

Application of downhole temperature measurement optical cables in Mexico



Article Overview

Fiber optic distributed sensing (DTS, DAS, DSS) enables real-time, continuous downhole temperature and acoustic monitoring, improving well integrity, production optimization, and reservoir management.

Overview of Technology

Downhole optical cable technology uses single-mode or multi-mode fiber optic cables to measure temperature, acoustic signals, and strain along the entire wellbore. These systems rely on light scattering phenomena:

- Raman scattering for temperature measurement (DTS)
- Rayleigh scattering for acoustic and vibration detection (DAS)
- Brillouin scattering for combined strain and temperature sensing (DSS) A laser pulse sent through the fiber returns scattering signals, which are analyzed to provide continuous, high-resolution data along the well, unlike traditional point sensors .

Applications in Downhole Monitoring

- Temperature Monitoring (DTS)
- Provides a continuous temperature profile along the wellbore.
- Detects thermal anomalies caused by fluid movement, leaks, or injection cooling effects.
- Supports production optimization by identifying active zones and improving cluster spacing in horizontal wells

Article Content

Aug 03, 2025

Smart Fibres DPTS Brochure

DPTS TECHNOLOGY BENEFITS Why use fiberoptic for permanent downhole measurements? Fiberoptic technology is immune to

Aug 18, 2025

Downhole fiber optic temperature-pressure innovative measuring system ...

In this study, fiber optic Bragg grating (FBG) measurement technology is utilized applied in an attempt to replace more

Dec 12, 2025

An Industry Overview of Downhole Monitoring Using Distributed ...

Distributed Temperature Sensing (DTS) system using optical fiber has been deployed for downhole monitoring over

Oct 03, 2025

Real-time fiber-optic interpretation and analysis

At the heart of this system is Optiq real-time (RT) fiber-optic interpretation and analysis, which transforms raw distributed

Oct 13, 2025

Downhole Cables

TEF cable is a key enabler of modern well management technologies. TEF cable is the sensor element for modern distributed fiber

Dec 12, 2025

Optical Fibre-Based Sensors for Oil and Gas Applications

There are different optical sensing methodologies, but the selection needs to be carried out considering the

May 20, 2026

Real-Time Fiber Optic Monitoring Applications in Various Downhole ...

An operator in Mexico used the distributed temperature sensing (DTS) run with coil tubing to record temperature

Jul 13, 2026

Study Reviews Advances in Downhole Fiber-Optic Modeling and

As these smart tools are run downhole, fiber-optic cables are deployed in tandem to acquire continuous, spatially

Sep 23, 2025

SPECIALTY AND HARSH ENVIRONMENT FIBER OPTIC CABLE

Specialty Fiber Optic Cable Customers around the world benefit from using AFL fiber optic cable and components for downhole

Dec 28, 2025

Distributed Temperature Sensing as a downhole tool in hydrogeology ...

Distributed Temperature Sensing in subsurface applications allows the monitoring subsurface hydrology in

Jul 29, 2025

FIBER OPTIC SENSING IN THE OIL AND GAS INDUSTRY

It discusses downhole fiber cables and how they are deployed. The chapter also discusses drivers for fiber optic

Aug 10, 2025

Brochure_Application_Well_Reservoir_Monitoring_2025-08_EN_A11

It provides many benefits, such as the ability to perform different measurement types (e.g., temperature, acoustic, strain) using a

Feb 13, 2026

Fiber optics

Our proven fiber optics technologies also support point measurement pressure/temperature gauges to monitor downhole pressure

Sep 20, 2025

Slickline With Fiber-Optic Distributed Temperature ...

Distributed Temperature Sensing (DTS) system using optical fiber has been deployed for downhole monitoring over

Aug 15, 2025

Permanent fiber-optic cable

Permanent downhole fiber-optic cables are critical infrastructure in wellbore monitoring systems, ensuring reliable transmission of

Dec 01, 2025

How Fiber Optics Are Used in the Oil & Gas Industry

Distributed acoustic sensing (DAS), distributed temperature sensing (DTS) and distributed vibration

Jul 05, 2026

Application of Coiled Tubing Distributed Optical Fiber Temperature ...

The distributed optical fiber temperature sensing (DTS) system is used to collect the high frequency temperature

Feb 23, 2026

Fiber Optics | GEO PSI

Fill out this short questionnaire and one of our experienced team members will show you a

Oct 19, 2025

Downhole Fiber-Optic Monitoring: An Evolving Technology

Fiber Optics It has been an impressive comeback for a technology that once stood on the brink of failure. The upstream

Feb 14, 2026

Development and prospect of downhole monitoring and data

According to the production requirement, the future development direction of the downhole monitoring and data

Sep 07, 2025

PHOTONICS APPLIED: OPTICAL SENSING: Downhole sensing puts fiber optics ...

Unfortunately, the downhole environment is not kind to optics: Extremely high temperatures and pressures along with vibration and

Aug 10, 2025

Fiber Optic Distributed Temperature Sensing | US EPA

Abstract: Raman spectra distributed temperature sensing (DTS) by fiber-optic cables has recently shown considerable

Jun 12, 2026

Downhole Cables

TEF cable is the sensor element for modern distributed fiber optic sensing technologies of DTS and DAS, which have become

Oct 27, 2025

Application of Downhole Distributed Fiber Grating Monitoring

Petroleum is an essential strategic resource in various countries' economic and industrial development. The environment of high

Jul 16, 2026

Fiber Optics | GEO PSI

By pairing fiber optics with gauge sensing technology, we give you a more complete picture of downhole conditions

Jul 04, 2026

DTS Fiber optic distributed temperature

Opsens Solutions relies on Well.Done Distributed Temperature Sensing (DTS) system from LIOS Technology. Through close

Jul 02, 2026

High temperature RF transceiver design for high-speed downhole ...

However, the downhole communication system becomes the bottleneck for high data rates. The communication

Jul 11, 2026

SUBSEA FIBER OPTIC SYSTEMS MEET THE CHALLENGES OF

ithstand deepwater subsea and downhole in-well environmental conditions. At deepwater levels, temperatures are ty Design

Contact Us

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

Website: <https://www.chromadecksigns-eastrand.co.za>

Email: sales@chromadecksigns-eastrand.co.za

Phone: +32 2 318 5792

Address: Avenue Louise 500, 1050 Brussels, Belgium

This document is for informational purposes only. Specifications subject to change without notice.

