Method for Rapid Location of Optical Cable Wells

Article Overview

Rapid positioning of optical cables in wells is achieved using advanced fiber-locating sensors and distributed optical fiber sensing technologies, enabling immediate orientation and accurate monitoring without additional mapping runs.

Downhole Fiber-Optic Cable Positioning

Traditional fiber deployment in wells often requires wireline mapping runs after casing installation to determine cable orientation, which is time-consuming, costly, and introduces operational risks. Modern solutions, such as Halliburton's FIBERSIGHT® map fiber-locating sensors, allow the cable orientation to be identified immediately after casing deployment without a separate mapping run, reducing costs and improving precision. These sensors are deployed along the wellbore during the casing run and communicate the fiber's orientation back to the surface, providing a fixed position immediately after the casing string lands and eliminating the need for wellbore modifications or larger hole sizes .

Permanent Fiber-Optic Cable Design

For long-term monitoring, permanent downhole fiber-optic cables are designed to withstand harsh conditions, including high pressure, elevated temperatures, mechanical shock, and corrosive fluids. SLB's tube-in-tube design features optical fibers in a hermetically sealed metal tube (FIMT) with protective gels and polymer layers to ensure strain-free deployment and long-term reliability. This robust design...

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Bazaid et al No 1

Common well integrity problems where fiber optics can be effectively deployed include identifying sources of sustained annulus

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Cable Installation Considerations for Structure Monitoring

Loose tube constructions allow the optical fibers within the cable subunits (tubes) to float freely, ensuring that the fibers have virtually

Jun 08, 2026

Research on fiber-optic cable location method

In this paper, a new fiber optic cable location method was proposed, which is based on Sagnac effect and fiber-optic

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Well and reservoir surveillance | FOWell | FEBUS Optics

FOWell, a distributed fiber optic sensing well monitoring solution, enables for real-time detection of leaks or deformations in the

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Underground Installation of Optic Fiber Cable Placing

Placing cables underground has the added benefits of reducing transmission losses, aiding planning consent and reduced risk of

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New methods in geophysical exploration and monitoring with DTS and

Apart from boreholes, fiber-optic sensing also opens up new possibilities for geophysical measurements at surface, especially since

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New Methods for Non-Destructive Underground Fiber Localization using ...

To the best of our knowledge, we present the first underground fiber cable position detection methods using distributed fiber optic

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Localization of Fiber Cable with Distributed Acoustic Sensing

Submarine and underground optical cables have been indispensable information transmission pipelines for decades. It is critical to

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A fiber high-precision detection of two-phase medium interface in salt ...

A novel method for detecting the two-phase medium interface in water-soluble salt cavity wells has been proposed to

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Optical cable, optical cable monitoring system, and well monitoring

A well monitoring method for monitoring leakage of oil from a well, using the optical cable monitoring system according to claim 4, in

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Optical cable location methods | Request PDF

There are determined conditions and demonstrated possibilities of applying these algorithms for optical cable location

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Fiber Optic Sensing for Downhole Monitoring in Oil & Gas

The subsurface environment of oil and gas wells presents extreme challenges—elevated

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A real time monitoring method for well-kick and lost circulation based ...

This method compares and analyzes the real-time measured temperature with the theoretically calculated temperature,

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Application of Distributed Acoustic Sensing in Geophysics ...

Distributed Acoustic Sensing (DAS) has been increasingly utilized to build relationships in complex geophysics

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Route Design/Cable Laying Technologies for Optical The geotechnical ...

Route Design/Cable Laying Technologies for Optical Submarine Cables which displays the connectivity of the submersible sys-tem

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FIBERSIGHT® map fiber locating sensors

FIBERSIGHT map sensors are deployed along the wellbore during the casing run to determine and communicate the orientation of a

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Research on Power Optical cable network Fault Location Based on

in power communication system, optical cable is the carrier of communication network. Once the optical cable is interrupted for a

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Distributed Fiber Optic Sensing for Real-Time Monitoring of Gas in ...

Current kick detection methods primarily utilize surface measurements and do not always reliably detect a gas influx.

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SECURING OIL WELLS USING FIBER OPTICS

Distributed sensing cable in industrial environments Sensing can take one of several technological forms, and can be used in many

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Estimation of Submarine Cable Location Using Optical-Fiber

Ascertaining the precise locations of submarine cables is crucial to their maintenance and to monitoring marine

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Submarine Cable Systems: A Review of Installation, Monitoring, and ...

Submarine cable systems are essential for intercontinental connectivity and the integration of offshore renewable

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Permanent fiber-optic cable

The fiber-optic line can be interrogated on a continuous or intermittent basis to provide rapid wellsite diagnostics without interfering

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Fiber-Optic Telecommunication Network Wells

The paper presents the application of a phase-sensitive optical time-domain reflectometer

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Borehole seismic survey using multimode optical fibers in a hybrid ...

Distributed Fiber Optic Sensing is increasingly recognized as a viable alternative to geophone arrays for the acquisition

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Well Integrity Monitoring

Silixa''s ArrayLog™ service provides well integrity monitoring using legacy fibres. The distributed nature of measurements means that

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Distributed Fiber Optic Vibration Signal Logging Well Production Fluid ...

Traditional logging methods need a lot of data support such as suction profile information, reservoir geological

Nov 20, 2025

System and method for deploying fiber optic lines in a wellbore

The method of claim 9, further comprising propelling the device in at least one of an angled well and a horizontal well by a tractor

Apr 18, 2026

How cable locators work – Principles of buried utility detection

Discover how to navigate the risks of underground water, gas, power, and telecom services disruption. Equip yourself

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For more information, pricing, or custom solutions, please contact us:

Website: https://chromadecksigns-eastrand.co.za
Email: sales@chromadecksigns-eastrand.co.za
Phone: +32 2 318 5792
Address: Avenue Louise 500, 1050 Brussels, Belgium

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