



Falcon X is Scientific Drilling's fastest, most robust MWD system, designed to deliver maximum reliability in the harshest drilling environments.

As the next evolution of the Falcon platform, Falcon X features faster data speeds, dual-transducers, and advanced solid-state sensors; ensuring un-matched dependability, faster surveys, safer operations, precision wellbore placement, and deeper reach.

Falcon X high-speed toolface parameters are fully field-programmable, yielding predictable performance in the world's harshest drilling environments, including extreme LCM conditions.

Falcon X 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
- Annulus and pipe pressure
- Azimuthal gamma, near-motor inclination, and resistivity

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

<http://scientificdrilling.com/mwd>

FALCON X

APPLICATIONS

- + Severe drilling environments
- + Geothermal drilling
- + Directional/horizontal drilling
- + Magnetic ranging (passive and Active)
- + Orbit Connect™
- + Enhanced gyroMWD drilling

FEATURES

- + Dual-transducer configuration
- + Advanced solid-state sensor
- + Capable of achieving data rates up to 5 bps (compare to legacy MWD @ 3 bps peak)
- + Utilizes proprietary TUF™ preventative maintenance system
- + Includes full accelerometer and drilling dynamics package
- + Capable of 50-1500 GPM flow rates
- + Supports BHA sizes 3.125" to 9.5"

BENEFITS

- + Superior reliability
- + Wireless surface equipment
- + Optimized decoding and faster survey time
- + Pressure-compensated pulser design offers compatibility in a wide range of bottom hole pressure operations
- + Field-configurable system enables flexibility for changing well conditions

GENERAL SPECIFICATIONS

TOOL OD	DOG LEG SEVERITY	
3.125 in (79.4 mm)	Sliding	Rotating
3.500 in (89.9 mm)	40°	17°
4.750 in (120.7 mm)	37°	15°
6.250 in (158.8 mm)	28°	12°
6.500 in (165.1 mm)	20°	10°
6.750 in (171.5 mm)	20°	10°
8.000 in (203.2 mm)	19°	8°
9.500 in (241.3 mm)	12°	7°
	12°	6°
PRESSURE RATING	20,000 psi @ 300°F (30,000 psi available) 137,900 kPa @ 150°C (206,842 kPa available)	
TEMPERATURE RATING	350°F (177°C)	
LOST CIRCULATION MATERIAL	Medium nut plug, 50 lbs/bbl (23Kg/bbl)	
TELEMETRY	Positive Displacement, up to 5bps	
SENSOR ACCURACY	Tool Face $\pm 0.15^\circ > 3$ Azimuth $\pm 0.25^\circ > 3$ Inclination $\pm 0.15^\circ$ at all angles	
MAX BIT PRESSURE	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	
OPERATING TIME	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)
TOOLFACE UPDATE FREQUENCY	100ms pulse width yields 1.4 sec. update 760ms pulse width yields 10.64 sec. update	
CALCULATED SURVEY TIME	7 Seconds	
RAW SURVEY TIME	18.2 Seconds	
CONTINUOUS INCLINATION	SLIDING	ROTATING
	Yes	Yes

VIBRATION THRESHOLDS

AXIAL	4 g _{RMS} for 3hr; 6 g _{RMS} for 0.5hr
LATERAL	5 g _{RMS} for 3hr; 7.5 g _{RMS} for 0.5hr
STICK-SLIP DETECTED (0.5HR)	150% for 3hr, 200% or neg. rpm detected for 0.5hr

*Specifications are subject to change without notice

