



## **BGO-03 GYRO BOREHOLE ORIENTATION PROBE NORTH SEEKER**

### **DESCRIPTION**

The BGO-03 borehole orientation probe is a digital probe that is designed to conduct a normal inertial navigation survey and additional take stationary readings anywhere during a survey to establish an absolute azimuth and dip of that station. In this north-seeking mode the azimuth is referenced to geographic north, or the earth spin axis. The sensor is a rate gyro that measures the angular changes within a borehole to a resolution of one thousandths of a degree. The data is reported two times per second, for a continuous orientation survey.

The gyro sensor is a gimbal mounted rotating mass sensor measuring the rate changes of the probe relative to the spin axis of the gyro. The inclination of the probe is measured with a two-axis tilt meter. Internally the microprocessor calibrates and scales all measurements to engineering units before transmitting the data to the surface.

The BGO-03 borehole orientation probe interfaces to all IFG logging systems. A typical system consists of a wire line winch equipped with a four conductor logging cable. A digital data interface (BIN-04), an optional depth encoder and a laptop computer.

The interface console supplies the power to the probe and receives the data from the sensors. This data is converted to a standard ASCII format by the console. Additional information like the depth of the probe and other optional data can be appended to the data string. The ASCII data string is then transmitted via the RS-232 data interface to a laptop or pen computer for the display and recording of the data to a non-volatile recording media.

The data acquisition software is the part that is specially designed for the orientation survey. The survey is generally run in continuous mode at speeds of 10 to 15m per minute. The raw data is recorded for the post processing and plotting of the final survey results.



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SPECIFICATION	
Sensor Design	Gimbal mounted rotation mass
Rotation Speed	15,000 rpm
Sensitivity	0.001°/sec
Maximum Response	100°/sec
Dynamic Range	360°
Maximum Load	1000g
Vibration: Random (20-2000 Hz)	30g
Vibration: Shock	600g, 30msec
Tilt: Dynamic Range	+/-90°
Tilt: Sensitivity	0.01°
Sample Period	2 samples per second
Probe Housing	Stainless Steel
Maximum Depth	2000m
Temperature	Storage: -35 to +70°C Operating: 0 to +70°C
Output	10mA current loop, 4800 baud
Supply Voltage	48 Vdc @ 0.2A (at probe header)
Probe Dimensions	48mm diameter x 176cm long
Probe Weight	5.4 kg