PICTOR®
#Beyond Tracking

PICTOR TLD2-D OBDII Vehicle GPS Tracker

User Manual

Thanks for your purchasing of the high-quality GPS tracker from PICTOR. Please read this user manual carefully before installation and operation.

The tracker uses 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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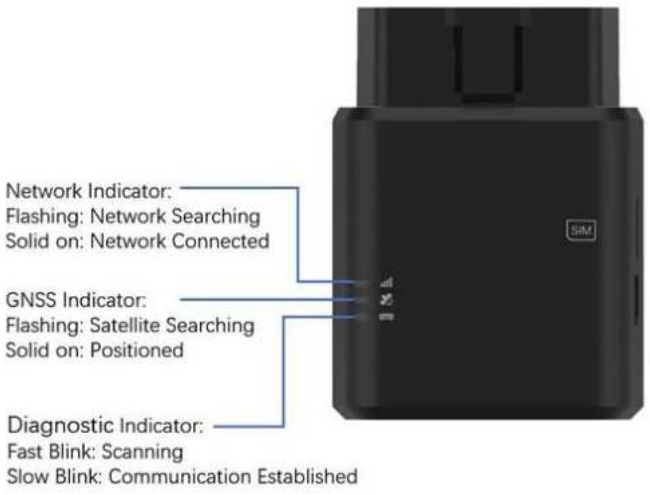
3. Product Specifications

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

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	47.8mm*47.6mm*19.8mm (1.9″ *1.9″ *0.8″)
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

4. LED indicator



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

5. Installation Guide

5.1 SIM Card Pre-Installation Note

5.1.1 SIM card data service should be enabled.

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

5.1.3 Ensure there is sufficient balance/data in the SIM card.

5.2 SIM Card Installation

5.2.1 Follow the SIM icon direction then insert the SIM card

5.2.2 Give a slight push then release.

5.3 Installation

5.3.1 This is a plug-and-play tracker. Before the installation, please ensure your vehicle have a OBDII connector.

5.3.2 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.

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

5.4 Ignition Detection and OBDII Data Reading

The tracker detects ignition status and reads OBDII data automatically.

6. Tracker Configuration

Refer to frequently used operation commands in this manual

7. Tracker Operation

7.1 Power on and off

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

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

7.2 Location Search

7.2.1 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.

7.2.2 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.)

8. Quick Trouble Shooting

8.1 Unable to Connect to the Tracking Platform

8.1.1 Check the APN and IP settings.

8.1.2 Check the SIM card whether support specific network and the data service

whether is enabled.

8.1.3 Make sure there is no limitation or already added server IP to the IP white list when using a M2M SIM card.

8.1.4 Check the remaining balance or data of the SIM card.

8.2 Tracker Shows Offline

8.2.1 Check the external power voltage to see whether the tracker is disconnected from external power.

8.2.2 Check if the vehicle entered network blind area.

8.2.3 Check the balance or data of SIM card.

8.2.4 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.

8.3 Unable to locate

8.3.1 Is the device shielded by metallic stuff?

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

8.4 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.

8.5 No Command Reply

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

8.5.2 Vehicle may be in network blind area.

8.5.3 Ensure the SIM card is properly inserted.

9. 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.

10. 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***#**
Reporting Interval Setting	**TIMER,***Current PIN*,*Upload Time(ACC on)*:*Upload Time(ACC off)*:*Angle Compensation*:*Distance Compensation***#**
Heartbeat Setting	**HBT,***Current PIN*,*Heartbeat Interval***#**

PIN Setting	**PASSWORD,***Current PIN*,*New PIN***#**
Towing Setting	**DRAG,***Current PIN*,*Distance***#**
Speeding Setting	**SPEED,***Current PIN*,*Upper Speed Limit***#**
Position Inquiry	**GOOGLE,***Current PIN***#**
Forgot the PIN	**MYSELF#**

10.1 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,#

10.2 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.

10.3 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.

10.4 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.

10.5 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.

10.6 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.

10.7 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.

10.8 Position Inquiry

GOOGLE,*Current PIN#*

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

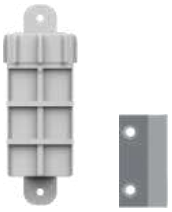
10.9 Forgot the PIN

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.

11. Optional Accessories List

Product	Description	Photo for Reference
TA06	OBDII Power Extension Cable (80cm)	
TA14	J1939 to OBDII Cable(80cm)	

TA19	External TPS (BLE)	
TA20	External TPS Set (BLE)	
TA21	Internal TPS (BLE)	
TA22	Internal TPS Set (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	
TA43	OBDII Extension Cable (80cm) CAN(P6+Pin14)+Power(Pin16)+GND(Pin4+Pin5)	
TA44	OBDII Extension Cable (80cm) Extension Connector: CAN(P6+Pin14)+Power(Pin16)+GND(Pin4+Pin5) Male to Female Connector: Full Pin to Pin	
TA40	OBDII Y Cable (30cm + 100cm)	

12. FOTA Notification

PICTOR 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 PICTOR. If this feature is disabled, the fw update only can be done by sending upgrade command manually.

13. 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.