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 9Vdc-18Vdc
- 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 TE Deutsch DTP13-4P connector
- Compact: 8.50 x 5.125 x 2.50 inches (215.90 x 130.18 x 63.50 mm)
- EMI/EMC compliant
- CE 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.

<table>
<thead>
<tr>
<th>Input Specifications</th>
<th>Output Specifications</th>
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<tbody>
<tr>
<td><strong>Power Source</strong></td>
<td><strong>Nameplate Rating</strong></td>
</tr>
<tr>
<td>12 Vdc nominal</td>
<td>(Output Power) 190 VA nominal</td>
</tr>
<tr>
<td><strong>Operating Voltage Range</strong></td>
<td>Output Current (DC) 8 A continuous</td>
</tr>
<tr>
<td>9 to 18 Vdc provides output regulated to 2% @ 8 A load</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Input Current</strong></td>
<td>Output Voltage 24 Vdc ± 2%</td>
</tr>
<tr>
<td>25ADC @ 9Vdc</td>
<td>Refer to Figure 1.0.</td>
</tr>
<tr>
<td><strong>Engine Cranking &amp; Load Dump</strong></td>
<td>Output Voltage</td>
</tr>
<tr>
<td>Designed to meet engine cranking and load dump conditions</td>
<td></td>
</tr>
<tr>
<td><strong>Reverse Voltage Protection</strong></td>
<td>Turn-on time (at full load) 500 ms typical</td>
</tr>
<tr>
<td>Provided</td>
<td></td>
</tr>
<tr>
<td><strong>Under-voltage Shutdown</strong></td>
<td>Stability Stable at all loads (no minimum load requirement)</td>
</tr>
<tr>
<td>7.5 Vdc typical</td>
<td></td>
</tr>
<tr>
<td><strong>Over-voltage Shutdown</strong></td>
<td>Transient Response 700 mV/1 ms (25%-75% Load)</td>
</tr>
<tr>
<td>20 Vdc typical</td>
<td></td>
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<tr>
<td><strong>Short Circuit Current</strong></td>
<td>Protection provided Self-recovery 12A current limit</td>
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</table>

## General Specifications

- **EMI and Environmental Compliance**
  - Designed to meet the requirements of SAE J1455 and SAE J1113 CE mark for the EMC Directive
- **Efficiency** 91% (Refer to Figure 2.0.)
- **Isolation** 707 Vdc minimum
- **Enclosure**
  - Cast Aluminum housing, integral gasket and connector
  - 8.14 x 5.83 x 2.50 inches (206.82 x 148.00 x 63.25 mm)
  - L x W x H including integral connector
  - Refer to the dimensional drawing, Figure 4.0.
- **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** 4.20 lb. (1.9 kg)
- **Temperature Rating**
  - Operating: -40 to 85°C (-40 to 185°F)
  - Storage: -50 to 90°C (-58 to 194°F)
  - 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.

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![Efficiency (%) vs. Output Current at 12Vdc Input](image_url)

*Figure 1.0 – Power Efficiency vs. Output Current*
Electrical Pinout

Connector Pin out:
Pin 1: Input+
Pin 2: Input-
Pin 3: Output-
Pin 4: Output+

4 pin Deutsch connector
P/N: DTP13-4P

A mating plug assembly, P/N AX070115 is available and is comprised of 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/N: AX070115
It has the following wire colours and pin out.
Pin# 1 Red Batt+
Pin# 2 Black Batt-
Pin# 3 White/Black Output-
Pin# 4 White/Red Output+

Installation

Set up
1. A maximum 25A fuse is recommended in series with the 24V battery.
2. Use four ¼-20 1 inch or M6 bolts screws to mount the converter.
3. Ground the unit to chassis ground by attaching to the casing a ground strap.
4. Snap the plug connector into the mating receptacle mounted on the converter.
5. Connect the wiring to power and output terminal blocks (provided by customer).
6. Once the load is ready to receive power, turn on the power source to the converter.

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.

Form: TDAX081540-08/13/18