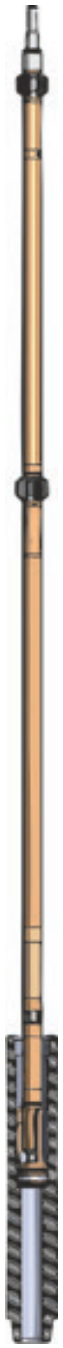
Bench Tree®
Complete Solutions for MWD - LWD

Product Sheet

Short MWD System

Mud Pulse Telemetry

Bench Tree's Short MWD system offers an alternative to reliability and accuracy issues inherent with longer legacy systems. By harnessing the benefits of its advanced 3D-I directional and drilling dynamics instrument, Bench Tree's Short MWD system provides operators with precise and dependable directional information to maximize drilling efficiency and pay zone exposure in directional and horizontal wells.



Applications

- Unconventional and conventional drilling
- Directional and horizontal drilling
- Sidetracking
- Custom drilling
- SAGD drilling

Benefits

- Minimizes costs (up front and long-term maintenance compared to dual-telemetry tools)
- Improves reliability and operational efficiency
- Increases accuracy compared to most standalone directional sensors
- Saves battery costs, with around 600 hours per eight-cell pack (expandable): MWD+ gamma
- Decreases downtime with high-speed memory download: <10 min.

Features

- High-operating temperature: 175°C (347°F), 185°C (365°F)
- High-speed mud pulse transmission available
- Patented instantaneous dynamic synchronization
- Drilling Dynamics: RPM, shock, vibration, temperature, continuous inclination, azimuth, stick-slip
- Mode change with flow and/or rotation status
- m+ Pulser with various gamma options
- Reduced connectors

The Short MWD system streamlines operations because it is shipped pre-assembled in a standard MWD kit box, with only a battery connection to be made at the rig site. Its reduced length and weight make it easier to handle than other systems. When connected to other items, it helps shorten and reduce the weight of extra-long strings, such as dual-telemetry, integrated resistivity, PWD and gyro.

Enhanced Performance in a Smaller System

The Short MWD system's high-speed mud pulse transmission allows users to leave the legacy platform, while eliminating the need for expensive EM and dual-telemetry systems with limited depth capability.

The system's directional stability and repeatability is unmatched in the industry due to its industry-leading magnetometers, accelerometers and proven high-temperature electronics.

Reliability is improved by eliminating many of the failure points found in other systems. For instance, the 3D-I, m+ Pulser and gamma all fit in one standard DM pressure housing. The system also has 95% fewer field-mated connectors and less wiring than legacy systems.

The Short MWD system comes complete with Bench Tree's surface system and can be set up as retrievable or latch mounted.

To improve your reliability, accuracy and drilling efficiency, contact the Bench Tree sales team for assistance.

Covered by one or more of the following U.S. or international patents:
U.S. 9,038,735; U.S. 9,091,143; U.S. 9,062,537; U.S. 9,250,100

Physical Specifications

Parameter / Feature	Values / Ranges
Size	1 7/8 x 7.5 in. (4.76 x 228.6 cm) Plus lower end and battery
Operating voltage [1]	7 to 36VDC
Operating power	< 2W peak watt
Communications	qBUS, CAN
Built-in sensors (memory and real time)	Temperature, precision mags, precision accelerometers (Q-Flex®), shock, vibration, rotation
Gamma	Pulse
Flow	Built into m+ Pulser module

Performance Specifications

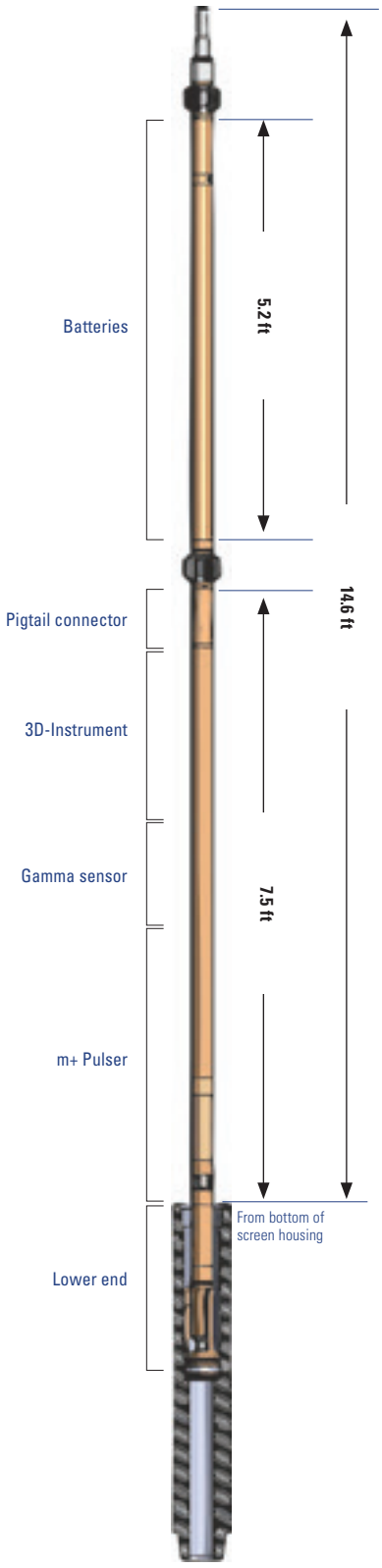
Parameter / Feature	Values / Ranges
Accuracy, std configuration [2]	
Inclination	<±0.1°
Azimuth (dip A <70°, 90° incl)	<±0.2°
Gravity	<±1.5 mg
Dip	<±0.15°
Total mag field	<±0.75 mGauss
Temperature	<±1°C (± 1.8°F)
Rotation (0 to 300)	±12 RPM
Drilling inclination	±0.35° typical
Memory	32 Mb
Memory download time	< 10 minutes
Drilling Dynamics	Memory and real time

Environmental Specifications for Performance

Parameter / Feature	Values / Ranges	
	Low	Max for standard models
Operating temp, std [3]	25°C	150°C 175°C
Temperature ramp	3°C / minute max	
Vibration	20g Grms, 30 to 1000Hz	
Shock	1000g 0.5mSec-½Sine	

1: Dependent on manufacture of gamma module
2: Tighter performance on request
3: Contact Bench Tree for other ranges

Q-Flex® is a Registered Mark of Honeywell
Metric units are approximations



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