FiSens

FiSpec FBG X100
Datasheet Rev3- January 2024

Ultraminiature, precise and rugged fully-integrated FBG Interrogator with embedded light source and on-board processing.

Overview
With an unprecedented small size, the FBG X100 integrates all necessary components for the accurateanalysis of up to 30 fiber Bragg grating (FBG) sensors. Its compact and energy-efficient design enables FBG based applications where space and power is limited.

Key Features

Plug & Play	High Accuracy
Ultra-compact	High Thermal Stability
Low Weight	Energy-efficient
High Precision	On-board FBG Analysis

Applications

Process Control

Predicitive Maintenance

Condition Monitoring

Thermal Mapping

Used for

Force

Strain

Pressure

Temperature

Performance Properties

Number of Channels	1
FBG Sensors per Channel	30
Sampling Range	1-200Hz (simultanous)
Wavelength Range	808-880nm
Measurement Precision	from 0,1°C | 1µe (10Hz)
Digital Measurement Res.	0,01°C | 0,01µe
Thermal Stability	<0,1°C/°C
Polarization Stability	±7µe/±0,7°C (typical)

Physical Properties

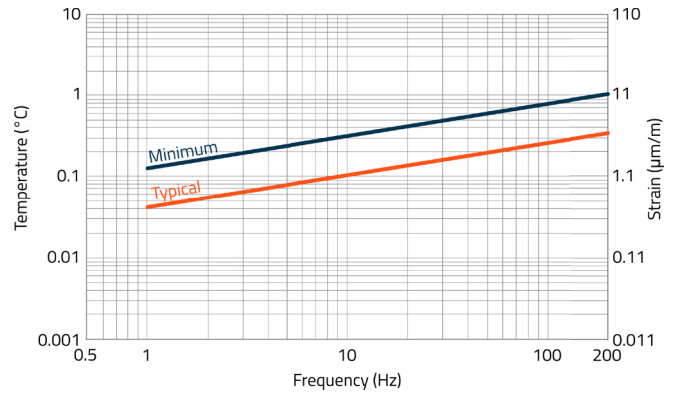|	
Operating Temperature	0-60°C
Storage Temperature	0-80°C
Dimensions	74 x 50 x 15mm
Weight	60g
Power Consumption	1W

Communication

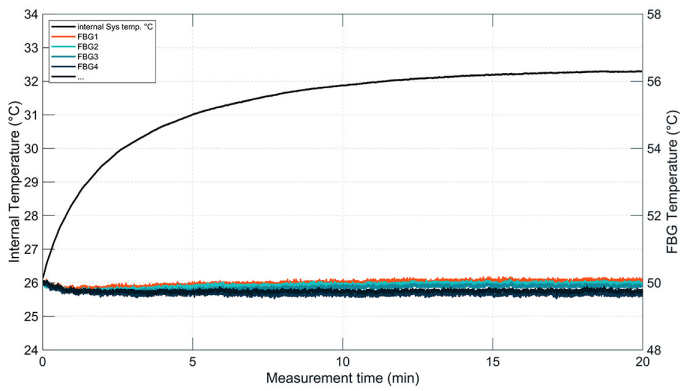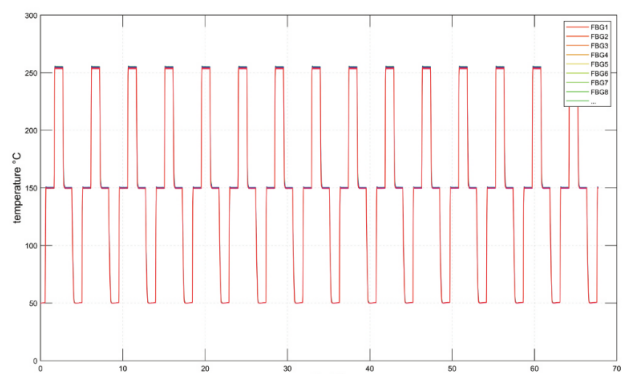|	
Optical Interface	FC/APC
Electrical Interface	USB, UART (RS-232)
Software Protocol	User Data Protocoll (UDP)
Hardware Protocol	Direct Serial Communication

Exemplary FBG Spectrum @ 850nm
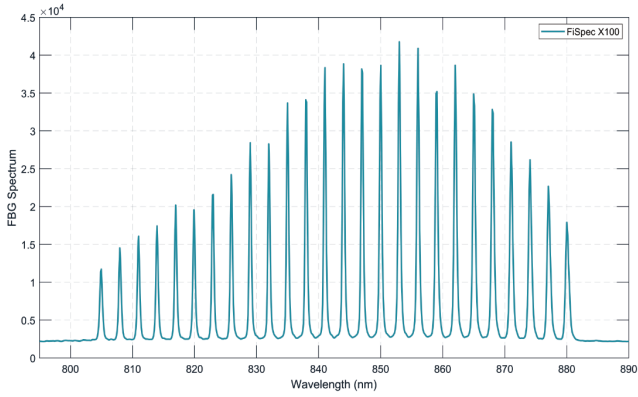
Precision in (µe) vs. Sampling Rate (Hz)
Noise level (2σ)

Heat-up Behaviour

High Repeatability

Technical Drawing

USB micro-B connector

FC/APC connector

UART Interface

Pin:
1
2
3
4
5

74

50

15.25

8

8.38

25

52.83

45

45.7

8

4x M2x0.4 6H x 6/6.5

3x M3x0.5 6H x 2.5/3