FIBERPRO

# FBG Interrogation system

## IS7000

**FIBERPRO**'s Fiber Bragg Grating interrogation system(FBGI system) is developed for the purpose of providing fast and accurate multi-wavelength analysis for Fiber Bragg grating sensor system. It has modular structure-main frame, laser module, and sensor modules. The laser module is based on patented wavelength swept fiber laser. It provides high output power and fast sweep speed up to 200 Hz.

To measure reflected wavelengths of Fiber Bragg grating sensor array, user simply can plug the sensor array into the input port of the sensor module.

The measurement results are processed, displayed and stored in user's PC installed with driving software. Due to modular structure, the FBGI system can be designed flexibly considering user's application and cost.

Also, high measurement speed enables real time analysis.

## Features

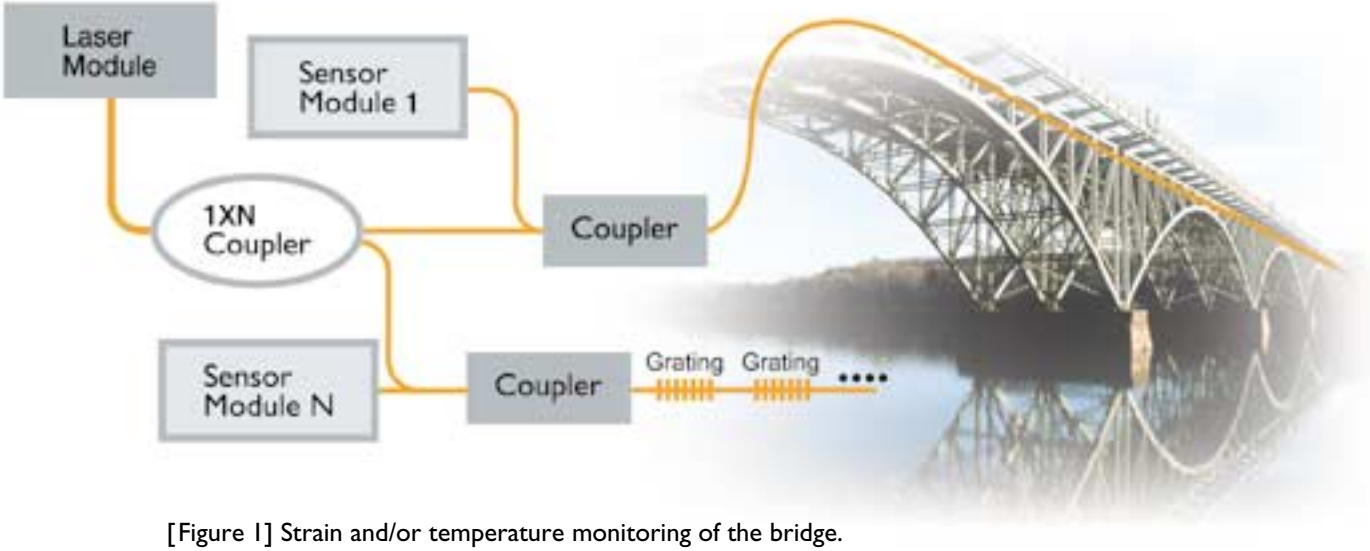
High Resolution < 1 pm
High accuracy < +/-5 pm
High output power : > 3mW
Fast Measurement Speed : 200 Hz
Modular System
Spectrum monitoring
Real time analysis

# Applications

## 1.Structural monitoring

### Strain and/or temperature monitoring of large structures

Dams, Bridges, Large buildings
Highways
Pipelines




[Figure 1] Strain and/or temperature monitoring of the bridge.

## 2.Surveillance and safety systems

### Overheat detection and special temperature monitoring

Energy distribution cables
Heating systems, pipelines
Tunnels
Cryogenic temperature monitoring

## 3.Environmental Sciences

### Temperature profile monitoring

Lake, Sea, Rivers
Atmosphere
Forests

### Strain distribution monitoring

Soil instabilities, Ground slides
Earthquake

# Specification

## Fiber Bragg Grating interrogation system (FBGI system)

| | |
|---|---|
| **Laser module (wavelength swept laser)** | |
| Wavelength tuning range | 35 nm (1530 ~ 1565 nm) |
| | 1528 nm ~ 1568 nm (40 nm, typ) |
| | This range can be adjusted according to customer's requirement |
| Average optical output power | > 3 mW (5 mW, typ) |
| Sweep Frequency | 200 Hz |
| **Sensor Module** | |
| Repeatability | ± 2 pm |
| Wavelength Accuracy | < ± 10 pm (± 5 pm, typ) |
| Strain resolution | < 2 pm (1 pm, typ) |
| Wavelength dynamic range | > ± 1000 pm (depends on user application and FBG spacing) |
| Power dynamic range | >30 dB |
| Sampling frequency(measurement speed) | 200 Hz |
| Number of sensors per each module | > 16 (depends on wavelength dynamic range), maximum sensor number : 60 (can be extended) |
| Multi channel capability | 1, 2, 4, 8 sensor channels |
| **Etc.** | |
| Operating temperature | 10 ~ 40℃ |
| Dimensions | 364 x 363 x 147 mm |
| Interface | USB / Serial (RS-232) |
| Driving software | Window application or Labview |
| Optical connector | FC/PC, FC/APC (recommended) |

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