

HIGH TEMPERATURE FIBER SENSORS

TEMPERATURE FIBER SENSORS (FBG)
UP TO +500°C

Fiber optic high-temperature sensors (OSHT) based on fiber Bragg gratings (FBG) provide reliable long-term measurements of gases, liquids and solids up to temperature of 500°C.

OSHT-311 sensors having flat metal body are designed to measure surface temperature and can be used as single (end type) or multiple (several sensors in one fiber) configuration.



Design of OSHT sensors can be adapted to the Customer requirements while maintaining their functionality.

The spectral shift of the resonant wavelength of the FBG sensor can be recorded by any FBG interrogator. For this purpose, our company offers a line of interrogators - unified recording modules (URM) - that provide acquisition and processing of spectral information of FBG sensors with subsequent output of the results to the operator.

The FORC-Photonics OSHT sensors have the following advantages:

- spectral multiplexing;
- possibility of remote measurements (no power supply requires at the measurement site);
- long-term stability of measurements;
- immunity to electromagnetic interference;
- fire safety;
- small dimensions and weight;
- wide temperature range of measurements;
- low error level within the entire measurement range.

APPLICATIONS

Local and quasi-distributed thermal monitoring of objects, structures and systems in various fields of science and technology:

- buildings, roads, bridges and other constructions;
- hydro, wind, nuclear power stations;
- cars, railway and sea transportation;
- airplanes and space systems;
- oil and gas industries, including pipeline monitoring.

KEY FEATURES

- high temperature measurements (up to 500°C).
- high accuracy and long-term stability
- fast response time
- ease of installation using standard fittings
- robust and high-temperature performance of the fiber cables
- high calibration accuracy and the use of simple calibration equations, allowing measurements using most FBG interrogators.

SENSORS SPECIFICATION	OSHT-311L	OSHT-311E
Type sensor design	in line	end type
Operation temperature range, °C		Up to ÷ 500
Resonance wavelength, nm		1510 ÷ 1590
Absolute accuracy, °C	± 2.5	± 1.5
Temperature constant, s	1.5	4.5
Temperature sensitivity, ppm/ °C	22 ÷ 24	6.5 ÷ 10.5
Sensor body material		SS plate 316L
Sensor body size, mm		15 x 15 x 1.1
Attachment method		Contact welding
Optical fiber protection material		SS tube 316L