



#### FEATURES:

- 4000VAC I/O isolation
- Medical Switching power modules for PCB mounting
- Operating temperature: -40 to +85°C
- Universal Input: 90-264VAC, 47-440Hz, or 130-370VDC
- Energy star compliant
- RoHS compliant
- Low Ripple and Noise
- CE, cULus, BC approvals

#### Models Single output



| Model         | Input Voltage<br>(VAC/Hz) | Input Voltage<br>(VDC) | Output<br>Voltage<br>(V) | Maximum<br>Capacitive<br>load (μF) | Output Current<br>max<br>(A) | Efficiency<br>(%) |            |
|---------------|---------------------------|------------------------|--------------------------|------------------------------------|------------------------------|-------------------|------------|
|               |                           |                        |                          |                                    |                              | 115<br>VAC        | 230<br>VAC |
| AME30-3.3SMAZ | 90-264/47-440             | 130-370                | 3.3                      | 8200                               | 6                            | 79                | 77         |
| AME30-5SMAZ   | 90-264/47-440             | 130-370                | 5                        | 8200                               | 6                            | 82                | 81         |
| AME30-12SMAZ  | 90-264/47-440             | 130-370                | 12                       | 2200                               | 2.5                          | 84                | 82         |
| AME30-15SMAZ  | 90-264/47-440             | 130-370                | 15                       | 1500                               | 2                            | 84                | 82         |
| AME30-24SMAZ  | 90-264/47-440             | 130-370                | 24                       | 560                                | 1.25                         | 83                | 82         |

#### Models Dual output

| Model        | Input Voltage<br>(VAC/Hz) | Input Voltage<br>(VDC) | Output<br>Voltage<br>(V) | Maximum<br>Capacitive<br>load (μF) | Output Current<br>max<br>(A) | Efficiency<br>(%) |            |
|--------------|---------------------------|------------------------|--------------------------|------------------------------------|------------------------------|-------------------|------------|
|              |                           |                        |                          |                                    |                              | 115<br>VAC        | 230<br>VAC |
| AME30-5DMAZ  | 90-264/47-440             | 130-370                | ±5                       | 3300                               | ±3                           | 80                | 80         |
| AME30-12DMAZ | 90-264/47-440             | 130-370                | ±12                      | 2200                               | ±1.25                        | 82                | 82         |
| AME30-15DMAZ | 90-264/47-440             | 130-370                | ±15                      | 1000                               | ±1                           | 82                | 81         |
| AME30-24DMAZ | 90-260/47-440             | 130-370                | ±24                      | 470                                | ±0.625                       | 77                | 76         |

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

#### Input Specifications

| Parameters          | Conditions                 | Typical | Maximum | Units |
|---------------------|----------------------------|---------|---------|-------|
| Current             | 115 VAC                    |         | 740     | mA    |
|                     | 230 VAC                    |         | 410     | mA    |
| Inrush current <2ms | 115 VAC                    |         | 25      | A     |
|                     | 230 VAC                    |         | 50      | A     |
| Leakage current     |                            |         | 150     | μA    |
| External fuse       | Recommended slow blow type | 3.15    |         | A     |
| Input dissipation   | 115 / 230 VAC              | ≤ 0.5   |         | W     |
| Start-up time       |                            | 250     |         | ms    |

#### Output Specifications

| Parameters                   | Conditions                                                      | Typical | Maximum | Units     |
|------------------------------|-----------------------------------------------------------------|---------|---------|-----------|
| Voltage accuracy             |                                                                 | ±2      |         | %         |
| Line regulation              | (LL-HL)                                                         | ±1      |         | %         |
| Load regulation              | 0-100% load single                                              | ±1      |         | %         |
|                              | 0-100% load dual                                                | ±2      |         |           |
| Cross regulation             | 25% load - 1 <sup>st</sup> out, 100% load – 2 <sup>nd</sup> out | ±5      |         | %         |
| Transient response deviation | 25% load Step                                                   | ±2      |         | % of Vout |
| Ripple & Noise*              | 3.3 / 5V models                                                 | 75      |         | mV p-p    |
|                              | 12 / 15V models                                                 | 100     |         |           |
|                              | 24V models                                                      | 150     |         |           |
| Hold-up time (min)           |                                                                 | 25      |         | ms        |
| Minimum Load Current         |                                                                 | 0       |         | % of Max  |

\*Ripple & Noise measured at 20MHz bandwidth by using with 0.1μF M/C and 47μF E/C

## Isolation Specifications

| Parameters           | Conditions | Typical | Rated | Units |
|----------------------|------------|---------|-------|-------|
| Tested I/O voltage   | 60 sec     |         | 4000  | VAC   |
| Isolation Resistance |            | >1000   |       | MΩ    |

## General Specifications

| Parameters               | Conditions               | Typical                                                                                                                            | Maximum | Units  |
|--------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------|--------|
| Switching frequency      |                          | 47                                                                                                                                 |         | KHz    |
| Protection class         |                          | Class II                                                                                                                           |         |        |
| Over current protection  | Fold back                | 130                                                                                                                                |         | %      |
| Over voltage protection  |                          | Zener diode clamp                                                                                                                  | 110     | %      |
| Short circuit protection |                          | Auto recovery                                                                                                                      |         |        |
| Short Circuit restart    |                          | Auto recovery                                                                                                                      |         |        |
| Operating temperature    | With derating above 55°C | -40 to +85                                                                                                                         |         | °C     |
| Maximum case temperature |                          |                                                                                                                                    | 100     | °C     |
| Storage temperature      |                          | -40 to +95                                                                                                                         |         | °C     |
| Temperature coefficient  |                          | 0.02                                                                                                                               |         | % / °C |
| Cooling                  |                          | Free air convection                                                                                                                |         |        |
| Humidity                 | Non condensing           |                                                                                                                                    | 95      | % RH   |
| Case material            |                          | Plastic (flammability to UL 94V-0)                                                                                                 |         |        |
| Weight                   |                          | 300                                                                                                                                |         | g      |
| Dimensions (L x W x H)   |                          | 3.56 x 2.48 x 1.18 inches 90.5 x 63 x 30 mm                                                                                        |         |        |
| MTBF                     |                          | > 800,000 hrs (MIL-HDBK -217F, t=+25 oC)/Full Load<br>> 200,000 hrs (MIL-HDBK -217F, t=at highest operating temperature)/Full Load |         |        |

## Environment Approval

| Test      | Parameters             | Conditions                                               |
|-----------|------------------------|----------------------------------------------------------|
| Shock     | Wave form              | Half sine wave                                           |
|           | Acceleration amplitude | 5gn                                                      |
|           | Bump duration          | 30 ms                                                    |
|           | Converter operation    | Before and after test, body mounted (on chassis)         |
|           | Number of bumps        | 18 (3 in each direction for every axis)                  |
| Vibration | Test mode              | Sweep sine, 10-100Hz, speed 0.05Hz/s                     |
|           | Displacement           | 1 mm                                                     |
|           | Acceleration           | 3g, 3 loops 30min one cycle, 3h total, every axis tested |
|           | Converter operation    | Before and after test, body mounted (on chassis)         |

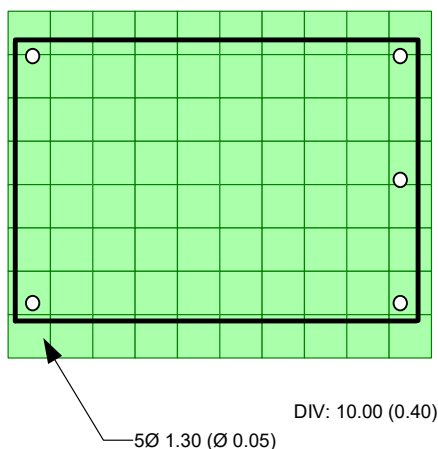
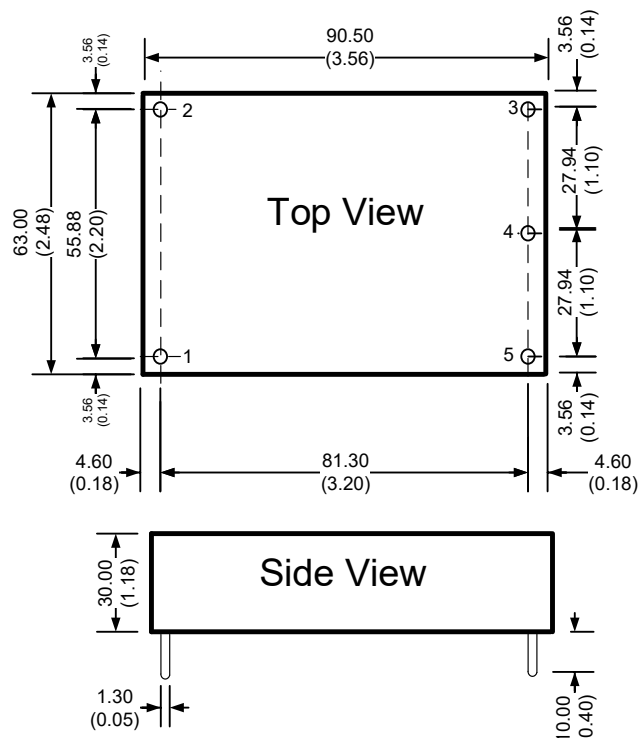
## Safety Specifications

| Parameters       |                                            |                                                      |
|------------------|--------------------------------------------|------------------------------------------------------|
| Agency approvals | cULus, CE, CB                              |                                                      |
| Standards        | Medical Electrical Equipment               | IEC\EN\UL 60601-1, 2 x MOOP, CSA-C22.2 No. 601.1-M90 |
|                  | Information technology Equipment           | EN 60950-1:2006+A11:2009                             |
|                  | EMI - Conducted and radiated emission      | EN55011, class B                                     |
|                  | Harmonic Current Emissions                 | IEC/EN 61000-3-2, Class A                            |
|                  | Voltage fluctuations and flicker           | IEC/EN 61000-3-3, (EN60555-3)                        |
|                  | Electrostatic Discharge Immunity           | IEC 61000-4-2 Level 3                                |
|                  | RF, Electromagnetic Field Immunity         | IEC 61000-4-3 Level 2                                |
|                  | Electrical Fast Transient/Burst Immunity   | IEC 61000-4-4 Level 3                                |
|                  | Surge Immunity                             | IEC 61000-4-5 Level 2                                |
|                  | RF, Conducted Disturbance Immunity         | IEC 61000-4-6 Level 2                                |
|                  | Power frequency Magnetic Field Immunity    | IEC 61000-4-8 Level 2                                |
|                  | Voltage dips, Short Interruptions Immunity | IEC 61000-4-11                                       |

## Pin Out Specifications

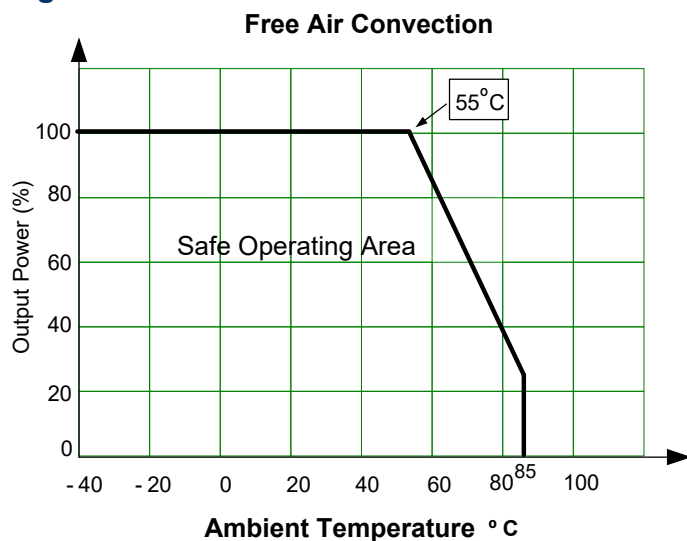
| Pin | Single       | Dual         |
|-----|--------------|--------------|
| 1   | AC Input (N) | AC Input (N) |
| 2   | AC Input (L) | AC Input (L) |
| 3   | +V Output    | +V Output    |
| 4   | -V Output    | Common       |
| 5   | No pin       | -V Output    |

## Dimensions

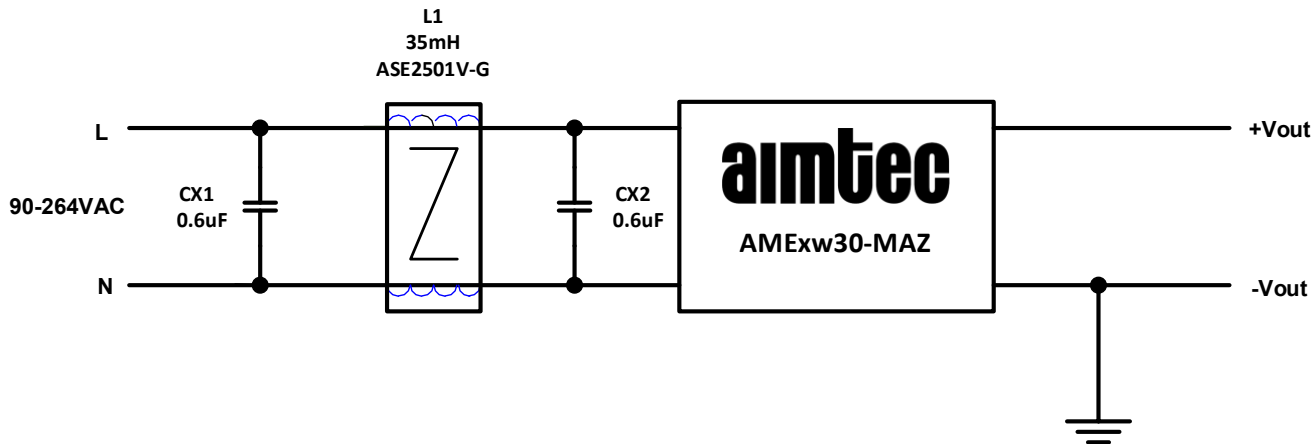


Dimensions mm (inch)  
Case Tolerance  $\pm 0.50$  ( $\pm 0.02$ )  
Pin Diameter  $1.30 \pm 0.05$  ( $0.05 \pm 0.002$ )  
Pin Pitch Tolerance  $\pm 0.35$  ( $\pm 0.014$ )  
Pin Length Tolerance  $\pm 2.00$  ( $\pm 0.079$ )

## Derating



**Earth/Ground Connection EMC EN55022 class B compliant Application circuit**



The Application circuit is EMC compliant for any type of Earth/Ground connection: Input Ground connection, Output Ground connection as shown or both sides, which is not recommended if the product Isolation is used as a Safety feature.

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