

# Application of High-Temperature Logging Optical Cables in Angola



## AI Overview

High-temperature logging optical cables enable precise, real-time monitoring of subsurface conditions in Angola's oil, gas, and mining sectors, improving safety, efficiency, and resource management.

**Overview of High-Temperature Optical Cables**

High-temperature logging optical cables are designed to operate in extreme environments, such as deep oil wells, gas wells, and coal mines, where temperatures can exceed 100°C and mechanical stresses are high. These cables often replace traditional water-blocking materials with solid foamed thermoplastic elastomers, enhancing durability and resistance to high temperatures and harsh chemical conditions. Reinforcements like corrugated steel tape or steel wire provide mechanical protection, while both metallic and dielectric designs allow for hundreds of optical fibers to be deployed in a single cable.

**Sensing Technologies**

These cables are commonly integrated with Distributed Temperature Sensing (DTS) systems, which use standard optical fibers as linear temperature sensors over long distances. DTS relies on Raman or Brillouin optical scattering and Optical Time Domain Reflectometry (OTDR) to provide high-resolution temperature profiles along the fiber, with spatial resolution down to one meter. This allows operators to monitor temperature variations in real time, detect anomalies, and optimize well performance or pipeline safety. Other fiber-optic sensing methods include fiber Bragg gratings (FBG), interferometric sensors, and hybrid systems combining DTS with Distributed Acoustic Sensing (DAS) for strain and vibration monitoring. These technologies are particularly useful in Angola's oil and gas fields, where deep wells and high-pressure reservoirs require precise subsurface monitoring.

**Applications in Angola**

**Oil and Gas Exploration:** High-temperature optical cables can be deployed in deep offshore and...

## Article Content

### Optical Fiber Sensors for High-Temperature Monitoring: A Review

This paper reviews the sensing principle, structural design, and temperature measurement performance of fiber-optic high-temperature sensors, as well as recent significant

### Application of optical-fiber temperature logging

The most appropriate applications for the DTS logging de-vice may be the installation in a borehole for extended periods of time to monitor transient subsurface temperature changes, for example ...

### Optical fiber logging cable Special cable

Optical fiber logging cable is a type of cable used in oil and gas well logging applications. It is designed to provide high-speed data transmission over

### Fiber Optic Distributed Temperature Sensing | US EPA

Temperature of the bath is independently measured over time using a high precision thermistor built into the control unit or a discrete temperature logger supplied by the user. The FO

### Application of Coiled Tubing Distributed Optical Fiber Temperature ...

The distributed optical fiber temperature sensing (DTS) system is used to collect the high frequency temperature through the coiled tubing downhole optical fiber.

### Distributed optical fiber temperature sensor and its application in ...

This paper analyzes the demand of temperature measurement for high temperature wells of oilfields and demonstrates the unique advantages of the distributed optical fiber temperature

### Distributed Temperature Sensing (DTS) | AP Sensing

Distributed Temperature Sensing (DTS) systems provide temperature information for accurate thermal monitoring, fire detection, and condition assessment by

### Research on the Data Interpretation Model of Optical Fiber Profile ...

Fiber optic cables have the advantages of high temperature resistance, high pressure resistance, corrosion resistance, and high accuracy in measuring temperature DTS data. They are widely used

### Fiber Optic Sensing for Downhole Monitoring in Oil & Gas

Explore how fiber optic sensing is transforming downhole monitoring for safer, more efficient oil and gas operations.

New methods in geophysical exploration and monitoring with DTS and

We show that fiber-optic sensing opens up new possibilities for geophysical measurements with a broad range of applications in well logging and seismic exploration and monitoring.

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First, in view of the slow transmission rate of the logging cable, an advanced high-speed cable transmission module is adopted. Secondly, the ground system and the downhole instrument were

Memory high temperature production logging technology and applications

In combination with Production logging, Spectral Noise Log (SNL) & High Precision Temperature (HPT) tool string have been running in-memory mode. Combining the technologies

Optiq Fiber-Optic Solutions | SLB

For permanent deployment, the hybrid fiber-optic electrical cable of Optiq solutions is installed within the completion string or behind tubing. It can also be installed

Dakota--Temperature Logging 1--Introduction

For the application of continuous, high-resolution temperature logging for scientific purposes, two major types of logging tools are used currently: (1) conventional "electric-line" systems with real-time

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Specifically, we highlight the diagnostic power of distributed temperature sensing (DTS) and distributed acoustic sensing (DAS) in two real-world field applications. In each case, traditional tools failed to

The High-temperature Resistant Well Logging Optical Cable

The High-temperature Resistant Well Logging Optical Cable Suitable for oil wells, gas wells, coal mines or under high temperature conditions. Cables marked with Dry; Are a series of cables in which the

Borehole Optical Fibre Distributed Temperature Sensing

This expertise helps to locate and monitor geothermal installations as well as observe diverse aspects of natural and man-made thermal effects.

Research on Key Technologies of 260 °C/210 MPa

This paper introduces the key technologies of ultra-deep measurement logging equipment, including high-strength mechanical structure,

Development and Improvement of an Intelligent Cable

Therefore, the application of distributed temperature sensing (DTS) technology on OFCPCs used as underground distribution lines is studied for the

Downhole Logging Signal Cable Geophysical

Downhole Logging Signal Cable Geophysical Exploration Dipmeter Cable Log Armored Cable 3/16, 4/16, Find Details and Price about High

Downhole Logging

Cables and material systems designed to support performance in elevated downhole temperatures, including high-temperature cased-hole and geothermal

Production logging via coiled tubing fiber optic ...

The downhole instrument The downhole instrument of ACTIVE optical fiber transmission system mainly consists of three parts, which can be assembled individually or in combination. Fiber optic head

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