

## Isolated 12Vdc/24Vdc Converter

9-18Vdc Input

24Vdc, 190W Output

P/N: AX081540

*Rugged, isolated 24 Vdc for machine electronics*

### Features:

- 12Vdc/24Vdc, 190 Watts
- Isolated
- Operates from 9 to 18 Vdc
- 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
- IP67 protection rating
- 1 connector (TE Deutsch P/N: DTP13-4P)
- Compact: 8.50 in x 5.125 in x 2.50 in (215.90 mm x 130.18 mm x 63.50 mm)
- EMI/EMC compliant
- CE / UKCA mark
- UL recognition pending
- SAE J1455 and SAE J1113 compliant
- Suitable for engine cranking and load dump
- Can be used in a current sharing configuration
- Redundancy for parallel application



### 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
- Telecom

### Ordering Part Numbers:

12V/24V, 190W, Isolated DC/DC Converter P/N: **AX081540**

Accessories:

Mating Wire Harness, 2 m: **AX070115**

or Mating Plug Kit: **AX070117**

To purchase the DC/DC Converter and mating wire harness as a KIT (AX081540 converter, AX070115 wire harness), the ordering P/N is **AX081540K**.

## 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

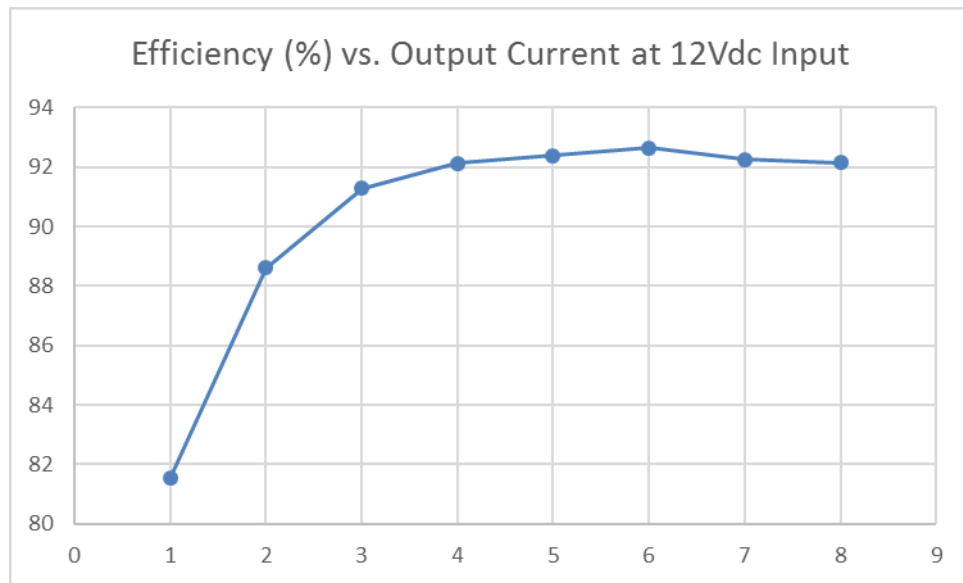
|                             |                                                           |
|-----------------------------|-----------------------------------------------------------|
| Power Source                | 12 Vdc nominal                                            |
| Operating Voltage Range     | 9 to 18 Vdc provides output regulated to 2% @ 8 A load    |
| Maximum Input Current       | 25ADC @ 9Vdc                                              |
| Engine Cranking & Load Dump | Designed to meet engine cranking and load dump conditions |
| Reverse Voltage Protection  | Provided                                                  |
| Under-voltage Shutdown      | 7.5 Vdc typical                                           |
| Over-voltage Shutdown       | 20 Vdc typical                                            |

### Output

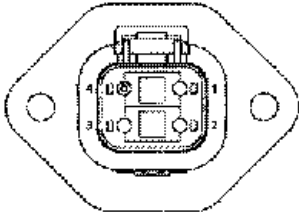
|                                 |                                                           |
|---------------------------------|-----------------------------------------------------------|
| Nameplate Rating (Output Power) | 190 VA nominal                                            |
| Output Current (DC)             | 8 A continuous                                            |
| Output Voltage                  | 24 Vdc $\pm$ 2%<br>Refer to Figure 1.0                    |
| Output Voltage Ripple           | $V_{O(RIPPLE)} \leq 100$ mVpp                             |
| Turn-on time (at full load)     | 500 ms typical                                            |
| Stability                       | Stable at all loads (no minimum load requirement)         |
| Transient Response              | 700 mV/1 ms<br>(25%-75% Load)                             |
| Short Circuit Current           | Protection provided<br>Self-recovery<br>12A current limit |

### General Specifications

|                                  |                                                                                                                                                                                                                                               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI and Environmental Compliance | Designed to meet the requirements of SAE J1455 and SAE J1113<br>CE mark for the EMC Directive                                                                                                                                                 |
| Efficiency                       | 92% (Refer to Figure 1.0.)                                                                                                                                                                                                                    |
| Isolation                        | 707 Vdc minimum                                                                                                                                                                                                                               |
| Enclosure                        | Cast Aluminum housing, integral gasket and connector<br>8.14 x 5.83 x 2.50 inches (206.82 x 148.00 x 63.25 mm)<br>L x W x H including integral connector<br>Refer to the dimensional drawing, Figure 2.0.                                     |
| Protection                       | IP67                                                                                                                                                                                                                                          |
| Vibration                        | MIL-STD-202G, Test 204D and 214A (Sine and Random)<br>10 g peak (Sine); 7.86 Grms peak (Random)                                                                                                                                               |
| Shock                            | MIL-STD-202G, Test 213B; 50 g                                                                                                                                                                                                                 |
| Weight                           | 4.20 lb. (1.9 kg)                                                                                                                                                                                                                             |
| Temperature Rating               | Operating: -40 to 85°C (-40 to 185°F)<br>Storage: -50 to 90°C (-58 to 194°F)<br>When the unit operates below 18V and at maximum load for long periods of time (> 30 seconds), the maximum operating temperature is 75°C. Refer to Figure 3.0. |



*Figure 1.0 – Power Efficiency vs. Output Current*

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical Pinout | <div style="display: flex; align-items: center;">  <div> <p><b>Connector Pin out:</b><br/> Pin 1: Input+<br/> Pin 2: Input-<br/> Pin 3: Output-<br/> Pin 4: Output+</p> <p>4-pin connector - (equivalent<br/> TE Deutsch P/N: DTP13-4P)</p> </div> </div> <p>A mating plug assembly, P/N <b>AX070115</b> is available and is equivalent to the TE Deutsch P/N: DTP06-4S, WP4S and four contact sockets 0462-203-12141 with 2m (6.5 ft.) of 10 AWG unterminated lead wires.</p> <p><b>P/N: AX070115</b><br/> It has the following wire colors and pin out.<br/> Pin# 1 Red Batt+<br/> Pin# 2 Black Batt-<br/> Pin# 3 White/Black Output-<br/> Pin# 4 White/Red Output+</p> |
| Installation      | <ol style="list-style-type: none"> <li>1. A maximum 25A fuse is recommended in series with the 24V battery.</li> <li>2. Use four ¼-20 1 inch or M6 bolts screws to mount the converter.</li> <li>3. Ground the unit to chassis ground by attaching to the casing a ground strap.</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>                                                                                                                                                                                                         |

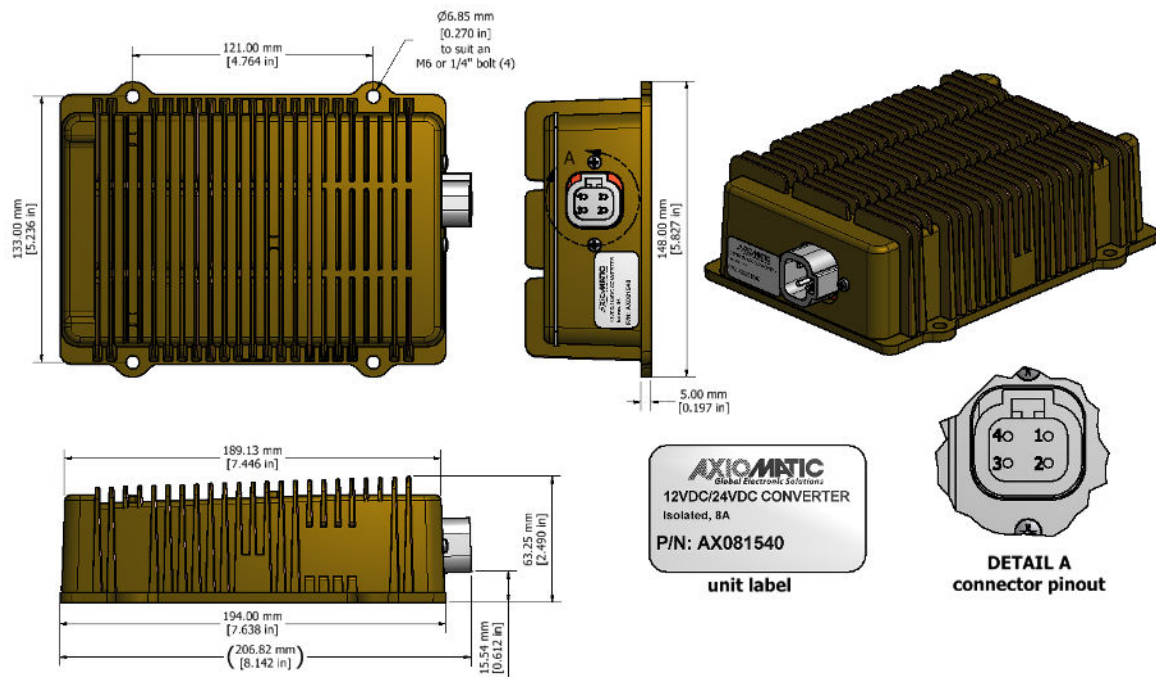


Figure 2.0 – Dimensional Drawing

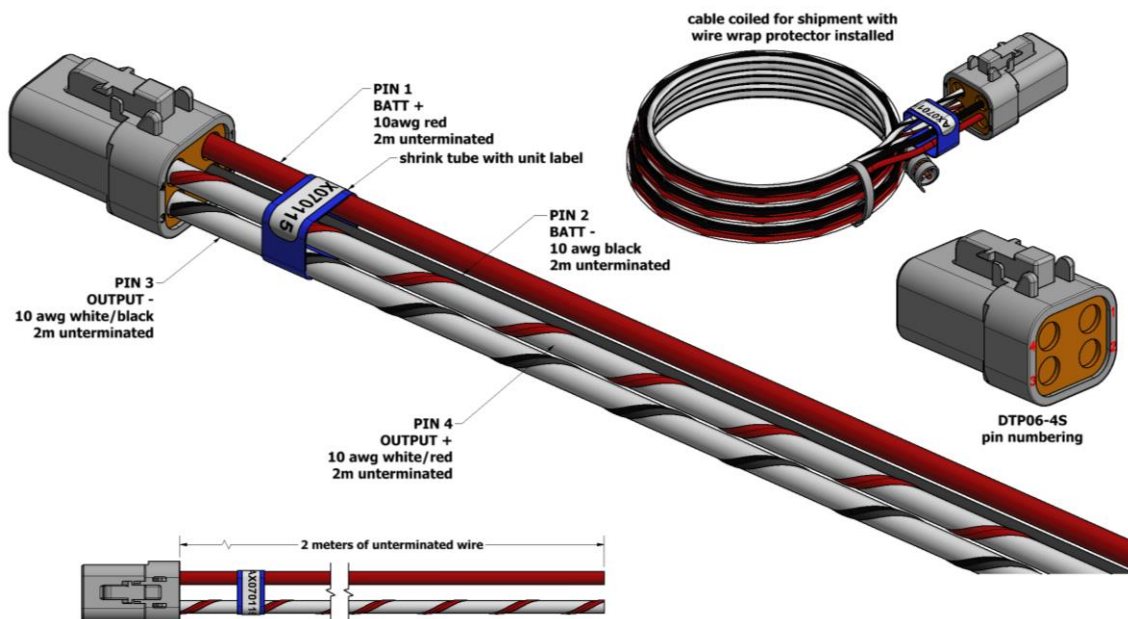


Figure 3.0 – Mating Wire Harness AX070115

Form: TDAX081540-02/12/2024