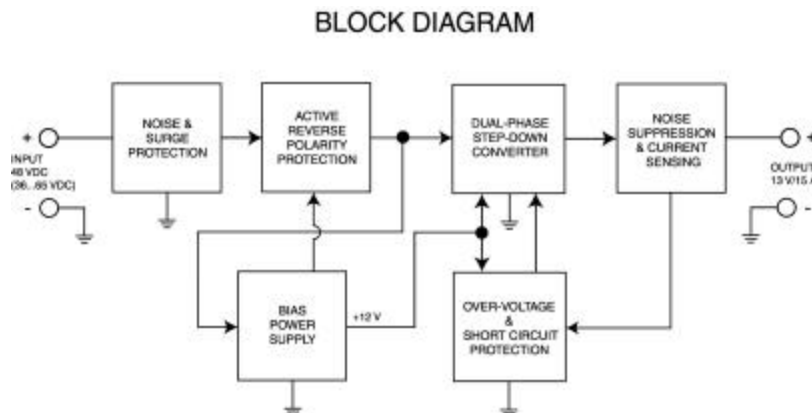


TECHNICAL DATASHEET #TD3000AX  
**DC-DC Converter**  
**(48 VDC to 12 VDC)**  
P/N: SMP-BAC-48VD-12VD-01

## Clean 12 VDC power in a rugged package

- Wide input operating voltage from 35 to 65 VDC (48 VDC nominal)
- Conditioned output of 12 VDC with low ripple
- High current output capability (15 A nominal, 20 A peak)
- Switch mode operation delivers very high efficiency >93%
- Design manages heat dissipation avoiding forced cooling
- Reverse polarity protection
- Short circuit protection
- Robust, rugged and highly reliable
- Compact size for ease of mounting in confined spaces
- Suitable for moist, high shock and vibration environments
- Operational from -30 to 74°C
- IP67 protection
- Low emissions



**Application:** Designed to interface between 48V batteries and 12V electrical systems such as 12V solenoids, relays and other electrical systems.

**Description:** The DC-DC Converter provides clean 12 VDC power suitable for 12V solenoids, relays and other electrical systems. For operation under the most harsh and demanding conditions, the IP67 rated unit is fully sealed and potted in an enclosure to protect against moisture, shock and vibration. Power from a battery or other source of 48 VDC is converted to a 12 VDC output regulated to 0.5%. The unit has a high current output capability of 15 Amp nominal (20 Amp peak). The device manages heat dissipation and requires no forced cooling systems. Short circuit and reverse polarity protection are provided. The compact unit is designed with extremely rugged surge and transient suppression in addition to sustained over/under voltage protection. It is designed to comply with the electromagnetic interference requirements of a CE mark. With a nameplate rating of 180 VA of output power, the DC-DC Converter features proprietary dual-phase topology for a high efficiency of >93%.

## Technical Specifications:

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

Input Specifications		Output Specifications	
Power Source	48 VDC nominal	Nameplate Rating (Output Power)	180 VA nominal (240 VA peak)
Operating Voltage Range	36 to 65 VDC	Output Current (DC)	15 A continuous (20 A peak)
Maximum Input Current	6 A <sub>DC</sub> @ 36 VDC, 15 A I-output	Output Voltage	12 VDC ± 3%
Inrush Current	None	Output Voltage Ripple	V <sub>O(RIPPLE)</sub> ≤ 100 mVpp
Reverse Voltage Protection	Provided	Turn-on Time (with full load)	100 msec. Maximum / 5% of final value
Over-voltage Protection	Provided	Turn-on Overshoot	None
Under-voltage Protection	Provided	Stability	Stable at all load conditions (no minimum load required)
		Transient Response	200 mV/1.5 ms (No Load to Full Load) 100 mV/1 ms (50% - 100% Load)
		Short Circuit Protection	Provided
		Overload Protection	Output foldback to 10 A @ 0 Ohms

General Specifications	
Efficiency	>93%
Operating Temperature	-30 to 74°C (-20 to 165°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Humidity	0-99% relative humidity (non-condensing)
Protection rating	IP67
Electrical Connection	4 pin Deutsch connector P/N: DTP04-4P-L012 Power +, Power – Output +, Output – See page 3 for pinout. A mating plug assembly with 12 AWG unterminated lead wires is available. Ordering P/N: WH-DTP06-4S-S-2M (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.) Contact the manufacturer for application-specific wiring.
Weight	1.4 kg (3.08 lbs.)
Dimensions	5.50 x 6.77 x 2.37 inches (W x L x H) 139.7 x 172.0 x 60.3 mm

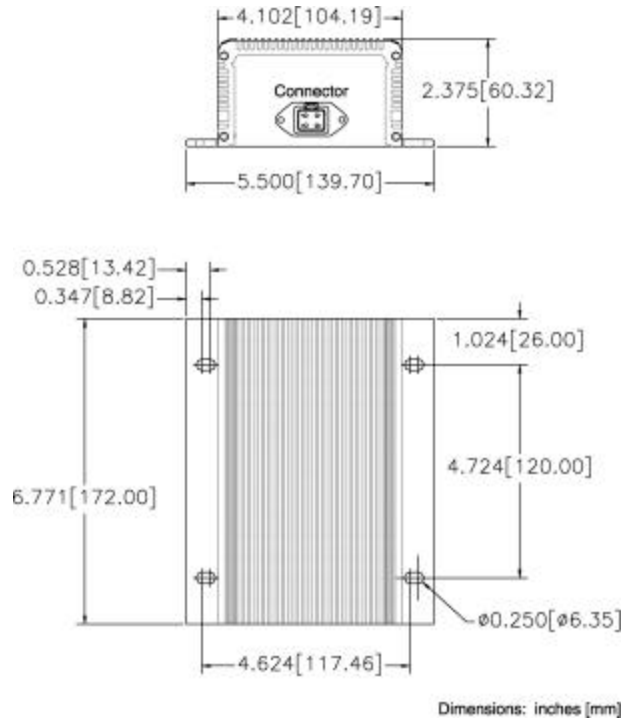
Specifications are subject to update without notice.

### Axiomatic Part No.: SMP-BAC-48VD-12VD-01

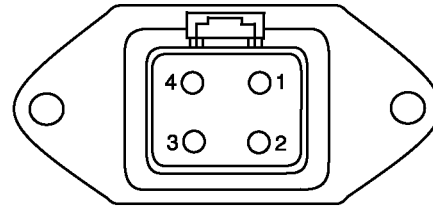
A mating plug assembly with 12 AWG unterminated lead wires is available.

Ordering P/N: WH-DTP06-4S-S-2M

## Mechanical Drawing



## Pin Out



- 1 Input + (red)
- 2 Output + (red/white)
- 3 Output - (black/white)
- 4 Input - (black)

## Installation:

1. A maximum 15A 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. Snap the mating plug connector with wiring harness into the receptacle mounted on the converter.
4. Once the load is ready to receive power, turn on the power source to the converter.