Thank you for choosing our product. Before using the product, please read this manual carefully.

The above information is subject to change without prior notice.

**HQST PWM CONTROLLER**

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**Product Features**

1. Automatic system voltage identification
2. Charging program options for sealed, GEL and flooded lead-acid batteries and lithium batteries
3. Communication port
4. With temperature compensation employed, charging parameters can be automatically adjusted
5. LCD screen with backlight
6. Over-voltage, over-discharge, overload, and reverse-connection protection.
7. TVS lighting protection is adopted.
8. It features a backlit display, and the backlight will be turned on with a key pressed and turned off over a period of time.
9. The product provides a dot matrix graphic LCD screen and a human-machine interface with 2 keys.
10. Boasting an industrial grade design, the product can function well in various tough conditions.
11. (An optional communication function) provides a RJ12 data port (output of TTL232 level or Bluetooth signals), with the data adopting the standard Modbus protocol, and can be used for data communication and power operations.
12. Charging program options for sealed, GEL, and lithium batteries
13. Day recognition
14. USB port

**State Indicators**

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**Human-Machine Interface**

- Pressing and holding the key for 3 s will enter “main menu” and then back to “main menu”. If the keys are not operated for 12 s, the system will limit for human safety. If operation is to be performed, be sure to use insulation tools and keep your hands dry.

- With the battery reverse connected, the controller itself won’t be damaged, but the load will fail to have a maximum voltage output, which may damage your load device. Gas also can not flow out this happen.

- The battery contains a large amount of energy. Take care not to let this happen.

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Safety Advice

1. Continuously press "Al" to set the voltage. The screen will display the following in order: "main menu" --- "system parameter" --- "solar panel current" --- "battery capacity" --- "battery voltage" --- "charging current" --- "charging stop" --- "discharging stop" --- "temperature inside controller" --- "load mode" --- "load mode setting" --- "load turned off" and then back to "main menu". If the keys are not operated for 12 s, the system will automatically return to display the "main menu".

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Panel Structure

**Communication port**

**LCD screen with backlight**

**Solar panel**

**Battery**

**Load**

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**Load Working Mode Settings**

In the load mode menu, long-press "Al" for 3 s, and then the number (0-15) will begin to flash. Press "A" to adjust the number from 0 to 15, and then long-press again falls to set it completely and exit the setting.

- After parameter adjustment, if the key is not pressed and held long enough for 12 s, the system will exit the "setting menu" and return to the "load setting" screen.
- When the system is running, the screen may shake slightly. This is normal and the user may ignore it.

**LCD Screen Illustration**

**Browsing Menu on LCD Screen**

- LCD screen with backlight

Version : V1.01

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3) After parameters have been set, long press [ ] for 2 s to save and exit. To adjust the mode, and long press [ ] for 2s to save and exit; or else, the system will enter the lithium battery. The flashing one is the battery type currently selected. Press [ ] to select among Battery Types, Charging Voltages (Lithium Battery).

1) When [ ] is long pressed, the first interface entered is for battery type setting, and the second step is to connect the solar panel. The flashing 'P' is a sunlight icon, and pressing it will light up a sun. The higher the system voltage is, the brighter the sun icon will be.

2) Check whether the battery is correctly connected and contact is good and reliable. If it is 12V system, the bottom left corner of LCD display will show '12V'; 24V system will show '24V'.

5s and 2 times, 1s.

Charging and Discharging Overload Protection and Recovery Time

(Only for Controllers with Communication Functions)

3. Precautions:

⑨ Check whether the controller and the load output terminal, and the current shall not exceed the controller's rated current.

④ The third time, 4 hours or automatic recovery the next day; or long press [ ] to save and exit.

⑤ As the controller shall be installed securely, and its dimensions shall be as follows:

installation dimensions: 156×57.5 (mm)

⑧ Check whether the controller is correctly installed and its connection terminals are tightened securely; if RW-PWM-30A/PWM-40A

⑦ Check whether the solar panel is correctly connected and contact is good and reliable. The solar panel icon does."