



Intelligent Gyro Compass (iGC)

Solid State Motion Reference Unit and Heading Sensor

Features

- Combines three angular rate gyros with three orthogonal DC accelerometers and three orthogonal magnetometers
- More accurate than a flux gate compass
- State of the art display software
- User programmable output modes and filter parameters
- Simple serial interface, non volatile memory, inertially filtered system
- Minimal maintenance costs
- High shock rating

Applications

- Low cost inertially stabilised ROV/AUV heading sensor
- Low cost MRU - acoustic position smoothing, heave compensation and depth measurement smoothing
- Can replace Magnetically Slaved Gyro and Flux Gate Compasses
- Ideal for auto heading applications
- Compatible with the iVP/iPP range of intelligent valve and sensor control systems



iGC 4,000m subsea unit

The Tritech iGC (Intelligent Gyro Compass) combines three angular rate gyros with three orthogonal DC accelerometers and three orthogonal magnetometers. This makes the iGC an invaluable Heading Sensor and Motion Reference Unit (MRU) for numerous ROV and AUV applications.

The iGC provides essential movement data not available from widely used Magnetically Slaved Gyro and Flux Gate Compasses.

Designed into a compact 4,000m housing, the iGC incorporates a 9 sensor orientation processor, a proprietary interface and protocol converter.

Operating over the full 360 degrees of angular motion on three axes, the iGC provides orientation matrix and quaternion formats. These may be used directly, but are normally converted to an industry standard navigation output telegram. This can be configured by the user to match a number of common heading sensors.

Specifications



Custom iVP (Intelligent Valve Pack) display, showing iGC heading, pitch and roll.

Orientation range:	360° full scale (FS), all axes (Matrix, Quaternion modes)
Angular Velocity Range:	+/- 300°/second (max)
Sensor Resolution:	16 bits
Dynamic Compensation:	Closed loop digital control (0 - 50Hz)
Orientation Angle Resolution:	< 0.1°
Typical Accuracy:	Better than 1°
Temperature Drift:	+/- 0.025% °C
Nonlinearity:	0.23% full scale (tested in static conditions)
Repeatability:	0.2°
Output Modes:	Processed outputs: NMEA-0183, Proprietary iGC and all common industry standard formats Unprocessed outputs: Orientation matrix, Quaternion, Euler and raw sensor bit stream available on request.
Sensor Range:	Gyros: +/-300°/sec FS Accelerometers: +/- 5 Gs FS Magnetometers: +/- 1 Gauss FS
Digital Outputs:	Serial RS232, RS485 Optional analogue output and external synchro PCB
Output Data Rate:	Selectable up to 20Hz
Serial Data Rate:	All standard baud rates through 1,200kbaud - 115.2kbaud RS232/485
Power Requirements:	24VDC @ 100mA typical
Operating Temperature:	-40°C to 70°C
Weight in Air:	0.95 kg
Weight in Water:	0.45 kg
Diameter	93 mm
Height	128.5 mm
Depth Rating:	4,000m

All specifications are subject to change in line with Tritech's policy of continual product development.

Ref: EDS-GYR-002.8