

HIGH TEMPERATURE FIBER SENSORS

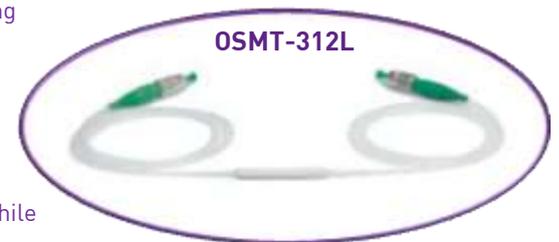
TEMPERATURE FIBER SENSORS (FBG)
UP TO +300°C

Fiber optic high-temperature sensors (OSMT) based on fiber Bragg gratings (FBG) provide reliable long-term measurements of gases, liquids and solids up to temperature of 300°C.

Bodies of OSMT-311 sensors are made of structural cryogenic austenitic stainless steel 316L, resistant to corrosion in corrosive environments. OSMT-312 sensors are dielectric designed to measure temperature at high voltages, strong electromagnetic fields, etc. (for example, in technological HF or microwave installations). The OSMT-312 sensor body is made of high temperature ceramic. The OSCT sensors use a high-temperature silicone or teflon tube for mechanical protection of connecting fibers.

OSMT-311 sensors having flat metal body are designed to measure surface temperature. The OSMT-312 sensors are cylindrically shaped. Both these sensor types can be used as single (end type) or multiple (several sensors in one fiber) configuration.

Design of OSMT 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 OSMT 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.

KEY FEATURES

- high temperature measurements (up to 300°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	OSMT-311L	OSMT-311E	OSMT-312L	OSMT-312E
Type sensor design	in line	end type	in line	end type
Operation temperature range, °C	+ 250	+ 300	+ 250	+ 250
Resonance wavelength, nm	1510 ÷ 1590			
Absolute accuracy, °C	± 1.5	± 1	± 1.5	± 0.75
Temperature constant, s	1.5	0.75	1.5	5
Temperature sensitivity, ppm/°C	6 ÷ 9.5	6.5 ÷ 9	6 ÷ 9.5	6.5 ÷ 8.5
Sensor body material	SS plate 316L		ceramic	
Sensor body size, mm	20 x 15 x 2.5	20 x 15 x 2	∅ 5 x 40	
Attachment method	screw connection		clamp	
Optical fiber protection material	PTFE	steel	PTFE	PTFE