GPS Compass System

GGC-E101

**Description:**
The Watson GGC-E101 provides attitude and GPS-based heading reference data. Three rate gyros, three accelerometers along with a GPS receiver and up to 65 meters of cabling are all housed within a rugged, water-resistant, portable case. The GGC was designed with portability and a quick set-up in mind. The cabling is stowed in the cover and the GPS antennas easily fold together and drop into the base for storage. This sensor system is a good choice for applications that require accurate alignment to a particular heading. Additional data provided by the GGC include: roll, pitch, and yaw rate, X, Y, and Z accelerations. Levelled accelerometer outputs are also available along with attitude data.

The GGC is intended to be transportable, so durability is important. The sensors in the GGC can survive shocks of up to 500g, and vibrations up to 10g. The entire sensor package fits inside a housing the size of a suitcase. This design allows the GGC to be easily transported and quickly set up in a new location.

**Applications:**
The GGC-E101 is used in the energy industry for the orientation and positioning of oil rigs. This sensor system is also useful for the alignment of satellite antennas, alignment and leveling of industrial equipment, and any other application where a portable system with precise orientation is needed.

- Portable, Water-resistant Case
- GPS Heading Reference
- Latitude, Longitude, Altitude Output
- Low Cost
- Rugged, High Reliability
- Vibration Resistant
- RS-232 Serial Data Outputs
- Two Year Limited Warranty
- Engineering Support
GGC-E101 Specifications

**Attitude**
- Range: Bank ±180°
- Range: Elevation ±75°
- Resolution: 0.02°
- Accuracy: Static ±0.25°
- * Accuracy: Dynamic ±0.5%

**GPS Heading**
- Range: 0° - 360°
- Resolution: 0.02°
- Accuracy: Static ±0.3°
- * Accuracy: Dynamic or Relative ±0.5% ±0.05°/sec (without GPS)

**Angular Rate**
- Range: Roll, Pitch, Yaw ±100°/sec
- Resolution: 0.025°/sec
- Scale Factor Accuracy: 0.5%
- Bias: Roll, Pitch, Yaw < 0.1°/sec
- Non-Linearity: < 0.1%
- Bandwidth: 20 Hz
- Noise: < 0.03°/sec rms

**Acceleration**
- Range: X, Y, Z ±10g
- Range: Forward, Lateral, Vertical ±10g
- Resolution: 4mg
- Scale Factor Accuracy: 1%
- Bias: X, Y, Z < 10mg
- Non-Linearity: 0.1%
- Bandwidth: 3 Hz

**GPS Positioning**
- Range: Latitude ±90°
- Range: Longitude ±180°
- Range: Altitude 0ft to 21500ft
- Resolution: Latitude, Longitude 0.00001 minutes
- Resolution: Altitude 2 ft
- Accuracy: Latitude, Longitude ±0.6m (with DGPS) ±2.5m (without DGPS)

**Environmental**
- Temperature: Operating -30°C to +70°C
- Temperature: Storage -55°C to +85°C
- Vibration: Operating 5g rms 20 Hz to 2 KHz
- Vibration: Survival 10g rms 20 Hz to 2 KHz
- Shock: Survival 500g 10mS ½ sine wave

**Electrical**
- Frame Rate: 71.1 Hz Maximum
- Startup Time: Data 5 sec
- † Startup Time: Satellite Acquisition 5 min Typical
- ‡ Input Power: 18 to 35VDC 7.0W
- Input Current: 240mA @ 28VDC 280mA @ 24VDC
- Digital Output: RS-232

**Physical**
- Axis Alignment: < 0.1°
- Size: Antenna Stowed 24.3"W x 19.5"L x 8.7"H 61.7 x 49.5 x 22.1 (cm)
- Weight: 37lb 16.8Kg
- Connection: MS3112E12-10P Mating: MS3116F12-10S

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* Using velocity data with GPS mode on.
* Actual accuracy can be calculated as the listed percentage multiplied by the change in value over the entire dynamic maneuver.
† Acquisition time for GPS units is typical for the contiguous United States. Acquisition time may differ due to interference in your geographic area.
‡ Including losses using 65 meter cabling.
• Specifications are subject to change without notice.
• This product may be subject to export restrictions. Please consult the factory.
Dimensions:

FORWARD

Handle

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