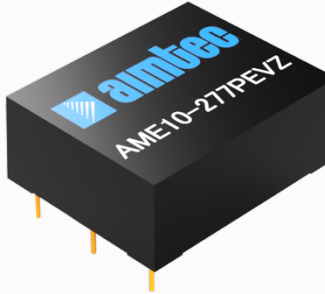


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AME10-277PEVZ



Encapsulated

The AME10-277PEVZ 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 series offers great operating temperatures from -40°C to 85°C, and also features an isolation of 4200VAC for improved reliability and system safety. Furthermore, a high 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.

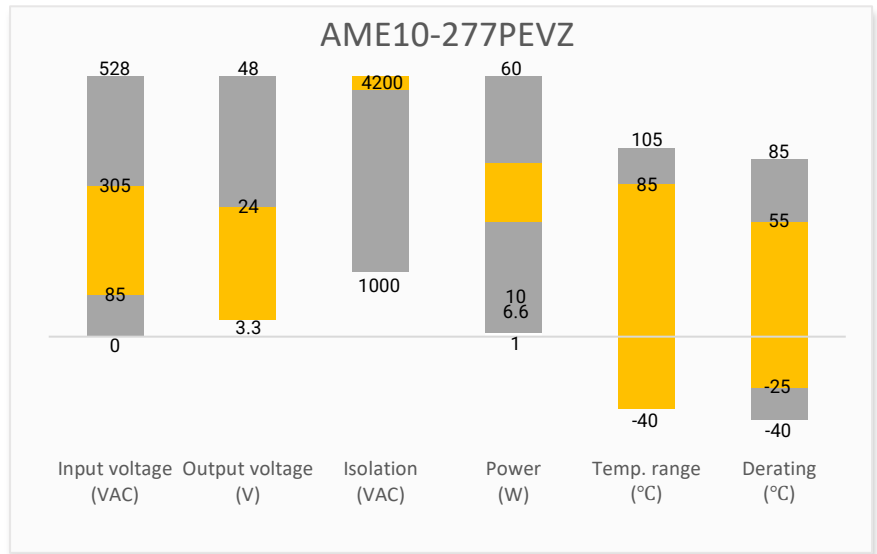
The AME10-277PEVZ is suitable for street lighting controls, grid power, EVSE, industrial controls, UPS, battery storage systems & energy management applications.

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



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Power Grid



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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 ( $\mu$ F) | Efficiency @ 230VAC (%) |
| AME10-3S277PEVZ   | 85-305/47-63           | 100-430             | 6.6                    | 3.3                | 2                      | 26000                              | 70                      |
| AME10-5S277PEVZ   | 85-305/47-63           | 100-430             | 10                     | 5                  | 2                      | 9800                               | 76                      |
| AME10-9S277PEVZ ✱ | 85-305/47-63           | 100-430             | 10                     | 9                  | 1.1                    | 3600                               | 78                      |
| AME10-12S277PEVZ  | 85-305/47-63           | 100-430             | 10                     | 12                 | 0.9                    | 2400                               | 80                      |
| AME10-15S277PEVZ  | 85-305/47-63           | 100-430             | 10                     | 15                 | 0.7                    | 1200                               | 81                      |
| AME10-24S277PEVZ  | 85-305/47-63           | 100-430             | 10                     | 24                 | 0.45                   | 400                                | 82                      |

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME10-3S277PEVZ-ST is chassis mounting and AME10-3S277PEVZ-STD is DIN-Rail mounting version).

| Input Specifications |                     |         |         |         |          |
|----------------------|---------------------|---------|---------|---------|----------|
| Parameters           | Conditions          | Minimum | Typical | Maximum | Units    |
| Current              | 115VAC              |         |         | 0.26    | A        |
|                      | 230VAC              |         |         | 0.16    | A        |
| Inrush current       | 115VAC              |         | 13      |         | A        |
|                      | 230VAC              |         | 26      |         | 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 <sub>p-p</sub> |
| Hold up time          | 115VAC          | 8         |         | ms                |
|                       | 230VAC          | 65        |         | 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   |
| 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    |

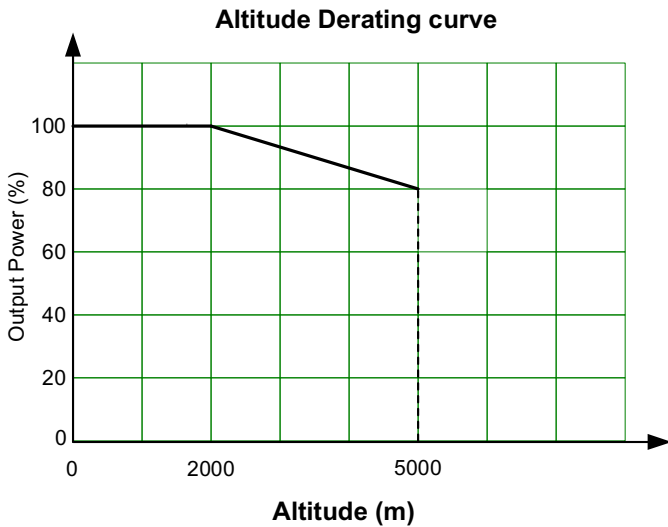
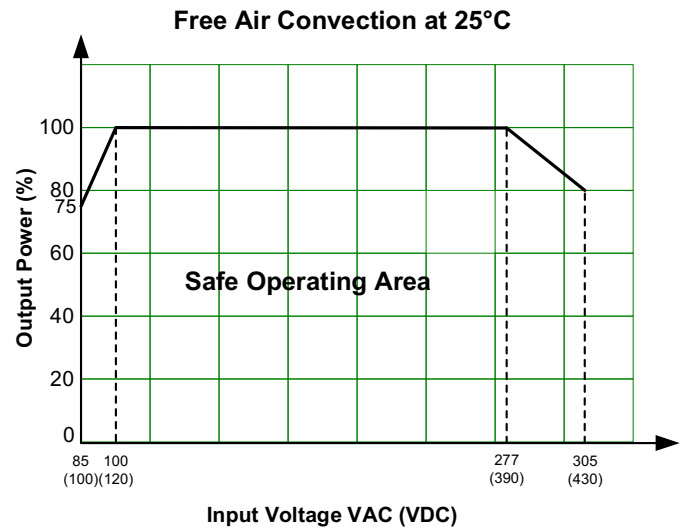
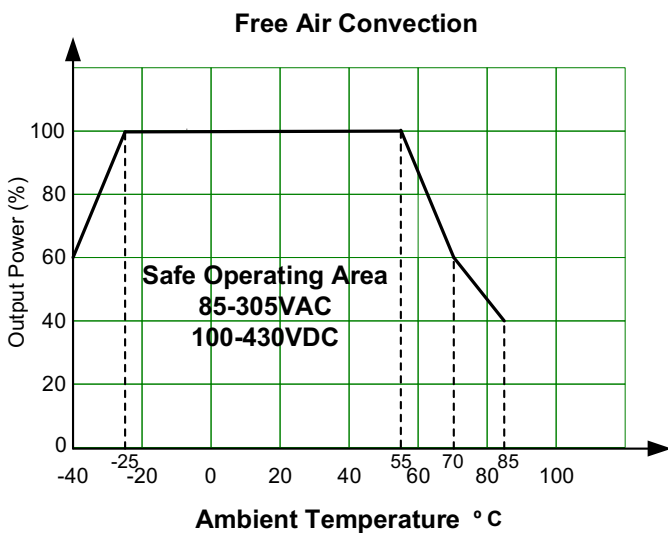
| General Specifications  |   |  |         |                       |
|---|---|--|---------|-----------------------|
| Parameters  | Conditions  | Typical  | Maximum | Units                 |
| Safety class  | Class I   |  |         |                       |
| Overvoltage category  | OVC III; Per IEC 62477, 2000m                           |  |         |                       |
| Switching frequency   |   | 65   |         | KHz                   |
| Over Current protection   | Auto recovery   | ≥ 150  |         | % of I <sub>out</sub> |
| Over voltage protection   | 3.3V / 5V Vout  |  | 7.5     | VDC                   |
|   | 9V Vout   |  | 15      | VDC                   |
|   | 12V /15V Vout   |  | 20      | VDC                   |
|   | 24V Vout  |  | 30      | 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; Duration: 5 - 10s                    |         |                       |
|   | Hand soldering  | 360 ± 10 °C; Duration: 3 - 5s                    |         |                       |
| Power consumption   |   |  | 0.3     | W                     |
| Power derating  | -40 °C ~ -25 °C   | 2.67   |         | % / °C                |
|   | 55 °C ~ 70 °C   | 2.67   |         | % / °C                |
|   | 70 °C ~ 85 °C   | 1.33   |         | % / °C                |
|   | 85VAC ~ 100VAC  | 1.67   |         | % / VAC               |
|   | 277VAC ~ 305VAC   | 0.71   |         | % / 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                                    | 75   |         | g                     |
|   | With optional -ST mounting plate:                       | 125  |         |                       |
|   | With optional -STD mounting plate:                      | 165  |         |                       |
| Dimensions (L x W x H)  | PCB mountable models                                    | 2.17 x 1.77 x 0.83 inches (55.0 x 45.0 x 21.0mm) |         |                       |
|   | With optional -ST mounting plate                        | 3.78 x 2.13 x 1.16 inches (96.1 x 54.0 x 29.5mm) |         |                       |
|   | With optional -STD mounting plate                       | 3.78 x 2.13 x 1.34 inches (96.1 x 54.0 x 34.1mm) |         |                       |
| 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

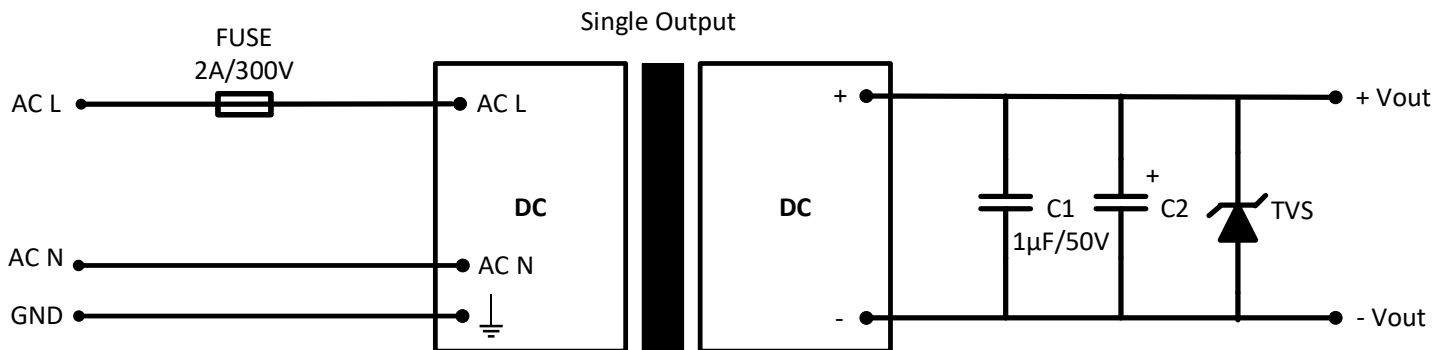
### Parameters

|  |   |   |
|--|---|---|
| Agency approvals                           | CE EN62368-1; cULus UL 62368-1 (With exception of models marked with ✖) |   |
| Standards                                  | Information technology Equipment  | Designed to meet IEC/UL 62368-1, IEC 62477-1  |
|  | 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 |
|  | RF, Conducted Disturbance Immunity                                      | IEC 61000-4-6 10Vr.m.s, Criteria A  |
| Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria B                                      |   |

## Derating



## Typical Application Circuit

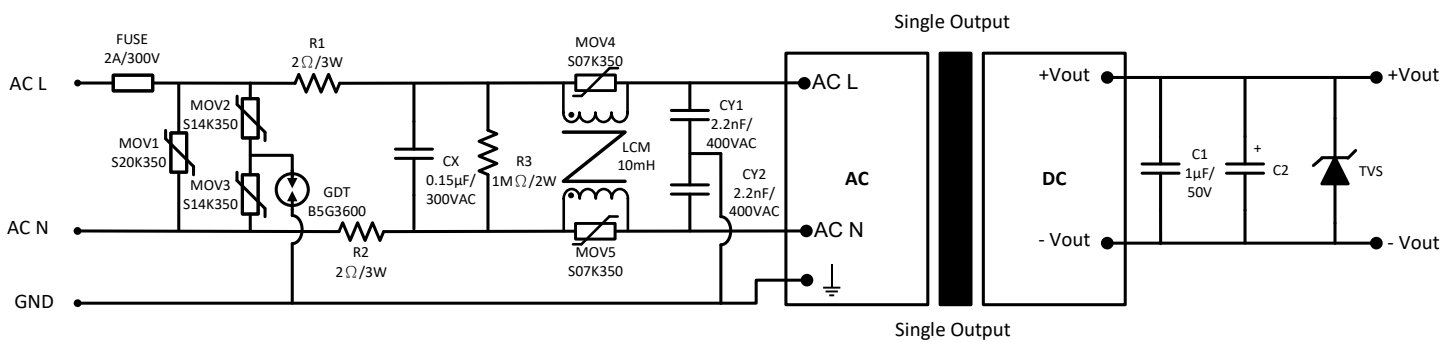


| Model        | C2                | TVS      |
|--------------|-------------------|----------|
| 3.3 Vout     | 470 $\mu$ F / 16V | SMBJ7.0A |
| 5 Vout       | 330 $\mu$ F / 16V | SMBJ7.0A |
| 9 Vout       | 120 $\mu$ F / 35V | SMBJ12A  |
| 12 / 15 Vout | 120 $\mu$ F / 35V | SMBJ20A  |
| 24 Vout      | 68 $\mu$ F / 35V  | SMBJ30A  |

### Output Filter Components:

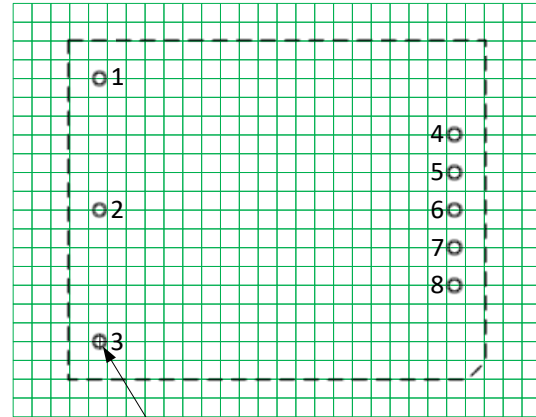
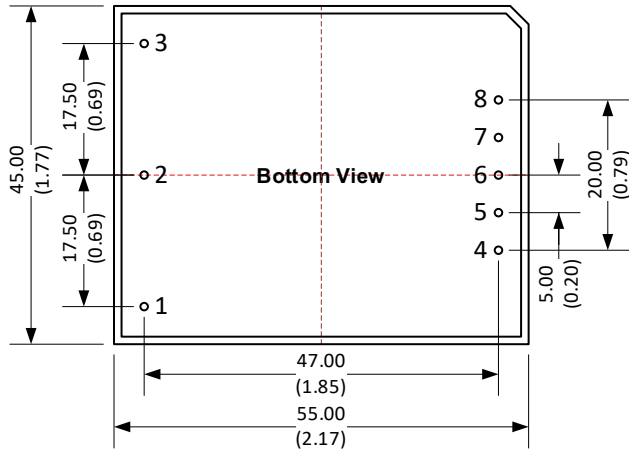
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

## EMC Recommended Circuit

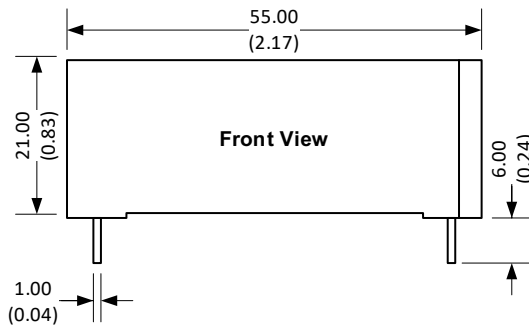


NOTE: R1 & R2 should be wire-wound resistors

## Dimensions



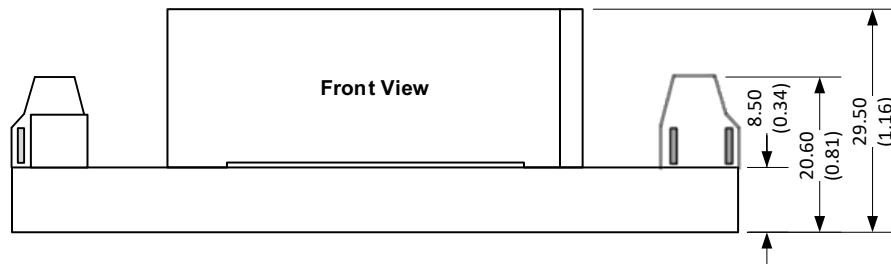
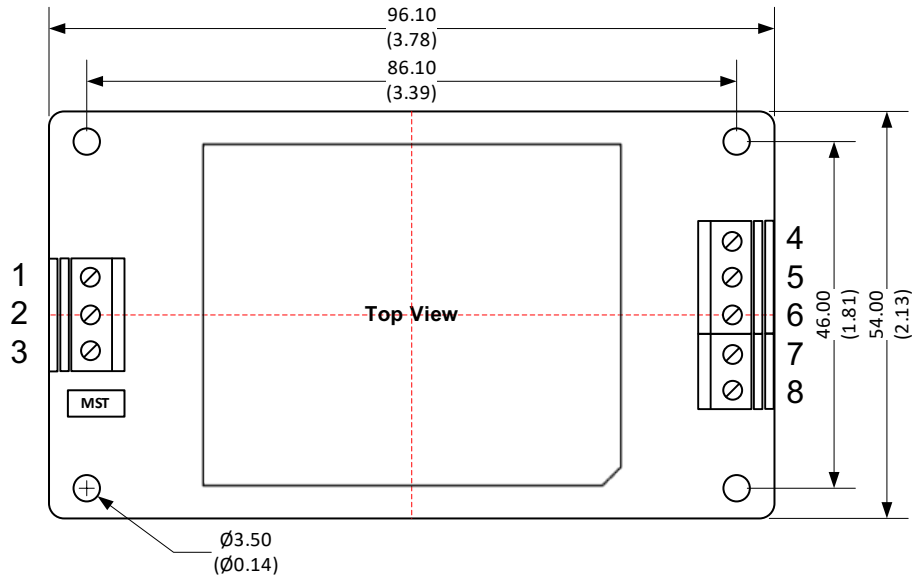
Note : Grid 2.54\*2.54 mm



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

| 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 |

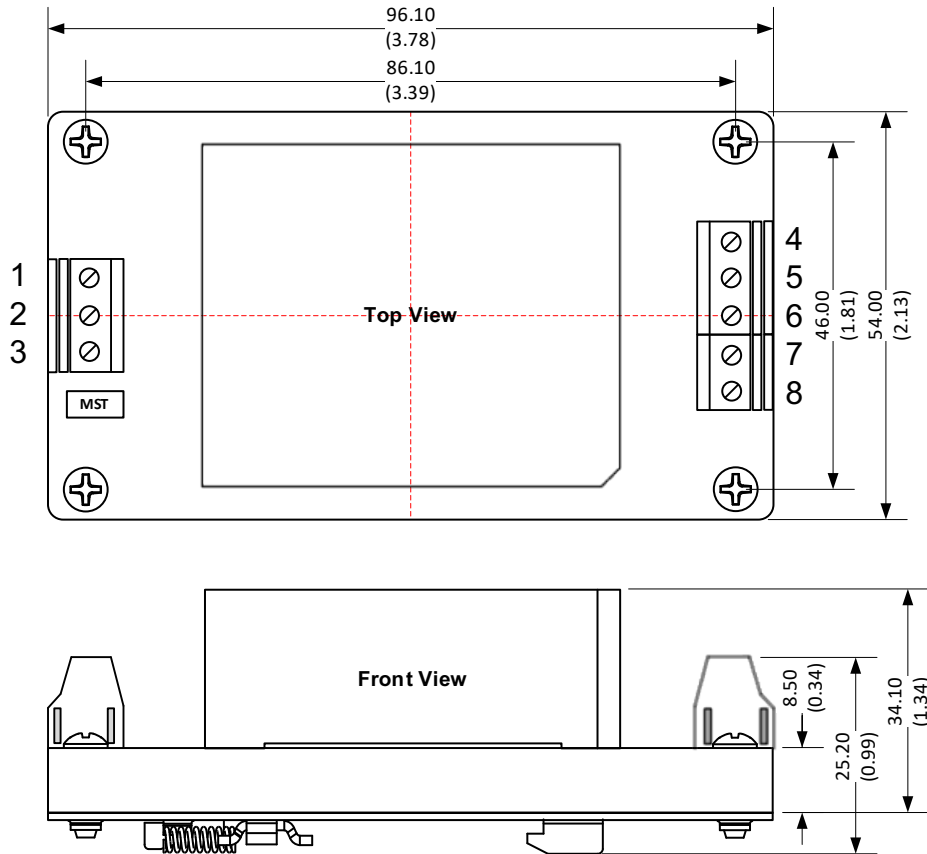
## Dimensions with ST Optional



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

| 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  $\pm 1.00$  : ( $\pm 0.04$ )

| 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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