

DrillWatch

NOV's DrillWatch system provides accurate information on critical drilling and fluid parameters during drilling, tripping, and other sensitive rig activities. Utilizing large-scale, easily-readable liquid crystal displays, the DrillWatch system supplies rig personnel with important drilling and circulation system values and relative alarm point settings in a rugged, compact, stainless steel display unit designed for use on the rig floor. Backlighted LCDs allow easy viewing of information in all light conditions. Using the integral keypad, alarm points, alarm acknowledgment and display operation parameters such as active tanks, lines strung, gain/loss, top drive/rotary table gear select, trip mode and ROP status can easily be set or modified when drilling conditions or rig operations change.

The DrillWatch system monitors hook load and bit weight, standpipe pressure, revolutions per minute and torque, depth of hole, total active mud volume, gain/loss, individual and totalized Strokes Per Minute (SPM) from three pumps, and return flow from a variety of sensor input types, including voltage, current and pulse. Signals are processed by a DAQ data acquisition unit and transmitted on the communication network to the display. If desired, information can be interfaced to a personal computer for remote display, archiving and printing.

The compact size of the DrillWatch system display panel makes it ideal for use as an entry level product and can easily be integrated into a console or panel containing other instrumentation or control systems.

- Compact system displays all the primary drilling parameters.
- Simple operator interface.
- Full audio and visual alarm points set by driller.
- Large LCD displays with backlighting for all viewing conditions.
- Display certified EEx ia IIB T4 for hazardous area use.



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 **NATIONAL OILWELL VARCO**

DrillWatch

Features	Benefits
Multishot reader	
64 shots per survey run	Multishot capability saves rig time. The multishot reader provides the ability to collect multiple hole deviation points in one trip and the ability to drop the tool at TD and take surveys while tripping-out.
Manual depth entry	Multishot capability improves drilling efficiency. Depth entry allows drillers to correlate survey measurements to depth and determine where a hole became highly deviated, in one trip, to focus drilling effort on the section of the hole that needs to be re-drilled or reamed back to vertical.
Data logging	Stores crucial reporting data. Reader provides printed survey records and stores up to 1700 records which can be exported to a PC for analysis and reporting.
Ruggedized construction > 2000g shock resistance	Avoid expensive and unproductive rig time. Drill past formation that cause stuck pipe and maintain circulation, then drop tool when total depth is reached and collect surveys while tripping-out of hole.
Temperature reporting	Monitor well temperature. Temperature reporting allows driller to correlate depth with temperature and survey measurement.
Three button interface	Short six-step instructions. User friendly three-button interface with display prompts for quick and easy survey process and depth entry.
Digital format survey	Improve accuracy and inclination angle resolution. Digital readout eliminates interpretation of charts and allows determination of inclination angle to higher accuracy.
Rechargeable batteries	Up to 100 surveys per charge. Less time on charger with a longer operating time.
e-Totco tool	
Up to 150°C (302°F) operation	Greater depth capability. Higher operating temperature allows continued rig time savings to greater depths.
9-hour survey times (adjustable 5 to 18 hours)	Extended survey times. 1088 surveys per run, one survey every 30 seconds for a 9-hour total run time, adjustable to one survey every 60 seconds for an 18-hour run time.
Time synchronization	Reduce rig time to run the survey. Time synchronization of surveys eliminates timing guess work to run survey and waiting for clock time to run down. In addition, time synchronization reduces the risk of missed or moving surveys.
Real-time accuracy measurement	Real-time accuracy measurement assures quality of survey. Accuracy calculation is dependant on the stability of the tool during survey, if tool is moving it is reflected in the accuracy measurement.
Approximately 600 hours of clock run time	Long battery life for extended field use. Approximately 15 months between battery replacements with typical run times.
Power management	Guards against lost data and missed surveys. Monitors battery life and minimum voltage to ensure reliable surveys.

Better resolution than mechanical surveys

The e-Totco instrument has an electronic sensing system that produces 0.05% repeatability of survey records and 1% reading accuracy [$\pm 0.1^\circ$].

Greater range — up to 20 degrees

One e-Totco instrument provides all mechanical CVD instrument ranges: 1-1/2°, 3°, 7°, 8°, 14°, 16° and 20°.

Records downhole temperature

The e-Totco records the wellbore temperature at the survey depth and can be extrapolated to T.D. using depth gradient

e-Totco high temp (150°C)

Operating temperature: 10° to 150° C (50° to 302°F)

Survival temperature: -20° to 165°C (-4° to 329°F)

NOV specializes in drilling activity information gathering. When it comes to drilling instrumentation, nobody does it better than NOV. End-user confidence is gained and maintained through our 80+ years of industry experience and innovation. For more information, contact your local NOV account representative or visit us at www.nov.com.

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