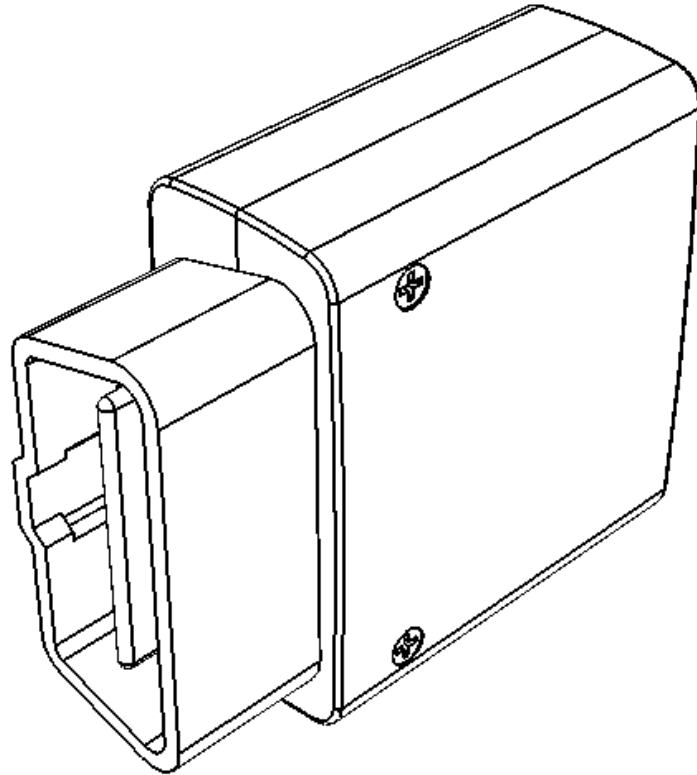




3G WCDMA
Bluetooth OBD GPS Tracker
T373A & T373B
User Manual

CE 2200

<http://www.ulbotech.com>

mkt@ulbotech.com

Attention!

1. Do not disassemble the device. When the device fails, shall the manufacture or the authorized specialist repair, self disassemble the device maintenance will be lost.
2. The device must be installed by the specialist, otherwise may affect the using effect.
3. The device is susceptible to water and humidity, need to install and use in a dry environment.
4. The device belonging to the wireless communication equipment, generates ,uses and radiate radio frequency energy, may cause interference to the nearby equipments.
5. The device cannot be disposed with other household waste when it reaches end of using life. To avoid harmful the environment or human health caused by failing to properly control the waste, please separately process this device with other waste and recycling properly, to promote resource recycling.

Document Title	T373A & T373B User Manual
Version	1.003
Date	2015-06-20
Status	Release

General Notes

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0.Revision History

Revision	Date	Author	Description of change
1.000	2014-10-05	David Lin	Initial
1.001	2014-10-20	David Lin	Add SAE J1939 function
1.002	2015-04-12	David Lin	Add multi-function input
1.003	2015-06-20	David Lin	

1.Introduction

Ulbotech's T373 A&B are the latest OBDII GPS Tracker supporting 3G WCDMA and Bluetooth 4.0 low energy, it's built-in Telit xE910 family cell module which provided by the most professional M2M wireless solutions product service in the world -Telit, which can support from 2G to 4G including GSM/WCDMA/CDMA global network coverage, there's not regional restrictions for product application.

The T373 A&B also with internal u-blox MAX-7 GNSS module to support GPS and GLONASS, with the 25mm*25mm high gain active antenna and the Assist Now AGPS function to ensure the device can fast time positioning even so the T373 A&B is installed in the most hidden place of the vehicle.

It's built-in On-board Diagnostics(OBD II)/SAE J1939 function can obtain the on-board data such as RPM, SPD, ECT, Fuel level and Fuel consumption etc from the vehicle in real-time. It's in-time monitoring of Diagnostic Trouble Code(DTC), OBDII parameter and alarm. It's equipped with 3D acceleration enable to set in real-time detection of the motion and the 8 type of driving behavior, able to make an effective analysis for the bad driving behavior of the driver and the fuel consumption, including to provide the improvement suggestions.

It's Bluetooth 4.0 energy enable easily connected various compatible Bluetooth mobile devices to achieve extended functionality, like as iOS, Android... The T373 A&B is used a wide variety of Fleet Management, Insurance & rental, Roadside Assistance, Driver Behavior Monitoring, Safety & Security etc.

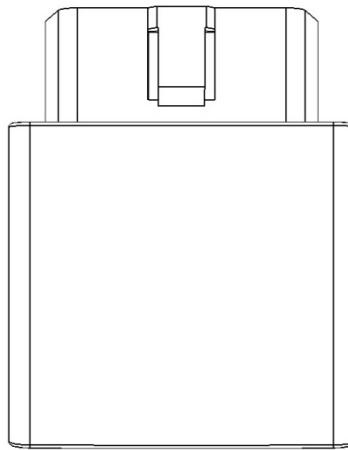
1.1 Reference document

Index	Document Name
1	Ulbotech Tracking Device Communication Protocol
2	Tracking Device VCP driver installation user manual
3	Tracking Device Configuration Software manual
4	Tracking Device File Import & Export Software manual
5	Ulbotech OBDII Extended cable connection chart

2.Product Overview

2.1 Description

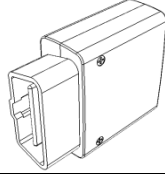
T373A & T373B is based on the OBD II interface GPS vehicle tracking device, compact design and easy to install. T373A & T373B contains an OBD II connector which complies with J1962 standard. It comprises a micro USB connector, a built-in 3G/WCDMA/GSM antenna, an internal Bluetooth antenna, an internal GPS antenna, a multi-functions input, an immobilizer output and 4pcs LEDs .



2.2 Features

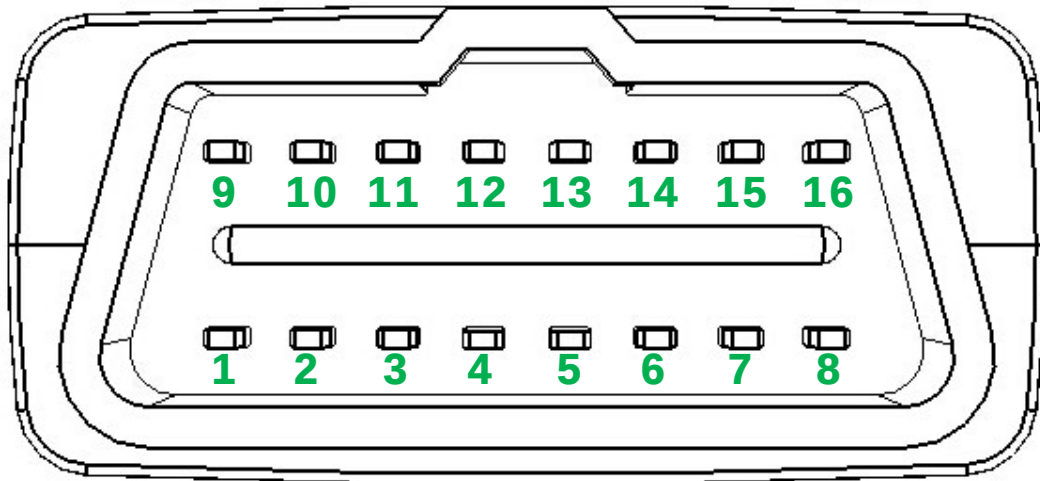
- ✧ OBD connectivity, simple to install, easy to use.
- ✧ Supports all OBDII protocols and SAE J1939(250/500kbaud).
- ✧ Internal Telit xE910 family modem, supports 2G/3G/4G network.
- ✧ U-blox MAX-7 GPS module with A-GPS.
- ✧ Internal Bluetooth, GSM/WCDMA and 25mm*25mm active GPS antenna.
- ✧ Internal Bluetooth 4.0 BLE chipset.
- ✧ Internal multi-functions input and immobilizer for anti-theft.
- ✧ Internal 3-axis accelerometer.
- ✧ 8 types driver behavior detect.
- ✧ Tracking by time, distance, course and status.
- ✧ Geo-fence(Circle, Rectangular and Polygon).
- ✧ FOTA(Firmware updating via 3G/GPRS from FTP server).
- ✧ Auto APN identification.
- ✧ Auto time zone identification.

2.3 Parts list

Name	Picture
T373A or T373B	
Micro USB Cable	
OBDII extended Cable(Optional)	
Engine Cut Relay(Optional)	
Extended Pin wire(Optional)	

2.4 Interface Definition

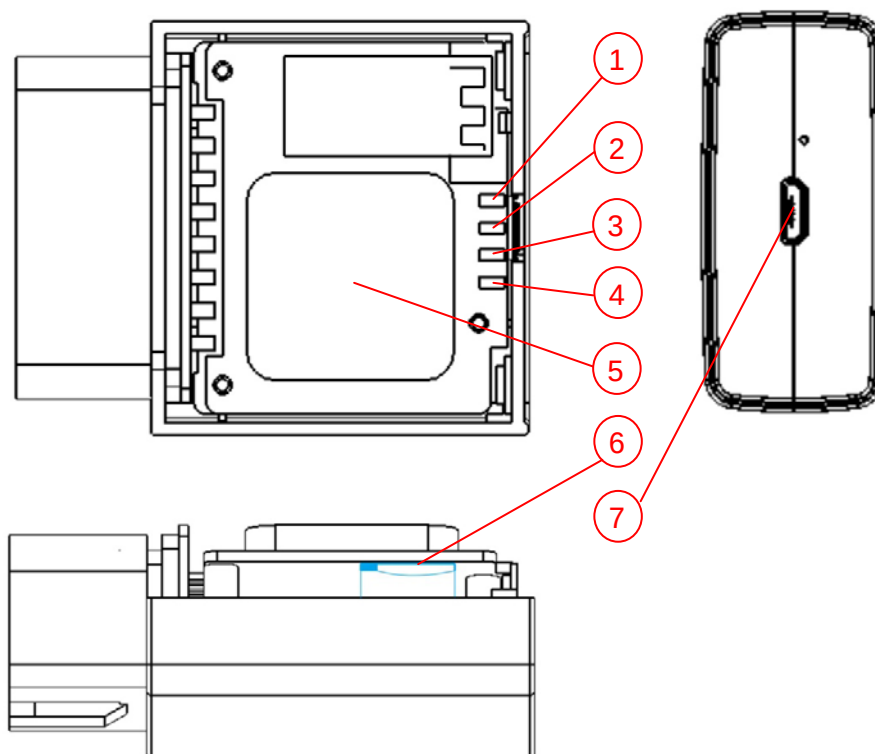
The T373 has an OBD II connector. It contains power supply and interfaces of CAN bus, K-line, L-line, J1850 bus, multi-functions input and immobilizer. The sequence and definition of the OBD II connector are shown in following figure:



Description of OBD II Connections:

PIN	Description	PIN	Description
1	Not connect	9	Not connect
2	Bus positive line of SAE J1850	10	Bus negative line of SAE J1850
3	Not connect	11	Not connect
4	Ground	12	Engine cut line(Optional)
5	Ground	13	Multi-functions input(Optional)
6	CAN_H line of ISO 15765-4	14	CAN_L line of ISO 15765-4
7	K line of ISO 9141-2 and ISO 14230-4	15	L line of ISO 9141-2 and ISO 14230-4
8	Not connect	16	External DC power input, 8-32V

2.5 Function Interface Definition



Description of function:

Index	Description
1	OBD status indicator LED(Orange)
2	GPS status indicator LED(Green)
3	3G/WCDMA status indicator LED(Red)
4	Bluetooth status indicator LED(Blue or White)
5	GPS antenna(25mm*25mm)
6	Micro USIM card holder
7	Micro USB port

Definition of Device status LED:

LED	Device Status	LED Display
3G/WCDMA (Red)	Module power off	100ms ON, 6s OFF
	Searching Cell network	1s ON, 1s OFF
	Registered to Cell network	500ms ON, 500ms OFF
	Connected to server	100ms ON, 100ms OFF
	Sending 3G/GPRS data	Always ON
GPS (Green)	Module power off	100ms ON, 6s OFF
	Searching GPS info	1s ON, 1s OFF
	2D fixed	500ms ON, 500ms OFF
	3D fixed	100ms ON, 100ms OFF
OBD (Orange)	OBD unconnected	OFF
	OBD connected	Flashing
Bluetooth (Blue/White)	Power off	OFF
	Connected	Always ON

3. Getting Started

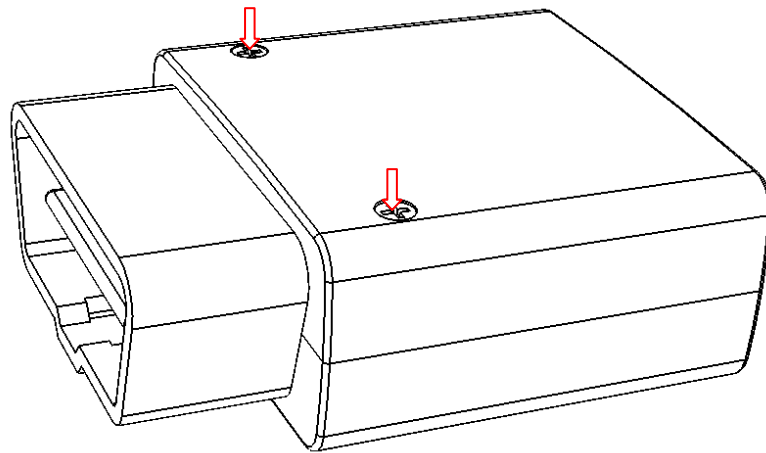
3.1 Preparation

A piece of cross screwdriver to open the cover of the case .

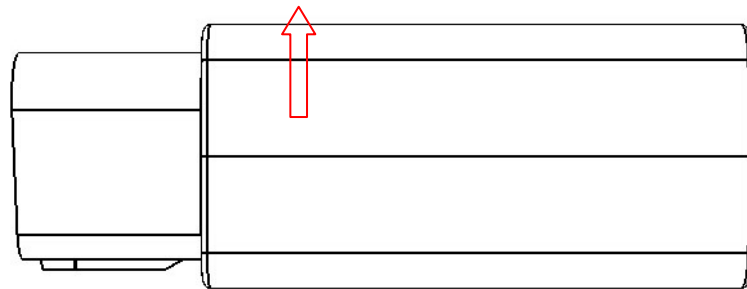
A piece micro USIM card to support 3G/WCDMA/GSM network service. Make sure that there is no call transfer, incoming call display is on, and PIN code turned off.

3.2 Opening the Case

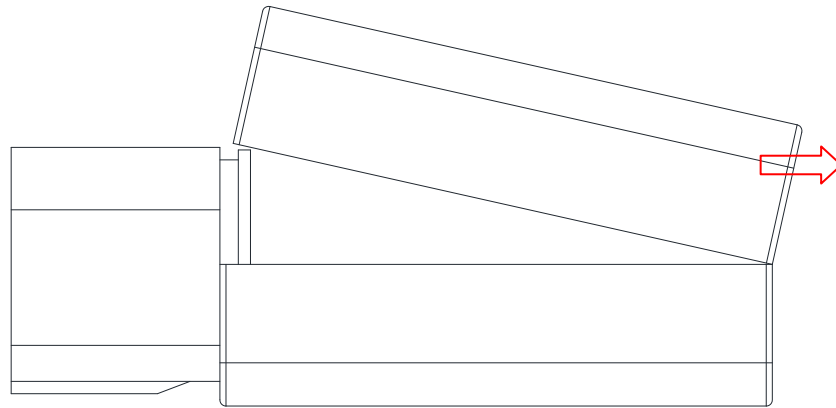
First loosen these two nuts on the cover by cross screwdriver as below picture showed:



Lift the upper cover near the end of the OBDII interface, from the fixed slot:

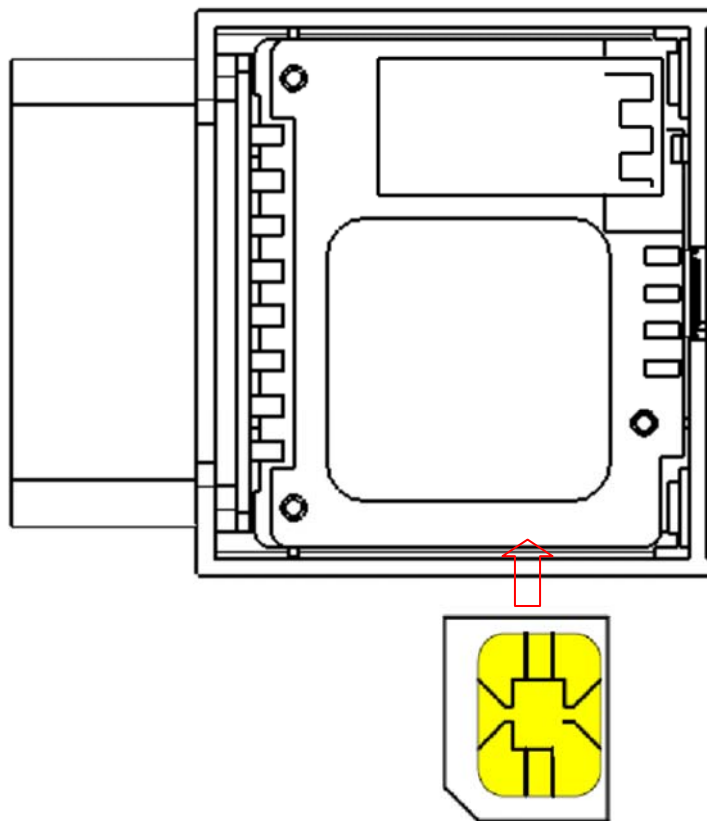


Slide out the upper cover and removed it:



3.3 Insert USIM card

Cleaning the contract point of the USIM card firstly, pay attention not to leave smudges and fingerprints. After insert the SIM card into the card slot as below picture showed (the card slot locate the downside of PCB):



3.4 Closing the Case

According to the inverse order of the opening cover to close the upper cover, after fix the case by nuts.

4. Installation USB Driver

Details refer to document of "Tracking Device VCP driver installation user manual".

5. Initiation Device

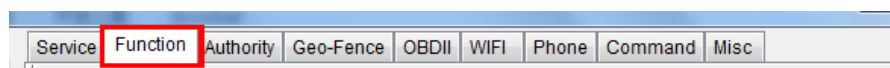
Initialization device can be set with matching configuration software or SMS. Please refer to the document "Tracking Device Configuration Software manual" to login device by configuration software mode; refer to the document "Ulbotech Tracking Device Communication Protocol" to login device via text messages mode.

5.1 Confirm the message center number

The SIM card has the built-in message center number, generally do not need to set. In case the device cannot send message, user need to confirm whether the message center number is correct.

Using Configuration software:

Using configuration software to login device, select "Function" option as below showed:



Check SMS center number setting:

SMS center NO. + ☒ Read only

If the SMS center no. is not same as the USIM card servicer provided, user need to set the SMS center No. i.e. enter the SMS center number in the edit box as below showed. Disable "Read only" check box, after click "Write" button:

SMS center NO. + ☐ Read only

Mileage ☐ Write M

Heart beat interval Min

Setting successfully, there showed "🟢" as below:

🟢 SMS center NO. + ☒ Read only

Note: When inquiry and setting SMS center No., the 3G module must be at work status. Hence the device must be powered from OBDII port and the working time of 3G module should be more than 15s.

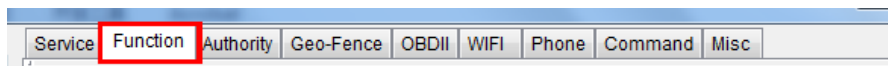
5.2 Confirm 3G/WCDMA Network APN

The device has a built-in APN configuration data of most countries, device will seek and set the corresponding APN from the APN list automatically. If cannot

find the matching APN from the default APN list or APN error, user need to reset the APN.

Using configuration software:

Login device via configuration software, select “Function” option as below showed:



Check APN setting:

 A screenshot of a form titled 'APN'. It contains three dropdown menus: 'APN', 'User', and 'password'. To the right of the 'APN' dropdown is a checked checkbox labeled 'Read only' in red text.

Input USIM's APN, User and password. Disable Read only check box:

 A screenshot of the 'APN' form. The 'APN' dropdown is set to 'cmnet', 'User' is set to 'gprs', and 'password' is set to 'gprs'. The 'Read only' checkbox is now unchecked.

Click “Write” button. Setting successfully:

 A screenshot of the 'APN' form, identical to the previous one, but with a green checkmark icon appearing to the left of the 'User' dropdown, indicating a successful operation.

Updating APN list and importing:

Downloading “apnlist.txt” document from <http://www.ulbotech.com/downloads>, after add the increased APN setting.

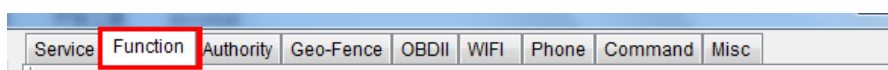
Note: The size of the “apnlist.txt” cannot exceed 4Kbytes, or else, you should delete some needless APN setting, after use “File Import & Export” software import “apnlist.txt”.

5.3 Setting the initial value of mileage

Synchronization the mileage data of the device and car before the device connect with car.

Using configuration software:

Login device via configuration software, select “Function” option as below showed:



Check mileage value:

Mileage ☐ Write 7154339 M

Entry the setting mileage value, unit is “m”. Check the “Write” check box, click “Write” button, setting successful:

 Mileage ☐ Write 13568400 M

5.4 User Setting

Device factory setting the default user number is empty, user can ignore this part if user do not need this function.

5.4.1 Setting User Phone No.

Using configuration software:

Login device via configuration software, select “Service” option as below showed:

Service Function Authority Geo-Fence OBDII WIFI Phone Command Misc

Entry the user number in the user number box as below showed. if the device has international roaming situation, then need to adopt international number format:

-User
Phone NO. 13912345678

-User
Phone NO. +8613912345678

Click “Write” button.

Using mobile phone setting:

Using factory setting initial user password “1234” to edit message “1234,uno;user_no”, send to device:

Format: *user_password*,UNO;*tel_no*
user_password: User password
user_no: User phone no. for setting

Example: 1234,uno;13912345678
 1234,uno;+8613912345678

Device answered message:

T366 V1.051

UNO:13912345678

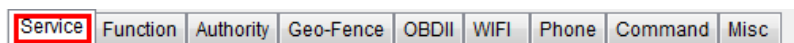
Showed operation successful!

5.4.2 Modification user password

Purpose to ensure the device safety, we suggest to reset the user password by the first using.

Using configuration software:

Login device via configuration software, select “Service” option as below showed :



Entry new password in the “password” box as below showed:



Click “Write” button, setting finished.

Using user mobile phone setting:

Using factory setting initial user password “1234” to edit message “1234,uno;user_no”, send to device:

Format: *user_password,UNO;password*

user_password: User password

password: User new password

Example: 1234,upw;2398

Device answered message:

T366 V1.051

UPW:2398

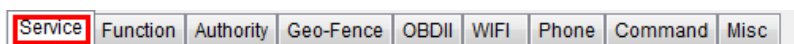
Showed the operation successful.

Note: The operation by the mobile phone must be corresponded to the setting user number, or else the device is not response.

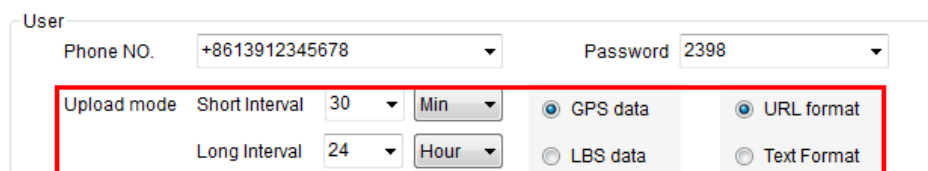
5.4.3 User SMS upload cycle and format setting

Using configuration software:

Login device via configuration software, select “Service” option as below showed:



Edit setting user upload mode as below showed:



Click “Write” button, setting finished.

Using user mobile phone setting:

Edit user upload mode command message send to device:

Format: *user_password,UUM;short_interval;long_interval;G;format*
 user_password: User password
 short_interval: short upload cycle
 long_interval: long upload cycle
 format : upload format , T—Text format, W—Url format

Example: 1234,uum;30M;24H;G;W

Device answered message:

T366 V1.051
 UUM:30M;24H;G;W

Showed operation successful.

Tip: the device supports multiple commands combination, such as the above command just need to use a short message to finish the setting after done the user number.

Example:

Send message:

1234,upw;2398,uum;30m;24h;g;w

Device answered:

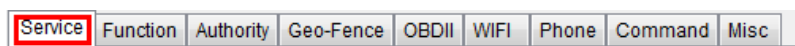
T366 V1.051
 UPW:2398
 UUM:30M;24H;G;W

5.5 SMS Server Setting

Device factory setting the default SMS server is empty, user can ignore this part if user do not need this function.

5.5.1 SMS Server Phone No. Setting**Using configuration software:**

Login device via configuration software, select “Service” option as below showed:



Entry phone no. in “SMS server phone no” edit box as below showed, if the device has international roaming situation, then need to adopt international number format:

- SMS server

Phone NO.

- SMS server

Phone NO.

Click "Write" button.

5.5.2 SMS Server Upload cycle and format setting

Login device via configuration software, select "Service" option as below showed:

Service Function Authority Geo-Fence OBDII WIFI Phone Command Misc

Edit setting SMS server upload mode as below showed:

SMS server

Phone NO.

Upload mode Short Interval ☒ GPS data

Long Interval ☐ LBS data

Click "Write" button.

5.6 Web Server Setting

5.6.1 Web server address, port and protocol setting

Login device via configuration software, select "Service" option as below showed:

Service Function Authority Geo-Fence OBDII WIFI Phone Command Misc

Entry server address or IP ,Port and using protocol in "GPRS Server Host":

GPRS server

Host Addr.

Port ☒ TCP ☐ UDP

Click "Write" button.

5.6.2 Web server upload cycle and format setting

Login device via configuration software, select "Service" option as below showed:

Service Function Authority Geo-Fence OBDII WIFI Phone Command Misc

Edit setting GPRS server upload mode as below showed:

GPRS server

Host Addr.

Port ☒ TCP ☐ UDP

Upload mode Short Interval ☒ GPS data ☒ Bin format

Long Interval ☐ LBS data ☐ Text Format

Click "Write" button.

5.7 Bluetooth Setting

The device factory default Bluetooth name and password respectively are "GPS Tracker" and "123456", user can revise via the configured software.

Login device via configuration software, select "Authority" and "Auth" options as below showed:

Service Function **Authority** Geo-Fence OBDII Phone Command Misc

Auth Alarm User shortcut

Entry the name and password of the Bluetooth device:

Bluetooth Auth.

Name Pin

Click "Write" button to finish setting.

5.8 OBD setting

5.8.1 Select OBD protocol

The device factory default settings is automatic recognition of all OBDII standard protocol. If user don't know the protocol of the car, user can select "automatic", device will identify OBDII protocol from 1 to 9 automatically. When using the J1939 protocol to connect to the truck, the protocol must be set as the J1939 protocol. The J1939 protocol for most of trucks is 250kbaud, in case cannot connect with 250kbaud, user may try to set as 500kbaud setting:

Login device via configuration software, select "OBDII" option as below showed:

Service Function Authority Geo-Fence **OBDII** WIFI Phone Command Misc

Setting automatic recognition :

Set OBDII Protocol

Setting J1939 29bit, ID 250kbaud :

Set OBDII Protocol

Setting J1939 29bit ID, 500kbaud

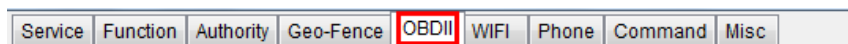
Set OBDII Protocol

Click “Write” button to finish setting.

5.8.2 Reading OBD parameters setting

Device at most can real-time reading 16 OBDII parameters or J1939 parameters. The default settings of the device is automatic recognition protocol. Reading “Engine Coolant Temperature” (0105), “Engine RPM” (010C), “Vehicle Speed” (010D), “Fuel Level” (012F) and “Distance since diagnostic trouble codes cleared” (0131)” of 5 parameters, can modify or increase the parameters through the “OBP” command.

Login device via configuration software, select “OBDII” option as below showed:



Edit “Read OBDII/J1939 parameters” setting:

Read OBDII/J1939 parameters

Para01	0105	Para09	Disable
Para02	010C	Para10	Disable
Para03	010D	Para11	Disable
Para04	Disable	Para12	Disable
Para05	Disable	Para13	Disable
Para06	Disable	Para14	Disable
Para07	Disable	Para15	Disable
Para08	Disable	Para16	Disable

The configuration parameters is 16 hexadecimal format, consisting of 2 bit OBDII server code and the following PID.

Example: 0105 said that reading 01 serviced the 05 parameter, meaning read Engine Coolant Temperature.

Click “Write” button to finish setting.

When choosing the J1939 protocol, the parameter are represented in fixed 6 bytes hexadecimal format to corresponding need to read the Parameter Group Number(PGN).If the length is less than 6 bytes, need to insert “0” on the front.

Edit “Read OBDII/J1939 parameters” setting:

Read OBDII/J1939 parameters

Para01	00FEF1	Para09	Disable
Para02	00FEE0	Para10	Disable
Para03	00FEFC	Para11	Disable
Para04	Disable	Para12	Disable
Para05	Disable	Para13	Disable
Para06	Disable	Para14	Disable
Para07	Disable	Para15	Disable
Para08	Disable	Para16	Disable

Example: 00FEF1 said that reading PGN 65265 “Cruise Control/Vehicle Speed” parameter.

Click “Write” button to finish setting.

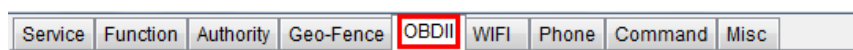
5.8.3 OBD parameters alarm setting

When OBD II protocol setting as J1939, device disable this function.

The device supports “Diagnostic Trouble Code (DTC) “alarm and 4 sorts of user-defined alarm parameter setting. Configuration parameters included the reading OBDII parameter, the judgment condition, monitoring value and duration of four parameters.

If the temperature of configuration of “Engine Coolant Temperature” exceeded 105 degrees Celsius for 60 seconds, or configure “Fuel Level” less than 10% lasted for more than 30 minutes, the device will alarm:

Login device via configuration software, select “OBDII” option as below showed:



Setting “OBDII Alarm” parameters:

OBDII Alarm							
Alarm1	05	>	65	Until	60	Sec	
Alarm2	2F	<	25	Until	1800	Sec	
Alarm3	Disable	>		Until		Sec	
Alarm4	Disable	>		Until		Sec	

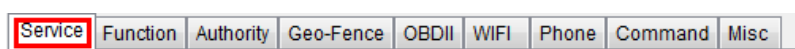
Click “Write” button to finish setting.

5.9 Power Save Setting

5.9.1 Power Save Setting

User, SMS server and Web server upload cycle just will upload data and message via setting parameters of “short interval” under the normal working mode of the device. When the device under power save mode, the device will use the configuration parameter of “Long interval “cycle upload message and data. Therefore, the device will be in off status when it does not need to upload data for a long time and it'll achieve power saving function. The device will be automatic wake-up to upload data if it's needed. The device will be in the power-saving status according to the configured condition of power save status.

Login device via configuration software, select “Service” option as below showed:



Selected “device upload cycle” switch to “long interval” status.

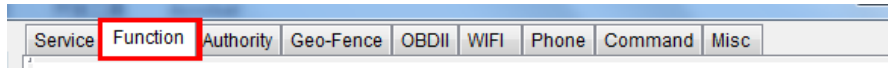
time interval shift	☒ Stop	☐ Inter Roaming	☐ Internal battery	☐ ACC off
☐ All	☐ Engine off	☒ Immobilizer ON		

Click “Write” button to finish setting.

5.9.2 Power Down Setting

To further economize power and protect the car battery, can set device to be in off status when achieve the condition of the configuration. When the condition of the shutdown is removed, device will automatically exit the off status.

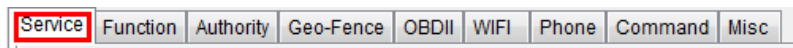
Login device via configuration software, select “Function” option as below showed:



Setting the battery low voltage threshold value of vehicle detection:

Bat threshold *0.1V

Click “Write” button, Select “Service” option as below showed:



Selected the condition of device in off status and delay time:

Power down ☐ Internal battery ☐ Stop ☐ ACC off ☐ Engine off
☐ All ☒ Bat voltage low Delay seconds

Click “Write” button to finish setting.

6.Connect with Immobilizer and Input

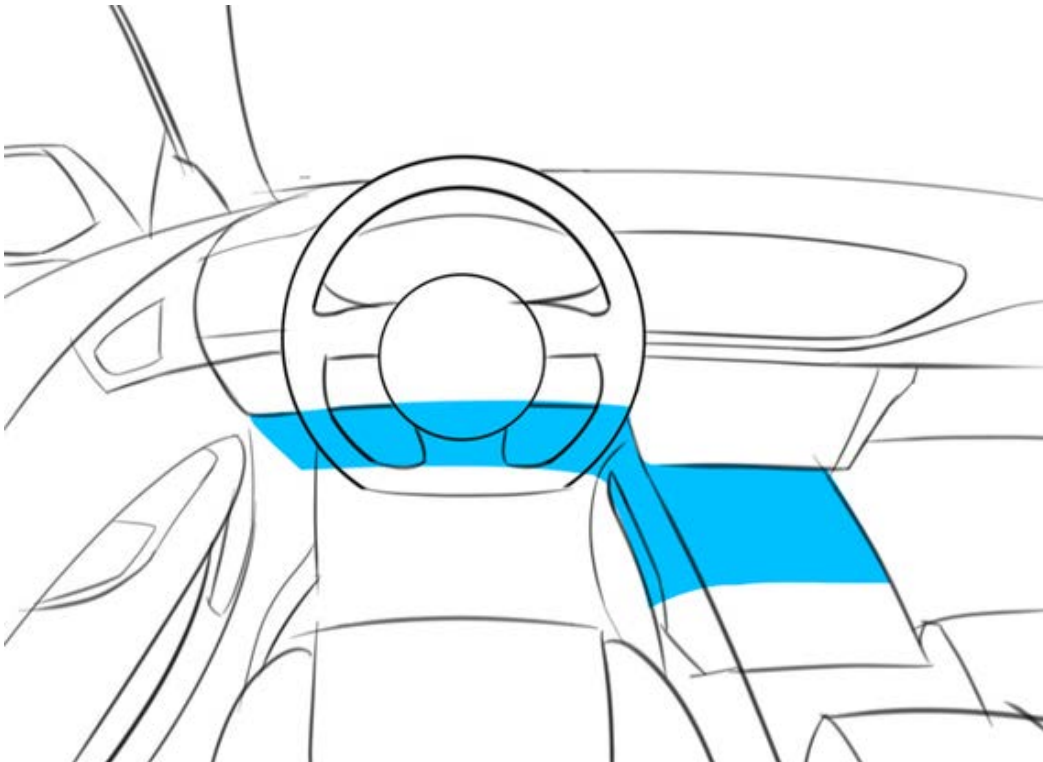
Details refer to document of "Ulbotech OBDII Extended cable connection chart.pdf"

7. Installation Device

To find the OBD port on the car to insert the device.



Most of the OBD port located in the driver side and under of the dashboard or near the walking box as above picture showed.



8.Common Problems

8.1 Device connected with car but no working.

- ✧ Check the OBDII interface of car if has power output and with sufficient voltage.
- ✧ Check if device connected with Car OBD II port stability.
- ✧ Check if the device in “Power down” status caused by “Power down” parameter of the device set error.

8.2 3G/WCDMA network cannot registration

- ✧ Check if the device at a 3G/WCDMA/GSM network signal area.
- ✧ Check the USIM card insert done or overdue payment.
- ✧ Check if closed 3G module function.

8.3 GPS cannot positioning

- ✧ Check if the device at a good GPS signal area.
- ✧ Check opened AGPS function and GPSR or WIFI enable to connect with Internet.
- ✧ Check GPS module is in power save status.
- ✧ Using OBDII extended cable to move device to a good GPS signal area and keep the GPS antenna upward.

8.4 OBD cannot connect

- ✧ Check if car support OBDII standard .
- ✧ Check if OBD function closed.
- ✧ Check if car engine is working, if it's not, it'll no OBD signal.

FCC Statement

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.

To assure continued compliance, any changes or modifications not expressly approved by the party.

Responsible for compliance could void the user's authority to operate this equipment. (Example- use only shielded interface cables when connecting to computer or peripheral devices).

This equipment 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:

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

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