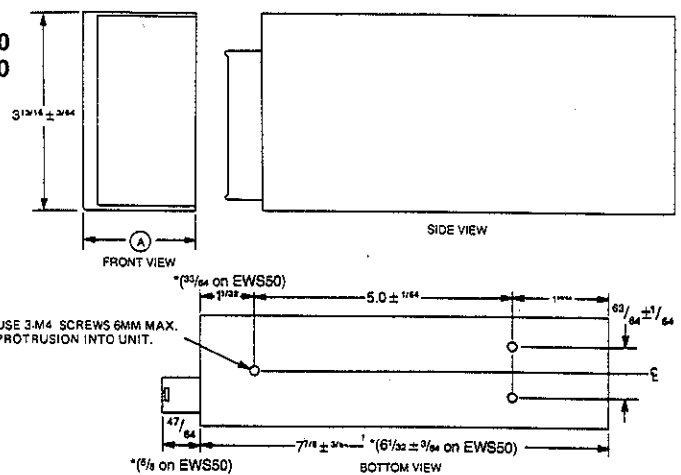
EWS15
EWS25



| MODEL | A | B | C | D | E | F |
|-------|---------------------------------|-----------------------------------|-----------------------------------|----------------|-----------------------------------|---------------|
| EWS15 | $1\frac{3}{8} \pm \frac{3}{64}$ | $3\frac{13}{64} \pm \frac{3}{64}$ | $3\frac{13}{64} \pm \frac{3}{64}$ | $\frac{5}{16}$ | $2\frac{29}{32} \pm \frac{1}{64}$ | $\frac{5}{8}$ |
| EWS25 | $1\frac{3}{8} \pm \frac{3}{64}$ | $4\frac{17}{32} \pm \frac{3}{64}$ | $3\frac{13}{64} \pm \frac{3}{64}$ | $\frac{5}{8}$ | $3\frac{17}{64} \pm \frac{1}{64}$ | $\frac{5}{8}$ |

ALL DIMENSIONS IN INCHES

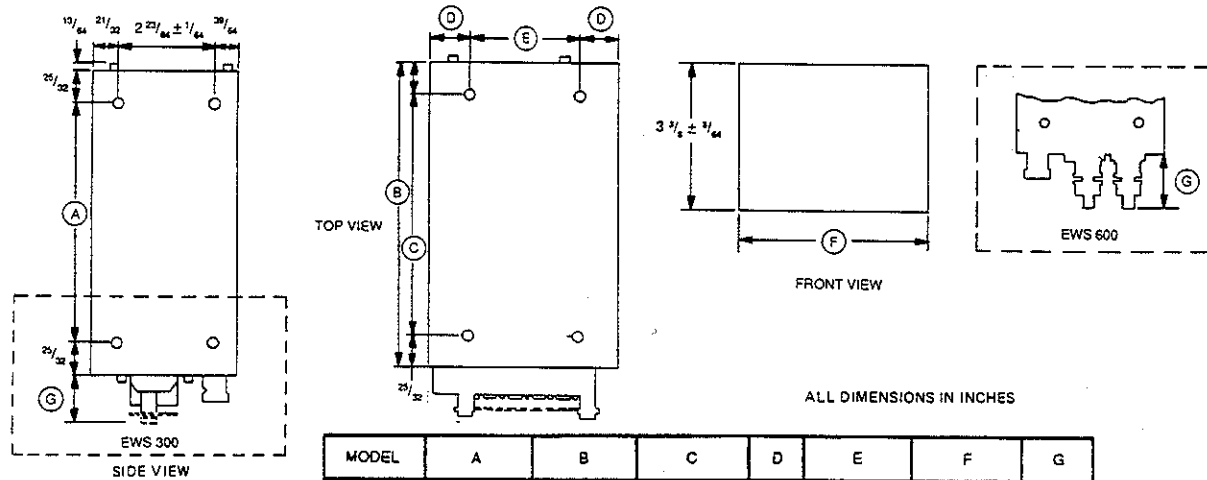
EWS50
EWS100
EWS150



| MODEL | A |
|--------|-----------------------------------|
| EWS100 | $2\frac{1}{8} \pm \frac{3}{64}$ |
| EWS150 | $2\frac{3}{16} \pm \frac{3}{64}$ |
| EWS50 | $1\frac{29}{64} \pm \frac{3}{64}$ |

ALL DIMENSIONS IN INCHES

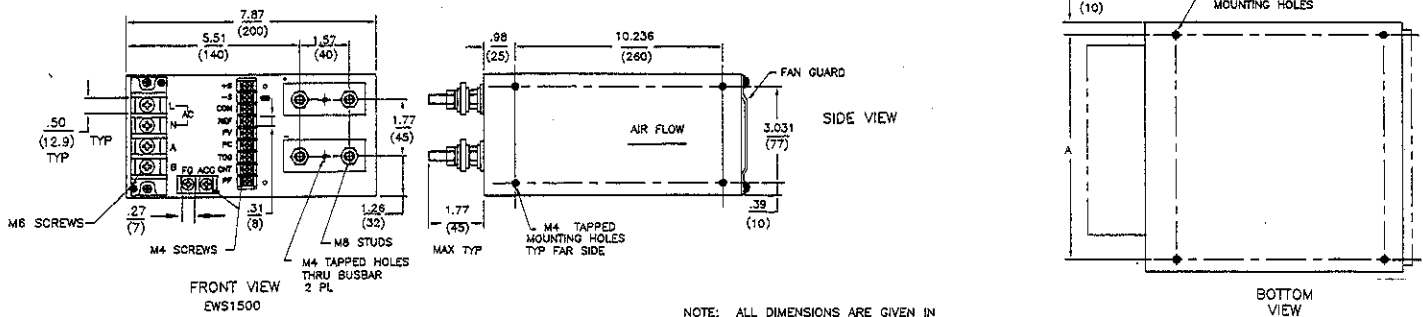
EWS300
EWS600



| MODEL | A | B | C | D | E | F | G |
|--------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------|-----------------------------------|-----------------------------------|--------------------|
| EWS300 | $5\frac{29}{32} \pm \frac{1}{64}$ | $7\frac{31}{64} \pm \frac{3}{64}$ | $5\frac{29}{32} \pm \frac{1}{64}$ | $\frac{63}{64}$ | $2\frac{3}{4} \pm \frac{1}{64}$ | $4\frac{23}{32} \pm \frac{3}{64}$ | $\frac{1}{32}$ MAX |
| EWS600 | $6\frac{19}{64} \pm \frac{1}{64}$ | $7\frac{7}{8} \pm \frac{3}{64}$ | $6\frac{19}{64} \pm \frac{1}{64}$ | $\frac{25}{64}$ | $6\frac{11}{16} \pm \frac{1}{64}$ | $7\frac{31}{64} \pm \frac{3}{64}$ | $1\frac{3}{8}$ |

ALL DIMENSIONS IN INCHES

EWS-1500



| MODEL | A |
|---------|------------------|
| EWS1500 | 7.090 (180) |

NOTE: ALL DIMENSIONS ARE GIVEN IN INCHES OVER (MILLIMETERS)
TOLERANCE ON 2 PLACE DECIMAL IS $\pm .04$ IN. OR 1 MM.
TOLERANCE ON 3 PLACE DECIMAL IS $\pm .020$ IN. OR 0.5 MM.