

Newsco Elint™ & Newsco Elint™ HT MWD-GR Systems

About Newsco

Newsco’s diverse directional drilling experience is a key driver for its success. Established in 1994, Newsco’s technology has been proven in extreme drilling conditions on five continents and is trusted to exceed expectations in high temperature, LCM and high shock/vibration environments.

Newsco’s core capabilities are born out of its internal R&D teams who are continually innovating to exceed the expectations of today’s Exploration and Production companies.

About the Newsco Elint & Elint HT

Elint, defined as intelligence gathering by electronic means.

The Newsco Elint and Elint HT Positive Mud Pulse MWD Systems are the latest advancement in the directional drilling industry for reliability, efficiency and drilling optimization, while moving D+I sensors closer to the bit and adding vast flexibility of service to the tool.

Dual battery life greater than 800 circulation hours makes these first class MWD systems as efficient as they are robust, drilling wells faster and with greater precision.

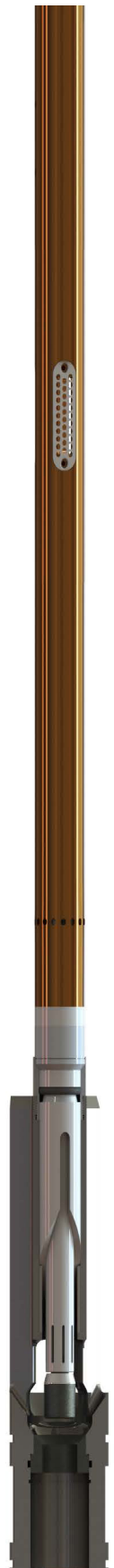
Coupled with Newsco’s state of the art DRILLWELL™ surface system, the Newsco Elint and Newsco Elint HT are known as the most rugged and dependable MWD systems in the global directional drilling market today.

Newsco Elint Applications

- All directional well profiles
- Onshore & offshore wells
- Gamma ray logging
- Continuous INC capable
- Medium & short radius drilling
- Setting whipstocks / re-entry drilling
- Tandem gyro BHA’s
- Performance drilling
- Deep, high shock and vibration wells
- Horizontal sections over 14,000’ (3000m)
- Well temperatures up to 302°F (150°C)

Newsco Elint HT Applications

- Well temperatures up to 350°F (180°C)
- Static survivability over 370°F (188°C)



Features	Benefits
Industry leading precision	Ensures confident wellbore placement
Self-cleaning high LCM tolerance	Maximizes on bottom drilling time
The DRILLWELL™ ultimate logging solution	Seamlessly logs all telemetry and WITS data securely
Downlink capability improves telemetry rates downhole	Adds flexibility and avoids unnecessary trips
Wireline retrievable and re-seatable	Lowers insurance rates and increases operational savings



Newsco Elint [Elint HT] MWD-GR

Technical Data Reference

Tool Specifications

MWD Telemetry Type	Positive Pulse	
Wireline Retrievable / Re-Seatable	Yes	
Downlink Capable	Yes, Mud Flow Time Sequencing	
Programmable Modes of Operation	4 Static, 2 Dynamic	
Continuous INC Capable	Yes	
Survey Capability While Sliding, Rotating	Yes, No	
Tool Outside Diameter	1.88 in	47.8 mm
Overall Length of Toolⁱ		
D&I Only	25 ft	7.62 m
D&I + Gamma Ray	32 ft	9.75 m
Measurement Depthsⁱⁱ		
D&I Only Electronics Sensor	8 ft	2.44 m
D&I + GR Gamma Sensor	7.35 ft	2.24 m
D&I + GR Electronics Sensor	11.35 ft	3.46 m
Flow Ranges		
3 1/2 in	75-165 gpm	0.28-0.625 m ³
4 3/4 in	100-300 gpm	0.37-1.5 m ³
6 3/4 in	150-600 gpm	0.55-2.2 m ³
8 in	400-1,200 gpm	1.5-4.5 m ³
9 5/8 in	450-1,500 gpm	1.7-5.6 m ³
Pressure Drop		
@ 250 gpm (0.9 m ³)	80 psi	550 kPa
@ 500 gpm (1.9 m ³)	110 psi	750 kPa
@ 1,000 gpm (3.8 m ³)	220 psi	1,500 kPa

Gamma Ray Sensor Specifications

Gamma Ray Detector Type	Telematrix™ Ruggedized Chassis Mounted NaI Scintillation
Gamma Measurement Range	0 to 500 cps

Power Specifications

Power Source	Lithium Thionyl Chloride Batteries
Operating Time Per Battery Probe ⁱⁱⁱ	> 400 Hours

Vibration Sensor Specifications

Measurement Range (lateral)	± 50 g	500 m/s ²
Operating Time Per Battery Probe ⁱⁱⁱ	20 to 500 Hz	

Temperature Sensor Specifications

Measurement Range	32 to 302 °F [32 to 350 °F]	0 to 150 °C, [0 to 180 °C]
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Directional Sensor Specification

	Inclination	Azimuth	Dip Angle
Measurement Range	0°- 180°	0°- 360°	0°- 90°
Accuracy	± 0.05°	± 0.5°	± 0.1°

Transmission Time Specifications

	Pulse Width and Survey Times		
Pulse Length, s	0.6	0.8	1.0
Static Survey, s	135	180	225
Toolface, s	33	11	14
Gamma Ray, s	9	14	17

Environmental Specifications

Maximum Vibration	20 g	200 m/s ²
Maximum Shock	500 g, 0.5ms 1/2 Sine	5,000 m/s ² , 0.5ms 1/2 Sine
Operating Temperature Range	32 to 302 °F, [32 to 350 °F]	0 to 150 °C, [0 to 180 °C]
Maximum Operating Pressure	25,000 psi	172,000 kPa
Mud Sand Content	2%	
Maximum Bit Pressure Drop	No Limit	
Lost Circulation Material Size	All Types	
Lost Circulation Material Weight	100 ppb	285 kg/m ³

Surface Network Specifications

Surface System Platform	Telematrix DRILLWELL™ v2.60	
Remote Terminal Operating Temperature Range	-40 to 122 °F	-40 to 50 °C



ⁱ Toolstring will fit into one standard length (30') NMDC provided by Newsco.

ⁱⁱ Sensor depths measured from the UBHO set screw ports to the sensor point.

ⁱⁱⁱ Battery Life is directly proportional to Pulse Timing used.

^{iv} Indicates time with all checks and counts confirmed, data rate dependant.

^v Standard tool configuration 32 to 302 °F [0 to 150 °C], optional Newsco Elint HT rating 32 to 350 °F [0 to 180 °C].