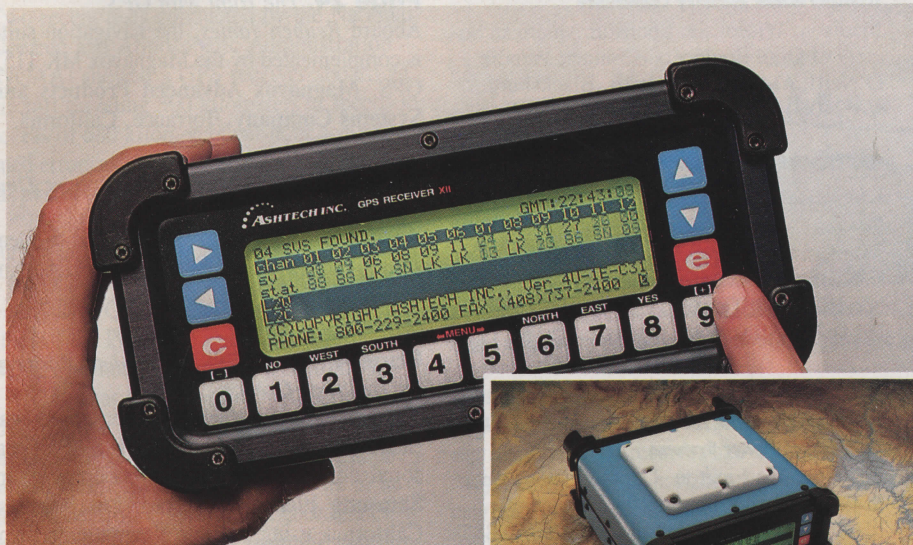


The GPS technology leader



Three years ago, Ashtech began with one simple idea; to make the world's best GPS receiver. In 1988, after completing all FGCC test procedures, the Ashtech XII was delivered... the first GPS receiver to offer "all-in-view" operation with 12 independent channels, automatic tracking and modular performance options.



*Today's most versatile,
most practical
GPS receiver*

The Ashtech M-XII, the heart of the most efficient, most accurate GPS survey system features automatic operation from field to finish!



Built to withstand the rigors of harsh field environments, two 12-channel M-XII receivers are small enough to fit into a standard briefcase.

With the tripod-mount option, the M-XII becomes the world's smallest integrated GPS receiver; antenna, receiver with data logging memory are included in the unit which measures only 8 x 8.5 x 4.5 inches. Dual isolated inputs are also provided for external power.

*The world's
most sophisticated
GPS technology*

Advanced Ashtech GPS technology presents a full range of GPS solutions ... from point positioning/data-logging for mapping and GIS data update to precision geodetic surveys, photogrammetry applications and dual-frequency operation.

*Ashtech XII is your
best GPS investment*

Any Ashtech receiver may be ordered for a specific use and later upgraded to more advanced applications. This Ashtech concept of AFFORDABLE UPGRADABILITY means that your investment in GPS is always fully protected.

For example, if your immediate need is precise positioning for GIS, you can start with the low cost M-XII "Ranger" configuration for under \$15,000. Accurate time-tagged 3-dimensional positions can be recorded as fast as 4 points per second to update maps and provide accurate GIS referencing.

With the Ranger, a single operator can plot up to 100,000 positions on land or water at speeds up to 1000 knots for later map readout and analysis; no external logger is required.



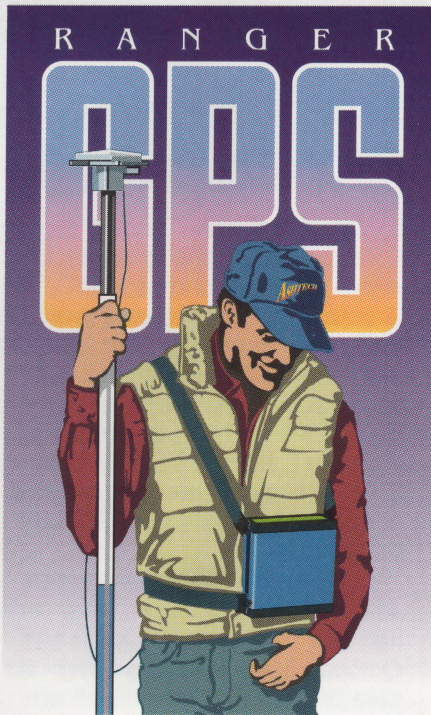
Leader is only 3 years old.

The plot of recorded data can be interfaced with several GIS programs; even displayed in conjunction with US Census Bureau "TIGER" files for viewing with accurate relationship to highways, roads and other local landmarks.

When teamed with a companion Ashtech XII GPS base station receiver via radio, cellular phone or other communications link, the Ranger can achieve meter-level accuracy using either real-time differential or post-processed differential GPS positioning options.

**Ashtech technology
is engineered
for unmatched accuracy**

As your needs grow, the same Ashtech XII GPS receiver can be upgraded to conduct precision static, kinematic and pseudo-kinematic surveys, photogrammetry, and other enhanced Ashtech XII options.



Optional dual frequency (L1 + L2) operation offers increased accuracy over long lines as it can remove the effects of ionosphere delay and improve survey results to about 1ppm, irrespective of solar conditions.

With the photogrammetry "camera input" option, accurate time and GPS position data can be recorded automatically. Post-processing determines the camera position in serial photogrammetry, eliminating the need for separate ground control points.

New dimensions to GPS survey planning and post-processing software

Included with any system, Ashtech GPPS-2 software expands both post-processing and analysis capabilities for all GPS surveys. The exclusive "All-In-One" menu design provides automated interface and simplified graphics at a single command; you need only identify the type of survey performed... static, kinematic or pseudo-kinematic.

Menu-managed GPPS-2 walks the seasoned or novice operator through all steps of mission planning, data transfer, processing network adjustment and report generation with easy-to-use mouse-driven graphics.

Reflecting the worldwide interest in GPS and the Ashtech presence in both survey and navigation applications, the company has moved to expanded headquarters in California's Silicon Valley.



Ashtech is committed to GPS and continues to add new levels of accuracy, portability and operational simplicity to the art and science of the geodetic survey.

ASHTECH

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(408) 737-2400 1 (800) 229-2400

Circle 25



GPS SURVEY NEWS

GPS TRAINING SEMINARS

2-Day Basic Program

DAY 1

- Introduction to GPS
- What do we measure?
- How do we measure it?
- Navigation
- Differential Positioning
- Surveying
- What is bias ambiguity?

- Planning a GPS Survey
- Mission planning positioning
- Survey setup procedures
- Static Survey
- Pseudo-Kinematic
- Kinematic Survey
- Which method to use?

- Relating GPS to Survey Needs
- NGS control
- NAD27 vs NAD83
- Ellipsoid height & elevations

- GPS Receiver Operation
- Setup and start
- Screen displays & menus
- Recording data
- File management

- Introduction to Processing
- All-In-One post-processing
- Static
- Pseudo-kinetic
- Kinematic

DAY 2

- Network adjustments
- Field Observations
- Pseudo-kinematic
- Data Processing
- and Review

- Analyzing the Network
- Adjustments*
- Eliminating blunders
- Isolating antenna height problems
- Bias groups and bias constraints
- Constrained vs fixed control
- "Worst first" tuning
- Deweighting

2-Day Advanced Training

DAY 1

- Processing
- Kinematic & pseudo-kinematic
- Survey accuracy verification
- Bias ambiguities
- Ionospheric disturbances
- Orbit data
- Observation time
- Weather data & troposphere

DAY 2

* Adjustments will be analyzed using Fillnet with contrasts and comparisons made with other adjustment packages.

**This schedule is subject to change. Please call (408) 737-2400 to confirm reservations prior to making travel arrangements.

GPS Training Seminars Set for Summer/Fall at Ashtech

SUNNYVALE, CA- The two-day GPS training seminar program in static, kinematic and pseudo-kinematic field survey operations, as well as post-processing procedures and network adjustment has been scheduled for Summer and Fall at the new Ashtech headquarters facility in California's Silicon Valley. Each seminar is open to surveyors and others interested in GPS without tuition.

In addition to the basic program, an advanced two-day seminar series has been set for July, August and October, 1990, covering advanced data processing and network adjustment and analysis.

The new Ashtech Training Center can accommodate up to 50 students; reservations are required-- Ashtech Training (408) 737-2400.

GPS TRAINING SEMINARS**

1990 Summer/Fall Training Schedule

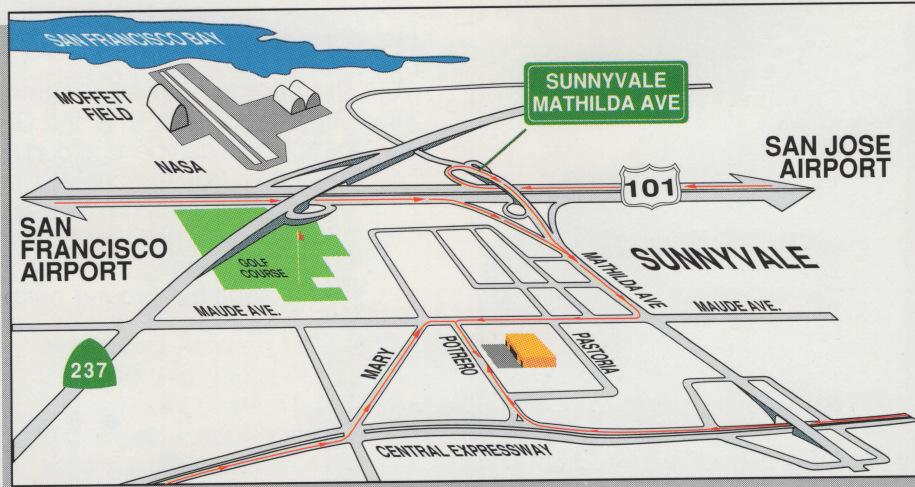
BASIC GPS TRAINING

June	14-15
July	19-20
August	16-17
September	6-7
October	11-12
November	15-16

ADVANCED GPS TRAINING

July	12-13
August	23-24
October	4-5

The new Ashtech building is convenient to San Jose International Airport (SJC) and only 30 minutes South from San Francisco International (SFO). From either airport, take Highway 101 to Sunnyvale's Mathilda Avenue, right on Maude, then left to 390 Potrero Avenue.



Dedicated to the Art and Science of the Geodetic Survey



390 Potrero Avenue, Sunnyvale, California 94086

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