Ø FiSens

FiSpec FBG X1000-2/4

Datasheet Rev1 - May 2024



Fast Sampling

Energy-efficient

High Thermal Stability

On-board FBG Analysis

Compact, precise and fast fully-integrated FBG Interrogator with embedded light source, on-board processing and high-speed streaming capability.

Overview

The FBG X1000 combines high measurement performance at fast sampling rates up to 2kHz, a compact form factor, low power consumption and a high thermal/polarization stability. Its uncompromising design sets a new standard for FBG Interrogators.

Performance Properties	
Number of Channels	1
Number of Fiber Ports	-2/-4
FBG Sensors per Channel	Up to 24
Max. Sampling Rate (USB)	2kHz (High-speed mode)
Wavelength Range	815-865nm
Measurement Precision	from 0,1°C 1µe (1kHz)
Digital Measurement Res.	0,01°C 0,01µe
Thermal Stability	<1µe/0,1°C per 1°C
Polarization Stability	<5μe/0.5°C (2σ)

Applications

Plug & Play

Low Weight

High Precision

Compact

Process Control	
Predictive Maintenance	
Condition Monitoring	
Thermal Mapping	

Used for

Vibrations

Strain

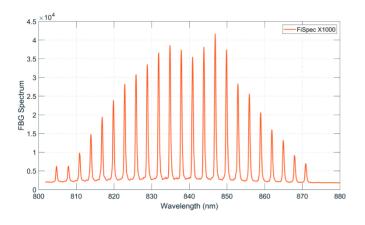
Pressure

Temperature

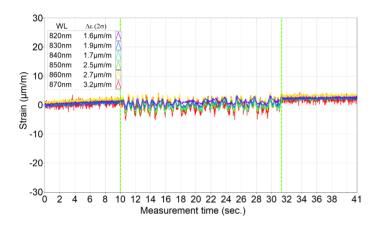
	1
Physical Properties	
Operating Temperature	5-50°C
Storage Temperature	0-70°C
Dimensions	142 x 78 x 20mm
Weight	210g
Power Consumption	2W

Communication	
Optical Interface	FC/APC
Electrical Interface	USB, RS-485, Ethernet
Data Protocol	Data Transfer Protocol, Modbus

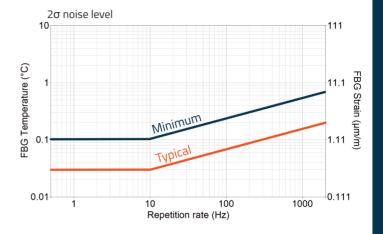
Exemplary FBG Spectrum @ 850nm



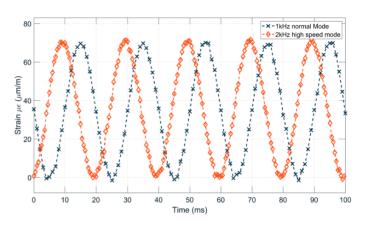
Typical FBG Stability over all Poincare Sphere Polarization States



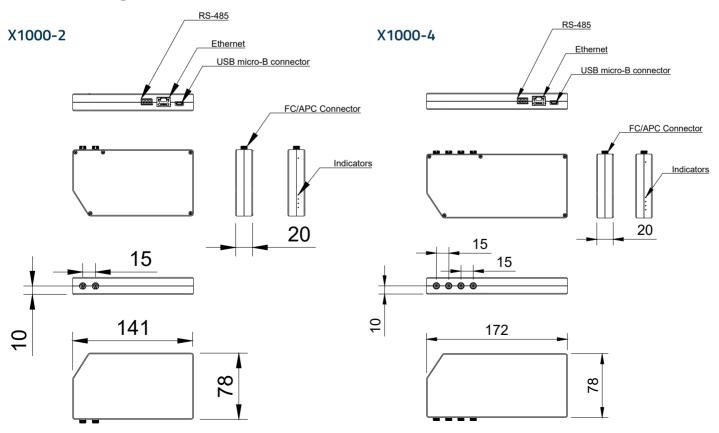
Precision in (µe) vs. Sampling Rate (Hz)



Vibration Measurement (Piezo, 50Hz)



Technical Drawings



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