Brands of Underground Temperature Measurement Optical Cables



Overview

Temperature Monitoring in Power Cables Monitoring Through continuous, real-time temperature monitoring of power cables operators can detect incipient hotsp.

Key Takeaways

Key brands for underground temperature measurement optical cables include Rugged Monitoring, AP Sensing, Sumitomo Electric, and Optromix, offering fiber-optic solutions for real-time monitoring of cable temperatures.

Rugged Monitoring

Rugged Monitoring provides fiber-optic sensing technology for continuous, real-time temperature monitoring of power cables, including joints and terminations. Their system integrates IoT sensors, edge devices, and APM software to detect gradual thermal accumulation, hotspots, and insulation degradation. The sensors are immune to electromagnetic interference and designed for harsh, high-voltage environments, enabling predictive maintenance and enhanced network reliability.

A

P SensingAP Sensing, based in Germany, offers Distributed Temperature Sensing (DTS), Distributed Temperature & Strain Sensing (DTSS), and Distributed Acoustic Sensing (DAS) for underground cables. Their solutions provide thermal profiling, early fault detection, and real-time monitoring. The fiber-optic cables are unaffected by strain or electromagnetic interference, ensuring accurate measurements for dynamic cable rating (RTTR) and machine learning-based event detection.

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Sumitomo Electric

Sumitomo Electric's OPTHERMO™ system uses optical fibers embedded in or attached to power cables as distributed temperature sensors. It allows continuous measurement over long distances with high resolution.

Their AOLC

M (Automatic On-Line Cable Monitoring) system monitors insulation conditions in medium-voltage cables without power outages, providing early warning of deterioration and enabling long-distance submarine cable monitoring.

Optromix

Optromix provides Distributed Temperature Sensing (DTS) systems capable of monitoring temperatures along fiber-optic cables up to 100 km in real-time. Their systems, including the DTS 500, DTS 560 Dual Laser, and DTS 1000 Series, are resistant to electromagnetic interference, chemical effects, and corrosion, making them suitable for oil & gas and underground cable applications. They also offer high-frequency monitoring for fast temperature changes.

Summary

These brands represent leading solutions for underground temperature measurement using optical cables, offering technologies that ensure real-time monitoring, high accuracy, and reliability in harsh environments. When selecting a system, consider factors such as distance coverage, environmental resistance, integration with SCADA or APM platforms, and the ability to detect hotspots or thermal anomalies. These solutions are widely used in power distribution networks, industrial facilities, and critical infrastructure to prevent cable failures, optimize load capacity, and extend asset life.

Article Content

Temperature Monitoring in Power Cables Monitoring

Through continuous, real-time temperature monitoring of power cables operators can detect incipient hotspots, reduce the risk early in order to prevent failures.

Prevent Cable Failures w. Underground Cable

Our underground cable monitoring solution provides enhanced reliability, cost efficiency, and improved safety through comprehensive monitoring of

Power Cable Monitoring System

The power cable monitoring system provided by Sumitomo Electric, such as OPTHERMO™ and AOLCM system, contributes to robust asset management of

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A Sensor for Multi-Point Temperature Monitoring in Underground

This study introduces an alternative system for monitoring the temperature of underground cables using NTC thermistors. Its design allows for reducing the number of connection conductors for

Distributed Temperature Sensing (DTS) | AP Sensing

Distributed Temperature Sensing (DTS) systems provide temperature information for accurate thermal monitoring, fire detection, and condition assessment by utilizing standard fiber optic cables. These

Distributed Temperature Sensing Fiber Optic Cable (DTS)

As the distributed temperature sensing fiber optic cable allows temperature measurements to be taken along the entire length of the cable, temperature

Temperature monitoring techniques of power cable joints in

This study proposed a sensor module that can monitor the temperature of the power cable joint using a fiber optic sensor. The advantage of using fiber optic sensors is that they are not

DTSX200 Distributed Temperature Sensor

DTSX measures temperature distribution over the length of an optical fiber cable using the fiber itself as the sensing element and it is ideal for temperature

EN RE Power Cable DTS System

The Luna EN RE power cable DTS system is an optical fiber-based temperature measurement system designed to monitor underground T&D power cables and

Distributed Temperature Sensing (DTS) | NKT

Unlock maximum performance and early detection of potential issues with our temperature sensing technology. DTS utilizes optical fiber to gauge temperature

Development and Improvement of an Intelligent Cable

At the same time, many underground distribution line faults can be corrected by on-line monitoring the cable itself. For real-time checking of cable

Temperature sensing in underground facilities by Raman optical ...

High-resolution temperature sensing with Raman optical frequency domain reflectometry (OFDR) using optical communication fiber cables shows great potential as it allows the surveillance of several

Distributed temperature measurements using optical fibre technology

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This article experimentally examines the applicability of a temperature measuring and monitoring system using distributed temperature sensing by means of an optical fibre in an

Considerations for advanced temperature monitoring of underground

Temperature monitoring using fiber optic sensors to get a distributed temperature profile along an underground cable circuit is increasingly being used by utilities. However, effectively

A Sensor for Multi-Point Temperature Monitoring in Underground Power Cables

Current temperature measurement methods, including fiber-optic-based systems (DTS and LTS), involve high costs that limit their feasibility in medium-voltage networks, where more

Guide for the Application of Distributed Fiber Optic Temperature

This report summarizes distributed fiber optic-based temperature measurement technologies and how this type of technology can be applied to underground power cables through case studies,

DTSX3000 Distributed Temperature Sensor

What Is Distributed Temperature Sensing? Distributed temperature sensing (DTS) measures temperature distribution over the length of an optical fiber cable using the fiber itself as the sensing

Distribution Underground Network Temperature Monitoring

Temperature is a parameter which limits the transmission capacity of cables and especially underground networks are susceptible to influences by thermal heat resistivity, adjacent cables, and other sources

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