

TECHNICAL DATASHEET #TDAX083110  
**12 Vdc to 48 Vdc Converter**  
**Isolated, 60 W**  
5-36 Vdc Input  
48 Vdc, 60 W Output  
P/N: AX083110

### Features

- 12 Vdc to 48 Vdc Converter, 60 Watts
- Input operating voltage range from 5 to 36 Vdc
- Regulated output of 48Vdc @ 3%, 1.3 A (derated to 1 A for input less than 6 V)
- No minimum load requirement
- Switch mode operation delivers high efficiency
- Reverse polarity protection
- Withstands engine cranking
- Outputs voltage during load dump
- Inrush current control
- Input and output isolation
- Connects via a 4-pin plug
- Compact size for ease of mounting in confined spaces
- Suitable for high shock and vibration environments
- Operational from -40 to 75 °C (-40 to 158 °F)
- Rugged and highly reliable
- IP67 protection rating
- EMI/EMC compliant with CE/ UKCA marking
- SAE J1455 and SAE J1113 compliant (including load dump and cranking transients)
- Parallel, Redundant Capability



### Applications

- Power Radio Equipment
- Charging/Cranking Battery Based Power Supply Systems
- Power Conditioning for Controls & Instrumentation
- Off-Highway Equipment Control Systems

### Ordering Part Numbers:

12 Vdc to 48 Vdc Converter, Isolated, 60 W, P/N: **AX083110**

Individual Accessories:

Mating Plug Kit, P/N: **PL-DT06-4S**

Mating Wire Harness, 2 m, P/N: **AX070155**

Complete KIT:

Converter with the Wire Harness, P/N: **AX083110K**

(includes 12 Vdc to 48 Vdc Converter AX083110 and 2 m Wire Harness AX070155)

## Description:

The AX083110 DC-DC Converter provides regulated 48 Vdc power suitable for instrumentation and controls operating in a battery powered system. For operation under the most harsh and demanding conditions, the unit is fully sealed and enclosed to protect against moisture, shock and vibration. Power from a battery or other source in the range of 5 to 36 Vdc is converted to a 48 Vdc output regulated to 3% and 1.3 A continuous current. Input and output isolation is provided. The unit is designed with extremely rugged surge and transient suppression in addition to sustained over/ under voltage protection as well as inrush current control. With a nameplate rating of 60 W of output power, this Converter has an efficiency rated at 89%.

## Technical Specifications:

*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/>.*

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

### Input


Power Source	12 Vdc nominal
Operating Voltage Range	5 to 36 Vdc continuous Starts up @ 9 Vdc Withstands load dump up to 100 Vdc
Maximum Input Current	<8 Adc @ 9 Vdc
Reverse Voltage Protection	Provided
Under-voltage Shutdown	Shuts off: 4.0 to 4.8 Vdc Turns on: 7.5 to 9 Vdc

### Output

Nameplate Rating (Output Power)	60 W nominal
Output Current	1.3 A continuous 1.0 A with input less than 6 V
Output Voltage	48 Vdc @ 2.7%
Line Regulation	0.3%
Output Voltage Ripple	250 mV
Turn-on time (at full load)	600 ms @ 9 Vdc input 600 ms @ 24 Vdc input 600 ms @ 60 Vdc input
Stability	Stable at all loads (no minimum load requirement)
Transient Response	0.3 A to 1 A @ 24 Vdc input No OVS, No UVS
Short Circuit Current	Protection provided Self-recovery 1.5 to 2 A current limit

### General Specifications

Efficiency	89% @ 12 Vdc and full load
Isolation	Isolated from input, output, and chassis ground 700 Vdc between primary and secondary
Paralleling	The converters can be configured in parallel for current sharing or redundancy.
Enclosure	Aluminum enclosure Encapsulated 3.76 in x 6.12 in x 1.93 in (95.5 mm x 155.6 mm x 49.0 mm) (W x L x H including connector) See Figure 1.0.
Weight	1.85 lb. (0.839 kg) excluding mating harness 2.26 lb. (1.025 kg) with mating wire harness
EMI/EMC	SAE J1455 and SAE J1113 compliant (including load dump and cranking transients for 12 Vdc systems)  ISO 7637-2 Conducted Transients for 12 Vdc systems  ISO 10605 ESD Horizontal coupling EN61000-4-2 ESD Vertical coupling (±4 kV, ±6 kV and ±8 kV for direct contact and ±8 kV and ±15 kV for air discharge)

Protection	IP67															
Operating Temperature	-40 to 85 °C (-40 to 185 °F) -40 to 75 °C (-40 to 167 °F) at < 8 Vdc input															
Storage Temperature	-50 to 85 °C (-58 to 185 °F)															
Humidity	0-99% relative humidity (non-condensing)															
Vibration	MIL-STD-202G, Method 204D test condition C (Sine) and Method 214A, test condition B (Random) 10 g peak (Sine) 7.68 Grms peak (Random)															
Shock	MIL-STD-202G, Method 213B, test condition A 50g (half sine pulse, 9ms long, 8 per axis)															
Electrical Pinout	4-pin TE Deutsch connector, P/N: <b>DTP15-4P</b>  Mating Plug Kit P/N: <b>PL-DT06-4S</b> (includes 1 Socket DT06-4S, 1 Wedgelock W4S, and 4 Contacts 0462-201-16141)  Suitable wire: 14 AWG  <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>Output -</td> </tr> <tr> <td>3</td> <td>Power -</td> </tr> <tr> <td>4</td> <td>Power +</td> </tr> </tbody> </table> 	Pin	Description	1	Output +	2	Output -	3	Power -	4	Power +					
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3	Power -															
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Mating Wire Harness	Wire harness to mate with connector DTP15-4P, P/N: <b>AX070155</b> (includes DT06-4S, W4S, four 0462-209-16141 contacts and 2 m (6.5 ft.) of 14 AWG unterminated lead wires.)  It has the following wire colors and pin out. <table border="1"> <thead> <tr> <th>Pin</th> <th>Description</th> <th>Color</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Output +</td> <td>RED/ WHITE</td> </tr> <tr> <td>2</td> <td>Output -</td> <td>BLACK/ WHITE</td> </tr> <tr> <td>3</td> <td>Power -</td> <td>BLACK</td> </tr> <tr> <td>4</td> <td>Power +</td> <td>RED</td> </tr> </tbody> </table>	Pin	Description	Color	1	Output +	RED/ WHITE	2	Output -	BLACK/ WHITE	3	Power -	BLACK	4	Power +	RED
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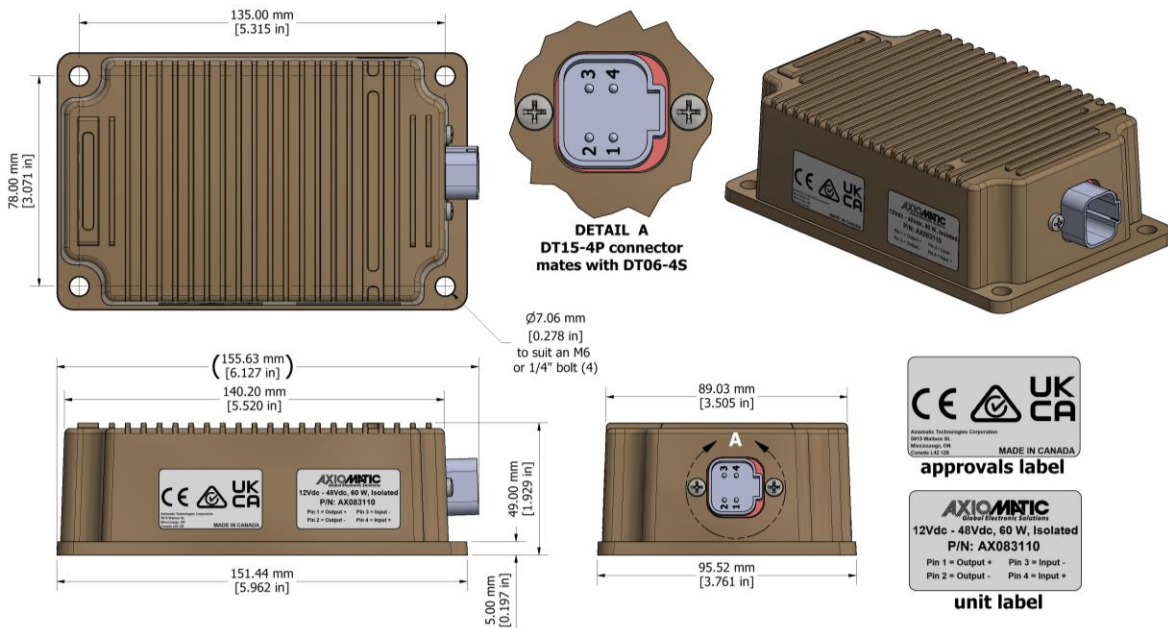


Figure 1.0 - Dimensional Drawing

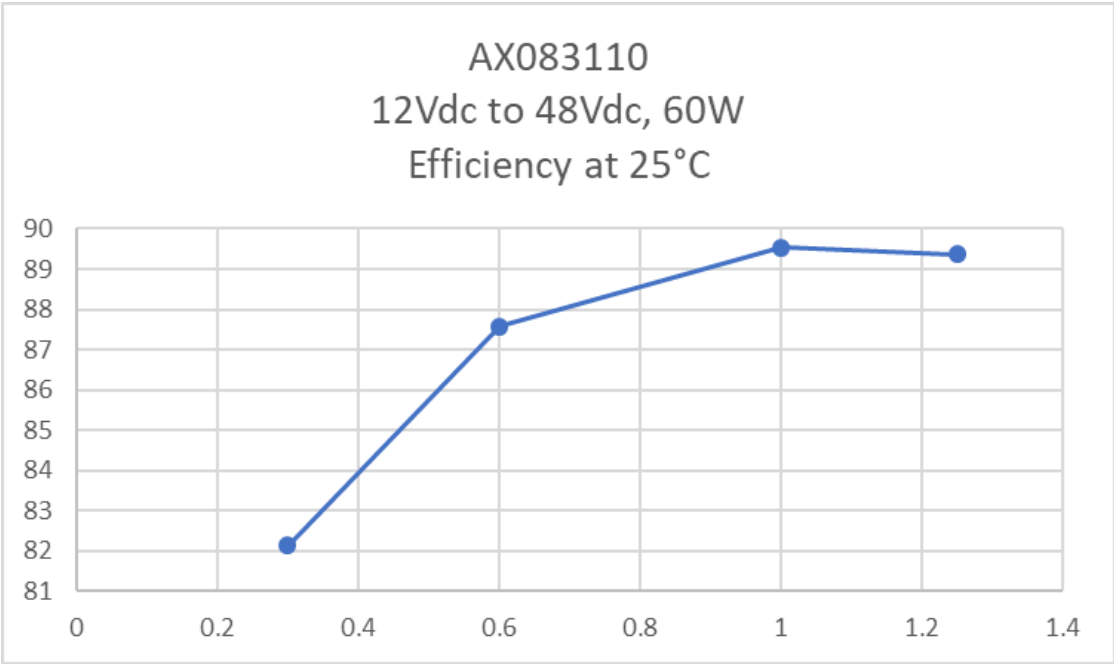


Figure 2.0 - Efficiency (%) vs. Output (A dc)

Form: TDAX083110-07/16/2024