

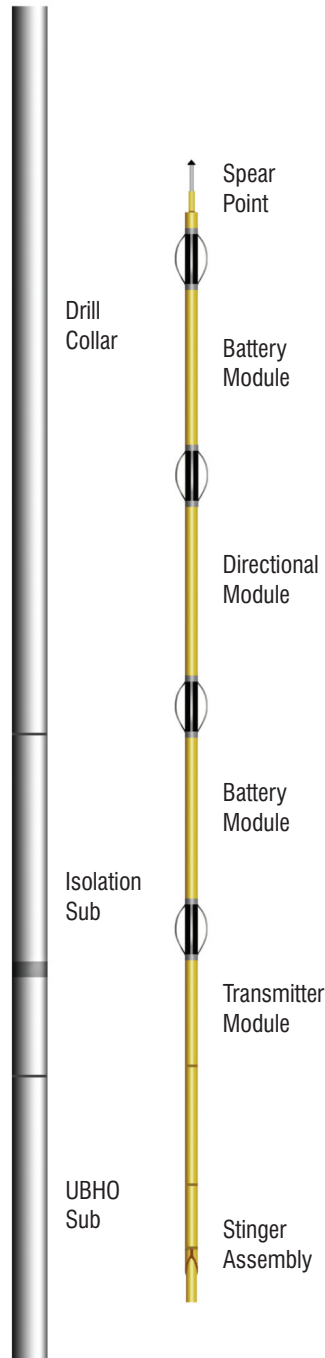


# COMPASS DIRECTIONAL GUIDANCE, INC. TECHNICAL DATA SHEET

## Compass Electro-Magnetic Tool (EM)

### Features

- Temperature option up to 302°F (150°C)
- Simple to operate under a wide range of flow rates from 35 to 1100 gal/min
- Capabilities for reliable data transmission in difficult drilling



EM Technology adapted to Measurement While Drilling (MWD) Technology.

An electromagnetic telemetry system for transmitting data from a 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 underbalanced horizontal and directional drilling operations. EM telemetry transmits information through the formation to a 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.

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 Currently Available	Directional, Gamma Ray, Tool Temperatures, Pressure

