# WD-210

## 4G-Shared E-bike Central Control

Version 1.1

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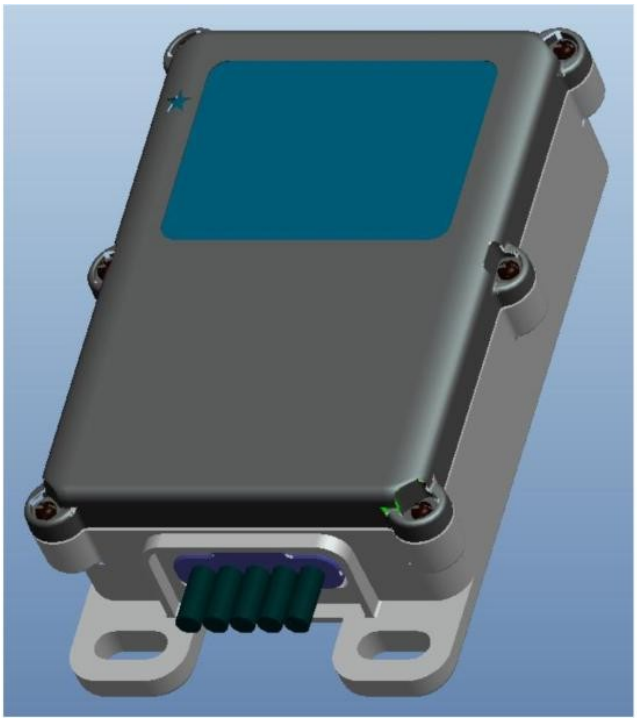
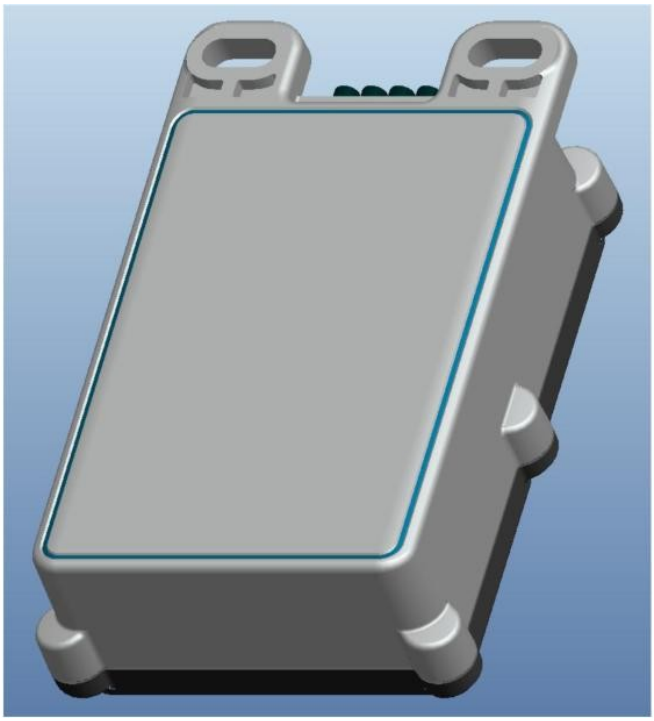
# 1 Product Introduction

## 1.1 Product Overview

WD-210 is an intelligent terminal designed for shared electric vehicles. It supports dual-mode dual-frequency single-point positioning with comprehensively upgraded positioning accuracy. Equipped with 4G-LTE remote control, real-time satellite positioning, vibration detection, anti-theft alarm, smart helmet lock, battery lock and other functions. The terminal exchanges data with the backend and mobile APP via 4G network to realize all service functions of shared e-bikes.

## 1.2 Product Appearance Diagram



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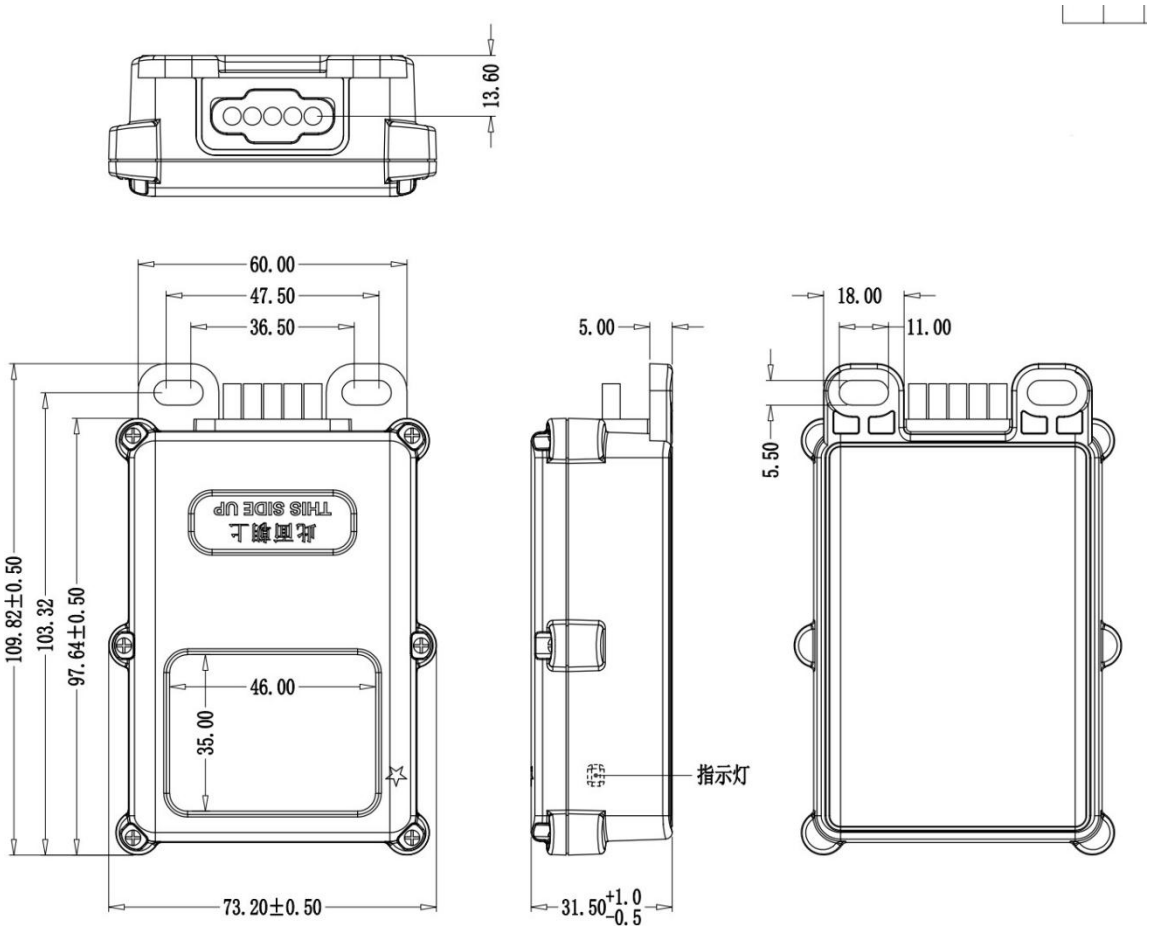


## 1.3 Basic Device Parameters

### 1.3.1 Overall Machine Parameters

| | |
|---|---|
| Overall Dimensions | L×W×H: 109.82mm × 73.20mm × 31.50mm |
| Input Voltage Range | Wide voltage input: 12V-72V |
| Power Consumption | Normal operation：<15mA@48V<br>Sleep standby：<4mA@48V |
| Dustproof & Waterproof Grade | IP67 |
| Housing Material | V0 flame-retardant PC |
| Housing Weight | 67g±1g |
| Operating Temperature | -30 ℃ ～ +70 ℃ |
| Operating Humidity | 5%RH ～ 95%RH |
| SIM Card Type | Micro-SIM card / Patch SIM card |


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### 1.3.2 Network Performance

| | |
|---|---|
| Supported Modes | LTE-FDD/LTE-TDD |
| Max Transmit Power | LTE-FDD/LTE-TDD：23dBm |
| Frequency Bands | LTE-FDD:B1/B3/B5/B8 |
| | LTE-TDD:B34/B38/B39/B40/B41 |

### 1.3.3 Satellite Positioning Performance

| | |
|---|---|
| Satellite Receiving Bands | China BDS BDS:B1I,B1C,B2a,B2I,B2b,B3I |
| | US GPS/Japan QZSS:L1 C/A,L1C,L2C,L5 |
| | Russia GLONASS:L1,L2 |
| | EU Galileo:E1,E5a,E5b |
| Startup Time | Cold start≤28S |
| Positioning Accuracy | 3-5 meters（open area） |
| Sensitivity | Cold start：-148dBm |
| | Re-capture：-158dBm |
| | Tracking：-167dBm |
| AGPS | Supported |

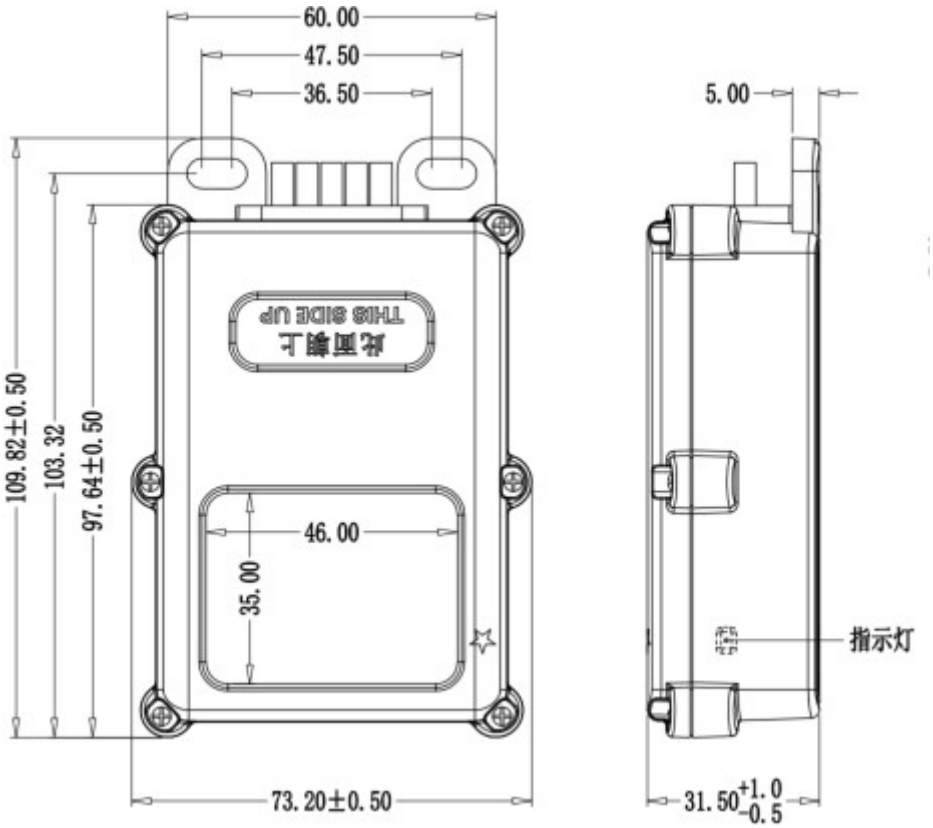
### 1.3.4 Bluetooth Performance

| | |
|---|---|
| Bluetooth Version | BLE5.4 |
| Receiving Sensitivity | -93dBm |
| Max Receiving Distance | 30 meters (open area) |
| On-vehicle Receiving Distance | 10-20 meters (depends on installation environment) |

# 2 Installation & Function Description

## 2.1 Installation

Connect the device to the corresponding port of the controller according to the model of the wiring port. The device will power on automatically when the vehicle battery is live. A network indicator light is on the side of the device. Definition of indicator light status as below:




| Light Status (Blue Light) | Meaning |
|---|---|
| Steady on | Positioning & network connection succeeded |
| Slow flash (1s) | Network connected, positioning failed |
| Slow flash (2s) | No network connection |
| Fast flash (300ms) | SIM card unrecognized |
| Off | Device inactive / powered off |

## 2.2 Function Description

| Function Name | Function Description |
|---|---|

| | |
|---|---|
| Positioning | Real-time positioning; current location information can be obtained by remotely issuing instructions. Satellite positioning data will be uploaded when satellite signals are available; LBS location data will be uploaded when no satellite signal. Location data is transmitted to backend and APP. Supports GPS + BDS dual positioning. |
| Arm (Alarm Enabled) | Detects vibration signals, wheel movement signals and ACC signals under armed state. Vibration alarm triggered when vibration detected; wheel movement alarm triggered when wheel rotation detected. |
| Disarm (Alarm Disabled) | Vibration detection disabled; wheel movement and ACC signals keep detectable. |
| 485 (Compatible with CAN / Serial Communication ) | Supports 485 communication for docking with controllers, BMS, RFID readers and other accessories. |
| Real-time Data Upload | The terminal transmits data to the backend in real time via network connection. |
| OTA Upgrade | Supports remote firmware upgrade. |
| Vibration Detection | Built-in acceleration sensor to detect vehicle vibration. Vibration alarm will be triggered under armed state if vibration is detected. |
| Wheel Movement Detection | Supports wheel rotation signal detection. Wheel movement alarm will be triggered under armed state if wheel rotation is detected. |
| ACC Detection | Detects ACC signal in real time to monitor vehicle power-on status. |
| Tip-over Alarm | Detects vehicle tilt angle; tip-over alarm will be triggered when the vehicle falls over. |
| Motor Lock | Sends motor lock command to controller via 485 bus to lock the motor. |
| Device Sleep Mode | Enter sleep mode 10 minutes after external power disconnection, and wake up once every 6 hours. |
| Voice Function | External speaker can be connected for voice broadcast. |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| | |
|---|---|
| Battery Lock | Supports docking with battery lock to secure storage battery against theft. |
| BMS Data Reading | Acquire BMS data via 485, including battery capacity, remaining capacity, charge & discharge cycles, etc. |
| Helmet Lock | Supports docking with ordinary helmet locks and smart helmet locks. |
| RFID (Optional) | Supports connection with RFID readers to realize fixed-point parking function. |
| AI Camera (Optional) | Supports docking with AI camera to realize designated return parking. |


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