Optics & Photonics

Adicor Photonics Europe S.A.

Fiber Optic Target Flow Meter Sensor

Overview

We propose a flow meter that, unlike turbine or pressure-based sensors, is not flow intrusive, requires zero maintenance, has low risk of clogging, and is compatible with harsh conditions. Using optical fiber sensing, we monitor the temperature distribution along a fluid. In this paper we review the main features of SMSs as temperature sensors and we present a potential biomedical application in an all-fiber flowmeter based on the hot-wire principle: a fiber-coupled laser source at 980 nm is used as a controllable heating source of the SMS sensor that, when immersed. Monitoring fluid flow rates is imperative for a variety of industries including biomedical engineering, chemical engineering, the food industry, and the oil and gas industries. Quickly and easily recognize the sensor status by simply looking at the fiber head. Differential measurements of temperature and pressure are achieved using two FBGs.

Article Content

A high sensitivity fiber optic macro-bend based gas flow rate ...

A novel fiber optic macro-bend based gas flowmeter for low flow rates is presented. Theoretical analysis of the sensor working principle, design, and static calibration were performed.

Optical fiber flowmeter based on a single mode-multimode ...

The optical fiber sensor can be used as a hot-wire flowmeter, where a gas flow removes the optically-generated heat resulting in a spectral blue-shift of the transmission spectrum.

Novel target type flowmeter based on a differential fiber Bragg grating ...

Abstract A novel integrated optical fiber sensor was proposed for temperature, pressure and flow measurement. One fiber Bragg grating (FBG) was fixed in the target for temperature

Liquid Flow Meter by Fiber-Optic Sensing of Heat Propagation

We propose a flow meter that, unlike turbine or pressure-based sensors, is not flow intrusive, requires zero maintenance, has low risk of clogging, and is compatible with harsh conditions. Using optical

Novel integrated optical fiber sensor for temperature, pressure and ...

Abstract A novel integrated optical fiber sensor was proposed for temperature, pressure and flow measurement. One fiber Bragg grating (FBG) was fixed in the target for temperature

Research on One-Piece Structure Target Flow Sensing ...

Abstract: In view of problems existing in the detection of the traditional hydraulic system, such as the large volume of sensor and the low measurement accuracy, a new one-piece target type flow sensor

Fiber Optic Sensors | KEYENCE America

There are several types of fiber optic sensors. Detection methods include thrubeam, reflective, retro-reflective, and definite-reflective. Each method is used for

Industrial Fluid Flow Measurement Using Optical Fiber Sensors: A

This work discusses various optical fiber flow meters developed in the past, which have great potential for industrial applications. The optical fiber flow sensors are classified on the basis of

c080107.dvi

Fiber flow sensors have been developed in the last ten years[5,6]. Compared with other traditional flow sensors, fiber-optic flow sensors have many advantages, such as big dynamic measurement scope,

Design of the target type flowmeter based on fiber Bragg grating and ...

The target type flowmeter based on fiber Bragg gratings (FBGs) is experimentally studied. The relationship between the central wavelength shift of FBG and the flux is derived and the analytic

A Small Probe-Type Flowmeter Based on the Differential Fiber Bragg ...

Abstract A novel integrated optical fiber sensor was proposed for temperature, pressure and flow measurement. One fiber Bragg grating (FBG) was fixed in the target for temperature

Novel target type flowmeter based on a differential fiber Bragg grating ...

Doppler effect-based fiber-optic flow sensors are proposed for the medical field , , such as a hemodromometer. In this paper, a novel target type fiber-optic flow sensor is proposed

Target-type fiber-optic flowmeter based on a cascaded ...

Reference proposed a target-type FBG flow velocity sensor based on the equal-strength cantilever. The force that has a corresponding relationship with velocity is induced by the fluid on the target, and

Fiber Bragg Grating Target Flow Sensor Based on Fixed Beam and

A novel fiber Bragg grating (FBG) flow sensor with high sensitivity is proposed in this article, which consists of a target disk, a solid beam, an L-shaped lever structure, and dual FBG. The dual-FBG

Optical fiber flow sensor based on a lever–hinge configuration

Based on a lever–hinge structure, a target-type fiber Bragg grating (FBG) flow sensor is proposed. Differential measurements of temperature and pressure are achieved using two FBGs.

Novel target type flowmeter based on a differential fiber Bragg grating ...

Request PDF | Novel target type flowmeter based on a differential fiber Bragg grating sensor | A novel target type flow sensor has been proposed for liquid flow measurement in pipeline.

Industrial Fluid Flow Measurement Using Optical Fiber Sensors: A

Optical fibers have been extensively employed for the development of sensors due to their compact size, immunity to electromagnetic interference, high sensitivity, and multiplexing

Theoretical and Experimental Study on Wide Range Optical Fiber

In this paper, a novel fiber turbine flow sensor was proposed and demonstrated for liquid measurement with optical fiber, using light intensity modulation to measure the turbine rotational

Design of optical fiber Bragg grating-based sensors for flow ...

FBG-based optical fiber sensors have proved to be an effective instrument for precise measurements of water flow. This work demonstrates for the very first time to our knowledge, how to

An optical fiber sensor for simultaneous measurement of flow rate and ...

An optical fiber sensor was proposed and studied for the simultaneous measurement of flow rate and temperature. It includes a capillary steel tube, an adjustable target and two fiber Bragg

Contact Us

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

Website: https://adicor.eu
Email: info@adicor.eu
Phone: +33 6 48 37 92 15
Address: 12 Rue de la Paix, 75002 Paris, France

This document is for informational purposes only. Specifications subject to change without notice.