

Isolated 110Vdc/24Vdc Converter

110V, 96V or 72Vdc Nominal Input

Optional Enable Input

24Vdc Output, 240W

P/N: AX083200 or AX083201 or AX083202

Isolated and rugged 24 Vdc power for battery powered electronic control systems on rail equipment

Features:

- 110V, 96V or 72Vdc nominal input
- Wide input voltage range (20V to 137V, some derating of output regulation for input less than 42V)
- 24Vdc, 240 Watts output
- (A 72Vdc/12Vdc model is available.)
- Isolated
- Optional Enable signal
- 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 85 °C (-40 to 185 °F) operating temperature with some derating
- 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)/24V, 240W, Isolated DC/DC Converter

- With 5V-24Vdc Enable, Isolated P/N: **AX083200**
- Without Enable, P/N: **AX083201**
- With Disable P/N: **AX083202**

Accessories:

Mating Wire Harness for Models AX083200 and AX083202, 2 m: **AX070131**

Mating Wire Harness for Model AX083201, 2 m: **AX070130**

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 **AX083200K** is a KIT of AX083200 and AX070131.

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	20V to 137.5Vdc See figures 4, 5, and 6 for input less than 42V	Output Current (DC)	10 A continuous Refer to Figure 6.0 for derating curve.
Maximum Input Current	2.5A @ 110Vdc 2.8A @ 96Vdc 3.7A @ 72Vdc	Output Voltage	24 Vdc \pm 4%
Reverse Voltage Protection	Provided	Output Voltage Ripple	$V_{O(RIPPLE)} \leq 100$ mVpp
Under-voltage Shutdown	19Vdc typical	Turn-on time (at full load)	700 ms typical
Over-voltage Shutdown	142Vdc typical	Stability	Stable at all loads (no minimum load requirement)
Enable Input – Model AX083200	Isolated to primary and secondary Working Range: 5V to 24V, High to Turn On the Unit.	Transient Response	250 mV/1 ms (25%-75% Load)
No Enable Input - Model AX083201	No enable input The unit will turn on with an input within the working range.	Short Circuit Current	Protection provided Self-recovery 14A current limit
With Disable (Enable Input Not Activated) - Model AX083202	The unit will turn on by default. To turn it off, enable+ and enable- must be shorted by mechanical switch, and the enable signals are connected to the secondary side.	Output Overvoltage Protection	33V maximum

General Specifications

Approvals	UL60950 pending CB Test Certificate pending
EMI and Environmental Compliance	Designed to meet the requirements of SAE J1455 and SAE J1113 CE mark for the EMC Directive pending Designed to meet EN50155
Efficiency	90% (Refer to Figures 1.0, 2.0, 3.0.)
Isolation	Input to Output 1500V min. Input to Housing 1000V min. Output to Housing 1000V min. Enable to Input 1500V min. for AX083200, AX083202 Enable to Output 1000V min. for AX083200
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 7.0.
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), Storage: -50 to 90°C (-58 to 194°F)

Electrical Pinout	Connector: 1 6-pin Molex P/N: 19435-0611 <table border="1"> <thead> <tr> <th>Pin #</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Output -</td> </tr> <tr> <td>2</td> <td>Enable -</td> </tr> <tr> <td>3</td> <td>Input -</td> </tr> <tr> <td>4</td> <td>Output +</td> </tr> <tr> <td>5</td> <td>Enable +</td> </tr> <tr> <td>6</td> <td>Input +</td> </tr> </tbody> </table>	Pin #	Description	1	Output -	2	Enable -	3	Input -	4	Output +	5	Enable +	6	Input +
Pin #	Description														
1	Output -														
2	Enable -														
3	Input -														
4	Output +														
5	Enable +														
6	Input +														
Mating Wire Harness – Models AX083200 and AX083202	A mating plug, Molex P/N: 19418-0010 with 6 pins (Molex P/N: 19420-009) and 2 m wire harness with unterminated leads is available as P/N: AX070131 . It has the following 14AWG wire colours and pin out. Pin# 1 White/Black Output- Pin# 2 Green Enable - Pin# 3 Black Batt- Pin# 4 White/Red Output+ Pin# 5 Blue Enable + Pin# 6 Red Batt+														
Mating Wire Harness – Model AX083201	A mating plug, Molex P/N: 19418-0010 with 6 pins (Molex P/N: 19420-009, White Latch, 2 plugs) and 2 m wire harness with unterminated leads is available as P/N: AX070130 . It has the following 14AWG wire colours and pin out. Pin# 1 White/Black Output- Pin# 2 Not used Pin# 3 Black Batt- Pin# 4 White/Red Output+ Pin# 5 Not used Pin# 6 Red Batt+														

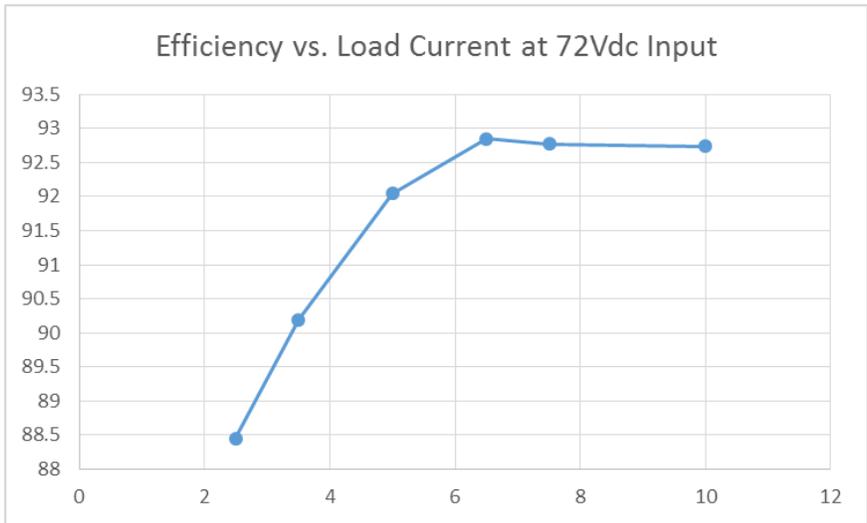


Figure 1.0 - Efficiency vs. Output Current at 72Vdc Input

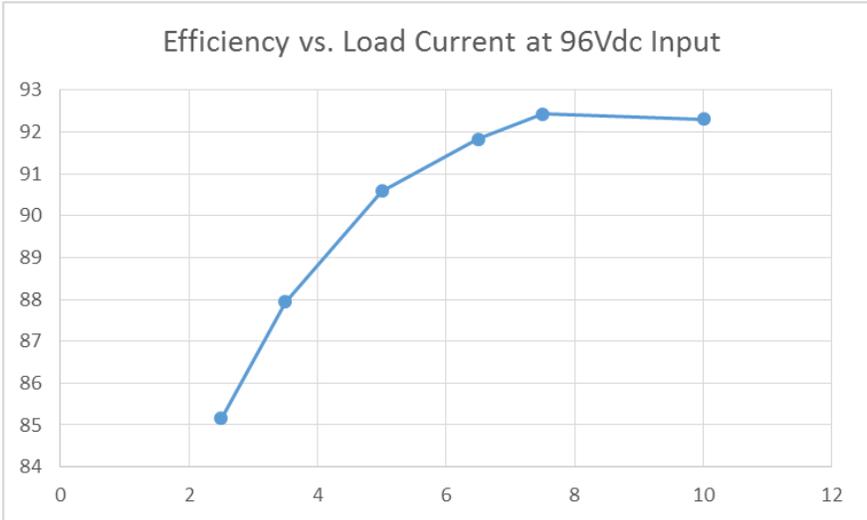


Figure 2.0 - Efficiency vs. Output Current at 96Vdc Input

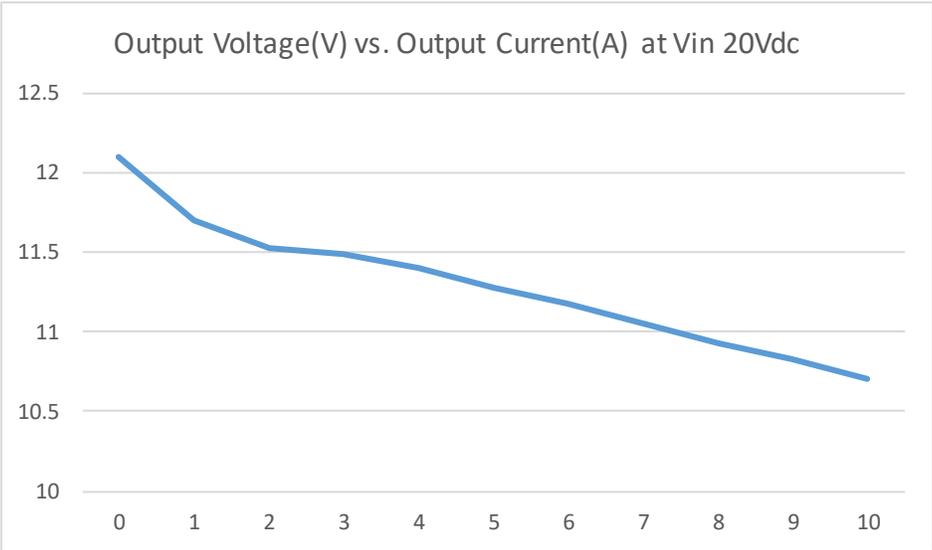


Figure 3.0 – Output Voltage vs. Output Current at Input of 20Vdc

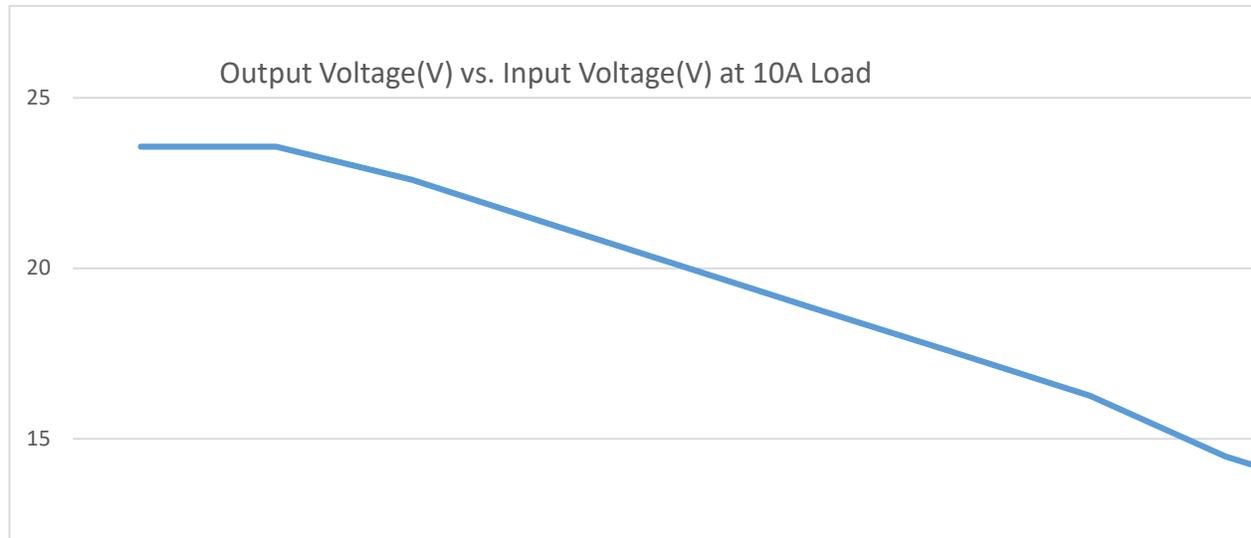


Figure 4.0 – Output Voltage vs. Input Voltage at 10A Load for Input less than 42Vdc

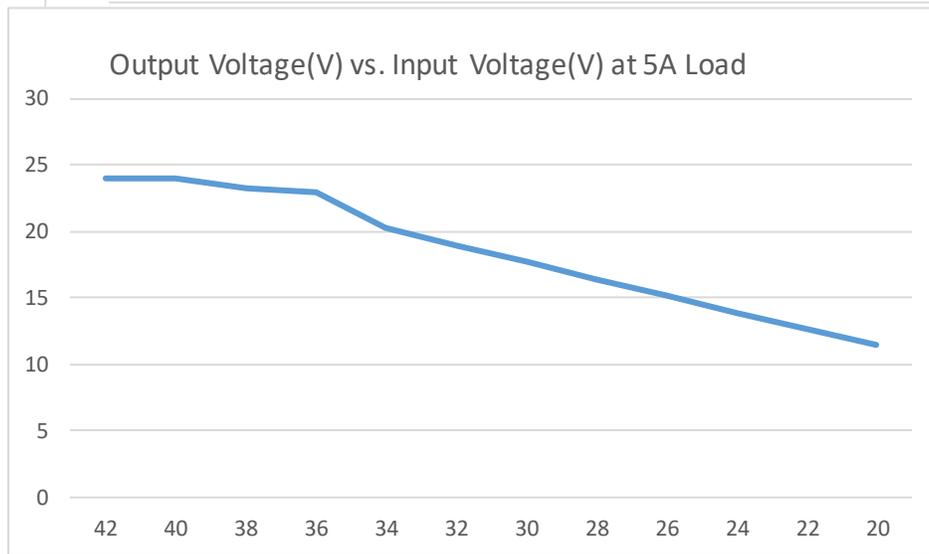


Figure 5.0 – Output Voltage vs. Input Voltage at 5A Load for Input less than 42Vdc

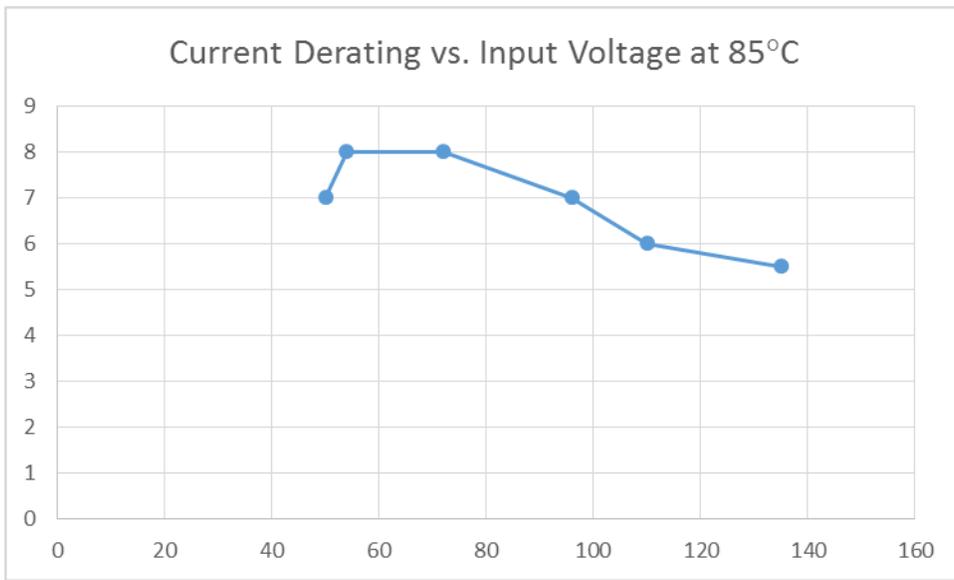


Figure 6.0 – Current Derating vs. Input Voltage at 85°C

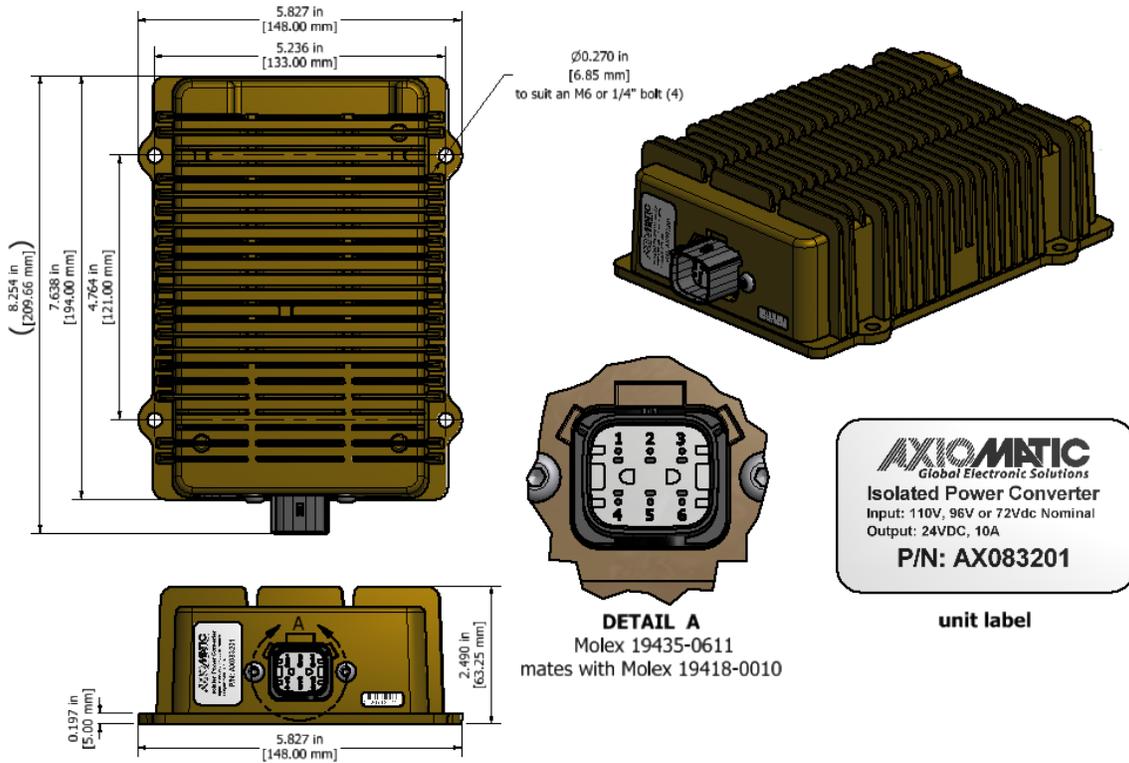


Figure 7.0 – Dimensional Drawing

Form: TDAX08320X-06/22/23