

Principle of Vietnam s Underground Temperature Measurement Optical Cable



Overview

Measurement is performed by means of distributed temperature sensing (DTS) systems, which are based on optical fiber technology. Our power cable monitoring solution balances the need for asset protection and network performance optimization. Distributed temperature sensors use fiber optic as. Underground electrical conductors, both medium-and high-voltage, play a crucial role in energy infrastructure. However, they present a maintenance challenge due to their difficult access. These fiber optic systems precisely measure the temperature profile of an asset by interpreting the. Thermal models and real-time temperature measurement can provide dynamic rating system. And this system allows qualification of actual cable capacity, cable conditions and environmental parameters critical to the stability and longevity of the cable system. Reinsch 1 1 GFZ German Research Centre for Geosciences 2 BAW Federal Waterways Engineering and. Kuljit Singh BSc Honours MIEE(IET,UK) Dan Watley Ph.



Article Content

Apr 27, 2026

CABLE MONITORING SOLUTION

- Change of conductor temperature is the vital requirement but is damped as it reaches fibre - Therefore high resolution is essential - Sensornet can measure down to 0.01°C

Jul 24, 2025

Temperature Measurement Using Optical Fiber

Abstract The paper deals with the overview of fiber optic methods suitable for temperature measurement and monitoring. The aim is to evaluate the

Jun 14, 2026

Temperature sensing in underground facilities by Raman optical ...

By measuring backscatter from both ends of the fiber optic cable, one can redress the effects of differential attenuation, as caused by bends, splices, and connectors. The methodological principles

May 23, 2026

Considerations for advanced temperature monitoring of underground

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

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Temperature Measurement Using Optical Fiber

fluoroSENZ Fluorescence Based Temperature Measurement Working Principle It is a single point contact temperature measurement system. A Fluorescent sensor is formed at the tip of the Optical

Aug 20, 2025

Advances in fibre optic based geotechnical monitoring systems for ...

In a BOTDA based rock monitoring system in an underground metalliferous mine, a multi-fibre optic cable was used to provide temperature compensated distributed strain within 25 m long

May 10, 2026

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

Nov 21, 2025

Using optical fibers for temperature measurement, Part

Using optical fibers for temperature measurement, Part 2: Principles April 7, 2021 By Bill Schweber Leave a Comment Among the many ways to

Sep 29, 2025

A Sensor for Multi-Point Temperature Monitoring in

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

Jan 14, 2026

DISTRIBUTED TEMPERATURE SENSOR (DTS) CABLE

These types of power cable are very useful to measure distributed temperature. The sensing fiber located close to the cable core, provides a better indication of

Jul 15, 2025

The effects of sand and pipes on the temperature distributions of the ...

The underground power cable system may operate at the maximum possible current of the conductor; Heat dispersion from the hot conductor to the surrounding soil plays the main role in

Nov 17, 2025

Temperature Monitoring for 500 kV Oil-Filled Submarine Cable Based

The 500 kV oil-filled ac submarine cables in the networking project of China's southern coast are large capacity, ultrahigh-voltage cross-sea submarine power cables, which are 31 km long and bundled

Dec 18, 2025

Multi-Parameter Optical Monitoring Solution Applied to

This work presents a multi-parameter optical fiber monitoring solution applied to an underground power distribution network. The monitoring system

Oct 19, 2025

Applications of fibre optic temperature measureme

Abstract. Temperature measurement is crucial for many industrial processes and monitoring tasks. Most of these measurement tasks can be carried out using conventional electric temperature sensors, but

May 05, 2026

Distributed temperature measurements using optical fibre technology

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

Apr 12, 2026

(PDF) Distributed Temperature Sensing: Review of

Distributed temperature sensors (DTS) measure temperatures by means of optical fibers. Those optoelectronic devices provide a continuous profile

Dec 14, 2025

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

Jun 23, 2026

Internal temperature measurement and conductor temperature calculation ...

The optical fiber was installed on the surface of the cable by Li to calculate the conductor temperature through estimating the cable surrounding soil thermal parameters, and wound along the

Jun 20, 2026

A distributed optical fiber sensor for temperature detection in power ...

In this study, an optical fiber and distributed temperature sensing (DTS) method have been used to obtain the temperature profile along the cable. The term "distributed sensing" defines a

Sep 23, 2025

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 extensive networks of fiber-optic cables for telecommunication and data

Mar 14, 2026

Fiber-optical thermometer

Fiber-optical thermometer Fiber-optical thermometers can be used in electromagnetically strongly influenced environment, in microwave fields, power plants or explosion-proof areas and wherever

May 20, 2026

Fiber Optic Temperature Sensors: Types, Working

Explore the structure, working principles, advantages, and disadvantages of Fiber Optic Temperature Sensors for accurate temperature measurement in diverse

May 08, 2026

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

Jun 03, 2026

Fiber optic techniques for temperature measurement

Early work on temperature sensors concentrated upon the conversion of conventional optical techniques to fiber optic methods. For example, the radiation thermometer is well known and its

Apr 21, 2026

In-Depth Overview of Fiber Optic Temperature Sensors

A fiber optic temperature sensor is a temperature measurement device that uses optical fibers as the sensing medium. Unlike traditional electrical temperature

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Power Cable Monitoring System

Long distance submarine power cable temperature monitoring by two sets of OPTHERMO™ has been installed at both terminal stations. PRODUCT

Jun 05, 2026

Temperature Monitoring System for UG Power Cable

A distributed temperature sensor (DTS) is applied to continuously monitor the temperature of the underground cable. The DTS measurement principle must be

Contact Us

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

Website: <https://www.regen-power.co.za>

Email: info@regen-power.co.za

Phone: +49 176 845 2036

Address: Taunusanlage 15, 60325 Frankfurt am Main, Germany

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