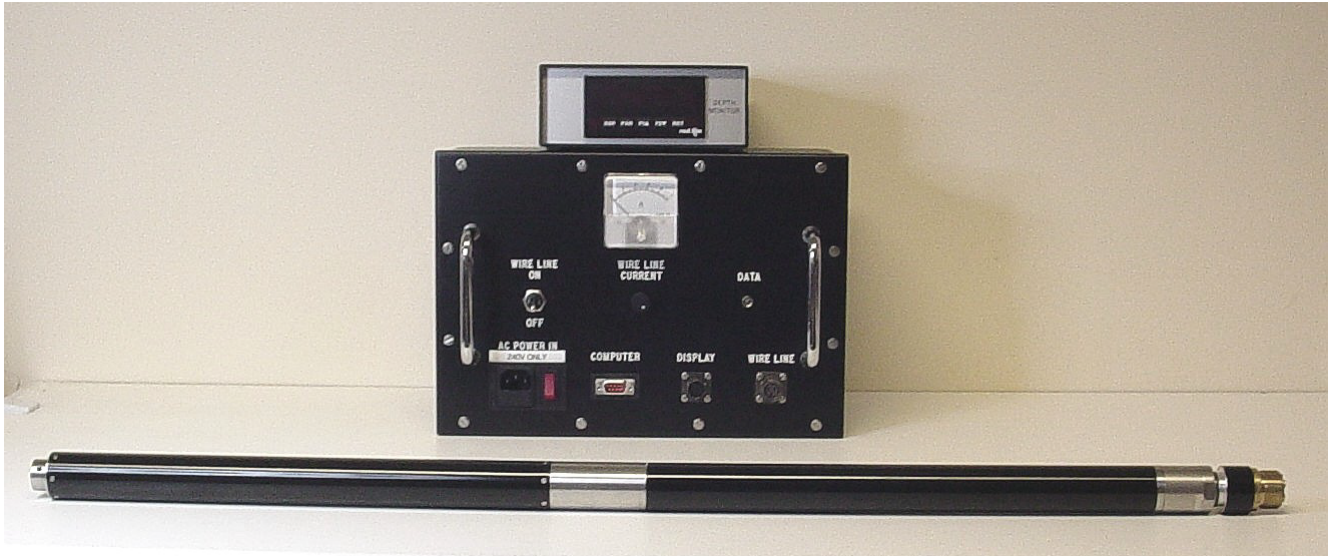


Gyroflex Explorer

The Explorer™ instrument builds upon the success and demonstrated performance of the Gyroflex Navigator™. As part of our ongoing development program, the EXPLORER instrument is now available. Using new state of the art rate gyros, this Northseeking instrument provides further flexibility of use, as well as offering increased speed of operation, by enabling continuous all angle inertial surveys to be recorded while traversing.



Technology

The EXPLORER™ instrument is small and rugged and incorporates the latest multi axis rate gyro and accelerometer technologies. This combined with advanced electronics and calibration software provides high accuracy performance.

System

The system consists of an EXPLORER™ instrument which can run on either an electric wireline connected to a surface power supply and PC or with the addition of a memory module and battery pack, on slick / braided line or in drop mode. The EXPLORER™ also includes an integrated depth monitoring system for increased survey resolution. Under normal circumstances, the EXPLORER tool would be run in a 1.75" pressure case / thermal shield to maintain temperature stability.

EXPLORER™ Applications and Benefits

- **Field proven to be highly reliable in our own service operations.**
- **High accuracy and temperature range in a small size unlike most other gyros of this type (1.75" inside the combined pressure case / thermal shield)**
- **Application flexibility through its modular design:**
 - **Wireline Mode : High Speed Continuous Survey / Orientation/ Multishot Survey mode with real time surface readout**
 - **Memory Mode : Battery powered orientation, multishot surveys**
- **Advanced software calibration techniques mean no onsite calibration required.**
- **Easy to use Drillog™ application software interface**

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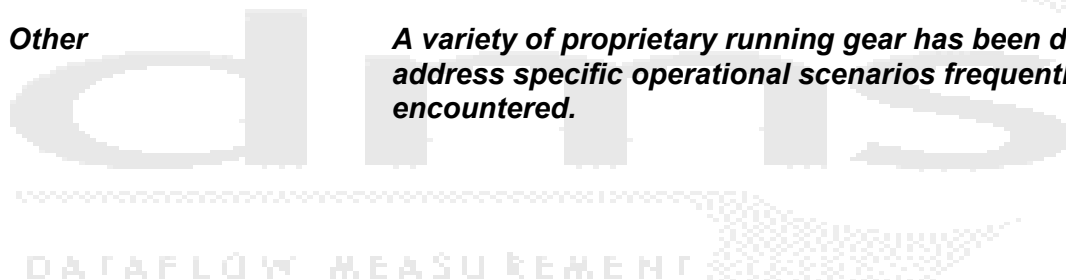
The EXPLORER™ system provides for a range of operating modes, dependant upon the application requirements. Typical applications are summarised below:

EXPLORER™ Operational Modes

- Continuous (Real time)** *This mode allows the instrument to run continuously in the borehole at high speeds and enables the system to provide high accuracy surveys from vertical to horizontal (and beyond). Depth measurement is automatic using a proprietary DMS digital depth tracking system and survey increments can be set by the operator down to 1cm.*
- Orientation (Real time)** *Instrument is stopped at a survey station for 10 secs to perform a gyrocompass alignment (medium accuracy)*
- Multishot (Memory)** *A memory module is added to the standard instrument to enable the tool to be run on slick or braided line using a battery pack. The system survey parameters can be programmed to suit the application and the tool can be remotely armed by the user.*
- Drop (Memory)** *The instrument is dropped within the drillpipe before tripping to save rig time and cost. The instrument can be programmed as in multishot mode, with surveys taken during tripping. The gyro freefall decent is controlled using proprietary mechanical decelerators added to the instrument.*

EXPLORER™ Running Gear

- Thermal Shield** *The EXPLORER™ instrument is run in a proprietary pressure case / thermal shield configuration having an outside diameter of 1.75" and a pressure rating of 20,000 psi at 400F. The instrument can be run in this heatshield for upto 8 hours, dependant upon external temperature. A 1.9" OD shield is available for extended survey times to 16 hours.*
- Battery Pack** *The EXPLORER™ is operated from a 'C' Cell Alkaline battery pack. A separate thermal shield is used to protect the batteries in high temperature applications.*
- Other** *A variety of proprietary running gear has been developed to address specific operational scenarios frequently encountered.*



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EXPLORER™ Typical Performance Summary

Instrument Performance

Inclination	: +/- 0.1° (vertical to horizontal)
Azimuth Survey Mode	: +/- 0.25° (Lat <60°)
Azimuth Orientation Mode	: +/- 1° (Lat <60°)
Toolface	: +/- 2°
Positional Uncertainty	: 0.3% of MD

Operating Features

Instrument OD	: 1.3"
Instrument Length	: 33"
Pressure Cased OD	: 1.75" (with thermal shield)
Pressure case length	: 40" min
Pressure Rating	: 20,000psi

Operating modes	: Wireline or battery. User defined based upon service requirements (Orientation, survey, memory multishot)
	: Continuous survey readout at wireline speeds up to 300 ft/ min.

Memory Capacity	: 3000 shots in mulishot / Drop mode
Battery Life	: Upto 40 hours (programmable hold off, shot interval)
Drop Mode	: Controlled decent and landing. Drill string retrieved.
Wireline Telemetry	: Digital, Mono or multi conductor to 30,000 ft
Depth Measurement	: Auto continuous depth measurement available

Electrical Power

Wireline Supply	: 250mA Constants current @ 30v
Max Power Consumption	: 6 Watts

Sensors

State of the art rate gyroscope
High accuracy tri-axial accelerometers.

Environmental

Temperature	: 32-400°F with thermal shield for upto 8 hours (other options available)
	: 40-200°F (without thermal shield)
Shock	: 200g, 1/2 sine 1mS
Vibration	: 10g rms, 20-1000Hz random

Surface Equipment

Wireline Power supply	: 110 / 240 v AC in , 200w Out with protection
Rig Floor Display	: 256 x 128 Transflective LCD with backlight
	: Sealed to IP65
Software	: Windows (98, XP, Vista) based Drillog™ service software

Note: Performance data is based upon measurements in a controlled environment and field results may vary

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