

## Isolated (12Vdc)24Vdc/24Vdc, 125W Converter

P/N: AX080900

*Rugged, isolated 24 Vdc  
power for machine electronics*

### Features:

- 24Vdc input, 24Vdc output, 125 Watts
- 12Vdc input, 24Vdc output, 95 Watts
- Isolated
- Operates from 9Vdc-36Vdc
- Typical efficiency of 91% (for 12Vdc input) or 92% (for 24Vdc input)
- No minimum load requirement
- Switch mode operation delivers high efficiency
- 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
- IP67
- 1 Deutsch IPD DT13-4P connector
- Compact: 8.50 x 5.125 x 2.50 inches (215.90 x 130.18 x 63.50 mm)
- EMI/EMC compliant
- SAE J1455 and SAE J1113 compliant
- Suitable for engine cranking and load dump
- CE marking
- UL/EN60950 pending



**Applications:** The DC/DC converter is suitable for application on charging/cranking battery based systems.

- ❖ Off-highway Equipment
- ❖ Power generator set control systems
- ❖ Oilfield equipment

### Ordering Part Numbers:

24V/24V, 120W, Isolated DC/DC Converter P/N: **AX080900**

Accessories:

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

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

To purchase the DC/DC Converter and mating wire harness as a KIT (AX080900 converter, WH-DT06-4S-S-16AWG-2M wire harness), the ordering P/N is **AX080900K**.

## 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 [www.axiomatic.com/service.html](http://www.axiomatic.com/service.html).

Input Specifications		Output Specifications	
Power Source	24 Vdc nominal	Nameplate Rating (Output Power)	95 VA nominal (with 12Vdc in) 125 VA nominal (with 24Vdc in)
Operating Voltage Range*	9 to 36 Vdc provides output regulated to 1% @ 5.2 A load 9 Vdc input derates output to 70% @ 5.2 A load Refer to Figure 1.0.	Output Current (DC)	5.0A continuous (at 12Vdc input) 5.2A continuous (at 24Vdc input)
Maximum Input Current	13 ADC @ 11Vdc	Output Voltage	24 Vdc $\pm$ 1%
Engine Cranking & Load Dump	Designed to meet engine cranking and load dump conditions	Output Voltage Ripple	$V_{O(RIPPLE)} \leq 250$ mVpp
Reverse Voltage Protection	Provided	Turn-on time (at full load)	250 ms typical
Under-voltage Shutdown	8.8 Vdc typical	Stability	Stable at all loads (no minimum load requirement)
Over-voltage Shutdown	38 Vdc typical	Transient Response	300 mV/1 ms (1A – 4A Load)
Inrush Current	Max. 13A for 50 mSec.	Short Circuit Current	Protection provided Self-recovery 6.3A current limit

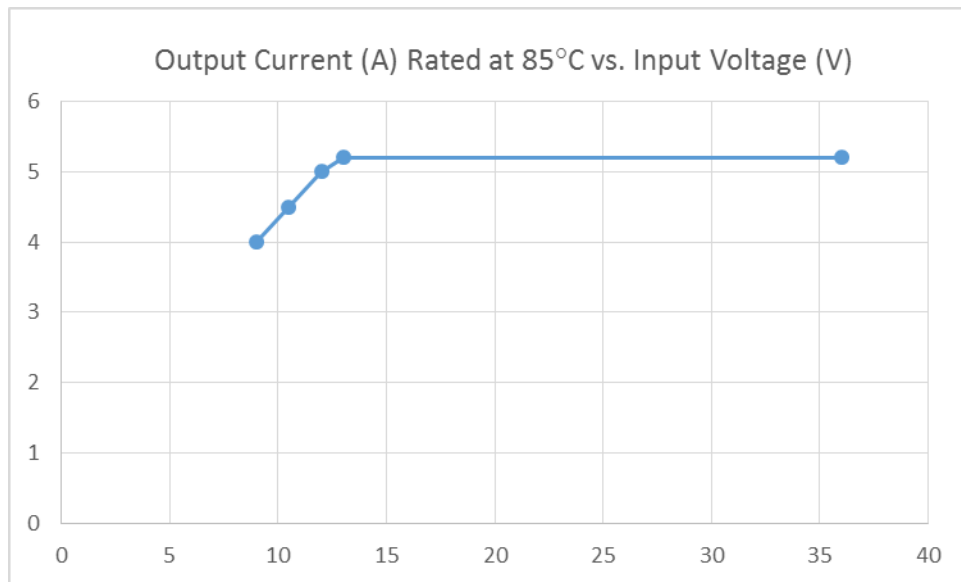


Figure 1.0 - Output Current (A) vs. Input Voltage (V) at 85°C

## General Specifications

Approvals	CE marking UL/EN60950 pending
EMI and Environmental Compliance	Designed to meet the requirements of the following standards. DIN EN 13309 CE marking
Efficiency	91% (for 12Vdc input) or 92% (for 24Vdc input) (Refer to Figure 2.0.)
Isolation	500 Vdc minimum
Quiescent Current	65mA @ 24Vdc input
Enclosure	Aluminum enclosure Encapsulated 5.35 x 6.82 x 2.38 inches 136.0 x 173.41 x 60.58 mm (W x L x H including connector) See Figure 3.0.
Protection	IP67
Vibration	MIL-STD-202G, Test 204D and 214A (Sine and Random) 10 g peak (Sine); 7.86 Grms peak (Random)
Shock	MIL-STD-202G, Test 213B, 50 g
Weight	3.35 lb. (1.52 kg)
Temperature Rating	Operating: -40 to 85°C (-40 to 185°F) Storage: -50 to 90°C (-58 to 194°F)
Humidity	0-99% relative humidity (non-condensing)

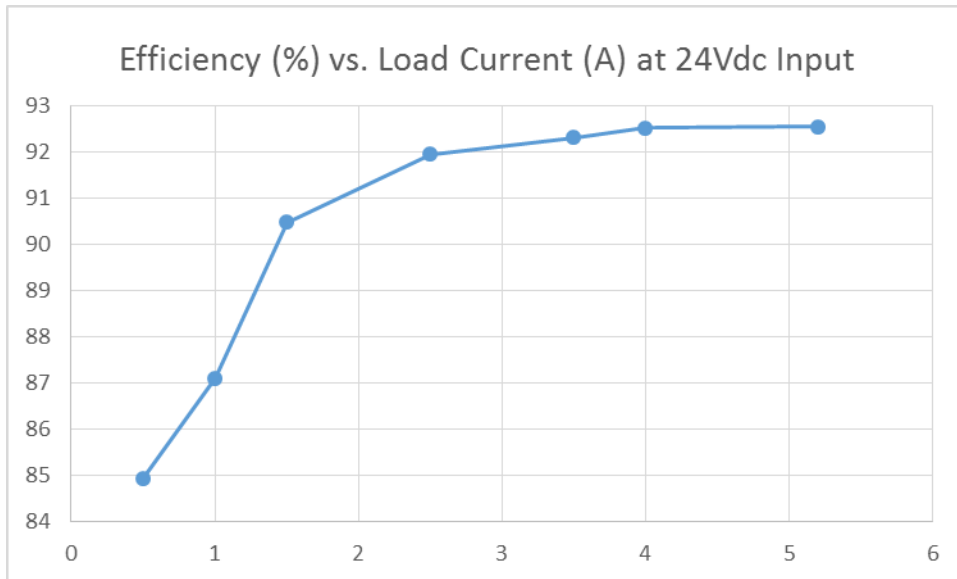
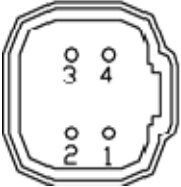


Figure 2. 0. – Power Efficiency vs. Load Current at 24Vdc Input

Electrical Pinout	<p>TE Deutsch P/N: DT13-4P  Axiomatic Wire Harness: P/N: WH-DT06-4S-S-16AWG-2M  (comprised of a 4 pin plug Deutsch IPD P/N:DT06-4S assembly with 2 m (6.5 ft.) of 16 AWG unterminated lead wires)</p>  <p><b>Connector Pin Out</b>  <b>1 Output + (red/white)</b>  <b>2 Output - (black/white)</b>  <b>3 Power - (black)</b>  <b>4 Power + (red)</b></p> <p>A mating wire harness is available as P/N: <b>WH-DT06-4S-S-16AWG-2M</b>.  It has the following wire colours and pin out.  Pin# 1 Red/White for Output +  Pin# 2 Black/White for Output -  Pin# 3 Black for Power -  Pin# 4 Red for Power +</p>
Installation	<p><b>Set up</b></p> <ol style="list-style-type: none"> <li>1. A maximum 20A fuse is recommended in the primary circuit to provide protection for the primary wiring.</li> <li>2. Mount the converter with four M6 or ¼" bolts. Suggested length: 1" [25 mm]</li> <li>3. Ground the unit to chassis ground.</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>
Mounting	<p>Mounting ledges include holes sized for ¼ inch or M6 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>
Grounding	<p>Protective Earth (PE) must be connected to the chassis to reduce the risk of electric shock. All chassis grounding should go to a single ground point designated for the machine and all related equipment.</p>

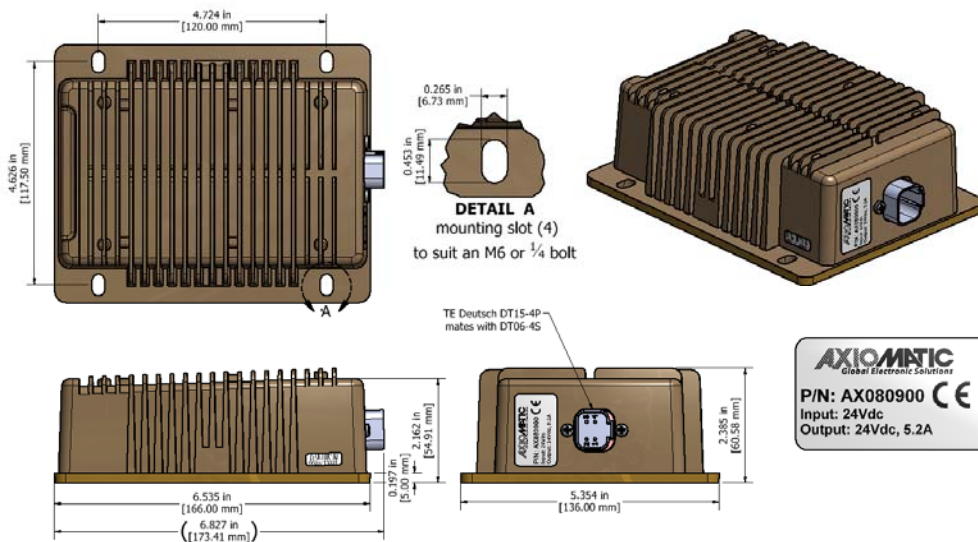


Figure 3.0 – Dimensional Drawing