

# WP-30CCN

## VEHICLE TRACKING DEVICE

### TECHNICAL MANUAL



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# 1. Introduction

WP-30CCN is an advanced vehicle tracker for automobiles and heavy commercial vehicles (HCV). It is significantly designed to provide tracking accuracy less than three meters, enabled with high gain active antennas and CAN-bus reader, this all sealed within a robust IP67 casing to make it durable for harsh conditions. The device is abled with multiple digital inputs, outputs, analog inputs, serial ports, one-wire communication, and OBD 2.0 which makes it capable of connecting to multiple peripherals.

# 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 Diagnostics

## 3. Technical Specification

### 3.1 Navigation

GNSS	GPS, AGPS, QZSS, GAGAN, BDS
Channels	22 Tracking / 66 Acquisition Channel
Sensitivity	-165dBm
GPRS	Type B class, 12 Coding scheme CS 1,2,3,4
Acceleration Accuracy	< 0.1m/s <sup>2</sup>
Velocity Accuracy	< 0.1m/s
Hot Start	< 1s
Warm Start	< 30s
Cold Start	< 31s

### 3.2 Cellular Network

Band	850/900/1800/1900MHz
RF Power	Class 4 (2W@850/900MHz/Class1 (1W@1800/1900MHz)
Data	GPRS Multislot Class 12, Coding Scheme CS 1, 2, 3, 4
Communication Protocol	TCP / IP / UDP / FTP / HTTP/ SSL

### 3.3 Power

Working Voltage	8-36V DC
Battery	1000mAh Li-Po 3.7V

### 3.4 Operating Environment





Working Current	Sleeping mode < 5mA : Active mode < 125mA
Operating Temperature	-35°C to 80°C
Humidity	5% to 95%

### 3.5 Key Features

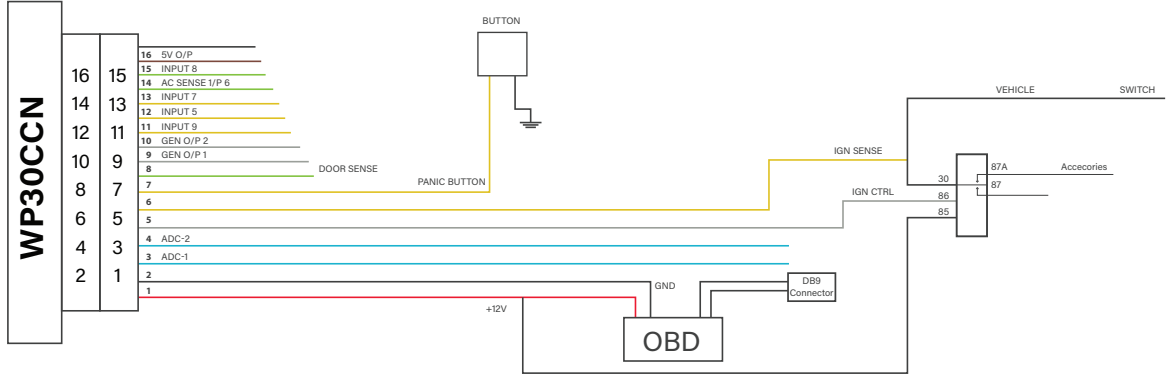
I/Os:	Digital Inputs: 7, Digital Output: 3, Analog Input: 2, 1-wire port: 1, RS 232: 1 + 1*
GNSS & GPS Antenna	Internal High Gain Antenna
Indicators	4 LED's (Power, MCU, GSM, GPS)
SIM	Micro SIM
Memory	10,000 Log Packets

\* Optional

## 4. LED Indications

<p style="text-align: center;"><b>POWER (RED)</b></p> <p style="text-align: center;"></p>	<p style="text-align: center;"><b>MCU STATUS (BLUE)</b></p> <p style="text-align: center;"></p>	<p style="text-align: center;"><b>GSM (GREEN)</b></p> <p style="text-align: center;"></p>	<p style="text-align: center;"><b>GPS (YELLOW)</b></p> <p style="text-align: center;"></p>
<p>This LED Represents The POWER supply</p>	<p>This LED Represents the MCU Status</p>	<p>This LED Represents the Network Registration.</p>	<p>This LED Represents The GPS Lock Of The Device.</p>
<p>LED ON: Power is on</p>	<p>LED OFF: MCU is not Running</p>	<p>LED Blinks : At interval of around 1s: device is not in network</p>	<p>LED OFF: Not Fix</p>
<p>LED OFF: Power is off</p>	<p>LED Blinks: MCU Running</p>	<p>LED Blinks : At interval of around 3s:device is registered to network</p>	<p>LED Blinking: GPS Fix</p>
		<p>LED Blinks : At interval of around 5s: sending the data to server</p>	

# 5. Wiring Details





## 6. Installation Process

### 6.1 Precautions:

- (i) The installation of WP-30CCN device and its accessories must be done by trained technician only.
- (ii) The WP-30CCN device should not be installed at a location which can be exposed to water or rain. Take care of water splash and high voltage spike to WP-30CCN, 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

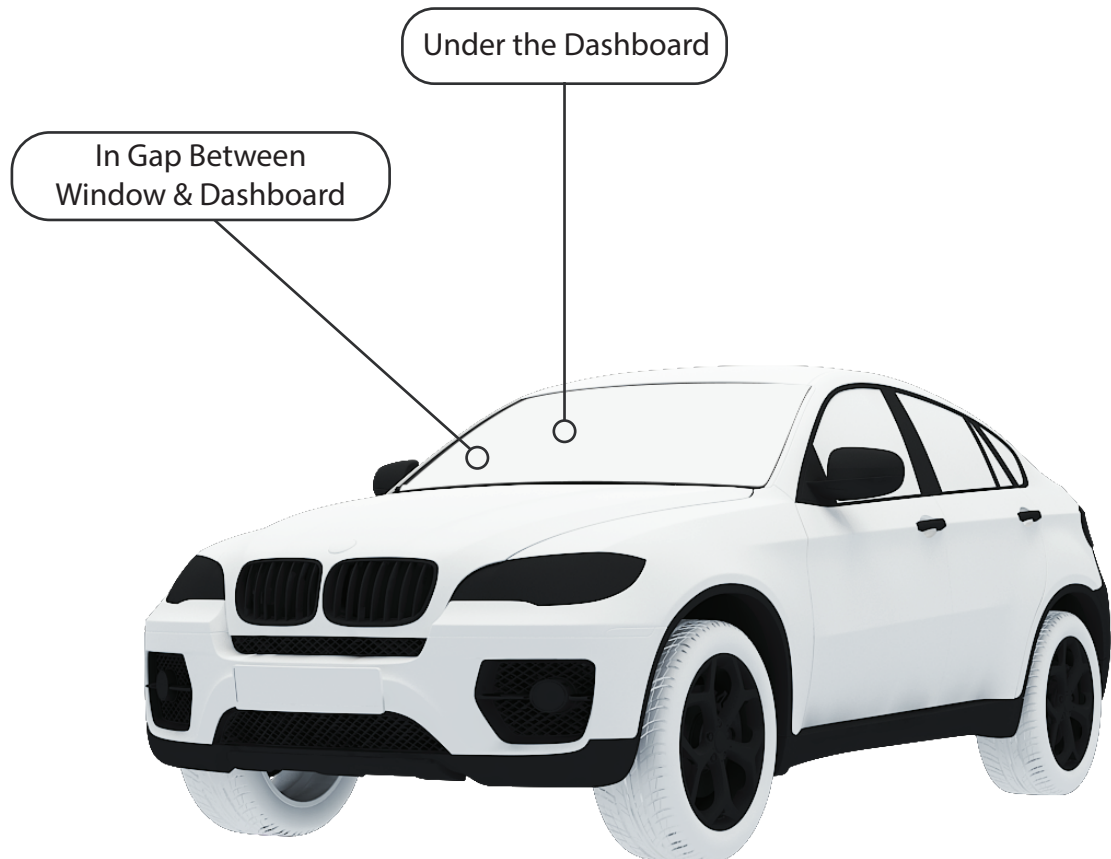
### 6.3 Pre- Installation Instructions:

- (i) It is advised to use the wire stripper to peel the wires to prevent the wire damage.
- (ii) Vehicle's 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:



## **6.6 Installation Steps:**

- (i) Complete the harness wiring of WP-30CCN in your vehicle as per in the wiring details (5).
- (ii) Connect the OBD port from the device to OBD port of the vehicle .To enable the CANcommunication.
- (iii) 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.**

- (iv) Connect the harness to device & wait for LED indicators to blink after turning on the device.
- (v) 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 (Yellow LED) start blinking upon receiving GPS signal.
- (vii) The tracking Interval, Server IP & Port can be configured through SMS commanding.

## 7. Commands

### 7.1 Configuration Commands

#### 7.1.1 SMS Commands Description

The WP-30CCN will accept command from any number if the password is provided correctly. The device would check the password in every commands and respond to the command only if the password is correct.

The password is four digit numbers. The users can change the password of their device (**Default password is <Atl@1234>**)

Example: - The command format would be

**Command <password>**

The default password is <Atl@1234> which can be changed at future (only 4 digits number) So the command to get IMEI number would be

**IMEI<Atl@1234>**

#### Change device password

• **PW::1234;< password>** - This command is used to change the password. After this command the password will be 1234, (**default password is <Atl@1234>**)

#### 7.1.2 Store Device ID

**DNS::12345 ;< password>** -This command is used to set the device ID, the maximum length of device ID would be 15 digits. Here after the device will replace the IMEI number with this ID in protocol.

### 7.1.3 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 & Password:** For your GPRS account, Username is provided by your network operator or else leave it blank.

Eg. For idea command would be **#CONFIG::internet ::;;  
< Atl@1234>**

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

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

#### 7.1.4 PPI Configuration

To Start Live Tracking On Internet:

**WEBSTART**<wwwD/H/M/S>,<xxxD/H/M/S>, <yyyD/H/M/S>,  
<zzzD/H/M/S><password>

Command to set the tracking interval. and you will get confirmation SMS and then start sending data to our web server.

xxx means digits from 0-9

D means DAYS (the system will accept from 1 to 365 days, it will reject less than 1 day or more than 365 days)

H means HOURS (the system will accept from 1 to 24 hours, it will reject less than 1 hour or more than 24 hours)

M means MINUTES (the system will accept from 1 to 60 minutes, it will reject less than 1 minute or more than 60 minutes)

S means Seconds (the system will accept from 1 to 60 seconds)

Where www stands for IGN ON interval, xxx stands for IGN OFF interval, yyy stands for MAIN POWER OFF interval and zzz stands for Panic mode interval.

**Example** – when we send this command WEBSTART010S,030S,002M,005S<Atl@1234> the device will start sending the data to our web server at IGN\_ON interval of 10 Seconds, IGN\_OFF interval of 30 Seconds, MAIN\_POWER\_OFF interval of 2 Minutes and Panic mode interval of 5 Seconds.

#### **To start OBD live tracking on internet**

Send “OBDSTART” to the device, the device will send confirmation SMS and then start sending OBD data to our web server.

XXX means digits from 001-999

H means HOURS, M means MINUTES

Example – when we send the command OBDSTART002M<Atl@1234>. The Device will start sending OBD data to web server at 2 minutes interval.

### To start OBD live tracking on internet

**WEBSTOPZ<password>** Command to stop the web based tracking.

**Response:**

Data Sending to WEB Stopped.

#### 7.1.5 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 WP-30CCN, 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 **DBT500M<<Atl@1234>>**, WP-30CCN 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.

### 7.1.6 TCP Server Settings

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

Command to port the Device to the first server (with IP and PORT)

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

**Example** – #SERVERCHANGE::196.168.175.12::20000;<Atl@1234>, this command would point The Device to the server with IP=196.168.175.12 and Port= 20000.

(ii) **To Port The Device To Second SERVER**

Command to port the OBD TRACKER to the first server (with IP and PORT)

**#SERVERCHANGE1::IP::PORT;<password>**

**Example** – #SERVERCHANGE1::196.168.175.12::20345;<Atl@1234>, this command would point OBD TRACKER to the server with IP=196.168.175.12 and Port= 20345. Now the Device would send data to two different servers

(iii) **To Remove The Second SERVER**

Command to remove second server settings from The Device

**#SERVERCHANGE::--;<password>**

### 7.1.7 Serial Port Configuration

The serial ports must be configured using SMS commands for various hardware like Camera, RFID, Fuel Sensor etc.

**ser\_config::x1x2;<password>** The command to configure the serial port is

**Eg.:** **ser\_config::12;<Atl@1234>**, would enable Camera on serial Port-1 and RF on serial port-2

Note:- The serial port with black insulation wire in Serial port-1, and transparent insulation wire is Serial Port-2.



### 7.1.8 To Set PID For OBD

**PID@ COMMAND:LENGTH:STARTPOSITION:NOOFBYTE  
REQUIRE@:COMMAND2:LENGTH:STARTPOSITION:  
NOOFBYTEREQUIRE @@@@#@#@#@#@#@#;<Atl@1234>**

This SMS command is going to use for set your OWN PIDs. '@' are going to use for command separation and ':' are use for data separation.

**Example:**

**PID@00:010C:06: 00:04@01:0103:09: 02: 04@@@@@@@@@@@@@  
#;<Atl@1234>**

## 7.2 Functionlity Commands

### 7.2.1 GET GPS

**To get GPS data for one time in SMS**

Send "GETGPS<password>" to WP-30CCN

**Response:** WP-30CCN will send:

- 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 weblink or open [www.maps.google.com](http://www.maps.google.com), in the search bar enters 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 **FR<password>** Command to set factory default values.

7.2.4 **RESET<password>** This command brings the device on factory defaults, the subscriber name and all other stored information is deleted from Device. Conformation message “**SYSTEM RESET COMPLETE**” will be received

7.2.5 **IMEI<password>** TRACKAR will display International Mobile Equipment Identity Number (15Digits).

7.2.6 **SLEEPON<password>** By default sleep mode is on. Sleep mode is used to deactivate data sending on GPRS when the vehicle is on stand still for a particular time. As soon as the Vehicle starts moving again the tracking will start and sending data again. This mode is provided to save battery when the Vehicle is in stand still

**Response:** Sleep on GPRS activated

(ii) **SLEPOFF<password>** This command is used to disable SLEEPON mode

**Response:** Sleep on GPRS Deactivated

(iii) **SLEEP?<password>** To check whether the unit is IN SLEEP OR NOT.

7.2.7 **GSENSE<password>** This command is used to check the condition of vehicle (whether IN MOTION OR NOT) and status of tracker (whether IN SLEEP OR NOT).

**Response:** G-Sensor Working- Unit is (Not in) Motion and it is Not (/IN) SLEEP MODE

# 8. Troubleshooting

## 8.1 GPRS STATUS<password>

This command is used to get the complete status of the device, and the command format is **GPRSSTATUS<Atl@1234>**.

Description of the reply

Entries	Description	Remark
CN:	Current network	
WT	Web tracking ON/OFF	WTOFF for OFF and WTON for ON
CT	Tracking mode	CT-continuous tracking, FT for fast tracking
SOFF	Sleep Status	SOFF for SLEEPOFF and SON for SLEEPON
SGDC	GPRS availability on SIM card	
MUC0	Internal Memory Data Count	
CC	Current Configuration	Currently using APN
IP	Server address	Currently using Server details
PD	PDP Deact Error	Network error, occurs normally if APN is wrong
OFN	Out of GSM network	
CF	Connection fail with server	
SF	Data sending fail	
SS	GSM Signal Strength	Should be >10 for proper GPRS
GPS	GPS Availability	A= Available, V=Void
GMS	GMT shift	For setting time region, default IST
P	Protocol	P0= protocol 0, P1= protocol 1

## 8.2 Diagnostic Commands

### **SYSSTATUS<password> Response:**

GSM_ON – XXXM/H/D	GSM_OFF
GPRS_ON – XXXM/H/D/S	GPRS_OFF
<b>Test Mode</b>	<b>Customer Mode</b>
Door(S) Open	Door(S) Closed
Ign_ON	Ign_OFF
VC_ON	VC_OFF
ARM	DISARM
Sleep_ON	Sleep_OFF
Fuel: c	Fuel:N.C.
SIP: 01.11.12.13	

### 8.3 Troubleshooting Table

S.NO	Scenario In General	Troubleshooting
1.	RED LED OFF	Check the OBD scanner connection in the vehicle
2.	GREEN LED is blinking continuously	Check for proper installation of the SIM card, GSM antenna (For VTS with external antenna) and unit.
3.	YELLOW LED is not blinking	Verify proper installation of unit; verify that the VTS has a clear view of the sky, with the proper side up facing the sky; GPS antenna connection (For VTS with external antenna); check SLEEP status in GPRSSTATUS command
5.	No CAN Data	Check the PDI Configuration, Check the OBD Scanner Connection
6.	No reply from TRACKER	Check SMS balance in SIM; check the password and the command is correct
7.	Immobilizer Not working	Check IGNITION sense is connected properly; Check whether the relay rating
8.	Device not updating on web	Check APN, server details, GPS validity, WTON, Protocol etc. in GPRSSTATUS reply
9.	CC Blank in GPRSSTATUS	Enable auto configuration; If network using is other than Airtel, Aircel, IDEA & Vodafone, save the APN using #CCM command
10.	CF is not zero	Check server setting, check whether the port is open or not at server
11.	SGDC not Zero	Activate GPRS on SIM Card
12.	SF is not zero	Check GPRS data on SIM Card

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