

TECHNICAL DATASHEET #TDAX083110
12Vdc to 48Vdc Converter
Isolated, 60 W
P/N: AX083110

Features:

- 12Vdc to 48Vdc Converter, 60 Watts
- Input operating voltage range from 5 to 36Vdc
- Regulated output of 48Vdc \pm 3%, 1.3A (derated to 1A for input less than 6V)
- 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
- Rugged and highly reliable
- Compact size for ease of mounting in confined spaces
- Connects via a 4-pin plug
- Suitable for high shock and vibration environments
- Operational from -40 to 75°C
- IP67 protection
- EMI/EMC compliant
- 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

Description: The DC-DC Converter provides regulated 48Vdc 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 5-36Vdc is converted to a 48Vdc output regulated to 3% and 1.3 Amp 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 Watts of output power, the DC-DC Converter has an efficiency rated at 89%.

Ordering Part Numbers:

Converter with Wire Harness as a KIT: **AX083110K**
(KIT AX083100 12Vdc-48Vdc Isolated Converter, AX070155 2m Wire Harness)

Items can also be ordered individually.

Converter: **AX083110**

Mating Wire Harness, 2 m: **AX070155**

Mating Plug Kit: **PL-DT06-4S**

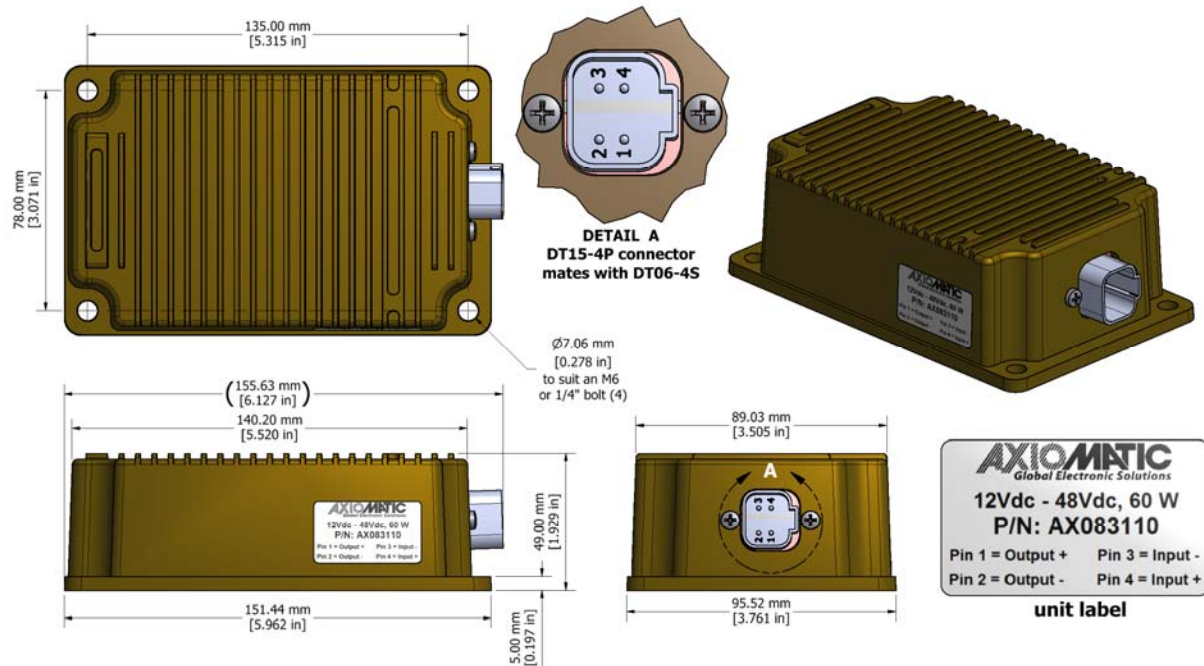


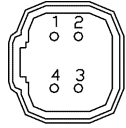
Figure 1.0 - Dimensional Drawing

Technical Specifications: All specifications are typical at nominal input voltage and 25°C. 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 www.axiomatic.com/service.html.

Input Specifications		Output Specifications	
Power Source	12 Vdc nominal	Nameplate Rating (Output Power)	60 Watts nominal
Operating Voltage Range	5 - 36Vdc continuous Starts up @ 9Vdc Withstands load dump up to 100Vdc	Output Current	1.3 Amps continuous 1.0 Amp with input less than 6V
Maximum Input Current	<8 Adc @ 9Vdc	Output Voltage	48VDC \pm 2.7%
Reverse Voltage and Inrush Current Protection	Provided	Line Regulation	0.3%
Under-voltage Shutdown	Shuts off: 4.0 – 4.8Vdc Turns on: 7.5 – 9Vdc	Output Voltage Ripple	250 mV
		Turn-on Time (with full load)	600 ms @ 9Vdc input 600 ms @ 24Vdc input 600 ms @ 60Vdc input
		Stability	Stable at all loads (no minimum load requirement)
		Transient Response	0.3A to 1A @24Vdc input No OVS, No UVS
		Short Circuit Current	Protection provided Self recovery 1.5 to 2A current limit

General Specifications	
Isolation	Isolated from input, output and chassis ground 700Vdc between primary and secondary
Efficiency	89% @ 12Vdc and full load
Operating Temperature	-40 to 85°C (-40 to 185°F) -40 to 75°C (-40 to 167°F) at < 8Vdc input
Storage Temperature	-50 to 85°C (-58 to 185°F)
Humidity	0-99% relative humidity (non-condensing)
Protection rating	IP67
Shock	MIL- STD-202G, Method 213B, test condition A 50g (half sine pulse, 9ms long, 8 per axis)
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)
EMI/EMC	Compliant SAE J1455 and SAE J1113 compliant (including load dump and cranking transients for 12Vdc systems) ISO 7637-2 Conducted Transients for 12Vdc systems ISO 10605 ESD Horizontal coupling EN61000-4-2 ESD Vertical coupling (±4 kV, ±6 kV and ±8 kV for direct contact and ±8kV and ±15 kV for air discharge)
Electrical Connection	Deutsch IPD P/N: DT15-4P See Table 1.0. Axiomatic Mating Wire Harness: P/N: AX070155 See Table 2.0.
Weight	1.85 lb. (0.839 kg) excluding mating harness 2.26 lb. (1.025 kg) with mating wire harness
Enclosure and Dimensions	Aluminum enclosure Encapsulated 3.76 x 6.12 x 1.93 inches 95.5 x 155.6 x 49.0 mm (W x L x H including connector) See Figure 1.0.
Paralleling	The converters can be configured in parallel for current sharing or redundancy.

Table 1.0. Connector Pin Out

	Deutsch IPD P/N: DT15-4P
	<ol style="list-style-type: none"> 1. Output + 2. Output – 3. Power – 4. Power +

Mating Wire Harness

P/N: AX070155
(comprised of a 4-pin plug Deutsch IPD P/N: DT06-4S, W4S, four 0462-209-16141 contacts and 2 m [6.5 ft.] of 14 AWG unterminated lead wires)

Table 2.0 Wire Harness Pin Out

Function	Colour
Output +	Red/White
Output –	Black/White
Power –	Black
Power +	Red

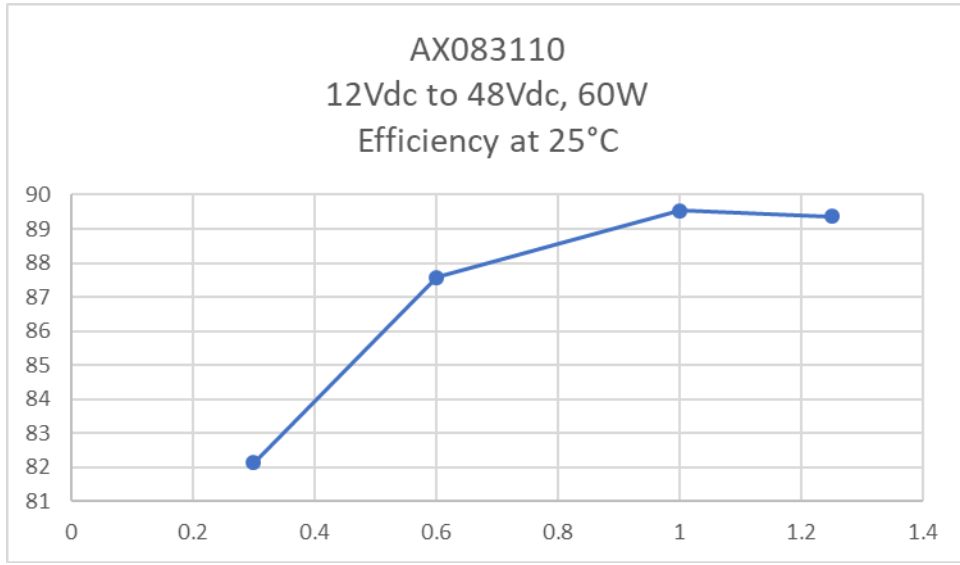


Figure 2.0 - Efficiency (%) vs. Output (A)

Form: TDAX083110-05/25/20