**24VDC to 12VDC Converter**

**48W**

P/N: AX081150K

Isolated 12Vdc power suitable for use with communications equipment or to protect sensitive battery-powered electronics...

- 24Vdc to 12Vdc Converter, 48 Watts
- Input operating voltage range from 9 to 32Vdc
- Conditioned output of 12Vdc ± 0.4%, 4A
- 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

**Applications:**

- SCADA Systems
- Remote Terminal Units (RTU)
- Switchgear
- Motor Control Centers
- Charging/Cranking Battery Based Power Supply Systems
- Power Conditioning for Controls & Instrumentation utilizing Off-Highway 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 and mobile equipment.

**Ordering Part Numbers:**

Converter with Wire Harness KIT: **AX081150K** (KIT AX081150 DC/DC Converter, WH-DT06-4S-S-16AWG-2M Wire Harness)

Items can also be ordered individually.

Converter: **AX081150**

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.

<table>
<thead>
<tr>
<th>Input Specifications</th>
<th>Output Specifications</th>
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<th>Output Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Source 24 Vdc nominal</td>
<td>Nameplate Rating 48 Watts nominal</td>
<td>Operating Voltage Range 9 - 32Vdc continuous</td>
<td>Output Current 4A continuous</td>
</tr>
<tr>
<td>Operating Voltage Range 9 - 32Vdc continuous</td>
<td>Output Voltage 12Vdc ± 0.4%</td>
<td>Maximum Input Current &lt;6.5 Adc @ 9Vdc</td>
<td>Line Regulation 0.02%</td>
</tr>
<tr>
<td>Reverse Voltage Protection Provided</td>
<td>Output Voltage Ripple 1% maximum</td>
<td>Over-voltage Shutdown 35.5Vdc</td>
<td>Turn-off Time (with full load) 1 ms @ 9Vdc input 12 ms @ 32Vdc input</td>
</tr>
<tr>
<td>Under-voltage Shutdown Output shuts off @ 7.5Vdc</td>
<td>Turn-on Overshoot 3% of Vout Nominal, no load, for 125 ms 3% of Vout Nominal, fully loaded, for 2 ms</td>
<td>Output turns on @ 8.2Vdc</td>
<td>Stability Stable at all loads (no minimum load requirement)</td>
</tr>
<tr>
<td></td>
<td>Transient Response -493.75mV/41.2µs (0.5 to 4A, 400 mV/120 µS) -312.5mV/32.6 µs (4A to 0.5A, 380 mV/50 µS)</td>
<td></td>
<td>Protection provided</td>
</tr>
<tr>
<td></td>
<td>Short Circuit Current Protection provided</td>
<td></td>
<td>Self recovery</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>4.6A current limit</td>
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</tbody>
</table>

### General Specifications

| Isolation Isolated from input, output and chassis ground 700Vdc between primary and secondary | Efficiency 85% @ 12Vdc 85% @ 24Vdc | Operating Temperature -40 to 85°C (-40 to 185°F) |
| Storage Temperature -50 to 85°C (-58 to 185°F) | Humidity 0-99% relative humidity (non-condensing) | Protection rating IP67 |
| Electrical Connection Deutsch IPD P/N: DT13-4P connector assembly mates to a wire harness 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/N: WH-DT06-4S-S-16AWG-2M Pin out: Refer to page Installation section. | Weight 2.4 lbs. (1.08 kg) | Dimensions Aluminum enclosure Encapsulated 4.12 x 6.37 x 2.37 inches 104.8 x 161.9 x 60.3 mm (W x L x H) |
**Installation**

**Set up**
1. A maximum 30A fuse is recommended in the primary circuit to provide protection for the primary wiring.
2. Use four ¼-20 1 inch screws to mount the converter.
3. Ground the unit to chassis ground by attaching a ground strap and locking washer to the ground stud found on the housing. (See mechanical drawing.)
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.

**Connector Pin Out:**

<table>
<thead>
<tr>
<th>Deutsch IPD P/N: DT15-4P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Output +</td>
</tr>
<tr>
<td>2. Output –</td>
</tr>
<tr>
<td>3. Power –</td>
</tr>
<tr>
<td>4. Power +</td>
</tr>
</tbody>
</table>

**Wire Harness Pin Out:**

<table>
<thead>
<tr>
<th>Function</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output +</td>
<td>Red/White</td>
</tr>
<tr>
<td>Output –</td>
<td>Black/White</td>
</tr>
<tr>
<td>Power –</td>
<td>Black</td>
</tr>
<tr>
<td>Power +</td>
<td>Red</td>
</tr>
</tbody>
</table>

**Grounding**

Protective Earth (PE) must be connected to the grounding stud to reduce the risk of electric shock. The conductor providing the connection should have a ring lug and wire larger than or equal to 4 mm² (12 AWG). The ring lug should be placed between the nut and a star washer. (To secure the ground strap, use an 8-32 “K-LOK” locknut, stainless steel, 3/8” O.D.)

All chassis grounding should go to a single ground point designated for the machine and all related equipment.

The ground strap that provides a low impedance path for EMI should be a ½ inch wide, flat, hollow braid, no more than 12 inches long with a suitable sized ring lug for the module’s grounding lug. It may be used in place of the PE grounding conductor and would then perform both PE and EMI grounding functions.
### Mounting

Mounting ledges include holes sized for #10 or M5 bolts. The bolt length will be determined by the end-user’s mounting plate thickness. Typically ¾ inch (20 mm) is adequate.

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.

All field wiring should be suitable for the operating temperature range of the module.

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).

### Configuration

- For standard operation follow the set up instructions above.
- 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.

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.

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