



EA00022 User Manual

Telematics Device EA00022

QSZTRACEA00022UM0101

Version: 1.01

International Telematics Solutions Innovator

www.queclink.com

Document Title	EA00022 User Manual
Version	1.01
Date	2021-09-07
Status	Released
Document Control ID	QSZTRACEA00022UM0101

General Notes

Vehicle Control Module EA00022 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 bluetooth and GPS positioning modules.

The EA00022 is designed to integrate within the scooter to provide communication to Bird Servers via LTE, provide local Bluetooth 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.

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0. Revision History

Version	Date	Author	Description of change
1.00	2021-09-07	Heymi Lin	Initial Version

1. Introduction

The Vehicle Control Module EA00022 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 Bluetooth and GPS positioning modules.

The EA00022 is designed to integrate within the scooter to provide communication to Bird Servers via LTE, provide local Bluetooth 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. EA00022 Series Products

Table 1. EA00022 Products

Model No.	Region	Technology	Operating Band (MHz)
EA00022	US and Canada	LTE-FDD/LTE-TDD/ UMTS/GSM	LTE FDD: B2/B4/B5/B7/B12 B13/B25/B26 LTE TDD: B38/B41 UMTS: B2/B4/B5 GSM: 850MHz/1900MHz

1.2. Reference

Table 2. EA00022 Protocol Reference

SN	Document name	Remark
[1]	EA00022 @Track Air Interface Protocol	The air protocol interface between EA00022 and backend server.

1.3. Terms and Abbreviations

Table 3. EA00022 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. EA00022 Appearance

2.2. Parts List

Table 4. EA00022 Series Parts List

Name	Picture	Description
EA00022	 125.5mm*62.08mm*101.0mm	tracker

3. Interface Definition

The EA00022 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:

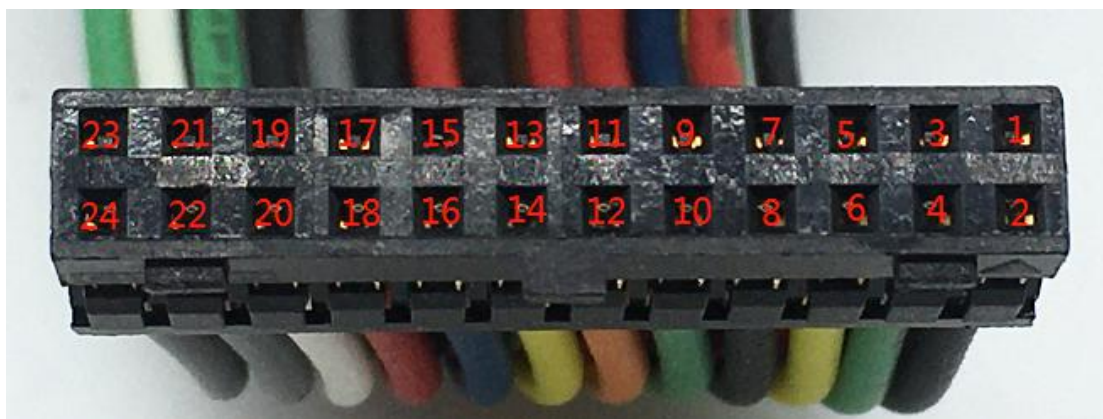



Figure 2. 24-pin Connector of the EA00022

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-	USB GND
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. EA00022 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	

5. Started

5.1. Opening and Closing the Casing

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 blow. Take care to align the cut mark, and then close the case.

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.

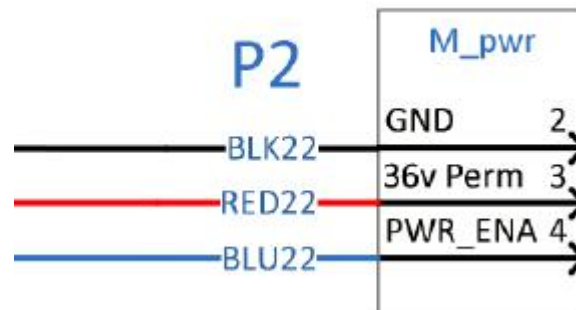


Figure 5. Example of Connection for power

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.

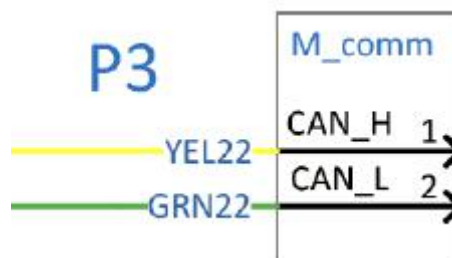


Figure 6. Example of Connection for CAN

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.

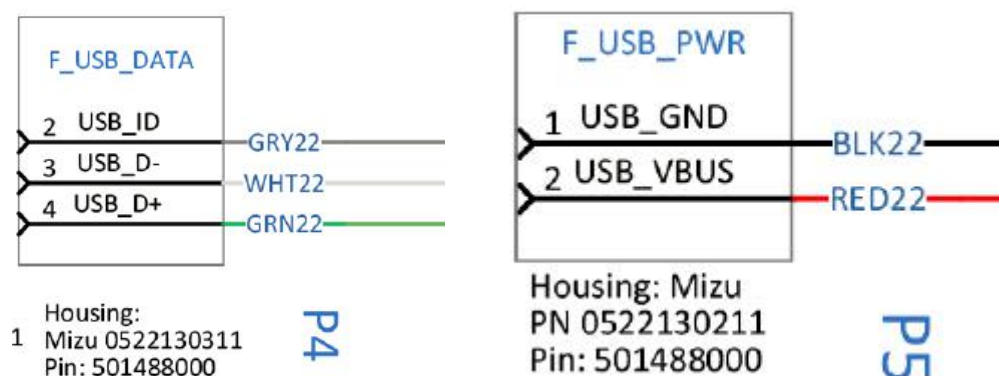


Figure 7. Example of Connection for USB

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.

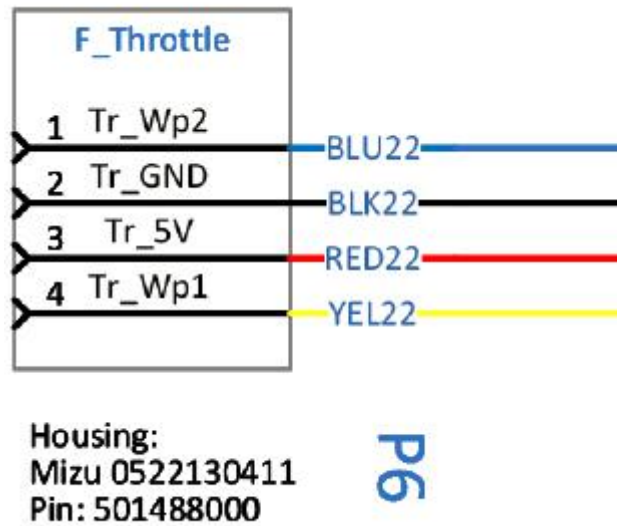


Figure 8. Example Connection to Throttle

5.7. Brake Right

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

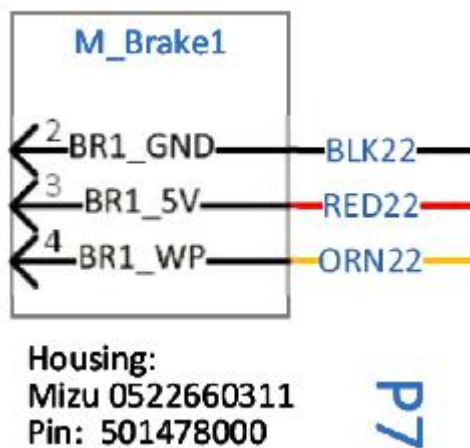


Figure 9. Example connection to brake right

5.8. Brake Left

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

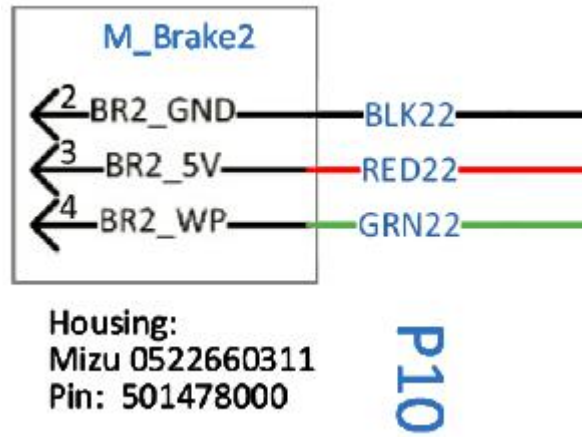


Figure 10. Example connection to brake left

5.9. Headlight

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

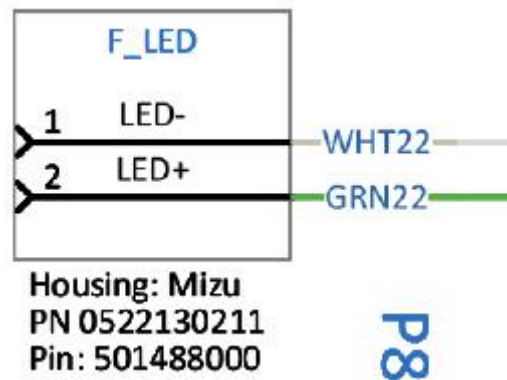


Figure 11. Example connection to headlight

5.10. Speaker

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

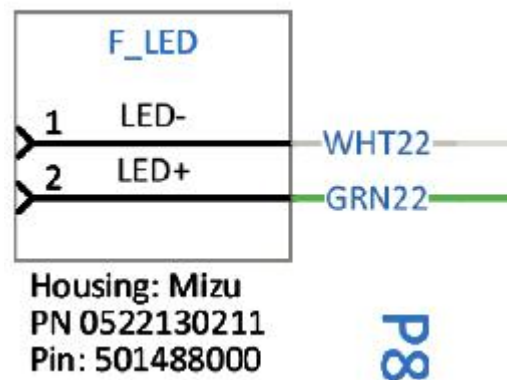


Figure 12. Example connection to speaker

6. Basic communication

EA00022 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

EA00022 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 EA00022 works. Otherwise with the backup battery of EA00022 supplying, BLE stops working.

7.2. BLE instructions

Heartbeat packet uploaded from EA00022 to Server includes 20 bytes dynamic password (BLE command password).After successfully connected with the BLE of EA00022,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

EA00022 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 EA00022 works. Otherwise with the backup battery of EA00022 supplying, NFC stops working.

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.

ISED RSS Warning/ISED RF Exposure Statement

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 écarteur distance minimale entre 20 cm ton corps. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.