# ARTESYN ERM50 SERIES

50 Watts




Advanced Energy's Artesyn ERM50 series high performance 50 watt isolated DC-DC converter modules are designed specifically for railway applications. The high input versions feature a 66 to 160 Vdc input that complies with the European EN50155 standard for electronic equipment used on railway rolling stock. There is a choice of four single output models, offering voltages of 5 V, 12 V, 15 V or 24 V.

DATA SHEET

**Total Power:**

50 W

**Input Voltage:**

72 or 110 V

**# of Outputs:**

Single

RoHS 6/6 COMPLIANT

## SPECIAL FEATURES

- Small 57.9 x 36.8 x12.7 mm package
- Input ranges 43 - 101 Vdc or 66 - 160 Vdc
- High efficiency up to 92%
- No minimum load requirement
- Operating temperature range -40 °C to +85 °C
- Reinforced insulation 3000 VAC rms
- Undervoltage shutdown
- Remote On/Off
- Metal case with isolated baseplate
- Vibration and thermal shock to EN61373
- Safety meets EN60950-1 and Railway Standard EN50155 (IEC60571) and EN50121-3-2
- EN45545-2 flammability

## SAFETY

- UL/cUL/IEC/EN 62368-1 (60950-1) Safety Approval & CE Marking

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## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Input** | |
| Input range | 43 - 101 Vdc; 66 - 160 Vdc |
| Efficiency | 92% @ 12 Vo |
| **Output** | |
| Voltage tolerance | ±1.0% |
| Line regulation | ±0.2% |
| Load regulation | ±0.3% |
| Noise/ripple | 24 V model: 150 mV, other models: 100 mV |
| Overload protection | 150% typ of Io max, hiccup |
| Short circuit protection | Hiccup mode |
| Switching frequency | 320 KHz |
| **Isolation** | |
| I/O isolation | Reinforced insulation, 3000 Vac rms; I/Case. O/Case: 1500 Vdc |
| Insulation resistance | 1000 Mohm |
| Insulation capacitance | 3000 pF |

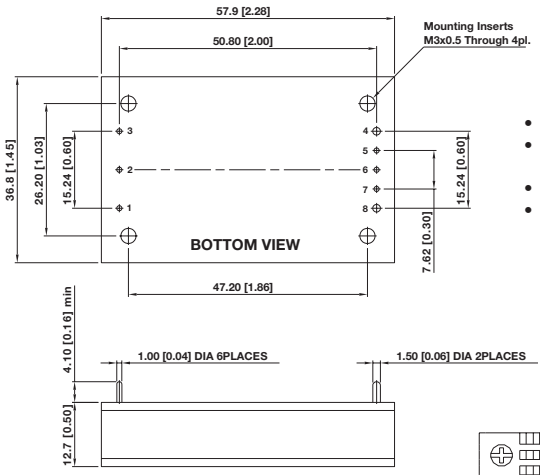
## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| **Operating ambient temperature range** | -40 °C to +85 °C |
| **Storage temperature** | -55 °C to +125 °C |
| **Humidity** | 5% to 95% non-condensing |
| **MTBF** | 472 Khrs calculated |

## ORDERING INFORMATION

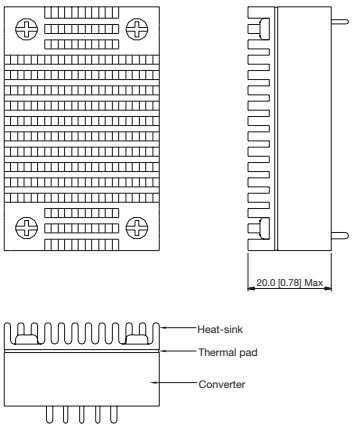
| Input Voltage | Output | Efficiency @ Max Load | Max Power | Model Number |
|---|---|---|---|---|
| 43 - 101 V | 5 V @ 10 A | 90% | 50 W | **ERM10A72** |
| 43 - 101 V | 12 V @ 4.17 A | 92% | 50 W | **ERM04B72** |
| 43 - 101 V | 15 V @ 3.33 A | 92% | 50 W | **ERM03C72** |
| 43 - 101 V | 24 V @ 2.08A | 91% | 50 W | **ERM02H72** |
| 66 - 160 V | 5 V @ 10 A | 90% | 50 W | **ERM10A110** |
| 66 - 160 V | 12 V @ 4.17 A | 91% | 50 W | **ERM04B110** |
| 66 - 160 V | 15 V @ 3.33 A | 92% | 50 W | **ERM03C110** |
| 66 - 160 V | 24 V @ 2.08 A | 91% | 50 W | **ERM02H110** |

## MECHANICAL DIMENSIONS




- All dimensions in mm (inches)
- Tolerance: X.X±0.5 (X.XX±0.02) X.XX±0.25 ( X.XXX±0.01)
- Pin diameter Ø 1.0 ±0.05 (0.04±0.002)
- Pin diameter Ø 1.5 ±0.05 (0.06±0.002)

**Heatsink Option**




| Pin Connections | |
|---|---|
| Pin | Function |
| 1 | +Vin |
| 2 | Remote On/Off |
| 3 | -Vin |
| 4 | -Vout |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +Vout |

## ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

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