AOT120S User Manual

GSM\SMS\GPRS\GPS (Version 1.0)

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Specification

GSM	MTK Chipset (MT6261D)
GSM Band	Quad Band 850/900/1800/1900
GPRS	CLASS12,TCP/IP
GPS	U-blox7
GPS Start	Cold start: 38s, Hot start: 2s (Open Sky)
GPS Positioning	5m (2DRMS)
Voltage Input Rang	9-90 VDC
Current Consumption	3.5mA @ 48V
GSM Antenna	Built-in GSM Antenna (Commercial Stander)
GPS Antenna	Built-in GPS Antenna (-148dBm to -162dBm)
Memory	10,000 Locations
Internal Battery	Paper lithium, 200mA, 85 ^{0}C
Temperature	-10 to +80 ^{0}C
Humidity	20% - 80% RH
Dimension	67(L)mm*38.8(W)mm*11.5(H)mm
Weight	25g
Reports	CE, EMC, EMI, RoHS, Safety Test Report.
Certified	ISO, GSMA
Approval	Approved from PTA (Pakistan Telecommunication Authority)

Basic Hardware Features

- GPS satellite & LBS dual model positioning
- Number of available GPS satellite
- GSM Signal Straight (level 0-6)
- Max Input voltage 90
- Main and backup battery Voltage measuring
- Very low current consumption for saving main Battery power (only 10mA Working Mode at 12V)
- Sleep Mode function for low current consumption
- Auto wake up from sleep mode (on ACC ON, Vibration detection or movement)
- Built-in auto Backup battery charging controller (PWM)
- Hardware GEO-Fence Alert
- Hardware Over Speed Alert
- Built-in hardware watch dog timer
- Internal memory (more than 10,000 location save when device is in non-coverage area)
- Auto reboot on malfunctions
- moving time adjustable
- Sleep mode enable/disable
- Angle alarm send to remote server (20 degree by default)
- Vibration alarm (sensitivity is adjustable from 1 to 5)
- ACC detection (+ve)
- Engine Kill and Release function
- Battery Tempering

Usage of Device

AOT120S is used for following auto mobile:

- Car (4 Wheels)
- Van/Pickup
- Truck (Light Weight)
- Truck (Heavy Duty)
- Dumper
- Paver Machine
- Milling Machine
- Motorcycle
- Electric-bike (2/3 wheels)
- Rickshaw (2/4 Stock)
- Mobile Generator

Indication of LEDs

NOTE：For covert protective, the LED status will be invisible after installing the back cover.

RED LED *(Power status indicator)*

Power LED status	Description
Quick flashing	Working normally (working on main Battery)
Slow flashing	Working normally (working on backup battery of device)
Continuously ON	Device Error
Continuously OFF	Device Error

BLUE LED *(GSM status indicator)*

GSM LED Status	Description
Quick flashing	Working normally, uploading GPRS data to server
Slow flashing	Working normally ,receive GSM signal normally
Continuously ON	No GSM signal
Continuously OFF	GSM Error

GREEN LED *(GPS status indicator)*

GPS LED Status	Description
Quick flashing	Working normally , GPS Lock
Continuously ON	Searching GPS signal or satellite
Continuously OFF	GPS Error

Installation

Preparation before installation:

- To test SIM card, please install it into a normal GSM mobile and ensure it can send and receive SMS, and enables for GPRS.
- SIM installation, refer to below pictures.

Note: ***Power off before installing or removing the SIM card.***

Notice of Installation:

To prevent theft of the Device, the device should be installed as covertly as possible.

Notice as following:

- Ideally must be installed in open area (Sky view)
- Device has built-in GSM antenna and GPS antenna. During installation, please make sure the receiving side face is up, with no metal object above the device to interfere with GPS reception.
- Avoid placing the Device close to higher power electrical devices, such as reversing radar, anti-theft device or other vehicle communication equipment.
- The Device should be fixed into position with cable ties or wide double-side tape.
- For safety, do NOT remove the fuse of device cable.
- Avoid installing near heat generation parts.
- Do not connect wires with the car control wiring

Wiring Diagram:

FOR CAR

FOR Motor Bike

Steps of installation

- Open the back cover, insert a SIM card to SIM card slot
- Switch backup battery power button up (power on)

- Connect the power code with the interface of device
- Now three LED lights will lighting
- Make sure the receiving side faces up, without any metal object shelter
- The LED lights will flash after 1 to 5mins. It shows working normally
- Close the back cover
- Please ask professional technical to connect wires and install to the vehicle.
- After correct installation, the RED LED will flashing, 1 min
- Later the BLUE LED will flashing too

Cautions of device wiring:

Power code wiring:

The standard voltage is 9V-100V. Please use the power line which provided by the manufacturer. The red line is the positive. The black line is the negative. The negative should earth alone or link iron during installing. Do not connect it to other ground wire. And please make sure the device is powered on status. (Power button on down position)
Red LED light will flashing while device installed correctly, GSM Blue LED light and GPS Green LED light will flash around 1 minute later after getting signal.

SMS Commends

- User can set different kinds of function commands via sending message, including check position, cut engine, etc.
- All commands will get auto replies according to the message sent.

Note device with initial password 123456

NO	Features	Commands	Reply from device	Remarks
1	Status	#check#password#	IMEI:866968033000000 Number:03001234567, KC:1 IP:track.aotsolutions.com 6994 GPS:1 APN: CMENT TIMEZONE:E-0-0 ACC:ON	Example：**#check#123456#** IMEI: device IMEI number Number: admin number KC: Alarm reply mode IP: IP or Domain and port APN: apn name TIMEZONE:E-5-00 (Pakistan) ACC: Ignition status ON/OFF
2	Authorize Numbers	#admin#password#number#	Admin ok	Example：**#admin#123456#+923001234567#** Add authorize number
		#noadmin#password#number#	Noadmin ok	Example：**#admin#123456#+923001234567#** Delete authorize number
3	Password Change	#password#old password#new passwod#	Password ok	Example：**#password#123456#660008#** Here is 660008 set as new password
4	Time Zone	#timezone#password#direction# time zone (hours)#time zone (minutes)#	time zone OK	Example：#timezone#123456#E#5#00# (This is Pakistan time zone)
5	Kill Engine	#stopoil#password#	Stop oil ok	Example：**#stopoil#123456#** For engine Kill
6	Release Engine	#supplyoil#password#	Supply oil ok	Example：**#supplyoil#123456#** For engine release
7	Vibration alarm	#vibrate#password#1#	vibration ok	Example：**#vibrate#123456#1#** 1= slight vibration level 2= medium vibration level 3= High vibration level
8	SMS Alert Mode	#KC#password#0#	KC mode ok	Example：**#kc#123456#0#** 0= Disable SMS alarm 1= Alarm reply on SMS only 2= Alarm reply on Call 3= Alarm reply on SMS and Call both

<table>
<tr><td>9</td><td>Over Speed</td><td>#speed#password#speed#</td><td>Speed ok</td><td>Example：#speed#123456#060#
(Limit set on 3 digits like 060)
60 mean that speed alarm generate with google link on 60km</td></tr>
<tr><td rowspan="2">10</td><td rowspan="2">Sleep Mode</td><td>#sleep#password#</td><td>Sleep ok</td><td>Example：#sleep#123456#
This mean device enter sleep mode after 5 minutes when ACC= OFF
and device will exit sleep mode when ACC=ON, movement or Vibration.</td></tr>
<tr><td>#nosleep#password#</td><td>No sleep ok</td><td>Example：#nosleep#123456#
Disable sleep mode</td></tr>
<tr><td>11</td><td>Setting time Tracking on movement</td><td>#at#123456#time in seconds#</td><td>At ok</td><td>Example：#at#123456#10#
Here the movement time is 10s (10 to 600s)</td></tr>
<tr><td>12</td><td>Google link</td><td>#smslink#password#</td><td>Reply: Google Link, Latitude, Longitude, Date/Time and Speed</td><td>Example：#smslink#123456#
Get the current Location
(IMEI, longitude, latitude, Date time and speed of the vehicle with Google link)
Also Call on device number for Google link</td></tr>
<tr><td>13</td><td>Fence Setting</td><td>#stockade#password#meter#</td><td>Stockade ok</td><td>Example：#stockade#123456#500#
It means 500 meter radius from current location.
<u>Note:</u>
Only for fence out, Command automatically disable after cross the Fence.</td></tr>
<tr><td>14</td><td>Ignition Alarm
or
ACC alarm</td><td>#ACC#Password#parameter#</td><td>ACC ON ok</td><td>Note: This command has impact on both Server Ignition alarm and direct SMS Alert.
#ACC#123456#0# — Disable
#ACC#123456#1# — ON
#ACC#123456#2# — OFF
#ACC#123456#3# — ON / OFF
Device send Google link when ACC ON/OFF</td></tr>
<tr><td>15</td><td>Set APN</td><td>#apn#password#APN Name#user#password#</td><td>Apn ok</td><td>Example：
#apn#12345#telenor#internet#internet#</td></tr>
<tr><td>16</td><td>Set IP</td><td>#ip#password#IP#Port#</td><td>Ip ok</td><td>Example：
#ip#123456#111.222.333.444#1234#
Setting server IP and port.</td></tr>
<tr><td>17</td><td>Re-start device</td><td>#reboot#password#</td><td>Reboot ok</td><td>Example：#reboot#123456#
The device will restart after 5~30 sec</td></tr>
<tr><td>18</td><td>Factory Default</td><td>#super#</td><td>Factory reset</td><td>Example #super#
Restoring all to factory default</td></tr>
<tr><td>19</td><td>Version Update</td><td>#version#password#</td><td>Version Detail</td><td>Example: #version#123456#
Device reply Version detail of Hardware and Firmware</td></tr>
</table>

Recommended Settings for Using with Server Platform

APN	#apn#123456#APN#user#password#	#apn#123456#connect.mobilinkworld.com### #apn#123456#zonginternet### #apn#123456#telenor#internet#internet# #apn#123456#ufone###
IP	#ip#123456#ip#port#	#ip#123456#111.222.333.444#1234#
Movement Time	#at#123456#60#	Here is set movement time 60 seconds
Time Zone	#timezone#123456#E#5#00#	This is Pakistan time
Sleep Mode	#sleep#123456#	Sleep mode enable
ACC Alerts	#ACC#123456#3#	ACC set alarm as ON and OFF
Release Engine	#supplyoil#123456#	Engine Released
SMS Alerts	#kc#123456#0#	SMS Alerts from device disable
Reboot	#reboot#123456#	After setting reboot device for firmware update
Version	#version#123456#	After 5 minutes of reboot latest firmware updated

Sleeping Mode with Power Saving Specifications:

The sleeping mode had been activated and defaulted inside the AOT120.After the car has switched off more than 5 minutes, the device will shut off all the LED, Turn off GPS module and goes to sleeping mode to save the power of the vehicle's battery.

There are 2 methods to exit the sleeping mode:

1) Switch on the ACC，at this time, the green ACC cable is high level up, this will lead device exit sleeping mode.。If ACC is always on high level up,(means ACC is always on) the device will not goes to sleeping mode.
2) Shake the device to make it exit from sleeping mode.

During the first time testing, it is better to connect the ACC wire to high level up to locate the GPS signal fast in the opening area as well as to avoid the device goes to sleeping mode and could not locate the GPS after 5 minutes.

Note: Please do not test in room as no GPS signal inside room.

If client need to turn off the sleeping mode, please send SMS to the device #6666#SLEEP#0# to close this function.

Trouble Shooting

- After installing it in the first time, if device cannot get connected with server, Please check the following steps:
  1) Check whether the connection of power-line is correct,
  2) Check whether SIM card is installed correctly please refers to the installation manual;
  3) Check whether the power switch is toggled to “ON”, the switch is in the left of the SIM card’s slot.
  4) Whether ACC ignition cable is connected, please turn on the ACC with key after it is connected.
  5) Check the LEDs’ status. In normal working status
  6) Check whether GPS is located, if not, please drive to the open areas for positioning.

- If AOT120 is “offline” status in Server, First of all check the 3 LED’s and check the SIM card status:
  1) Call the SIM card number of the device to check whether you can get through
  2) Check whether the vehicle is in no GSM area, such as basement
  3) Check whether the Jamming area of GSM/GPS
  4) Check whether your SIM card charge is overdue
  5) Check whether the SIM card supports GPRS;
  6) Check the parameter setup, whether the device IMEI number, GPRS sending interval is correct;

- If the device’ GPS function is normal, but cannot locate for a long time, please check whether the installation setup of device is correct:
  1) Please make sure the GPS antenna face is up;
  2) Please make sure there is no electromagnetic wave- absorbent object (metal) above the device, especially the thermal-protective coating on the windshield, it may affect the GPS reception of the device;

- If GPS cannot receive the signals normally (there is high building around to interfere with GPS reception), please drive to the open areas for positioning. Generally, it needs 1-2 minutes to receive the first coordinates.

- If GSM cannot receive the signals normally, please check whether SIM card is installed correctly or there is no GSM signal at the location you are, such as basement parking, please drive to a place covered by GSM signal reception.