

CaTS™ Wireless Surface Readout (SRO) System

CaTS uses advanced wireless telemetry technology to transmit high quality bottom hole pressure and temperature data to surface in real-time using electromagnetic (EM) through-tubing/casing communications. Having access to SRO data provides early confirmation that the quality and quantity of data collected is adequate to characterize the reservoir, leading to optimized timing of the well test operations. The data also serves as a valuable diagnostic tool to help analyse any well flow performance issues or uncertainties.

Specifications:

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| System pressure rating | | 15,000 psi |
| System temperature rating (including battery pack) | | 150°C / 302°F |
| Gauge carrier | <ul style="list-style-type: none"> - Positioned - Length - Maximum OD - Minimum ID - Holding | Above packer / below tester valve ~27ft 5.66" 2.25" 2 off CaTS SRO gauges (1 primary and 1 secondary, mounted side by side) |
| | <ul style="list-style-type: none"> - Connections - Material | 3 1/2" IF standard (premium connection available on request) In accordance with NACE MR-01-75 |
| Repeater stations | <ul style="list-style-type: none"> - Length - Max. OD (on 3.5" & 4.5" tubing) - Mounting mechanism - Distance between relays - Holding | 165" 7.50" Externally mounted on tubing inside 9 5/8" (or larger) casing ~2,000ft (subject to well parameters) 2 off CaTS Repeaters (1 primary and 1 secondary, mounted side by side) |
| Pressure measurement | <ul style="list-style-type: none"> - Sensor type - Accuracy - Resolution | Quartz Crystal ± 3.2 psi for a 16,000 psi transducer 0.01psi |
| Temperature measurement | <ul style="list-style-type: none"> - Sensor type - Accuracy - Resolution | Quartz crystal ±1°C 0.1°C |
| Memory recorder inside the SRO module | <ul style="list-style-type: none"> - Storage capacity - Fastest scanning rate | 1.8 million data sets (non volatile) 1 second |
| Surface readout performance | <ul style="list-style-type: none"> - Wireless communication method - Fastest data transmission rate | Electromagnetic (EM) 90 seconds |

Operation:

Data from a high specification quartz crystal pressure and temperature sensor, typically located above the packer and below the tester valve, is transmitted to surface using wireless communications technology via a network of repeater stations that are mounted externally on the tubing string. A surface receiver configured for use either onshore, or from a jack-up rig or semi-submersible vessel, collects and decodes the data for prompt analysis and early decision making. High frequency data is stored to the large internal memory of the SRO gauge for more detailed data analysis after the test string is recovered to surface.

