

# Intelligent Fibre-Optic Gyro

## Solid State Heading Stabilisation for Compass Systems



### Applications

- Replacement of mechanical gyro systems
- Areas of fluctuating magnetic fields
- Improving autopilot stability
- Integration into Trittech ARCNET

The Trittech Intelligent Fibre-Optic Gyro (iFG) uses a single axis fibre-optic gyro sensor, mounted inside an extruded aluminium housing and can typically reduce heading drift errors more effectively than most magnetically referenced aircraft gyros.

### Benefits

- Solid state robust and reliable design
- Low drift rate
- Excellent stability and linearity
- Excellent resolution and repeatability

### Features

- User programmable output modes
- Multiple interface options
- Minimal maintenance costs
- Very compact

An on-board processor manages the gyro sensor interface, mode selection, power supplies and water ingress sensing (for use if the iFG is mounted inside its own pod).

The iFG provides internal compensation for pitch and roll angles using data from the iGC attitude sensors. The iFG receives magnetic heading, pitch and roll data from the iGC. Using proprietary slaving algorithms it then provides an output of stabilised heading with low drift rate optimised for pitch and roll angles up to 10°. Output data is transmitted to the three serial ports provided.

Additional (external) interface cards are available when an iGC/iFG is fitted to an existing ROV to replace a mechanical gyro compass. This provides specific communication protocol compatibility and analogue (autopilot) functionality. Currently available with Scorpio, Diablo/Demon and Pioneer interface cards.

Key Specification	
Orientation Range	360° single axis (yaw)
Angular velocity range	±375° per second
Typical heading accuracy	Better than 1° based on iGC magnetic heading
Dimensions	110mm x 90mm x 45mm /4.34in x 3.60in x 1.80in (excluding connectors)
Weight	0.50kg / 1.11lbs

Heading Properties	
Orientation range	360° single axis (yaw)
Angular velocity range	±375° per second
Orientation angle resolution	0.01°
Typical output resolution	0.1°
Typical heading accuracy	Better than 1° based on iGC magnetic heading
Pitch/roll compensation	±20° pitch & roll (<0.5% error per turn)
Drift rate	<5°
Typical bandwidth	20 - 50Hz
Initialisation time	5 seconds
Magnetic slave rate	20° per hour for >90° difference between magnetic heading and gyro
Automatic slave time	3 seconds from acquiring good iGC data

Electrical and Communication	
Output modes	NMEA 0183 Proprietary iFG All standard gyro formats ROV specific hardware interface via separate interface card
Input heading sensor	iGC North-seeking gyro Asynchronous heading sensor
Output interface	RS232 or RS485 - 2 x DE-9 male connectors
Output interface	10 - 30V DC, 5W maximum

Physical specification	
Dimensions	110mm x 90mm x 45mm /4.34in x 3.60in x 1.80in (excluding connectors)
Weight	0.50kg / 1.11lbs
Shock (functional)	Functional sawtooth 40g, 6 - 10ms
Random vibration	20 to 2000Hz, 8g RMS (operational)

Specification subject to change in line with Trittech's policy of continual product development