



**The Falcon Fire MP MWD is Scientific Drilling's high-temperature Mud Pulse MWD system, ensuring safer operations, maximum reliability, precision wellbore placement, and deeper reach.**

The system parameters are fully field-programmable, yielding predictable performance in the world's harshest drilling environments, including extreme LCM conditions.

Falcon Fire MP MWD provides the following borehole measurements in real-time:

- Survey Inclination & Azimuth
- Tool Face
- API Calibrated Gamma Ray
- Drilling Dynamics: Axial and Lateral Vibration, Stick slip, Temperature
- Continuous Inclination

For more information on improving your drilling efficiency [while staying on target] contact your Scientific Drilling sales representative or visit:

<http://scientificdrilling.com/mwd>

### APPLICATIONS

- + High-temperature environments
- + Geothermal
- + Unconventional resource plays
- + Directional/horizontal drilling
- + Relief well and re-entry
- + Magnetic ranging (passive and Active)
- + Steam assisted gravity drainage (SAGD)

### BENEFITS

- + Pressure-compensated pulser design offers compatibility in a wide range of bottom hole pressure operations
- + Bi-directional communication for MWD tool parameter customization while downhole
- + Field-configurable system enables flexibility for changing well conditions
- + Innovative electronics and mechanical design deliver optimal performance in high-temperature operations

### FEATURES

- + Utilizes proprietary TUF™ preventative maintenance system
- + Includes full accelerometer and drilling dynamics package
- + Supports temperatures up to 350°F (177°C)
- + Capable of 50-1500 GPM flow rates
- + Supports BHA sizes 3.125" to 9.5"
- + Positive displacement up to 5 bps

## GENERAL SPECIFICATIONS

TOOL OD	DOG LEG SEVERITY	
	Sliding	Rotating
3.125 in (79.4 mm)	40°	17°
3.500 in (89.9 mm)	37°	15°
4.750 in (120.7 mm)	28°	12°
6.250 in (158.8 mm)	20°	10°
6.500 in (165.1 mm)	20°	10°
6.750 in (171.5 mm)	19°	8°
8.000 in (203.2 mm)	12°	7°
9.500 in (241.3 mm)	12°	6°

<b>PRESSURE RATING</b>	20,000 psi @ 300°F (30,000 psi available) 137,900 kPa @ 150°C (206,842 kPa available)
------------------------	--

<b>TEMPERATURE RATING</b>	350°F (177°C)
---------------------------	---------------

<b>LOST CIRCULATION MATERIAL</b>	Medium nut plug, 40 lbs/bbl (18Kg/bbl)
----------------------------------	--

<b>TELEMETRY</b>	Positive Displacement, up to 5bps
------------------	-----------------------------------

<b>SENSOR ACCURACY</b>	Tool Face $\pm 0.15'' > 3$ Azimuth $\pm 0.25'' > 3$ Inclination $\pm 0.15''$ at all angles
------------------------	--

<b>MAX BIT PRESSURE</b>	No limit
-------------------------	----------

RANGE OF FLOW RATES	TOOL OD	GALLONS/MINUTE
	3.125 - 3.5 in	50 - 200
4.750 - 6.5 in	100 - 400	
6.250 - 6.5 in	200 - 600	
6.750 - 8.0 in	250 - 1,000	
9.5 in	400 - 1,500	

<b>OPERATING TIME</b>	300+ Hours
-----------------------	------------

## DIRECTIONAL SPECIFICATIONS

LENGTH	DIRECTIONAL ONLY	DIRECTIONAL & GAMMA RAY
	16.8 ft (5.12 m) (+6 ft pulser sub)	20 ft (6.1 m) (+6 ft pulser sub)

<b>DATA UPDATE PERIOD</b>	Minimum 1.4 sec @ 0.1 sec pulse width Maximum 14 sec @ 1 sec pulse width
---------------------------	---

<b>CALCULATED SURVEY TIME</b>	7 Seconds
-------------------------------	-----------

<b>RAW SURVEY TIME</b>	18.2 Seconds
------------------------	--------------

CONTINUOUS INCLINATION	SLIDING	ROTATING
	Yes	Yes

## VIBRATION SPECIFICATIONS

<b>AXIAL</b>	4 g <sub>RMS</sub> for 3hr; 6 g <sub>RMS</sub> for 0.5hr
--------------	--

<b>LATERAL</b>	5 g <sub>RMS</sub> for 3hr; 7.5 g <sub>RMS</sub> for 0.5hr
----------------	--

<b>STICK-SLIP DETECTED (0.5HR)</b>	150% for 3hr, 200% or neg. rpm detected for 0.5hr
------------------------------------	---

\*Specifications are subject to change without notice

