Tolteq iSeries NXT Directional Module (iDM)

The NXT iDM is NOV's next generation Tolteq™ iSeries directional and MWD control module. The NXT iDM provides additional measurement capabilities for more accurate and efficient directional drilling together with several new capabilities including data compression and unmanned operational modes. The NXT iDM's broader measurement suite includes continuous inclination and azimuth, as well as downhole shock, vibration, RPM, and stick-slip.

By using a proprietary calibration algorithm paired with aerospace-grade sensors, the NXT iDM delivers industry leading survey accuracy, and in-house manufacturing of the NXT iDM by NOV ensures product quality and shorter lead times.

The NXT iDM builds on the proven iDM module with demonstrated resistance to the harsh effects of shock and vibration, and the module has surpassed 17,000 hours of working time. With ToolTracker™ compatibility, the usage and operating conditions of the NXT iDM can be analyzed for efficient maintenance operations.

Features and Benefits

- Continuous inclination and azimuth
- Multiple data compression options enabling higher real-time data density
- Unique patent-pending unmanned operational modes
- Supports up to 16 generic variables
- Shock, vibration, stick-slip, and RPM measurements
- Smart power management—enabling efficient power consumption and battery management
- On-board rotation detection and rotational re-sync capabilities
- Supports fast pulsing when combined with Tolteq NXT pulsers
- Operational time and environment history recorded in internal memory for usage and lifecycle management using patent ToolTracker system

Electrical Specifications

Operating voltage range:.....10 to 30 V (40V option)
Current at 28 V:.....110 mA max, 25 mA idle
Power usage: .....0.65 W idle, 3 W peak

Mechanical and Enviromental Specifications

Outside diameter.....1.875 in. (47.6 mm)
Length (w/end caps)..... 56.73 in. (1.44 m)
Outside diameter (chassis).....1.36 in. (35.4 mm)
Length (chassis).....29.42 in. (0.747 m)
Operating temperature.....32 to 347°F (0 to 175°C)
Survival temperature.....-40 to 365°F (-40 to 185°C)
Vibration, random.....20 g RMS, 10 to 200 Hz
Shock.....1,000 g, 0.5 mSec, half-sine
Operating pressure.....20,000 psi (25,000 psi option)

Instrument Accuracy Specifications

Inclination:
- Precision.....±0.1°

Azimuth (magnetic dip angle at <70°):
- at 5° inclination: Precision.....±0.75°
- at 10° inclination: Precision.....±0.5°
- at 90° inclination: Precision..... ±0.2°

Toolface accuracy, axial rotation, 10 through 90 inc..... ±1.0°
Total g field accuracy, absolute..... ±3.0 mg
Total H field accuracy, absolute.....+/- 4.0 mGauss
RPM measurements, 10 to 255 RPM.....±0.5% of value
Continuous inclination (cInc) accuracy.....up to 150 RPM
- cInc (Inc <10°) .....-1.0 / +3.0°
- cInc (Inc >10°).....+/- 0.5°

Continuous azimuth (cAzm) accuracy.....up to 150 RPM
- cAzm (Inc <45°).....+/- 15°
- cAzm (Inc >45°) .....+/- 5°

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