

DC-AC Inverter 96 V - 230 V 6 kW User manual



Mode: DCAC230026(50)

Acknowledgement

Thanks for choosing ePropulsion products, your trust and support in our company are sincerely appreciated. We are dedicated to providing high-performance electric outboards, electric inboards, sup/kayak motors, reliable lithium batteries and accessories.

Welcome to visit www.epropulsion.com and contact us if you have any concerns.

Using This Manual

Before use of the product, please read this user manual thoroughly to understand the correct and safe operations. By using this product, you hereby agree that you have fully read and understood all contents of this manual. ePropulsion accepts no liability for any damage or injury caused by operations that contradict this manual.

Due to ongoing optimization of our products, ePropulsion reserves the rights of constantly adjusting the contents described in the manual. ePropulsion also reserves the intellectual property rights and industrial property rights including copyrights, patents, logos and designs, etc.

This manual is subject to update without prior notice, please visit our website www.ePropulsion.com for the latest version. If you find any discrepancy between your products and this manual, or should you have any doubts concerning the product or the manual, please visit www.ePropulsion.com.

ePropulsion reserves the rights of final interpretation of this manual.

This manual is multilingual, in case of any discrepancy in the interpretation of different language versions, the English version shall prevail.

Warning



Do not dismantle any of the inverter's housings or components. There is a danger of lethal voltages or high energy levels in the internal parts of the device!



Do not touch the input and output terminals of this product directly with your hands while it is energised!

Symbols

ePropulsion considers safety of great importance and recommends that anyone that comes into close contact with its products, such as those who install, operate, maintain or service ePropulsion products, exercise care, common sense and comply with the safety information in this manual and on the machine's safety decals.

The following are the relevant information marks in the user manual or the product labels:

Hazardous or warning signs indicate a potentially hazardous or hazardous situation which, if not

avoided, will result in death or serious injury. Special attention and attention should be paid to the safety of you or the products involved.



Important warning:

Tips or important informations help quickly grasp the use of the inboard motor and improve efficiency.



Caution:

When installing, operating, maintaining or serving ePropulsion products, there are many safety risks in the process. You need to be alert, perform relevant operations reasonably, and pay attention to safety. when installing, operating, maintaining or serving ePropulsion products, there are many safety risks in the process. You need to be alert, perform relevant operations reasonably, and pay attention to safety.



Electric shock hazard:

The areas or equipment may be at risk of electric shock. The equipment uses 230V AC power. When operating electricity-related electrical connectors, switches, cables and other electricity-related items, power off operation to prevent electric shock.

This user manual provides users with instructions for installation, debugging, operation, and troubleshooting of the product. Please keep it safe and read it carefully before using the product.

- Do not install, operate, maintain, or inspect the product until you have thoroughly read and understood this manual.
- Follow the warnings and instructions indicated in the product and accompanying printed materials.

Table of Contents

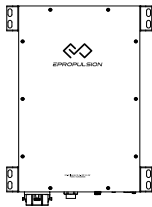
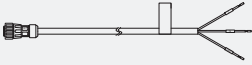

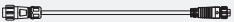
Acknowledgement	1
Instructions for use	1
warning	1
Symbols	1
1 Product Overview	4
1.1 In the Package	4
1.2 Parts and Diagram	5
1.3 Product Dimensions	6
1.4 Specifications	7
1.5 Operating Environment.....	8
2 Installation and Operation	9
2.1 Installation Preparation	9
2.2 Installation Location	9
2.3 Cable Connection, Startup, and Shutdown.....	10
2.3.1 Cable Connection	10
2.3.2 Operating.....	13
3 Warning	14
3.1 Protection.....	14
3.2 Indicator Light	14
3.3 Common Fault Causes and Solutions	15
4 Maintenance	16
5 Warranty	17
5.1 Out of Warranty	18
5.2 Limited Warranty Claim Procedures.....	19

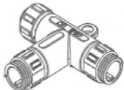
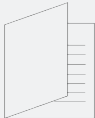
1 Product Overview

This product is a converter that transforms direct current energy into fixed-frequency fixed-voltage alternating current, providing 230V AC power supply for daily equipment use on boats. This product is equipped with thermal sensing devices and features functions such as overheat protection, short-circuit protection, and overload protection.

1.1 In the Package

During transportation, please avoid strong vibrations, falls, and impacts on the product. Do not invert the packaging box, and make sure not to lose accessories and product manuals when unpacking or moving. If any items are missing, please contact your dealer immediately.

Items	Qty.	Figure	Function
Converter main part	1		supply power to 230V devices.
AC output cable	1		Connect to AC devices
DC input cable	1		Connect to the DC power source
Communication cable	1		Communicate with the system
Hexagon cross-slot three combination screw	4	304 M8X25	Used to Install the converter.
Hexagon nut	4	304 M8	/

T-Terminal	1		/
User manual	1		/

1.2 Parts and Diagram

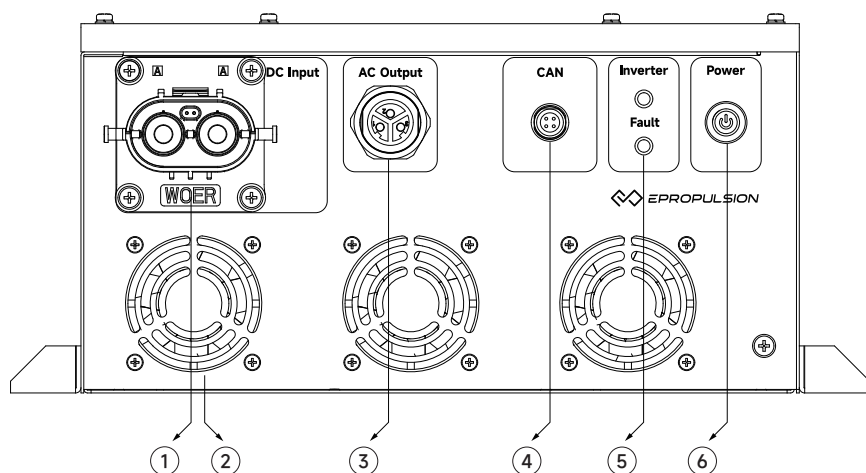


Figure 1-1

No.	Name	No.	Name
1	DC input connector	6	ON/OFF button
2	Ventilation outlet	7	/
3	AC output port	8	/
4	CAN communication port	9	/
5	LED indicator	10	/

1.3 Product Dimensions

The inverter's dimensions are: Length 485 * Width 366 * Height 157mm

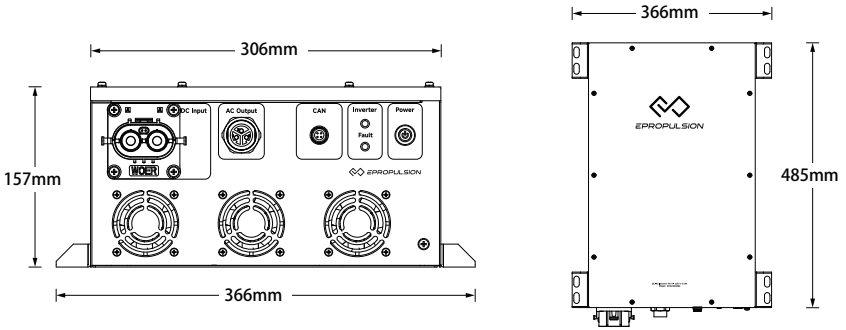


Figure 1-2



When storing the product, please pay attention to the following points to avoid potential adverse effects:

Keep away from corrosive gases and liquids. If the product is left Without uses for a long period, it needs to be powered on every six months.

1.4 Specifications

Actual parameters please refer to the model number

	Model	DCAC230026(50)
DC input	Rated input voltage	102.4Vdc
	Input voltage range	80 - 120Vdc
AC output	Rated power(kW)	6KW
	Rated voltage(V)	230Vac
	Rated current(A)	26
	Voltage deviation	±2%
	Frequency(Hz)	50/60
	Frequency deviation	±0.5%
	Total harmonic distortion (THD) (linear load)	≤5%
	Dynamic response (load 0←→100%)	5%
Environment	Operating temperature	-30°C - +85°C
	Storage temperature	-25°C - +55°C
	Relative humidity	5% - 95%
	IP protection level	IP56
	Model	DCAC230026(50)

1.5 Operating Environment



To ensure the product's optimal performance, The operating environment should at least satisfy the below requirements:

1.Place the product in a clean, dry, and well-ventilated area. (When installing the product in a spacious cabin, make sure to provide ventilation.)

Maintain an appropriate ambient temperature. (The inverter can operate in an environment ranging from -25°C to +55°C; operating in high temperatures is strictly prohibited.)

Maintain the relative humidity within the range of 5% to 95%, avoiding condensation.

2.Altitude $\leq 2500\text{m}$. If the altitude exceeds 1000 meters, it's recommended to reduce the rated capacity of the machine. (For altitudes above 3000 meters, the rated output current decreases by 3% for every 100 meters of altitude increase.)Ensure there are no corrosive gases or other corrosive substances nearby, and no flammable or explosive items.

3.Ensure the input power supply complies with safety regulations.

2 Installation and Operation

The installation of this product requires careful planning, including selecting the installation location, properly configuring the load, choosing appropriate cables, and ensuring correct connections to ensure safe and normal operation of the product.

2.1 Installation Preparation

1. Before using this product, carefully consider the power of the load equipment to avoid overloading the inverter.
2. Under normal operating conditions, the actual power consumption of the load equipment, especially in standby mode, may be lower than the specified power. Users should use the nominal power of the equipment as the basis for calculations and consider the startup current to ensure sufficient power margin for reliable inverter power supply.

2.2 Installation Location

1. Choose the installation location based on principles of heat dissipation, easy wiring, and compliance with the requirements of the product's operating environment. Select a stable installation location whenever possible.
2. Keep the air inlet and outlet unobstructed. Maintain at least 300mm of clearance around the air inlet and outlet. Ensure there is enough operating and maintenance space based on the installation conditions.
3. When installing vertically, pay attention to foreign objects falling into the air duct to avoid blocking the product inlet and outlet
4. Ensure the product is securely installed to prevent shaking or falling.
5. Use M8x15 combination bolts to secure the product in place using the designated mounting holes. The tightening torque of the bolts should be at least 18Nm.

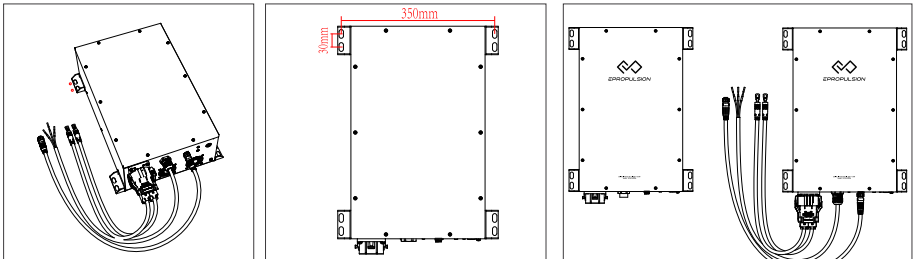


Figure 2-1

- 💡 The installation position should be far from water, steam, and other liquids. Keep away from flammable and explosive materials.
- 💡 Avoid installing or storing the inverter in environments with high corrosiveness, high dust levels, high temperatures, high humidity, and especially environments with metal substances that could fall into the enclosure.
- 💡 Do not place any objects on top of the enclosure. Parallel operation is not supported.

2.3 Cable Connection, Startup, and Shutdown

💡 Prior to connecting cables, disconnect the upstream power source.

- Ensure reliable grounding of the inverter. Use thicker ground cables if possible and connect them close to the inverter. Keep the grounding cable short.
- Use cables that meet the requirements. Avoid using cables that are overloaded to prevent fire or electric shock accidents. Even after cutting off the input power supply, there will still be high voltage inside the inverter. Do not open the enclosure to touch internal components, as this could cause harm to operators and the product.

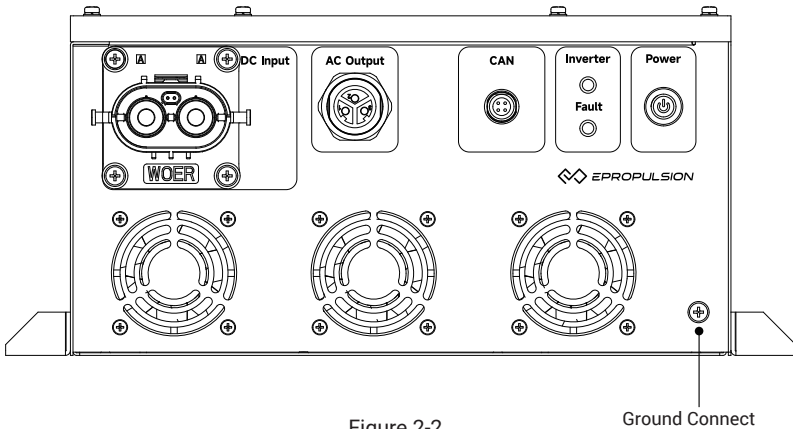


Figure 2-2

Ground Connect

2.3.1 Cable Connection

DC input cable and port definition:

- ① is the DC input socket of the inverter (meaning of ① detailed in 1.2 Parts and Diagram). The connector of the DC cable is designed with an anti-reverse lock to match the inverter's DC input port. Pay attention to the direction of the lock when connecting.
- Ensure the polarity of the DC cable input terminals is correct. After connecting the connectors, tighten them securely.
- Make sure to disconnect the power source before connecting..

- Maintain a natural curve on the cable. Avoid forcefully bending it.
- Maintain a natural curve on the cable. Avoid forcefully bending it

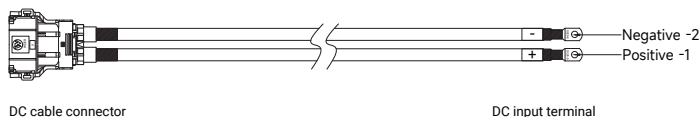


Figure 2-3



Figure 2-4

Pin	Definition	
1	Positive (+)	/
2	Negative (-)	/

AC Output Cable and Port Definition:

- ③ is the AC output port of the inverter (the significance of position ③ is detailed in section 1.2 Parts and Diagram). The AC cable connector and the inverter's AC output port are designed with anti-reverse locking mechanisms. Please pay attention to the phase sequence and numbering of the AC cable connectors when connecting them to the inverter's AC output port.
- During installation, ensure the correct phase sequence of the AC cable output end. After connecting the connectors, tighten or secure them.
- Make sure to perform the connection after disconnecting the power source.
- The cables should be bent naturally and not forcefully folded.

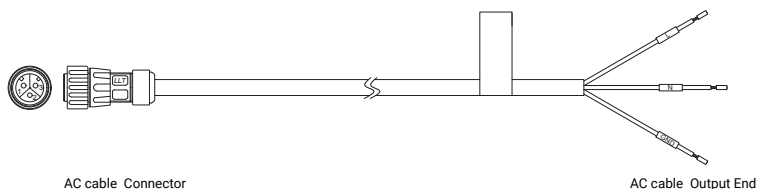


Figure 2-5

Output End cable Numbering	Output End cable Color	Definition
1	Brown L	L (Line)
2	Blue N	N (Neutral)
3	Yellow-Green GND	GND (Ground)

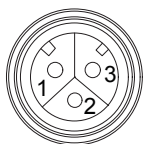


Figure 2-6

Pin	Definition	Note
1	Line (L)	/
2	Neutral (N)	/
3	Ground (GND)	/

CAN Communication cable and Port Definition:

- ④ is the CAN communication port of the inverter (the significance of position ④ is detailed in section 1.2 Parts and Diagram). The communication cable connectors are designed with anti-reverse locking mechanisms. After connecting the connectors, make sure to tighten or secure them.
- Make sure to perform the Remote Control Connector to the T-terminal after disconnecting the power source.



Figure 2-7

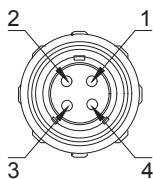


Figure 2-8

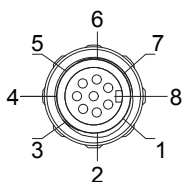


Figure 2-9

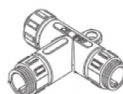


Figure 2-10

Pin Figure 2-8	Definition	Pin Figure 2-9
1	CAN-H	4
2	CAN-L	5
3	/	1
4	/	2
/	/	3
/	/	6

Figure after connecting:

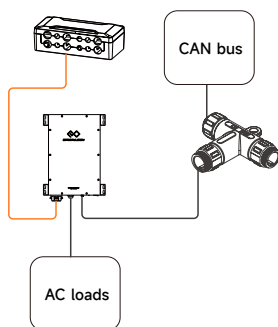


Figure 2-11

Proper operation of the inverter can better ensure its service life and provide high-quality input power to your load equipment.

2.3.2 Operating

1.Startup for the Inverter:

- (1) Turn on the DC input power of the primary stage; connect the AC output cable of the secondary stage.
- (2) Close the inverter switch by pressing it to ON.
- (3) The startup process will take about 10 seconds. When the "Inverter" indicator light is ON, it indicates normal operation.
- (4) Turn on the load device switches one by one.

2.Shutdown for the Inverter:

- (1) Turn off the load device switches one by one.
- (2) Turn off the inverter switch by pressing The power button.
- (3) Wait for the "Inverter" indicator light to go off.
- (4) Disconnect the input power.

3 Warning

3.1 Protection

This product has comprehensive protection functions. In the event of faults listed in the table below, the product will enter a protection state and shut off the output to ensure that the load is not damaged, and the product itself is protected.

Status	Protection	Recovery Condition	Notes
Normal Operation	Normal Output	/	/
Overvoltage Protection	Turn off output	Automatically recoverable	Undervoltage Recovery (85V)
Undervoltage Protection	Turn off output	Automatically recoverable	Overvoltage Recovery (115V)
Overload Protection	Turn off output after reaching overload alarm threshold	Resume operation after restart	/
Short-Circuit Protection	Turn off output (200ms)	Resume operation after restart	/
Overtemperature Protection	Turn off output	Automatically recoverable	Overtemperature protection start temperature: 85°C Normal operation temperature recovery: 75°C



When the inverter is first started and the input voltage is exactly between the protection and recovery points (80/85V, 120/115V), the machine will be in protection state. The protection state will be canceled when the input voltage is between the undervoltage recovery value and the overvoltage recovery value.

3.2 Indicator Light

The front panel of this product has 2 indicator lights. Since the inverter itself has comprehensive protection functions, once abnormalities or faults occur, the inverter will shut off or stop output. The indicator lights will respectively indicate the corresponding abnormal information and the operating status of the inverter.

Status	Green Light	Red Light	Output Status
Normal Operation	Steady On	Steady Off	Normal Output
Overvoltage Protection	Steady Off	Steady On	Output Stopped
Undervoltage Protection	Steady Off	Steady Off	Output Stopped
Power Loss/Shutdown	Steady Off	Steady Off	Output Stopped

Overload Warning	Steady On	Off 2S On 1S	Output Stopped
Overload Protection	Steady Off	Steady On	Output Stopped
Short-Circuit Protection	Steady Off	Steady On	Output Stopped
Overtemperature Protection	Steady Off	Steady On	Output Stopped

3.3 Common Fault Causes and Solutions

Before using this product, carefully consider the power of the load equipment to avoid overloading the inverter. The actual power of the load equipment in general operating conditions, especially in standby mode, is slightly lower than the labeled power. Users should rely on the nominal power of the device when using it and consider the impact current when the device starts. Provide sufficient power margin to ensure reliable power supply from the inverter.

Fault	Cause	Solution
All lights are off, the inverter does not start	Switch failure	Check if the switch is working properly or damaged
	Input undervoltage	Check if the input voltage is normal
	Reverse connection	Check if the DC input is reversed
	Internal fault	Contact your dealer for maintenance
Red light flashes	Output overload warning	Remove some devices and check the status of the red light
Green light steady on, no output	Device does not start	Check if the output lines L, N, GND are connected correctly
	No voltage at output port	Contact your dealer for maintenance
Green light off, red light steady on	Overvoltage protection	Check if the input voltage is normal; normal operation can be restored when the input voltage is within the recovery range
	Overload protection	Remove some devices and then power on again
	Overtemperature protection	Temporarily stop using the inverter. Resume operation after the inverter temperature drops
	Short-circuit protection	After eliminating the line fault, power on again

4 Maintenance

To ensure the continuous and proper operation of this product, regular maintenance and inspection are required.

When conducting maintenance, adhere to the nominal power of the equipment and consider the surge current during startup. Sufficient power margin should be retained to ensure the reliable power supply of the inverter.

1. Regularly inspect whether the connection cables are aging and whether cable connection points are securely fastened and safe.
2. Periodically open the enclosure to clean dust and any debris that might hinder ventilation from the cooling fans. Also, check the normal operation of the fans. Refer to point 3 for guidance on opening the enclosure.
3. Opening the enclosure for maintenance requires the expertise of a professional:
Before opening the enclosure for maintenance, the power supply should be completely disconnected, and the system should be powered down for at least 10 minutes or longer. This waiting time is necessary to allow the capacitors to discharge fully (there are high-capacity capacitors inside the machine that require a certain amount of time for discharge). During disassembly, take care not to damage components and parts, and pay attention to the order of connecting wires. Specific maintenance requirements include:
 - Clean dust and debris inside the enclosure.
 - Check if the terminals and screws inside the enclosure are securely fastened.
 - Inspect for any traces of overheating and damaged components left inside the enclosure.
 - Check if the wires inside the enclosure have aged.
4. When reopening the enclosure of a previously maintained inverter, a trial run should be conducted before putting it back into operation to ensure reliable power supply from the inverter.

5 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 date of delivery of products to end customers (the “Limited Warranty Period”), the I series motor and G battery will have another extend 36 months warranty period after registration on the official website. 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-conform parts. Any warranty claim must be made within six (6) months of discovery of issues as provided below.

If the Limited Warranty Period expires, you can still enjoy maintenance services from dealers/distributors authorized by ePropulsion (the “ePropulsion Service Partners”) with minimum maintenance charge per occurrence.




In all warranty cases, ePropulsion will only bear the repair cost and other costs (such as those related to product installation, disassemble, transportation, financing, rental, etc.) as a direct result for of issues covered by the Limited Warranty only. Any costs irrelevant to or out of the scope of the Limited Warranty will be born by the Customer alone., which shall NOT include costs irrelevant such as those related to product installation, disassemble, transportation, financing, rental, etc.

Beyond the Limited Warranty, the Customer may have statutory rights in your 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 for commercial/professional use, 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 Use refers to application cases that have high use frequency, high-reliability requirement or aim for money making, etc.**

To keep your warranty valid, you shall follow:

-  Keep the product label intact and record the Serial Number shown on the label. Never tear the label off the product. A product without the original product label is not covered by the Limited Warranty provided by ePropulsion;
-  The Limited Warranty is not transferable and will not be reissued;
-  The Limited Warranty may change from time to time. Pls 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 period of up to 5 years.

Comment on average temperature:

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

5.1 Out of Warranty

ePropulsion may refuse a warranty claim if:

- Any improper operation contradicts what is written in the user manual;
- Accident, misuse, dropping, improper care or storage, willful abuse, physical damage, overcharging, over discharging, or unauthorized repair;
- Water ingress caused by external sources such as fishing nets, submerging underwater, etc;
- Product modification, alternation, disassembly, or parts/accessories attachment, which are not expressly permitted or recommended by ePropulsion;
- Failure of, or damage caused by, any 3rd party products;
- Repositioning of the high-voltage batteries in the boat;
- The battery incorrectly charging, overcharging, over-discharging, operating in temp out of scope described in the user manual;
- Consumables are out of warranty scope (like propeller, anode...etc.);
- Purchases of product from unauthorized dealers or seller;
- Normal wear and tear and routine servicing are excluded from the warranty;

- The product gets further damaged due to improper packing during delivery. The further damaged part will be deemed as out of warranty coverage;
- Lithium battery is classified as a UN9 hazardous item, posting and packing must be in accordance with the relevant law of the local country directive. Non-compliance may result in out of warranty coverage.

5.2 Limited Warranty Claim Procedures

The Customer shall follow the warranty claim process to make a Limited Warranty claim:

1. Contact your nearest ePropulsion Service Partners and they will provide further instruction to you if such defects are covered by the Limited Warranty or theirs.
2. Send the defective product to them together with Proof of 1(st)-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 shall be kept intact. The warranty is valid only when the information above is correct, genuine, and complete;
3. Make sure the product is properly packed during delivery, the original package is highly recommended.
4. The ePropulsion Service Partners will conduct diagnosis and examination on 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 bearded by you.
6. In case your warranty claim be rejected, a repair/replace 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.

Declaration of conformity

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

Object of the Declaration:Product:

Product: DC-AC Inverter 96 V - 230 V 6 kW

Model: DCAC230026(50)

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

Electromagnetic Compatibility (EMC)	2014/30/EU
DirectiveLow Voltage Directive (LVD)	2014/35/EU
RoHS 2.0 Directive	2011/65/EU

Applied Standards:

EN 55032:2015+A1:2020

EN 55035: 2017+A11:2020

EN IEC 61000-3-2: 2019 +A1:2021

EN 61000-3-3:2013+A2:2021+AC:2022

EN IEC 62368-1: 2020+A11: 2020

IEC 62321-4:2013+A1:2017

IEC 62321-5:2013

IEC 62321-6:2015

IEC 62321-7-1:2015

IEC 62321-7-2:2017

IEC 62321-8:2017

EC REP

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Manufacturer

Name: Guangdong ePropulsion Technology Limited

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

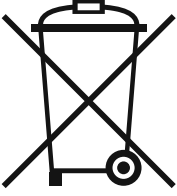
Signature: 

Date: 10th,September,2023

Shizheng Tao, Chief Executive Officer & Cofounder of

Guangdong ePropulsion Technology Limited

Correct Disposal of this product:



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

WARRANTY CARD

(*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

Website: www.epropulsion.com

E-Mail: service@epropulsion.com