

# **Wind IOT Product Manual**

**Mode No: H1**

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# 1. Overview

## 1.1 Product Introduction

IOT controller, the vehicle assembly controller. It is the core control component of the entire scooter. It collects the throttle button signal, the vehicle GPS positioning signal and other component signals, and makes corresponding judgments to control the movement of the lower components and drive the scooter to run normally. As the command management center of the scooter, the main functions of the assembly controller include: drive control, optimal control of braking energy, power management of the whole vehicle, maintenance and management of CAN network, fault diagnosis and processing, vehicle status monitoring, etc. It plays a role in controlling the operation of the vehicle.

## 1.2 IOT functions and principles

An electric scooter is a complex system consisting of multiple subsystems, including power systems such as batteries, motors, and brakes. Almost all subsystems complete their respective functions and goals through their own control units. In order to meet the goal of vehicle dynamics, economy, safety and comfort, on the one hand, it must have an intelligent human-car interaction interface. On the other hand,

each system must also cooperate with each other to optimize matching.

Therefore, electric scooters require a complete vehicle controller to manage the various components.

The electric scooter uses the IOT controller as the main node to manage, coordinate and monitor all aspects of the electric scooter through the internal wiring harness to improve the energy utilization rate of the vehicle and ensure the safety and reliability of the vehicle.

The functions of the IOT controller are as follows:

- 1) Switch lock control function
- 2) GNSS positioning function
- 3) 4G data communication function
- 4) BLE communication function
- 5) Human-computer interaction function
- 6) Vibration detection alarm function
- 7) Voice playback function
- 8) Control the operation of the ECU
- 9) Control headlights
- 10) Control dashboard

## 2. Basic parameters

### 2.1 Communication parameters

Mobile Communications:

European version: FDD/TDD/WCDMA,

US version: FDD LTE/WCDMA

Positioning communication:

Use U-blox and turn on GPS/GLONASS/GALILEO/QZSS

Bluetooth communication: BLE4.0

### 2.2 working environment

Working Voltage : Range DC15V-55V, Normal power supply DC 36V

Working power: 0.6w

Working temperature: -20 ° ~ 70 °

Protection level: IP67

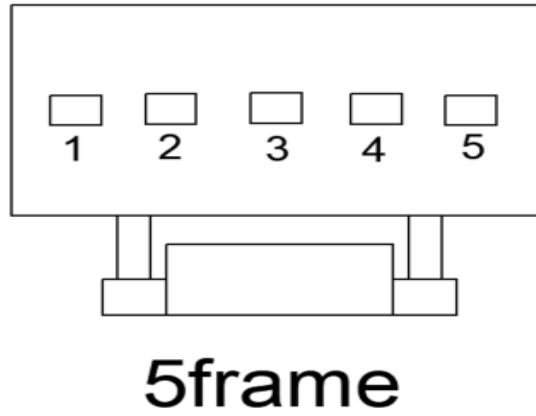
Appearance size: 93 (L) \* 67 (W) \* 52 (H) mm

## 3. Interface function definition

### 3.1 Interface Definition

The external terminal of the vehicle controller uses a 5-core professional waterproof connector. The outline structure and the names of the pins are defined as follows.

### 3.2 Front View of the Interface



### 3.3 Interface details

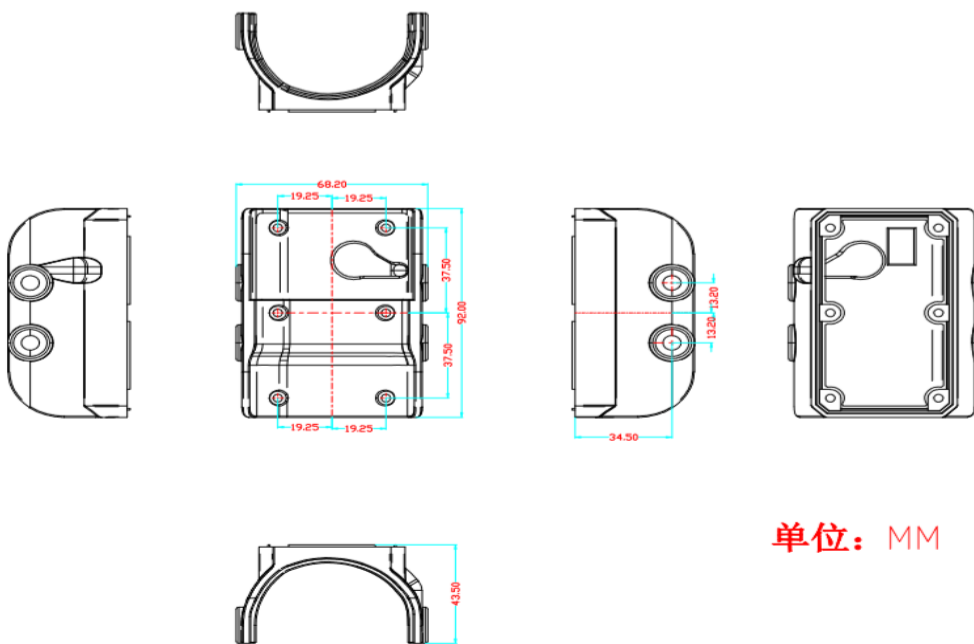
Frame number	Features
1	Rx: IOT uart Rx from motor controller
2	Tx: IOT uart Tx to motor controller
3	CTRL: wake up motor controller
4	P-: GND output from BMS
5	P+: 36v output from BMS

# 4. Dimensions

## 4.1 Shape



## 4.2 Size



单位: MM

## 5. Control system

5.1 The control interface of the system is inside the shell. It is an interface with 8 frames. It can be programmed and read and written by opening the shell connection interface.

Serial port section

	1	2	3	4	5	6	7	8
Features	3V3	G	Burnsck	BurnDIO	blank	G	MCU-TX	MCU-RX

## 6. Installation Notes

6.1 Use 4 M4 anti-theft screws to connect the IOT shell and the back splint to the front end of the whole vehicle riser, and then use 2 M6 anti-theft screws to fix through the splint and riser.

6.2 Insert the cable terminal of the motor controller into the IOT controller connection port and fasten the interface.

## 7. Software function

7.1 restart function

7.2 car search function

7.3 backup point charging management function

7.4 throttle function

7.5 self-diagnosis function

7.6 speed limit function



7.7 remote upgrade function

7.8 smart battery monitoring function

The intelligent battery management system constantly monitors the working status of each battery and sets multiple protections, such as discharge protection/low temperature protection, to ensure the safety of the battery and prolong its service life.

7.9 low battery protection

## **8. System maintenance and inspection**

8.1 Although the device is fully sealed and waterproof, it is not possible to flush the IOT controller with water. Do not open the upper and lower shells of the IOT unless necessary.

8.2 Dust and dirt outside the IOT controller should be periodically removed according to the environment in which it is used.

8.3 Never test the controller circuit with a high resistance meter.

## **9. FCC Warning**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including

interference that may cause undesired operation. Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement.

The antennas used for the transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter