Principle of Egyptian Temperature Measuring Optical Cable

Overview

The principle of operation is based on the temperature dependence of the bandgap of GaAs. The GaAs crystal fixed on the tip of the fibre will be transparent at a wavelength above 850 nm. The position of the band edge is temperature-dependent and is shifted about 0.4 nm/K. The light is directed via the optical fibre to the crystal, where it is absorbed and partially reflected into the fibre. A miniature spectrometer provides a spectrum with the position of the band edge, from which the temperature is calculated.

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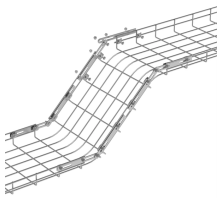
Explore the critical role of temperature measurement in ancient civilizations, including Egypt, Greece, and China. Discover how these societies innovatively gauged heat through natural indicators and ...

Abstract—Distributed temperature sensors (DTS) measure tem-peratures by means of optical fibers. Those optoelectronic devices provide a continuous profile of the temperature distribution along the ...

OverviewMeasurement principleStructureApplicationsFiber optic vendors



Bandweaver explains more about what distributed temperature sensing (DTS) is and how fiber optic temperature sensor works. The DTS systems measure temperature along the length of a fiber optic ...

Distributed temperature sensing (DTS) measures temperature distribution over the length of an optical fiber cable using the fiber itself as the sensing element. Unlike traditional electrical temperature ...

Optical temperature sensors are temperature sensors which are based on optical technology — in most cases, on fiber optics. They can be based on different operation principles as explained in the following.

It consists of a measurement instrument (laser source, optical module, receiver and evaluation unit) and a quartz glass fiber cable. Thermal molecular oscillations of the quartz glass material cause a Raman ...

The measurement results of the HTS cable by optical fiber are shown. Distributed Temperature Sensor (DTS) based on Raman scattering have a promising application in temperature ...

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“For a given set of 3 thermocouple wires, A, B, and C, all measuring the same temperature difference T1 - T2, the voltage measured by wires A and C must equal the sum of the voltage measured by wires ...

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

Website: https://gdroofing.co.za
Email: sales@gdroofing.co.za
Phone: +27 72 418 9365
Address: 22 Electron Avenue, Isando, Johannesburg, 1600, South Africa

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