

# Owner's Manual

# DC-DC 750 Converter

*200-400V Input, 12V Output, Battery Charging, with Enable-Disable  
Part #TVS-010057 (no fan) or TVS-010060 (with fan)*

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**Azure Dynamics Inc.**

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**AZD**  
AZURE DYNAMICS  
part of the solution

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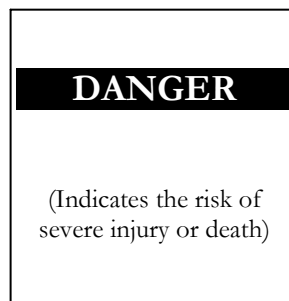
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## Foreword



The information provided in this manual is intended for use by persons with appropriate technical skills. Any effort to perform repairs to, or service your unit without the proper tools or knowledge required for the work can result in personal injury, damage to the product and the voiding of the warranty.

## Safety



### Warning Labels

Notices will be located on the right-hand side of the page to indicate areas in a procedure where precautions should be taken. In areas of a procedure where safety equipment is needed or hazardous conditions may exist, you will find the following symbols:

### *Eye Protection Required*



### *Risk of Electrical Shock*



Always follow any safety instructions that are given at the beginning of a procedure. If you are uncertain as to the safe and proper handling of your unit, contact Azure Dynamics' Product Support Department.

## Overview

The Azure Dynamics DC-DC750 Battery Charging unit is a uni-directional, isolated DC-DC converter that is designed to step your battery pack voltage (range of 200V-400V nominal) down to 12V to run your vehicle's auxiliary systems, such as headlights, windshield wipers, etc. It also keeps your 12V (nominal) battery charged.

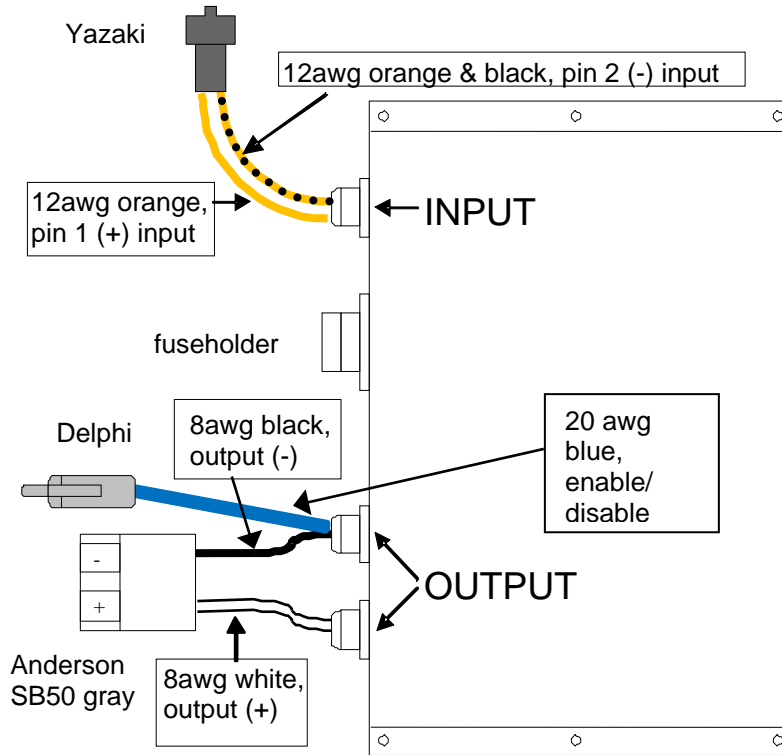
TVS-010057 is the part number for the unit without the fan; TVS-010060 is the part number for the unit with the fan. Otherwise the two are identical, and TVS-010060 is the standard configuration.

The DC-DC features a fuse on the input side (KLM5 midget, 5A/500VDC).

The ground reference on the 12V side is to the 12V battery ground.

The 12V fan on the unit is controlled by an internal temperature switch.

# Layout



12V fan and fan connection not shown.

Looms protecting wires not shown.

## Data Sheet

### Overview

The Azure Dynamics battery charging DC-DC converter will accept a maximum input voltage range of 200 to 400 volts (V), and provides a continuous 750 watt (W) 13.5VDC output to your 12V battery and 12V systems. This unit must be used with a 12V battery.

### Applications and Features

In addition to all of the qualities of the conventional line of Azure's DC-DC converters, the battery charging DC-DC converter has these added capabilities:

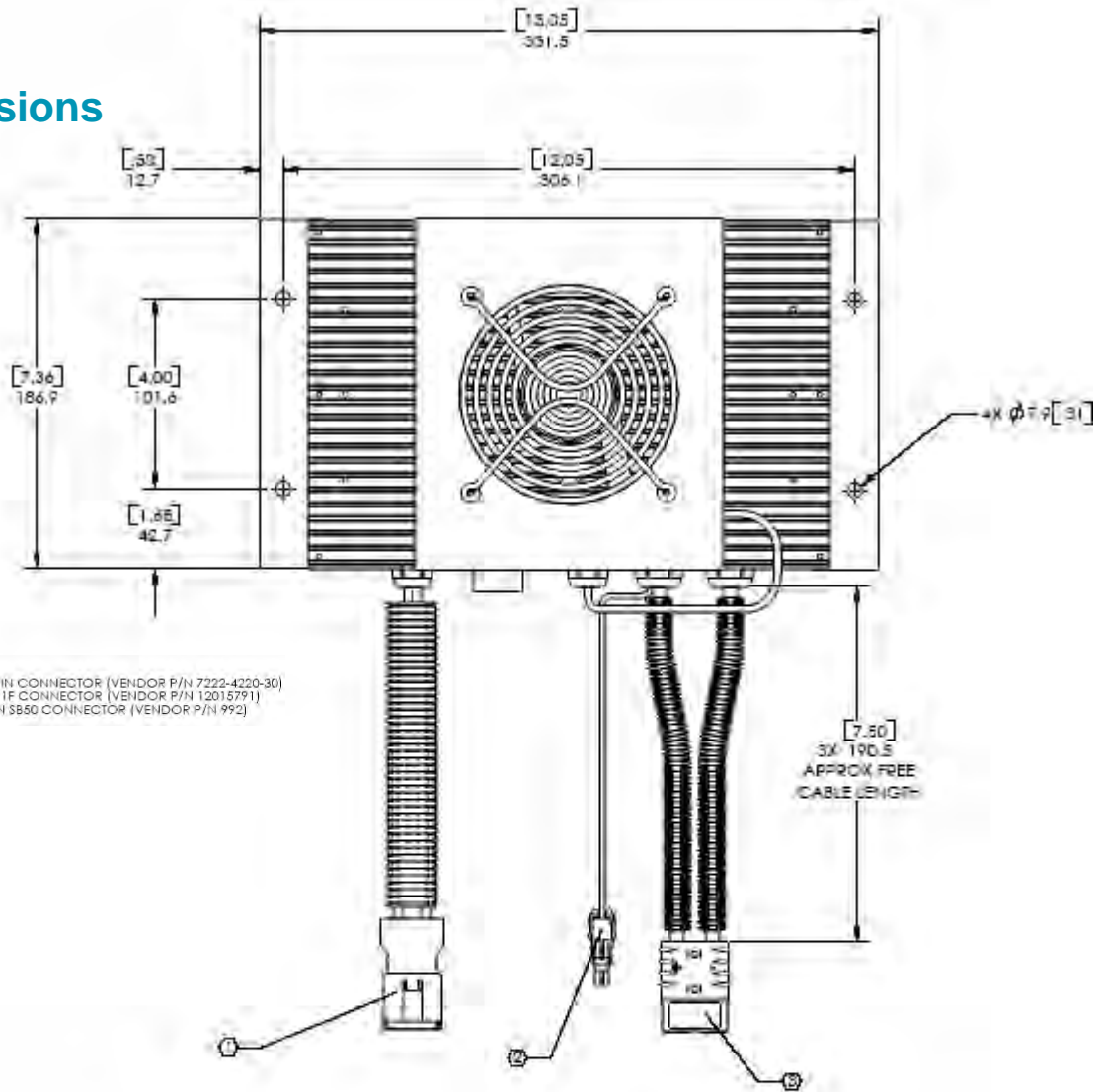
- The battery charging DC-DC converter charges and maintains the 12V battery while powering the vehicle's 12V accessory system.
- The battery charging DC-DC converter can adjust its current output to accommodate the charging requirements of the battery.
- Unlike standard converters, the battery charging DC-DC converter can operate in parallel with another battery charging converter to handle systems with higher power load demands
- The battery charging DC-DC converter has a thermal management system to protect the unit from damage due to excessive operating temperatures.
- 100 CFM cooling fan with mounting brackets (helps maintain high output power)
- Interface package includes mating connectors and mounting hardware

### Specifications

<b>Output Voltage</b>	13.5V nominal
<b>Input Voltages</b>	200V-400V
<b>Output Power</b>	750W
<b>Enable /disable</b>	open / 12V negative
<b>Efficiency</b>	85-90%
<b>Current Peak @ 12V</b>	58A
<b>Weight</b>	3.1kg
<b>Operating Temperatures</b>	-25°C to +85°C
<b>Fuse (input side only)</b>	KLM5 5A midget, 500VDC

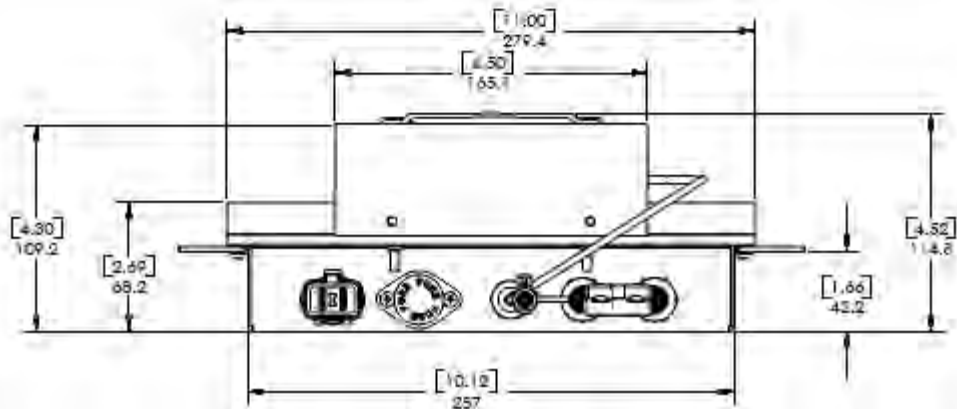


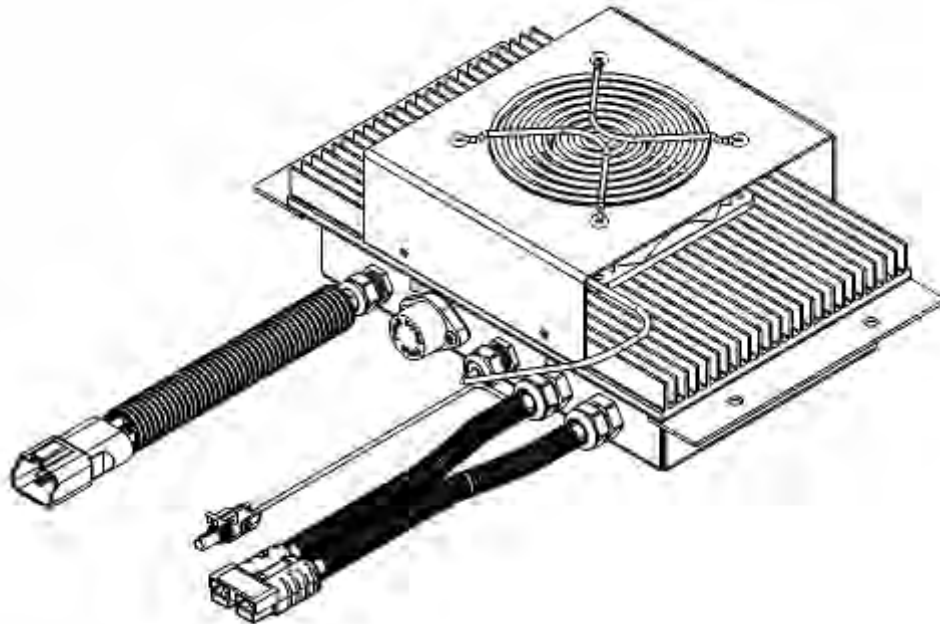
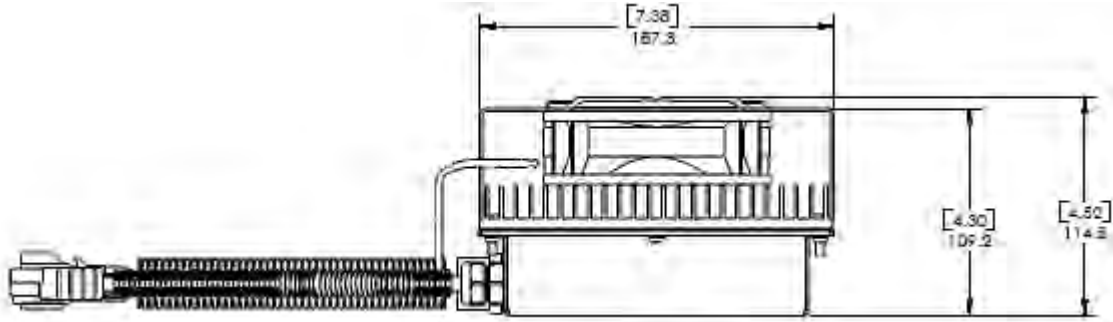
## Dimensions



**NOTES:**

1. YAZAKI 2-PIN CONNECTOR (VENDOR P/N 7222-4220-30)
2. PACKARD 1F CONNECTOR (VENDOR P/N 12015791)
3. ANDERSON SB80 CONNECTOR (VENDOR P/N 992)





## Environment

### **Moisture**

Your converter should be kept dry at all times. The unit is factory sealed to withstand moisture, but is **not waterproof**. Use the following guidelines regarding placement of your unit:

- Avoid locations where your unit will be routinely exposed to water.
- Do not wash your unit with a pressure sprayer. Large amounts of water will cause a malfunction.
- If you have reason to believe water has entered the unit, **DO NOT** open the case. Disconnect your unit and return it for service as soon as possible. Units with extensive water damage may not be repairable. *Units returned to Azure Dynamics with the factory seal broken will result in a voided warranty.*

### **Cooling Air Requirements**

Ample airflow must be available to cool your converter. Your unit's performance and lifetime will both be reduced if cooling air is not available. If your unit is running at a temperature of 75°C or greater, the output current will be limited to 50% of the rated maximum.

The DC-DC unit must have proper ventilation in order to perform to specification. TVS-010057 (without fan) should be mounted with the fins up, to provide the best natural convection cooling. Leave at least 2" of space above the fins for proper ventilation. TVS-010060 (with fan) can be mounted in any orientation. Leave approximately 4" of clearance from the fan and 2" of clearance at the ends of the fins for proper ventilation. For best results, use fresh air to ventilate the unit, rather than relying on air re-circulating in an enclosure.

## Connections

**Two** connections must be made to operate your converter. Be certain that your low-voltage input harness is connected to your 12V system. Mate the 2-pin Anderson SB50 **low voltage output system connection to your low-voltage input harness**, as shown in the photo.

To bring **high voltage input** power to your unit you must connect the two-pin, two-wire high-voltage input Yazaki connector to your **high-voltage output harness**, as shown in the photo below:



High-Voltage Input: Yazaki Connector



Operation of your converter begins as soon as the unit is connected to a power source.

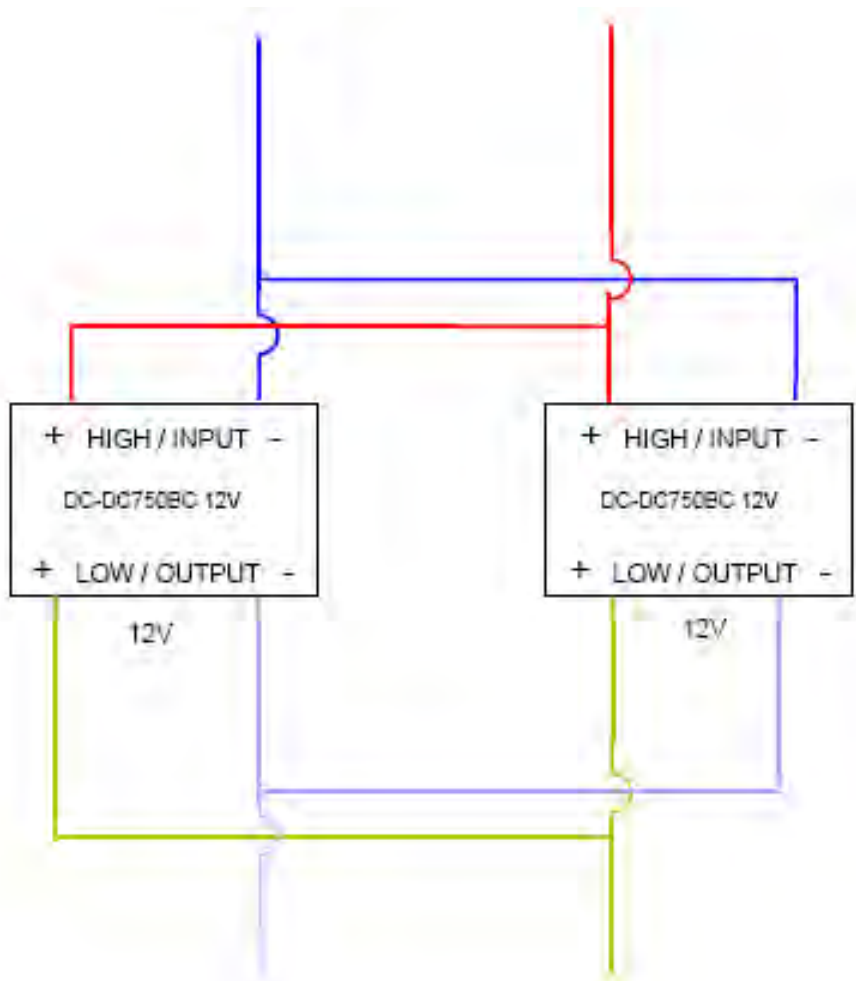
If your unit is not operating after having been linked to a power source, *carefully* check for possible loose connections. If you are still experiencing difficulties in getting your unit to begin operation, call the Azure Dynamics Product Support Department at the number provided in your warranty.

## Enable-Disable Function

The 20 AWG blue wire is a disable wire that shuts down the unit. To disable the unit, ground the blue wire to the 12V battery negative. If your system does not need to use this wire, it is ok to leave it unconnected.

## Paralleling Multiple Azure Dynamics Battery Charging DC-DC Converters

We recommend that the red and blue wires be the same length (i.e. have the same resistance). Same applies with the green and purple wires. This is to keep the impedance the same and balance the DC-DCs.



## Warranty

In an effort to keep our customers completely satisfied with the quality and performance of items purchased from Azure Dynamics, the following warranty policy applies.

Azure Dynamics Corporation shall pay for the repair or replacement (at our option) of any component found to be defective due to flaws in materials and/or workmanship within the first 12 months following the date of shipment with no (US\$0.00) deductible, with the exceptions noted below. The customer shall pay for the shipping cost to return the unit(s) to Azure Dynamics. For warranty repairs and replacements, Azure Dynamics will pay the shipping costs (via UPS Ground) of returning the unit to the customer. Azure Dynamics will not pay for the cost of rush delivery.

For the purpose of this warranty, components include but are not limited to motors, motor controllers, DC-DC converters, battery chargers, amp-hour counters, etc.

This warranty **does not cover**:

- Products that have been opened, tampered with, or modified in any way.
- Items defined as routine maintenance.
- Damage caused by misuse, accident, alteration, lack of maintenance, inadequate packaging or use of incorrect lubricants.
- Damage or corrosion caused by exposure to after-market products, the environment, or chemical treatments, and;
- Wear items including but not limited to extension cords, plugs, connectors, cables, and enclosures.

In the event that it becomes necessary to return a product to us for service, call ahead for a Return of Merchandise Authorization Number to help expedite the repair. Any item being returned should be wrapped securely in the original or similar packaging to prevent damage in transit. Use the following guidelines for packing your unit for return shipment.

### **Keep your shipping carton!**

Your carton is specially designed to prevent shipping damage to the metal case and cable connectors of your unit. If you have not retained the original shipping container please triple-wrap it with large cell bubble-pack and place it securely in a double-walled, corrugated carton for shipment back to Azure Dynamics. Any repair costs for the unit that are associated with case damage due to improper shipment will be borne by the carrier or the customer and will affect your warranty.

Customer will be charged an evaluation fee for non-warranty items returned to Azure Dynamics. Warranty items returned to Azure Dynamics that are found operable will also incur an evaluation fee. Call Azure Dynamics' Product Support for details.

Please call Azure Dynamics Product Support at 781-932-9009 or 866-933-9009 or email us at [productsupport@azuredynamics.com](mailto:productsupport@azuredynamics.com) to get a Return Material Authorization number (RMA #)

Please have the following information available when you contact us:

1. Date unit was purchased
2. Serial Number
3. Conditions at the time of failure
4. Your contact information
  - a. name
  - b. phone number
  - c. e-mail address

Returned items should be sent to:  
Azure Dynamics Corporation  
Component Service Department  
9 Forbes Rd  
Woburn MA 01801 USA

(write the RMA # on the outside of the shipping container)

All items returned for repair must include a letter indicating return address and contact, model number, serial number, date of purchase and reason for return. If this information is not provided, the repair may be delayed.

Please call Azure Dynamics' Product Support at 781-932-9009 or 866-933-9009 (24 hour support), fax us at 781-932-9219 or email us at [productsupport@azuredynamics.com](mailto:productsupport@azuredynamics.com) if you have questions.