AVL-300
Data Sheet

Vehicle Tracking Device
The AVL-300 is a compact GPS tracker designed for a wide variety of vehicle tracking applications. It has multiple I/O interfaces that can be used for monitoring or controlling external devices. Its built-in GPS receiver has superior sensitivity and fast time to first fix. Its quad band GPRS/GSM subsystem supports 850/900/1800/1900 MHz allowing the AVL-300’s location to be monitored in real time or periodically tracked by a backend server and mobile devices. Its built-in 3-axis accelerometer allows motion detection and extends battery life through sophisticated power management algorithms. System integration is straightforward as complete documentation is provided for the full featured @Track protocol. The @Track protocol supports a wide variety of reports including emergency, geo-fence boundary crossings, driving behavior, low battery and scheduled GPS position.

Highlights
- Wide Operating Voltage Range 8V to 32V DC
- Multiple I/Os Including 1 Smart Input
- GARMIN FMI/Multiple Sensors/Voice Support

Advantages
- Wide operating voltage range 8V to 32V DC
- Internal u-blox chipset
- Low power consumption, long standby time with internal battery
- Quad band GSM/GPRS 850/900/1800/1900 MHz
- Embedded full featured @Track protocol
- Multiple I/O interfaces for monitoring and control
- Internal 3-axis accelerometer supporting driving behavior monitoring, power saving and motion detection
- Internal GSM antenna
- Internal and external GPS antenna
- CE/FCC/E-Mark/Anatel certified
# AVL-300

## Vehicle Tracking Device

### GSM Specification

| Frequency | Quad band: 850/900/1800/1900 MHz  
|           | Compliant to GSM phase 2/2+  
|           | -Class 4 (2W @ 850/900 MHz)  
|           | -Class 1 (1W @ 1800/1900 MHz)  
| GPRS      | GPRS multi-slot class 10  
|           | GPRS mobile station class B  
| RMS Phase Error | 5 deg  
| Max Out RF Power | GSM850/GSM900: 33.0 ± 2 dBm  
|               | DCS/PCS: 30.0 ± 2 dBm  
| Dynamic Input Range | -15 ~ -108 dBm  
| Receiver Sensitivity | Class II RBER 2% (-107 dBm)  
| Stability Of Frequency | < 2.5 ppm  
| Max Frequency Error | ± 0.1 ppm  

### General Specification

| Dimensions | 80mm*49mm*26mm  
| Weight | 71g  
| Backup Battery | Li-Polymer 250 mAh  
| Standby Time | Without reporting: 90 hours  
|              | 5 minutes reporting: 48 hours  
|              | 10 minutes reporting: 50 hours  
| Operating Voltage | 8V to 32V DC  
| Operating Temperature | -30°C ~ +80°C  
|               | -40°C ~ +80°C for storage  

### GPS Specification

| GPS Chipset | 56-channel u-blox All-In-One GPS receiver  
| Sensitivity | Autonomous: -147 dBm  
|             | Hot start: -156 dBm  
|             | Reacquisition: -160 dBm  
|             | Tracking: -162 dBm  
| Position Accuracy (CEP) | Autonomous: < 2.5m  
|               | SBAS: < 2.0m  
| TFF (Open Sky) | Cold start: 27s average  
|               | Warm start: 27s average  
|               | Hot start: 1s average  

### Air Interface Protocol

| Transmit Protocol | TCP, UDP, SMS  
| Scheduled Timing Report | Report position at preset time and distance intervals  
| Geo-fence | Geo-fence alarm and parking alarm, support up to 20 internal geo-fence regions  
| Low Power Alarm | Alarm when backup battery is low  
| Power On Report | Report when the device is powered on  
| Tow Alarm | From internal 3-axis accelerometer  
| Antenna Disconnect Alarm | Alarm when the external GPS antenna is disconnected  
| Driving Behavior Monitoring | Aggressive driving behavior detection, e.g. harsh braking and acceleration  
| Crash Detection | Accident data collection for reconstruction and analysis  
| Special Alarm | Special alarm based on the digital/analog inputs  
| Remote Control | OTA control of outputs  

### Interfaces

| Digital Inputs | Three digital inputs  
|               | One positive trigger for ignition detection  
|               | Two negative trigger inputs for normal use  
| Configurable Inputs | One special input can be configured to negative trigger digital input or analog input (0-16V)  
| Analog Inputs | One analog input (0.3V-16V)  
| Digital Outputs | Two digital outputs, open drain, 150 mA max current drain  
| Latched Digital Outputs | One digital output with internal latch circuit, open drain, 150 mA max current drain  
| Two-way Audio | Two differential outputs/one single end input  
| GSM Antenna | Internal only  
| GPS Antenna | Internal and optional external GPS antenna  
| Indicator LED | GSM, GPS and power  
| Mini USB port | Mini USB port for upgrading and debugging  
| Serial Port | One RS232 serial port on 16 pin molex type connector, for external devices (GARMIN protocol support)  

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