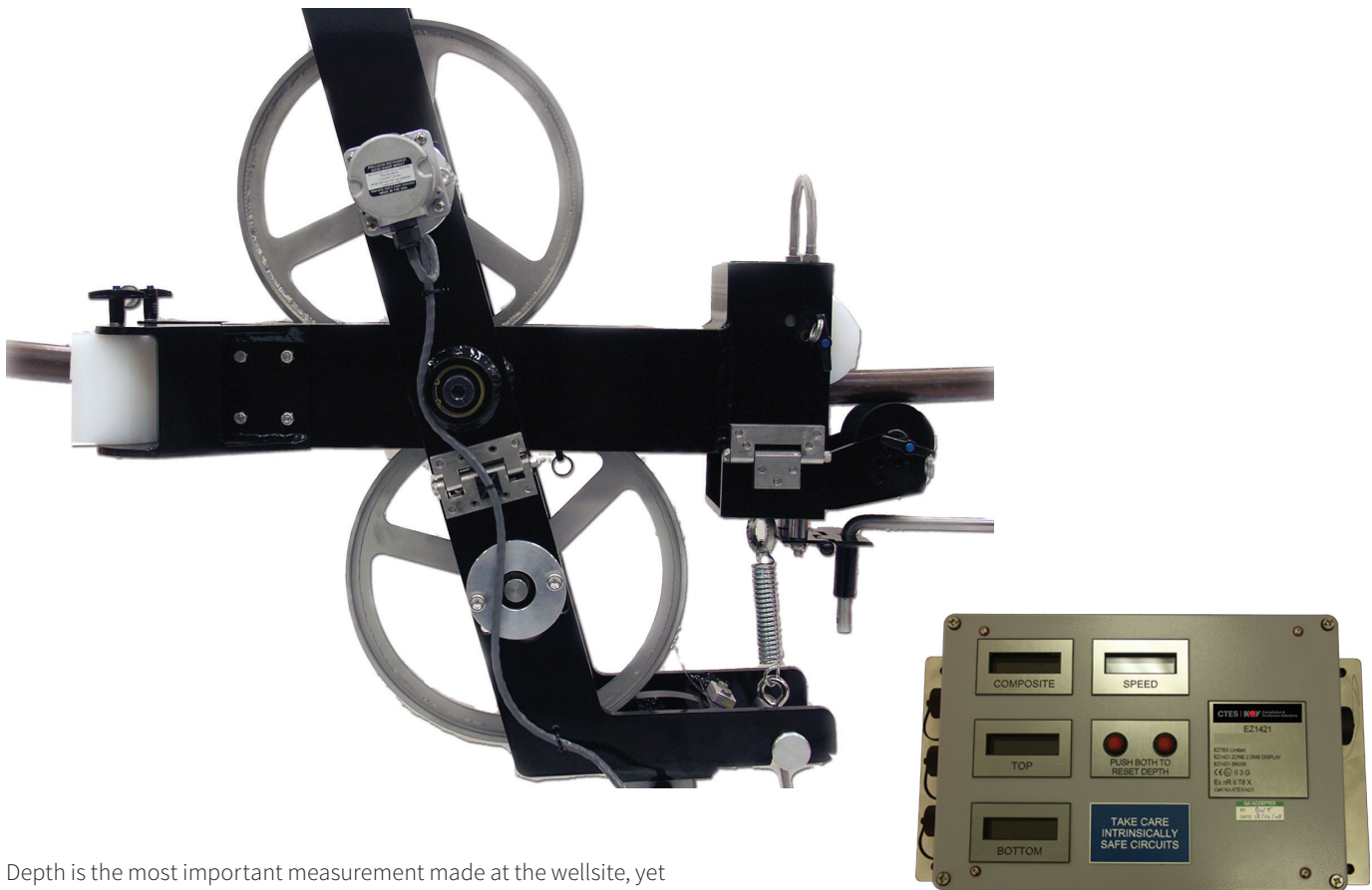


## Depth Measuring System (DMS) for Hazardous ATEX Area Use

Better depth measurement means safer, more efficient operations with higher user confidence.



Depth is the most important measurement made at the wellsite, yet conventional mechanical counters are often inaccurate due to pipe slippage passed the single small-diameter friction wheel.

Our Depth Measuring System is a dual-wheeled measuring device for accurate depth measurements of coiled tubing operations at the wellsite or during reel-to-reel spooling.

The DMS also employs proprietary software-controlled slippage compensation for a significantly more accurate measurement of the length of tubing spooled.

### Data manipulation module

The display module is mounted in the control cabin of the coiled tubing unit. This module is used to display and reset depth and speed. This display module also houses the onboard processor that runs the Fastest Wheel Algorithm (FWA). Digital display meters show the measured depth from the top and bottom wheels, as well as the composite depth from the FWA. Quadrature signals can be fed to any data acquisition system. The three connectors on the right side of the display are the outputs to any data acquisition system (DAS).

### Features and benefits

- Adjustable for 1 ¼" to 2 ⅞" coiled tubing
- Dual wheel design with dual depth encoders
- Slippage detection and compensation via microprocessor using FWA
- Internally mounted measuring wheel scrapers
- Integrates with Orion™ DAS and Cerberus™ to produce depth correction for temperature, stretch and buckling
- Stand-alone device compatible with any DAS
- Robust, field-proven design

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## Depth Measuring System (DMS) for Hazardous ATEX Area Use

### Cutting-edge technology

The DMS is a precision measuring instrument that is designed to be quickly and easily installed or removed from the coiled tubing prior to transport.

An ordinary depth counter's accuracy is hindered by depth wheel slippage.

The DMS design works to alleviate this problem in three ways:

- A lever-arm movement is used to maintain a high frictional contact force between the measuring wheels and the tubing.
- Two tungsten-coated stainless steel measuring wheels are used for accuracy and dependability in harsh operating environments
- A microprocessor is incorporated to run the FWA, while continually monitoring the speed of both wheels' electronic position encoders. The bottom wheel serves as master depth and the top wheel serves as backup depth. The top wheel takes over as master when the bottom wheel's speed is slower from slippage. The DMS displays a "composite" depth value.



## Specifications

Measuring head		Display unit	
<b>Mechanical</b>		<b>Mechanical</b>	
Weight	42 lbs	Enclosure	13" x 9" x 4.5"
Length	30"	Type	IP 67
Height	24"		
Width	13"	<b>Electrical</b>	
Measuring Wheel Circumference	36"	Supply Voltage	12VDC
Coiled Tubing Sizes	1 1/4" - 2 1/8"	Operating temperature range	-40° to 50° C
		Humidity	98% without condensation
<b>Electrical</b>		Hazardous Location Rating	ATEX II 3 G Ex nA [n Ria Ga] IIB T4 Gc
Supply Voltage	5 VDC (head)		
Pulses Per Rotation	600		
Frequency Response	100kHz		
Output Format	2-axis Quadrature		
Operating Temperature Range	-40° to 40° C		
Shock	50 Gs for 11-msec duration		
Vibration	5 - 2000 Hz @ 20 Gs		
Humidity	98% without condensation		
Hazardous Location Rating	Class I Groups A,B,C,D; Class II E,F,G or ATEX II 1 G Ex ia IIC T4 Ga		

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