TOPFLYtech TLD1‑DA(E) OBDII Vehicle GPS Tracker

User Manual

Revision 1.5

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.

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1. Quick Reference

2. Product Specifications

LTE Specifications	
Operating Band	TLD1-DA FDD: B1/B2/B3/B4/B12/B13/B17/B25/B28 TDD: B39 (Cat M1 only)
	TLD1-DE FDD: B1/B2/B3/B4/B5/B8/B18/B19/B20/B26 EGPRS 900/1800MHz
Certification	FCC: B2/B4/B12/B13/B25 (Cat M1)
Data Transmission	eMTC: Max. 300Kbps (DL), Max. 375Kbps (UL) NB1: Max. 32Kbps (DL), Max. 70Kbps (UL) EDGE: Max. 296Kbps (DL), Max. 236.8Kbps (UL) 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 Tracking: -163 dBm
Position Accuracy in open sky (CEP-50)	< 2m
Standalone TTFF	Cold start: < 29s Warm start: < 27s Hot start: < 1s
Interfaces	
Connector	Allow information to be read from OBDII port and provide tracker power. Support legislated OBDII protocols: SAE J1850 PWM/SAE J1850 VPW ISO 9141-2/ISO 14230-4/ISO 15765-4 SAE J1939 (Heavy Vehicle)

SIM card slot	Nano SIM card slot
LTE/GNSS/Bluetooth Antenna	Internal only
Indicator LED	Network, GNSS and Diagnostic
USB	Debug
FOTA	Yes
BLE (Bluetooth Low Energy)	4.0
General Specifications	
Dimensions	57mm*50mm*24mm
Weight	50g
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
OBDII Data Reading	Yes
Diagnostic Trouble Codes	Read and Erase
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
Scheduled Timing Report	Report position and status at preset intervals
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)

Flashing	Network Searching
Solid on	Network Connected

3.2 GNSS (Blue)

Flashing	Satellite Searching
Solid on	Positioned

3.3 Diagnostic (Orange)

Fast Blink	Reading
Slow Blink	Normal Working

Note: Indicator lights will go out automatically after the tracker turns on for 10 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   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 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 network signal 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 of tracker 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 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_,_User Name,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)***#**
Towing Setting	**DRAG,***Current PIN***,***Distance***#**
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 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   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 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 100meters.

9.12 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.

9.13 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: GPRS 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.

9.14 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.

9.15 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>

9.16 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	
TSTH1-B	Bluetooth 5.0 wireless temperature and humidity sensor	
TSDT1-B	Bluetooth 5.0 Wireless Door and Temperature Sensor	
TSR1-B	Bluetooth 5.0 Wireless Relay	

11. 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.