# TOPFLYTECH TLD1-A(E) OBDII Vehicle GPS Tracker

User Manual

Revision 1.2

Thanks for your purchasing of the high-quality GPS tracker from TOPFLYTECH. Please read this user manual carefully before installation and operation. Information in this manual is the property of TOPFLYTECH. Changes to the specifications and features in this manual may be made by TOPFLYTECH without prior notice. No part of this manual could be reproduced, copied, translated, transmitted, or published in any form or by any means without TOPFLYTECH's prior written permission.

The tracker is using GNSS & LTE technologies and could collect device coordinates then transfer them via LTE network to the server. It provides customer with cost-effective, efficient and safety management. It has been widely used in commercial transportation, company vehicle fleet management, intelligent transportation, logistics, car rental, engineering machinery, marine transportation and other segments.

# Contents

## 1. Quick Reference

## 2. Product Specifications

| LTE Specifications | |
|---|---|
| Operating Band | TLD1-A<br>FDD: B1/B2/B3/B4/B12/B13/B17/B25/B28<br>TDD: B39 (Cat M1 only) |
| | TLD1-E<br>FDD: B1/B2/B3/B4/B5/B8/B18/B19/B20/B26<br>EGPRS: 900/1800MHz |
| Certification | FCC: B2/B4/B12/B13/B25 (Cat M1) |
| Data Transmission | eMTC: Max. 300Kbps (DL), Max. 375Kbps (UL)<br>NB1: Max. 32Kbps (DL), Max. 70Kbps (UL)<br>EDGE: Max. 296Kbps (DL), Max. 236.8Kbps (UL)<br>GPRS: Max. 107Kbps (DL), Max. 85.6Kbps (UL) |
| **GNSS Specifications** | |
| GNSS Chipset | Qualcomm Gen 8C GNSS receiver |
| Parallel GNSS | GPS+Glonass+Galileo+Beidou |
| Receiver type: | 33 tracking / 99 acquisitions- channel GNSS receiver |
| Sensitivity | Cold start: -149 dBm<br>Tracking: -163 dBm |
| Position Accuracy in open sky (CEP-50) | < 2m |
| Standalone TTFF | Cold start: < 29s<br>Warm start: < 27s<br>Hot start: < 1s |
| **Interfaces** | |
| Connector | OBDII |
| SIM card slot | Nano SIM card slot |
| LTE/GNSS/Bluetooth Antenna | Internal only |
| Indicator LED | Network and GNSS |

| USB | Debug |
|---|---|
| FOTA | Yes |
| BLE (Bluetooth Low Energy) | 4.0 |
| **General Specifications** | |
| Dimensions | 57mm*50mm*24mm |
| Weight | 49g |
| Backup Battery | Li-Polymer 120 mAh/ 3.7V |
| Operating Voltage | 7V to 32V DC |
| Operating Temperature | -30℃ ~ +80℃ (-22°F ~ 176°F) |
| Storage Temperature | -40℃ ~ +85℃ (-40°F ~ 185°F) |
| **Air Interface Protocol** | |
| Transmit Protocol | TCP, UDP, MQTT, SMS |
| Protocol Check & Encryption Support | MD5/ AES256 |
| BLE Accessories Support | Yes |
| Scheduled Timing Report | Report position and status at preset intervals |
| Geo-fence | Geo-fence alarm and parking alarm support up to 64 internal geo-fence regions |
| Low Power Alarm | Alarm when backup battery is low |
| Power on Report | Report when the tracker is powered on |
| Driving Behavior Monitoring | Aggressive driving behavior detection, e.g. harsh braking and acceleration |
| Crash Detection | Accident data collection for reconstruction and analysis |
| Network Signal Jamming Detection | Report network jammer |
| Data Roaming Control | Avoid additional data consumption |

## 3. LED indicator

### 3.1 Network(Red)

| Fast Flashing | Network Searching |
|---|---|
| Slow Flashing | Network Connected |

### 3.2 GNSS(Blue)

| Fast Flashing | Satellite Searching |
|---|---|
| Slow Flashing | Positioned |

Note:

1) Indicator lights will go out automatically after the tracker turns on for 5 minutes.
2) If you want to check the working status, dial the tracker. Then the indicator lights will begin to blink. After 5 minutes, the lights will go out again.
3) Slow Blink: Last for 3 second, then go out for 1 second.
   Fast Blink: Last for 1 second, then go out for 1 second.

## 4. Installation Guide

4.1 SIM Card Pre-Installation Note

    4.1.1    Network data service should be enabled.

    4.1.2    If SIM card is locked via PIN, please unlock it first.

    4.1.3    Ensure there is sufficient balance in the SIM card.

4.2 SIM Card Installation

    4.2.1    Use a pin to open the SIM card slot.

    4.2.2    Put the Nano SIM card on the bracket then insert to the tracker.

4.3 Installation

    4.3.1    This is a plug-and-play tracker, before the installation, please ensure your car support OBDII connector.

    4.3.2    After plugged the tracker into the car OBDII connector, it will automatically power on and the LED indicators will start to blink, this indicated a successful installation.

    4.3.3    Please ensure the tracker is firmly connected to the car OBDII connector.

4.4 Ignition Detection

The tracker detects ignition status automatically.

## 5. Tracker Configuration

Refer to frequently used operation commands in this manual

## 6. Tracker Operation

6.1 Power on and off

    6.1.1    Power on: Insert a SIM card and connect the tracker to external power. It will turn on automatically.

    6.1.2    Power off: Remove the SIM card first, then disconnect the tracker from external power. It will power off automatically around 5~10 seconds.

6.2 Location Search

    6.2.1    SMS Query

    Send a location inquiry SMS command (refer to the Operation Command in this manual) to the tracker. The location information will be sent to you through SMS.

    6.2.2    Platform Query

    Connect your tracker to the tracking platform then check the real-time position online. (Additional tracking service charge may happen. Contact with your service provider to get more details.)

## 7. Quick Trouble Shooting

7.1 Unable to Connect to the Tracking Platform

    7.1.1    Check the APN and IP settings.

    7.1.2    Check the SIM card whether support specific network and the data service whether opened.

    7.1.3    Make sure there is no limitation or already added server IP to the IP white list

when using a M2M SIM card.

      7.1.4    Check the balance/signal of the SIM card.

## 7.2 Tracker Shows Offline

7.2.1    Check if the vehicle entered network blind area.

7.2.2    Check the balance of tracker SIM card.

7.2.3    If the connection lost happens on the last several days of the month, check whether the network service is terminated by carrier because of exceeding the max data usage volume.

## 7.3 Unable to locate

7.3.1    Is the top side (with TOP SIDE logo on) facing upwards without shielded by metallic things during the installation?

7.3.2    Does the vehicle enter an area with no satellite coverage?

## 7.4 Location Drift

In an area with poor GNSS signal (like the areas with lots of high buildings), location drift may happen. When move to open area, the drift will no longer exists.

## 7.5 No Command Reply

7.5.1    Check the command format. Make sure it's correct.

7.5.2    Vehicle may be in network blind area.

7.5.3    Ensure the SIM card is properly inserted.

## 8. Warranty and Stock

The standard warranty period is 12 months starting from the date of purchasing. If the tracker will be stored for a long time, please connect it to the external power and recharge the internal battery (10 hours) every 3 months. It will be helpful to the internal battery life.

## 9. Frequently Used Operation Commands (SMS)

Commands are not case-sensitive and can be sent via mobile phone or Web. The content is separated by comma and ends with #. When set successfully, the tracker will return OK and execute it. Otherwise there is no message returned.

| Function | Command Format |
|---|---|
| APN Setting | **APN,***Current PIN***,***APN Name***,***Username***,***Password*** # |
| Server Setting | **IP,***Current PIN***,***Server Domain Name or IP***,***Port Number*** # |
| Upload Interval Setting | **TIMER,***Current PIN***,***Upload Time(ACC on)***:***Upload Time(ACC off)***:***Angle Compensation***:***Distance Compensation*** # |
| Heartbeat Setting | **HBT,***Current PIN***,***Heartbeat Interval*** # |
| GMT Setting | **GMT,***Current PIN***,***Time Zone*** # |

| PIN Setting | **PASSWORD,**_Current PIN,New PIN_**#** |
|---|---|
| Manager Setting | **MANAGERA,**_Current PIN,Manager Code:Manager Phone Number_**#** |
| Manager Delete | **MANAGERD,**_Current PIN,Manager Code_**#** |
| Manager List | **MANAGERL,**_Current PIN_**#** |
| Antitheft Setting | **ANTITHEFT,**_Current PIN,Antitheft Status(On/Off)_**#** |
| Speed Limit Setting | **SPEED,**_Current PIN,Upper Speed Limit_**#** |
| SMS Tracking Mode | **TRACK,**_Current PIN,SMS Tracking Time_**#** |
| SIM Card Balance Checking | **FORWARD,**_Current PIN,Service Center Number,SIM Card Credit Checking Command_**#** |
| Google Map Search | **GOOGLE,**_Current PIN_**#** |
| Forgot the PIN | **MYSELF#** |

9.1　APN Setting

**APN**,_Current PIN,APN Name,Username,Password#_

**APN Name:**
Range: APN of service provider
Length Limit: 1~32

**Username:**
Range: Letters and Numerals
Length Limit: 0~32

**Password:**
Range: Letters and Numerals
Length Limit: 0~32
Note:
1) Tracker will return "SET APN OK" when received this command.
2) If there is no Username and Password, the SMS setting is:
   APN,Current PIN,APN Name,,#
3) If there is no Password, the SMS setting is:
   APN,Current PIN,APN Name,Username,#

9.2　Server Setting

**IP,**_Current PIN,Server Domain Name or IP,Port Number#_

**Server Domain Name or IP:**
Range: Letters, Numerals and Symbols
Length Limit: 1~128

**Port Number:**
Range: Positive Integer
Length Limit: 0~65535

Note: Tracker will return "SET IP OK" when received this command.

9.3 Upload Interval Setting
**TIMER,**_Current PIN,Upload Time(ACC on):Upload Time(ACC off):Angle Compensation: Distance Compensation#_

**Upload Time (ACC on):**
Range: Positive Integer
Range Limit: 3~65535
Default: 25

**Upload Time (ACC off):**
Range: Positive Integer
Range Limit: 0~65535
Default: 600

**Angle Compensation:**
Range: Positive Integer
Range Limit: 0~90 degrees
Default: 30 degrees

**Distance Compensation:**
Range: Positive Integer
Range Limit: 0 ~ 65535 meters
Default: 0 meters

Note: Tracker will return "SET TIMER OK" when received this command.

9.4 Heartbeat Setting
**HBT,**_Current PIN,Heartbeat Interval#_

**Heartbeat Interval:**
Range: Positive Integer
Range Limit: 0 ~ 255 minutes
Default: 5 minutes

Note: Tracker will return "SET HBT OK" when received this command.

9.5   GMT Setting
**GMT**,*Current PIN,Time Zone#*

**Time Zone:**
Range: Floating point
Range Limit: -12.0 ~ 12.0
Default: 8.0

Note: Tracker will return "SET GMT OK" when received this command.

9.6   PIN Setting
**PASSWORD,***Current PIN,New PIN#*

**PIN:**
Range: Letters and Numerals
Length Limit: 1 ~ 10
Default: 0000

Note: Tracker will return "SET PASSWORD OK" when received this command.

9.7   Manager Setting
**MANAGERA,***Current PIN,Manager Code:Manager Phone Number#*

**Manager Code:**
Range: Positive Integer
Range limit: 1~4

**Manager Phone Number:**
Range: Phone number
Length Limit: 0~40
Default: <Null>

Note:
1)   Tracker will return "SET MANAGERA OK" when received this command.
2)   The max manager number is 4

9.8   Manager Delete
**MANAGERD,***Current PIN,Manager Code#*

**Manager Code:**
Range: Positive Integer
Range limit: 1~4

Note: Tracker will return "SET MANAGERD OK" when received this command.

9.9 Manager List
**MANAGERL,**_Current PIN#_

Note:
1) Tracker will return "SET MANAGERL OK" when received this command.
2) All the manager phone numbers will be listed.

9.10 Antitheft Setting
**ANTITHEFT,**_Current PIN,Antitheft Switch(On/Off)#_

**Antitheft Switch:**
Range: Positive Integer
Range limit: 0 or 1
Default: 0

Note:
1) Tracker will return "SET ANTITHEFT OK" when received this command.
2) This function is effective only when ACC is off

9.11 Speed Limit Setting
**SPEED,**_Current PIN,Upper Speed Limit#_

**Upper Speed Limit (KM/H):**
Range: Positive Integer
Range limit: 0~32767
Default: 0

Note:
1) Tracker will return "SET SPEED OK" when received this command.
2) Set "Upper Speed Limit" to 0 will turn off speed alarm.

9.12 SMS Tracking Mode Setting
**TRACK,**_Current PIN,SMS Tracking Time#_

**SMS Tacking Time Range:**
Range: Positive Integer
Range limit: 0, 1, 2 ~ 65535 Minutes
Default: 0

Note:
1) Tracker will return "SET TRACK OK" when received this command.

2) 0: Network tracking mode.
3) 1: Disable the tracking function. No data will be sent out to the server.
4) 2~65535: Time interval of SMS sending to manager phone in SMS tracking mode.

9.13 SIM Card Balance Checking
**FORWARD,***Current PIN,Service Center Number,SIM Card Credit Checking Command#*

Note:
1) Tracker will return "SET FORWARD OK" when received this command.
2) Then it will return the SIM card balance result.

9.14 Google Map Search (Already Built-in)
**GOOGLE,***Current PIN#*

Note: Tracker will return below message when received this command.
http://maps.google.com/maps?q=<Latitude>, <Longitude>

9.15 Forgot the PIN
**MYSELF#**

Note:
1) If the manager phone number has been set, only the manager can use "MYSELF#". If no manager setting, the tracker will return the IMEI and current PIN when it received "MYSELF#" from any mobile phone.
2) This command can be used to retrieve password.

## 10. Optional Accessories List

| Product Sku | Description | Photo for Reference |
|---|---|---|
| TA06 | OBDII Extension Cable (80mm) | |
| TA14 | J1939 to OBDII Cable(80mm) | |
| TA19 | External TPS (BLE) | |
| TA20 | External TPS Suite (BLE) | |
| TA21 | Internal TPS (BLE) | |

| TA22 | Internal TPS Suite (BLE) |  |
|------|--------------------------|---------------------|
| TA12 | BLE Tag |  |