

LORD APPLICATION NOTE

Drill Path Measuring Sensor

Downhole orientation sensor and datalogger for drilling accuracy

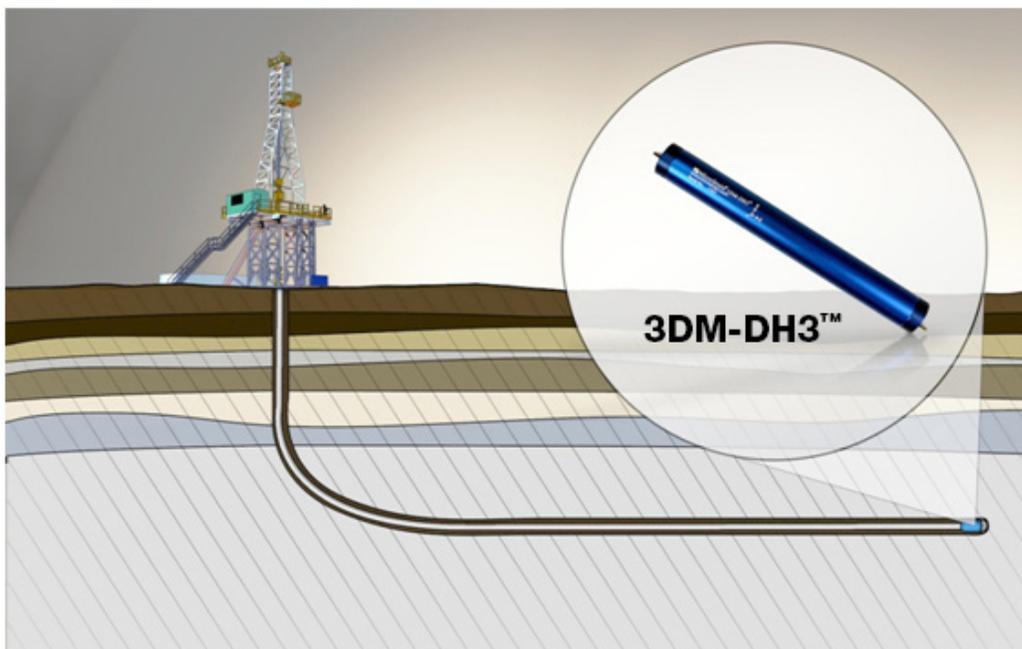
LORD MicroStrain's 3DM-DH3™ sensor is:

- a cost-effective downhole orientation solution
- driven by hi-res MEMS accels and magnetometers
- factory-calibrated over fully operational temp range
- small, lightweight, low-power, and plug-and-play ready
- ideal for oil, gas, mineral, and water well projects



3DM-DH3 features

- On-board microprocessor
- Embedded software algorithm
- Non-volatile memory for configuration
- Flash datalogging memory
- Serial communication interface



LORD MicroStrain 3DM-DH3

Technical Specifications

- 24-bit accelerometer, 16-bit magnetometer
- Accuracy: $\pm 0.2^\circ$ inclination, $\pm 0.5^\circ$ azimuth
- RS-422 serial output (four-wire full duplex)
- Operating temperature: -40°C to 125°C
- Shock threshold: 500 *g*
- 177 mm x 21 mm (diameter), 91 grams

Drill Path Measurements

- Inclination
- Azimuth
- GTF/MTF
- Dip angle
- Sensor temperature
- H-TOT/G-TOT



The 3DM-DH3's advanced MEMS measurement tools are factory-calibrated for out-of-the-box directional surveying, enabling oil, gas, mineral, & water drill operators to maximize the integrity and uptime of their various wells at a highly cost-effective price point.

The 3DM-DH3 ships with easy-to-use PC software, allowing the user to configure the sensor, view real-time measurements, and download logged data for post-processing. Users, integrators, and OEMs who develop their own applications can take advantage of the 3DM-DH3's Data Communications Protocol manual, which provides a complete instrument command set. Custom applications can readily be developed in any coding language and on any computing platform including microprocessors.

The sensor's low-power capabilities ensure users will not waste valuable resources when the 3DM-DH3's sampling isn't required, or when less-frequent sampling is optimal. The 3DM-DH3 offers a Deep Sleep mode, during which it consumes only 50 μA . The user may also tailor the sampling rate to his or her needs, allowing for further power conservation.

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