Alxenses

Your Fiber Optic Sensor Partner

Grating Sensing Interrogator

ALGSI-S850

Complete Sensing System - Low Cost Solution!

Features

- **All-in-One Sensing System**
- **High accuracy and reliability**
- **Sampling rates up to 250 Hz**
- **Full Spectrum Information**
- **Low power consumption**
- **User Friendly**

ALGSI-S850 is a compact and low-cost optical fiber sensing system for simultaneous measurement of multiple parameters* along a single optical fiber. More than 30 FBG-based transducers** can be connected in series along a single optical fiber and interrogated by ALGSI-S850 at sample rates of up to 250 Hz.

ALGSI-S850 is a complete monitoring system. It provides 2 optical outputs for connecting up to two sets optical fibers with multiple FBG sensors. The system can interrogate the sensing signals with a scanning rate can be up to 250 Hz for each FBG sensor simultaneously, making it very cost effective for small scale sensing network.

Data access and power supply

It is convenient to connect ALGSI-S850 to any monitors.

Applications

Structural Health Monitoring of engineering structures offers reduced cost of ownership through condition-based maintenance, extended service life (fatigue life assessment) and reduced risk of failure.

- Civil engineering – bridges, dams, tunnels
- Transportation – Railway, roadway
- Energy – Wind turbines, pipelines
- Aerospace




NOTES:

** FBG-based transducers for measuring temperature, strain, acceleration, inclination and others.*

** Please refer sensor datasheets for detailed performances.*

*** The actual number depends on the operating wavelength range of FBGs and fiber loss.*

PRINCIPAL ADVANTAGES OF USING FBG SENSORS

- Passive sensors with high reliability and long lifetime of more than 20 years.
- Multiple sensors can be daisy-chained over several km of optical fiber.
- Simultaneous and multiple parameter sensing capability. One system can measure temperature, strain, tilt angle, acceleration, etc…
- No interference with electromagnetic radiation. It can be suitable for applications within high radiation zones where electrical sensors would fail.
- Flexible, stable and small.
- Suitable for both static and dynamic measurements.

OPTICAL INTERROGATOR CAN MEASURE THE FOLLOWING FBG SENSORS:

- Strain
- Displacement
- Temperature
- Pressure
- Load
- Accelerometer

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Specifications

OPTICAL PROPERTIES	
Number of Optical Channel	1 (shared by 2 optical connections)
Sampling Frequency	Adjustable up to 250 Hz (all sensors simultaneously)
Wavelength Range	835 – 875 nm typ., 40 nm min.
Wavelength Stability	+/- 1 pm[1] typ., +/- 3 pm[2] max.
Wavelength Repeatability	1 pm @ 100Hz, 0.4 pm with 25 average
Wavelength Accuracy	5 pm[3]
Wavelength Resolution	0.1 pm
Dynamic Range 4	28 dB typ., 20 dB min.
Gain Control	Automatic
Maximum Number of FBG detected per Channel	18 typ.
FBG Requirement	FWHM 0.3 nm (max.), SMSR > 10dB
FBG Wavelength Separation	1 nm (min.)
Optical Connectors	2 x FC/APC (others on request)
DATA PROCESSING CAPABILITIES	
Embedded Industrial PC	Intel Atom D510, 2GB RAM
Operation System	Windows XP
External Interface	COM / 4 x USB / 2 x GbE / VGA
Embedded Software and Enhanced Data Management	SpectroInt V1.5md Sensing System (Peak Detection, Tracking, Sensor Monitor)
MECHANICAL, ENVIRONMENTAL, ELECTRICAL PROPERTIES	
Dimension	320 mm x 246.5 mm x 87 mm (W x L x H)
Net Weight	4 kg
Operation Temperature	0˚ – 40˚ C
Operating Humidity	50 to 80% RH
Storage Temperature	-5° to 50° C
Storage Humidity	20 – 90% RH @ 40° C
Power Supply	12Vdc (2A)

1 At 10 samples per second.
2 Long term performance.
3 With 25 points in average.
4 Defined as optical launch power minus detector noise floor.

Specifications are subject to change to enhance the system performance without prior notice.
Design and specifications can be modified to suit a range of customer requirements.

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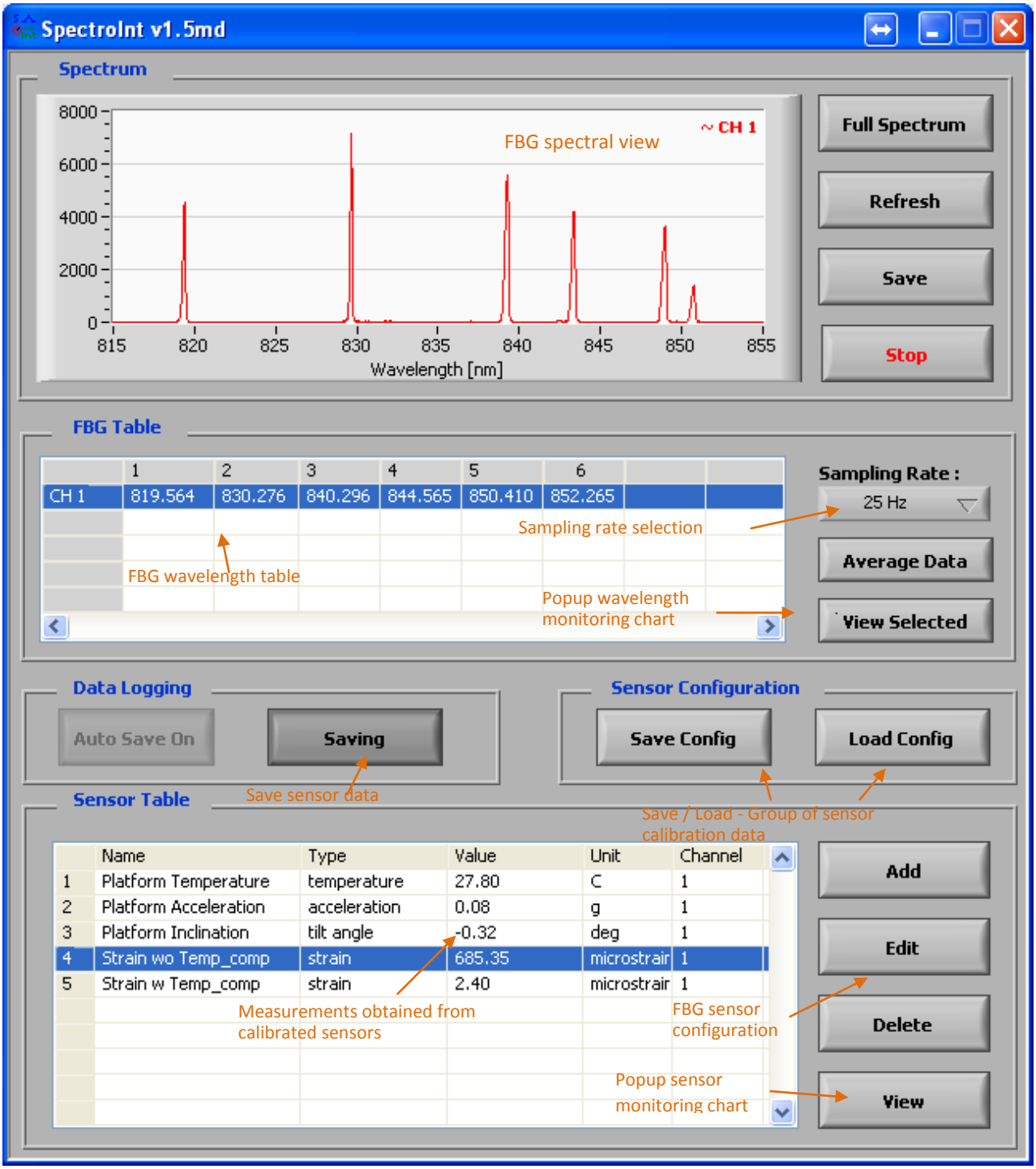

Graphical User Interface of SpectroInt V 1.5

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