FRINDEL OPTICS

China s fiber optic torque sensor

Overview

This sensor comprises a torque-sensitive bending structure and two diagonally arranged optical fibers, incorporating an embedded fiber Bragg grating sensor. In this paper, we propose and demonstrate experimentally an optomechanical torsion sensor using a microfiber mechanical resonator. Quadrants of photoelectric sensors are employed to capture minute deformations induced by torque on the rotational axis, converting them into measurable voltage. The invention discloses a fiber sensing device for sensing torque parameters, comprising a helical shell, a plurality of A-sided distortion teeth and a plurality of B-sided distortion teeth, wherein the A-sided distortion teeth and the B-sided distortion teeth are continuously arranged at two.

China s fiber optic torque sensor

Self-uncoupling wrist six-axis force/torque sensor based on Fiber

In this work, we proposed a novel self-uncoupling six-axis force/torque sensor based on the fiber grating. It uses a layered measurement design method to achieve low coupling and high

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A Fiberoptic Force-Torque-Sensor for Minimally Invasive

This document presents the design of a 6-degree of freedom fiberoptic force-torque-sensor for integration in instruments for minimally invasive robotic surgery. The measuring system

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Design of a Novel Six-Axis Force/Torque Sensor based on Optical

This paper presents a nov el six-axis force/torque sensor based on optical fibre sensing for robotic applications in extreme environments with intense electromagnetic interference as well as explosive

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Design of a Novel Six-Axis Force/Torque Sensor based on Optical Fibre

In this article, we present a number of novel calibration methodologies for compliant, multiaxis, fiber-optic-based force/torque sensors and evaluate the performance of these methods in

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Fibre optic sensors for the monitoring of rotating electric

Accurate and efficient monitoring of electrical machine (EM) operating parameters, including temperature, mechanical vibration, torque and rotating speed and others that can indicate

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High power output fiber optic torque sensor with high sensitivity

We propose and experimentally demonstrate a distributed directional torsion sensor based on an optical frequency domain reflectometer (OFDR) using a helical multicore fiber (MCF).

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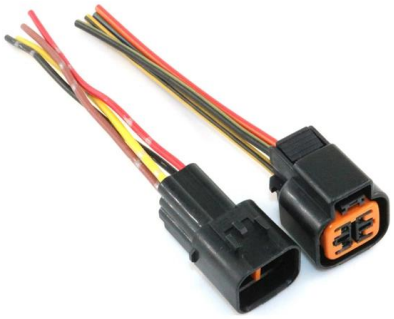

Torque

Indeed, OPTEL-TEXYS offers standard optical probes with reduced dimensions and also customised probes with more or less complex geometries. Combined with

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Microfiber optomechanical torsion sensor

In this paper, we propose and demonstrate experimentally an optomechanical torsion sensor using a microfiber mechanical resonator. The

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Fiber-Optic Based, Force and Torque Compliant Sensing Calibration

To overcome these issues, we have proposed various compliant fiber-optic based force and torque sensors that have proved their capabilities to accurately measure force and torque in three and six

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(PDF) contactless sensors for torque measurement

In this paper, the concept of contactless sensors for torque measurement is redefined and the major classes of torque sensors (i.e.,

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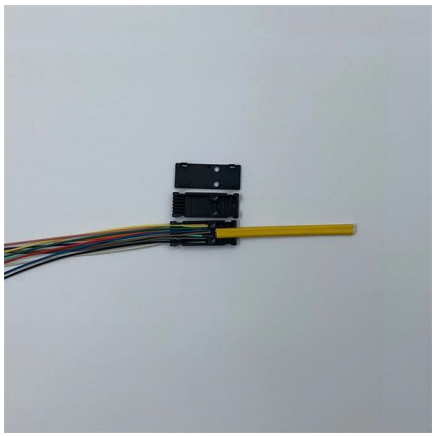

Novel contactless torque sensor based on optical coherence

Several optical problems in the measurement of a shaft surface are discussed. This work proposes a novel contactless sensor to measure the micro torque of a rotating shaft based on the

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Fiber-Optic Sensors for Measurements of Torsion, Twist and Rotation:

Thus, successful introduction of these new types of sensors will depend on balanced development of both sensing concepts and accompanying signal interrogation. This review article provides a review

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Self-decoupling six-dimensional force/ torque sensor based on fiber

To solve the above problems, a self-decoupled six-dimensional force/torque sensor based on fiber Bragg grating (FBG) is proposed by combining the existing double-layer cross-beam

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The invention belongs to sensor technical field, particularly utilize optical fiber to carry out torsion parameter sensing, the fibre-optical sensing device of high-precision

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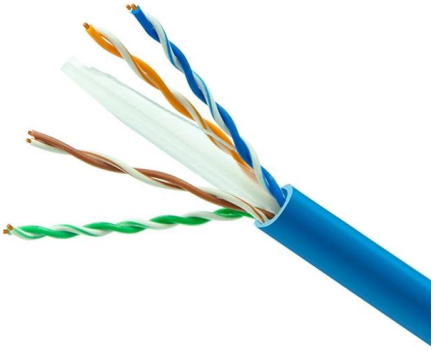

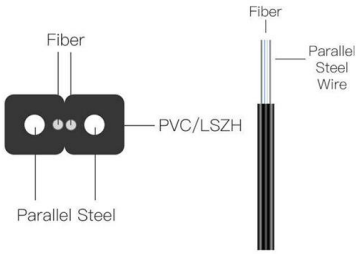

Optoelectronic Torque Measurement System Based on SAPSO-RBF

In this paper, the system addresses torque measurement through advancements in both torque sensors and calibration algorithms, presenting a novel photoelectric torque measurement

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High power output fiber optic torque sensor with high sensitivity

In order to realize high precision real-time measurement of torque, a high sensitivity torque sensor based on high power output fiber is proposed. The excitation mode, output power, torque sensitivity

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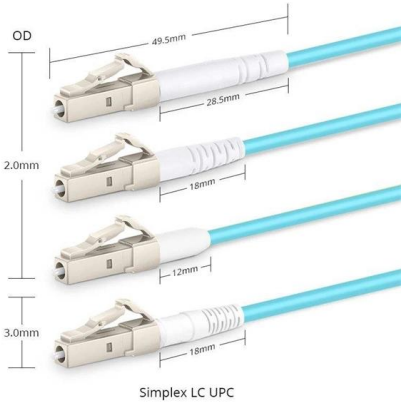

Planar Sensor Design for Force/Torque Measurement Based on Fiber Optic

This paper presents a conceptual sensor design for planar force/torque measurement based on fiber optic sensing. The design includes two rigid bodies, one acting as a reference frame and the other as

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An ultralight, tiny, flexible six-axis force/torque sensor enables

Flexible force sensors are limited in perceptive dimension and performance. Here, the authors report a flexible six-axis force/torque sensor, enabling human and robots to dexterously

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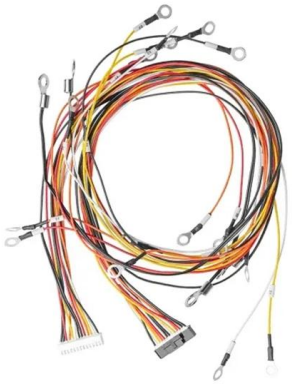

High Capacity Torque and Compression Measurements Using Fibre Optic Sensors

Hoehn et al. (2017) have demonstrated potential of fibre optic sensors for measurement of high capacity torque of several kN and compression loads of several kNm in drilling rods to improve

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Gyroscope

It takes a position between the low-accuracy, low-cost MEMS gyroscope and the higher-accuracy and higher-cost fiber optic gyroscope. Accuracy parameters are

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An Optical Torque Sensor for Robotic Applications

With respect to the previous work, the sensor proposed in this paper is designed to measure the torque applied to a robotic joint, and not the tendon

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Microfiber optomechanical torsion sensor

In this paper, we propose and demonstrate experimentally an optomechanical torsion sensor using a microfiber mechanical resonator. The torsion angle could be obtained by monitoring the resonant

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High power output fiber optic torque sensor with high sensitivity

Download Citation , On May 22, 2021, Qian-qian Ma and others published High power output fiber optic torque sensor with high sensitivity , Find, read and cite all the research you need on ResearchGate

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Development of an Optic Fiber-Based Torque Sensor With a Torsion

This work proposes a miniature and high-sensitivity torque sensor that mainly consists of a torque-sensitive flexure and one tightly suspended optic fiber with an inscribed Fiber Bragg Grating

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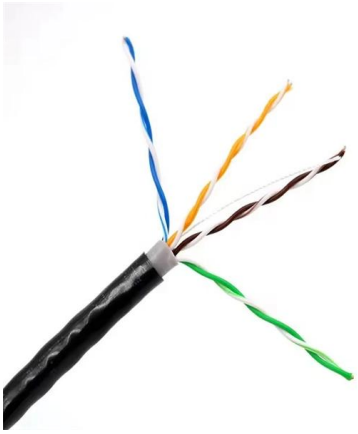

Development of an Optic Fiber-Based Torque Sensor With a Torsion

This paper presents a fiber Bragg grating (FBG)-based six-dimensional (6-D) force/torque (F/T) sensor that can be mounted on robot joints for the detection of comprehensive force/torque

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