

Uncertainty of Fiber Optic Current Sensor





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Optical fiber current sensor research: review and outlook



In this paper, the authors present a review on OFCS. The basic principle of OFCS is firstly discussed. And then the main advantages and disadvantages of several common types of

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Fiber-optic current sensor utilized for DC high current calibration

A fiber-optic current sensor based on the Faraday effect is proposed as a value transfer standard to calibrate the direct high current for the electrowinning industry. The spun high birefringence optical

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Development of Optical Fiber Current Sensors and Their Applications

Optical fiber current sensors based on the Faraday effect were expected for a long time as compact and high performance current sensors in place of conventional current transformers.

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Highly Accurate Fiber-Optic DC Current Sensor for the Electrowinning

A fiber-optic current sensor for direct currents up to 500 kA is presented. Applications include current measurement for process control and protection in the electrowinning industry, for





Uncertainty analysis of fiber optical current transformer on-site

A robust interferometric fiber-optic current sensor with inherent temperature compensation of the Faraday effect is presented. Sensor configurations based on Sagnac and

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Statistical Analysis of the Reliability of Current Measurement

In this paper, selected methods for the statistical assessment of distribution parameters using estimators were briefly described. Selected aspects of the theory of measurement uncertainty,

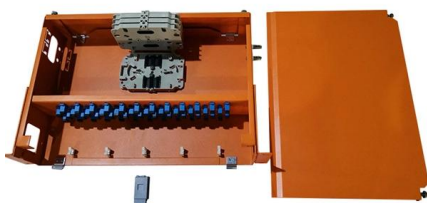
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Uncertainty analysis of fiber optical current transformer on-site

The on-site calibration of fiber optical current transformer is often influenced by the environmental factors, resulting in certain deviation of results.

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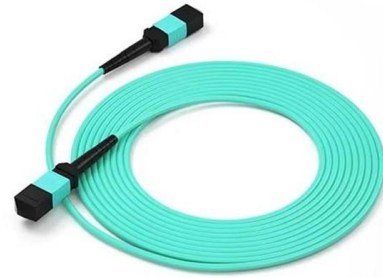




Review of Uncertainty Sources in Optical Current

This article presents a review of the main influences that affect the quality and performance of optical current sensors and how these influences can

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Computer Modeling of Fiber Optic Current Sensor

Despite all the advantages of using the fiber optic current sensors in high-voltage power networks, this technology has the significant weaknesses. They are the instability of the sensor

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Fiber optic current sensor calibration

Download Citation , Fiber optic current sensor calibration , Fiber optic current sensors have been touted for their potential ability to measure currents with accuracy better than 0.1% over a

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Long-Term Reliability of Fiber-Optic Current Sensors

We present studies the long-term reliability of interferometric fiber-optic current sensors (FOCS) for use in electric power transmission systems. Accelerated ageing tests are performed on

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Measurement of Electric Current using Optical Fibers: A

Fiber-optic current sensors are referred to as FOCS (Fiber-Optic Current Sensor). Figure 2 shows the principle of the fiber-optic current sensor

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Extreme current measurements using a fibre optics

We demonstrate that an optical fibre current sensor can measure current over 500 kA with an accuracy of 0.2%. This level of accuracy has never

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Fiber-Optic Current Sensor Tolerant to Imperfections of Polarization

We investigate the effect of polarization cross-coupling at polarization-maintaining (PM) fiber connectors on the accuracy of an interferometric fiber-optic current sensor. The sensor uses the

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Measurement uncertainty of multicore optical fiber sensors used to

The outcomes, which show the strong influence of strain uncertainty and core spacing on the precision of Multicore Fiber sensors, can be used to support the design of new sensors or new

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Analysis and elimination of bias error in a fiber-optic current sensor

An all fiber optic current sensor (AFOCS) utilizing ordinary optical fiber is proposed and demonstrated, which is implemented with a phase-shift fiber loop ringdown (PS-FLRD) structure.

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Research on the Methods and Algorithms Improving the

Although the FOCS scheme is well known and has been actively developed for over a quarter century, it has certain disadvantages that limit its use. This paper describes the authors' efforts to solve these

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Optimizing ITER-Fibre Optic Current Sensor performance

The sensor operates by exploiting the Faraday effect in optical fibres in the presence of plasma current. To maximize the signal to noise ratio of the measurement, particularly at small currents, it is essential

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Optical fiber current sensor research: review and outlook

Optical fiber current sensor (OFCS) based on Faraday magneto-optic effect has many advantages of immunity against electromagnetic interference, high sensitivity and wide dynamic

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Research on high current nonlinear error characteristics of fiber optic

The nonlinear error model of the fiber optic current sensor in the measurement range of 1~1400kA under typical parameters is simulated.

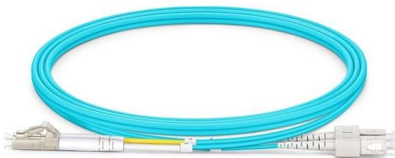
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A broadband Faraday fiber-optic current sensor with excess noise

A Faraday fiber-optic current sensor with suppression of excess noise produced by a low-coherent light source is presented. The sensor is designed to detect short current pulses and

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Identification and evaluation of uncertainty contributions to optical

Optical current sensors can replace traditional current sensor due to their several advantages, as electromagnetic immunity, low dimensions, low cost and others. One of the current

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Fiber-optic current sensor

The interference pattern relative to a reference waveform is an optical intensity value corresponding to the current magnitude. Such sensors are often employed in applications where galvanic isolation is

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Fiber-Optic Current and Voltage Sensors for High-Voltage Substations

ABSTRACT We report on ABB's fiber-optic current and voltage transducers and their applications in high-voltage substations. We consider bulk-optics and all-fiber current sensors and voltage sensors

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Long-Term Reliability of Fiber-Optic Current Sensors

We present studies on the long-term reliability of interferometric fiber-optic current sensors (FOCS) for use in electric power transmission systems. Accelerated ageing tests are

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The Nonreciprocal Errors in Fiber Optic Current Sensors

Fiber-optic current sensors have the significant advantages that they are non-conductive and lightweight, which can allow much simpler insulation and mounting designs. In addition, optical

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Measurement Uncertainty Analysis of Optical Current

Optical current sensors have been developed and improved in recent decades, and their use has been widespread in power systems, including smart

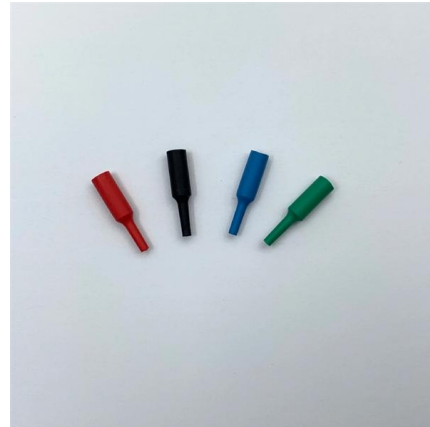
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Identification and evaluation of uncertainty contributions to optical

Aiming at the problem that the accuracy of a fiber optic current sensor is susceptible to external disturbances and temperature fluctuations, we present an adaptive technology of a fiber

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<https://frindel.es>