aqua-marina.nl

electric outboards and portable boats

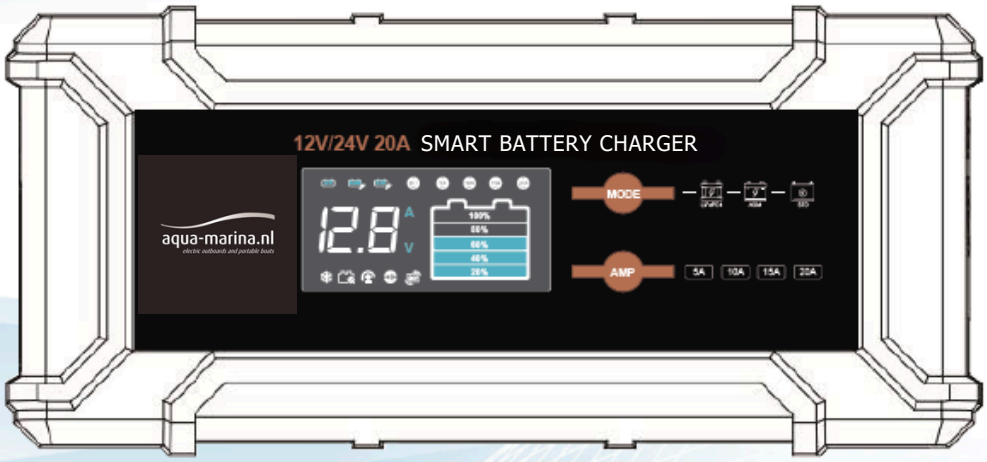
Version: 1.0

Charger

BATTERY CHARGER

24V 10A / 12V 20A

Smart Battery Charger



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·E-mail: info@aqua-marina.nl

SUPPORT

If you are experiencing technical problems and cannot find a solution in this manual,please contact Aqua-marina for further assistance.

Contents

I.General Information

This manual is applicable to the Aqua-Marina 20A Smart Battery Charger, which features a variety of unique advanced functions suitable for different types of batteries, including Lithium iron phosphate (LiFePO4) battery, standard lead-acid batteries, and AGM batteries. The charging modes include LiFePO4, STD, AGM, and low-temperature charging, and it can also be used as a DC adapter, displaying various information such as battery State of Charge (SOC), voltage, current, faults, and etc. It is a battery charger that can identify 12/24V voltage and adjust its charging current.

1.Safety Instructions

■ Adhering to these safety instructions can avoid electric shock, explosion, and fire. Please read and understand all safety information before using this product. Failure to comply may result in serious injury, death, or property damage.

■ The product is an electrical appliance that can cause electric shock and serious injury. Do not immerse it in water or get it wet.

■ The product is an electrical device capable of generating heat and causing burns. Do not cover the product, avoid smoking or using any electrical sparks or fire sources while operating the product, and keep the product away from flammable materials.

■ Do not disassemble the charger yourself. If repair is needed, please take it to a qualified dealer.

2. Product Feature

● Automatically recognizes 12/24V battery and charges it

● Allows manual selection of charging current, enabling the setting of charging current based on battery capacity, providing good support for batteries of different capacities

● Supports a variety of battery types

● Equipped with lead-acid battery repair and low-temperature charging functions

● Displays battery SOC in real-time during charging

● Automatically maintains the battery after charging is complete

● Has a lithium battery activation function (12V/24V) to extend battery life and enhance battery performance

● Features memory function, recording the last selected battery mode and current

● Has comprehensive protection functions, such as reverse polarity, short circuit, and high-temperature protection functions

3.Key Indicator Symbols

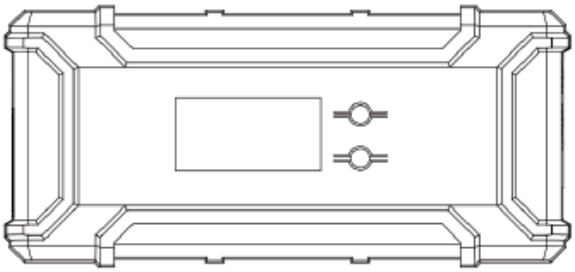
Symbols	Definition
	Indicates the danger of electric shock. If not avoided, it would cause casualities.
	Indicates a potentially dangerous condition which could result in injury or death.
	Indicates important information or warnings related to concepts talked about in the text.
	Indicates more information is available in other documents relating to the subject and reader.
	Indicates important steps or tips for optimal performance.

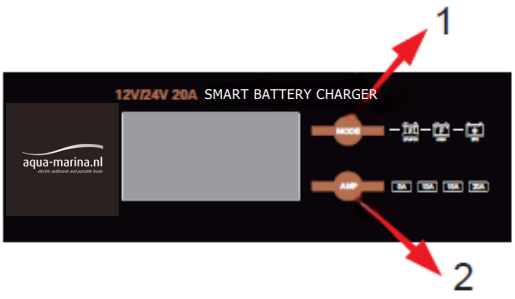
II. Packing List

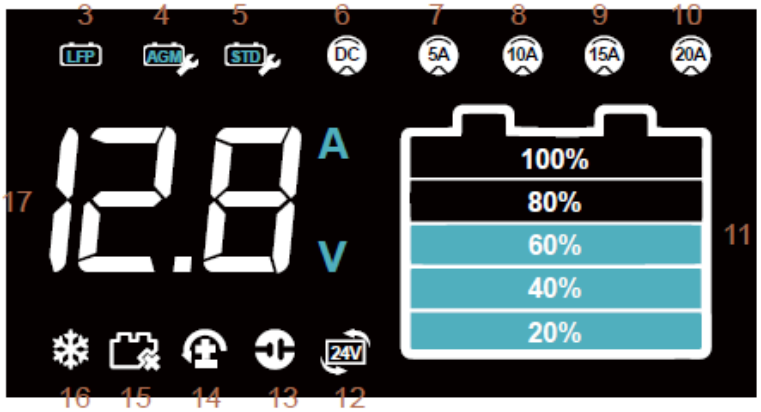
Name	Qty	Specification
Battery Charger	1	12V 20A/24V 10A
Anderson connector to Crocodile Clips	1	50A Anderson
Anderson connector to Copper Terminal	1	50A Anderson
Manual	1	A5

Plug Type

III.Product Description







①Mode Switch Button: Used to switch between battery types and select different charging modes.
②Current Switch Button: Used to switch the charging current.
③LFP: The charger is in LiFePO4 battery charging mode.
④AGM (AGM Recovery): The charger is in AGM battery charging (AGM recovery) mode.
⑤STD (STD Recovery): The charger is in STD battery charging (STD recovery) mode.
⑥DC: The charger is in 12V/24V DC power supply mode.
⑦ 5A: The selected charging current is 5A at this time.
⑧10A: The selected charging current is 10A at this time.
⑨15A: The selected charging current is 15A at this time.
⑩20A: The selected charging current is 20A at this time.
⑪SOC: The battery voltage corresponds to the SOC value, with 5 levels of display: 0-20%, 20-40%, 40-60%, 60-80%, 80-100%.
⑫24V Activation Mode: The charger is in 24V lithium iron phosphate battery activation mode.
⑬Short Circuit: The indicator lights up when a short circuit is detected or when the DC mode current exceeds the allowed maximum range. At this time, the screen does not display battery SOC, charging current, or battery voltage.
⑭ Reverse Polarity: The indicator lights up when reverse battery polarity is detected. At this time, the screen does not display battery SOC, charging current, or battery voltage.
⑮ Faulty Battery: The indicator lights up when a damaged battery is detected. At this time, the screen does not display battery SOC, charging current, or battery voltage.
⑯Low-Temperature Charging: The charger is in AGM battery charging mode.
⑰Voltage and Current Indicator: It displays the current battery voltage and charging current, switching between the two (Switching Time: 2S).

IV. Charging Modes

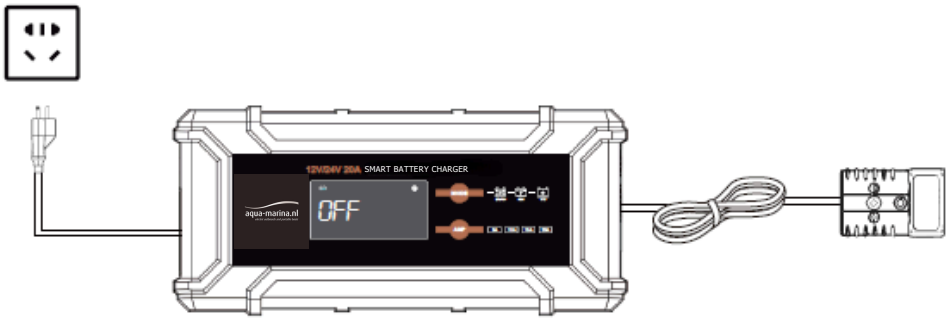
The charger is designed with 9 charging modes and 6 current levels.

Charging Modes: Standby, LFP, AGM (AGM Recovery), STD (STD Recovery), 12/24V DC Power Supply, Low-Temperature Charging, and Lithium Battery Activation. To activate some of these modes, you need to long press the button for 3-5S, some can be switched with a single click, and others are automatically recognized.

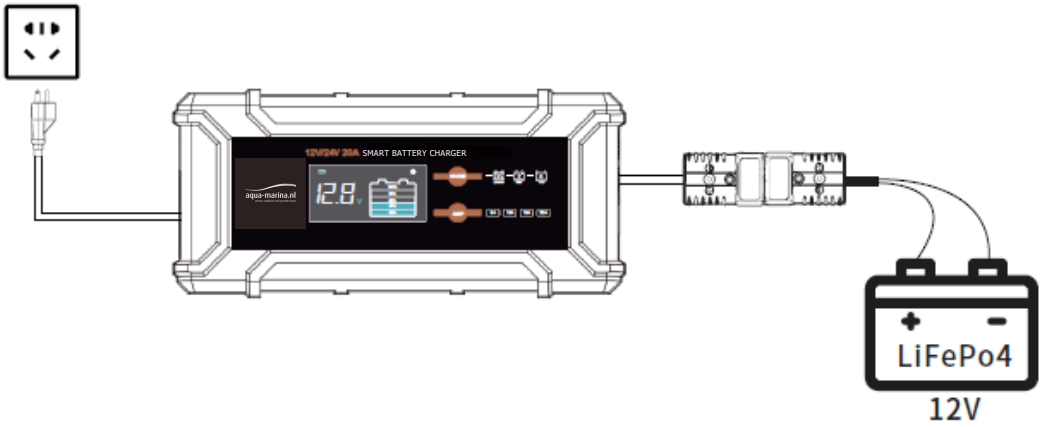
Current Levels: 12V 5A, 12V 10A, 12V 15A, 12V 20A, 24V 5A, 24V 10A (At 12V 5A, it is in silent mode, during which the charger's fan will not operate; for all other settings, the fan will be activated.)

Be cautious when setting the mode, and understand the differences and purposes of each mode before setting. Do not operate the charger before confirming the correct charging mode. Please refer to the following diagram for operation and instructions.

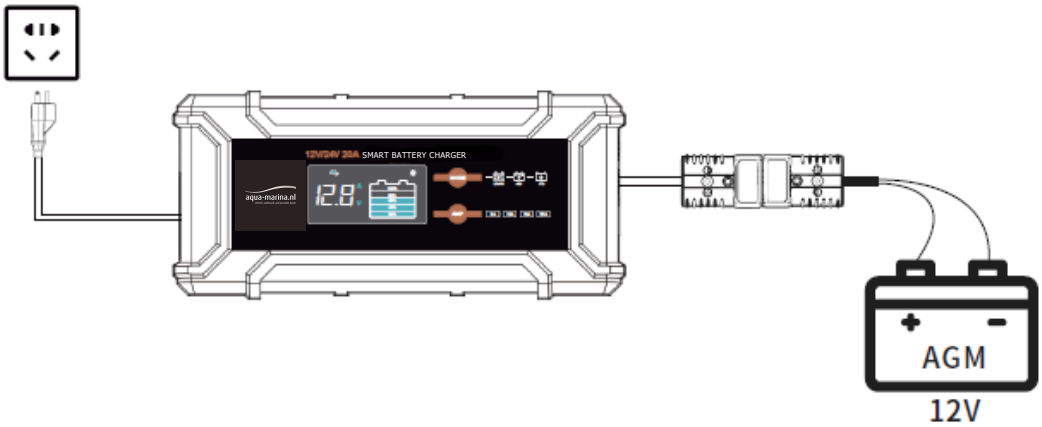
1. Standby Mode: When the charger is plugged into the socket without connecting a battery, it will enter standby mode, and the screen will display OFF. (The default battery type for the first use is lithium iron phosphate battery, and the default charging current is 20A.)



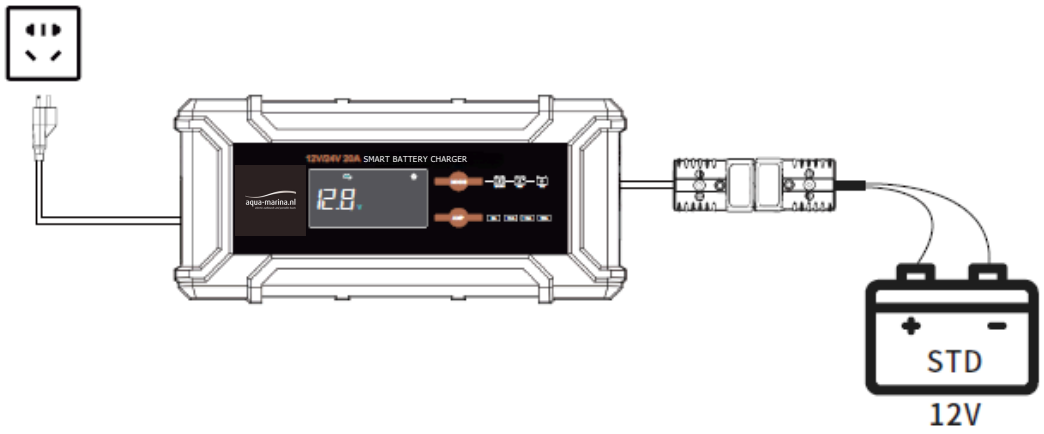
2. LFP Mode: After selecting the charging mode and current for lithium iron phosphate (LFP) batteries, simply connect the charger to the battery to start charging (the battery voltage is automatically recognized). Once the battery is connected, it is not possible to switch the battery type, but it can change the charging current (12V: 5/10/15/20A; 24V: 5/10A).



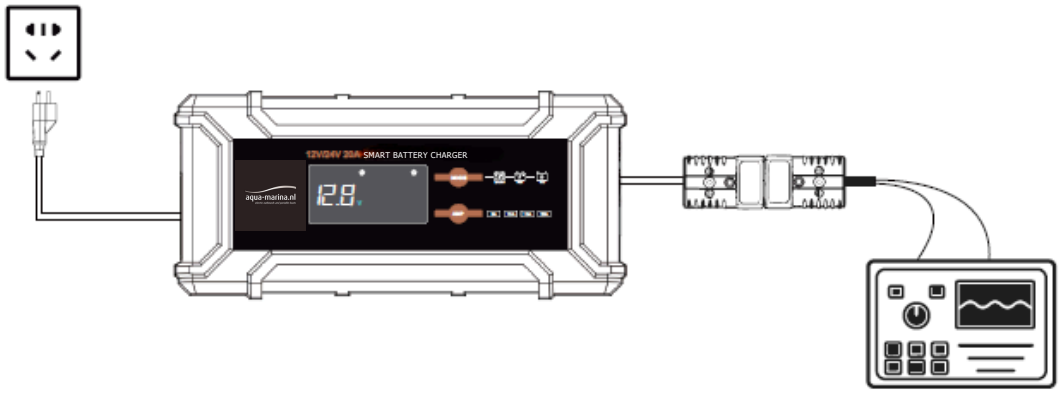
3. AGM Mode: After selecting the AGM battery charging mode and charging current, you can start charging by connecting the charger to the battery (the battery voltage is automatically recognized). Once the battery is connected, it is not possible to switch the battery type, but it is possible to change the charging current (12V: 5/10/15/20A; 24V: 5/10A).



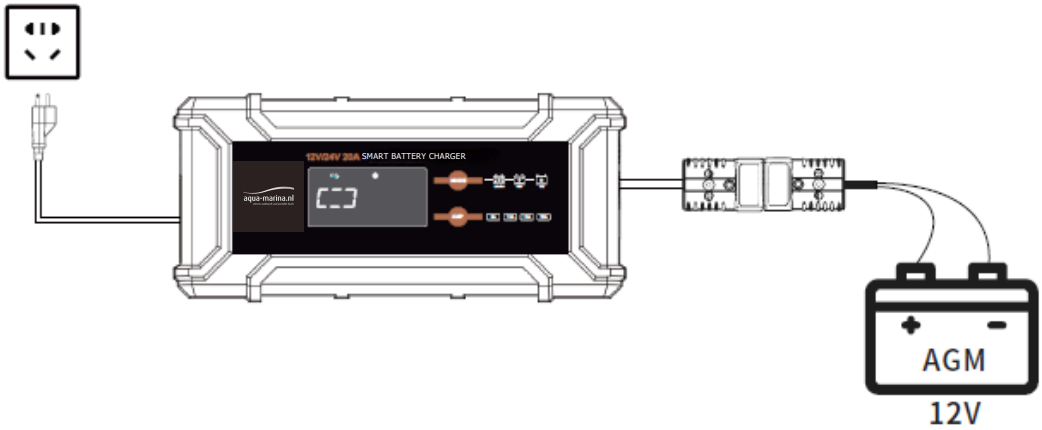
4. STD Mode: After selecting the STD battery charging mode and charging current, you can start charging by connecting the charger to the battery (the battery voltage is automatically recognized). Once the battery is connected, it is not possible to switch the battery type, but it is possible to change the charging current (12V: 5/10/15/20A; 24V: 5/10A).



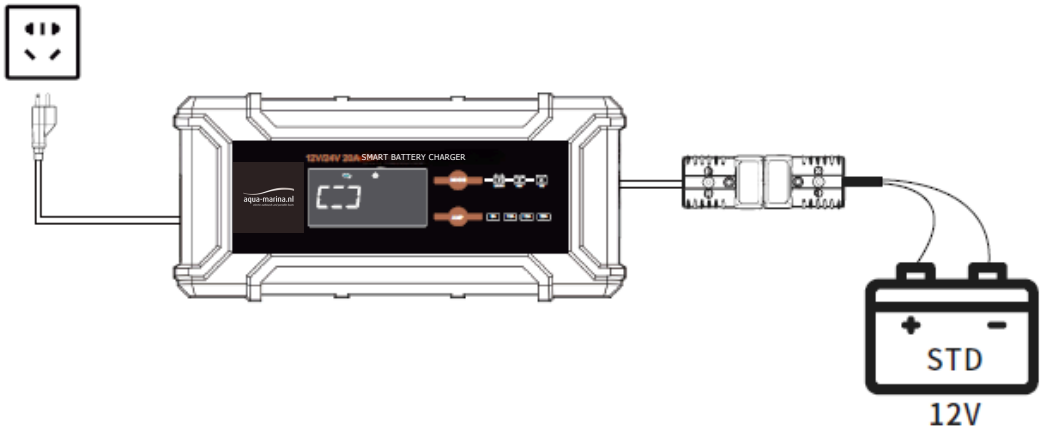
5. DC Mode: Select the DC power supply mode to connect the charger to a DC load for power supply (default is 12V 20A). Press and hold the mode button for 3 seconds to switch to 24V 10A DC. After connecting a battery, it is not possible to switch modes (the DC mode current is set to the default value and cannot be changed).



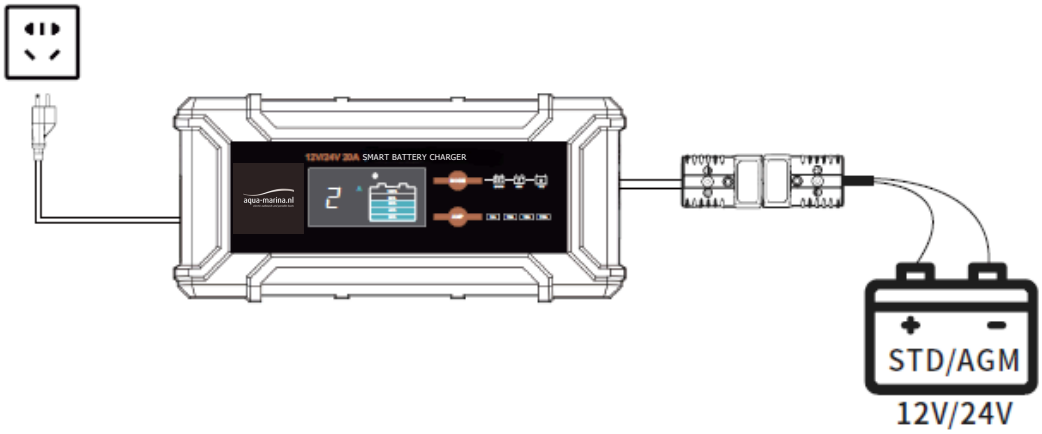
6. AGM Recovery Mode: In AGM mode, press and hold for 3 seconds to enter the AGM recovery mode (only applicable to 12V lead-acid batteries). This mode is used to repair old, idle, damaged, stratified, or sulfated batteries by applying pulse charging at 15V. Once the battery is connected, it is not possible to exit the recovery mode, and the pulse charging will be turned off after two hours (charging current can be switched during this period).



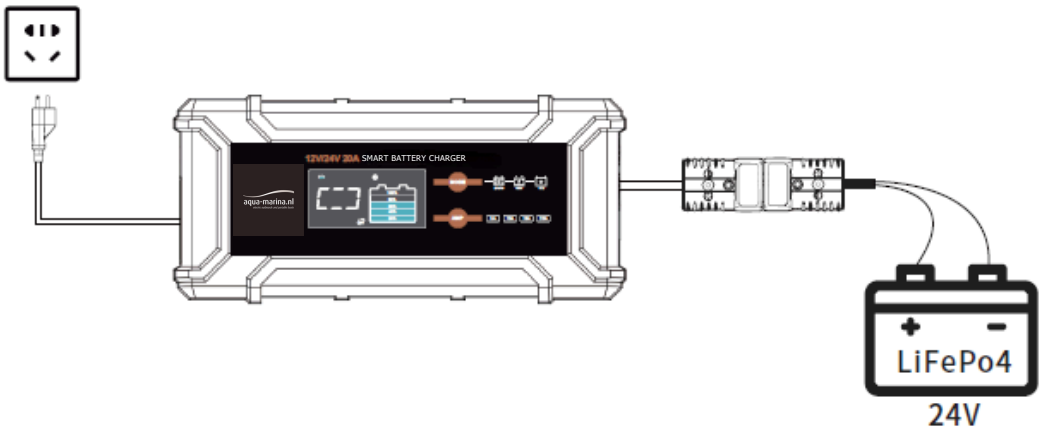
7. STD Recovery Mode: In STD mode, press and hold for 3 seconds to enter the STD recovery mode (only applicable to 12V lead-acid batteries). This mode is used to repair old, idle, damaged, stratified, or sulfated batteries by applying pulse charging at 15V. Once the battery is connected, it is not possible to exit the recovery mode, and the pulse charging will be turned off after two hours (charging current can be switched during this period).



8. Low-Temperature Charging Mode: Select the low-temperature charging mode and connect the charger to the battery. The charger will use a small current (2A for a continuous 5 minutes) to charge it, then switch to the normal charging current. This mode is only applicable to 12V/24V lead-acid batteries (STD, AGM).



9. Lithium Battery Activation Mode: After selecting the LFP mode, connect the lithium battery that needs activation to the charger to automatically begin the activation process, which defaults to the 12V activation mode. And press and hold for 3 seconds in the LFP mode to switch to the 24V activation mode.



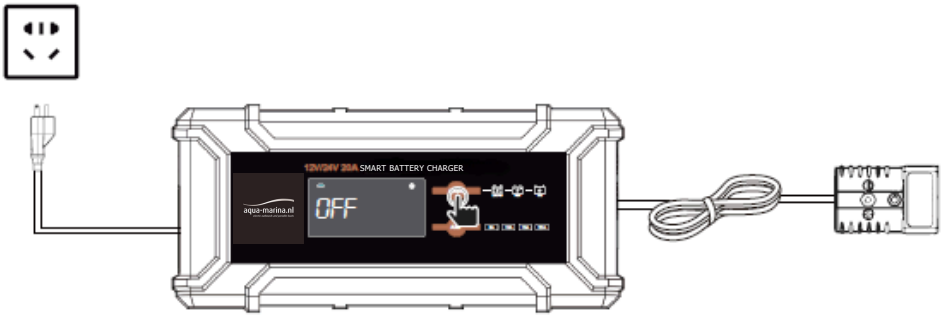
Note:

To exit any mode that is entered by a long press, simply tap the mode switch button once. However, once the charger has recognized the battery and started charging, it is not possible to exit or change the mode.

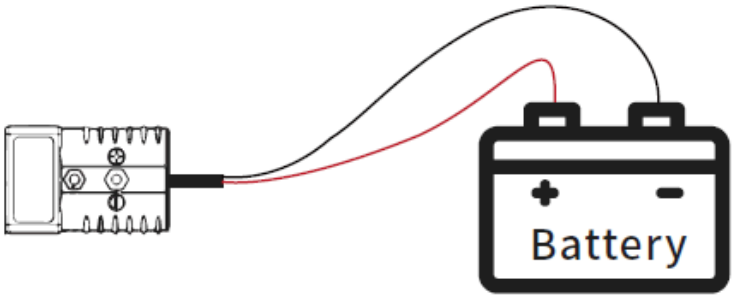
V . How to use

How to connect and disconnect

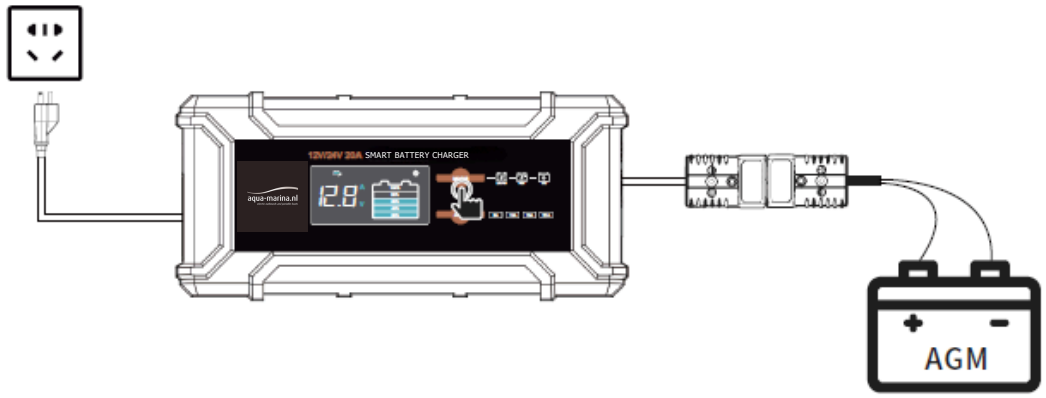
1. Connect the charger's AC interface to the mains power, and the charger will be in standby mode. Press the MODE button to switch between battery types or modes, and press the AMP button to change the current (by default, it is set to lithium iron phosphate battery mode with a charging current of 20A when powered on for the first time).



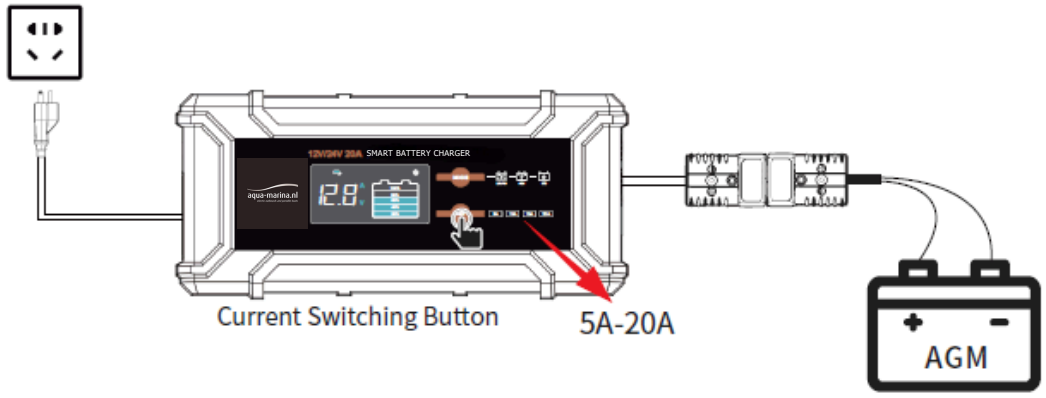
2. Connect the battery to one of the included Anderson cables (red end for positive, black end for negative).



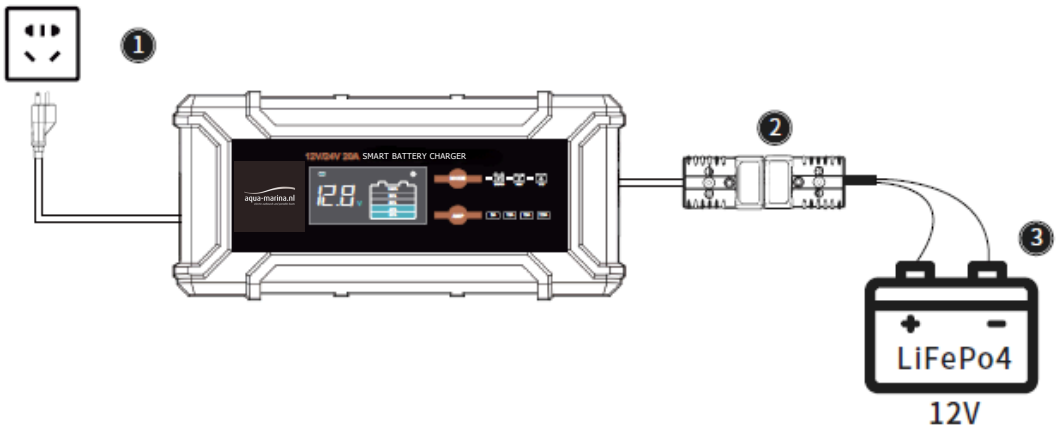
3. After selecting the appropriate charging mode, connect the charger to the battery. When the screen displays the battery voltage and input current, it indicates that charging is in progress.



4. After connecting the charger to the battery, you can click the current switch button to adjust the current.



5. First, unplug the AC connector, then disconnect the Anderson connector, and finally remove the cables connected to the battery.



Note:

1.Do not change the battery type during the charging process. Please choose mode switching button to change battery type and charging mode when disconnecting the charger from the battery.
2.After connecting to the battery, single clicking the current switching button can change the charging current level.
3. The default battery type is lithium, the charging current is 20A, and the charger will remember the last battery type you selected.
4. The SOC and voltage read and displayed by the charger are the values during charging.
5. The charger is designed to work only with 12/24V batteries. Connecting a higher voltage battery will damage the charger.
6. The charger can now be connected to the battery at any time to provide charging for maintenance.
7. The corresponding battery should be charged with the appropriate charging type; otherwise, it may cause harm.
8.The charger backlight time is set to 1 min, and the screen will automatically turn off if there is no operation within 1 min.
9.This charger has a battery maintenance function that will resume charging when the battery voltage drops to a certain level. Due to the fact that the voltage of some batteries drops quickly after being fully charged, it is normal for the charger to switch on and off repeatedly.
10.When lead-acid batteries are charged at high current, the voltage will be raised to 14.4V for charging. Therefore, in the STD AGM low-temperature mode, it is normal that the battery SOC may display abnormally, and it will not affect the normal progress of charging. At the same time, it is recommended to charge lead-acid batteries at a rate of 0.2C. Please reasonably select the charging current.

VI. Recommended batteries for different current levels

Current	Battery capacity
5A	10-50AH
10A	20-150AH
15A	30-200AH
20A	40-300AH

VII. Technical Specification

Model		12V 20A
Input Voltage AC		100-240 VAC, 50-60Hz
Output Power		300W
Rated DC Output	LiFePO4 battery	14.6V 20A/29.2V 10A
	AGM battery	14.4V 20A/28.8V 10A
	STD battery	14.4V 20A/28.8V 10A
	DC Power Supply	12V 20A/24V 10A
Battery Voltage		12V/24V
Battery Type		LiFePO4、AGM、STD
Minimum Starter Battery Voltage		0V
Leakage Current		0.47mA
Protection Function		Short-circuits, Reverse Polarity, High temperature
Ambient Temperature		-10°C-40°C/14°F-104°F
Dimension		19.42*8.95*7.4cm/7.65*3.52*2.91in
Weight		0.75kg/1.65lb

VIII. Troubleshooting

Fault	Solution
Screen won’ t turn on	Check and ensure connection is correct.
Screen is on but has no charging current	No battery is connected or battery is faulty.
Charger is working but the charging icon won't light up	1.Battery is possibly faulty. Test the battery or replace it with a new one; 2.Overcurrent may be caused by potential short-circuit. Test the battery or replace it with a new one; 3.Charger efficiency is not enough for the battery capacity. A bigger charger is needed.
The charging current is 0A and the screen shows alarm icon	The connection from the charger to the terminals of battery is reversed and needs correction.