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V-TRACK - A GPS AND GPRS BASED VEHICLE TRACKING SYSTEM

Of all the applications of GPS, vehicle tracking and navigational systems have brought this technology to the day-to-day life of the common man. Today GPS fitted cars, ambulances, fleets and police vehicles are common sights on the roads of developed countries. Known by many names such as Automatic Vehicle Locating System (AVLS), Vehicle Tracking and Information System (VTIS), Mobile Asset Management System (MAMS), these systems offer an effective tool for improving the operational efficiency and utilization of vehicles. The above diagram shows the block diagram of a typical Vehicle Tracking and Information System.

Operational Modes:

Scheduled Tracking – Transmit position information at pre-defined intervals that can be configured by the user.

Position on request – The user requests the position and condition of a unit, which is then delivered within a time period previous defined by the user.

Sensor monitoring – an alert is sent containing location and condition information when a pre-defined threshold has been breached.

Midday Message poll – At 12.00 GMT each day the device will log on to the GSM network and listen for incoming requests, providing the opportunity communicate with the device and alter its operating mode/settings.



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PRODUCT DESCRIPTION

GPS is used in vehicles for both tracking and navigation. Tracking systems enable a base station to keep track of the vehicles without the intervention of the driver where a navigation system helps the driver to reach the destination. Whether navigation system or tracking system, the architecture is more or less similar. The navigation system will have convenient, graphic display for the driver which is not needed for a tracking system. Vehicle Tracking Systems combines a number of well-developed technologies. VTS consist of three subsystems: a) In-vehicle unit (IVU), b) Base station and c) Communication link. The IVU includes a suitable position sensor and an intelligent controller together with an appropriate interface to the communication link. Our device combines GPS and GSM technologies with GPRS. This means that the position of a vehicle can be measured and reported by sending a message via GPRS to any web server worldwide, thereby providing a total Internet based vehicle tracking capability with extremely low operating cost.

GPRS Specification:

- **Dual-band EGSM900/GSM1800 GPRS Ms8**
- **Output power:**
- **EGSM900: Class 4 (2W)**
- **GSM1800: Class 1 (1W)**
- **Power consumption (average):**
- **Stand-by: 150 μ A**
- **Idle: 3.2mA**
- **In call (EGSM 900, PCL5): 300mA**
- **Supply voltage: 3.6V nominal, 3.3V minimum, 4.5V maximum**



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GPS Specifications:

- **High Sensitivity: to 143dBm tracking, superior urban canyon performance**
- **Position Accuracy: <5M CEP without SA (Horizontal)**
- **Warm Start is under 40 seconds**
- **Hot Start is under 12 seconds**
- **Ultra low power: 17mA @ 3.3V full power, 3 additional low power modes**
- **Bidirectional NMEA interface**

Enclosure:

- **Single autonomous unit including electronics, antennas and battery power source**
- **Dimensions: 177 x 105 x 41mm(including mounting flanges)**
- **Weight : 490g**
- **Industrial, robust and rugged design (non-descript to minimize attention)**
- **High impact material**
- **Flanges with holes to allow use of suitably secure, tamperproof fixings (rivets, screws, bolts)**
- **Easily accessible battery compartment to allow fast and simple battery replacement**
- **Tamperproof fixings on battery compartment**
- **Easy SIM card installation by customer via battery compartment if required**
- **IP67, fully waterproof to 1m**



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Temperature and Humidity:

- **Operating Temperature – Min –25 °C /Max +70 °C**
- **Operating Humidity 100% RH**
- **Storage Temperature – Min -40 °C/ Max +85 °C**
- **Storage Humidity 100% RH**

Approvals:

- **IP67 Rated**

Installation:

- **Installation is completed by four tamperproof fixings through built in secure flanges**
- **Due to the self contained nature of the unit, they can be installed and re-installed within a 15 minute period by the user. No specialist installation services are required**

Optional Interfaces:

The electronics module supports the following:

- **2 x Digital Interrupt Inputs**
- **3 x Digital Inputs**
- **1 x Analog Inputs**