ATLANTA
Innovative IOT Solutions

O-100
VEHICLE TRACKING DEVICE
TECHNICAL MANUAL

CAN Protocol

GSM

GNSS

Battery

ATLANTA
Innovative IOT Solutions

Table Of Contents

1. Introduction

Atlanta O-100 is an Onboard diagnostics device that uses advanced GPS and OBD technology to track the cars. It's a simple plug and play device. O-100 tracker features history playback which enables you to view the route and location history of the car.

2. Acronyms & Definitions

GPS	Global Positioning System
GSM	Global System For Mobile Communication
GPRS	General Packet Radio Service
I/O	Input / Output
AI	Analog Input
DI	Digital Input
DO	Digital Output
OBD	On-Board Diagnostic

3. Know Your Device

4. Technical Specification

4.1 Navigation

GNSS	GPS, AGPS, QZSS, GAGAN, GLONASS
Channels	22 Tracking / 66 Acquisition Channel
Sensitivity	-165dBm
Acceleration Accuracy	0.1 m/s^2
Velocity Accuracy	< 0.1m/s
Hot Start	< 1sec
Warm Start	< 30sec
Cold Start	< 31sec

4.2 Cellular Network

Band	2G 850/900/1800/1900MHz
RF Power	Class 4(2W@ 850/900MHz/Class 1 (1W@1800/1900MHz)
Data	GPRS : Multislot class, 12 Coding scheme CS1,2,3,4
Communication Protocol	TCP/ IP/ UDP/ FTP/ HTTP

4.3 Power

Working Voltage	8-36V DC
Battery	300mAh Li-Po 3.7V

4.4 Operating Environment

Working Current	Sleeping mode < 5mA : Active mode < 125mA
Operating Temperature	10^0C to 80^0C
Humidity	5% to 95%

4.5 Key Features

GNSS & GPS Antenna	Internal High Gain Antenna
Indicators	3 LED's (Charging, GSM, GPS)
SIM	Micro SIM
Memory	6000 Packets

5. LED Indications

CHARGING (RED & GREEN)	GSM (GREEN)	GPS (BLUE)
This LED Represents The Charging Of Device	This LED Represents The Network Registration	This LED Represents The GPS Lock Of The Device
RED LED ON – Device Charging	LED ON- Out Of Network	LED OFF - GPS Not Fix
RED LED OFF-Device Charged	LED Blink At Every Sec- In Network	LED ON – GPS Fix

6. Installation Process

6.1 Precautions:

(i) The installation of O-100 device and its accessories must be done by trained technician only.

(ii) The O-100 device should not be installed at a location which can be exposed to water or rain. Take care of water splash to and High voltage to O-100, while vehicle servicing.

(iii) Pay special attention to the amount of remaining credit & expiry date of SIM card.

6.2 Mandatory Requirements:

(i) Wire Stripper

(ii) Wire Cutter

(iii) Multi-Meter

(iv) Tool to remove the vehicle dashboard (Spanner Set, Allen Key Set, Screwdrivers etc.)

(v) Cables Ties

(vi) Insulation Tapes

6.3 Pre- Installation Instructions:

(i) It is advised to use the wire stripper to peel the wires to prevent the wire damage.

(ii) Vehicle components must be functioning perfectly during, before & after the installation.

(iii) All wired connections should be covered with insulation tapes. Use cables ties to keep wires and device together.

(iv) Don't insert the multi-meter probe in to any of the device connector to check the voltage. This can cause the widening of the connectors and may loose the connection.

6.4 Device Orientation:

The orientation of the device is very important to get a good GNSS reception. The LED indicators should face the sky and should not have any obstruction of Metal Shield.

6.5 Mechanical Overlay:

Under the Dashboard

In Gap Between Window & Dashboard
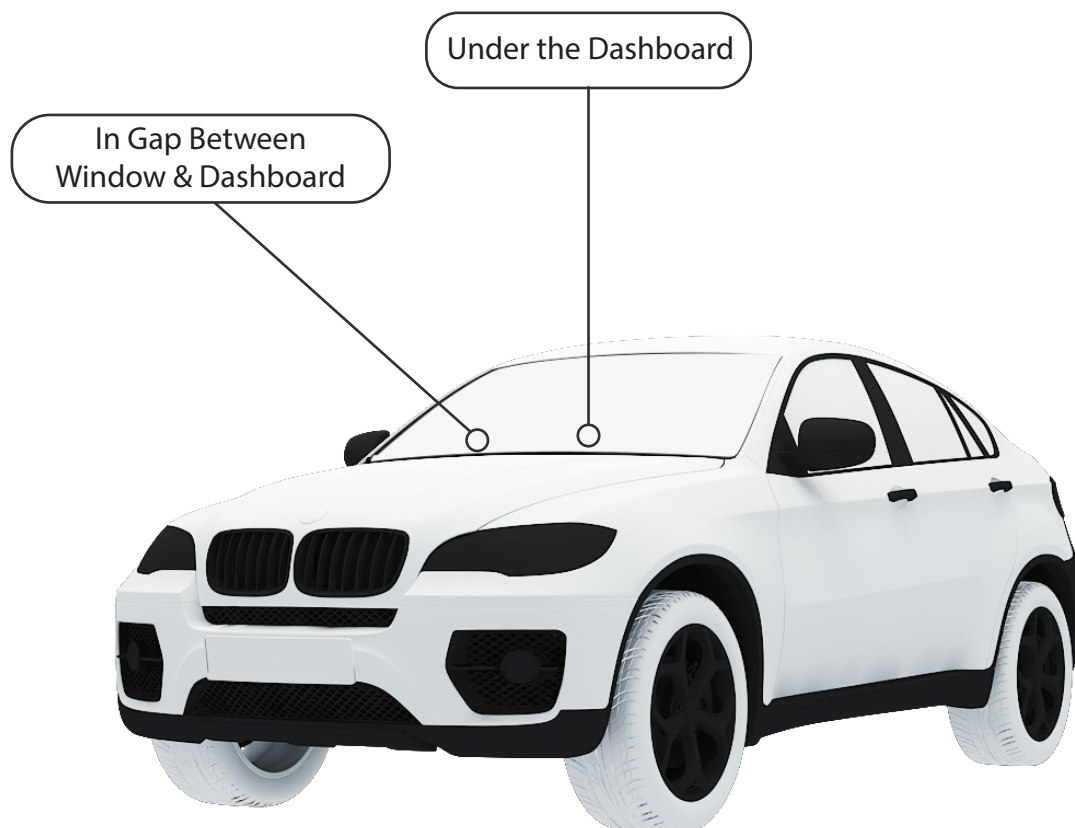
6.6 Installation Steps:

(i) Insert a SIM card into a device. The device will turn on automatically after inserting a SIM.

   Note: If device doesn't acquire GSM & GPS Signal then remove SIM card & insert again.

(ii) Connect the device to the OBD port and wait for Indicators to blink after turning on the device.

(iii) The Device will start to work once GPS & GSM signals are acquired by device. The GSM indicator (Green LED) will flash when the device has received & the GPS indicator (Blue LED) start blinking upon receiving GPS signal.

(v) The Red LED will indicate the battery is charging, when it turns Green that means the battery is fully charged.

(vi) The Tracking Interval, Server IP & Port can be configured through SMS commanding.

7. Commands

7.1 Configuration Commands:

7.1.1 <u>SMS Commands Description</u>

O-100 would accept commands from any number if the password provided is correct. The password is a four digit number. The users can change the password of their device. O-100 would reply to all commands send by user.

Example: - The command format would be

Command <password>

The password would be a four digit number and **default password is 6906,**

So the command to get FIRMWARE VERSION would be

VERSION<6906>

Note: - the brackets (<, >) are must in the command

Password Configuration:

• PW::1234;< password> - This command is used to change the password. After this command the password will be **1234 Ex.: PW:: 1234 ;< 6906>**

7.1.2 APN Configuration

(i) **#CONFIG::APN::username::password;<password>** This command is used to configure your GPRS account. APN (Access Point Name) is used to get to the GPRS gateway provided by network operator.

Username and Password: for your GPRS account is provided by your network operator or else leaves it blank.

Ex. For idea command would be **#CONFIG ::internet ::::;< 6906>**

(ii) **#CONFIG?<Password>** This command replies with GPRS APN,User Name and Password already saved.

Response: APN: XXX, (GPRS USERNAME) XXX, (GPRS PASSWORD) XXX

7.1.3 PPI Configuration

To Start Live Tracking On Internet

(i) **WEBSTART<XXX H/M/S><password>** This command is used to start tracking and data sending on our web server.

XXX means digits from 001-999

H stands for hour, M for minutes and S for seconds.

Example – when we send the command WEBSTART002M<6906>, O-100 will start sending the data to web server at 2 minutes interval.

7.1.4 Enable Distance Based Tracking

In Distance based tracking, the device will generate data packets after covering a set distance and change in angle of more than 30 degrees.

(i) **DBT<xxxM/K><password>"** to O-100, device will send confirmation SMS and then start sending data to web server after as soon as covering the set distance and on deviation of 30 degree from the normal course.

• XXX means digits from 001-999

• M means METERS, K means KILOMETERS

Example – when we send the command DBT5OOM<6906>, O-100 will start sending the data to web server at every 500 meters and on deviation of 30 degrees from the normal course..

(ii) **SDBT<password>** this command will stop the distance and angle based tracking.

7.1.5 TCP Server Settings

(i) To Port The Device To A Server: Command to port the O-100 to the first server (with IP and PORT)

#SERVERCHANGE::IP::PORT;<password>

Eg.: #SERVERCHANGE:: 196.168.175.12::20000;<6906>
This command would point O-100 to the server with
IP=196.168.175.12 and Port= 20000

7.2 Functionlity Commands

7.2.1 GET GPS

To get GPS data for one time in SMS

Send **"GETGPS<password>"** to O-100.

Response:

• If the GPS satellites are unreachable, you will receive **"GPS NOT FOUND"**

• If the GPS satellites are reachable, you will receive **Web link to view location (It will show you the location on map)**

Speed: XXX (It will tell you the speed of the vehicle in KPH)

Date: XXX (It will tell you the date of this particular data)

Time: XXX (It will tell you the time of this particular data in IST)

To observe the exact location on Google map for a corresponding LAT - LONG, follow web link or open www.maps.google.com. In the search bar enter the latitude and longitude coordinates separated with a comma (,). It will show you the location.

7.2.2 FE<password> Command to clear the unsent memory data from flash.

7.2.3 GMS::xxxxx ;< password> Command to set the GMT drift value, xxxxx stands for values in minutes.from flash.

7.2.4 FR<password> Command to set factory default values.

8. Troubleshooting

8.1 GPRS STATUS

GPRSSTATUS<password> This command is used to get the complete status of the device, and the command format is **GPRSSTATUS<6906>.**

Description of the reply

Entries	Description	Remark
CN:	Current network	
DBTON/OFF	Distance based tracking	Set distance would br e shown here with DBTON
SOFF	Sleep status	SOFF for SLEEPOFF and SON for SLEEPON
SS	GSM signal strength	Should be > 10 for proper GPRS comm..
CC	Current configuration	Currently using APN, UN, PWD
IP	Server address	Currently using Server details (IP, PORT)
WTI	Web tracking interval	Web tracking Interval
GPS	GPS availability	A= available, V= void
SF	Data sending fail	Shows two fields if duel IP enabled
CF	Connection fail with server	Shows two fields if duel IP enabled
MU	Internal memory unsent data count	Shows two fields if duel IP enabled
PD	PDP deact error	Network error occurs normally if APN is wrong
GMS	GMT shift	330 for india
LHC	Location hit count per day	Customized, client specific

8.2 <u>Diagnostic Commands</u>

SYSSTATUS<password> Response:

Main power status	MPON	MPOFF
Ignition status	IGNON	IGNOFF
OBD Protocol	Protocol-CAN	Protocol-J1939
Reserved Field	DIPOFF	
Odometer (KM)	0.00	
On board temp.	25.6	
Battery Voltage (internal)	4.0	

8.3 Troubleshooting Table

S.NO	Scenario In General	Troubleshooting
1.	No LED indication	• Check SIM card position • Check the Harness wiring
2.	GREEN LED not blinking at 1 sec. interval	• Check SIM card validity • Check SIM security settings (No PIN recommended)
3.	BLUE LED not blinking	• Check the side marked as "THE UP SIDE " is facing the sky. • Keep the device in open space for 2-3 minutes for GPS fix.
4.	SMS not accepted: "WRONG COMMNAD"	There may be some spelling mistake in the command or the command may be invalid. Please recheck the command phrase and resend.
5.	No response from O-100:	• Check your balance in case of Pre-Paid connection. • Check the network status. (No Or weak network connection could be the reason) • Resend the desired commands again. • Check the password. • Reset the O-100
6.	SMS is not Delivered:	Please check the network status.
7.	"NO DATA" from device	• Check GPRS availablity of SIM card • Check server settings • Check "GPRSSTATUS" for various settings
8.	I/O status not Proper/ Not getting Alerts	• Check Harness wiring • Register the controlling number.

9. Copyright Notice