

I-MON 256 C OEM

Interrogation Monitors for FBG sensor systems



Cost efficient, high resolution spectrometers ideally suited for OEM Integrators of FBG sensing systems

The I-MON 256 C OEM Interrogation Monitors offer realtime spectrum monitoring of Fiber Bragg Grating (FBG) sensors in the 1550 nm wavelength range at line scan rates up to 7.2 kHz. High spectrometer resolution combined with broad wavelength range provides high resolution interrogation monitors allowing measurement of a large number of FBG sensors.

A direct interface to the diode array detector offers OEM integrators a cost efficient solution for building their FBG sensing systems.

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Features

- High measurement frequency
- Broad Wavelength ranges
- High resolution
- Large dynamic range
- Compact size
- No moving parts

Operating principle

The Ibsen I-MON Interrogation Monitors are built 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.: 6,842,239 and 6,978,062

Applications

OEM Interrogation monitor modules:

- Vibration analysis
- Temperatures measurements
- Pressure monitoring
- Strain measurements

I-MON software

The I-MON OEM series is available as a Developer's Kit including electronics and software providing plug-and-play operation.

Specifications

| Parameter | I-MON 256 C OEM |
|------------------------------------|--|
| Wavelength range | 1520-1579 nm |
| Max no. of FBG's and spacing | > 36 at 1600 pm |
| Wavelength fit resolution | < 0.5 pm* |
| Repeatability (over any pol state) | 3 (5 max.) pm |
| Wavelength linearity | 5 (typ.) pm |
| Wavelength drift | 1 (3 max.) pm / Degree C** |
| Power / Measurement dynamic range | 40/15 dB* |
| Input optical power range | -70 to -22 dBm* |
| Interface | Direct interface to InGaAs detector via flexible PCB |
| Temperature range | 0 – 70 Degree C |
| Measurement frequency | 7.2 kHz max.* |
| Size | 48.3 mm × 48 mm × 16.2 mm |

(*) Depending on electronics

(**) Note that by applying temperature control or temperature correction the wavelength accuracy over the entire temperature range can be improved.

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

About Ibsen Photonics

Ibsen was founded in 1991 by Per Ibsen under the name of Ibsen Micro Structures A/S. Today 88% of Ibsen Photonics' share is majority owned by Foss A/S, a world leader in analytical solutions for the Food and Agricultural industries. Ibsen management and employees hold the remaining 12 % of the shares.

The Ibsen spirit combines the dynamic, entrepreneurial culture of a medium size company with a disciplined, operational mentality of a large corporation. With an average employee tenure of more than 10 years, Ibsen makes for a very effective organization that builds on more than 30 years of experience as a company.

Ibsen employs more than 90 people at our R&D and manufacturing facility in Denmark and has achieved a turnover of more than 180 MDKK in 2022.

Working with Ibsen Photonics

The core expertise of Ibsen Photonics lies in the opto-mechanical design, grating technology and metrology. We master the cycle from optics, grating simulation and design, through optical and semiconductor production technologies, to high volume assembly, packaging and testing. Over the years we have developed many new designs, technologies and processes - many patented.

Our customers are large to medium-sized manufacturers of advanced optical devices and instruments, into which our products are integrated. With a highly organized production process, we are able to help customers obtain smooth instrument production, low unit-to-unit variation, high level of right first time, no field returns, and a low level of rework.

Our grating production facilities are world-class, including class 10 cleanroom facilities that we designed and built in 2000/2001, in which all environmental parameters are under continuous surveillance.

Our spectrometers are produced under strict quality control in our assembly facility in Denmark. We have been granted ISO 9001 and ISO 13485 and will be certified according to ISO 14001 and ISO 45001 in 2023. This confirms Ibsen's' consistent capability to produce high quality products that meet market standards and all regulatory requirements.

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