

# GYROSCOPE SURVEY SERVICES

## Gyroscope Applications

Gyroscope Survey Services division provides underground wellbore survey to the Oil and Gas industry. The division's enabling tool; the Inertial Navigation System (INS), is the latest and the most rugged gyroscope to be built to date, made its fashionable debut in Asia in 2008 by Orogenic Resources Sdn Bhd.

Revolutionized the field of data capturing in the drilling activities, the latest INS gyro measures movement instead of depth, inclination and azimuth; which was customarily employed by its traditional nemesis. With this exclusive measurement operates over a distance at a tick of time, the gyro is able to reach for accuracy as close to reality, thus, eliminates 'Minimum Curvatures' inherits in mathematical discrepancies.

Its specially designed rugged housing is acclimatized to withstand pounding pressure, freezing temperature and scorching heat, in what realm life seems implausible in the underground. Its seafaring life belongs to the oil rig and platform and it has survived numerous projects during the test of time.

### Operation Modes

**Singleshot Survey** - Gyro is put to a stop at a designated depth to perform surveying activities.

**Multishot Survey** - Gyro continuously takes survey data while advancing either from vertical diving position or horizontal scudding across position, from all angles and in all directions.

**Orientation Survey** - Gyro is put to a stop at survey station to undergo gyrocompass alignment.

### Instrument Performance

Inclination : +/-0.1  
Azimuth Survey Mode : +/-0.5  
Gyro Toolface : +/-0.5  
Highside Toolface : +/-0.1  
Positional Uncertainty : <5 ft / 1000 ft

### Operating Features

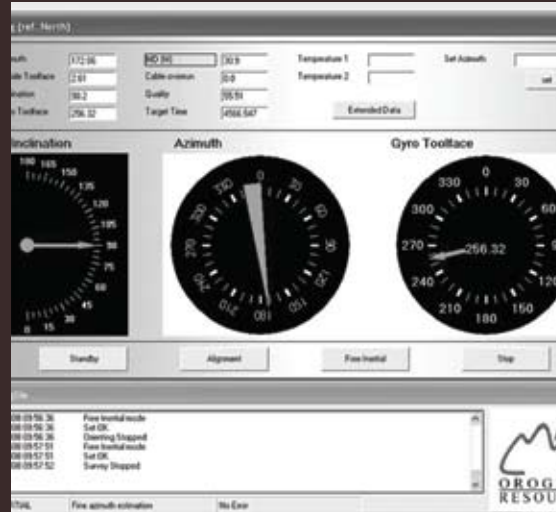
Pressure Cased OD : 1.75" / 45mm  
Pressure case length : 36"  
Operating Modes : User defined based upon service requirements  
Pressure Rating : 15000 psi / 103 MPa  
Digital Interface : Serial RS 232 compatible  
Data Outputs : Raw sensor outputs

### Sensors

Dynamically tuned twin axis gyroscope  
Quartz flexure high accuracy accelerometers

### Environmental

Temperature : -20 to 125 deg C / -4 to 257 deg F  
Shock : 500g, 1/2 sine 5mS  
Vibration : 20g rms, 5-500Hz random



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