Ibsen photonics

I-MON E

Interrogation monitors for FBG sensor systems

High-resolution spectrometers ideally suited for a broad range of FBG sensing applications through a unique combination of high resolution, high speed, broad wavelength range and compact size

The I-MON E-USB 2.0 Interrogation Monitors offer kHz spectrum monitoring of Fiber Bragg Grating (FBG) sensors. High spectrometer resolution combined with broad wavelength range provides high-reso- lution interrogation monitors allowing mea- surement of a large number of FBG sensors. High sensitivity allows high resolution also at very low light levels. USB interface and data acquisition software provides easy setup with a laptop, and the I-MON can act as a stand-alone monitor in combination with a customer-selected light source. External trig input enables exact timing. Additionally the I-MON Series E-USB Interrogation Monitors offer straightforward integration with the customer's interrogation system control PCB and meet industrial qualification standards.

Features
High measurement frequency
Broad wavelength ranges
High resolution
Large dynamic range
Compact size
No moving parts

Applications
Stand-alone Interrogation monitor and/or
OEM Interrogation monitor modules:
- Vibration analysis
- Temperature measurements
- Pressure monitoring
- Strain measurements

I-MON software

The I-MON E is available as a Developer's Kit including software providing plug-and-play operation, and driver software packages and DLL files allowing the user to develop own measurement applications for OEM integration.

Operating principle

The Ibsen I-MON Interrogation Monitors build on patented (*) Ibsen high-resolution spectrometer technology, utilizing Ibsen fused silica transmission gratings. The I-MON splits the wavelength spectrum spatially to allow for parallel processing of the individual FBG sensor peaks. The FBG sensor peaks are measured by a diode array, and the embedded electronics provides USB interface.

(*) US patents no's.: 6,842,239 and 6,978,062

About Ibsen Photonics

Ibsen Photonics is building its portfolio of high resolution spectrometer modules on more than 16 years of experience in diffractive optics. Ibsen Photonics also has a leading postition within holographic Phase masks that increase manufacturability of fiber Bragg gratings, DFB lasers and integrated optics for leading telecomunication companies worldwide.
Ibsen Photonics welcomes partnerships with original equipment manufacturers based on the Ibsen highresolution spectrometer technology.
Ibsen Photonics is a privately held company.

Specifications

Parameter	Unit	I-MON 400	I-MON 512E
Wavelength range	nm	1520-1585	1275-1345 / 1510-1595
Max no. of FBG's and spacing		> 50 at 1200 pm	>70 at 1000 pm / >70 at 1200 pm
Resolution @ -50/-60/-70 dBm input power	pm	< 0.5	
Repeatability (over any pol state)	pm	3 (5 max.)	
Wavelength accuracy	pm	5 (typ.)	
Wavelength drift	pm/°C	1 (2 max.)**	
Dynamic range	dB	30	
Input optical power range	dBm	-80 to -20	
Measurement frequency	Hz	970	
Interface		USB 2.0	
Current consumption	mA	250 ***	
Temperature range	°C	0 - 50	
Size	mm	104 x 94 x 48	

(**) Note that by applying temperature control or temperature correction the wavelength accuracy over the entire temperature range can be improved to +/- 10 pm.
(***) USB buspower.

Specifications are subject to change without prior notice. Design and specifications can be modified to suit a range of customer requirements.

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