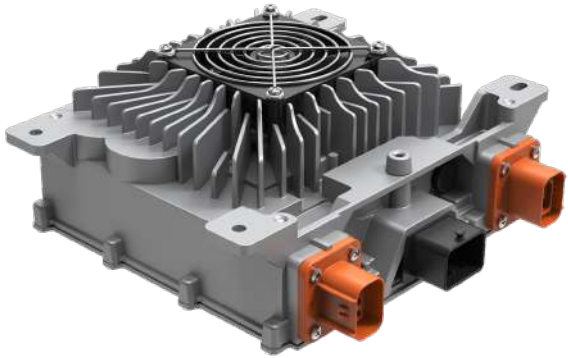
G Battery Charger 16A
User Manual



2025.07 Version 1.1

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.

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.

Please read and follow the instructions following the safety warning signs.

 **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.

 **Burn hazard:**

Some of the machine surfaces become very hot during operation and shortly after shutdown. Keep hands and other body parts away from hot machine surfaces.

 **Do not plug or unplug when the machine is running:**

Do not plug or unplug electrical equipment when the machine is running to avoid the risk of electric shock.

Product Identification

Below picture indicates the serial numbers of the HK-MF-108-32 charger. Please note the position of the serial numbers and record them for access to warranty service and other after-sale services.

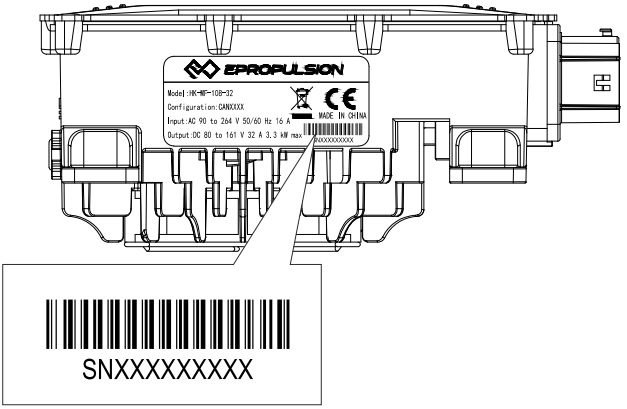


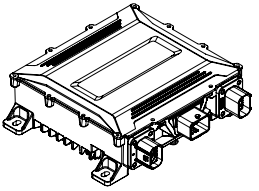
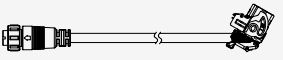
Table of Contents

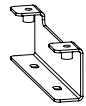
1 Product Overview

HK-MF-108-32 G battery charger is a product specially designed for the ePropulsion power battery of boats. This product not only has the advantages of high efficiency, small size, high stability, long life, etc., but also has the characteristics of high protection level, high reliability, and complete protection functions. It is an ideal power source for charging boat power batteries. The charger has a built-in thermal induction device with overheating protection function and can be automatically restored. Fully sealed potting process, with a protection level of up to IP67, can work in any complex environment.

1.1 In the Package

When you receive the Charger, unpack its package and check if all the items below are included in the package. If there is any loss or transport damage, please contact your dealer immediately.

Items	Qty.	Figure	Function
G Battery Charger	1		For charging G series batteries
G Battery Charger Power Cable	1		Used to connect the charger with an external AC power supply,2M
G Battery Charger output Cable	1		Connection for charger output circuit,2M
G Battery Charger communication Cable	1		Communication connection between charger and battery,3M

Items	Qty.	Figure	Function
96V charger, mounting plate	2		Used to support the charger, use attached bolts fixed under the Charger , torque shall be 7.7 N.m
Hexagon bolt with plain washer and spring washer	8	SS304 M6x14	Fixed charger method 1: Fix it directly with nuts and bolts
Hexagon nut	4	SS316 M6	/
Cross head self-tapping bolt	4	SS304 M6X16	Fixed charger method 2: Use self-tapping bolt to fix
96V charger Punching Card	1	/	Used to locate punching positions
User manual	1		/

1.2 Main features

- UDS diagnosis, with CAN wake-up function
- Full potting process, can work reliably at -40°C~ 55°C
- Built-in temperature sensor to turn off output under overheating operating conditions (internal 90°C)
- Ingress Protection class IP67

1.3 Charger technical indicators

Environmental requirements	
Operation temperature	-40°C ~ 55°C
Storage temperature	-40°C~ 105°C
Humidity	relative humidity 5%~ 95%, no condensation
Altitude	≤5000m
Working noise	Maximum noise at work ≤ 65dB

Input	
Input voltage range	AC 90~265 V
Frequency	47~63 Hz
Input current	≤16 A
Power factor	≥0.98 @ 1650 W
Standby power consumption	≤5 W
Starting impulse current	≤24 A

Output	
Output voltage range	65~161 V
Maximum output current	32 A
Output power	3300W@220VAC，1650W@110VAC
Output mode	Constant voltage/constant current
Constant voltage accuracy	±1%
Constant current accuracy	±2%

Output	
Maximum efficiency	≥93%
Ripple voltage coefficient	±5%
Output voltage rise time	< 5S, overshoot < 10%
Close response time	Current drops below 10% in 300ms, 0A in 500ms

Communication	
Communication protocol	CAN, 12V auxiliary power supply (other unused)
Baud rate	250Kbps
Termination resistance	N/A

1.4 EU Declaration of Conformity

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

Object of the Declaration:

Product: 3.3KW On-board Charger

Model: HK-MF-108-32

CE

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

Electromagnetic Compatibility (EMC) Directive 2014/30/EU

Low Voltage Directive(LVD)2014/35/EU

Restriction of Hazardous Substances Directive 2011/65/EU and Delegated Directive (EU) 2015/863

EC REACH Regulation (EC 1907/2006)

Regulation on General Product Safety 2023/988

Applied Standards:

EN 55032:2015+A11:2020

EN 55035:2017+A11:2020

EN IEC 62368-1:2020+AC:2020-05

This declaration of conformity is issued under the sole responsibility of the manufacturer:
Guangdong ePropulsion Technology Limited.
Address: Room 801, Building 1, 11 Daxue Road, Songshan Lake, Dongguan,
Guangdong Province, China

Signature: 陶师正 Date: 2025.5.20
Shizheng Tao, Chief Executive Officer & Cofounder of
Guangdong ePropulsion Technology Limited

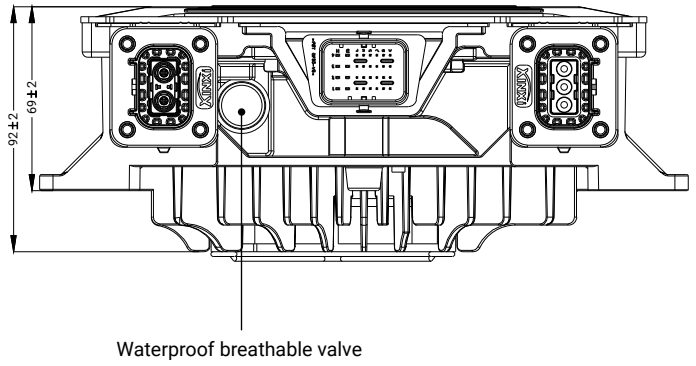
1.5 FCC Compliance Statement

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.

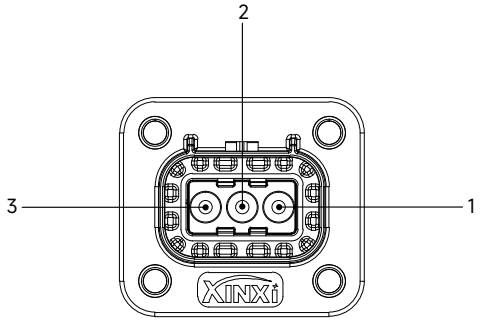
1.6 Disposal and Environment

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.

2 Charger interface

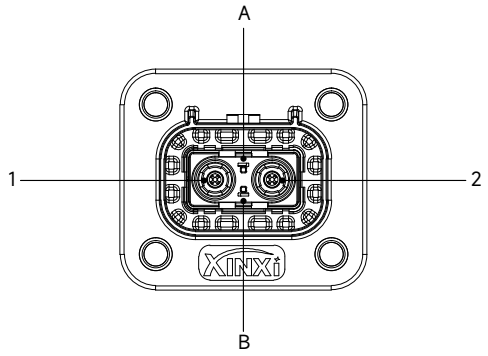


2.1 Input connector



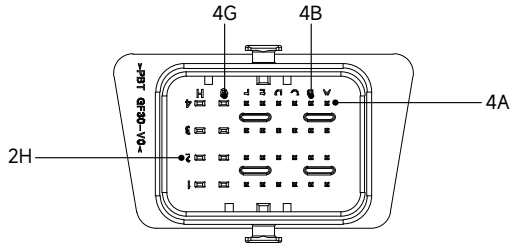
Pin feet	Definition	Remarks
1	Line	/
2	Ground(PE)	/
3	Neutral	/

2.2 Output connector



Pin feet	Definition	Remarks
1	Positive	/
2	Negative	/
A.B	/	Reserved

2.3 Low voltage connector and interface definition

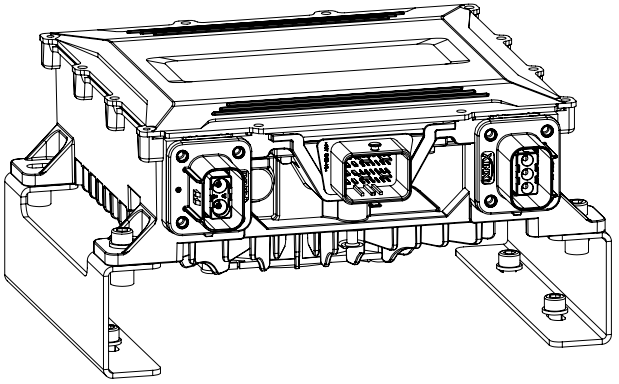


Terminal No.	Definition	Description	Remark
2H	12V5A+	Aux Power	/
4A	CAN-H	CAN hign	/
4B	CAN-L	CAN low	/
4G	12V5A-	Aux Power	/
Rests	/	Reserved	/

3 Mechanical installation

ePropulsion Technology is equipped with a pair of mounting plates and attached bolts with the charger. After using the mounting plates, the charger fan is downward and has enough heat dissipation space.

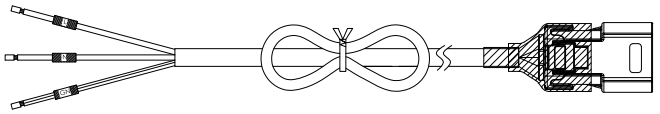
- Torque shall be 6 N.m when using self tapping bolts fixed the mounting plate on the hull.
- Torque shall be 7.7 N.m when using bolts and nuts fixed the mounting plate on the hull..



4 Electrical connection

ePropulsion Technology provides three sets of cable with the charger.

4.1 Power Cable

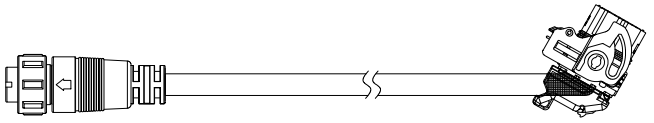


The power cable should either be connected to a suitable plug rated for over 16 amp or directly to a circuit breaker. Pay attention to distinguish between live, neutral and GND when terminating. Always consult a trained electrician.

4.2 Output cable

The standard output line provided by ePropulsion Technology is used to connect the bus-bar box. Please be careful not to reverse the positive and negative terminals. The terminal suit for the M8 bolt.

4.3 Communication cable

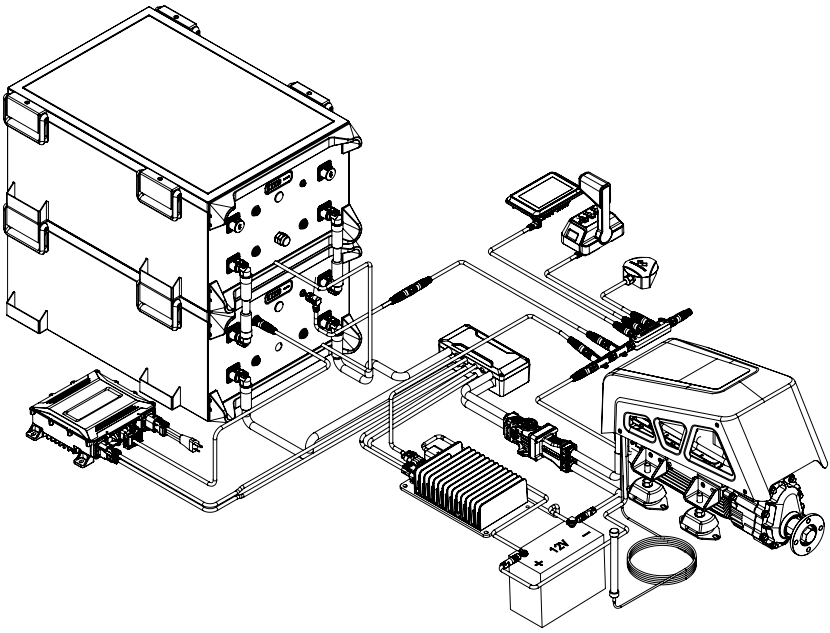


When using a single battery, plug the communication cable into the "CHARGER" connector of the battery.

When using multiple batteries, please insert the communication cable into the "CHARGER" port of the 1 #battery. (When multiple batteries are connected in parallel, the connection order of the battery parallel communication cable is 1 #battery can-out - > 2 #battery can-in 2 #battery can-out - > 3 #battery can-in 3 #battery can-out - > 4 #battery can-in)

4.4 Harness connection

After the charger is connected, the schematic diagram is as follows



5 Precautions for charging

1. This charger is specially designed to charge the G102 series batteries of ePropulsion Company, please do not use it for other purposes.
2. When charging the battery, connect the positive electrode of the charger power cord and the positive electrode interface of the battery through the bus box, connect the negative electrode of the charger power cord and the negative electrode interface of the battery through the bus box, and connect the communication line of the charger to the battery CHARGE interface to ensure that The connection is locked and there is no risk of slipping.
3. Connect the charger to the AC power supply (AC power supply), the system has no charging alarm fault, and the battery power display lamp cycles from less to more, indicating that the battery is charged successfully.
4. After charging is completed, the battery will request the charger to stop charging. At this time, please disconnect the AC power supply to complete the charging.

6 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 forof 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.

6.1 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.

6.2 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.

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

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E-Mail: service@epropulsion.com