



TOPFLYtech TLD2-D OBDII Vehicle GPS Tracker

User Manual

20210207

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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.

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1. Quick Reference

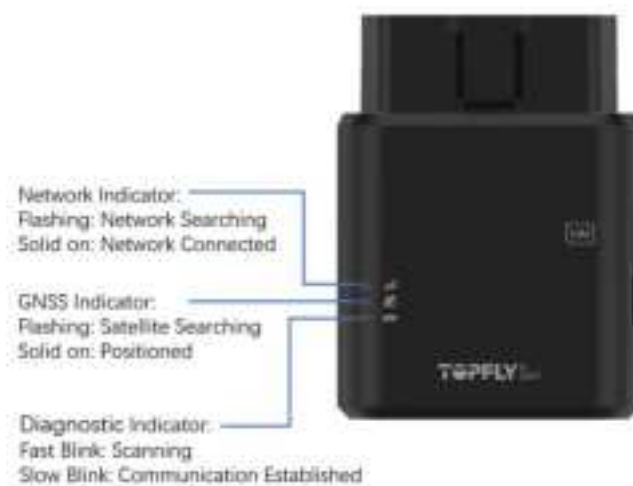


2. Product Specifications

| LTE Specifications | |
|--------------------------------------|---|
| Operating Band | <p>LTE FDD Cat M1: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85</p> <p>LTE FDD Cat NB2: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/B71/B85</p> <p>GSM/EDGE: 850/900/1800/1900 MHz</p> |
| Data Transmission | <p>eMTC: Max. 588 (DL), Max. 1119 (UL)</p> <p>NB1: Max. 32Kbps (DL), Max. 70Kbps (UL)</p> <p>NB2: Max. 127 (DL), Max. 158.5 (UL)</p> <p>EDGE: Max. 296Kbps (DL), Max. 236.8Kbps (UL)</p> <p>GPRS: Max. 107Kbps (DL), Max. 85.6Kbps (UL)</p> |
| GNSS Specifications | |
| GNSS Chipset | MediaTek High Gain GNSS receiver |
| Parallel GNSS | GPS+Glonass or GPS+Beidou |
| Receiver type: | 33 tracking / 99 acquisitions- channel GNSS receiver |
| Sensitivity | <p>Acquisition: -149 dBm</p> <p>Tracking: -167 dBm</p> <p>Reacquisition: -161 dBm</p> |
| Horizontal Position Accuracy | Autonomous: < 2.5 m CEP |
| TTFF @ -130 dBm with (without) EASY™ | <p>Cold Start: < 15s (32s)</p> <p>Warm Start: < 8s (28s)</p> <p>Hot Start: < 1s (1s)</p> |
| Interfaces | |
| OBDII Connector | <p>Support legislated OBDII protocols:</p> <p>ISO 9141-2/ISO 14230-4/ISO 15765-4</p> <p>SAE J1939 (Heavy Vehicle)</p> |

| | |
|--|---|
| SIM card | Nano SIM card slot |
| LTE/GNSS/BLE Antenna | Internal only |
| Indicator LED | Network, GNSS and Diagnostic |
| USB | Debug |
| FOTA | Yes |
| BLE (Bluetooth Low Energy) | 5.0 |
| Buzzer | Event triggering |
| General Specifications | |
| Dimensions | 63mm*47mm*20mm (2.48" *1.85" *0.79") |
| Weight | 48g (1.7oz) |
| Backup Battery | Li-Polymer 200 mAh/ 3.7V |
| Operating Voltage | 7V to 32V DC |
| Operating Temperature | -30°C ~ +80°C (-22°F ~ 176°F) |
| Storage Temperature | -40°C ~ +85°C (-40°F ~ 185°F) |
| Air Interface Protocol | |
| Transmit Protocol | TCP, UDP, MQTT, SMS |
| Data Security & Encryption Option | MD5/ AES256 |
| BLE Accessory Support | Yes |
| OBDII Data Reading | Yes |
| Diagnostic Trouble Code (DTC) | Read and Erase |
| Scheduled Timing/angle/distance Report | Report position and status at preset intervals |
| External Power Status Alarm | Report when external power is disconnected |
| Low Power Alarm | Report when backup battery is low |
| Network Signal Jamming Detection | Report network jamming |
| Driving Behavior Monitoring | Aggressive driving behavior detection, e.g., harsh braking and acceleration |
| Crash Detection | Accident data collection for reconstruction and analysis |
| Data Roaming Control | Avoid additional data consumption |

3. LED indicator



Note: Indicator lights will go out automatically after the tracker turns on for 8 minutes.

4. Installation Guide

4.1 SIM Card Pre-Installation Note

- 4.1.1 SIM card 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/data in the SIM card.

4.2 SIM Card Installation

- 4.2.1 Follow the SIM icon direction then insert the SIM card
- 4.2.2 Give a slight push then release.

4.3 Installation

- 4.3.1 This is a plug-and-play tracker. Before the installation, please ensure your vehicle have a 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 flash. This indicates a successful installation.
- 4.3.3 Please ensure the tracker is firmly connected to the car OBDII connector.

4.4 Ignition Detection and OBDII Data Reading

The tracker detects ignition status and reads OBDII data 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 is enabled.

- 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 remaining balance or data of the SIM card.

7.2 Tracker Shows Offline

- 7.2.1 Check the external power voltage to see whether the tracker is disconnected from external power.
- 7.2.2 Check if the vehicle entered network blind area.
- 7.2.3 Check the balance or data of SIM card.
- 7.2.4 If the connection lost happens on the last several days of the month, check whether the data service is terminated by carrier due to reaching the data cap.

7.3 Unable to locate

- 7.3.1 Is the device shielded by metallic stuff?
- 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 , <i>Current PIN</i> , <i>APN Name</i> , <i>User Name</i> , <i>Password</i> # |
| Server Setting | IP , <i>Current PIN</i> , <i>Server Domain Name or IP</i> , <i>Port Number</i> # |
| Reporting Interval Setting | TIMER , <i>Current PIN</i> , <i>Upload Time(ACC on)</i> : <i>Upload Time(ACC off)</i> : <i>Angle Compensation</i> : <i>Distance Compensation</i> # |
| Heartbeat Setting | HBT , <i>Current PIN</i> , <i>Heartbeat Interval</i> # |

| | |
|------------------|--|
| PIN Setting | PASSWORD , <i>Current PIN</i> , <i>New PIN</i> # |
| Towing Setting | DRAG , <i>Current PIN</i> , <i>Distance</i> # |
| Speeding Setting | SPEED , <i>Current PIN</i> , <i>Upper Speed Limit</i> # |
| Position Inquiry | GOOGLE , <i>Current PIN</i> # |
| Forgot the PIN | MYSELF # |

9.1 APN Setting

APN,*Current PIN*,*APN Name*,*Username*,*Password*#

Note:

- 1) Tracker will return "SET APN OK" when received this command.
- 2) If there is no GPRS User Name and APN PIN, the SMS setting is:
APN,*Current PIN*,*APN Name*,, #
- 3) If there is no APN PIN, 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 Reporting 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: 0, 3~65535

Default: 25

Upload Time (ACC off):

Range: Positive Integer

Range Limit: 0, 3~65535

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: 1 ~ 255 minutes

Default: 5 minutes

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

9.5 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.

9.6 Towing Setting

DRAG,*Current PIN*,*Distance*#

Distance:

Range: Positive Integer

Range limit: 0~65535 meters

Default: 0

Note:

- 1) Tracker will return "SET DRAG OK" when received this command.
- 2) This function will be enabled automatically when ACC is off.
- 3) The Recommended distance setting is no less than 100 meters.

9.7 Speeding 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.

9.8 Position Inquiry

GOOGLE,*Current PIN#*

Note: Tracker will return below SMS message when received this command.

<http://maps.google.com/maps?q=<Latitude>,<Longitude>>



9.9 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 Power Extension Cable (80cm) |  |
| 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 |  |
| TSTH1-B | BLE 5.0 Wireless Temperature and Humidity Sensor |  |
| TSDT1-B | BLE 5.0 Wireless Door and Temperature Sensor |  |
| TSR1-B | BLE 5.0 Wireless Relay |  |

11. FOTA Notification

TOPFLYtech is committed to providing clients with the best user experience. We are offering automatic firmware update feature for every device. This feature allows devices always having the latest version firmware. It can save clients the time and effort of updating firmware manually. Please note that this feature is enabled in default. If you want to turn it off, please contact with TOPFLYtech. If this feature is disabled, the fw update only can be done by sending upgrade command manually

12. FCC Warning

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.

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

Caution!

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

IMPORTANT NOTICE:

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 20 cm between the radiator and your body.