

Single-mode fiber optic humidity sensor



Overview

The sensor consists of a symmetrical, non-adiabatic, tapered, single-mode optical fiber, operating at the wavelength near the dispersion turning point, and a cascaded fiber Bragg grating (FBG) for temperature compensation. We demonstrate an all-fiber, high-sensitivity, dual-parameter sensor for humidity and temperature. The evolution of optical structures developed towards humidity. A new optical fiber humidity sensor with high sensitivity is reported. By depositing a humidity sensitive material, such as poly (ethylene oxide) (PEO) on the bare SCSMF fiber, the proposed structure can act as. The Fabry-Pérot interferometer (FPI) structure has been designed and fabricated through the heterogeneous splicing of single-mode fiber to hollow-core fiber, coupled with precision length cutting. Humidity sensitive materials of polymethyl methacrylate (PMMA), polyvinyl alcohol (PVA), and.



Article Content

Highly Sensitive Fiber-Optic Humidity-Sensing System by Using GO

In this article, a microwave photonic filter (MPF)-based fiber-optic humidity sensor is proposed and experimentally demonstrated.

Fiber Optics Technology for Temperature and Humidity Sensor

This chapter reviews optical fiber sensors designed for measuring temperature and humidity, covering their

Single-Mode-Multimode-Single-Mode Fiber (SMS): Exploring

In this letter, we study the environmental sensing capabilities of a single-mode-multimode-single-mode (SMS) fiber in

(PDF) A High Temperature Humidity Sensor Based on a Singlemode

An optical fibre curvature sensor based on a twisted multimode fibre (MMF) sandwiched between two single-mode

High sensitivity Mach-Zehnder interferometric fiber-optic humidity ...

This fiber-optic humidity sensor offers both high humidity sensitivity and low-cost, straightforward preparation, making it

Singlemode-Multimode-Singlemode Fiber Structures for Sensing ...

SMS structures can be used in a variety of optical fiber systems but are most commonly used as sensors for a variety

A Humidity Sensor Based on a Singlemode-Side Polished Multimode ...

A novel relative humidity sensor based on a singlemode-side polished multimode-singlemode fibre structure coated

Novel optical fiber humidity sensor based on a no-core fiber structure ...

Recently Wu proposed to use a simple single mode-small core fiber-single mode fiber structure as a humidity sensor

Humidity Sensor Based on a Hollow Core Fiber Anti

In this paper, a graphene oxide (GO) composite film-coated humidity sensor is proposed

Optical Fiber Humidity Sensor With Enhanced Sensitivity by Double

The sensor is fabricated by inserting a section of single-mode fiber (SMF) into a hollow-core fiber (HCF), and coating with polyvinyl

A humidity sensor based on a singlemode-side polished multimode ...

Request PDF | On Jul 21, 2017, Xianfan Wang and others published A humidity sensor based on a singlemode-side polished

Compact FPI-Based Fiber Optic Humidity Sensors

Humidity sensitive materials of polymethyl methacrylate (PMMA), polyvinyl alcohol (PVA), and

All-fiber temperature and humidity sensor based on photopolymer and ...

Abstract The ability to monitor temperature and humidity simultaneously is critical for biomedical and industrial

A fully distributed fiber optic sensor for simultaneous relative ...

Abstract A distributed fiber-optic sensor for simultaneous relative humidity (RH) and temperature measurement is

Recent Developments in Fiber Optics Humidity Sensors

The present paper reports the current trends of optical fiber humidity sensors. The evolution

Non-Adiabatically Tapered Optical Fiber Humidity

The sensor consists of a symmetrical, non-adiabatic, tapered, single-mode optical fiber,

Review Fibre-optic sensor technologies for humidity and moisture ...

Abstract A review of the use of fibre-optic sensor technologies for humidity sensing is presented. The paper first

Simple high-sensitivity optical fiber humidity sensor

A new optical fiber humidity sensor with high sensitivity is reported. We effectively control the light-intensity changes in a smaller

A humidity sensor based on Anti-Resonant optical fiber for breath ...

We report an optical fiber humidity sensor based on the anti-resonance (AR) structure of single mode fiber (SMF) –

High Temperature Humidity Sensor Based on

High Temperature Humidity Sensor Based on Singlemode-Side Polished Multimode-Singlemode (SSPMS) Fiber Structure Xianfan

Relative Humidity Sensor Based on No-Core Fiber Coated by ...

In this paper, an agarose gel-based single-mode-no-core-single-mode optical fiber (SNCS) structure sensor for RH

A High-Temperature Humidity Sensor Based on a Singlemode-Side

A relative humidity (RH) sensor based on a simple singlemode-side polished multimode-singlemode (SSPMS) fiber hybrid structure

Optical fiber humidity sensor based on a tapered fiber coated with ...

An optical fiber humidity sensor (OFHS) has been fabricated using a hydrophilic gel (agarose) deposited on the

Single-Mode Modified Tapered Fiber Structure Functionalized

A sensitive tapered optical fiber sensor incorporating graphene oxide (GO) and polyvinyl alcohol (PVA) composite film

Humidity sensor based on a single-mode hetero-core fiber structure

By depositing a humidity sensitive material, such as poly (ethylene oxide) (PEO) on the bare SCSMF fiber, the proposed structure

Humidity sensor based on a single-mode hetero-core fiber structure

Using a small-core single-mode fiber (SCSMF), a novel relative humidity (RH) sensor based on an SMF28-SCSMF-SMF28 fiber

Reflective High-Sensitivity Humidity Sensor Based on Single Mode-No ...

A reflective high-sensitive humidity sensor based on a brief no-core fiber (NCF) sandwiched between a single mode fiber (SMF) and

Optical fiber based on humidity sensor with improved sensitivity for ...

In this study, we propose an optical fiber humidity sensor based on MZI. No core fibers (NCFs) with different diameters

Contact Us

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

Website: <https://e-motional.eu>

Email: info@e-motional.eu

Phone: +49-30-657-8924

Address: Friedrichstraße 101, 10117 Berlin, Germany

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