ATLANTA
Innovative IOT Solutions

E-101
VEHICLE TRACKING DEVICE
TECHNICAL MANUAL

Vehicle Immobilization

GSM

GNSS

ATLANTA
Innovative IOT Solutions
E101

Battery

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1. Introduction

E-101 is a compact vehicle tracker designed for all types of vehicles like personal cars, taxis & commercial transports. one digital input can be used for ignition, door or alarm button status monitoring & one digital output can help in achieving vehicle remote immobilization

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

3. Know Your Device

LEDs

SIM SLOT

USB PORT
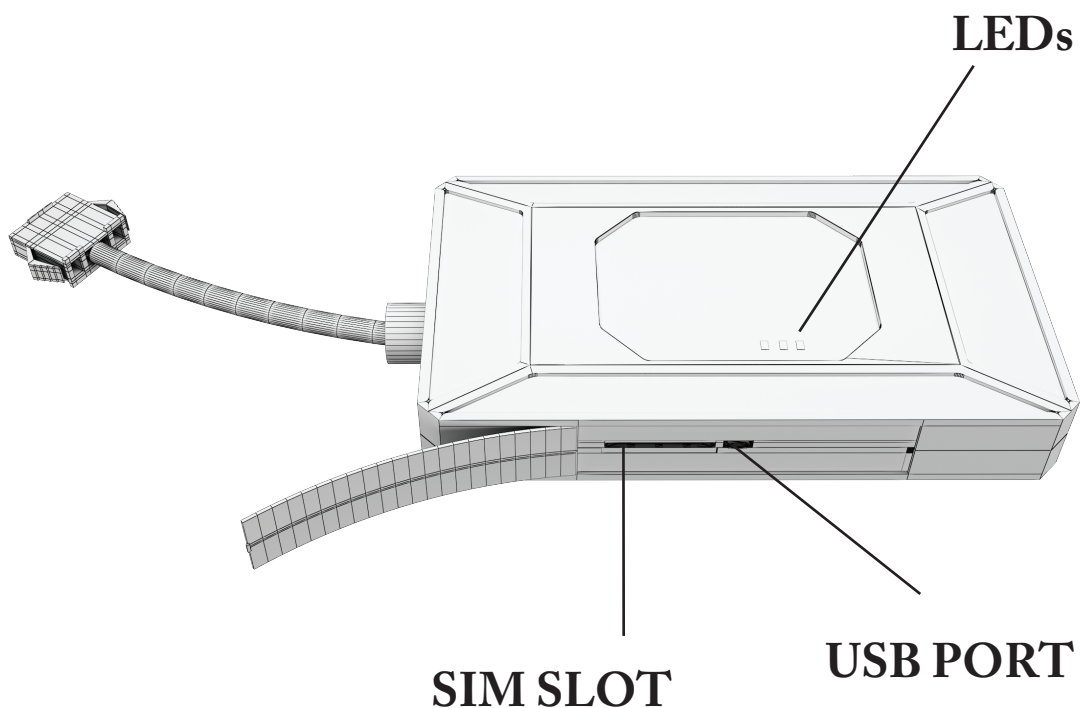
4. Technical Specification

4.1 Navigation

GNSS	GPS, AGPS, QZSS, GAGAN, GLONASS
Channels	22 Tracking / 66 Acquisition Channel
Sensitivity	-166dBm
Acceleration Accuracy	0.1 m/s^2
Velocity Accuracy	0.1 m/s
Hot Start	< 1s
Warm Start	< 30s
Cold Start	< 31s

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	250mAh Li-Po 3.7V

4.4 Operating Environment

Working Current	Sleeping mode < 5mA : Active mode < 125mA
Operating Temperature	30^0C to 80^0C
Humidity	5% to 95%

4.5 Key Features

I/Os:	Digital Inputs: 1, Digital Output: 1,
GNSS & GPS Antenna	Internal High Gain Antenna
Indicators	3LED's (Charging, GSM, GPS)
SIM	Micro SIM
Memory	12,000 Log 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 OFF: Not registered in Network	LED OFF - GPS Not Fix
Turned GREEN LED ON- Device Charged	LED ON- Out Of Network	LED ON – GPS Fix
	LED Blink At Every Sec- In Network	

6. Wiring Details
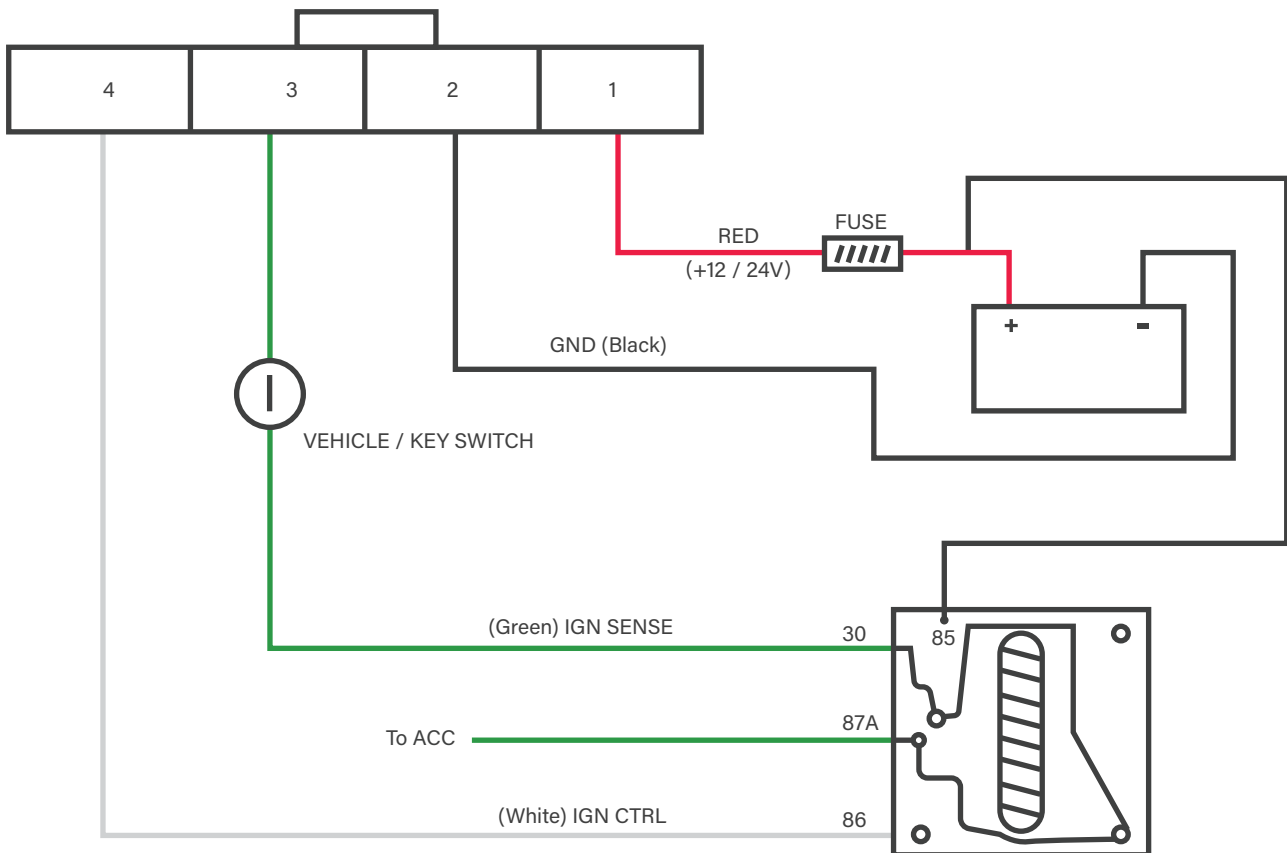
7. Installation Process

7.1 Precautions:

(i) The installation of E-101 device and its accessories must be done by trained technician only.

(ii) The E-101 device should not be installed at a location which can be exposed to water or rain. Take care of water splash and high voltage to E-101, while vehicle servicing

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

7.2 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

7.3 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.

7.4 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.

7.6 Installation Steps:

(i) Complete the harness wiring of E-101 in your vehicle as per in the wiring details (6).

(ii) The device will turn on automatically after inserting the SIM. Make sure to note down the SIM number before inserting the SIM.

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

(iii) Connect the harness to device & wait for LED indicators to blink after turning on the device.

(iv) 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 GSM Signal & the GPS indicator (Blue LED) start blinking upon receiving GPS signal.

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

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

8. Commands

8.1 Configuration Commands

8.1.1 <u>SMS Commands Description</u>

E-101 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. Device would reply to all

Example: - The command format would be commands send by user.

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

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

Ex.: PW::1234 ;< 6906>

8.1.2 APN Configuration

#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

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

#CONFIG?<Password> - This command replies with GPRS APN, Username and Password already saved.

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

8.1.3 PPI Configuration

To Start Live Tracking On Internet

Send**"WEBSTART<xxx/H/M/S><password>"** to E-101, device will send confirmation SMS and then start sending data to our web server.

• XXX means digits from 001-999

• H means HOURS, M means MINUTES, S means Seconds

Example – When we send the command WEBSTART002M <6906>, E-101 will start sending the data to web server at 2 minutes interval.

Send **"WEBSTART<xxx/H/M/S>,<yyy/H/M/S><password>"** to E-101, device will send confirmation SMS and then start sending data to our web server at different intervals depending on IGNITION status. Where xxx is the interval during IGNITION ON and yyy is the interval during IGNITION OFF

• XXX means digits from 001-999

• H means HOURS, M means MINUTES, S means Seconds

Example – when we send the command WEBSTART030S,002M <6906>, E-101 will start sending the data to web server at 30 seconds interval during IGNITION ON and 2 minutes interval during IGNITION OFF.

8.1.4   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 E-101, 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>, E-101 will start sending the data to web server at every 500 meters and on deviation of 30 degree from the normal course.

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

8.1.5   TCP Server Settings

(i)   **To Port The Device To A Server**

Command to port the E-101 to the first server (with IP and PORT)

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

Example – #SERVERCHANGE:: 196.168.175.12::20000;<6906>, this command would point E-101 to the server with IP=196.168.175. 12 and Port= 20000

8.1.6 Command To Configure Odometer

(i) **SETODO?<password>** - This command is used to get/read the present Odometer reading of vehicle.

Response: Odometer reading:: 12345.00

(ii) **SETODO::12345;<password>** - This command is used to calibrate the odometer where 12345 is the present odometer reading

Response: Odometer set to::12345.00

8.2 Functionlity Commands
8.2.1 Vehicle Immobilization

(i) **ARM<password>** - E-101 will start monitoring & sensing the ignition of the vehicle. further it will cut the ignition of the vehicle and a confirmation message **"ARM MODE HAS BEEN ACTIVATED"** will be received.

(ii) **DISARM<password>** - E-101 will stop monitoring & sensing the ignition of the vehicle. The command will deactivate the immobilizer and the Ignition circuit will be ON. A confirmation message **"ARM MODE HAS BEEN DEACTIVATED"** will be sent to the commanding mobile number

8.2.2 GET GPS

To Get GPS Data For One Time In SMS

Send **"GETGPS<password>"** to E-101

• 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, open www.maps.google.com, in the search bar enters the latitude and longitude coordinates separated with a comma (,). It will show you the location.

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

8.2.4 GMT::xxxxx ;< password> Command to set the GMT drift value, xxxxx stands for value in minutes.

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

8.3 Alert Commands

8.3.1 SYSSTARTZ::+919876543210;<password>

This command is used to register the device with Subscriber number. Now device will send alerts to the number **+919876543210.** Confirmation message **"SYSTEM START HAS BEEN ACTIVATED"** will be received. also the tracker would answer to calls from this number.

8.3.2 SYSSTOPZ<password>

This command is used to stop the system with Subscriber number. (Now a new number can be registered to the device).

8.3.3 IAD::X;<PASSWORD>

This command is use to enable and disable the ignition alerts. X=1 to disable the ignition alerts and X=0 to enable ignition alerts.

8.3.4 MAD::X;<PASSWORD>

This command is use to enable and disable the main power alerts. X=1 to disable the main power alerts and X=0 to enable main power alerts.

9. Troubleshooting

9.1 GPRS STATUS

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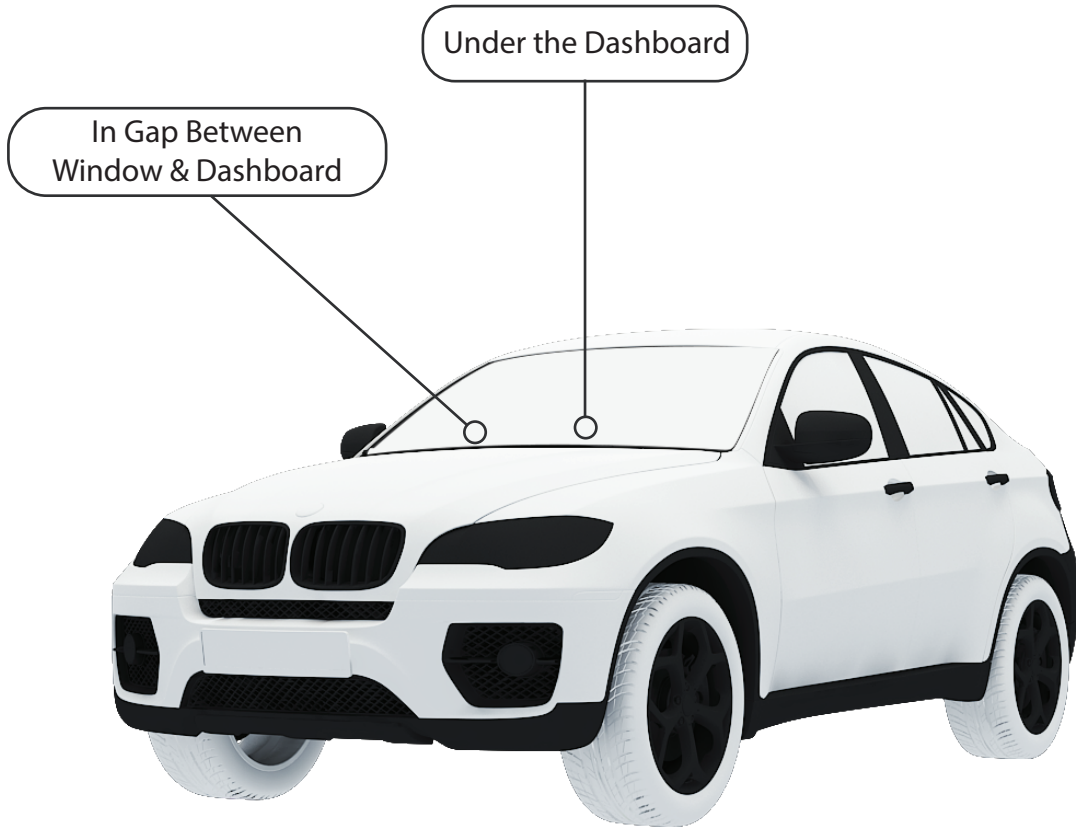
Description of the reply

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	Webtracking interval	Web tracking Interval
ID	Device ID	15 Char Device ID (shows only if enabled)
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 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
P:X	Protocol	0=DIMTS, 1=ATL (Shows two fields if duel IP enabled)

9.2 **Diagnostic Commands**

SYSSTATUS<password> Response:

Main power status	MPON	MPOFF
Ignition status	IGNON	IGNOFF
Immobilizer status	ARM	DISARM
A/C status	A/C ON	A/C OFF
DOOR status	DOOR OPEN	DOOR CLOSED
Reserved low sense input	LS LOW(R)	LS HIGH®
No meaning	DBON	
Reserved Field	DIPOFF	
Odometer (KM)	0.00	
On board temp.	25.6	
Battery Voltage (internal)	4.0	

7.5 Mechanical Overlay:

Under the Dashboard

In Gap Between
Window & Dashboard

9.3 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 "LED SIDE UP " is facing the sky. • Keep the device in open space for 2-3 minutes for GPS fix.
4.	SMS not accepted: "WRONG COMMNAD"	The command may be invaild or there is some spelling mistakes in the command. Recheck the command phrase and resend it .
5.	No response from E-101:	• Check your balance in case of Pre-Paid connection. • Check the network status. (No Or weak network connection could be the reason) • Check the password. • Resend the desired commands again. • Reset the E-101.
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.

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