

Newsco Elint™ & Newsco Elint™ HT Dual Telemetry

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 Dual Telemetry

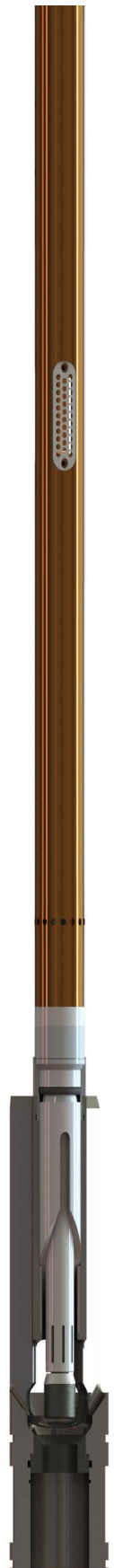
The Newsco Elint™ Dual Telemetry System is the only MWD system available that incorporates Intelligent Channel Coding™ an exclusive adaptive digital modulation technology used to increase noise rejection and improve aggregate receiver sensitivity. ICC technology enables the Newsco Elint Dual Telemetry System to avoid signal interference within the channel spectrum such as DC-motor electrical noise generated by top-drives or electromechanical rotary noise commonly associated with Kelly drives. ICC encryption also delivers improved immunity against communication channel burst noise (i.e. aperiodic in-band noise) that typically obscures portions of a digitally modulated uplink packet. ICC negates burst noise by digitally averaging the noise across all the bits contained in an encrypted uplink packet; thereby increasing the surface receiver aggregate sensitivity. ICC technology also uses much less power to transmit uplinks than conventional EM MWD systems thus maximizing downhole battery life and allowing the system to function at deeper depths even in unfavorable formation lithologies.

Newsco Elint Dual Telemetry Applications

- Extend Depths
- Formations where conventional EM doesn’t work
- Lost Circulation
- Reducing Down Time
- Underbalanced Drilling
- Horizontal Drilling
- High LCM Content Applications
- Re-entry Wells

System Highlights

- New Proprietary Technology
- Advanced Data Base Logging
- WITS I/O interface provides link to rig information networks
- Automatic Detailed Report Generation
- Wireless Link for Rig Floor Display
- Hang-Off Collar Mounted or bottom mounted in UBHO
- Downhole Sensor expansion via 10-pin Internal Data Bus
- 2-Way EM Com Link
- Small Tool: < 20 ft



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] Dual Telemetry

Technical Data Reference

Tool Specifications

MWD Telemetry Type	Positive Pulse / Em	
Wireline Retrievable / Re-Seatable	Yes	
Downlink Capable	Yes, Mud Flow Time Sequencing / Em 2-Way Communication Link	
Programmable Modes of Operation	4 Static, 2 Dynamic / Intelligent Channel Coding	
Continuous INC Capable	Yes	
Survey Capability While Sliding, Rotating	Yes	
Tool Outside Diameter	1.88 in	47.8 mm
Overall Length of Tool¹		
D&I Only	25 ft	7.62 m
D&I + Gamma Ray	32 ft	9.75 m
Measurement Depths²		
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	Telemetrix™ 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 ³	> 400 Hours / Signal Strength and Temperature Dependent

Vibration Sensor Specifications

Measurement Range (lateral)	± 50 g	500 m/s ²
Operating Time Per Battery Probe ³	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	Telemetrix DRILLWELL™ v2.60 / Drill Dog CCG	
Remote Terminal Operating Temperature Range	-40 to 122 °F	-40 to 50 °C



¹ Toolstring will fit into one standard length (30') NMDC provided by Newsco.
² Sensor depths measured from the UBHO set screw ports to the sensor point.
³ Battery Life is directly proportional to Pulse Timing used.

⁴ Indicates time with all checks and counts confirmed, data rate dependent.

⁵ Standard tool configuration 32 to 302 °F [0 to 150 °C], optional Newsco Elint HT rating 32 to 350 °F [0 to 180 °C].

A Retrieval Spearpoint
 B Internal Gap Probe Assembly
 C Battery
 D Directional Electronics
 E Gamma Ray
 F Pulse Unit Peripheral (PUP) Assembly
 G Pulse Driver
 H Landing Helix