

## Series AMES30-MAZ

### 30 Watt | AC-DC / DC-DC Converter



#### FEATURES:

- Screw terminals on input/output
- Operating temperature: -40°C to +85°C
- Over load, Over voltage, Short circuit protection
- Universal Input: 90-264VAC, 47-440Hz, or 130-370VDC
- Energy star compliant
- 4000VAC I/O isolation
- Low ripple and noise
- CE, cULus, CB approvals

#### Models Single output



| Model          | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Output Voltage (V) | Output Current max (A) | Efficiency (%) |
|----------------|------------------------|---------------------|--------------------|------------------------|----------------|
| AMES30-3.3SMAZ | 90-264/47-440          | 130-370             | 3.3                | 6                      | 80             |
| AMES30-5SMAZ   | 90-264/47-440          | 130-370             | 5                  | 6                      | 83             |
| AMES30-12SMAZ  | 90-264/47-440          | 130-370             | 12                 | 2.5                    | 85             |
| AMES30-15SMAZ  | 90-264/47-440          | 130-370             | 15                 | 2                      | 85             |
| AMES30-24SMAZ  | 90-264/47-440          | 130-370             | 24                 | 1.25                   | 84             |

#### Models Dual output

| Model         | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Output Voltage (V) | Output Current max (A) | Efficiency (%) |
|---------------|------------------------|---------------------|--------------------|------------------------|----------------|
| AMES30-5DMAZ  | 90-264/47-440          | 130-370             | ±5                 | ±3                     | 81             |
| AMES30-12DMAZ | 90-264/47-440          | 130-370             | ±12                | ±1.25                  | 84             |
| AMES30-15DMAZ | 90-264/47-440          | 130-370             | ±15                | ±1                     | 83             |
| AMES30-24DMAZ | 90-264/47-440          | 130-370             | ±24                | ±0.625                 | 82             |

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     |       |
| Inrush current <2ms | 115 VAC                    |         | 25      | A     |
|                     | 230 VAC                    |         | 50      |       |
| Leakage current     |                            |         | 150     | µA    |
| External fuse       | Recommended slow blow type | 3.15    |         | A     |
| Input dissipation   | No load                    | ≤0.5    |         | W     |
| Start-up time       |                            | 117     |         | ms    |

#### Output Specifications

| Parameters                   | Conditions                                                      | Typical    | Maximum | Units     |
|------------------------------|-----------------------------------------------------------------|------------|---------|-----------|
| Voltage accuracy             |                                                                 | ±2         |         | %         |
| Line regulation              | (LL-HL)                                                         | ±0.5       |         | %         |
| 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         |         | %         |
| Maximum Capacitive load      | Depending of the model                                          | 470-23 000 |         | µF        |
| Transient response deviation | 25% load Step                                                   | ±2         |         | % of Vout |
| Ripple & Noise*              | 20MHz bandwidth                                                 | 50         |         | mV p-p    |
| Hold-up time (min)           | 115VAC                                                          | 29         |         | ms        |
| Minimum Load Current         |                                                                 | 0          |         | % of Max  |

\*Ripple & Noise measured with 0.1µF M/C and 1µF 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  | Auto recovery            | 110                                                                                                                                | 140     | %      |
| Over voltage protection  |                          | Zener diode clamp                                                                                                                  | 110     | %      |
| Short circuit protection |                          | Hiccup mode, indefinite                                                                                                            |         |        |
| Short Circuit restart    |                          | Auto recovery                                                                                                                      |         |        |
| Operating temperature    | With derating above 55°C | -40 - +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            |                          | Metal                                                                                                                              |         |        |
| Weight                   |                          | 270                                                                                                                                |         | g      |
| Dimensions (L x H x W)   |                          | 4.92 x 2.56 x 1.38 inch / 125.00 x 65.00 x 35.00 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)         |

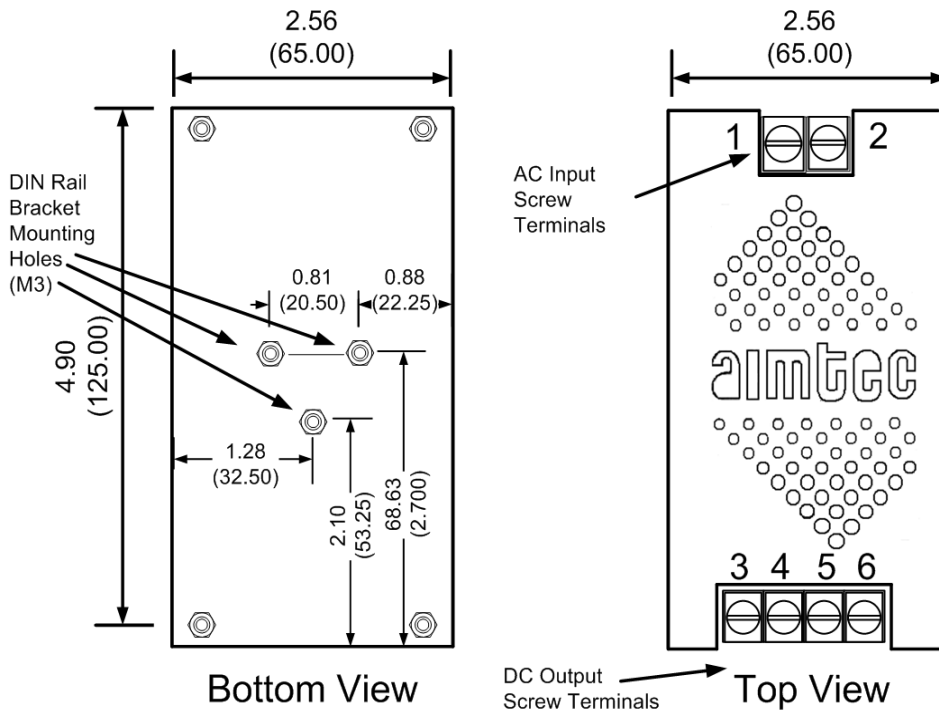
## Safety Specifications

| Parameters       |                                            |                                                      |
|------------------|--------------------------------------------|------------------------------------------------------|
| Agency approvals | cULus, CE, CB Scheme                       |                                                      |
| 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

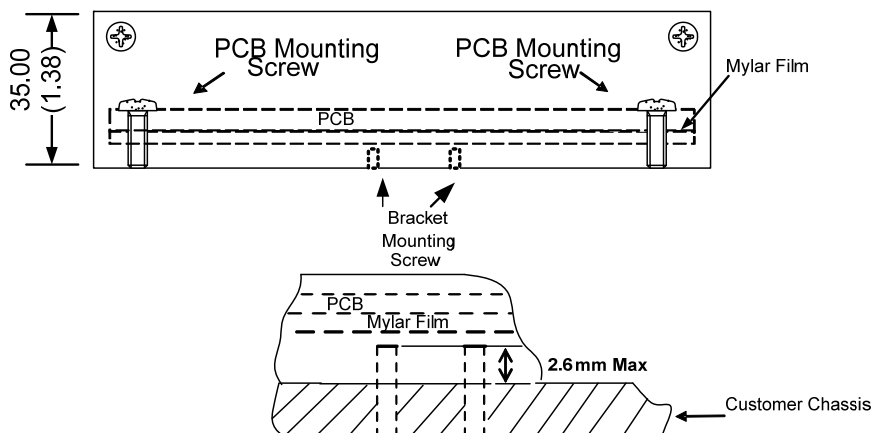
| Pin | Single       | Dual         |
|-----|--------------|--------------|
| 1   | AC Input (L) | AC Input (L) |
| 2   | AC Input (N) | AC Input (N) |
| 3   | +V Output    | +V Output    |
| 4   | -V Output    | Common       |
| 5   | N.C.         | Common       |
| 6   | N.C.         | -V Output    |

## Dimensions

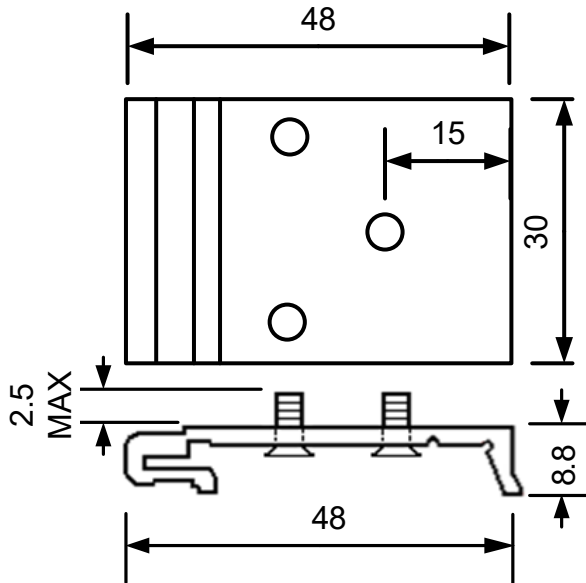


Dimensions: inch (mm)  
Case Tolerance:  $\pm 0.05$  ( $\pm 1.30$ )

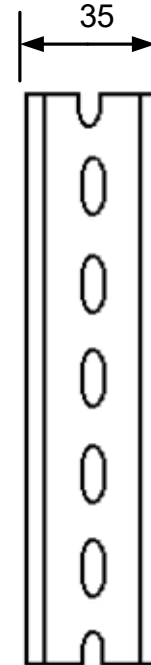
## Side View



### Optional DIN Rail Bracket

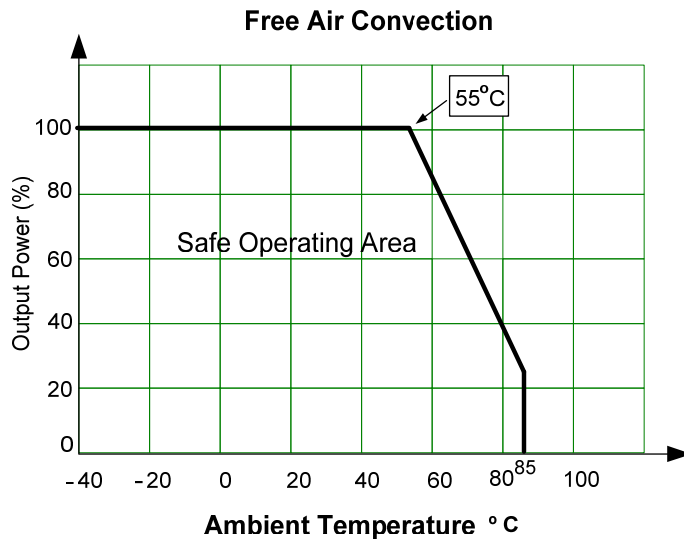


To order optional DIN rail bracket kit specify part number DRB01 when placing order

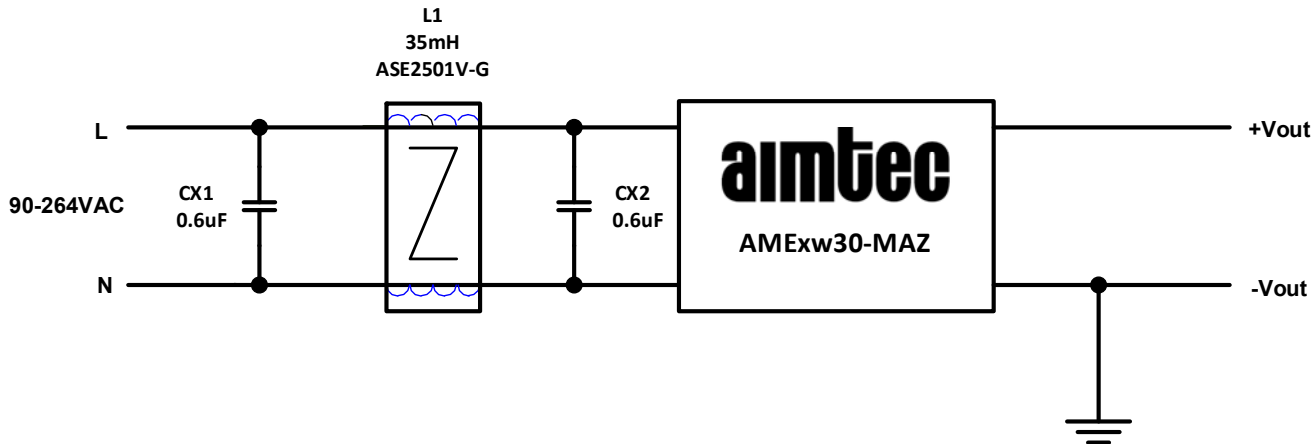


Optional DIN Rail Bracket compatible with DIN Rail TS35/7.5

### 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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