



# EA00004 User Manual

## Telematics Device EA00004

QSZTRACEA00004UM0101

Version: 1.01

*International Telematics Solutions Innovator*

[www.queclink.com](http://www.queclink.com)

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## 0. Revision History

| Version | Date       | Author    | Description of change |
|---------|------------|-----------|-----------------------|
| 1.00    | 2020-02-26 | Heymi Lin | Initial Version       |
|         |            |           |                       |

# 1. Introduction

The Vehicle Control Module EA00004 integrates the components and functions such as OLED display, headlight control, Powertrain Control Module (PCM), Battery Module, brake actuator, throttle actuator, and speaker while providing communication with integrated Wi-Fi, Bluetooth and GPS positioning modules.

The EA00004 is designed to integrate within the scooter to provide communication to Bird Servers via LTE, provide local Bluetooth and 802.11 communications, and control vehicle behaviors such as remotely lock/unlock, track vehicle position, report status of the scooter. Additionally, by using the button on the panel, the user can perform numerous functions that will be region specific and determined by Bird in deployment via firmware update. Selected information will be reported to the backend sever to facilitate the basic functions of the scooter.

## 1.1. EA00004 Series Products

Table 1. EA00004 Products

| Model No. | Region    | Technology                   | Operating Band (MHz)  |
|-----------|-----------|------------------------------|---|
| EA00004   | Worldwide | LTE-FDD/LTE-TDD/<br>UMTS/GSM | LTE FDD: B2/B4/B5/B7/B8/B12/B13/<br>B20/B25/B26<br>LTE TDD: B38/B41<br>UMTS: B2/B4/B5<br>GSM: B2/B5 |

## 1.2. Reference

Table 2. EA00004 Protocol Reference

| SN  | Document name                         | Remark   |
|-----|---------------------------------------|--|
| [1] | EA00004 @Track Air Interface Protocol | The air protocol interface between EA00004 and backend server. |

## 1.3. Terms and Abbreviations

Table 3. EA00004 Terms and Abbreviations

| Abbreviation | Description             |
|--------------|-------------------------|
| RXD          | Receive Data            |
| TXD          | Transmit Data           |
| OUT1         | Output 1                |
| OUT2         | Output 2                |
| IGN          | Ignition                |
| IN1          | Input 1                 |
| GND          | Ground                  |
| VIN          | External DC Power Input |

## 2. Product Overview

### 2.1. Product Appearance

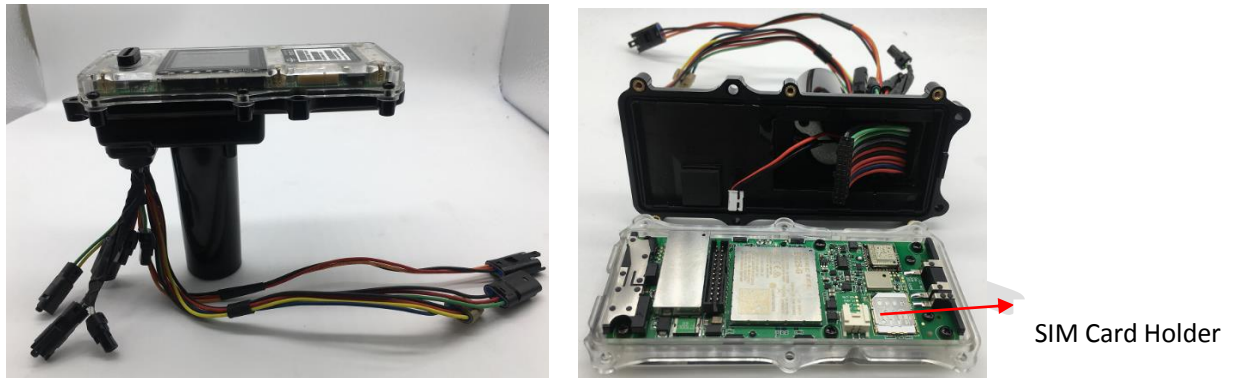



Figure 1. EA00004 Appearance

### 2.2. Parts List

Table 4. EA00004 Series Parts List

| Name    | Picture   | Description                               |
|---------|---|---|
| EA00004 |  <p>125.5mm*62.08mm*101.0mm</p> | EGPRS/LTE Cat-M1/LTE Cat-NB1/GNSS tracker |

## 3. Interface Definition

The EA00004 harness have 24-pin interface connector. It contains the connections for power, Speaker, headlight and so on. The sequence and description of the connector are shown in the following figure:

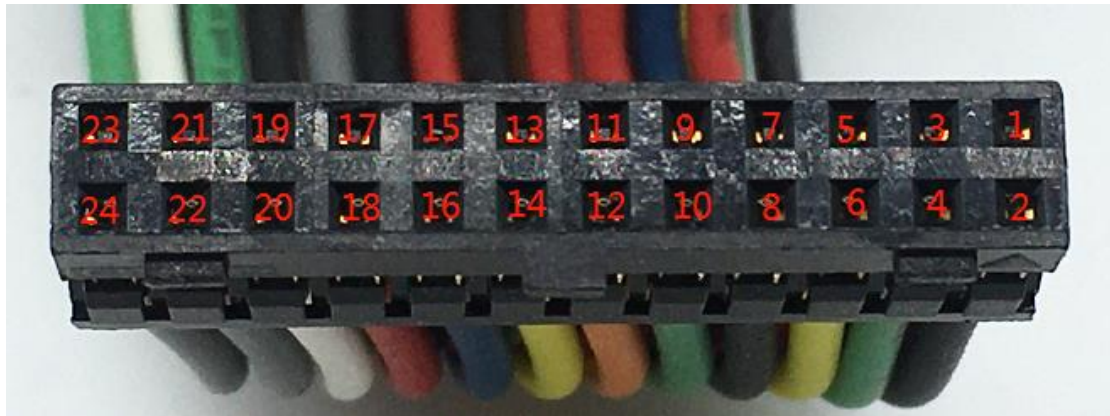



Figure 2. 24-pin Connector of the EA00004

Table 5. Description of 24-pin Connections

| Index | Description | Comment           |
|-------|-------------|-------------------|
| 1     | GND         | Power GND         |
| 2     | 36V Perm    | Power 12V         |
| 3     | CAN_L       | CAN_L             |
| 4     | PWR_ENA     | Power ENA         |
| 5     | CAN_H       | CAN_H             |
| 6     | BR2_5V      | BR2_Input         |
| 7     | BR2_GND     | BR2_GND           |
| 8     | BR1_5V      | BR1_Input         |
| 9     | BR2_WP      | BR2_Wake up       |
| 10    | BR1_GND     | BR1_GND           |
| 11    | BR1_WP      | BR1_Wake up       |
| 12    | TR_5V       | Throttle Input    |
| 13    | TR_WP1      | Throttle Weak up1 |
| 14    | TR_GND      | Throttle GND      |
| 15    | TR_WP2      | Throttle Weak Up2 |
| 16    | USB_ID      | USB ID            |
| 17    | USB_VBS     | USB_VBS           |
| 18    | USB_GND     | USB_GND           |
| 19    | USB_D-      | <b>USB GND</b>    |
| 20    | USB_D+      | USB Input         |
| 21    | SPK-        | SPK GND           |
| 22    | LED-        | Headlight GND     |
| 24    | SPK+        | SPK INPUT         |
| 24    | LED+        | Headlight INPUT   |

## 4. Device Cable Color

Table 6. EA00004 Device Cable Color Definition

| Definition | Color  | Pin No. | Cable   |
|------------|--------|---------|---|
| GND        | Black  | 1       |  |
| 36V Perm   | Red    | 2       |   |
| CAN_L      | Green  | 3       |   |
| PWR_ENA    | Blue   | 4       |   |
| CAN_H      | Yellow | 5       |   |
| BR2_5V     | Red    | 6       |   |
| BR2_GND    | Black  | 7       |   |
| BR1_5V     | Red    | 8       |   |
| BR2_WP     | Green  | 9       |   |
| BR1_GND    | Black  | 10      |   |
| BR1_WP     | Orange | 11      |   |
| TR_5V      | Red    | 12      |   |
| TR_WP1     | Yellow | 13      |   |
| TR_GND     | Black  | 14      |   |
| TR_WP2     | Blue   | 15      |   |
| USB_ID     | Gray   | 16      |   |
| USB_VBS    | Red    | 17      |   |
| USB_GND    | Black  | 18      |   |
| USB_D-     | White  | 19      |   |
| USB_D+     | Green  | 20      |   |
| SPK-       | Gray   | 21      |   |
| LED-       | White  | 22      |   |
| SPK+       | Gray   | 23      |   |
| LED+       | Green  | 24      |   |



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## 5. Started

### 5.1. Opening and Closing the Casing



Figure 3. Open Top Cover

To open/close: Loosen or fasten the screws to open or to close.

### 5.2. Installing a SIM Card

Install the SIM card into the holder when power is off as shown below. Take care to align the cut mark, and then close the case.



Figure 4. SIM Card Installation

### 5.3. Power Supply Connection

The red wire is power line ,the black wire is ground line and blue wire is power EAN line . The input voltage range for this device is from 12V to 60V DC.

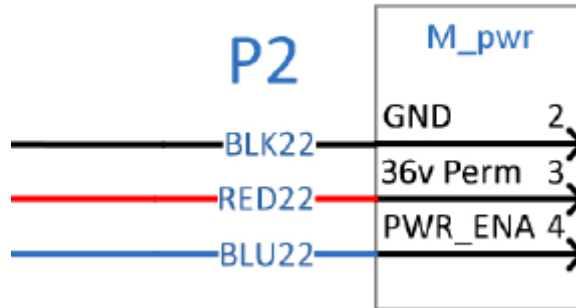


Figure 5. Example of Connection for power

### 5.4. CAN Connection

The yellow wire is CAN\_H line, the green wire is CAN\_L line. Need connect CAN-Bus tools for communication.

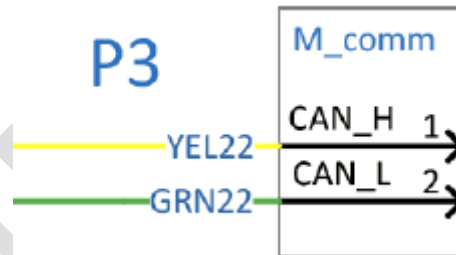


Figure 6. Example of Connection for CAN

### 5.5. Extra USB Connection

P4 Gray wire is USB ID line, the white wire is USB\_D- line, The green wire is USB\_D+ line, P5 red wire is power line, the black wire is ground line. P4 is for signal, P5 is for supply power.

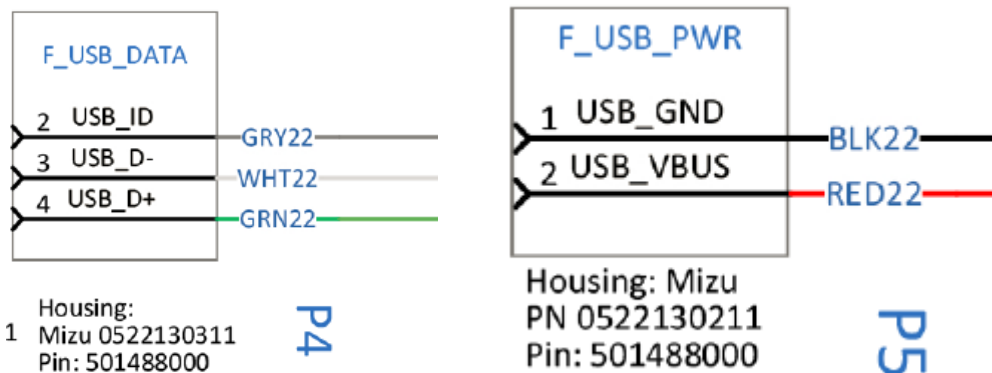


Figure 7. Example of Connection for USB

## 5.6. Throttle

The blue wire is throttle weak up 2 line, the black wire is ground line, the red wire is power line, the yellow wire is throttle weak up 1 line.

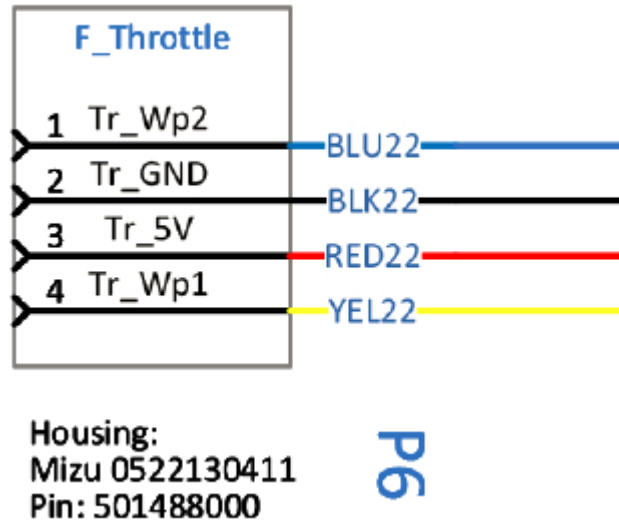


Figure 8. Example Connection to Throttle

## 5.7. Brake Right

The black wire is ground line, the red wire is power line, the orange wire is weak up line.

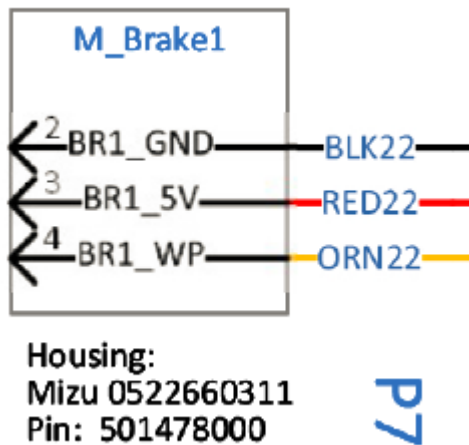
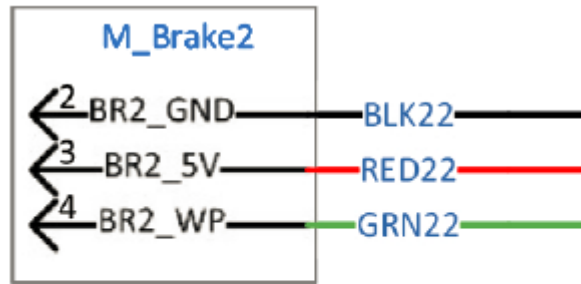


Figure 9. Example connection to brake right

## 5.8. Brake Left

The black wire is ground line, the red wire is power line, the green wire is weak up line.



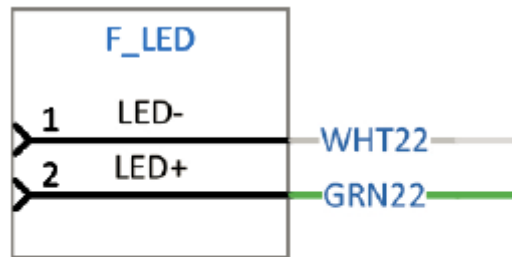
Housing:  
Mizu 0522660311  
Pin: 501478000

P10

Figure 10. Example connection to brake left

### 5.9. Headlight

The white wire is ground line, the green wire is power line.



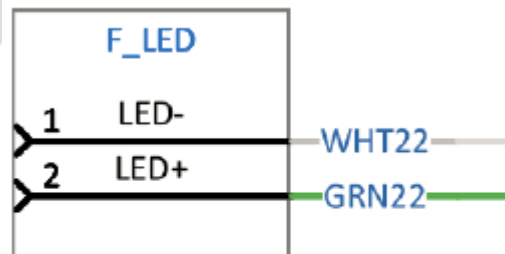
Housing: Mizu  
PN 0522130211  
Pin: 501488000

P8

Figure 11. Example connection to headlight

### 5.10. Speaker

The white wire is ground line, the green wire is power line.



Housing: Mizu  
PN 0522130211  
Pin: 501488000

P8

Figure 12. Example connection to speaker

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## 6. Basic communicate

EA00004 Can communicate with the backend server through LTE Cat-M network, and transfer reports of emergency, Geo-fencing, device status and schedule GPS position ect...service provider is easy to setup their tracking platform based on the functional wireless.

## 7. BLE

### 7.1. BLE working mode explanation

EA00004 is installed in the shared scooter and supplied by the main battery of scooter. With the external power(main battery of scooter) supplying , the BLE of EA00004 works. Otherwise with the backup battery of EA00004 supplying, BLE stops working.

### 7.2. BLE instructions

Heartbeat packet uploaded from EA00004 to Server includes 20 bytes dynamic password (BLE command password).After successfully connected with the BLE of EA00004,It is able to send command <AT+BKSCT=BLE Command Password,0\$> to unlock Scooter or <AT+BKSCT=BLE Command Password,1\$>to lock Scooter by BLE channel.

## 8. NFC

### 8.1. NFC working mode explanation

EA00004 is installed in the shared scooter and supplied by the main battery of scooter. With the external power(main battery of scooter) supplying , the NFC of EA00004 works. Otherwise with the backup battery of EA00004 supplying, NFC stops working.

### 8.2. NFC instructions

Use the handheld terminal to scan EA00004, and when the signal is received, the handheld terminal and EA00004 can be connected

## 9. WiFi

### 9.1. WiFi working mode explanation

EA00004 is installed in the shared scooter and supplied by the main battery of scooter. With the external power(main battery of scooter) supplying , the WiFi of EA00004 works. Otherwise with the backup battery of EA00004 supplying, WiFi stops working.

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## 9.2. WiFi instructions

Use the USB cable to configure the software of the product (the software will define that the product will automatically open WiFi function). After WiFi is turned on, the MAC address of the nearby WiFi signal will be searched; the signal will be sent to the background terminal through LTE function of the product, and the background terminal will locate the signal.

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## 10. FCC Certification

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

### **IMPORTANT NOTE:**

Note: 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.

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## 11. IC Certification

### **ISED RSS Warning:**

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### **ISED RF exposure statement:**

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Le rayonnement de la classe b respecte ISED fixaient un environnement non contrôlés. Installation et mise en œuvre de ce matériel devrait avec échangeur distance minimale entre 20 cm ton corps. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.