FSI-RM-18

DEVICE

FGB Sensor Interrogator, 18 Channels

OVERVIEW

The Optilab FSI-RM Fiber Bragg Grating (FBG) Sensor Interrogator is designed for numerous indoor, single 1U applications. The FSI-RM is a fully-integrated, high-resolution measurement system, features a high power, high speed swept wavelength laser, state-of-art embedded system for signal processing. The FSI-RM interrogator core employs advanced hardware peak detection, optimized for rapid data processing of many simultaneous FBG sensors. The FSI-RM is focused on providing measurements with higher acquisition rates, moderate dynamic range and continuous lifetime on-board referencing. The combination of high speed and excellent repeatability enables a single FSI-RM to simultaneously monitor dynamic sensors. The FSI-RM responds directly to the user commands and output sensor wavelength data via Ethernet port and our standard protocol.

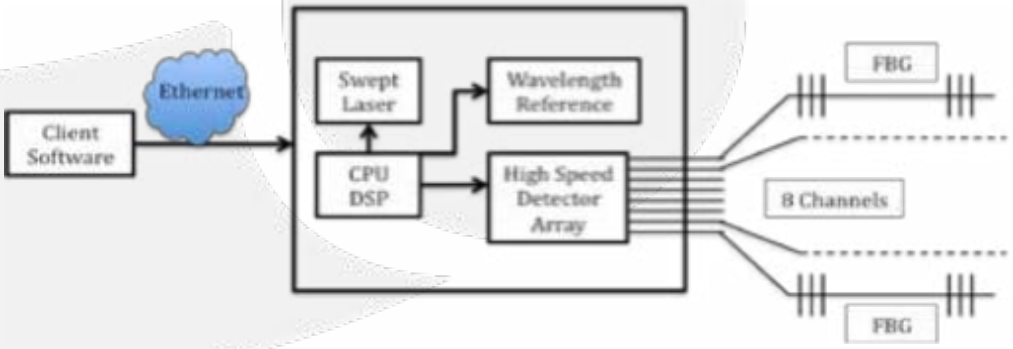
FEATURES

- 18 channels sensor detection standard
- High power swept laser
- Embedded system design for continuous, uninterrupted operation, no PC required
- Ruggedized power, data, and optical connectors
- Ethernet output, allow cloud operation
- Fast sweep rate up from 10 Hz to 100 Hz
- High wavelength resolution of 0.5 pm

USE IN

- Civil: bridges, dams, tunnels, mines, buildings, containers, subway, trains, roadways, cranes
- Industrial: oil & gas, electrical, well reservoir, platform, pipeline
- Standard indoor installation
- Remote area projects for SHM
- Railroad, subway, and tunnel monitoring

FUNCTIONAL DIAGRAM



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SPECIFICATIONS

TECHNICAL

Sweep Frequency	10 Hz to 100 Hz
Number of Optical Channels	18 Standard
Wavelength Range	Up to 60 nm
Wavelength Accuracy	± 2.5 pm
Wavelength Repeatability	± 1 pm
Wavelength Resolution	0.5 pm
Laser Power	Up to 100 mW
Dynamic Range	> 30 dB
Minimum FBG Wavelength Separation	0.3 nm
FBG Detection	Propriety DSP
Optical Connectors	FC/APC
FBG Requirements	Standard FBG[2]

DATA PROCESSING CAPABILITIES

Interface	Ethernet
Protocol	TCP/IP
Client Server Software	Included, can be customized
Data Format	Standard format included; Can be customized

MECHANICAL, ENVIRONMENTAL, ELECTRICAL

Dimension	425 mm x 419 x 51 mm
Weight	5.9 kg (13 lbs)
Operating Temperature, Humidity	0 °C to 50 °C; 0 to 80%, non-condensing
Storage Temperature, Humidity	-30 °C to 85 °C; 0 to 95%, non-condensing
Input Voltage	100-220 VAC
Power Consumption	60 W peak; < 30 W operational
Housing Construction	Steel frame

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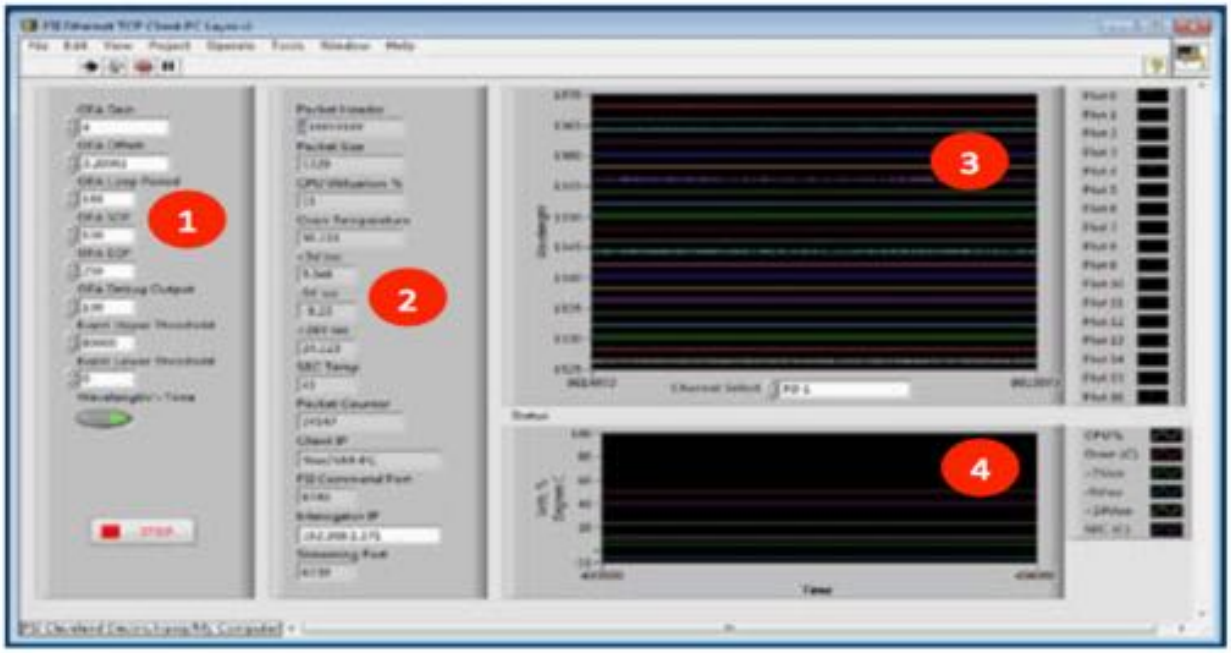
ENVIRONMENTAL TESTING AND QUALIFICATIONS

- High Temperature / Low Temperature
- Temperature Cycle Aging Qualification 2,000 hours (on going)
- Damp Heat (Humidity)
- Shock resistant
- Vibration test on horizontal and vertical axis

CLIENT SERVER SOFTWARE



1. Control parameters
2. System status parameters
3. FBG wavelength real time display window
4. System status parameters real time display window