



AME15-277PEVZ



The AME15-277PEVZ is a whole new AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 85-305VAC and an output voltage range from 3.3-24V, this series will offer many benefits to your new system design.

This new series offers great operating temperatures from -40°C to 85°C, also features an isolation of 4200VAC for improved reliability and system safety. Furthermore, a higher MTBF of 500,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

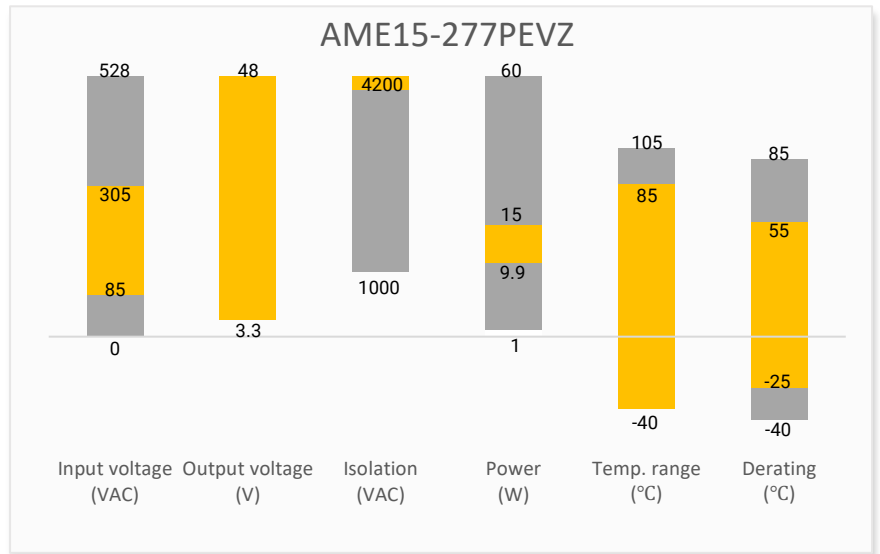
The AME15-277PEVZ is perfect for street lighting controls, grid power, EVSE, industrial controls, UPS, battery storage system and energy management applications.

Features



- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4200VAC
- Low ripple & noise, 50mV(p-p), typ.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

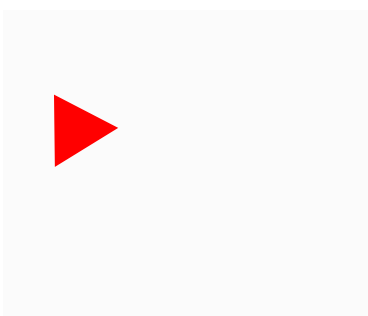
Summary



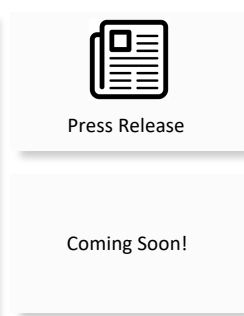
Training



Applications



Product Training Video
(click to open)



Application Notes



Power Grid



Industrial



Telecom



Instrumentation

Models & Specifications

| Single Output | | | | | | | |
|------------------|------------------------|---------------------|------------------------|--------------------|------------------------|------------------------------------|-------------------------|
| Model | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Max Output wattage (W) | Output Voltage (V) | Output Current max (A) | Maximum capacitive load (μ F) | Efficiency @ 230VAC (%) |
| AME15-3S277PEVZ | 85-305/47-63 | 100-430 | 9.9 | 3.3 | 3 | 30000 | 77 |
| AME15-5S277PEVZ | 85-305/47-63 | 100-430 | 14 | 5 | 2.8 | 16000 | 79 |
| AME15-9S277PEVZ | 85-305/47-63 | 100-430 | 15 | 9 | 1.67 | 5500 | 78 |
| AME15-12S277PEVZ | 85-305/47-63 | 100-430 | 15 | 12 | 1.25 | 4500 | 82 |
| AME15-15S277PEVZ | 85-305/47-63 | 100-430 | 15 | 15 | 1 | 4000 | 82 |
| AME15-24S277PEVZ | 85-305/47-63 | 100-430 | 15 | 24 | 0.625 | 800 | 83 |
| AME15-48S277PEVZ | 85-305/47-63 | 100-430 | 15 | 48 | 0.32 | 400 | 85 |

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME15-3S277PEVZ-ST is chassis mounting and AME15-3S277PEVZ-STD is DIN-Rail mounting version).

| Input Specifications | | | | | |
|----------------------|---------------------|---------|---------|---------|---------------------|
| Parameters | Conditions | Minimum | Typical | Maximum | Units |
| Current | 115VAC | | | 0.37 | A |
| | 230VAC | | | 0.22 | A |
| Inrush current | 115VAC | | 16 | | A |
| | 230VAC | | 30 | | A |
| Leakage current | 270V/50Hz | | | 0.25 | mA _(RMS) |
| External fuse | slow blow type,300V | | 2 | | A |

| Output Specifications | | | | |
|-----------------------|-----------------|-----------|---------|-------------------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | 3.3V output | \pm 3 | | % |
| | Others | \pm 2 | | % |
| Line regulation | Full load | \pm 0.5 | | % |
| Load regulation | 0-100% load | \pm 1 | | % |
| Ripple & Noise* | 20MHz bandwidth | 50 | 100 | mV _{p-p} |
| Hold up time | 115VAC | 5 | | ms |
| | 230VAC | 40 | | ms |

* Ripple and Noise are measured at 20MHz bandwidth by using the referenced Application circuit.

| Isolation Specifications | | | | |
|----------------------------|-------------------------------|---------|-------|-------|
| Parameters | Conditions | Typical | Rated | Units |
| Tested I/O voltage | 60 sec, leakage current < 5mA | | 4200 | VAC |
| Tested Input to PE voltage | 60 sec, leakage current < 5mA | | 2500 | VAC |

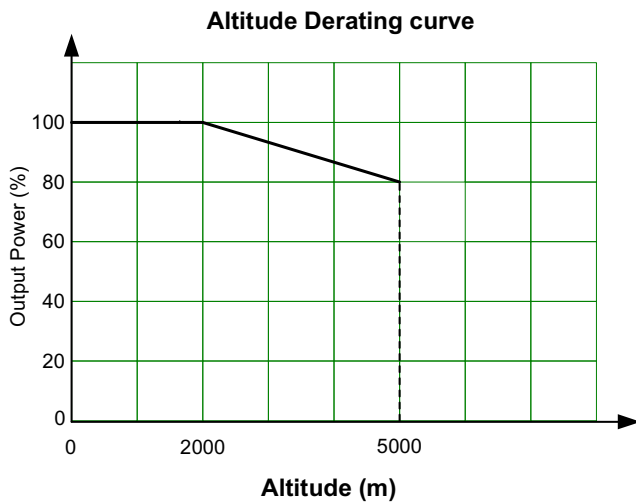
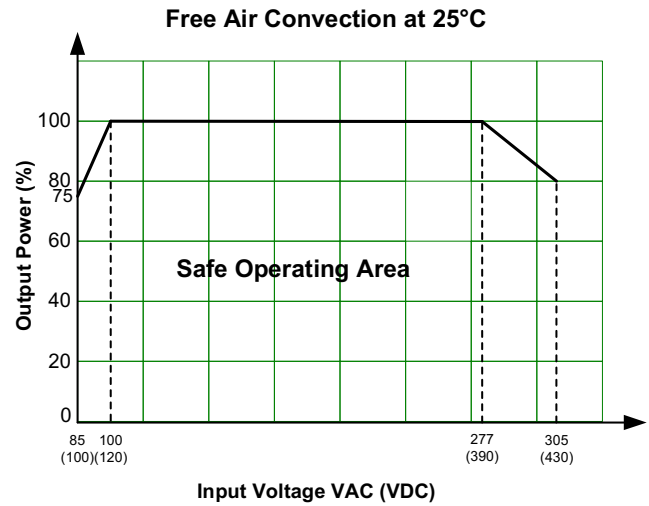
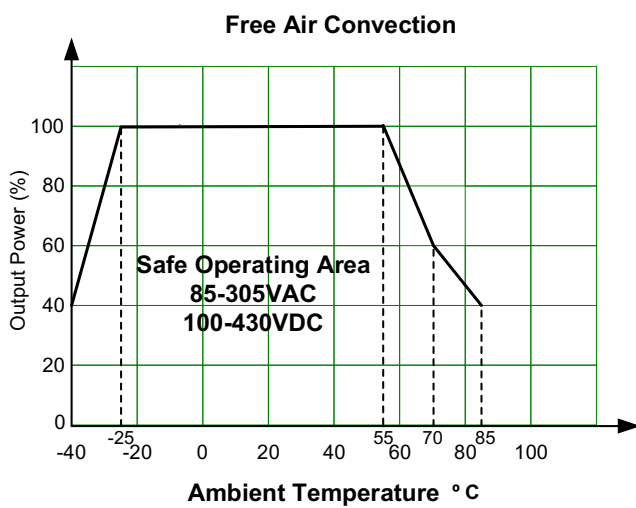
Preliminary

| | | | | |
|---|---|--|-------|-----|
| Tested Output to PE voltage | 60 sec, leakage current < 5mA | | 1250 | VAC |
| Impulse voltage (I/O, Input/PE, Output/PE) | Apply 6kV impulse test voltage. Add 1.2/50us impact waveform, including three positive impulse and three negative impulse, whose time interval is no less than 5 seconds. | | 6000 | V |
| Insulation resistance (I/O, Input/PE, Output/PE) | 500VDC | | ≥ 100 | MΩ |

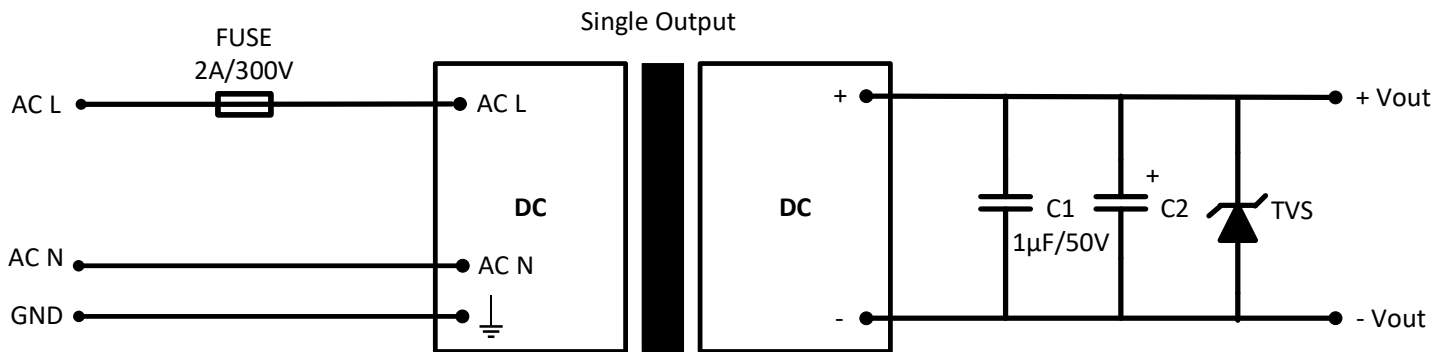
| General Specifications | | | | |
|---|---|--|---------|-----------------------|
| Parameters | Conditions | Typical | Maximum | Units |
| Safety class | Class I | | | |
| Overvoltage category | OVC III; Per IEC 62477, 2000m | | | |
| Switching frequency | | 65 | | KHz |
| Over Current protection | Auto recovery | ≥ 150 | | % of I _{out} |
| Over voltage protection | 3.3V / 5V Vout | | 7.5 | VDC |
| | 9V Vout | | 15 | VDC |
| | 12V /15V Vout | | 20 | VDC |
| | 24V Vout | | 30 | VDC |
| | 48V Vout | | 60 | VDC |
| Short circuit protection | Hiccup, Continuous, Auto recovery | | | |
| Operating temperature | See derating graph | -40 to +85 | | °C |
| Storage temperature | | -40 to +105 | | °C |
| Lead temperature | Wave soldering | 260 ± 5 °C; time : 5 - 10s | | |
| | Hand soldering | 360 ± 10 °C; time : 3 - 5s | | |
| Power consumption | 230VAC, Others | | 0.3 | W |
| | 230VAC, 48V Vout | | 0.5 | W |
| Power derating | -40 °C ~ -25 °C | 4 | | % / °C |
| | 55 °C ~ 70 °C | 2.67 | | % / °C |
| | 70 °C ~ 85 °C | 1.33 | | % / °C |
| | 85VAC ~ 100VAC | 1.67 | | % / VAC |
| | 277VAC ~ 305VAC | 0.72 | | % / VAC |
| | 2000m – 5000m | 6.67 | | % / Km |
| Temperature coefficient | | ±0.02 | | % / °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Weight | PCB mountable models | | 95 | g |
| | With optional -ST mounting plate: | | 140 | |
| | With optional -STD mounting plate: | | 180 | |
| Dimensions (L x W x H) | PCB mountable models | 2.44 x 1.77 x 0.89 inches (62.0 x 45.0 x 22.5mm) | | |
| | With optional -ST mounting plate | 3.78 x 2.13 x 1.22 inches (96.1 x 54.0 x 31.0mm) | | |
| | With optional -STD mounting plate | 3.78 x 2.13 x 1.40 inches (96.1 x 54.0 x 35.6mm) | | |
| MTBF | > 500 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load | | | |
| 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. | | | | |

| Safety Specifications | | |
|--|--|---|
| Parameters | | |
| Standards | Information technology Equipment | Designed to meet IEC/EN/UL 62368-1, IEC 62477 |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact $\pm 8\text{KV}$ / Air $\pm 15\text{KV}$, Criteria A |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 $\pm 4\text{KV}$, Criteria A |
| | Surge Immunity | IEC 61000-4-5 L-L $\pm 2\text{KV}$ /L-G $\pm 4\text{KV}$, Criteria A |
| | | IEC 61000-4-5 L-L $\pm 4\text{KV}$ /L-G $\pm 6\text{KV}$, with EMC recommended circuit, Criteria A |
| | CS, Conducted Disturbance Immunity | IEC 61000-4-6 10Vr.m.s, Criteria A |
| | PFMF, Power Frequency Magnetic Field | IEC 61000-4-8 10A/m, Criteria A |
| Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria B | |

Derating



Typical Application Circuit

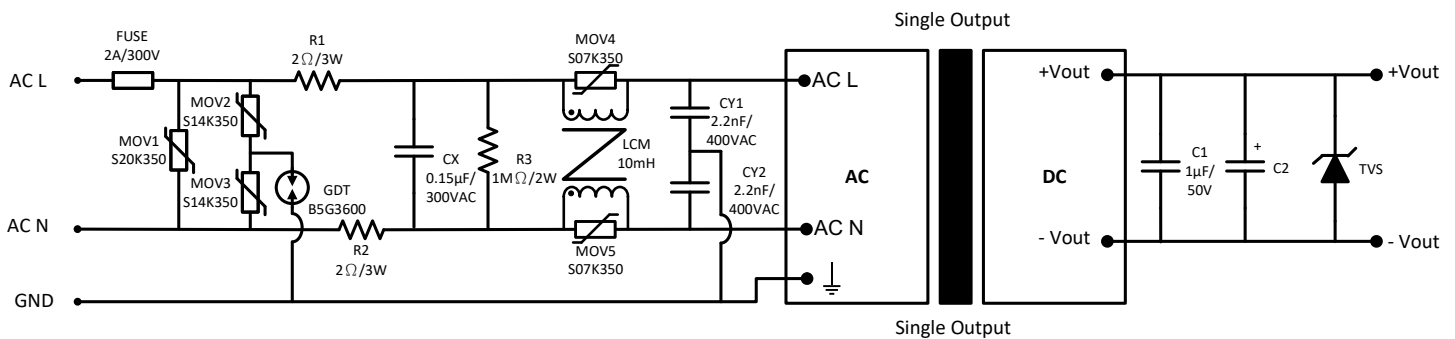


| Model | C2 | TVS |
|---------------|-------------------|----------|
| 3.3 / 5V Vout | 680 μ F / 25V | SMBJ7.0A |
| 9 Vout | 470 μ F / 25V | SMBJ12A |
| 12 / 15 Vout | 220 μ F / 25V | SMBJ20A |
| 24 Vout | 68 μ F / 35V | SMBJ30A |
| 48 Vout | 33 μ F / 63V | SMBJ64A |

Output Filter Components:

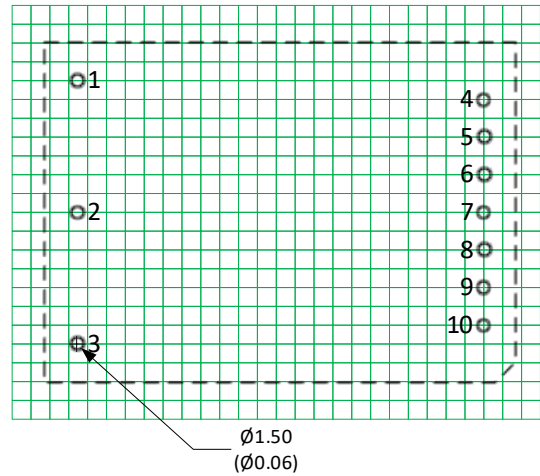
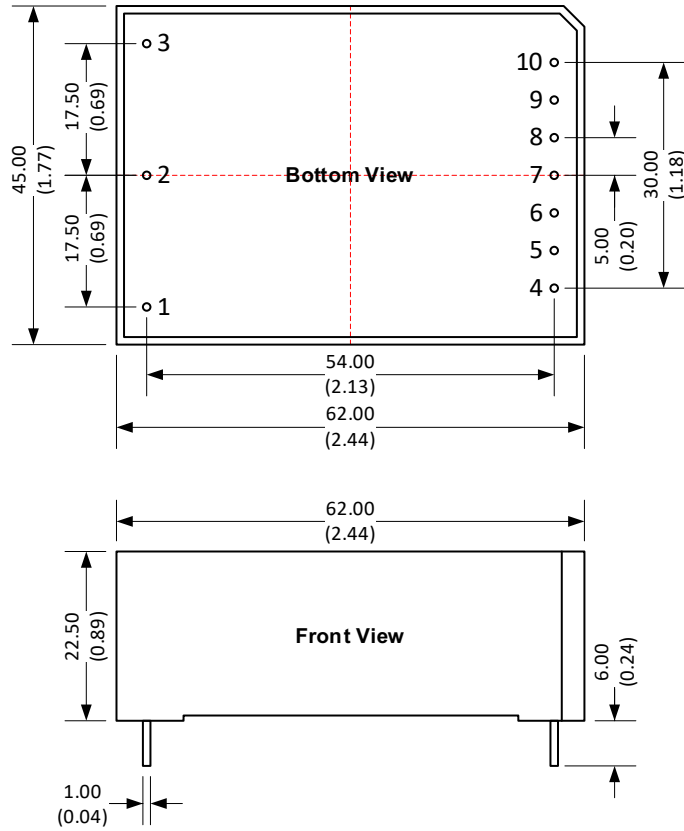
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

EMC Recommended Circuit



NOTE: R1 & R2 should be wire-wound resistors

Dimensions

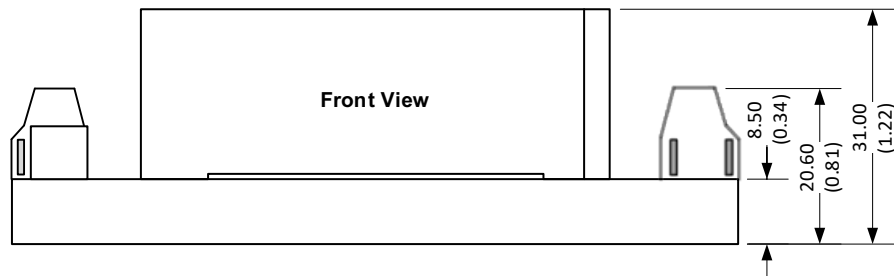
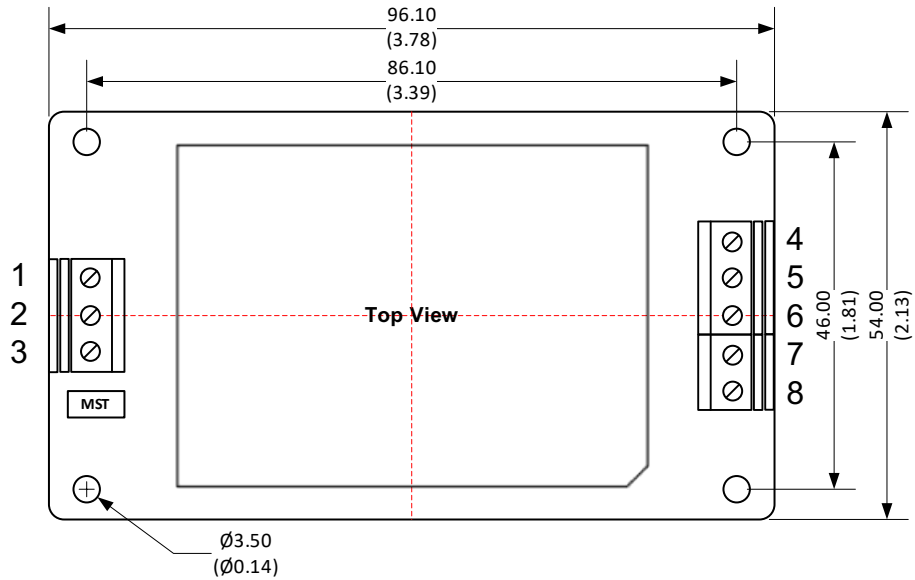


Note : Grid 2.54*2.54 mm

Notes:
All dimensions are typical in millimeters (inches).
Pin diameter tolerances : ± 0.10 (± 0.004)
General tolerance : ± 0.50 (± 0.02)

| Pin Output Specifications | | | |
|---------------------------|--------------|-----|-----------|
| Pin | Single | Pin | Single |
| 1 | Ground | 6 | No pin |
| 2 | AC Input (N) | 7 | No pin |
| 3 | AC Input (L) | 8 | No pin |
| 4 | No pin | 9 | +V Output |
| 5 | -V Output | 10 | No pin |

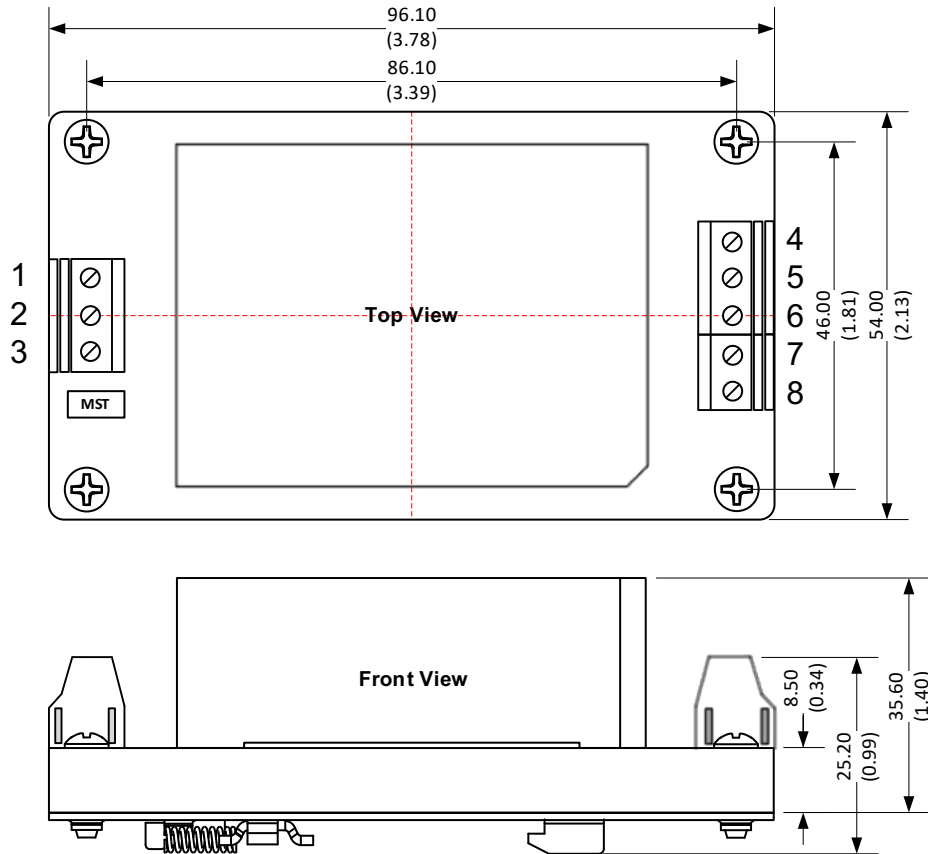
Dimensions with ST Optional



Notes:
 All dimensions are typical in millimeters (inches).
 Wire range : 24-12 AWG
 Tightening torque : Max 0.4 N.m
 General tolerance ± 1.00 : (± 0.04)

| Pin Output Specifications | | | |
|---------------------------|--------------|-----|-----------|
| Pin | Single | Pin | Single |
| 1 | Ground | 5 | NC |
| 2 | AC Input (N) | 6 | NC |
| 3 | AC Input (L) | 7 | NC |
| 4 | -V Output | 8 | +V Output |

Dimensions with STD Optional



Notes:

- All dimensions are typical in millimeters (inches).
- Mounting rail : TS35, rail need to connect safety ground
- Wire range : 24-12 AWG
- Tightening torque : Max 0.4 N.m
- General tolerance ± 1.00 : (± 0.04)

| Pin Output Specifications | | | |
|---------------------------|--------------|-----|-----------|
| Pin | Single | Pin | Single |
| 1 | Ground | 5 | NC |
| 2 | AC Input (N) | 6 | NC |
| 3 | AC Input (L) | 7 | NC |
| 4 | -V Output | 8 | +V Output |

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