

AT2001

Advanced Vehicle Tracking Device



Features

- GPS-SBAS position engine with application processor
- Quad band GSM / GPRS modem: 850 MHz / 900 MHz / 1800 MHz / 1900 MHz)
- 4 Digital inputs, 2 Digital outputs and 1 analog input
- RS 232 interface for sensor and accessory integration
- Power supply range of 7V to 32V
- Sleep mode current $\leq 6\text{mA}$
- Internal GPS and GSM antenna
- Location transmission over SMS and GPRS
- Unit configuration through Serial RS 232 / SMS using software tools
- Supports HTTP, TCP / IP and UDP / IP protocols
- Data transmission to 2 IP addresses
- Memory logs: 16,000 Data records (128 byte per record)
- Supports Embedded SIM/eUICC
- Battery backup of 15 Hrs with 10 sec update interval
- Li-ion Battery, 3.7 V, 2000mAh
- Firmware upgrade over the air (FOTA) using software tools
- Password protection and Authentication
- Device tampering alerts
- IP67 enclosure
- In-Built 3-Axis Accelerometer and temperature sensor
- Compliant to ARAI, C-DAC and DIMTS standards

Vehicle Tracking Device



AT2001

Product Description

AT2001 is an indigenously developed GPS-SBAS based Vehicle Tracking Unit (VTU) product that provides precise location, time, speed, distance etc and aimed at tracking applications.

AT2001 is a VTD with built-in GPS-SBAS receiver which provides unmatched performance in terms of sensitivity and TTFF. The GPS and GSM antennas are embedded within the enclosure thereby ensuring tamper-proof operation.

AT2001 consists of a multi-band GSM / GPRS modem for data communication. The general purpose I/O's of the AT2001 are conditioned and brought out to serve as digital I/O and analog input.

The AT2001's power supply design is robust enough to handle the vehicle supply variations. It

can operate from 7V upto 32V and provide protection against surges, short circuit and reverse battery connection.

AT2001 consists of Li-Ion backup battery for operations when the mains intentionally/ unintentionally disconnected.

AT2001 supports HTTP, TCP/IP and UDP/IP protocols for the communication with the server.

Over the air firmware upgrade feature helps in upgrading the firmware of the device when the device is live on the field. AT2001 can be integrated with many accessories such as SOS button, temperature sensor, fuel sensor, RS-232 based active/passive RFID's etc.

Technical Specifications of AT2001

GPS	
GPS Receiver	32 physical channels with more than 8k time & frequency search channels GPS-GAGAN; L1 band (1575.42 MHz)
Sensitivity (with respect to antenna)	-148 dBm acquisition -160 dBm reacquisition -165 dBm tracking
TTFB	2 sec (typical) Hot start 36 sec (typical) Cold start
PVT accuracy (Under open sky condition)	Position (horizontal): 2.5 m (CEP) using WGS84 Datum Speed: 0.1 m/s Heading: 0.1 deg
Aiding	AGPS compatible (GPS data from server can be accepted)

GSM/GPRS	
General	Quad Band (850 MHz / 900 MHz / 1800 MHz / 1900 MHz)
Class	GPRS Multi slot Class 12/10
Output power	Class 4(2W) at 850/900MHz Class 2(1W) at 1800/1900MHz

IO's	
Digital inputs	4 (0V-24V)
Digital outputs	2 (1 High Side & 1 Low Side)
Analog inputs	1 (0V-30V)
Analog inputs Expandable	2(0V-30V)* (Part No AT2002)
MIC and Speaker Interface	2 Way voice communication* (Part No AT2002)

SIM Card	
SIM Type	Normal SIM/ Embedded SIM/eUICC

Antenna	
GPS	Internal patch antenna
GSM	Internal PCB antenna

Power	
Mains supply	7V to 32V through cable harness, Surge protector, Fuse(3.5A) in cable harness

Battery	
Internal battery	3.7V Li-Ion battery (2000mAH)
Backup	15 hours with 10 sec data update interval

In Built Sensor	
Accelerometer	3-Axis Accelerometer with inbuilt Temperature Sensor
Gyroscope	3-Axis Gyroscope* (Part No AT2002)

Protocol	
IP Protocol	HTTP, TCP / IP and UDP / IP
Output	NMEA 0183 custom message format
Data transmission	2 IP addresses

Memory	
Data storage capacity	16000 data records (assuming 128 byte/record) – 16 Mbits
Extendable	50000* data records (assuming 256byte/record) – 128Mbits (Part No AT2002)

Technical Specifications of AT2001

Current Consumption

Active Mode- Battery not charging	60mA @ 12V (average)
Active Mode- Battery charging	240 mA @12V(average)
Sleep Mode	6mA @12 V

Device Configuration

RS232	Serial Configuration
FOTA (Firmware over the air)	Supports firmware upgrade over the air using software tools
COTA (Configuration over the air)	Supports over the air configuration of various parameters such as APN, server IP, port, update interval and many more using software tools

Alert

Emergency(SOS)
Low Battery
Mains connect
Mains disconnect
Harsh acceleration
Harsh braking
Tamper
Health Packet

Protection

Surge Protection, upto pulse 4 as per ISO7637-2 (200A)
Short Circuit
Reverse Battery
Tamper Protection (Tamper Switch)
Password Protection (Device configuration)

Environmental

Operational Temperature Range (Ambient)	-40°C to +70°C
Storage Temperature Range	-40°C to +85°C
Humidity	95% non-condensing +30°C to 60°C

Mechanical

Dimension (L*W*H)	120mm*86mm*46mm
Weight	225 gms

Enclosure

Enclosure Rating	IP67
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LED Indication

Red LED	Power
Orange LED	GSM/GPRS
Green LED	GPS

Certification

EMI/EMC – AIS 004:Part 3
Enclosure – IP67
Shock – Clause No. 4.12 – IS:10250
Vibration – Clause No. 4.1 – IS:10250
Humidity – Clause No. 4.3 – IS:10250
Dry Heat – Clause No. 4.2 – IS:10250
Cold – Clause No. 4.4 – IS:10250