



## LingBo Controllers' Operating Instructions

Positive and negative poles can not be reversed. B+ is the positive pole, and B- is the negative pole. The corresponding phase lines of UVW are yellow, green and blue lines. All the binding posts need be insulation, or the controller will be burned by them.

The motor's insulating layer of phase lines peels off due to aging, which causes the phase lines short circuit, then the controller will be burned directly.

Following circumstances are not included in the free repair scope,

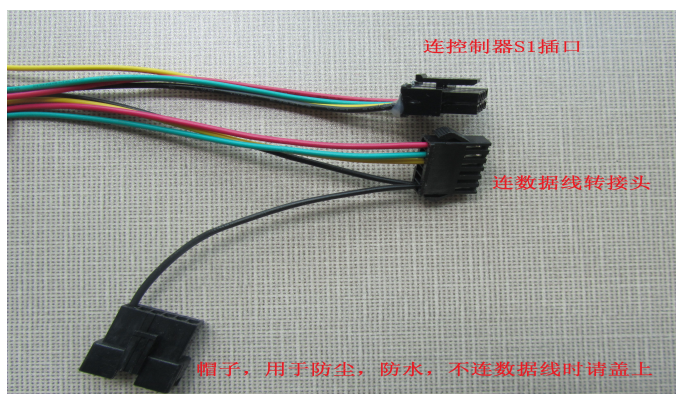
- ★the appearance looks seriously damaged and distorted;
- ★the shell of controller was separated privately;
- ★the controller is damaged due to the wrong connecting without following the instructions, especially that the positive and negative poles are reversed;
- ★switch lock into electricity causes the voltage too high, then the controller can be damaged;
- ★inflow makes the controller damaged.

### The Accessories with Controller

#### 1) data line

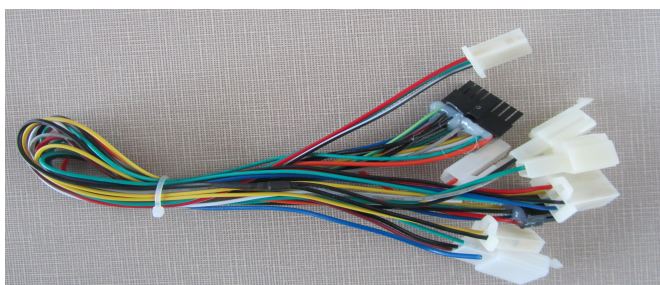


#### 2) connector



#### 3) Functional Wire-harness

For the 1<sup>st</sup> generation



For the 2<sup>nd</sup> generation



#### 1, Cautions for connecting the computer

- 1) Firstly download the drive before debugging, and the document of drive is CH341SER, then install it. The drive is compatible with Win8 within 32 bit and 64 bit system.
- 2) **The versions of computer soft are for generation 1 and generation 2, and pls download the corresponding soft and connect the computer.**
- 3) Download details for the corresponding soft

Type of Controller	Version No. Of Computer Software	Version No. Of Bluetooth
LBMC 072122	LBMC V2.1.3 for Generation 1	LBMC M V2.1.5
LBMC 072152		
LBMC 072302		
LBMC 072402		
LBMC 072502		
LBMC 072602		
LBMC 096502		
LBMC 072252	LBMC V3.1.2 for Generation 2	LBMC M V3.1.3
LBMC 072352		
LBMC 096252		
LBMC 120202		
LBMC 120502	Specific Version for 120V	LBMC M V2.1.5

#### 2, Cautions for Bluetooth's Debugging

LingBo's controller can be debugged with the mobile phone, but you need buy a bluetooth. The bluetooth soft version for generation 1 is LBMC M V2.1.5, and generation 2 is LBMC M V3.1.3. Before installing soft, you need uncompress the bluetooth soft, then install APK in your mobile phone, finally open the bluetooth via Lingbo's controller.

**3. Motor Tuning Parameter List( the controller for generation 2 only need choose hall phase line via software V3.1.2)**

Motor Brand	Type of Motor	No. Of Pole-Pairs	Phase-shift	Phase Configuration			Hall Configuration		
				Yellow U	Green V	Blue W	yellow	green	blue
Quanshun Tile-shaped Motor	10、12 inches、13 inches Tile-shaped (with X)	16	-120	yellow	blue	green	yellow	blue	green
	10、12inches、13inches Tile-shaped (without X)	20							
QuanShun/Wangdefu/Jinyuxing/Lianmeng	10 inches 、12 inches hollow	23	-60		green	blue		green	blue
Quanshun	12 inches full	24							
	13inches	28							
Wangdefu	12、13 inches hollow	16							
Lianmeng	10inches Tile-shaped	16	-60		green	blue		green	blue
Jinyuxing	12inches	20	-60		blue	green		blue	green
Unite	2.2KW (3000R)	6	-120		green	blue		green	blue
Lingbo Motor	2KW,3KW,5KW (5000R)	6	173		blue	green		green	blue
Haoya Motor	1.5KW	4	-60		blue	green		blue	green
Weilida	Multi-wire 10inches 13RV-45H	23	-60		green	blue		white	gray
	Single wire 10inches 10.8RV-30H		60		green	blue		blue	green
	Single wire 10inches 12RV-45H		-60		green	blue		blue	green
	Single wire 10inches 16RV-55H		-60		green	blue		blue	green
	Single wire 10inches 13.5RV-30H		60		green	blue		green	yellow

	Single wire 12inches 13RV-45H	28	120		green	blue	yellow	green	blue
	Single wire 12inches 12RV-45H		-60		blue	green		blue	green
	Single wire 13 inches		120		green	blue		blue	green
	Single wire 12 inches 14RV-45H	23	-60		blue	green		green	blue
	X-long 10 inches 13RV-45H	23	-60		green	blue		blue	green

Remarks: Hall' s red and black wires don' t be changed. Hall' s white and gray wires are spare.

- 3, The best discharge method for disconnecting the controller: Turn off the battery's air switch, and open the weak current lock to discharge, and there's no electricity after discharging for a while. When disassembling the big power controller, please don't discharge if the positive and negative lines are short-circuit.**

#### Controller's Function Overview

##### 1, EBS:

1)EBS Brake: Electronic brake, which has high-level and low-level electronic brake. For example, if the brake is high level, brake cable connects to the signal wire. The voltage will be from low to high while high-level braking, and the voltage's scope is generally 12V to 0V. If the brake is low level, brake cable connects to ground wire. The voltage will be from high to low while low-level braking, and its voltage is generally 0V to 12V. EBS brake is default to have the function of reverse charge. Cathode should be always connects to the negative line of assembly line.

2) Normal Brake: it means to cut the power while braking, whose function will become true if closing EBS via debugging soft.

3) Mechanical Brake: if not connecting the brake line, it is mechanical brake.

##### 2 Cruise

1) Manual Cruise: it needs install the button. Signal lines connect to the cruise lines, and cathode connects to the negative lines of controller.

2) Automatic Cruise: it is effective without connection, and it can go into the cruise mode with keeping a constant speed.

**The cruise mode will automatically exit when twisting the rolling handle. The cruise function had better not be used in the downtown.**

##### 3. Three-speed Function

1) Shift Three-speed: if the switch is shift switch on the motor, please choose the shift three-speed and connect with the high-speed line, low-speed line and the controller's cathode line (black line).

2) Button Three-speed: if the switch is button switch on the motor, please choose the button three-speed and connect with the high-speed line and the controller's cathode line(black line). Button three-speed is inching, and it is deemed as the high speed, and the cycle of high, middle, and low speed.

4, Reverse Function: Reverse line connects to the controller's cathode, and the function can be true after fixing a button.

5 Speed-limit Function: it is deemed as no speed-limit, if the function comes true, it need debug the soft.

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#### Fault Indication

System Protection Characteristics		LED Blinking Times
Overvoltage Protection	The voltage is higher than default value.	1
Undervoltage Protection	Battery voltage is lower than default value.	2
Motor Overcurrent Protection	Motor phase is short-circuit or phase to ground is short-circuit.	3
Motor Over-heat Protection	Motor temperature is over default value.	13
Stalling Protection	Motor stalling time is over default value.	4
HALL Sensor Protection	HALL input is abnormal.	5
MOSFET Protection	MOSFET self-checking is abnormal.	6
Phase Winding Disconnect Protection	One of the motor phases is disconnection.	7
Self-checking Error Protection	System internal power-on self-checking is abnormal.	10
Controller Over-heat Protection	When the controller operation temperature is higher than default value	11
Throttle Protection	Throttle input is abnormal.	12

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Governor Handle Idle Protection	Prohibit governor handle operating when system power on.	14
Braking Indication	Indicating braking mode	15