ZITHA TECH SPECIALTY CABLES (Pty) Ltd

Fiber Optic Sensor for Precise Concentration Measurement



Overview

A quasidistributed fiber sensor for solute concentration measurement based on Fresnel reflection from fiber tips and the interrogation of an arrayed waveguide grating is presented. Thin-film filters are utilized to achieve the possibility of wavelength-division-multiplexing. The device consists of two photonic crystal (PhC) fiber-tip sensors: one measures the ethanol concentration via refractive index (RI) changes and the other one is isolated from the liquid for the independent measurement of temperature. Additionally, FOSs have a small size, are lightweight, and. A new and simple calibration technique that greatly enhances the measurement sensitivity of conventional fiber-optic reflectometry based on Fresnel reflection from the tip of a fiber is used for demonstrating the feasibility of measuring solute concentrations and index changes in fluids to very. An inline, real-time optical fiber-based chemical concentration monitor that enables measurements of chemicals used in semiconductor manufacturing processes such as cleaning and etching. Inline real-time measurements can be obtained. 24 September 2007; 91 (13): 131101.



© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

Article Content

Fiber optic SPR sensor for liquid concentration measurement

A liquid concentration measurement system with end-reflection optic fiber SPR sensor was set up in this paper. Especially, a chemical method based on silver mirror reaction is proposed to

THE DESIGN OF FIBER OPTIC SENSOR FOR THE

In this paper, we present a fiber optic intensity modulated sensor designed for solution concentration measurement. Our work focuses on optimizing the experimental setup by adjusting the fiber

A Novel Compact Fiber Optic Concentration Sensing System Based

A novel compact optical fiber concentration sensing system based on machine learning was proposed and experimentally demonstrated in this paper. The Michelson i.

A Fiber Optic Sensor for Measurements of Solute Concentration in Fluids

A new and simple calibration technique that greatly enhances the measurement sensitivity of conventional fiber-optic reflectometry based on Fresnel reflection from the tip of a fiber is used for ...

(PDF) Fiber Optic Sensor for the Measurement of Concentration and ...

In this work, an optical fiber refractive index sensor based on the Fabry-Perot interferometer technique is submitted. Single-mode fibers with different diameters (125, 60, and 50)

CS-100F1 Series Fiber Optic Type Chemical Solution Concentration ...

An inline, real-time optical fiber-based chemical concentration monitor that enables measurements of chemicals used in semiconductor manufacturing processes such as cleaning and etching.

Ultra-sensitive fiber optic sensor for glucose concentration ...

In this paper, a fiber optic glucose concentration sensor based on cascaded Mach–Zehnder interferometers (CMZIs) was proposed and experimentally verified.

A quasidistributed fiber optic sensor for solute concentration ...

A quasidistributed fiber sensor for solute concentration measurement based on Fresnel reflection from fiber tips and the interrogation of an arrayed waveguide grating is presented.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

(PDF) Fiber Optic Sensor for the Measurement of

This paper reports the use of fiber optic sensor consists of two-fiber probe and reflector for the measurement of concentration and refractive index of

Intelligent Fiber Optic Sensor for Estimating the Concentration of a ...

This paper presents the construction and working principles of an intelligent fiber-optic intensity sensor used for examining the concentration of a mixture in conjunction with water. It can

Liquid concentration measurements with fiber optic sensor

We present liquid concentration measurements based on light losses in fiber optic curvatures. Lateral polishing of the transition region of its u-shaped curved fiber increases sensor sensitivity.

Highly Sensitive Glucose Concentration Detection Using a

This study presents a glucose concentration detection system based on a microfluidic chip integrated with a Fabry–Perot interferometer optical fiber sensor (FPIOFS). The Fabry–Perot resonator is

Fiber Optic Sensors: A Review for Glucose

Diabetes mellitus is a chronic metabolic disorder, being globally one of the most deadly diseases. This disease requires continually monitoring of the

Fresnel-reflection-based fiber sensor for on-line measurement of

A fiber-optic sensor based on a two-channel Fresnel reflection technique for the measurement of solute concentrations is proposed in this paper. The relationships between

Reflective Optical Fiber SPR Sensor for Simultaneous Measurement

To achieve a compact and robust structure, a reflective optical fiber surface plasmon resonance (SPR) sensor is proposed for the simultaneous measurement of glucose concentration

Measurement of glucose concentration by fiber-optic ...

A measurement method of glucose concentration based on fiber-optic surface plasmon resonance (FO-SPR) is proposed to achieve online, real-time detection of human blood glucose

Optical fiber sensors for glucose concentration measurement: A

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved

Optical fiber sensors (OFS) as ideal platforms for glucose detection, presents good biocompatibility, small size, anti-electromagnetic interference, chemical inertness and distinct

Graphene enhanced optical fiber SPR sensor for liquid concentration ...

The proposed optical fiber SPR sensor can be easily used in measuring refractive index or liquid concentration with many advantages, such as extremely simple, easy to measure, high

Contact Us

Continue your research online:

Website: https://zithatech.co.za
Technical inquiry: https://zithatech.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 ZITHA TECH SPECIALTY CABLES (Pty) Ltd - All rights reserved