



SENSING  360

LumiSens BoltTense

Digital integrity for bolted structures

The Sensing360 Lumisens BoltTense

For owners of critical infrastructure, turbines and ships ensuring structural integrity is a constant challenge. LumiSens BoltTense is a sensor-and-platform solution designed to eliminate the risks of bolt loosening or failure.

The End of Manual Torque Inspections

Traditional structural maintenance relies on manual "spot checks" that are labor-intensive, expensive, and only capture a moment in time. Sensing360 offers a proactive alternative.

Real-Time Looseness Detection: Continuous monitoring of bolt tension ensures that even the slightest loss of preload is detected instantly.

Safety-First Alerts: Receive immediate automated warnings the moment a bolt becomes critical, preventing catastrophic structural failure.

Predictive Maintenance: Move away from costly periodic manual inspections. Our platform tells you exactly which bolt needs attention and when.

Why Choose the Sensing360 Solution?

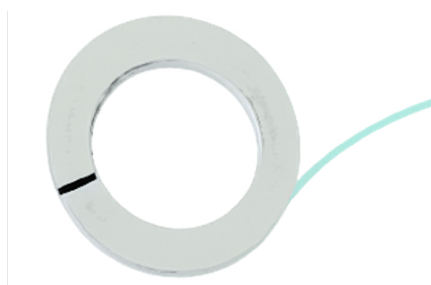
Multiple sensor: Tension, temperature, vibration all in one.

Bolt-in installation: Retrofitted directly under the bolt. No modifications, no downtime headaches.

No temperature drift: we measure optically also temperature, long term stable

Built for harsh environments: engineered to survive the temperature, pressure, and vibration conditions of real-world operation.

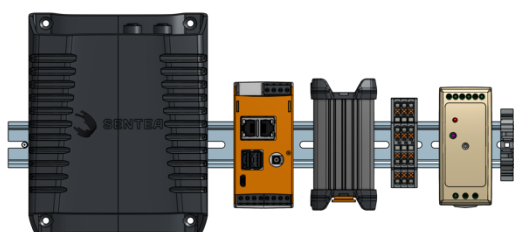
Real-Time Alerts: Receive instant warnings when performance deviates from the norm, allowing for targeted intervention.



Fiber Optic Sensor Washer



Stand-alone Solution



Top-box Solution

LumiSens BoltTense

The system includes a Fiber Optical Sensor Washer and a data processing module.

The Fiber Optical Sensor Washer is robust to environmental influences.

The Data Processing Unit provides a local data log or an optional local data feed. Additionally, frequency data is periodically captured for the purpose of condition monitoring.

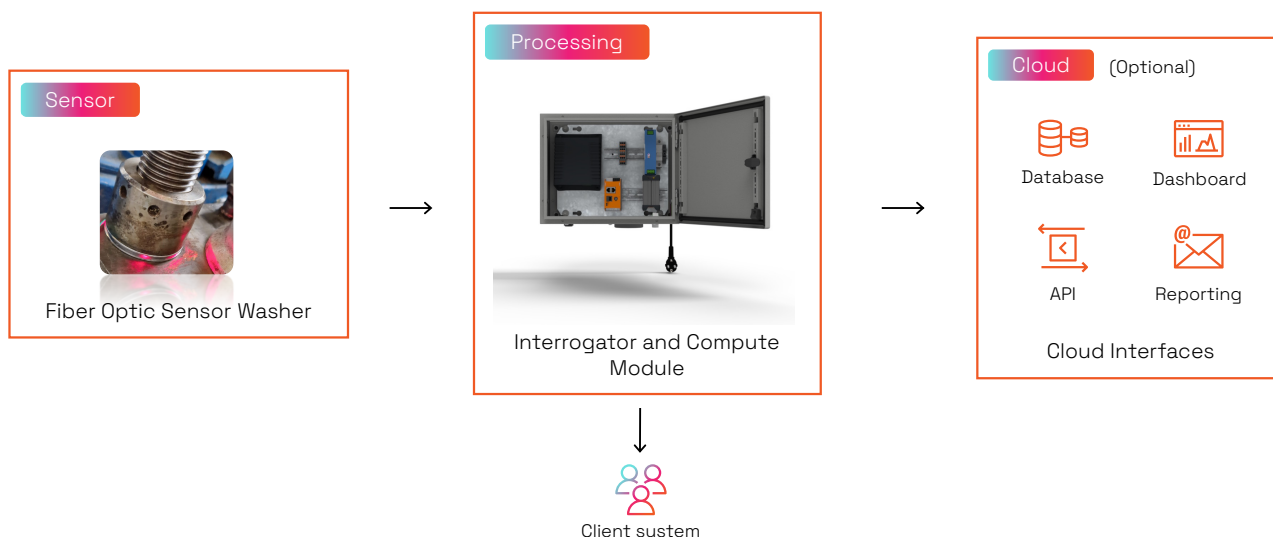
The Data Processing Unit is available as a cabinet mounted stand-alone solution with 230 V power supply or a top-box solution, requiring a 24 V DC supply.

Features

- Fiber optic sensor washer
- Local logging
- Robust to environmental influences
- Remote connectivity
- Stand-alone or top-box solution

Optional cloud connectivity provides:

- Cloud portal
- Dashboard
- API
- Reporting



Specification subject to change - The product's characteristics are exclusively governed by the data of the respective user manual
Sensing360 B.V. - Vondellaan 106 3521 GH Utrecht, NL - www.sensing360.com

Common features

Optical Sensor Washer	
Number of FBGs	1-4
Connector	LC/APC
Dimensions	M12 and above
Operating temperature	-25 °C to +150 °C
Local logging	
Data	Strain ¹
Protocol	Ethernet ²
Sampling interval	Up to 25kHz
Interrogator	
Type	Sentea DM-4120
Channels	4 ³ - up to 16 bolts
Data processing unit	
Type	RevPi Connect 5
Connectivity	
Antenna type	SMA connector

Top-box version

Cabinet	
Mounting	DIN-rail NS 35/ 7,5 ZN
Dimensions	500 mm × 150 mm × 150 mm
Power supply	24 V DC
Operating temperature	-25 °C to +55 °C between 5% and 95% humidity (no condensation)

Stand-alone version

Cabinet	
Mounting	Wall mounting
Protection	IP65
Power supply	Multi-voltage power supply 100 V to 240 V / 50 Hz to 60 Hz / 50 W
Dimensions	380 mm × 380 mm × 210 mm
Operating temperature	-25 °C to +55 °C between 5% and 95% humidity (no condensation)

¹ Other processed data feeds on request

² Custom data feeds on request

³ Systems with more channels on request

Specifications

Performance	
Capacities	F _z (Tension), Temperature, Vibration
Load range	Up to 10 kN and beyond
Accuracy	1% Full Spectrum
Repeatability	1 %
Temperature sensing	0 – 150 °C ± 0.5%
Vibration analysis	FTT, order analysis
Mechanical	
Bolt range	M12-M54
Thickness	>2.5 mm
Material	Harded steel HRC>53
Interface	
Output	Modbus (TCP/IP), Ethernet
Sample rate	Up to 24 kHz
Supply	24 Vdc or 220 Vac
Environment	
Protection	Up to IP68
Temperature range	-50 - 150°C
Safety	ATEX zone 0