SENSING360

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SMART PHOTONIC SLEEVE

To validate and optimize
your application and operation
in all environments

Measurands

- Load
- Temperature
- Condition
- Rotation speed

Measure real-time operation loads

Optical sensing sleeve to be integrated in rotating equipment. Measure rotating parts as bearings and gearboxes to give real insights.

Sensor

Parameter	Performance
Load range ($F_{axial/radial}$)	5 – 2500 με - all load ranges
Load accuracy	5% Full Scale
Repeatability	1 %
Speed range	50 - 3600 rpm ± 1%
Temperature sensing	0 - 100 °C ± 0.5%
Loaded zone range	0 - 360° ± 5%

Environment

Parameter	Performance
Output options	Modbus, 4-20 mA, 0-10Vdc, ...
Protection	IP67
Lubrication	All Lubricants
Operation temperature	-50 - 300°C
Safety	ATEX zone 0
Chemical resistance	Sour gas, Mineral oils, Salt (spray)

General technology advantages

- Enables monitoring of all rotating turbine parts, bearings, shafts and gearboxes
- Optical sensors are explosive save and immune for electrical distortions
- Knowing loads, temperatures, frequencies and speed of rotating parts give unique insights
- Use to validate your design simulations and learn the real operating conditions

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Measure load to get more control

Sensing360

Sensing360 focuses on rotating equipment health sensing; using load, temperature and condition sensing. We provide a reliable and actionable data feed with load, temperature, condition as key performance modifiers for rotating equipment in all (harsh) environments. To optimize your rotation and validate system designs. For this we offer scalable and reliable fiber optical load sensing products and analytics services. We measure the resilience of your assets and push the boundaries of sustainable rotation.

The Smart Photonics Sleeve

The Smart Photonic Sleeve is a steel sleeve with integrated optical sensors. Together with intelligent interrogator hardware and smart data analytics algorithms it offers actionable information about rotating equipment. Including load, temperature, their distributions, health and performance. The product uses optical sensors with advantages like; EMI and explosive safe, use of only one optical wire, long distances sensing, small integration footprint and suited for any environment. The sleeve can be obtained separately and as an end-to-end solution including visualization on a dashboard.

Photonic Sleeve

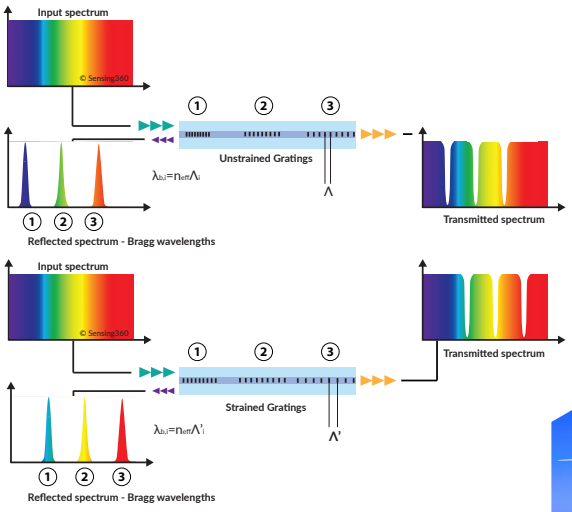
Measurement device

Asset analytics

Dashboard

Fiber optical sensing

Optical fiber sensing provides solutions in all environments, based on the fact that light can travel inside the fiber and the sensors are integrated in the fiber. These sensors are called Fiber Bragg Gratings (FBGs); This grating acts as a mirror for one particular wavelength. The FBG is transparent for light at wavelengths other than the grating wavelength. The reflected wavelength is temperature and strain dependant, these allow determining the temperature or strain from the wavelength.



Summary

- Load as key performance modifier
- Driveline, gearbox, bearing sensing
- Validate rotating equipment designs
- Condition based maintenance
- Increase operation efficiency
- Also in harsh environments

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