Compass Directional Guidance, Inc.

Your Source for Reliable & Modular MWD Technology Systems

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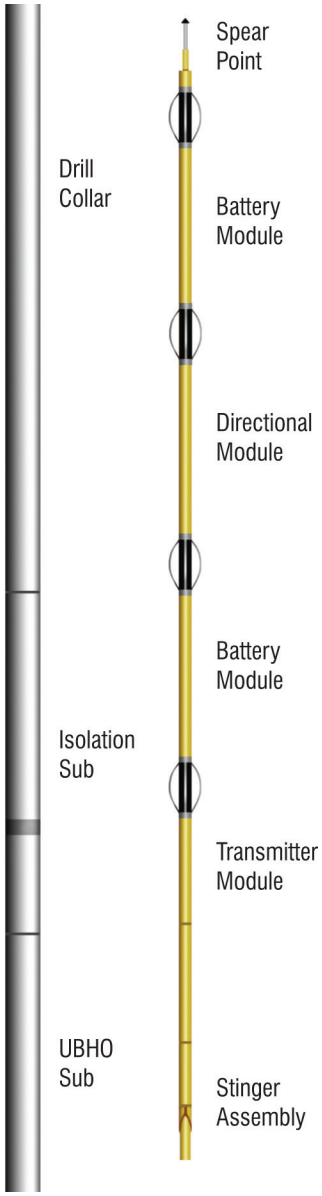
TECHNICAL DATA SHEET

Compass Electromagnetic (EM) MWD System



EM telemetry is a method of transmitting data from a MWD assembly that resides just above an oil well drill bit. An electromagnetic telemetry system is a used for transmitting data from downhole assembly, which is operationally attached to a drill string, to a telemetry receiver system. The data are typically responses of one or more sensors disposed within the downhole assembly. A downhole transmitter induces a signal current within the drill string. The signal current is modulated to represent the transmitted data.

Description

EM-MWD uses electromagnetic waves to transmit downhole measured data in real time to the surface during conventional and under-balanced horizontal and directional drilling operations. EM telemetry transmits information through the formation to the surface antenna, where it is received and sent to a data acquisition system to be decoded and processed.

The system is battery powered and can operate during all phases of drilling operations, including tripping, drilling, and lost circulation. The tool is particularly attractive in wells drilled with unconventional drilling fluids such as foam, mist, or aerated mud.

The Compass Transmitter Module records pressure, receives data from the directional module, and transmits the data to an antenna rod that is connected to the Frequency Interface (FI) Receiver. The Compass Transmitter length is 76.5” without the helix end. The tool gap on the Compass Transmitter Module should line up with the gap on the Isolation Sub within +/- 6 inches. If the tool gap is too far from the sub gap, it will cause a weaker signal.

EM Frequency Interface Receiver

The Frequency Interface (FI) Receiver takes the signal transmitted from the EM tool, filters it, and sends the signal to the SAI or RT for decoding. The decoded signal is viewed and monitored on the QMWDPC/Bench Tree software. The FI Receiver always looks for the tool On/Off (transmitting) instead of looking for the flow on/off.

Features & Benefits	
Tool Face Update Rate	.35 = 6 seconds .6 = 12 seconds
Survey Transmission Time	Typical is 20 seconds (Function of pulse width and data qualifiers)
Sensors Available	Directional, Gamma, Tool Temperature, Pressure
Max Operating Temp	150° C (350° F)
Flow Rate	From 35 to 1100 gpm

The FI Receiver System includes the FI Receiver, Power Cable, Cable Antenna, 400’ BOP Cable, 6’ BNC Cable, and 10’ Transducer Cable.