

WAVECAPTURE FBG INTERROGATOR

Instrument with an integrated light source (IRS) that provides interrogation for 1, 4, or 16 FBG sensors.



The WaveCapture™ Fiber Bragg Grating Interrogator is an instrument with an integrated light source that monitors multiple wavelengths from multiple channels. Precise fiber bragg grating (FBG) sensor system measurements are achieved with high wavelength accuracy at ultra-fast response times.

PRODUCT HIGHLIGHTS

- High reliability with no moving parts
- Ultra-fast response time (up to 5 kHz)
- Excellent wavelength repeatability and resolution
- Low power consumption enabling battery-operated operation
- Integrated broadband light source
- USB 2.0 or RS-232 interface

APPLICATIONS

- Smart structures
- Strain measurements
- Perimeter sensing
- Aerospace
- Construction
- Oil and gas down-hole drilling
- Electrical grid reliability
- Mining
- Medical devices
- Transportation
- Energy (solar, nuclear, wind)

AT A GLANCE

Number of Channels

1, 4, or 16

Wavelength Range

40 nm Model: 1525 to 1565 nm
80 nm Model: 1510 to 1590 nm
Others available on request

Wavelength Repeatability

±2 pm (with IRS)
±5 pm (without IRS)

Wavelength Readout Resolution

1 pm

Frequency Response Time (Typ.)

Standard: 1 to 5 Hz (RS232/USB 1.1)
Fast: Up to 5 kHz (USB 2.0)

Compliance

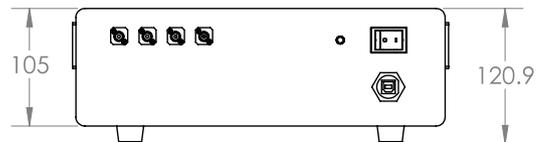
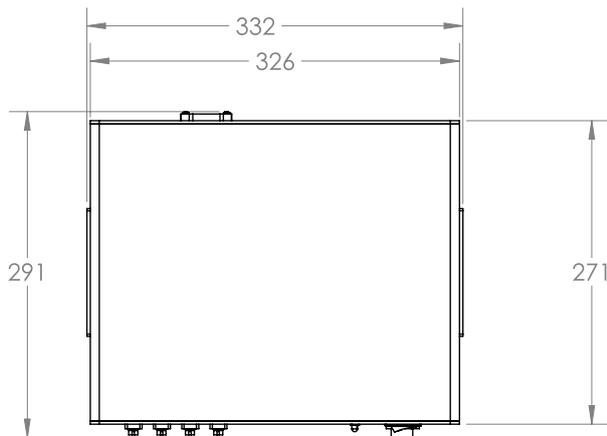
- Telcordia GR-63/1209/1221-CORE qualified
- MIL STD 810F

WAVECAPTURE FBG ANALYZER SYSTEM

TECHNICAL DATA

| Specifications | |
|----------------------------------|--|
| Number of Channels | 1, 4, 8, or 16 |
| Wavelength Ranges | 40 nm Model: 1525 to 1565 nm |
| | 80 nm Model: 1510 to 1590 nm |
| | Other wavelength ranges on request |
| Wavelength Repeatability | ±2 pm (with IRS); ±5 pm (without IRS) |
| Min Detectable Wavelength Change | ±1 pm |
| Optical Interface | FC/APC connector (or specified) |
| Frequency Response Time (typ) | Standard: 1 to 5 Hz (RS-2320) |
| | Fast: up to 5 kHz (USB 2.0) |
| SLED Light Source | > 15 mW Output Power |
| | > 40 nm FWHM for Standard |
| | > 80 nm FWHM for Extended |
| Optical Circulator | Included |
| Operating Temperature | -5 to 75°C, 0 to 80%, non-condensing |
| Storage Temperature | -20 to 70°C, 0 to 95%, non-condensing |
| Software | WaveCapture Sense 20/20 software, |
| | WaveCapture Sense 20/20 SDK for development (optional) |
| Power Supply | 110 to 220 VAC |
| Power Consumption | < 10 W |

SCHEMATIC



Dimensions in mm
Drawing depicts the 4 channel version

SOFTWARE

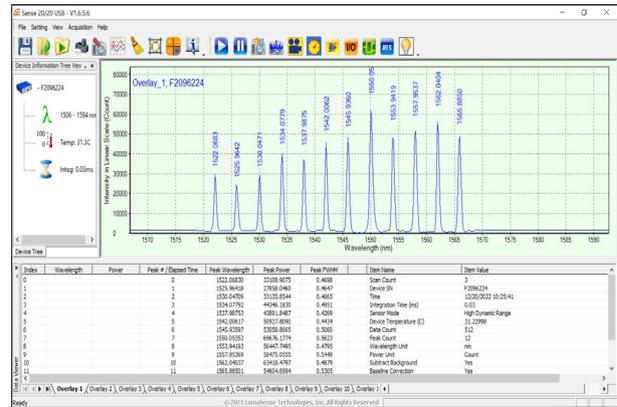
WaveCapture Sense 20/20

The WaveCapture™ Sense 20/20 software is a Windows-based program for interfacing with WaveCapture FBG analyzers and systems via USB, RS232, or Ethernet. The software is designed to run on Windows 7 and 10 operating systems. The software provides the following features:

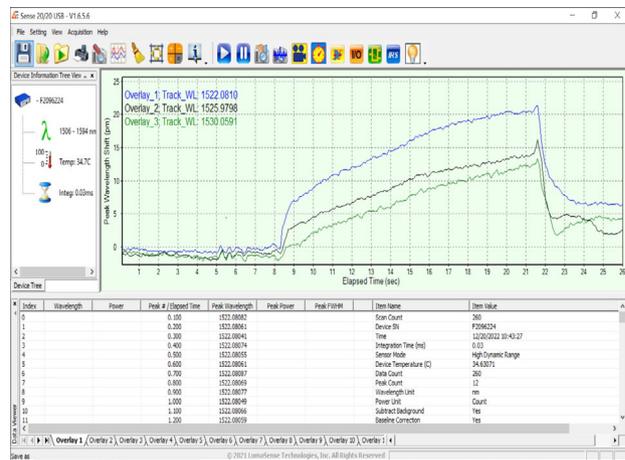
- Setup acquisition mode and parameters
- Acquire spectrum and display into multiple overlays
- Post-process spectrum data such as peak search, background subtraction, spectrum smooth and baseline correction, save and load spectrum data
- Record and replay spectrum data in the fast acquisition mode
- Track the wavelength shift of the selected peaks
- Control SLED light source
- Control optical switch and GPIO output

WaveCapture Sense 20/20 SDK

WaveCapture Sense 20/20 software development kit (SDK) provides the interface for software developers to access the WaveCapture FBG Analyzer spectrometers. The Dynamic Link Library (DLL) in the SDK can be used under different programming environments, including C, C++, Visual Basic, and LabVIEW. The SDK provides a set of functions that allow users to configure and control the FBG Analyzer spectrometer as well as acquire and post-process the spectrum data.



WaveCapture™ Sense 20/20 software



WaveCapture™ SDK



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PRECISION | POWER | PERFORMANCE

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