

FAZT

FIBER BRAGG GRATING (FBG) MONITORING SYSTEM





THE WORLD'S MOST ACCURATE
AND PRECISE FBG MONITORING
SYSTEM FOR HIGH END
APPLICATIONS

ALLOWS LOW NOISE
FBG MONITORING
ACROSS WIDE
FREQUENCY RANGE

MEET FAZT

The FAZT interrogator is a revolutionary new breed of FBG sensor interrogator which allows the **measurement of absolute stress/strain/temperature** with the highest accuracy/precision/repeatability on the market.

The internal referencing system enables superior static and dynamic measurements performance. This results in a measurement system with the highest precision and accuracy on the market and a noise floor of <20 femtometres (orders of magnitude better than other systems).

The Optics11-I4G system is therefore highly suitable to perform high-end measurements, where accuracy, precision and repeatability is required.



Up 8kHz SAMPLING RATE



4 Fibres (expandable to 16/64)



< 1pm accuracy
< 0.02pm repeatability
<20 femtometer noise floor



accurate
&
repeatable

INTERROGATOR

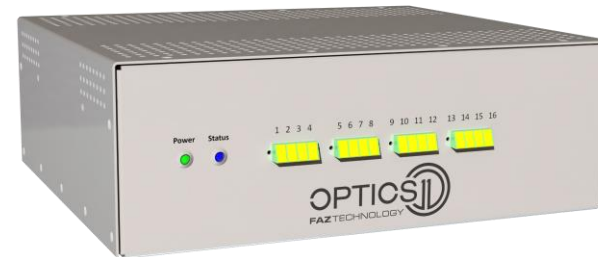
The FAZT interrogators provides ultimate precision, repeatability and accuracy

The interrogator allows the user to quickly and easily adapt the instruments performance parameters .

Trigger input allows multiple interrogators to be synchronised. Expansion modules allow for up to 64 fibres with up to 30 sensors on each fibre.

Main Specifications

Wavelength range	39.2nm
No. of channels	4 (expandable to 64)
Sampling frequency	1/2/4/8 kHz (4kHz@18nm, 8kHz @8nm)
Polarisation switching	2 states
Versions	I4-G, I4-W, 14G-16, I4W-16
Dimensions	325*276*88mm
Sensor Distance	Up to 10km
Operating conditions	0 to 55 °C
Accessories	Ruggedized case Tabletop housing



SOFTWARE

The suite of software allows the user easily to configure their optical sensors and monitoring instruments for taking, saving, or transmitting precise and repeatable measurements.

Configuration

- Track peaks and troughs
- Optimize per sensor fitting parameters
- Individual gain per sensor
- Formula calculations (i.e. convert to temperature and strain)
- Real time feedback and status logging

Saving

- Text or binary data
- Synchronously save from multiple interrogators
- Peaks, troughs and spectra

API

- Stream data direct from interrogator to custom software
- Sample code for multiple languages available

Designed with versatility in mind, the FAZT software can also be used for data analysis during optical sensors design, development, manufacturing, and installation.



unique
patented
technology

TECHNOLOGY

This patented FBG monitoring system is enabled by using a high-speed and high-precision tuneable laser-based optical interrogation scheme. Multiple levels of integrated wavelength referencing coupled with low-noise high-speed electronics allow for spectral feature tracking at a resolution of $< 20\text{fm}$ at kHz frequencies.

The internal referencing system allows for superior static and dynamic measurement performance. The interrogator has no moving parts resulting in top reliability over a broad temperature range and forms an integral part of a rugged and reliable sensing system.

Using optical sensing gives the possibility to have kilometers of fiber between the readout and sensors, adding sensors without compromising measuring speed and the resistance to EMI. All the sensors are fully passive allowing them to be deployed in some of the harshest most challenging environments.



APPLICATIONS

The superior flexibility and performance of the FAZT interrogator makes it ideal for the most demanding of monitoring tasks.

- **Highest precision and accuracy on the market:**
1pm absolute accuracy, which means temperature readings accurate down to 0.1 degrees and strains down to 0.8 $\mu\epsilon$.
- **Repeatability <20 femtometer;** orders of magnitude better compared to other systems.
- Highest resolution and ultra-low noise floor.

This market leading performance makes the FAZT interrogator ideal for use across a wide range of applications:

- Structural health of infrastructure (e.g. Bridges, Foundations, Tunnels)
- Industrial asset monitoring (e.g. pressure, strain, temperature)
- Industrial Process monitoring (e.g. vibration, high temperature)





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