

# LBZK-A01P000-B

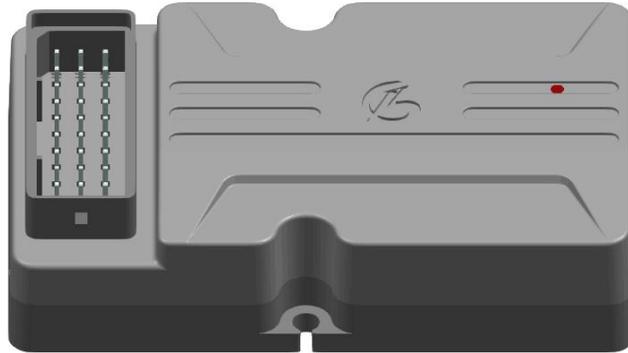
Vehicle Control Unit  
Technical Note V0.1

Name	Description
Product Model	LBZK-A01P000-B
Customer	

## Abbreviation

ECU	Electronic Control Unit
eScooter	Electric Scooter
MCU	Microcontroller
GND	Ground
Ta	Ambient temperature
B+	Battery positive
B-	Battery negative
LED	Light-emitting Diode

## 1. Basic Information



### Function Description of Electronic Control Unit

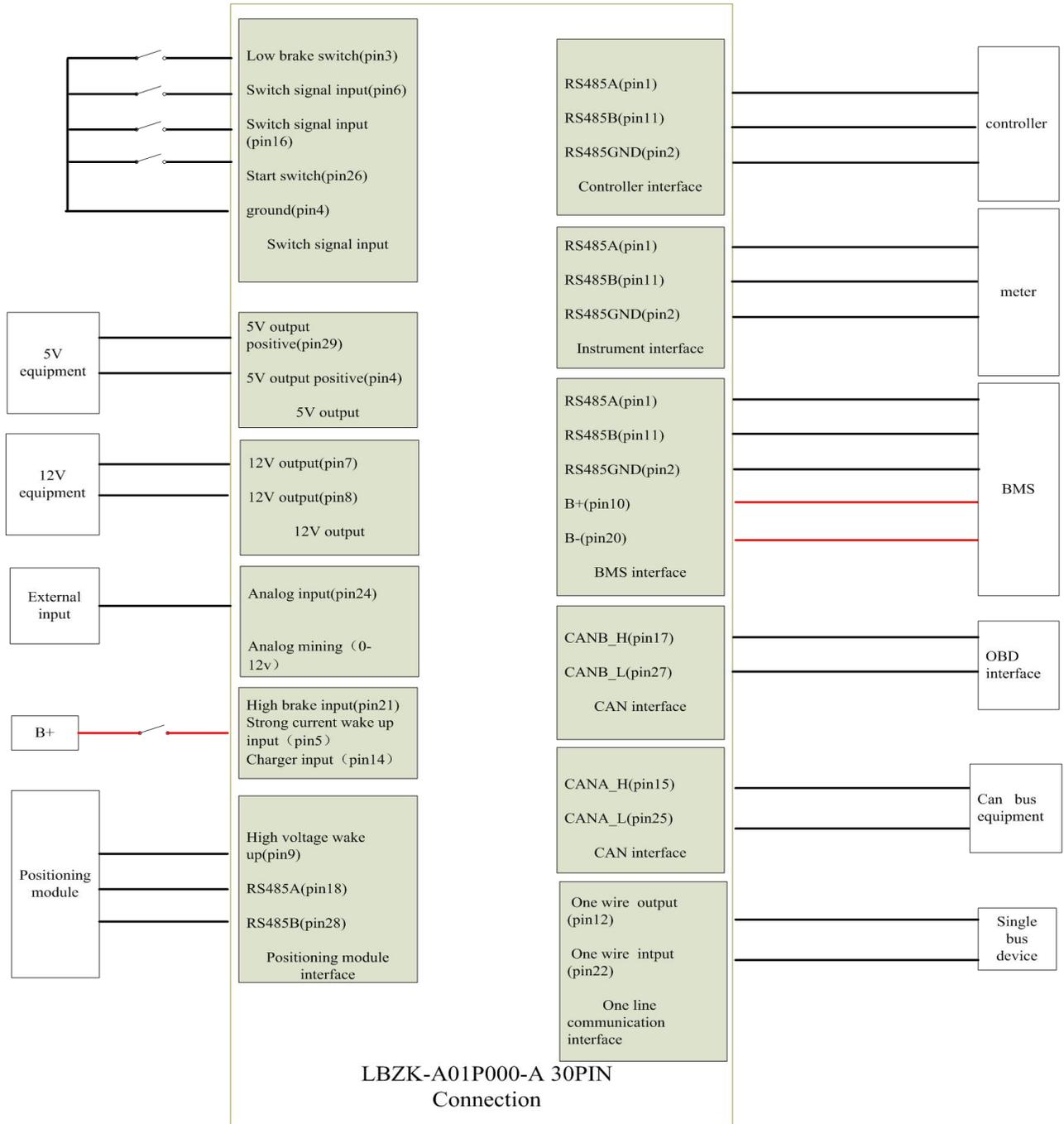
#### Hardware Function Description

Function	Function description
BLE/ Bluetooth interface	Optional function, no function by default, can be built-in low-power Bluetooth module (Bluetooth version: 4.0), realize data transmission, and can be directly connected with mobile phone Bluetooth.
RS485 bus	Communication bus, through RS485 bus to realize data exchange and control function with controller, instrument, BMS and other equipment
CAN Bus B	Communication bus, through CAN bus to realize data exchange, can realize the function of OBD, OBD meets the OBDII 15765 standard.
CAN Bus A	Communication bus, through CAN bus can realize data exchange and control with body equipment.
Low effective signal input	Input port, low level valid, bus default 5V level.
High effective signal input	Input port, high level valid, valid level is 12V ~ B +.
Controllable 5V signal output	Output port, the central control provides a 5V signal output, this circuit limited current resistance, for 100 ohm, can drive LED indicator or output 5V signal, can not output low level.
Controllable high level signal output	Output port, central control provides a channel of B + signal output.
Single bus communication interface	Communication bus, the ability to communicate with single bus equipment, bus default high level (5V).

Positioning module interface	The communication bus provides a RS485 bus, which can be connected to the positioning module to realize the positioning function and remote control.
Analog acquisition interface	Input port, support one analog input, voltage input range: 0 ~ 15V.
Electronic switch lock output	Output port, provides a controllable battery voltage output, maximum output capacity: 2A.
Two channel controllable 12V output	Output port, provides two 12V external output, maximum support 1A output current, can provide output current detection, central control has no 12V power supply, need external 12V power supply.
Vibration detection	Optional function, which is not available by default, can be used to detect vehicle vibration.

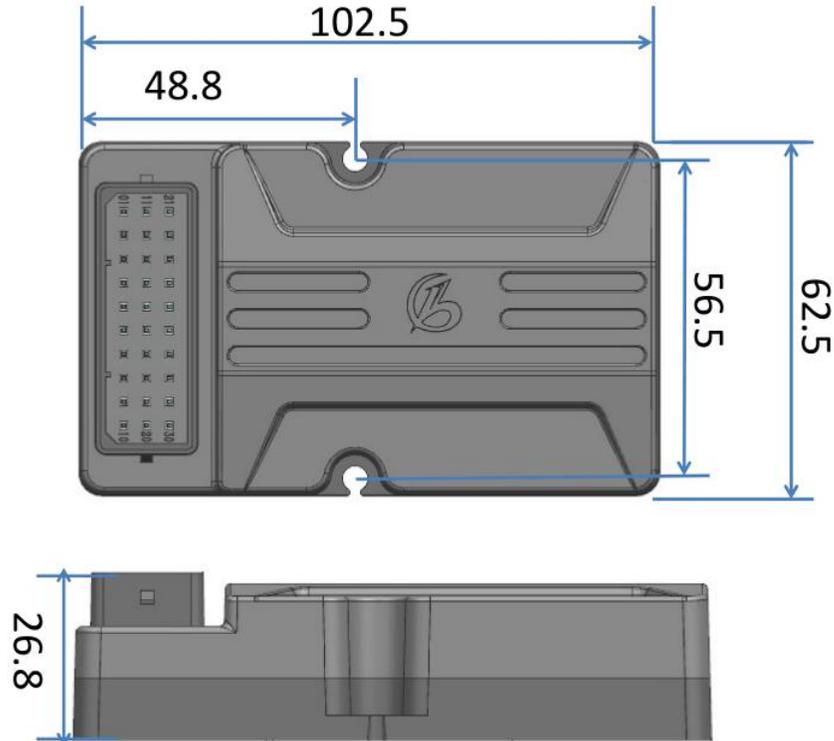
Security	Function description
Electronic switch lock output over current protection	If there is a short circuit in the external parts, the electronic control unit will take the initiative to disconnect the external power supply output, protect the vehicle parts and its own functions, and restore the condition: turn off the output and turn it on again.

## 2. Electrical Wiring Diagram of Vehicle Control unit



### 3 Mechanical and Environmental Specification of Vehicle Control unit

Dimension (102\*62.5\*26.8) mm



安装孔直径为4.5

### Weight

Net weight of ECU (213) g

Working environment temperature range

The working environment temperature range of electronic control unit: - 25 °C ~ + 60 °C.

Storage environment temperature range

The storage environment temperature range of electronic control unit: - 10 °C ~ + 40 °C.

## 4. Electrical boundary conditions of ECU

Power supply

The voltage range of electronic control unit is 30VDC ~ 85vDC。

Static working current (no optional function): 6mA, 60V

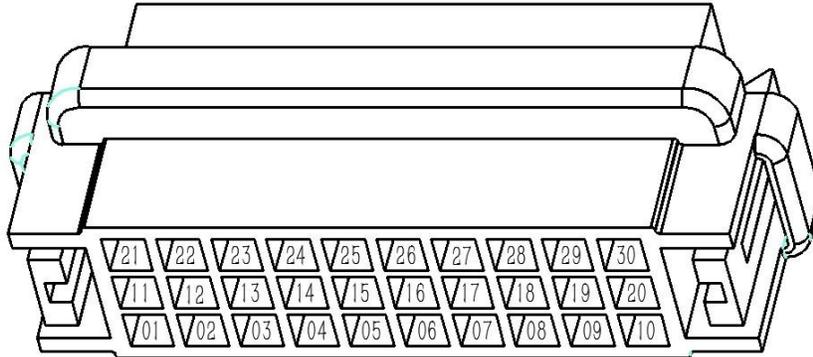
Current boundary conditions

B+ Output short circuit protection

The electronic control unit works preferentially without short circuit. If the short circuit occurs: the logic signal interface is short circuited to the ground, the electronic control unit of LingBo company can work normally, or even cause permanent damage to the electronic control unit.

## 5. Electrical Specification

Pin definition



Pin number	Function definition	Function definition	Input value	Output status	Voltage range
1	RS485A	communication interface			0-3.3V
2	RS485 ground				0V
3	Signal input	Digital input	Low efficiency		0-5V
4	ground				0V
5	ACC input signal	Digital input	Highly effective		12V-B+
6	Signal input	Digital input	Low efficiency		0-5V
7	12V output	power output		12V/1A	12V
8	12V output	power output		12V/1A	12V
9	Wake up signal output of phase line instrument / modul	High voltage output		B+	B+
10	Positive pole of ECU power supply		B+		0-B+
11	RS485 B	communication interface	0-3.3V		0-3.3V
12	One wire output	communication output		0V/5V	0-5V
13	ground				0V
14	Charging signal	digital input	Highly effective		12V-B+
15	CANA_H	communication interface	0-3.3V		0-3.3V
16	Signal input	digital input	Low efficiency		0-5V
17	CANB_H	communication	0-3.3V		0-3.3V

		interface			
18	Module RS485-A	communication interface	0-3.3V		0-3.3V
19	External 12V input	digital input	12V		12V
20	Negative pole of ECU power supply				0V
21	Signal input	Signal input	Highly effective		12V-B+
22	One line input	Signal input	Default OC output		0-5V
23	ground				0V
24	Analog acquisition	Signal input	0-12V		0-12V
25	CANA_L	communication interface	0-3.3V		0-3.3V
26	Start signal	Digital input	Low efficiency		0-5V
27	CANB_L	communication interface			0-3.3V
28	Module RS485-B	communication interface			0-3.3V
29	5V output positive	Power output		5V/ 50mA (max)	0-5V
30	Electronic switch lock output	Power output		B+/ 2A (max)	0-B+