

Series AMES40-MAZ

40 Watt | AC-DC / DC-DC Converter



FEATURES:

- Screw terminals on the 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 (%) |
|----------------|------------------------|---------------------|--------------------|------------------------|----------------|
| AMES40-3.3SMAZ | 90-264/47-440 | 130-370 | 3.3 | 8 | 78 |
| AMES40-5SMAZ | 90-264/47-440 | 130-370 | 5 | 8 | 82 |
| AMES40-12SMAZ | 90-264/47-440 | 130-370 | 12 | 3.33 | 84 |
| AMES40-15SMAZ | 90-264/47-440 | 130-370 | 15 | 2.66 | 83 |
| AMES40-24SMAZ | 90-264/47-440 | 130-370 | 24 | 1.66 | 82 |

Models Dual output

| Model | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Output Voltage (V) | Output Current max (A) | Efficiency (%) |
|---------------|------------------------|---------------------|--------------------|------------------------|----------------|
| AMES40-5DMAZ | 90-264/47-440 | 130-370 | ±5 | ±4 | 80 |
| AMES40-12DMAZ | 90-264/47-440 | 130-370 | ±12 | ±1.66 | 85 |
| AMES40-15DMAZ | 90-264/47-440 | 130-370 | ±15 | ±1.33 | 82 |
| AMES40-24DMAZ | 90-264/47-440 | 130-370 | ±24 | ±0.835 | 77 |

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 | | 1000 | mA |
| | 230 VAC | | 530 | |
| 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 st out, 100% load - 2 nd 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 50°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 inches | 125.00 x 65.00 x 35.00mm, | |
| MTBF | | > 800,000 hrs (MIL-HDBK -217F, t=+25 °C)/Full Load > 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

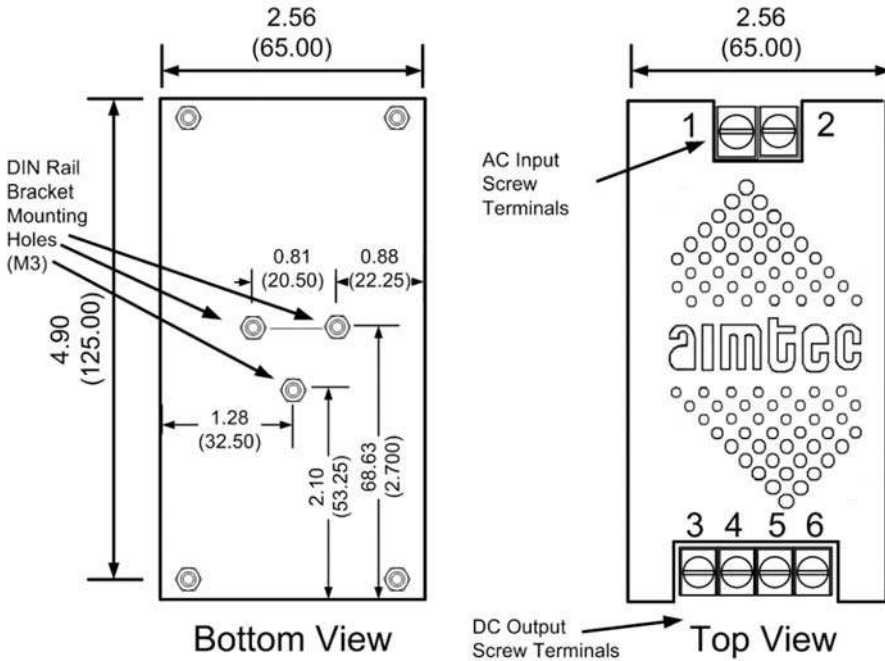
| Parameters | | |
|--|--|---|
| Agency approvals | cULus, CE, CB | |
| Standards | Medical Electrical Equipment | IEC\ENUL 60601-1, 2 x MOOP, CSA-C22.2 No. 601.1-M90 |
| | Information technology Equipment | EN 60950-1:2006+A11:2009 |
| | EMI - Conducted and radiated emission | EN55011, class B |
| | 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 |

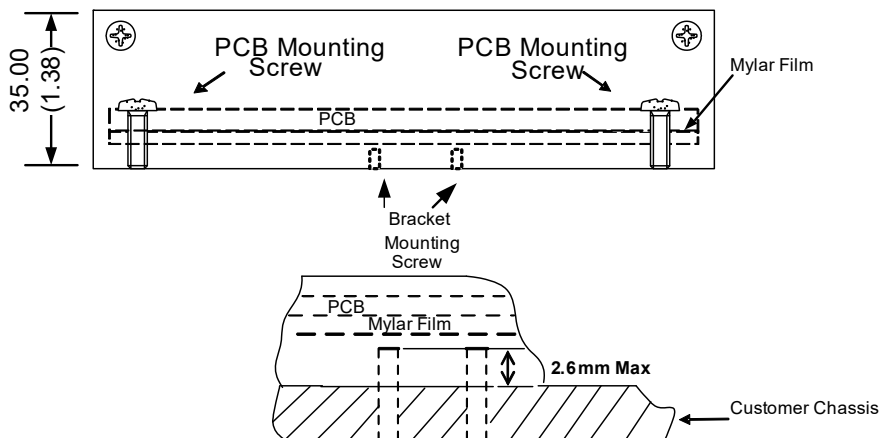
N.C.: Not Connected

Dimensions

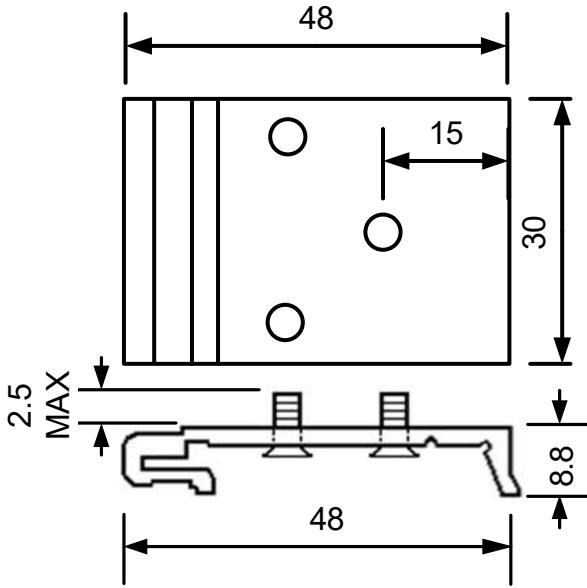


Dimensions: inch (mm)
Case Tolerance: ± 0.05 (± 1.30)

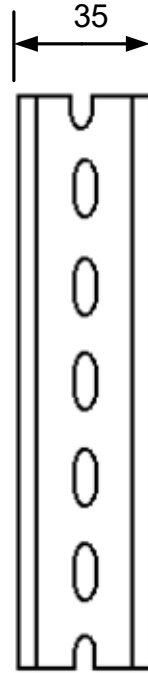
Side View



Optional DIN Rail Bracket

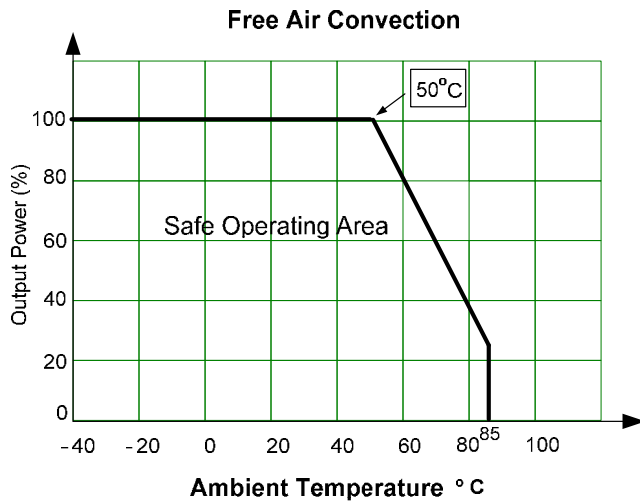


To order optional DIN rail bracket kit specify part number DRB01 when placing order

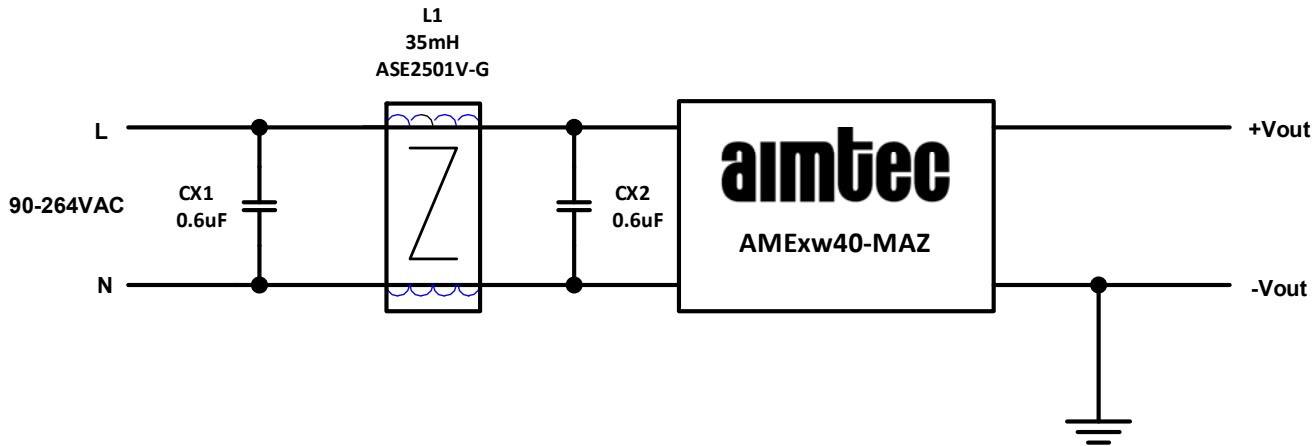


Optional DIN Rail Bracket compatible with DIN Rail TS35/7.5

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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