

KEYDRILL 175°C DIRECTIONAL MODULE (KDM-175)



Overview:

The KeyDrill 175°C Directional Module (KDM-175) integrates our Digital Orientation Module, Triple Output Power Supply and Main Processing Unit (MPU) into a rugged MWD Mud Pulse Tool. Proprietary features provide accurate and stable measurements that are configurable for demanding and unique drilling applications. The sensor assembly allows for direct connection to the microprocessor-based data acquisition system via dedicated serial interface connections. Our tool is compatible with most popular MWD systems on the market and provides several innovative power saving features.

Specifications:

Inclination:	± 0.10°
Azimuth:	± 0.25°
Tool Face Accuracy:	± 1.0°
Operating Temperature:	-40°C to 175°C
Max Hydrostatic Pressure:	20,000 PSI (137.9 MPa)
Operating Voltage:	18-38 V
Nominal Current:	12 mA
Shock:	1,000g / 0.5 millisecond
Vibration:	25g RMS 30-500 Hz Random; 20g all axes
Connection Style:	Kintec
Tool Dimensions:	1.875" dia. x 80"L / 37 lbs.

Rotation Flag (RotF) and Rotation Sequence (RSq)

KeyDrill's MPU module has a rotation flag and configurable rotation sequences. This allows the transfer of different data sequences in slide mode and in rotation mode.

Real-Time Rotation Detection (RTRD)

RTRD can detect rotation real-time and will automatically switch the sequences between TSq and RSq in about 30 seconds without the need for a rotation flag. Data is delivered in real-time to increase ROP and maximize data efficiency.

Downhole Alert System (DAS)

RTRD can detect rotation real-time and will automatically switch the data sequences between TSq and RSq in about 30 seconds (no need for a rotation flag). This seamless transition provides maximum data transmission efficiency and increases ROP.

Continuous/Rotation/Sliding Inclination (RInc)

RInc and RAzm provide realtime continuous inclination and azimuth measurements and transmission while drilling. KeyDrill's proprietary algorithms significantly improve the reliability and accuracy of these RIInc and RAzm measurements.

Realtime Stick-slip, RPM, Shock and Vibration Detection and Transmission.

KeyDrill DM can detect stick-slip, RPM, shock and vibration realtime. It will transmit to surface the maximum stick-slip, shock and vibration levels between data sets. This information will enable the directional driller to achieve the maximum drilling efficiency and prevent costly equipment failures.

Faster Raw Data and Resistivity Data Encoding Format

KeyDrill's MPU supports faster raw and resistivity data encoding formats including the float point and logarithmic formats. These features will save as much as 25% of the transmission time while maintaining the same data resolution and accuracy.

Sleep Mode

There are two sleep modes available, Tool Sleep Mode (TSM) and Data Sleep Mode (DSM), both allow the MPU to turn off the pulser, saving power during transportation or while on standby. TSM allows the customer to assemble their MWD tools in the shop without worrying about battery usage during transport. DSM can be achieved by using zero parameters in its data sequence (TSq or RSq). KeyDrill's real-time rotation detection feature enables the tool to wake up when the tool starts or stops rotation.

36 Generic Variables

KeyDrill's MPU is an open system and supports 36 generic variables allowing for more sensors to be attached to the MWD String.

ReSync Control (ReSy)

The Resync function in KeyDrill's MPU resends sync pulses whenever a new sequence begins. It provides special value for drilling in lost circulation, underbalanced, or volatile drilling conditions.

Rotation Downlink

Rotational downlink capability has been added, using the same command format as the pressure downlink for ease of implementation. With extended reach laterals and mud pump reliability the rotational downlink is much more accurate and reliable than pressure downlinking.

Rotation Simulation Mode (SimM)

Surface Rotation Simulation function in MPU simulates tool rotation and makes testing the tool on the surface more convenient. The simulation includes a Rotation flag simulation and rotation speed (RPM) simulation. The range of RPM simulation is 0-511.