

# OSI-S High-precision Distributed Optical Fiber Sensing Monitoring System

## Description

The OSI-S is a high-precision distributed optical fiber sensing monitoring system. Its principle is based on optical frequency domain reflection (OFDR) technology. Strain and temperature can be captured with mm spatial resolution over the entire sensing fiber. The system is designed to be suitable for various types of sensors, such as conventional single-mode fiber and weak reflective FBG array. Its measurement accuracy is  $\pm 0.1^{\circ}\text{C}$  or  $\pm 1.0\mu\epsilon$ . The OSI-S can simultaneously measure tens of thousands of sensing points along a single fiber. It is an excellent tool for high resolution and accuracy sensing applications.

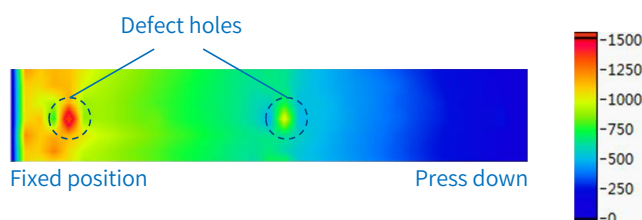
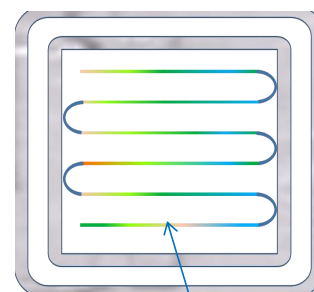
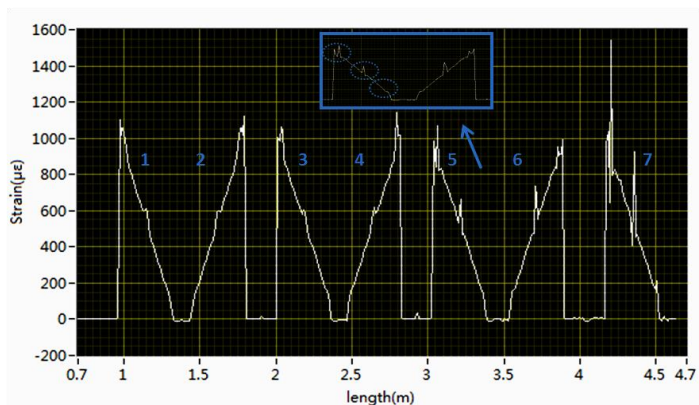


## Features

- Ultra-high measurement accuracy and spatial resolution
- Excellent stability by self-calibration without user intervention
- Shape sensing can be used for deformation measuring
- Single-mode fiber and weak reflective FBG array are both available
- The customized service is supported, such as dynamic demodulation and multi-channel upgrades
- Lead length can be adjusted between zero and 1km by customization for remote measurement

## Applications

- Structural health monitoring
- Composite material fatigue testing
- Strain and temperature testing for automobile structure
- Strain and temperature field reconstruction for other areas



## Parameters

Basic Parameters			
Sensing Length <sup>1</sup>	50	100	m
Lead length <sup>2</sup>	0 ~ 1		km
Spatial Resolution	1~10		m
Sensor <sup>3</sup>	Various types of optical fibers		/
Strain			
Accuracy <sup>4</sup>	±1.0		με
Measurement Range	±12000		με
Temperature			
Accuracy <sup>4</sup>	±0.1		°C
Measurement Range <sup>5</sup>	-200~1200		°C
Others			
Input Voltage	AC 220/110V; DC 12V		-
Power	60		W
Communication Interface	USB		-
Optical Fiber Connector	FC/APC		-
Standard Dimension	D330 * W350 * H160		mm
Standard Weight	7.5		kg
Portable Dimension	D290 * W196 * H165		mm
Portable Weight	4.75		kg
Storage temperature	0 ~ 50		°C
Operating Temperature	10 ~ 40		°C
Relative Humidity	0 ~ 50		%RH

### Note:

- Sensing length can be extended, please contact us.
- Other length can be customized for remote measurement.
- Suitable for multiple types of sensors, single-mode fiber and weak reflective FBG arrays are suggested.
- The accuracy ( $\pm 1.0\mu\epsilon/\pm 0.1^\circ\text{C}$ ) is obtained under 1cm spatial resolution.
- Temperature measurement range is related to the material property of optical fiber sensor. Acrylate optical fibers is used for  $0^\circ\text{C}\sim 100^\circ\text{C}$ , Polyimide optical fibers for  $50^\circ\text{C}\sim 300^\circ\text{C}$  and Au coated optical fibers for  $-200^\circ\text{C}\sim 700^\circ\text{C}$ .