

Isolated 110Vdc/12Vdc Converter

110V, 96V or 72Vdc Nominal Input

12Vdc Output, 240W

P/N: AX083301

Isolated and rugged 12 Vdc power for battery powered electronic control systems on rail equipment

Features:

- 110V, 96V or 72Vdc nominal input
- Wide input voltage range (48V to 137V)
- 12Vdc, 240 Watt output
- Isolated
- Typical efficiency of 92%
- Input inrush current limit
- Thermal protection for over temperature
- Reverse battery, over and under-voltage protection
- Short circuit and overcurrent protection
- -40 to 75°C (-40 to 167°F) operating temperature
- 1 6-pin connector (Molex P/N: 19435-0611)
- Compact: 8.50 x 5.125 x 2.50 inches (215.90 x 130.18 x 63.50 mm)
- Can be used in a current sharing configuration
- Redundancy for parallel application
- EMI/EMC compliant
- Suitable for high vibration, high shock environments
- IP67 protection



Applications:

- Railway Equipment

Ordering Part Numbers:

110V(72V)/12V, 240W, Isolated DC/DC Converter: **AX083301**

Accessories:

Mating Wire Harness for Model AX083301, 2 m: **AX070132**

To purchase the DC/DC Converter and mating wire harness as a KIT (converter plus wire harness), add a **K** to the ordering P/N. For example, ordering P/N **AX083301K** is a KIT of AX083301 and AX070132.

Technical Specifications:

All specifications are typical at nominal input voltage and 25 degrees C unless otherwise specified.

Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on <https://www.axiomatic.com/service/>.

Input Specifications		Output Specifications	
Power Source	110Vdc or 96Vdc or 72Vdc nominal	Nameplate Rating (Output Power)	240 VA nominal
Operating Voltage Range	48V to 137.5Vdc	Output Current (DC)	20 A continuous Refer to Figure 6.0 for derating curve.
Maximum Input Current	2.5A @ 110Vdc 2.8A @ 96Vdc 3.7A @ 72Vdc	Output Voltage	12 Vdc \pm 4%
		Output Overvoltage Protection	18V maximum
Reverse Voltage Protection	Provided	Output Voltage Ripple	$V_{O(RIPPLE)} \leq 100$ mVpp
Under-voltage Shutdown	44Vdc typical	Turn-on time (at full load)	700 ms typical
Over-voltage Shutdown	142Vdc typical	Stability	Stable at all loads (no minimum load requirement)
		Transient Response	250 mV/1 ms (25%-75% Load)
		Short Circuit Current	Protection provided Self-recovery 24A current limit

General Specifications

EMI and Environmental Compliance	Designed to meet the requirements of SAE J1455 and SAE J1113 Designed to meet EN50155														
Efficiency	92% (Refer to Figures 2.0, 3.0, 4.0, and 5.0.)														
Isolation	Isolated from input & output Input to Output 1500V min. Input to Housing 1000V min. Output to Housing 1000V min.														
Enclosure	Cast Aluminum housing, integral gasket and connector 8.25 x 5.83 x 2.49 inches (209.49 x 148.00 x 63.25 mm) L x W x H including integral connector Refer to the dimensional drawing, Figure 1.0.														
Protection	IP67														
Vibration	Designed to meet EN61373 Tested to the following: MIL-STD-202G, Test 204D and 214A (Sine and Random) 10 g peak (Sine), 7.86 Grms peak (Random)														
Shock	Designed to meet EN61373 Tested to the following: MIL-STD-202G, Test 213B, 50g														
Weight	4.80 lb. (2.18 kg)														
Temperature Rating	Operating: -40 to 85°C (-40 to 185°F) with some derating Continuous Operation: -40 to 75°C (-40 to 167°F) Storage: -50 to 90°C (-58 to 194°F)														
Electrical Pinout	Connector: 1 6-pin Molex P/N: 19435-0611 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Pin #</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Output -</td> </tr> <tr> <td>2</td> <td>Output-</td> </tr> <tr> <td>3</td> <td>Input -</td> </tr> <tr> <td>4</td> <td>Output +</td> </tr> <tr> <td>5</td> <td>Output+</td> </tr> <tr> <td>6</td> <td>Input +</td> </tr> </tbody> </table>	Pin #	Description	1	Output -	2	Output-	3	Input -	4	Output +	5	Output+	6	Input +
Pin #	Description														
1	Output -														
2	Output-														
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4	Output +														
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Mating Wire Harness – Model AX083301	A mating plug, Molex P/N: 19418-0010 with 6 pins (Molex P/N: 19420-004, White Latch, 2 plugs) and 2 m wire harness with unterminated leads is available as P/N: AX070132 . It has the following 14AWG wire colours and pin out.														

	Pin# 1 White/Black Output- Pin# 2 White/Black Output- Pin# 3 Black Batt- Pin# 4 White/Red Output+ Pin# 5 White/Red Output+ Pin# 6 Red Batt+
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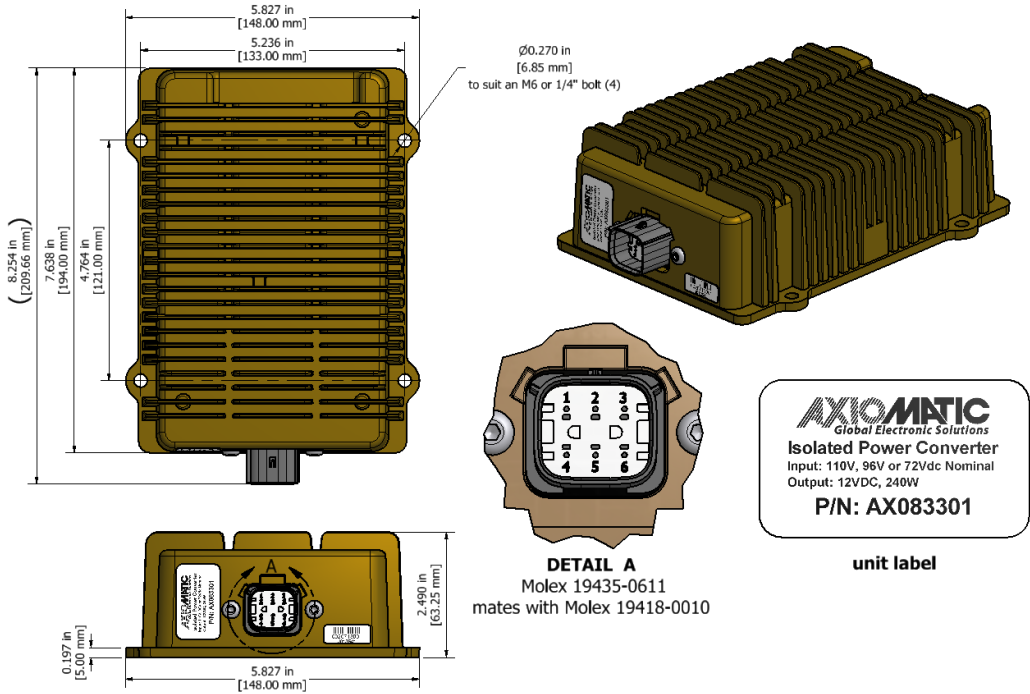


Figure 1.0 – Dimensional Drawing

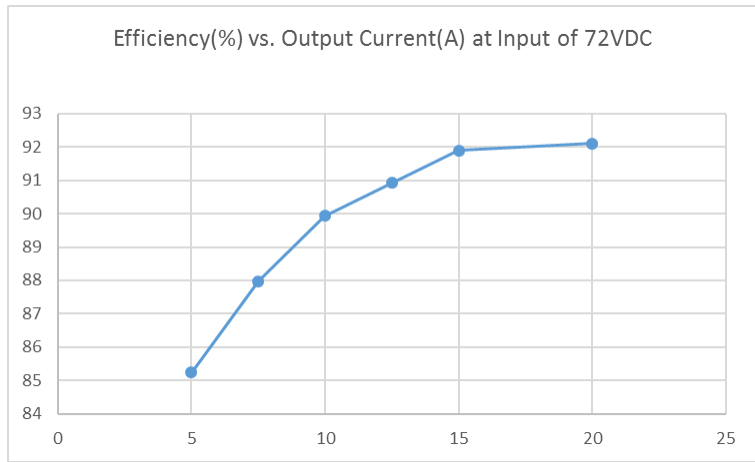


Figure 2.0 - Efficiency vs. Output Current at 72Vdc Input

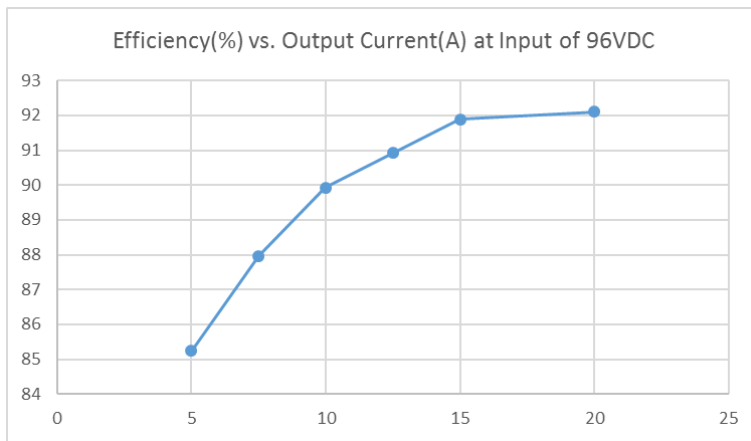


Figure 3.0 - Efficiency vs. Output Current at 96Vdc Input

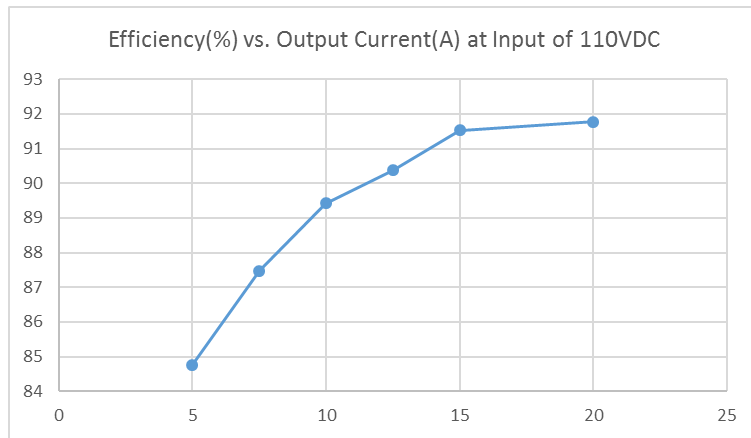


Figure 4.0 - Efficiency vs. Output Current at 110Vdc Input

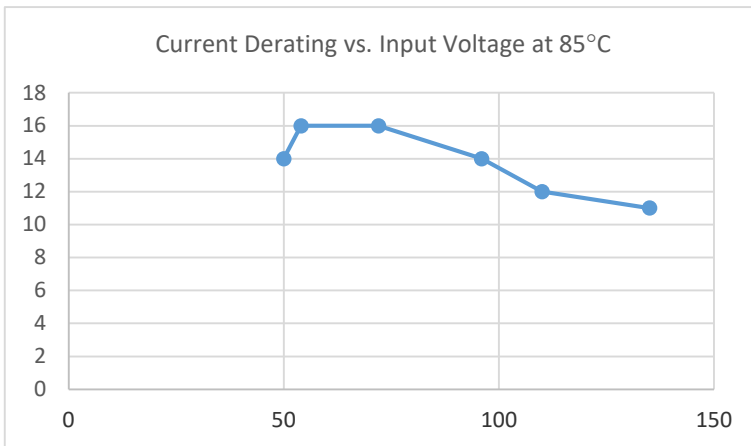


Figure 5.0 - Current Derating vs. Input Voltage at 85°C

Form: TDAX083301-06/22/23