

Intelligent Gyro Compass

Solid State Motion Reference and Heading Sensor

An invaluable heading and motion sensor for ROV and AUV navigation applications

The Trittech Intelligent Gyro Compass (iGC) 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 navigation applications. The iGC can operate as a stand-alone device or be further enhanced by using alongside the Trittech Intelligent Fibre-Optic Gyro (iFG).



The Intelligent Gyro Compass (iGC) provides essential movement data not available from widely used magnetically slaved gyro and flux gate compasses.

Designed in a compact 4000m depth rated housing the iGC incorporates a 9 sensor orientation processor, a proprietary interface and protocol converter.

Operating over the full 360° 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.

Benefits

- High shock rating
- Minimal maintenance costs
- User programmable output
- More accurate than flux gate compasses
- State of the art display software

Features

- Serial interface
- Non volatile memory
- Inertially filtered
- Three angular rate gyros
- Three orthogonal DC accelerometers
- Three orthogonal magnetometers

Applications

- Inertially stable ROV/AUV heading sensor
- Motion Reference Unit (MRU)
- Auto heading applications
- Replacement for magnetically slaved gyro
- Replacement for flux gate compasses

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Specification

Heading Properties	
Orientation range	360° full scale, all axes
Angular velocity range	±300° per second
Sensor resolution	16 bits
Dynamic compensation	Close loop digital control (0 – 50Hz)
Orientation resolution	<0.1°
Accuracy	Better than 1°
Temperature drift	±0.025% per °C
Linearity	0.23% full scale (tested in static conditions)
Repeatability	0.2°
Range	Gyros: ±300° per second Accelerometers: ±5g Magnetometers: ±250µT

Electrical and Communication	
Processed output	NMEA 0183 Proprietary iGC ROV specific hardware interface via separate interface card
Digital outputs	RS232 or RS485
Analogue output	Optional analogue output and external synchronisation PCB
Output data rate	Up to 20Hz
Serial data rate	All standard rates from 1200Bd to 115.2kBd
Power requirement	24V DC at 100mA

Physical		
	4000m unit	6000m uni
Weight in air	0.95kg	1.5kg
Weight in water	0.45kg	0.8kg
Length	121mm	128mm
Diameter	79mm	93mm
Depth rating	4000m	6000m
Operating temperature	-40 to 70°C	

Specifications subject to change according to a policy of continual development.

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