

HULIKKAL ELECTRO (INDIA) PVT. LTD.



ELECTRIC – BICYCLE

WARRANTY AND INSTRUCTION

MANUAL

Table of Contents

| | |
|---|----|
| 1. Warranty Conditions | 3 |
| 1. Warranty Period..... | 3 |
| 2. Warrant Terms and Conditions..... | 3 |
| 2. Battery Handling Instructions | 3 |
| 1. To remove the battery from the controller | 3 |
| 2. To insert the battery into the controller..... | 4 |
| 3. Charging Instruction..... | 4 |
| 1. Charging Summary..... | 4 |
| 2. Charger Technical Specifications | 4 |
| 3. Charger Application Scopes | 5 |
| 4. Charger Maintenance and Precautions for Using..... | 5 |
| 5. Charger Use Method..... | 6 |
| 6. Charger Features..... | 6 |
| 7. Charging Mode..... | 6 |
| 8. Charge curve as below | 7 |
| 9. Charger Protection Features..... | 7 |
| 10. Charger LED Indicator: | 8 |
| 11. Charger Troubleshooting: | 8 |
| 4. Safety Precautions | 9 |
| 5. Wiring Diagram and Wiring Instructions | 9 |
| 1. Wiring Instructions..... | 9 |
| 2. Wiring Diagram | 9 |
| 6. Warranty Card..... | 10 |

1. Warranty Conditions

1. Warranty Period

| Component | Warranty Period* |
|------------|---|
| Battery | 1 Year (12 Months) Free Replacement + 2 Years Service Warranty on Pro-Rata Basis |
| Charger | |
| Motor | |
| Controller | |
| LED Light | 6 Months Free Replacement |

2. Warrant Terms and Conditions

- Warranty against manufacturing defects only. The liability of the company under this warranty is limited to making good defects arising only from poor workmanship or the use of faulty material. Consequential liabilities will not entertained
- Warranty shall be void if any instances of breakage / attempts of unauthorized repair / dismantling of parts such as Battery, Motor, Controller, and Charger are found.
- Warranty does not cover any physical damages or other damages arising from accidents.
- Warranty does not cover severed electric wires / cables. In case of any damage to electric cables, service shall be done on pro-rata basis.
- Claims should be made through the nearest authorized dealer, duly producing the original warranty certificate and cash memo / bill. Tampering or overwriting of vehicle serial number or original date of sale on warranty card / cash memo / bill will invalidate the warranty claim.
- Warranty is applicable from the date of purchase only. (No revision in warranty period shall be entertained in spite of replacement of any components at a later date)

2. Battery Handling Instructions

1. To remove the battery from the controller

- Turn the key on the controller point towards “unlock” position
- Using the handle provided on the battery, pull out the battery sliding it in a horizontal direction parallel to the ground away from the Vehicle.
- Make sure not the scratch the top surface of the battery or LED indicator on the carrier surface.

2. To insert the battery into the controller

- Turn the key on the controller point towards “unlock” position
- Slide the battery into the controller in a horizontal direction parallel to the ground towards from the Vehicle
- Make sure the semicircular groove (battery bottom surface) is matched with the semicircular projection on the upper controller surface.
- Make sure that the twin controller pins are matched in the battery grooves and is pushed into a good fit.
- While inserting the battery do not apply any direct load to the battery surface, as it may lead to damage or breakage in controller twin terminal pins.
- Turn the key to “OFF” position after inserting the battery.

3. Charging Instruction

1. Charging Summary

The battery charger has single chip microcomputer (MCU) controlled 3 stages intelligent Charging technology, this can accurately track the battery charging process, and make the battery always in the best electrochemical reaction condition, in order to prolong its service life.

Charger input voltage range is wide, with multiple protection features, and high reliability. Control circuit adopts advanced high frequency transformer LLC half-bridge resonant Soft-switching power supply control technology, the reasonable structure and thermal design make the charger with high efficiency, small dimension, light weight and greatly improve the portability.

2. Charger Technical Specifications

- Input Voltage Range: AC 180V~264V 45Hz~65Hz
- Maximum Input Current: 2A
- Operating Temperature: -10C ~45C
- Storage Temperature: -40C~75C
- Relative Humidity: 5%~95%
- Atmospheric pressure: 70Kpa~106KPa
- Dimensions (mm): 184(L) * 95(W) *55(H)
- Net Weight: 1.2Kg

3. Charger Application Scopes

This series chargers are widely used for charging Lithium batteries of electro mobile, electric-bicycle, electric tricycle, electric forklift, electric vehicles, electric motorcycles, electric sweepers ,electric boats, electric sightseeing cars, electric golf cart, electric tractor, electric lift trucks, electric medical equipment, electric transportation trucks.

4. Charger Maintenance and Precautions for Using

- 1) Check the battery technical specification very carefully before charging, to make sure it matches the charger technical data.
- 2) Make sure charger output connect to the batteries on correct polarity.
- 3) Input/output connectors must be connected firmly during charging.
- 4) Reverse connect of short circuit are prohibited during charging.
- 5) If charger of battery found to be abnormal or damaged during charge, please unplug Input and output wires right away.
- 6) If use other input wires, make sure the cable can withstand for the maximum input current of the charger and the charger's input voltage is within its working scope.
- 7) If you need to extend the output connection cable, please make sure the cable can withstand for the maximum output current of the charger, and the voltage-drop between the charger and connection wire of the battery should be less than 1% of the battery voltage as possible. Otherwise, it may affect the effect of charging process.
- 8) High voltage and dangerous inside this charger, when there's a defect, please contact with factory. Users and the maintain person who is not professional staff in our company are forbidden to open or re-develop this product.
- 9) Never use during a lightning storm.
- 10) Don't wet the charger body; never use is in wet or rained place.
- 11) Never use it near the heat source or where is shined by the straight sunshine.
- 12) Never use it in or near the place of flammable gas.
- 13) Use it in the ventilated and dustless place.
- 14) Don't place rod of other metal objects at vent or other openings.
- 15) Never cover the air vent, always leave 10cm space for it at least.

16) Don't shake, bump or throw it strongly.

5. Charger Use Method

- 1) Close the power switch firstly
- 2) Connect the batteries to the output socket with output wires—positive to positive, negative to negative
- 3) Plug the input wires correctly and connect to the input power source then
- 4) Open the power switch, LED flashes blue means battery is being charged
- 5) LED always green means battery is fully charged, switch off the charge
- 6) Disconnect the input cable
- 7) Disconnect the output wires

6. Charger Features

- 1) High efficiency, small size, light weight: Charger control circuit adopt advance LLC Half-bridge resonant soft-switching power supply control technology, proper structure as well as nice thermal design make the charger small and light with good portability.
- 2) Switching power supply type and MCU controlled charging technologies, exclusive precharge mode supplies activate, repair and prolonging life functions for long-term unused or deep sleep batteries.
- 3) High reliability: The charge is made of high quality military and industrial levels components. Advanced circuit design and strict production process according to ISO9001:2008 quality management system make the charger with low reject rate, high reliability and long service life.
- 4) The charge is reliable with multiple protections, such as over temperature protection, output short-circuit protection, reverse polarity protection, output over-voltage protection, that prevent damage by faulty operations.
- 5) The charge case is made of aluminum alloy with surface oxidation treatment, high-grade, fashion, good heat dissipation ability, high hardness, antioxidative, non-fading.

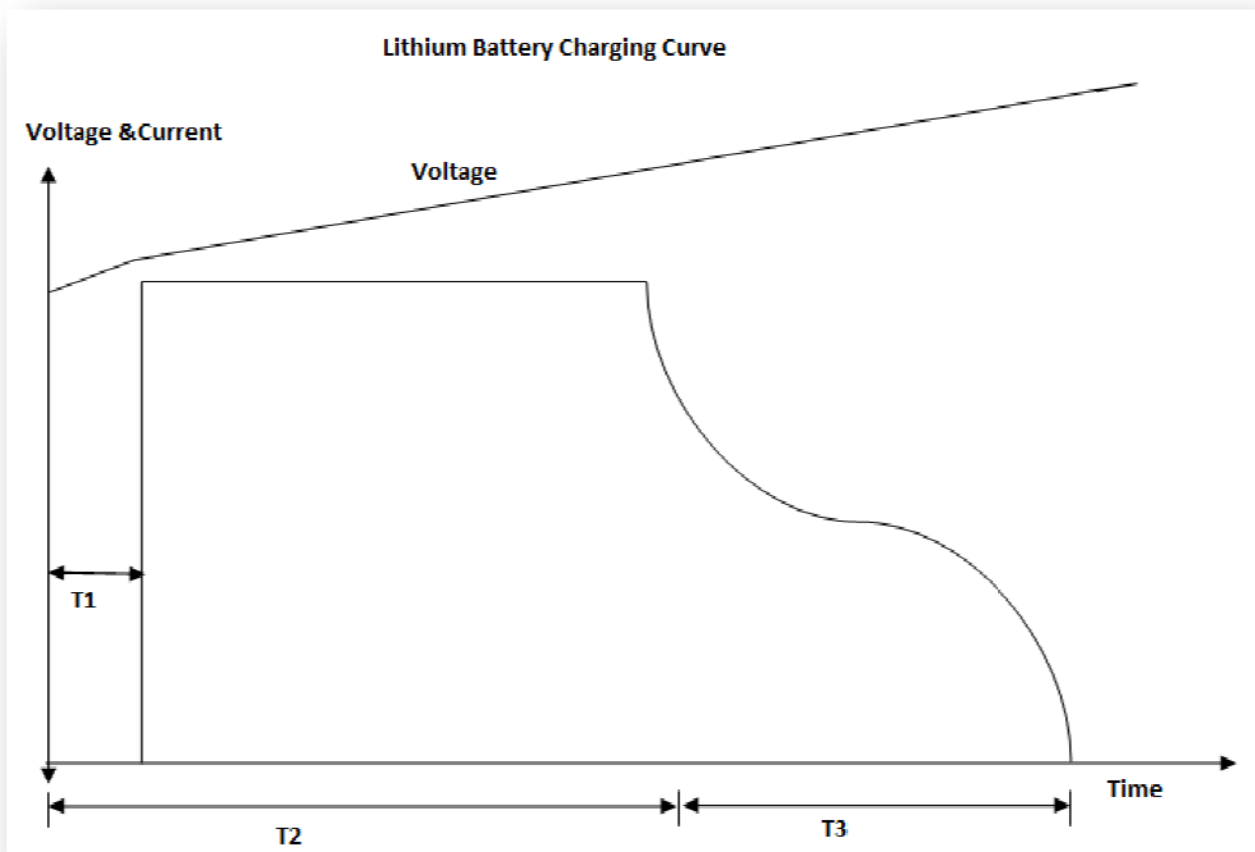
7. Charging Mode

- 1) **Precharge stage (T1):** When the battery voltage is lower than normal standard, the Charger cannot withstand large current charging. The charger will supply small current for charging, which has the functions of activation, repair and battery life extension.

When the output voltage reach normal value or at the T1 of the timing period, the Charger will switch to fast charge stage automatically.

- 2) **Fast charge stage (T2):** When battery is on the main period of charging, charger will quickly charge the battery with a constant flow, at the maximum current which can be used by the battery. When the battery voltage raise up to the set value, the charger will switch to float charge stage automatically.
- 3) **Float charge stage (T3):** The charger will switch to float charge stage, the charging current will fall off gradually, when the values drops to the set value or at the T3 of the timing period, charger will turns off the output voltage automatically, battery charging is complete.

8. Charge curve as below



9. Charger Protection Features

Over Temperature protection: When the charger internal temperature reaches Protection point, the charger will stop charging automatically and the LED is always red alarm.

- 1) Output Short-circuit Protection: When the charger appears short-circuit, it will cut off the output current and the LED is always red alarm.
- 2) Reverse Polarity Protection: When the battery polarities are reversely connected, the Charger will cut off the connection and the LED is always red alarm.
- 3) Output Over-Voltage protection: When the charger output over-voltage, it will cut off the output current and the LED is always red alarm.

10. Charger LED Indicator:

| LED Status | Charger Status |
|------------------|--|
| LED always green | Fully charged or not connected |
| LED flashes blue | Battery is being charged |
| LED always red | Charger under protection (over temperature protection, output Short-circuit protection, reverse polarity protection, output Over-voltage protection) |

11. Charger Troubleshooting:

If the charger cannot work normally, the following methods can help you quickly solve general problems. If failure is still not ruled out, please contact our company or the local distributor.

| Failure Mode | Troubleshooting Methods |
|--|--|
| LED is not lighting | <ol style="list-style-type: none"> a) Input connectors must be connected firmly b) Open power switch |
| Charger is not charging, and The LED is always green | <ol style="list-style-type: none"> a) Output connectors must be connected firmly b) Battery failure or damage: replace the battery |
| Charger is not charging, and The LED is always red | <ol style="list-style-type: none"> a) Make sure the output polarity is right b) Battery voltage is too high and cannot match the battery charger |

| | |
|------------------------------|--|
| Battery is not fully charged | <ul style="list-style-type: none"> a) Output connectors must be connected b) Output wire cannot be too long c) Battery failure or damage: replace the battery |
|------------------------------|--|

4. Safety Precautions

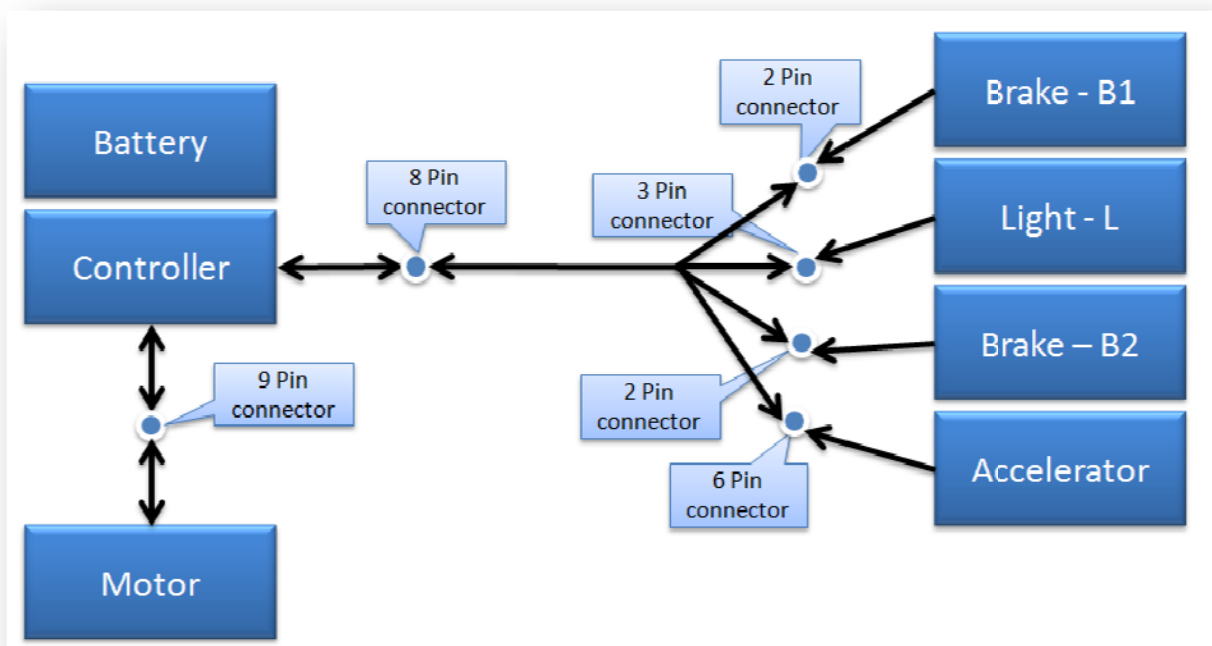
- Do not accelerate or pedal while braking
- Keep the charger and battery away from open flames, direct contact to other hot surfaces
- Do not keep the electric wires / cables near sharp objects

5. Wiring Diagram and Wiring Instructions

1. Wiring Instructions

- Plug in the male and female connectors as per the number of pins / holes in the connectors and with the arrow marks on both terminals pointing at each other.
- All connectors always fit in the male and female terminals smoothly. In case of any hardship, check the number of pins and the arrow indicators. Do not force the connector pins as it may result in damages

2. Wiring Diagram



6. Warranty Card

| | |
|------------------------------------|--|
| Customer Name and Address: | |
| Contact Number: | |
| Email: | |
| Vehicle Serial Number: | |
| Invoice Number: | |
| Date of Invoice / Purchase: | |
| Dealer Stamp and Address | |

You can reach us on the below:

Hulikkal Electro India Pvt. Ltd.

Office Address: Old No. 38 / New No. 64 East Ponnurangam Road, R.S.Puram, Coimbatore – 641002 (T / F: +92 422 4521290)

Factory Address: SF No. 274/IB, Thekkupalyam, Gudalur Village, Coimbatore North Taluk - 641020 (T: +91 422 2696452)

E-Mail: info@hulikkal.com