Z-Surveyor™

Integrated, Dual-Frequency, Compact GPS Receiver for High-Accuracy Post-Processed and RTK Surveying

- SUB-CENTIMETER ACCURACY
- COMPACT, LIGHTWEIGHT DESIGN
- INTEGRATED & FLEXIBLE SYSTEM CONFIGURATION

The Z-Surveyor is a smaller, lighter 12-channel, dual-frequency GPS receiver which combines our field-proven Z-tracking™ technology with a built-in battery, removable PC memory card and an internal radio data link for real-time centimeter-accurate surveying.

The Z-Surveyor can be configured for a variety of survey applications, including topographic mapping, geodetic control, detail, stake-out or photogrammetry. With this proven technology, a one-person crew can survey many more points per day than is possible using traditional survey instruments, even over long baselines.

SURVEYING WITH THE Z-SURVEYOR

The Z-Surveyor is capable GPS surveying techniques including post-processed static, rapid static, and kinematic or real-time kinematic (RTK). You can apply these techniques using a handheld survey controller, or, for post-processed applications, simply use the built-in two-button user interface and LED display. Ashtech offers the user a choice of controller software including Ashtech application packages such as GPS Field Mate™, Seismark II™, Mine Surveyor II™. Third party software is also available, including TDS's Survey Pro with GPS, Strata's PenMap or Carlson's SurvStar. Additionally, we offer a choice of data collectors including the the Husky™ F/S3, MP2500, and a variety of pen computers.

For real-time carrier phase differential surveying (RTK), the standard Z-Surveyor can be used as a base station or as a rover. It's fast, reliable and using our proven Z-Tracking technology, it provides reliable performance and high productivity.

The Z-Surveyor provides precise centimeter positions in real-time. It's dual-frequency functionality ensures consistently accurate baseline measurements. The Z-Surveyor offers improved satellite tracking under adverse visibility conditions such as tree canopy, urban canyons or between buildings. Centimeter-accurate measurements over baselines of one mile can typically be made with two-minute observations. This results in increased productivity since shorter observation times allow the user to complete more in less time.

INTEGRATION AND FLEXIBILITY

The Z-Surveyor is easy-to-use. With all the components in one compact package, the user doesn't need to worry about cumbersome connections or component compatibility. The system offers reduced power consumption and offers the flexibility to use either internal or external batteries if necessary.

The Z-Surveyor offers versatile memory options by using an industry-standard PC-Card (PCM-CIA) for removable data storage. The standard 20-Mb card is more than sufficient for most tasks; however, the memory can be expanded up to 85 Mb. This approach makes data transfer simple. Just remove the PC Card and plug it into a computer. Or, the Z-Surveyor can be connected directly to a computer using one of the four RS232 serial ports.

The Z-Surveyor is the first GPS surveying receiver to offer an optional internal radio. Used as a data link for real-time centimeter processing, the integration of the radio with the GPS receiver makes the real-time link much easier to use. The integration of the GPS receiver and radio link is more convenient because you have less equipment to carry and more reliability. The receiver is also compatible with external spread spectrum and UHF radios.

SUPPORT FOR YOUR APPLICATION

Ashtech offers a wide range of software options for many survey applications. We also offer a broad selection of accessories that makes using the Z-Surveyor simple and efficient. International use has been made easier with our new onboard user-selectable display can be set for use in English, French, German, Italian and Spanish languages.

SUPERSTATION CONFIGURATIONS

The Z-Surveyor SuperStation is a field-to-finish turnkey GPS surveying system. The SuperStation combines the Z-Surveyor with powerful data collector and PC software capable of supporting real-time kinematic and post-processed data collection. Ashtech combines the power of industry standard software and hardware components and tailors the SuperStation to meet the needs of specific applications. This integrated system provides the surveyor with the increased flexibility and the productivity not available anywhere but Ashtech.

Certified ISO 9001 Since 1996

An *Orbital* Company

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PRECISION PRODUCTS

Z-Surveyor Specifications

ASHTECH TECHNOLOGY

- 12 Channel *All-In-View* operation
- Full wavelength carrier on L1 and L2
- Z-Tracking
- Multipath Mitigation
- Dual-frequency smoothing for improved code differential

STANDARD FEATURES

- Real-time kinematic (base and rover modes) for cm-accuracy
- Removable PCMCIA memory card (20 mb standard)
- Internal removable battery
- 8-character LED display
- Audible alarm for low power and battery power level display
- Selectable update rate from 1 to 10 Hz
- RTCM 2.2 input/output (Code: types 1, 2, 9, 16 as well as Carrier: types 3, 18, 19, 20, 21, 22)
- NMEA 0183 output
- Event marker
- Point positioning
- 1 PPS timing signal
- Remote monitoring
- Session programming
- Wide array of coordinates transformations
- External power input
- 4 RS-232 ports (115,200 baud max)
- 1-year warranty
- Free technical support

STANDARD ACCESSORIES

- Communications software
- Internal battery
- International dual battery charger
- RS-232 data cable (Z-format)
- Receiver operating manual
- Quick Reference Field card
- Shoulder carrying strap
- Soft carrying case

COMMUNICATION

The Receiver Communication Software enables you to quickly and easily configure the Z-Surveyor for a variety of applications in the office before your field work. The software runs on Microsoft Windows 95 and Windows NT.

TECHNICAL SPECIFICATIONS

Typical Survey Performance[1]

Static, Rapid Static (2 drms)	5 mm + 1 ppm
Post-processed kinematic (2 drms)	1 cm + 1 ppm
Real-time Differential Position (2 drms)	<1 m

Real-time Z Kinematic Position

While moving (rms)	
	Horizontal 3 cm + 2 ppm
	Vertical 5 cm + 2 ppm

Static (rms)	
	Horizontal 1 cm + 2 ppm
	Vertical 1.7 cm + 2 ppm

Static occupation Time	2 seconds (typical)

Sub-centimeter accuracy with longer occupation time.

Azimuth (arc sec)	0.15 + 1.5/baseline length in km

*RTK on-the-fly initialization: Greater than **99.9%** reliability. Initialization times as short as 30 seconds following the acquisition of 8 or more satellites.*

Recommended baseline for RTK : ≤10 km.
Maximum baseline for RTK : 40 km.

Environmental

Water resistance	Meets MIL-STD 810E for wind driven rain and dust

Temperature Ranges

Z-Surveyor Receiver*

Operating	−30˚ to +55℃
Storage	−40˚ to +85℃

Antenna

Operating	−40˚ to +65℃
Storage	−55˚ to +75℃

*   With external battery

Physical

Weight

Receiver	3.75 lbs
Antenna	3.75 lbs

Dimensions	3" H x 7.3" W x 8.25" D

[1]   *Accuracies assume minimum of 5 satellites, following the procedures recommended in the product manual.*

High-multipath areas, high PDOP values, and periods of high-activity atmospheric conditions will degrade accuracy. Post processing with Ashtech Solutions™ or Ashtech Office Software.

INTERNAL BATTERY

Temperature Range	-20˚ to +50℃
Output voltage	12 V
Capacity	3500 mA (typical)

PC CARD

Type	ATA Type II PCMCIA Memory Card
Temperature Range	-40˚ to +85℃
Typical number of epochs	4500 per 2 Mb*

*   *Based on one session, 8 satellites' data, 20 second recording interval and full measurements. This number can vary significantly depending on the conditions of the session.*

OPTIONAL FEATURES

- Internal UHF radio for RTK surveying
- External frequency standard input 5, 10, or 20 MHz

OPTIONAL ACCESSORIES

- 3, 10, 30-meter antenna cable expandable to 150 meters w/line amps
- External battery
- Ashtech Solutions™ Software Package
- Ashtech Office Suite for Survey™
- Geodetic antenna kit
- Kinematic antenna kit
- Aircraft antenna kit
- AC power cable
- UHF radio kit
- External spread spectrum radio kit
- Choke Ring Antenna
- Backpack Kit
- Survey Tribrach and adapter
- Kinematic bipod and pole

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Dealer Contact Info