ZK105M User Manual

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Author	Bruce.Chen
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Contents

1 Introduction

This document describes how the ZK105M enters transparent mode to debug module instructions.

The ZK105M Series are a series of water resistant GPS tracker designed for Scooter. Their built-in GPS receiver has superior sensitivity and fast time to first fix (TTFF). Their LTE allows the ZK105M Series' location to be monitored in real time or periodically tracked by a backend server or other specified terminals. Their built-in 3-axis accelerometer allows motion detection and extends battery life through sophisticated power management algorithms. It built-in high brightness color indicator and audio broadcast function. It built-in high brightness color indicator and audio broadcast function. System integration is straightforward as complete documentation is provided for the full featured @Track protocol. The @Track protocol supports a wide variety of reports including emergency, low battery and scheduled GPS position.

2 BLE

2.1 BLE working mode explanation

ZK105M is installed in the SharedScooter and supplied by the main battery of Scooter. With the external power(main battery of Scooter) supplying , the BLE of ZK105M works. Otherwise with the backup battery of ZK105 supplying, BLE stops working.

2.2 BLE instructions

Heartbeat packet uploaded from ZK105M to Server includes 20 bytes dynamic password (BLE Command Password).After successfully connected with the BLE of ZK105,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.

3 NFC

NFC function can be set enable or disable through command. It need enable before applying NFC function.

3.1 Enable/Disable NFC function

Command to enable NFC：AT+GTVAD=ZK105,0,0,0,**1**,,,,FFFF$

Command to disable NFC：AT+GTVAD=ZK105,0,0,0,**0**,,,,FFFF$

3.2 NFC Instructions

After ZK105M NFC function enabled, it is able to take NFC tool to send command <AT+BKSCT=BLE Command Password,0$>to unlock Scooter or <AT+BKSCT=BLE Command Password,1$> to lock Scooter by NFC channel.

4 Tools (picture)

4.1 Hardware

4.1.1 parts list:

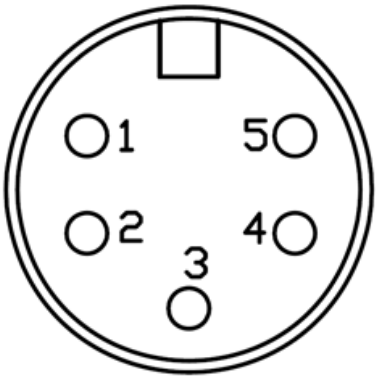
Name	Picture
Debug Cable	

Table 1.Parts List

4.1.2 Interface Definition

The power cable input 36V, red wire for positive, black wire for negative

5 PIN CONNECTOR INTERFACE



PIN No.	Pin Name	Description
1	GND	Power GND (Black)
2	USART RX	Receive data (Yellow)
3	USART TX	Transmit data (Green)
4	GPIO1	Control signal output (Blue)
5	DC IN: 36V	Power+ Input (Red)

Getting Start

Core function

Transmit real time location data to control PCBA of scooter via power cable, speaker be sound when scooter unlock, lock and alarm.

GSM/LTE use:

1 Open the cover of the machine and insert the SIM card;

2 ZK105M can communicate with the backend server through LTE Cat-M network, and transfer reports of emergency, Geo-fencing, device status and scheduled GPS position etc… Service provider is easy to setup their tracking platform based on the functional wireless tracking protocol.

3 Device Status LED

ZK105M LED Definition			
No.	**White LED**	**Red LED**	**Description**
1	Off	Off	In INACTIVE mode
2	Alternating Flashing		In TEST mode
3	Breathing	Off	In NORMAL mode: normal
4	Off	Flashing	In NORMAL mode: ECU fault
4	Off	On	In NORMAL mode: IoT fault

GPS Specifications

No.	Item	Parameters
1	GPS Type	u-Blox M8130 KT GPS Receiver
2	Sensitivity	Tracking & Navigation: -162dBm Reacquisition: -160dBm Coldstart: -147dBm Warm start: -148dBm Hot start:-155dBm
3	Position Accuracy (CEP)	GPS without SBAS: <2.5m GPS with SBAS: <2.0m
4	TTFF (Open Sky)	Cold start: 30s average Warm start: <28s Hot start: <1s

BLE Parameters

No.	Item	Parameters
1	Antenna	Internal only
2	Chipset	BLUENRG-132
3	Frequency	2.4GHz RF Transceiver compatible with Bluetooth low energy(BLE)
4	Sensitivity	Excellent receiver sensitivity: -88dBm
5	Max out RF power	up to 10dBm

NFC Parameters

No.	Item	Parameters
1	Antenna	Internal only
2	Chipset	PN7150
3	Frequency	13.56MHz full NFC controller solution

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.