

FiSpec[®] FBG X150

Highresolution, fast and compact fully-integrated FBG-interrogation system with embedded light source for mobile and industrial applications.

Overview

With an outstanding precision and repetition rate within an unprecedented miniature size, the FiSpec FBG X150 integrates all necessary components for the analysis of fiber Bragg grating (FBG) sensor chains. Its rugged and lightweight design enables the integration of FBG-technology even in applications where space is limited.



Key Features

- Unique fully-integrated FBG-interrogation system
- High spectral resolution from 0.2nm
- Compact and robust
- 0.6pm FBG-interrogation resolution @1kHz speed

Used for

- Interrogation of FBG sensor chains and 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	5 μ m (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 0.6pm @ 1kHz
Strain/Temp. Resolution	$\sim 1\mu\epsilon/0.1\text{K}$
Dynamic range	1200:1
Exposure time range	30 μ s to 600s
Repetition rate	up to 1kHz
Detector	Linear CMOS sensor
On-board processing	Signal averaging
Power consumption	$\sim 1\text{W}$
Digital interface	USB 2.0 Full-Speed
Optical interface	FC/APC Connector
Dimensions	100 x 68.5 x 20mm ($\sim 136\text{ccm}$)
Weight	120g
Thermal stability	0.02nm/K
Operating temperature	0° - 50°C