

# 24Vdc/12Vdc Step Down Converter

24 Vdc Input  
12Vdc, 180 W Output  
P/N: AX082700

## Clean power in a rugged package

- Wide input operating voltage 18 to 36 Vdc (24 Vdc nominal)
- Conditioned output of 12 Vdc (factory set)
- High current output capability 15 A continuous
- 180 Watts output power
- Switch mode operation delivers very high efficiency >92%
- Design manages heat dissipation avoiding forced cooling
- Reverse polarity, input under/over voltage protections
- Inrush current limit
- Overtemperature protection
- Short-circuit protection
- Rugged and highly reliable
- Compact size
- Suitable for moist, high shock and vibration environments
- Operational from -40 to 85°C
- IP67 protection
- EMI/EMC compliant
- Withstands up to 100V input surge

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**Applications:** Designed to interface between 24V batteries and 12V electrical systems such as solenoids, relays and other electrical systems found on mobile equipment, lift trucks and buses.

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**Description:** The DC-DC Converter provides regulated 12Vdc power suitable for solenoids, relays and other electrical systems. For operation under the harshest and demanding conditions, the IP67 rated unit protects against moisture, shock and vibration. Power from a battery or other source of 24 Vdc is converted to a 12 Vdc output. The unit has a high current output capability of 15 Amps. The device manages heat dissipation and requires no forced cooling systems. Short-circuit and reverse polarity protections are provided. The compact unit is designed with extremely rugged surge and transient suppression in addition to sustained over/under voltage protection. With a nameplate rating of 180 Watts of output power, the DC-DC Converter provides proprietary dual-phase topology for a high efficiency of >92%.

## Ordering Part Numbers:

Converter with Wire Harness KIT:

**AX082700K** (KIT AX082700 Converter, WH-DTP06-4S-S-2M Wire Harness)

Items can also be ordered individually.

Converter: **AX082700**

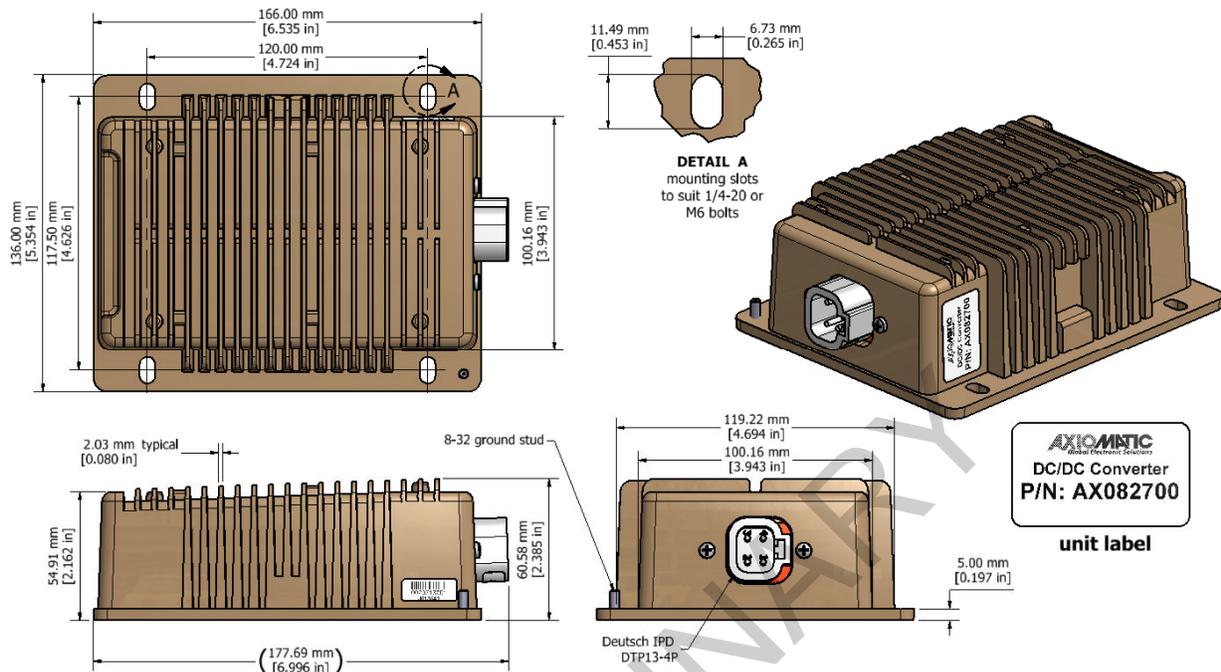
Mating Wire Harness, 2 m: **WH-DTP06-4S-S-2M**

## Technical Specifications:

All specifications are typical at nominal input voltage and 25 degrees C unless otherwise specified.

Input Specifications		Output Specifications	
Power Source	24 Vdc nominal	Nameplate Rating (Output Power)	180 Watts nominal
Operating Voltage Range	18 to 36 Vdc	Output Current (DC)	15 A continuous
Maximum Input Current	11 A <sub>DC</sub> @ 18 VDC, 15 A I-output	Output Voltage	11.9 To 13.8V Factory set at 12 Vdc (nominal) ± 1%
Inrush Current Protection	Provided	Output Voltage Ripple	V <sub>O(RIPPLE)</sub> ≤ 100 mVpp
Input Reverse & Under/Over-voltage Protection	Provided Turn-on 19V Turn-off 17.5V	Rise Time (with full load)	30-70 msec. at maximum load
Output Over-voltage Protection	Provided 17V typical	Turn-on Overshoot	None
Isolation	Not provided	Stability	Stable at all load conditions
		Transient Response	5% of Output Voltage (25% - 75% Load, V <sub>in</sub> = 48V)
		Short-Circuit Protection	Provided, Auto-recover
		Overload Protection	Provided 16.5 ±1.5A
General Specifications			
Efficiency	>92%		
Quiescent Current	50 mA @ 24Vdc Typical		
Operating Temperature	-40 to 85°C (-40 to 185°F)		
Storage Temperature	-40 to 85°C (-40 to 185°F)		
Humidity	0-99% relative humidity (non-condensing)		
Vibration	MIL-STD-202G, Test 204D and 214A (Sine and Random), Test 213BA – 6 ms (Shock) 15 g peak (Sine) 7.68 Grms peak (Random) 50g (Shock)		
Protection rating	IP67		
Electrical Connection	4 pin Deutsch connector P/N: DTP04-4P-L012  <u>Pin Out</u> 1. Power + 2. Output + 3. Output – 4. Power –  A mating plug assembly with 12 AWG unterminated lead wires is available. Ordering P/N: <b>WH-DTP06-4S-S-2M</b> (The mating plug assembly is comprised of Deutsch P/N: DTP06-4S, WP4S and four contact sockets 0462-203-12141 with 2 meters (6.5 ft.) of 12 AWG lead wire, unterminated.)  <u>Wire Harness Pin out:</u> Input + Red Output + Red/White Output – Black/White Input - Black		
Weight	3.00 lbs. (1.37 kg)		
Dimensions	5.35 x 7.00 x 2.39 inches (W x L x H including connector) 136.0 x 177.7 x 60.6 mm		

## Dimensional Drawing



<b>Installation</b>	
<b>Set up</b>	
<ol style="list-style-type: none"> <li>1. A 15A 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. Snap the mating plug connector with wiring harness into the receptacle mounted on the converter.</li> <li>4. Once the load is ready to receive power, turn on the power source to the converter.</li> </ol>	
<b>Grounding</b>	<p>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 mm<sup>2</sup> (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.)</p> <p>All chassis grounding should go to a single ground point designated for the machine and all related equipment.</p> <p>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.</p>
<b>Mounting</b>	<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>
<b>Paralleling</b>	The converters can be installed in a parallel configuration for current sharing or redundancy.

Specifications are subject to update without notice.  
Form: TDAX082700-11/23/16