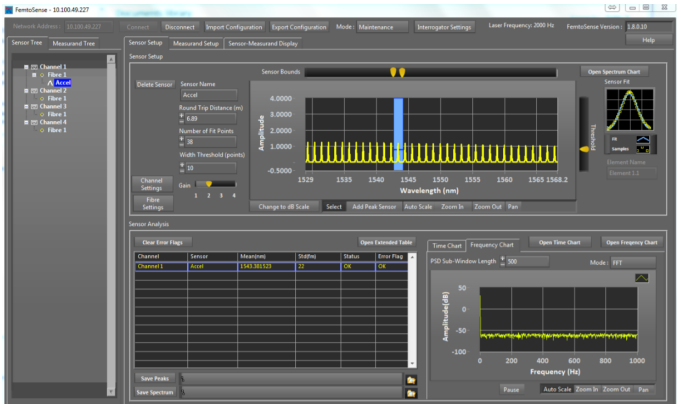
FAZT FEMTOSENSE Software

Description

The FAZT FEMTOSENSE configuration software is used for optical sensor setup and measurement. The configuration can be stored inside any instrument that belongs to the FAZT interrogators product family. Once stored in the FAZT interrogators, the respective instruments automatically use that configuration on power up.

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

The FEMTOSENSE software is used extensively in conjunction with our family of rugged FAZ Technology interrogators in marine, railways, roads, energy, civil, geotechnical, industrial, security, medical, and many other commercial applications. It is also the software of choice for Research and Development Centers that seek to achieve ultimate precision and repeatability measurements using optical sensing technology.



Benefits

Enables immediate access to ultimate precision, repeatability and accuracy measurements: The FEMTOSENSE software swiftly configures our flagship FAZT I4G interrogator to return measurements in 1pm steps across its wavelength range. Using patented FAZ Technology scan-by-scan calibration, the instrument features ultimate 0.1pm absolute precision, superb repeatability of 50fm max, and absolute accuracy of 1pm (Gas Cell and MZI referenced in closed PM circuit). *Ultimate measurements require tight control of all three calibration parameters: precision, accuracy and repeatability.*

Adaptive to more types of sensors: The FAZT FEMTOSENSE software offers access to the complete range of configuration options for the entire family of available FAZT interrogators. It offers system integrators full flexibility to optimize their sensors and sensors arrays for the specific needs of each application. FEMTOSENSE allows the user to quickly adapt the instrument's performance parameters to fit many different sensor configurations. As an example, FEMTOSENSE enables the FAZT I4G interrogator to monitor with ultimate precision more types of sensors than any other instrument, from narrow bandwidth (40-100pm) FBGs used in high-sensitivity accelerometers, pressure sensors, hydrophones, and microphones, to wide bandwidth (1.5nm) FBGs used in bio-sensing. It easily configures peak tracking algorithms for FBG sensors including programmable gain per sensor, sensor width/height thresholds, and distance to sensor settings for accuracy at long distances. Combined with the instruments' underlying output power (typically ~2 dBm depending on configuration) and high sensitivity receivers, our FEMTOSENSE configured optical sensing systems deliver exceptional optical dynamic range performance over long distances.

Field Proven and FREE: The FEMTOSENSE software is used by customers worldwide and comes FREE with each FAZT interrogator.

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Femto Sensing Sweden, Femto Sensing Singapore, and Femto Sensing USA are manufacturing and support facilities of Femto Sensing International, LLC.

Applications include Aerospace, Marine, Railways, Roads, Civil & Geo Engineering, Energy, Industrial, and R&D Labs

Femto Sensing International undertakes a rigorous development process before products release. The company is also firmly committed to continuous improvements after release to ensure performance and reliability to the highest standards, hence, specifications are subject to update without notice.

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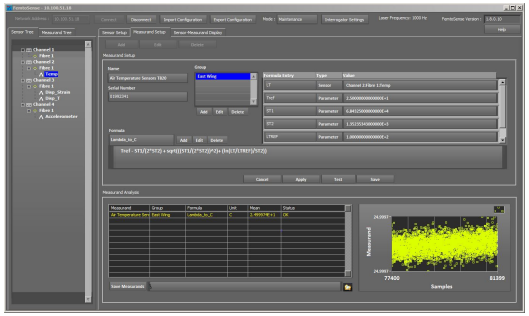
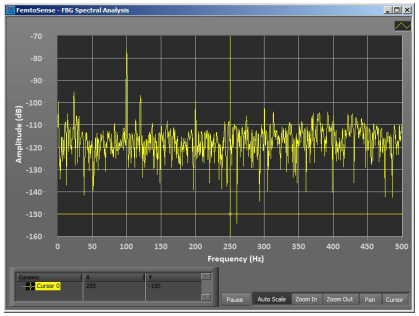
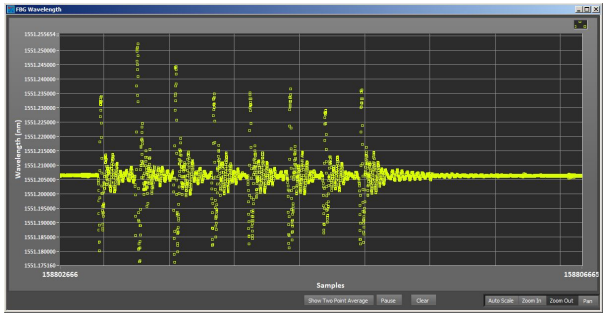
FAZT FEMTOSENSE Software

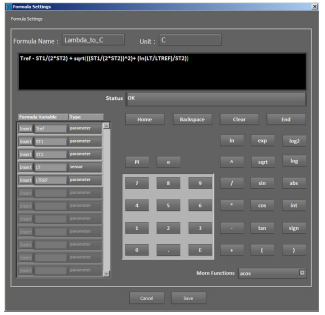
KEY SOFTWARE FEATURES	DESCRIPTION
Configure the sensors and sensing arrays	Assigning them channels and/or identifiers for the number of fibers in the system
Configure and monitor individual parameters by sensor type	Fiber Bragg Gratings (FBG), Fabry-Perot (FP), and other “Spectral” and/or “Multi-Peak” sensors (Bi-FBG, etc)
Configure each sensor for ultimate precision measurements	Set round-trip delay, gain level, FBG fitting optimization, FBG measured conversion formula (wavelength to temperature, strain, displacement, acceleration, pressure, vibration, tilt, chemical exposure, etc…)
Configure interrogator for use with supervisory systems (see Note 1)	Setting of the interrogator’s name, desired polarization mode, optional down sampling factors, low-pass filter parameters, trigger and timing modes
Measurand display charting	Available for up to five (5) sensors with autoscale, zoom and pan features
Full spectrum viewer	Display of full spectrum over each instrument’s wavelength range with autoscale, zoom and pan features
Time charting and Frequency Spectrum sensor viewer	Frequency Spectrum viewer in Power Spectral Density (PSD) and Fast Fourier Transform (FFT) modes
Data saving	Saving of Sensor Peaks, Spectrum, and applicable Measurands enabling further analysis of the sensors data
Interrogator housekeeping tools	Import and export of configuration files, setting of the interrogator in operation or maintenance/setup modes
Interrogator firmware and network settings	Interrogator firmware upgrades and setting of IP addresses (Gateway, DNS Server, NTP Server, DHCP)
Interrogator scan rate selection	Setting the scan rate of the interrogator to 1kHz, 2kHz, 4kHz, and 8kHz operation modes
Support package	Premium quality LABVIEW interface examples and API support document for OEM and supervisory software system developers is included

Note 1: The FEMTOSENSE Software enables easy configuration of all FAZT interrogators to also operate under supervisory software systems such as FEMTOSENSE GATEWAY or other software developed by the customer. Supervisory software systems typically monitor and analyze the data for one or more interrogators synchronized to operate in tandem as a system, on site or remotely from a monitoring and control center.









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