Ashtech GG24 Sensor

GPS+GLONASS™ All-in-View Positioning
Single Receiver Solution

GPS & GLONASS Seamless Integration

With the addition of GLONASS to its leading GPS technology, Ashtech® has expanded the availability,integrity and accuracy of global positioning tools. GLONASS, the Russian equivalent of GPS, adds another satellite constellation for precision positioning using the Ashtech GG24™ receiver.

The GG24 is the first all-in-view GPS+GLONASS receiver. Its revolutionary design allows smooth integration into a wide range of positioning applications on land, sea or in the air.

Incorporating the GG24 is simple because Ashtech uses advanced methods to blend GPS and GLONASS into a single position solution. The sophisticated combination of the technologies is transparent to the user. The GG24 uses all available satellites from both systems to obtain the best position information.

Increased Availability

One of the primary advantages of GPS+GLONASS is the increased satellite coverage. With 48 satellites from the combined constellations, there are twice as many satellites available for position computation. Thus, GPS+GLONASS is extremely beneficial in obstructed operating environments, such as in cities around buildings, mountainous areas, under tree cover, or other areas where much of the sky and many of the satellites can be blocked.

To take advantage of the increased satellite availability, the GG24 has 12 channels for L1 GPS and 12 channels for L1 GLONASS, providing all-in-view tracking for both constellations.

Improved Integrity

By using GPS+GLONASS, users benefit from the integrity of two independently operated satellite positioning systems. With more satellites available, the constellation geometry is significantly improved, providing users with added confidence in the accuracy of the positioning solutions.

Windows Evaluation Software

Ashtech Evaluate™ software is available with the GG24 Sensor and provides visual displays of satellite information (e.g., SNR), receiver position and velocity, as well as data logging and analysis. It also allows direct communication with the receiver. Compatible with all Ashtech receivers, the software runs on Window® version 3.x Windows 95®/98® and Windows NT® platforms.

Take It For a Test-Drive

The GG24 Sensor Development Kit, which includes the GG24 Sensor and all necessary components, enables you to perform a comprehensive test-drive. It contains a GG24 Sensor, the Evaluate software, power supply, ready-made interface cables, antenna, and manuals.

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Ashtech GG24 Sensor Specifications

Real-Time Position Accuracy[1]

Autonomous[2]
3.2 m (CEP)

Differential
35.0 cm (CEP)

Velocity Accuracy[1] (knots)

0.1 (95%)

GG24 Standard Features

- 12 channels L1 GPS code & carrier
- 12 channels L1 GLONASS code & carrier
- Raw data output (code and carrier)
- Strobe Correlator multipath mitigation
- 30-second warm start (typical)
- 40-second cold start (typical)
- 2 second re-acquisition time (dynamic independent)
- Geoid and Magnetic Variation models
- Standard NMEA-0183 V2.01 output
- 1PPS timing signal (5V TTL)
  Precision: 45 ns (differential)
  340 ns (stand-alone)
- User-selectable standard datums
- User-definable datum

GG24 Remote Features

GG24 Standard Features and:

- Differential Remote RTCM V2.2 Message Types 1,2,3,6,9,16, and 31,32,34,37 (from future V2.2)
- Position and raw data update rates user-selectable up to 5Hz
- 10Gs tracking capability
- Event Marker

GG24 Base Station Features

GG24 Standard Features and:

- Differential GPS Reference Station RTCM V2.1 Message Types 1,2,3,6,9,16, and 31,32,34,37 (from future V2.2)
- Position and raw data update rates user-selectable up to 2Hz

Optional Features

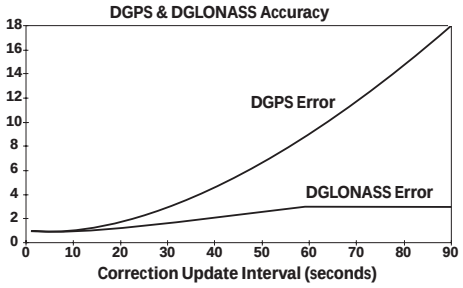
- External reference frequency input
- Software toolkit

Communications

- 3 bi-directional RS232 serial ports, up to 115,000 bps

Antenna

Each GG24 receiver uses one antenna to receive both GPS and GLONASS signals. The antenna connects through a single antenna port on the GG24 receiver.



Physical & Environmental

- Operating Temp: -30° to +55°C
- Storage Temp: -40° to +85°C
- Power Consumption: 3.2W (receiver)
  0.3W (typ. antenna)
- Input Voltage: 6-15VDC
- Weight: 3.4 lbs
- Dimensions: 172mm W X 58mm H X 225mm D
- Water Resistance
  Wind-driven rain: MILSPEC 810E
  Wind-driven dust: MILSPEC 810E
- Speed (Max): 1,000 knots*
- Altitude (Max): 60,000 ft*
- FCC: Class A
- CE Mark

[1] Accuracy and TTFF specs. based on tests conducted in California. Differential tests performed using Ashtech Z-Sensor™ base station with Geodetic antenna and GG24 Sensor remote with Geodetic antenna (Marine IV antenna for TTFF). Antenna benchmark locations determined using CORS sites Point Blunt (PBL1) and Pigeon Point (PPT1). Tests at different locations under different conditions may produce different results.

Position accuracy specifications are for horizontal positioning. Vertical error is typically <2 times horizontal error.

[2] Real-time position accuracies obtained with SA off. With SA on, accuracy of autonomous positioning may degrade up to 100 meters (95%) as specified by the U.S. Department of Defense.

[3] When 20 hz positions are generated the maximum number of satellites used is 8, the receiver still tracks up to 12 satellites and raw data is still available for up to 12 satellites. When positions are generated at 10 hz, or lower, the receiver tracks and uses up to 12 satellites.

**Higher altitude and velocities up to 9 km/s are available under validated export license.*

Specifications are subject to change without notice.

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