

# ASSETVISION™

FROM MAGELLAN CORPORATION

**wireless  
communications**

**from anywhere**

**to anywhere**

**with embedded GPS**

**Complete Solution:**

**Hardware, Management Software, and Cellular Service**

**National cellular coverage for mobile communications,  
tracking, and monitoring**

**Over-the air system diagnostics , flash programming  
and customer support**

**Over-the-air configurable**

**WIN<sup>4</sup>SM**

**MAGELLAN**  
WIRELESS COMMUNICATIONS

The Magellan Asset Vision™ mobile communication and tracking unit is the ideal product for vehicle and asset management. Designed to be the most comprehensive and inexpensive solution on the market, the Asset Vision integrates cellular (3-watt AMPS or IS-136) voice and data communications (circuit switched cellular), global positioning and an intelligent power management system into a compact single board module.

Unique to the Asset Vision is its open software architecture and dedicated function control processor (FCP). This gives OEMs the ability to develop and load their own custom or proprietary features adding to the already extensive feature list. Other existing features of the FCP allow for scheduling, logging and reporting of user selectable parameters (e.g. location history, speed, route, alarms, etc.) in addition to programming the abundant digital I/O and A/D converter inputs. The FCP also supports the power control system which provides numerous power modes and the capability to turn on and off specific portions of the module when needed - minimizing power consumption and optimizing battery efficiency.

The Asset Vision has a rugged switching power supply for harsh vehicle environments, a built-in battery charger and two optically isolated inputs to provide solid protection from noise and spikes. The Asset Vision also has up to 512 Kbytes of non-volatile flash memory for data logging, over-the-air programming for new software updates and a robust over-the-air data protocol for highly reliable message delivery.

#### Distinctive Features:

- Over-the air system diagnostics , flash programming & customer support
- Over-the-air configurable; upload parameters to multiple units in the field
- Integrated cellular, GPS, and power management system
- Real-Time clock for scheduling and power management
- Vehicle computer interface (RS485)
- Data reporting and logging
- Built-in battery charger
- Optional 2 Ahr backup battery
- Optional handset and/or headset with microphone for voice communications



## General Specifications

**Power Supply:** 9V - 32V DC at 1.5A  
**Backup Battery:** 12V at 2 Amp hours, up to 30 days operation depending on scheduling activity  
**Power Mgmt:** <65 mA in sleep mode  
**Memory:** 128 KB (standard), up to 512 KB for data storage (>10,000 reports)  
**Modem:** CCIT V.22 bis (2400 bps), V.22 (1200bps) Bell 212A (1200 bps) and 103 (300 bps)  
 Extended Hayes AT command set  
**Serial port 1:** 9600 bps max., TTL levels, general purpose

**Serial port 2:** 19,200 bps max., TTL levels, general purpose  
**Serial port 3:** 9600 bps max., RS-485 multi-drop bus  
**Serial port 4:** 9600 bps max., TTL levels  
**Messaging types:** Wireless Link PDI open interface, NMEA 0183 v2.1 at 4800 bps, TTL levels  
**10 Input/Outputs:** 6 configurable analog/digital I/Os, 2 optically isolated inputs, & 2 digital I/Os (TTL level)

## Physical Characteristics

### Module

**Dimensions:** 6.0"L x 5.0"W x 0.7"D (152mm x 127mm x 18mm)  
**Weight:** 8 ounces (227 g)

### Enclosure with Module

**Dimensions:** 6.5"L x 5.5"W x 1.0"D (165mm x 140mm x 25mm)  
**Weight:** 1.2 pounds (0.51kg)  
**Top:** ABS plastic  
**Base:** Die-cast metal  
**Connectors:** Serial: DB25 (female), Antennas: Cellular: SMA (female), GPS: SMB (female)  
**Handset:** RJ-45  
**Headset:** 2.5mm stereo/headset jack

## Cellular

**Cellular:** 3-Watt AMPS (EIA/TIA/IS-19B, EIA/TIA/IS-91, and EIA/TIA 553) or IS-136  
**Frequencies:** Transmit: 824-849 MHz  
 Receive: 869-894 MHz

## GPS

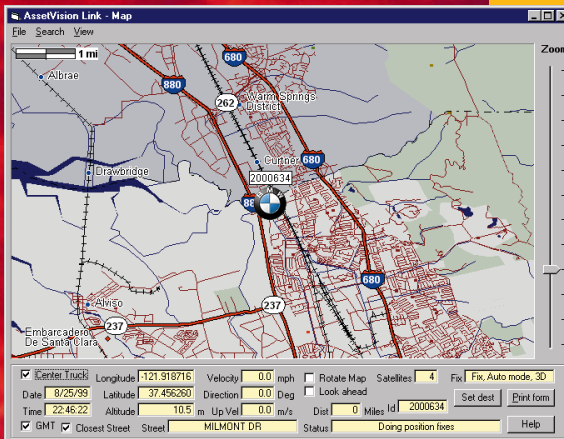
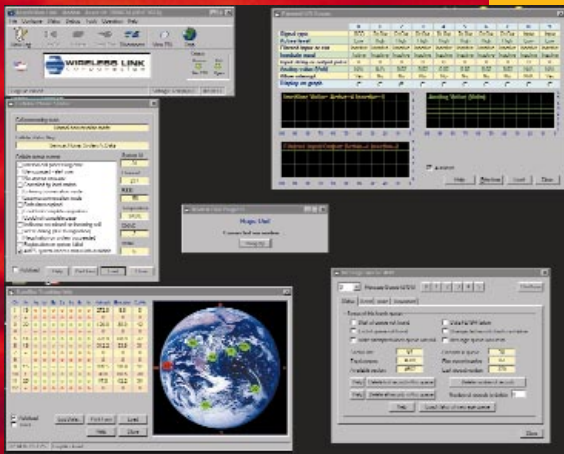
**GPS Receiver:** L1 frequency, C/A code (SPS), 8 channel, continuous tracking receiver, 32 correlators  
**Update rate:** TSSIP @ 1 Hz; NMEA @ Hz  
**Positional Accuracy:** 25m CEP (50%) without SA  
**Velocity:** 0.1 m/sec without SA  
**Time:** ±500 nano-seconds (nominal)  
**Acquisition:**  
**Cold start:** <2 minutes (90%)  
**Warm start:** <45 seconds (90%)  
**Hot start:** <20 seconds (90%)  
**Reacquisition after signal loss:** <2 seconds (90%)

## Environmental

**Operating Temp:** -35C to +75C (short excursions to +85C)  
**Storage Temp:** -45C to +85C  
**Humidity:** 5% to 95% RH non-condensing at +40C  
**Vibration:** 5Hz to 5000Hz noise spectrum  
**Shock:** 50g for 10 minutes  
**Auto Noise:** ISO 7637 3a, 3b, 4 and 5 (load dump)  
**Resistance:** Splash and dust resistant closed design

## Magellan Asset Vision Link

Asset Vision Link Software allows users to immediately begin making phone calls and exchanging data over the cellular network in addition to configuring the Asset Vision, monitoring call progress and obtaining real-time operational status. Other existing features allow for scheduling, logging and reporting of user selectable parameters (e.g. location history, speed, route, alarms, etc.) in addition to programming the abundant digital I/O and A/D converter inputs. Asset Vision Link also supports the power control system which provides numerous power modes and the capability to turn on and off specific portions of the module when needed - minimizing power consumption and optimizing battery efficiency.



## Cellular Service Using WIN<sup>4</sup>™

- In the US and Canada, wherever cellular coverage is available
- Two-way messaging
- Competitive service pricing
- Single point of contact for national service

### Overview

WIN<sup>4</sup> is the first North American wireless service that provides a robust wireless network solution with built-in fraud prevention tools. WIN<sup>4</sup> is a strategic solution developed by GTE Wireless to provide the seamless connectivity of a national data and data with voice service utilizing embedded wireless and wireline networks to route and deliver information.

Developments in computers, batteries, operating systems and application software have changed the paradigm of the wireless industry. Instead of focusing on people-to-people communications, the future will see a groundswell of products and applications requiring electronic devices communicating with each other. Sensing this emerging opportunity, GTE Wireless invested significant resources and revenues into the development of the WIN<sup>4</sup> system. The result is a solution uniquely geared to this market niche.

WIN<sup>4</sup> utilizes a patent pending Call Management Platform to provide an efficient, national wireless communications solution at a competitive price. Inherent in the WIN<sup>4</sup> architecture are fraud prevention measures which obviate the need for PIN codes and temporary NXX brownouts, tremendously increasing call completion for critical applications.

### How WIN<sup>4</sup> Works

Today in North America, cellular service for roamers varies by market. A roamer in some markets may be required to enter a Personal Identification Number (PIN) before placing a call. Some carriers may require a PIN after dialing the number while other carriers may route all calls to an intercept service which requires a credit card number to place a call. In markets with a high occurrence of fraud, a carrier might remove a particular block of numbers, or in severe cases, all numbers from their roaming tables, thus prohibiting any call from being placed.

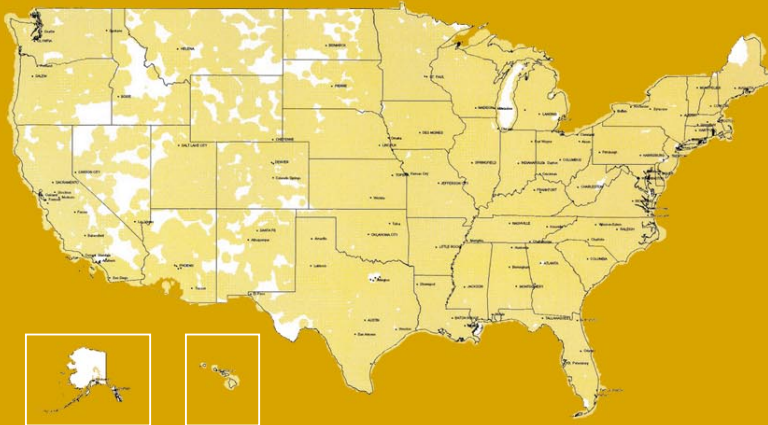
Though inconvenient, a person can always use a landline telephone, or wait until later to place a cellular call if a roaming call is unsuccessful. However, applications that use electronic devices to exchange information require that the call must go through. Call completion rates must be high when a vehicle airbag deploys, or if the security of a trailer hauling millions of dollars of freight is breached.

GTE Wireless has agreements with carriers throughout the United States and Canada to ensure coverage for your calls, if coverage is available in that area. WIN<sup>4</sup> can facilitate the use of analog, all three digital standards, (CDMA, GSM, TDMA) or any combination of these protocols. No other wireless service provides this magnitude of options. WIN<sup>4</sup> provides peace of mind in selecting a wireless communications vendor. WIN<sup>4</sup> allows a mobile device to connect to any pre-designated host site. The host site could be a dispatch center for trucking or telematics applications or a computer for meter reading or field service applications. Likewise, a pre-determined host can connect to a specific mobile device for land-to-mobile communications. By controlling the origination and destination number for calls, WIN<sup>4</sup> is able to minimize fraud and optimize the network for applications using wireless and wireline communications.

The paradigm for national wireless communications has changed. WIN<sup>4</sup> has taken the challenge to develop a ubiquitous national wireless network that provides coverage for your calls. Now system integrators and other large wireless consumers can concentrate on other challenges, knowing that WIN<sup>4</sup> is there, ready and willing to facilitate their communications needs.



**U.S. Cellular Coverage**  
by FCC reported Service Area Boundary



WIN<sup>4</sup> is available over 100% of the cellular coverage areas of the U.S.A. and Canada.

**WIN<sup>4</sup><sup>SM</sup>**

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satellite positioning,  
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