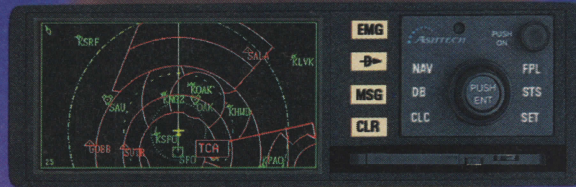


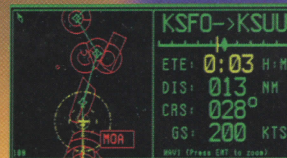
GAS

Unique color moving map displays aircraft position, plus aircraft warning flags (TCA, ARSA, MOA, Prohibited and Restricted Areas).



**Ashtech
ALTAIR™ AV-12**
GPS Receiver

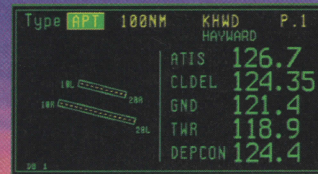
User-friendly interface simplifies flight planning; receiver stores up to 100 flight plans and up to 1000 user-defined waypoints.



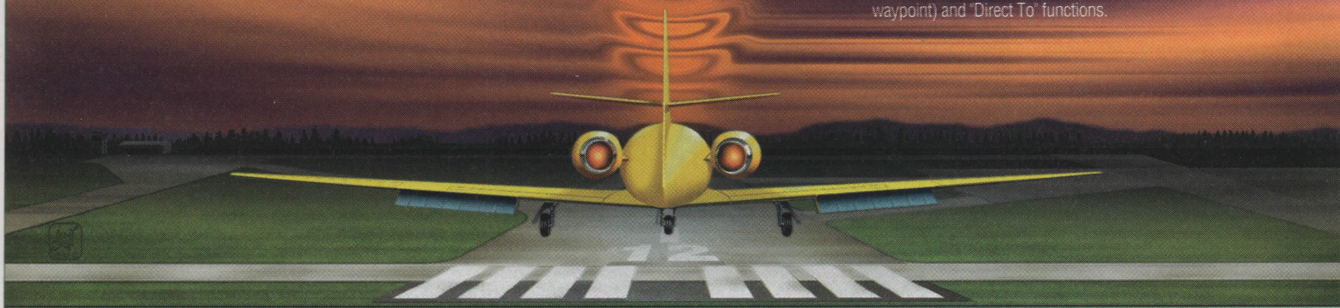
Navigation information -- range, bearing, course over ground, speed over ground, ETE and course deviation as graphics and as text.



The bright CRT display replaces LEDs for easy-to-read graphics using symbology common to NOAA sectionals & WAC charts.



Comprehensive airport, NAVAID and communications frequency information plus Emergency Airport Search, "Nearest" (airport, VOR, NDB, waypoint) and "Direct To" functions.



Ashtech... Technology Leader in GPS and Moving Map Avionics

- Fully integrated, high-resolution color moving map display with common NOAA symbology
- Split Screen Mode -- CRT simultaneously displays moving map along with navigation information (XTE, course, speed, distance to go, ETE)
- Dedicated 12 Channel GPS Receiver with one-second update

- rate and low-drag, high-precision GPS antenna for high accuracy 3-D positioning
- Jeppesen NAVDATA with domestic and international database information
- Satellite Status/RAIM
- Course deviation indicator
- Offset range and bearing from reference waypoint

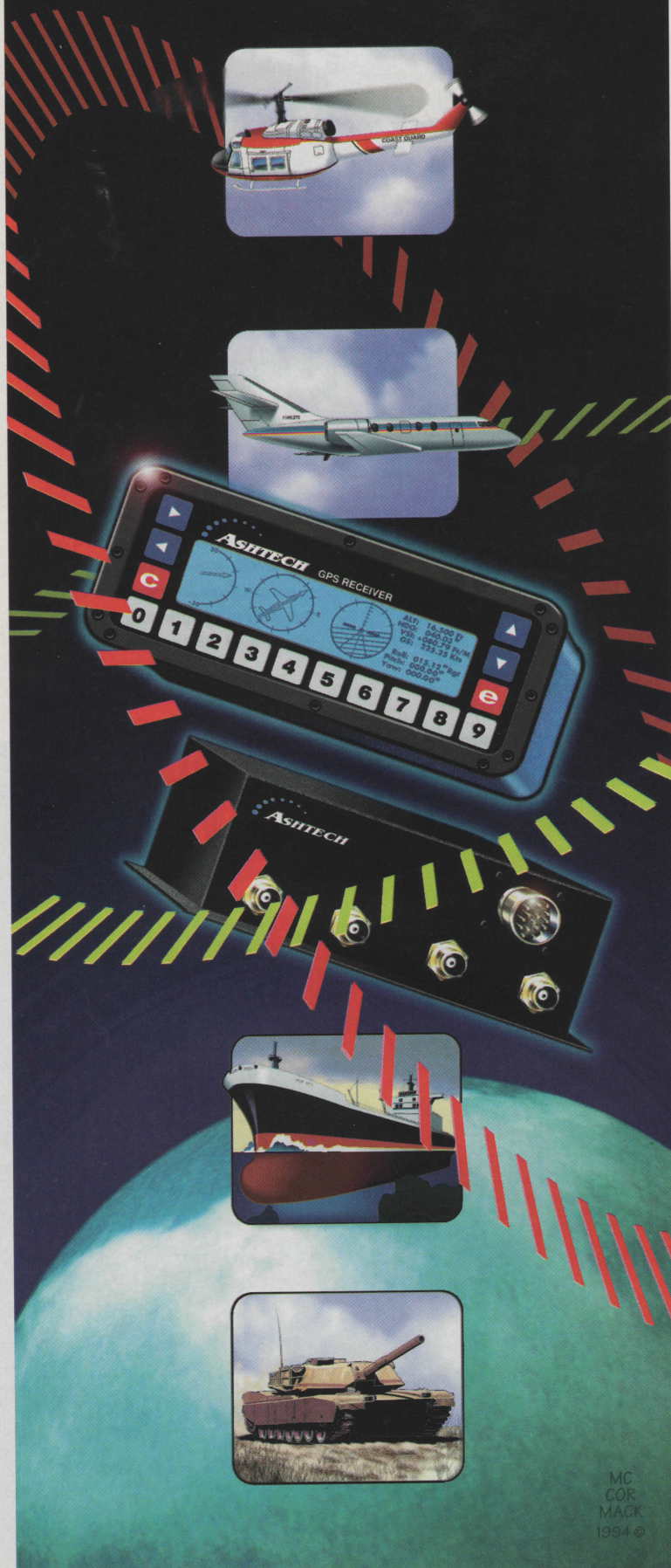
- Stores up to 100 flight plans and up to 1000 user-defined waypoints
- Airspace Warning Flags--TCA, ARSA, MOA, SUA
- Comprehensive NAVAID, Airport and Communications Frequency displays
- Optional PC-based route creation/edit capability

- Optional Differential GPS for meter-level navigation accuracy
- TSO Certification pending



1170 Kifer Road, Sunnyvale, CA 94086
(408)524-1400 Fax(408)524-1500

ADVANCED GPS TECHNOLOGY



Ashtech 3DF™ Dynamic Platform Attitude & Positioning

Attitude (heading, pitch, roll and yaw angles), position, velocity and time in a simple to use compact instrument.

The Ashtech 3DF (Three-dimensional Direction Finding) system determines platform attitude, position and velocity using GPS satellites. Heading, pitch, roll and yaw angles are provided in real-time for both static or dynamic platforms. Real-time differential GPS is available to provide position accuracy of 1-3 meters.

The 24 independent channels, which are used for GPS satellite tracking, are configured as four 6-channel banks with each bank receiving L1 GPS signals from a separate antenna. Small antenna size and flexible antenna array geometry permit easy installation on a variety of land, sea or air platforms.

3DF displays platform attitude, position and velocity while storing these measurements internally at a 2Hz update rate; two high-speed RS-232 serial ports provide for simplified interface with other onboard systems.

Applications include INS integration, vehicle heading and attitude, photogrammetry and artillery pointing. The 3DF is an excellent real-time heading and attitude sensor for oceanographic and seismic exploration activities and for gyro calibration at sea.

Unlike INS, the Ashtech 3DF system is not affected by magnetic fields or Schuler effects. It operates anywhere in the world, including the polar regions, with an accuracy of about one milliradian or 0.057°. It can be used stand-alone or in an INS aiding role. In the latter, INS calibration and periodic gyro drift corrections can be performed continuously and automatically, dramatically reducing these labor-intensive tasks and effectively eliminating the associated platform down-time.

The Ashtech 3DF is available configured with graphic display, keypad and internal memory or in a sensor version (3DF ADU).



**ASITECH**

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The Proven Solution



The Ashtech Z-12

The Ashtech Z-12 receiver sets the standard in GPS technology for high-order surveying and precision navigation applications. When Anti-Spoofing (AS) is turned on, the dual frequency Z-12 receiver automatically activates its Z-Tracking™ mode which mitigates the effects of AS. When AS is turned off the Z-12 reverts to Ashtech's pioneering P-Code technology. The Z-12's high quality reception allows significantly shorter station occupation time for static surveys — one mile in one minute, improved jam immunity and nearly instantaneous integer-cycle phase ambiguity resolution for kinematic surveying and precision navigation.

A typical kinematic survey using Ashtech's PNAV software and Z-12 receivers provided 3.0 mm to 16.0 mm results of 15 vectors with lengths ranging from 5 to 6 kilometers. Station occupation times were one to two minutes. A rapid static survey yielded better than first-order results at up to 48 kilometers in five minutes. An FGCS test survey resulted in an Order A survey (1:10,000,000) producing better than 0.005 m positional uncertainties for each station in the network. Station spacing was from 43 to 108,000 meters. All surveys were conducted with AS turned on! The Ashtech Z-12 performance with AS turned on is equal to or better than the performance of all other receivers with AS turned off or on!

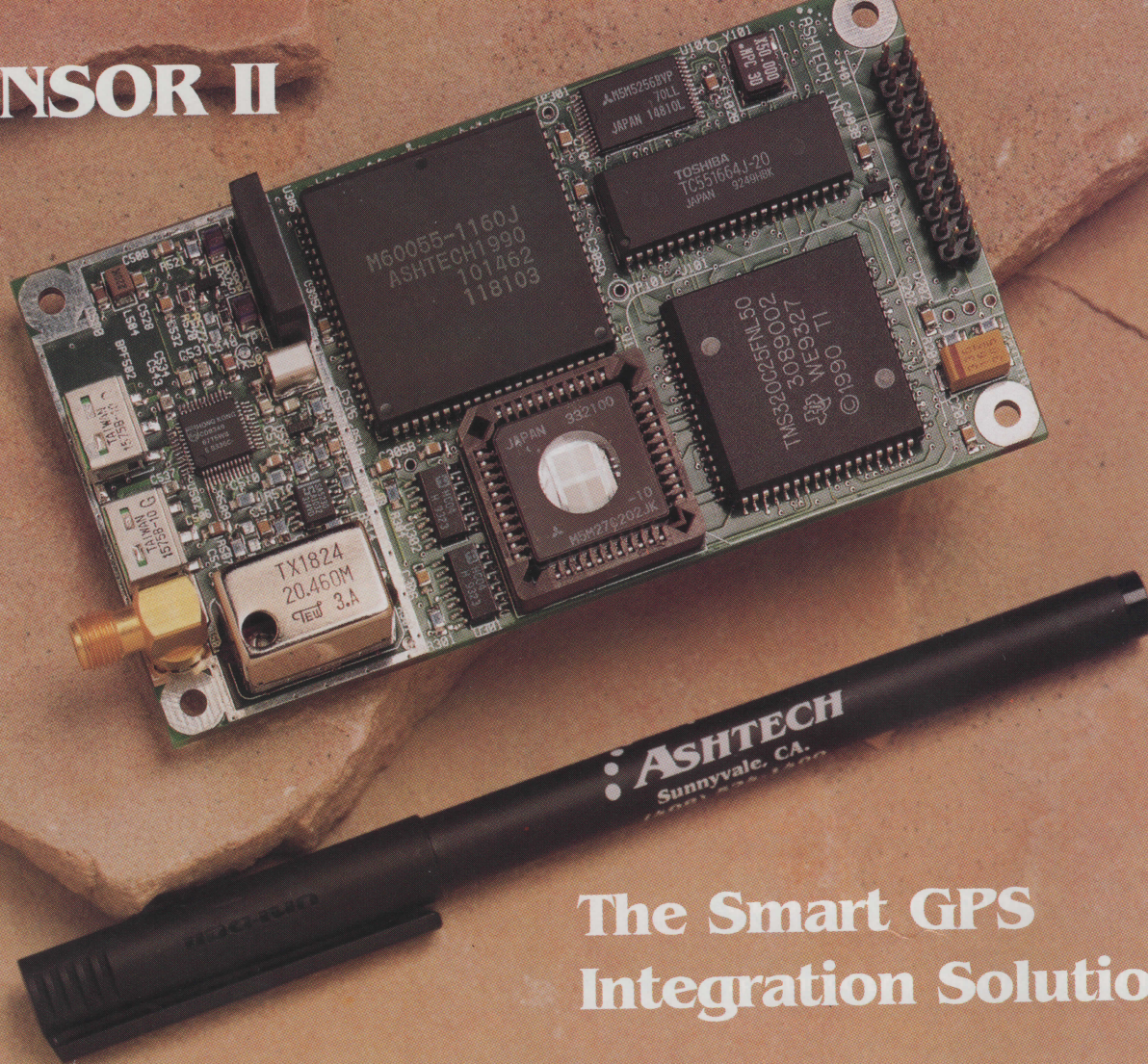
If you would like to experience this level of performance and productivity yourself, the Ashtech Z-12 is available through our rental program. Call 800-229-2400 for details.



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Circle 30

SENSOR II



The Smart GPS Integration Solution

The Ashtech Sensor II has been specifically designed to meet the needs of high-end systems integrators. Up to twelve satellites are tracked in high dynamic airborne operations with a "loss of lock" reacquisition time of less than two (2) seconds. The single board format is ideal for a variety of OEM marine, airborne or land navigation applications. The Sensor II provides three-dimensional position accuracy of 1-3 meters rms (PDOP ≤ 4) using the Real-Time Differential mode. Independent measurements are determined at once per second. Accurate time tags are provided with just one satellite and no knowledge of position. The Sensor II Receiver Module weighs just two (2) ounces measuring 4.25" x 2.25" x .44" and operates with a DC input of 5 volts with a connection for battery backup of "Keep Alive" memory.

The Sensor II offers the most complete package of standard features including:

- 12 Channel carrier-smoothed C/A code with "All-In-View" operation
- Real-Time Differential - receives RTCM 104 format Type 1, 2, 3, 6, 9, 16
- 1 PPS time pulse
- Raw GPS data outputs (pseudo ranges, integrated Doppler, ephemeris)
- 1 Second update rate
- NMEA 0183 outputs of position, velocity, time, command and satellite information
- Two RS-232 I/O Ports (38,400 Baud) with flow control
- 2 Second reacquisition time after temporary loss of lock

The Ashtech Sensor II GPS Receiver module provides real-time position, speed over ground, course over ground and time measurements using twelve channels of C/A code on the L1 band. Using the carrier phase, the Sensor II smooths all raw ranges for position computation and updates all data every second. The Sensor II is feature-rich, concise and priced to meet the most challenging integration requirements. Call Ashtech Navigation Sales at (800) 229-2400 for more information.



Circle 50

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