

GG24-E2™ GPS Board



Features

- GPS or GLONASS or GPS+GLONASS™ configurations
- High performance and reliability

GPS+GLONASS All-in-view Positioning Single Receiver Solution

GPS & GLONASS Seamless Integration

With the addition of GLONASS to its leading GPS technology, Magellan has expanded the availability, integrity and accuracy of global positioning tools. The GG24-E2™ GPS board adds another satellite constellation, GLONASS (the Russian equivalent to GPS), to the solution for precise positioning. The GG24-E2 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-E2 is simple because of our advanced patented methods to blend GPS and GLONASS into a single navigation position solution or RTK position solution. The sophisticated combination of the technologies is transparent to the user. The GG24-E2 is capable of tracking negative frequency GLONASS channels and uses all available satellites from both systems to obtain the best position information. The GG24-E2 GPS and GLONASS RF sections are independent, so any interference on the GLONASS frequencies will not affect GPS, and vice-versa.

Increased Availability

One of the primary advantages of GPS+GLONASS is the increased number of satellites from the combined constellations 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-E2 from Magellan 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

Evaluate™ software is available with the GG24-E2 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 most of our receivers, the software runs on Windows® version 3.x, Windows 95/98, NT, 2000, and XP platforms.

GG24-E2 GPS Board Technical Specifications

Real-Time Position Accuracy¹

Autonomous²

CEP: 3.2 m (10.50 ft)

Differential

CEP: 40.0 cm (15.75 in)

Velocity Accuracy¹ (knots)

0.1 (95%)

GG24-E2 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)
70 ns (stand-alone)
- User-selectable standard datums
- User-definable datum
- Speed (Max): 514 m/sec (1,000 knots)
- Altitude (Max): 18287 m (60,000 ft)
- RTK (add-on option)

GG24-E2 Standard Features

- Differential Remote RTCM V2.2 Message Types 1,2,3,6,9,16, and 31,32,34,37 (from future V2.2)
- User selectable position and raw data update rate up to 5Hz
- 10Gs tracking capability
- Event Marker
- Programmable Measurement Strobe
- Differential GPS Reference Station RTCM V2.1 Message Types 1,2,3,6,9,16, and 31,32,34,37 (from future V2.2)

Communications

- 2 bi-directional RS232 serial ports

Antenna

Each GG24-E2 receiver uses one antenna to receive both GPS and GLONASS signals. The antenna connects through a single antenna port on the GG24-E2 receiver.

Physical & Environmental

GG24-E2 Eurocard

- Operating Temp: -30°C to +70°C
(-22°F to 158°F)
- Storage Temp: -40°C to +85°C
(-40°F to 185°F)
- Power Consumption: 2.3W (receiver)
0.3W (typ. antenna)
- Input Voltage: 5VDC ±5%
100mV p-p ripple
- Weight: 500 gr (8 oz)
- Dimensions: 10 cm x 16.7 cm
(3.94 in x 6.58 in)

¹ Accuracy and TTFF specs. based on tests conducted in California. Differential tests performed using Z-Sensor™ base station with Geodetic antenna and GG24-E2 GPS Board 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.

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