

FiSpec[®] FBG X100

Ultraminiature and lightweight fully-integrated FBG-interrogation system with embedded light source for mobile and industrial applications.

Overview

With an outstanding and unprecedented small size, the FiSpec FBG X100 integrates all necessary components for the analysis of fiber Bragg grating (FBG) and Fabry-Perot sensors. Its compact and lightweight design enables the application of fiber Bragg grating sensor technology in application where space is limited.



Key Features

- Unique fully-integrated FBG-interrogation
- High spectral resolution from 0.2nm
- Compact and robust
- Up to 20Hz speed

Used for

- Interrogation of FBG sensor chains
- Interrogation of fabry-perot sensors

Applications

- Strain measurement
- Temperature measurement
- Force measurement
- Pressure measurement
- Curvature and displacement detection

Specifications

Focal length	13 mm
Diffraction grating	Aspheric chirped fiber grating
Optical entrance slit	5µm (SM800 fiber)
Spectral range	800-900nm
Mean spectral pixel pitch	$\Delta\lambda_{\text{Pixel}} \approx 0.2\text{nm}$
Physical resolution	$\Delta\lambda_{\text{FWHM}} \approx 0.6\text{nm}$
FBG-interrogation precision	from 6pm @ 20Hz
Strain/Temp. resolution	~10µε/~1K
Dynamic range	1200:1
Exposure time range	30µs to 600s
Repetition rate	up to 20 Hz
Detector	Linear CMOS sensor
On-board processing	Signal averaging
Power consumption	~700mW
Digital interface	USB 2.0 Full-Speed
Optical interface	FC/APC Connector
Dimensions	65 x 48.5 x 15.3mm (~45ccm)
Weight	60g
Thermal stability	0.02nm/K
Operating temperature	0°-50°C