

**The Gyro-Guide GWD70™ is the first Earth Rate Gyroscopic sensor specifically designed and manufactured for the Oil and Gas Industry.**

This new proprietary and unique Earth Rate Gyroscope sensor combined with second generation data processing and firmware techniques provides a step change for operators by allowing the use of Gyro-While-Drilling technology up to 70 degrees of inclination, enhancing the functionality and capabilities of Gyrodata's GWD™ services including:

### Memory Multishot Survey on the Outrun

Through a new communication link, the system can now be instructed to run a memory multishot survey while tripping out of the hole – providing numerous benefits:

- » Definitive, high-accuracy survey from section TD to surface with each run verifies and qualifies both MWD and GWD performance during the drilling operation
- » Survey data is improved by applying MSC (Multi-Station Correction) calculations during the out-run operation
- » Immediate knowledge of accurate wellbore position increases safety and confidence in decision making
- » Additional services per run with no added rig-time can also eliminate the need for some separate gyro runs

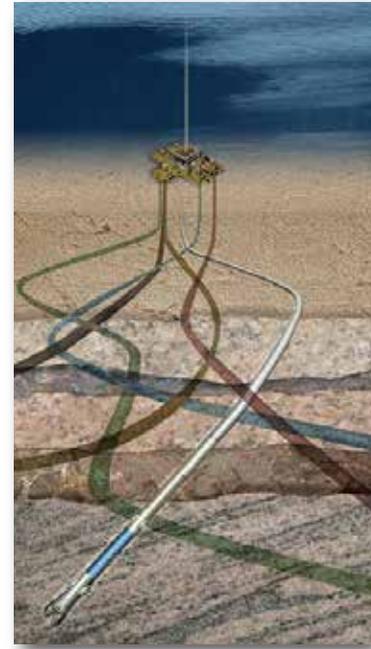
### Increase in Inclination Operating Range to 70 Degrees

The new proprietary Earth Rate Gyroscope Sensor developed by Gyrodata Inc combined with the CAP™ system (Continuous Adaptive Processing), increases the operating range of the Gyro-Guide to 70 degrees during the drilling operation

### Features:

- » Gyro-Guide GWD70™ is a fully integrated guidance system housed in the MWD tool string— providing high accuracy rate-gyro steering while drilling
- » Proven ruggedized rate-gyro and accelerometer sensor array with a proprietary shock isolation system
- » Provides continuous toolface data from vertical while drilling and full surveys when required
- » Communicates in real-time through the host MWD mud pulse or EM telemetry system
- » IMT Mode allows accurate survey operations in areas with excessive BHA movement, such as on floating structures and in riser-less applications

### GWD70™



### Benefits:

- » Gyro-Guide GWD70 saves considerable rig-time and provides a safer operation by eliminating the need to use wireline gyros to orient or steer drilling assemblies
- » Rate-gyro accuracy assures precise wellbore guidance for collision avoidance and accurate wellbore placement while drilling
- » Gyro-Guide GWD70 sensors can run closer to the bit in the MWD string since they are not affected by magnetic interference and require no spacing collars
- » Gyro-Guide GWD70 operates in conjunction with most MWD systems, providing operators with greater flexibility in the selection of suppliers
- » Gyro-Guide GWD70 performance, when combined with the MWD data, provides detection of gross errors
- » Fastest survey times in the industry

### Specifications

**Sensors:** Three axes of rate-gyro and accelerometer sensors.

» **System accuracy at maximum inclination:**

Azimuth	± 1.0°
Inclination	± 0.1°
Gyro Toolface	± 1.0°
Gravity / High-Side TF	± 0.1°

» **Maximum inclination:** 70°

» **Probe OD:** 1 7/8"

» **Pressure rating:** 20,000 psi

» **Temperature:** 150° C / 300° F with no time constraints.