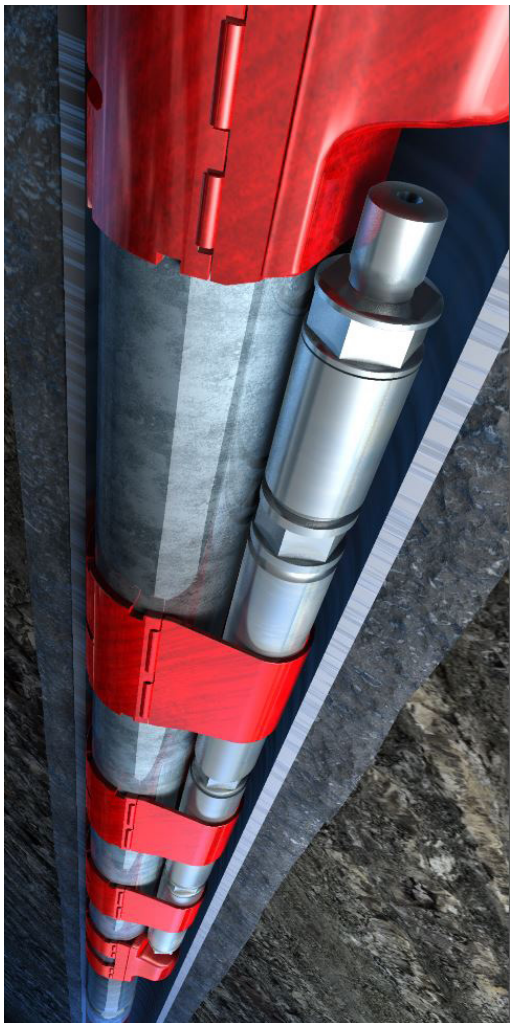
DynaLink® Telemetry System

RELIABLE WIRELESS DOWNHOLE TELEMETRY TECHNOLOGY

OVERVIEW

The DynaLink® telemetry system provides the backbone for the RezConnect® well testing system, the complete Halliburton wireless solution offering the industry's first system for fully acoustically controlled drill stem testing tools.



DynaLink® Telemetry System

FEATURES

- **Cost Effective.** The DynaLink system helps reduce the cost of operations and enhances the economic value of the reservoir through flexible access to critical and accurate real-time data pertinent to the reservoir evaluation. This flexibility enables well-timed decisions regarding drill stem testing and future sand control or stimulation applications.
- **Reliable.** Simple modular design reduces operational complexity, enabling versatility to perform the job with wireline if necessary. For pressure and temperature monitoring, a dual memory gauge enables redundancy capability.
- **Compact Size.** The DynaLink system enables ease of transportation and application flexibility.
- **Simple.** The DynaLink system operates very similar to memory gauges, and the system's software interface is extremely user friendly.
- **Attachment System.** The DynaLink system provides standard pipe body clamps.
- **Modular Downhole Modem Design.** The DynaLink system interfaces with pressure / temperature gauges, samplers, production logging sensors, tubing-conveyed perforating (TCP) firing heads, and downhole tool actuators

BENEFITS

- Reduce operating expenses
- Real-time reservoir analysis
- Assurance of data
- Effective bottomhole pressure, volume, and temperature fluid sampling
- Safety in operations
- Downhole tools status and diagnostics

APPLICATIONS

- Drill stem testing
- Pressure and temperature monitoring
- Sand control
- Sampling
- Stimulation
- Downhole tool activation
  - Armada® samplers
  - ProPhase™ valve
  - Downhole shut-in tool
  - TCP
- Interference
- Hydrate monitoring
- Long-term production test

REAL-TIME DYNALINK APPLICATIONS

- DynaLink real-time data availability enables tool diagnosis and operational monitoring during the development of the test.
- The DynaLink system enables the simultaneous acquisition of real-time data from gauges located at different positions in the tool string, enabling applications such as data assurance, testing interference between different formations, and monitoring hydrate formation conditions along riser.
- Availability of downhole pressure and temperature data during the test enables assessment on sampling conditions. The Armada® trigger sampling system enables sample actuation by DynaLink acoustic telemetry when the required sampling conditions are met and then confirmation of sampling.
- Halliburton provides real-time data at any remote user designated by the customer. The Real Time Operation Center routes the DynaLink data through InSite Anywhere® remote monitoring, and the data is received in the user computer with the InSite® direct interface.
- The InSite Anywhere Direct interface enables the real-time update of data into the Pressure Transient Analysis software, enabling the assessment of test duration adjusted to test objectives based on actual reservoir response, avoiding either extending the test beyond the point in which test objectives are met or interrupting the test before test objectives are met.

DynaLink® Telemetry System Specifications

Operating Temperature	350°F (177°C)
Pressure	20,000 psi (1,379 bar)
Dimensions	1.27 in. (32 mm) OD
Repeater Length	61.65 in. (1,566 mm)
Communication	Bi-directional
Resolution	Full, No Data Truncation
Sample Rate in Real Time, Wireline	Up to 1 sec*
Sample Rate in Real Time, Wireless	1 min Typical*
Sample Rate Historical Data	Up to 1 sec*
Transmission Distance	1,500 ft. (457 m) Typical*
Surface Read Out Configurations	Land Cable or Wireless Jackup Cable or Wireless Deepwater Cable or Wireless

*Depending on well configuration

DynaGauge® Tool Specifications

General			
Sensor Type	**Dual Piezo Silicon-Sapphire**	**Single Quartz**	**Dual Quartz**
Sample Rate	Up to 1 Dataset/sec	Up to 1 Dataset/sec	Up to 1 Dataset/sec
Memory Capacity	1M Dataset per Sensor	1M/2M Dataset	1M/2M Dataset per Sensor
Gauge Operation	Independent Sensors	One Sensor	Independent Sensors
Gauge Tool Length	68.80 in. (1,748 mm)	75.64 in. (1,921 mm)	78.21 in. (1,987 mm)
Gauge Metallurgy	Sour Conditions	Sour Conditions	Sour Conditions
Pressure			
Range	15,000 psi (1,034 bar)	Up to 30,000 psi (2,068 bar)	Up to 30,000 psi (2,068 bar)
Accuracy (Full Scale)	0.03% FS	0.015% FS	0.015% FS
Resolution (Full Scale)	0.0003% FS	0.00006% FS	0.00006% FS
Temperature			
Range	0 to 302°F (-18°C to 150°C)	0 to 350°F (-18°C to 177°C)	0 to 350°F (-18°C to 177°C)
Accuracy	1.00°F (0.56°C)	0.36°F (0.20°C)	0.36°F (0.20°C)
Resolution	0.030°F (0.017°C)	0.018°F (0.01°C)	0.018°F (0.01°C)

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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