

TECHNICAL DATASHEET #TDAX081100B  
**(12V) 24VDC to 24VDC Converter**  
**72W**  
**P/N: AX081100BK**

*Isolated 24Vdc power suitable for use with communications equipment or to protect sensitive battery-powered electronics...*

- 12Vdc or 24Vdc to 24Vdc Converter, 72 Watts
- Input operating voltage range from 9 to 36Vdc
- Conditioned output of 24Vdc  $\pm$  0.5%, 3A
- No minimum load requirement
- Switch-mode operation delivers high efficiency
- Reverse polarity protection
- Input and output isolation
- Robust, rugged and highly reliable
- Compact size for ease of mounting in confined spaces
- Connects via a 4-pin plug with 2 meter lead wires
- Suitable for moist, high shock and vibration environments
- Operational from -40 to 85°C
- IP67 protection
- EMC Compliant for transients, surge and load dump



**Applications:**

SCADA Systems  
Remote Terminal Units (RTU)  
Switchgear  
Motor Control Centers

Charging/Cranking Battery Based Power Supply Systems  
Power Conditioning for Controls & Instrumentation  
Off-Highway Equipment Control Systems  
Mining Equipment Control Systems  
Marine Auxiliary and Propulsion Systems

These applications are found in a variety of industries including process industries, general manufacturing, electric utilities, oil & gas, water/wastewater, construction and mining equipment.

**Description:** The DC-DC Converter provides clean 24Vdc power suitable for instrumentation and control networks or process equipment. 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 9-36Vdc (12Vdc or 24Vdc nominal) is converted to a 24Vdc output regulated to 0.5%. 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. The nominal nameplate rating is 72 Watts of output power. The DC-DC Converter has an efficiency rated at >92%.

**Ordering Part Numbers:**

Converter with Wire Harness KIT:

**AX081100BK** (KIT AX081100B DC/DC Converter, WH-DT06-4S-S-16AWG-2M Wire Harness)

Items can also be ordered individually.

Converter: **AX081100B**

Mating Wire Harness, 2 m: **WH-DT06-4S-S-16AWG-2M**

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

## 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	12 Vdc or 24 Vdc nominal	Nameplate Rating (Output Power)	72 Watts nominal
Operating Voltage Range	9 - 36Vdc continuous	Output Current	3A continuous
Maximum Input Current	8.97 Adc @ 9Vdc	Output Voltage	24Vdc $\pm$ 0.5%
Inrush Current	Less than 8A	Output Over-voltage Shutdown	30Vdc typical
Reverse Voltage Protection	Provided	Line Regulation	0.1%
Over-voltage Shutdown	35.5Vdc	Output Voltage Ripple	0.5%
Under-voltage Shutdown	Output shuts off @ 8.5Vdc Output turns on @ 10.0Vdc	Turn-on Time (with full load)	800 ms for all inputs
		Turn-on Overshoot	None
		Stability	Stable at all loads (no minimum load requirement)
		Transient Response	700 mV/1 ms (25% - 75% Load)
		Short Circuit Current	Protection provided Self recovery 3.33A current limit

General Specifications	
Isolation	Isolated from input, output and chassis ground 700Vdc between primary and secondary
Efficiency	92% @ 24Vdc (Refer to Figures 1.0 and 2.0.)
Quiescent Current	85 mA @ 24Vdc
Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature	-50 to 105°C (-58 to 221°F)
Humidity	0-99% relative humidity (non-condensing)
Protection rating	IP67
EMC Compliance	EMC Compliant for transients, surge and load dump IEC61000-4-5 IEC61000-4-4 SAE J1113-11
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 Connection	Equivalent to the TE Deutsch P/N: DT13-4P connector assembly; mates to a wire harness comprised of a 4-pin plug (equivalent TE Deutsch P/N: DT06-4S), with 2 m (6.5 ft.) of 16 AWG unterminated lead wires P/N: <b>WH-DT06-4S-S-16AWG-2M</b> Pin out: Refer to page Installation section.
Weight	2.02 lbs. (0.92 kg) excluding mating wire harness 2.43 lbs. (1.10 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) Refer to Figure 3.0.

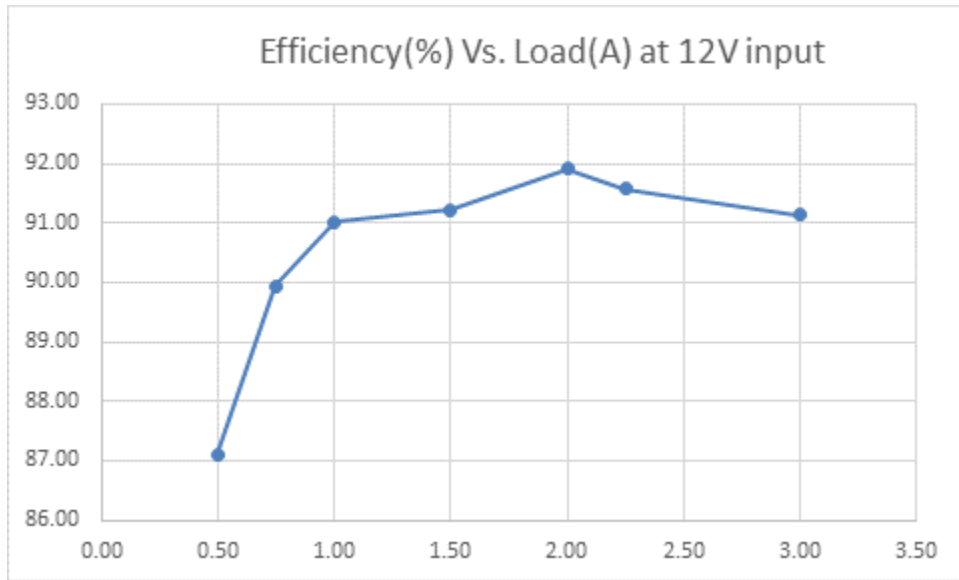


Figure 1.0 - Efficiency vs. Output Current at 12Vdc Input

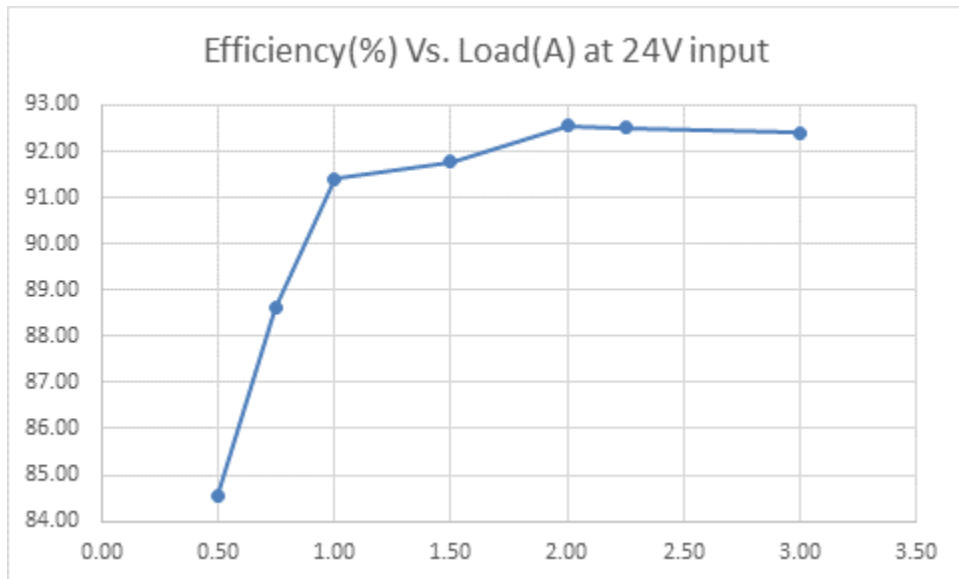


Figure 2.0 - Efficiency vs. Output Current at 24Vdc Input

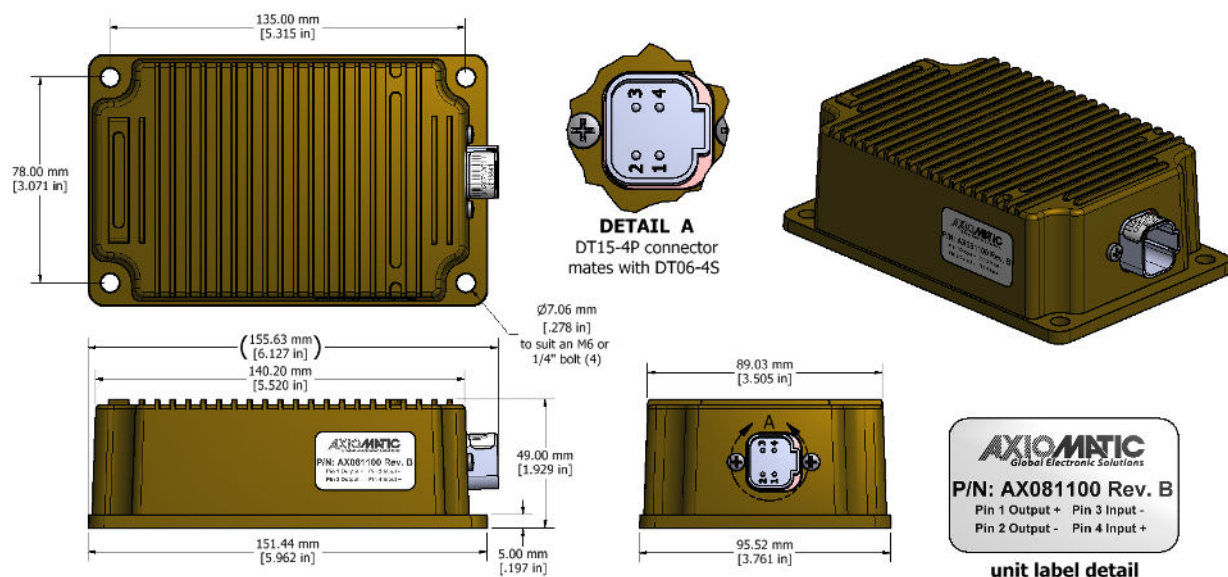
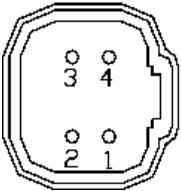


Figure 3.0 – Dimensional Drawing

Installation	
<b>Set up</b> <ol style="list-style-type: none"> <li>1. A maximum 10A fuse is recommended in the primary circuit to provide protection for the primary wiring.</li> <li>2. Use four ¼-20 1 inch screws to mount the converter.</li> <li>3. Ground the unit to chassis ground by attaching a ground strap and locking washer to the ground stud found on the housing. (See <i>mechanical drawing</i>.)</li> <li>4. Snap the plug connector into the mating receptacle mounted on the converter.</li> <li>5. Connect the wiring to power and output terminal blocks (provided by customer).</li> <li>6. Once the load is ready to receive power, turn on the power source to the converter.</li> </ol>	 <p><b>Connector Pin Out</b></p> <ul style="list-style-type: none"> <li>1 Output + (red/white)</li> <li>2 Output - (black/white)</li> <li>3 Power - (black)</li> <li>4 Power + (red)</li> </ul>
<b>Mounting</b>	<p>Mounting ledges include holes sized for ¼ inch or M4 bolts. The bolt length will be determined by the end-user's mounting plate thickness. Typically, ¾ inch (20 mm) is adequate.</p> <p>If the module is mounted without an enclosure, it should be mounted vertically with connectors facing left and right to reduce likelihood of moisture entry.</p> <p>All field wiring should be suitable for the operating temperature range of the module.</p> <p>Install the unit with appropriate space available for servicing and for adequate wire harness access (6 inches or 15 cm) and strain relief (12 inches or 30 cm).</p>
<b>Configuration</b>	<ul style="list-style-type: none"> <li>• For standard operation follow the set up instructions above.</li> <li>• For an inversion of the output, connect the +ve output pin to the load's -ve point and the -ve output pin to the load +ve point.</li> </ul>

Form: TDAX081100B-06/21/23