

DC-DC Converter User Manual



96V-12V



96V-24V



96V-48V

THANK YOU

Thank you for purchasing a product from ePropulsion, the world leaders in clean, safe, and reliable electric marine propulsion systems and energy solutions. We are confident that you will be satisfied with your new device and welcome your feedback at www.epropulsion.com.

Conditions of Use

Before using this product, please read this user manual carefully to ensure you understand how to operate it correctly and safely. Do not use the electric energy product until you comprehend its operation. By using this product, you confirm that you have fully read, understood, and agreed to all contents of this manual. Avoid lending the product to anyone unfamiliar with its use. ePropulsion is not liable for any economic loss or personal injury resulting from non-compliance with the instructions provided in this manual.

Please be aware that ePropulsion continually optimizes its products and reserves the right to update this manual at any time. For the latest version, visit www.epropulsion.com. If you notice any discrepancies between your product and this manual or have questions, please check the website or contact us. ePropulsion retains the final interpretation rights for this manual.

This manual is available in multiple languages; in case of discrepancies, the English version will take precedence. ePropulsion also holds all relevant intellectual property and industrial rights, including copyrights, patents, trademarks, and designs.

Safety Warning

ePropulsion prioritizes safety and aims to minimize risks to individuals and property. We recommend that anyone who comes into close contact with our products exercise caution, use common sense, follow the instructions in this manual, and pay special attention to the safety information provided both in the manual and on product labels. This includes individuals involved in the installation, operation, maintenance, and servicing of the product. The following information symbols are included in the user manual and/or on labels attached to the product:

Danger or Warning Signs:

These signs indicate potential hazards or serious risks that, if not addressed, could lead to death or severe personal injury. Please exercise extra caution and attentiveness to ensure your safety and the safety of the product.

**Important warning:**

Tips or important points of information that help quickly grasp the use of the energy device and enhance efficiency. Please read and follow the instructions following the safety warning signs.

**Caution:**

When installing, operating, maintaining or servicing ePropulsion products, there are many safety risks. It is essential to stay alert, carry out relevant tasks sensibly, and prioritize safety.

**Electric shock hazard:**

These areas or components may pose a risk of electric shock. The equipment uses 102.4V DC power. When accessing or opening electrical connectors, switches, cables and other electricity-related items, turn off the power to prevent electric shock.

**Burn hazard:**

Some parts of the outboard become very hot during operation and may remain hot even after it is turned off. Keep hands and other body parts away from these areas.

**Do not connect or disconnect when the outboard is running:**

These parts may pose a risk of electric shock if connected to or disconnected from the power supply during operation.

Product Serial Number

The serial number is located as shown below. Please take note of it and keep it in a safe place, as it may be required when purchasing accessories or if you need service or warranty.

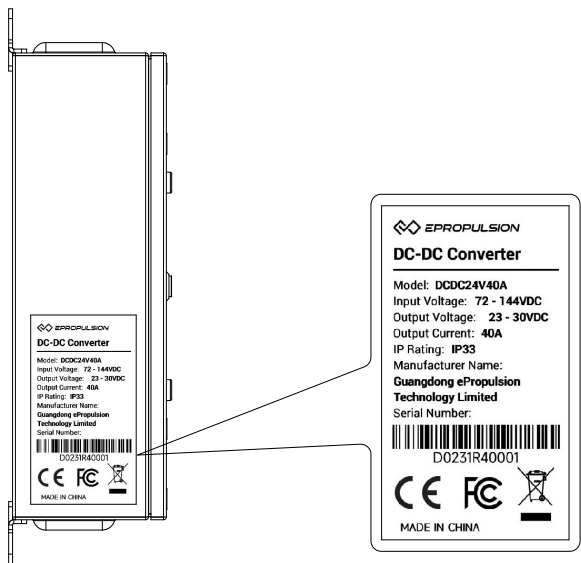


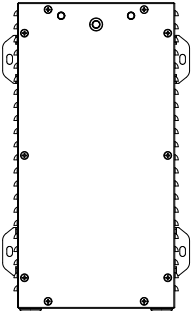
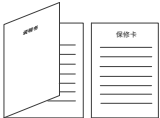
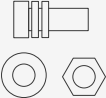
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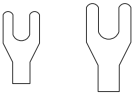

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1 Product Introduction

This DC-DC converter transforms 102.4VDC from the DC busbar into 12VDC, 24VDC, or 48VDC for daily loads. The device outputs a constant voltage depending on the selected modules and includes built-in overcurrent and overtemperature protection. Additionally, the DC-DC converter can be manually turned on or off using the switch located at the top of the device.

1.1 In the Package

Items	Qty.	Figure
96VDC-12VDC DC-DC Converter 96VDC-24VDC DC-DC Converter 96VDC-48VDC DC-DC Converter	1	
Silica Gel Desiccant	1	/
User Manual	1	
Phillip Combination Screw M6×16	6	
Plain Washer M6x12x1.0	6	
Hex Nut M6	6	

Items	Qty.	Figure
Cable lug UT4-5	4	
Cable lug UT16-6	3	
Heat-shrink tubing (red)	1	
Heat-shrink tubing (black)	1	

1.2 Specification

Content	Parameters
Input Voltage	72-144VDC
Input Current	≤11.6A
Output Voltage	12V: 11 -15VDC 24V: 23 -30VDC 48V: 46 -60VDC
Output Current	12V: ≤60A 24V: ≤40A 48V: ≤21A
Power	12V: 720W 24V: 960W 48V: 1008W
Operating Temperature	-20°C-55°C (Derating starts at 45°C)
Protection Rating	IP33
Dimensions	310*220*116.5mm
Weight	3.8Kg
Certifications	CE、FCC

1.3 Declaration of Conformity

We Guangdong ePropulsion Technology Limited, hereby, declare that this equipment is in compliance with the applicable Directives and European Norms, and amendments.

Object of the Declaration:

Product: DC-DC Converter

Model: DCDC12V60A, DCDC24V40A, DCDC48V21A



The object of the declaration is in conformity with the following directives:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Restriction of Hazardous Substances Directive 2011/65/EU and Delegated Directive (EU) 2015/863
- Regulation on General Product Safety 2023/988
- EC REACH Regulation (EC 1907/2006)
- Low Voltage Directive 2014/35/EU

Applied Standards:

- EN 55032:2015+A11:2020
- EN 55024:2010+A1:2015
- EN 55035:2017+A11:2020
- EN 62368-1:2014+A11

FCC Compliance Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Manufacturer

Name: Guangdong ePropulsion Technology Limited

Address: Room 801, Building 1, 11 Daxue Road, Songshan Lake, Dongguan, Guangdong Province, China

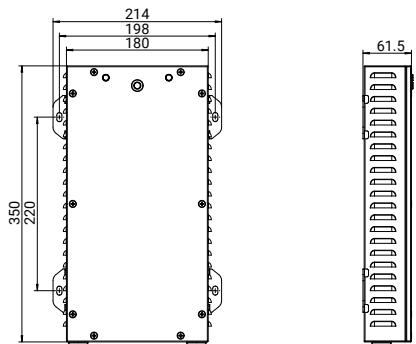
Signature:

Date: 2nd of June, 2025

Shizheng Tao, Chief Executive Officer & Cofounder of
Guangdong ePropulsion Technology Limited

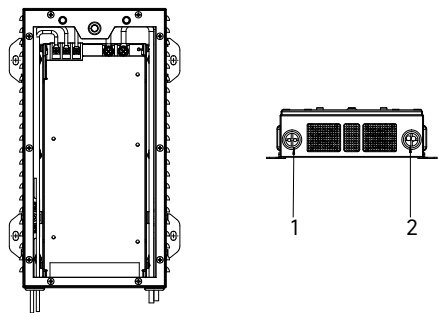
2 Product Wiring & Installation

2.1 Dimensions



2.2 Interface Diagram & Installation Requirement

2.2.1 Interface Diagram



Interface	Label	Usage	Connection Method	Wire Specifications
1	Power Input	Bolted Connection, Cable Crimped with UT4-5 Terminal	1: DC INPUT V+ 2: DC INPUT V- 3: FG	4mm ²
2	Power Output	Bolted Connection, Cable Crimped with UT16-6 Terminal	+V: DC OUTPUT V+ -V: DC OUTPUT V-	16mm ²

2.2.2 Installation Requirements

Tools Required:

1. Phillips Screwdriver (PH2)
2. Cable Cutter: EC-50M

3. Wire Stripper: SW-1018
4. Crimping Tool
5. M6 Wrench

Materials Required:

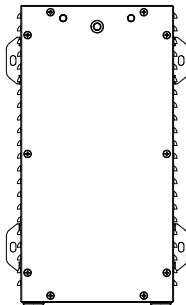
1. DC-DC Converter (includes 4 screws, 4 plain washers, 4 hex nuts, 3 cable lug UT4-5, 2 cable lug UT16-6 and heat-shrink tubing).
2. Cable Ties
3. Heat Gun

Installation Instructions



Requirements:

The product must be mounted on a vertical wall plane with sufficient structural strength to support the unit. Reserve 20cm of cable bending space at the product's bottom, and ensure the space on both sides is over 10cm.

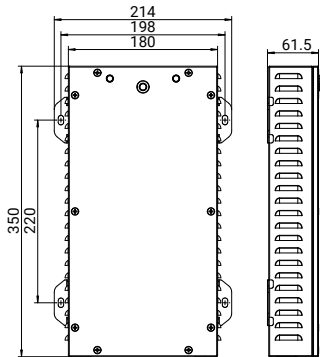


Protection Rating:

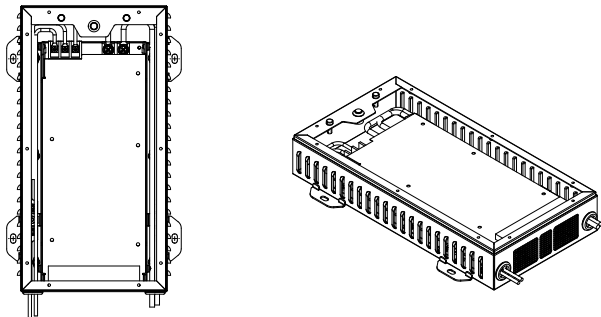
IP33. Install in a dry, clean compartment with moderate water splash risk.

Installation Steps:

1. Drill holes on the wall according to the diagram and installation requirements.
2. Remove the DC-DC converter unit, screw kit, terminal kit, and small wrench from the packaging.
3. Remove the ten screws with a screwdriver. Open the panel carefully, noting the internal wiring connections.
4. Unscrew the ground wire fixing nut on the panel to disconnect it from the main unit.



- 5. Secure the device to the wall using the four bolts.
- 6. Feed power cables through the cable grommet and begin terminal crimping.
- 7. Pass crimped cables through the product’s ports as shown in the diagrams.

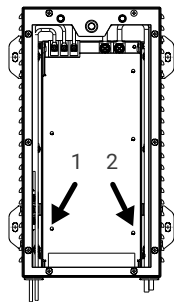


- 8. Loosen (do not remove) terminal screws with a Phillips screwdriver. Position UT terminals per the diagram and tighten to the torque values in **Table 1**.

Table 1: Screw Torque Specifications

Position	Specification	Torque
Terminal Fixing Screws	M4	1.5 Nm
Ground Wire Screws	M5	3 Nm
Panel Fixing Screws	M4	1.5 Nm
Mounting Screws	M6	5.2 Nm

- 9. Secure cables at Positions 1 and 2 using cable ties.



- 10. Confirm all cable connections are secure.
- 11. Fasten the panel with ten screws using a Phillips screwdriver.

3 Functions

1. **Voltage Conversion:** Converts 96VDC to 12VDC, 24VDC, or 48VDC.
2. **Local Start/Stop Control:** Output is enabled only when the front-panel button is pressed.
3. **Green LED (RUN):** Illuminates when output is active.
4. **Red LED (FAULT/STOP):** Illuminates during faults or shutdown.
5. **No Input Voltage:** All LEDs remain off.

4 Limited Warranty

Guangdong ePropulsion Technology Co., Ltd. ("ePropulsion"), China, warrants its products to be free of defects in material and workmanship under normal usage with proper installation and routine maintenance for a period of twenty-four (24) months from the date of delivery of invoice (the "Limited Warranty Period"). The Limited Warranty is provided to the first end customer of ePropulsion products ONLY. The Customer is entitled to free repair or replacement of defective or non-conforming parts. Any warranty claim must be made within six (6) months of discovery of issues as provided below.

If the Limited Warranty Period has expired, you can still enjoy maintenance services from dealers/distributors authorized by ePropulsion (the "ePropulsion Service Partners") who will endeavour to keep costs to a minimum.

In all warranty cases, ePropulsion will only bear the repair or replacement cost for items that are covered by the Limited Warranty. Any costs not covered by the Limited Warranty – such as those related to product installation, disassembly, transportation, financing, rental, etc – shall be borne by the customer alone.

Beyond the Limited Warranty, the Customer may have statutory rights in their jurisdiction according to applicable laws. Nothing in this Limited Warranty affects such rights. The Customer may have warranty claim rights arising from the purchase contract with ePropulsion Service Partners in addition to the rights granted by this Limited Warranty.

Products used for commercial or professional purposes*, even if only temporarily, are not covered by the Limited Warranty. Instead, the statutory warranty in your jurisdiction shall apply. You are encouraged to consult with ePropulsion Service Partners for applicable warranty and advice before engaging in such use.

*** Commercial/Professional Purposes include those where the product is used with the intention of making profit, or high frequency, or very high reliability requirements, etc .**

To keep your warranty valid, please note the following:



Products without the original product label will not be covered by ePropulsion's Limited Warranty. Keep the product label intact and record the serial number from it. Never remove the label from the product;



The Limited Warranty is not transferable and will not be reissued;



The Limited Warranty may change from time to time. Please visit our website (<http://www.epropulsion.com>) for the latest version.

Capacity guarantee for high-voltage batteries

A guarantee of the capacity of the high-voltage batteries, in addition to the standard guarantee. Depending on the long-term average temperature and the usage profile, this guarantee runs for a longer life.

Comment on average temperature:

The average temperature is calculated using the Arrhenius equation; this means that higher temperatures are given a greater weighting.

4.1 Warranty Exclusions

ePropulsion may refuse a warranty claim if:

- The product is operated in contradiction to what is written in the user manual;
- Damage is caused by accident, misuse, dropping, improper care or storage, wilful abuse, physical damage, unauthorized repair;
- Water ingress is caused by external sources such as fishing nets, submersion, etc;
- Product has been modified, altered, dismantled, or had parts/accessories attached in any way not expressly permitted or recommended by ePropulsion;
- Due to failure of, or damage caused by, any 3rd party products;
- The high-voltage batteries have been repositioned in the boat, without contacting ePropulsion service. Repositioning may result in changes to cabling, and other risks to system operation;
- The battery has been incorrectly charged, overcharged, over-discharged, or operated in temp out of scope described in the user manual;
- Consumables (such as replacement propeller, anodes, oil/fluids...etc.);
- Purchases of products from unauthorized dealers or sellers;
- Normal wear and tear and routine servicing;
- Damage caused by improper packing or handling of the product during its return. The additional damage part will be deemed out of warranty;
- Incorrect shipping of lithium batteries. These are classed as a UN9 hazardous item, and must be shipped in accordance with regulations in your jurisdiction. Non-compliance may result in warranty exclusion.

4.2 Limited Warranty Claim Procedures

The process shown below must be followed in order to make a Limited Warranty claim:

1. Contact your nearest ePropulsion Service Partner with details of the problem. They will advise if such defects are covered by the Limited Warranty or any additional rights you may have from your purchase.
2. Send the defective product to them (or the Service Partner they advise) together with Proof of 1(st)-time (first time) Purchase (e.g., receipt, invoice, etc., with information of product purchased and date of purchase), the Confirmation of Online Warranty Registration, ex-factory Serial Number, etc. Note that all labels must be kept intact. Warranty claims will only be valid only when the information above is correct, genuine, and complete.
3. Make sure the product is properly packed during delivery, the original packaging is highly recommended.
4. The ePropulsion Service Partner will examine and diagnose the defective products to check the validity of the warranty claim.
5. If your warranty claim is accepted, the Product or its defective components/parts will be either repaired or replaced free of charge. Note that any delivery cost incurred in the process shall be borne by you.
6. If your warranty claim is rejected, a repair/replacement cost and fee with round trip delivery cost will be estimated and sent to you for confirmation. ePropulsion Service Partners will only begin the work after your written confirmation that you wish to proceed with the repair/replacement and will pay for it.

ePropulsion

(*In order to validate warranty, please fill in this form first and read the Warranty Policies.)

|| OWNER INFO. ||

Owner Name			
Address			
Phone		Email	

|| DEALER INFO. ||

Store Name			
Address			
Phone		Email	

|| PRODUCT INFO. ||

Date of Purchase (mm/dd/yyyy)	
Serial No.	



Thanks for reading this user manual.

If you have any concerns or find any problems while reading, please don't hesitate to contact us. We are delighted to offer service for you.

Guangdong ePropulsion Technology Limited

Webseite: www.epropulsion.com

E-Mail: service@epropulsion.com