

Peraglobe Technologies Private Limited, the exclusive representative of **Opterro, Inc.**, in India. Opterro Inc is a commercial spinout sister company of Intelligent Fiber Optic Systems Corporation (**IFOS**), based in Silicon Valley, U.S.A. Peraglobe is a professional engineering company engaged in offering high-end technology with advanced sensing system solutions and products using Fiber optics for the measurement of physical, chemical and biological parameters intensive products and system solutions to Indian industry for various applications.

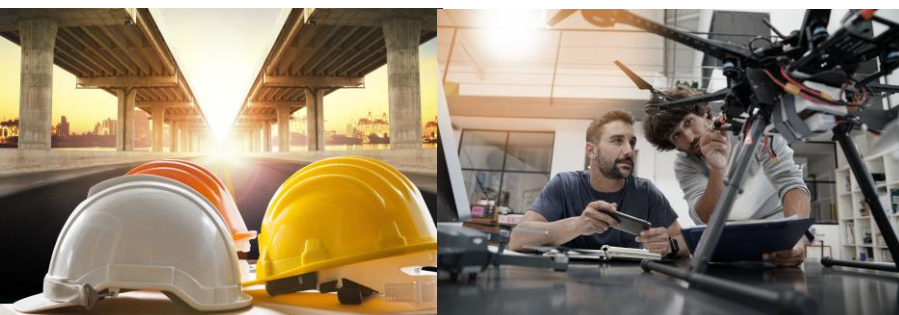


Limitless Engineering Application Possibilities from Optical Fiber Sensing Technologies

Are you looking for a Structural Health Monitoring Solutions to monitor the health of your valuable Civil Structures, Aircraft Components and other high value assets?



Interested to protect and schedule preventive maintenance of your large Industrial Machineries especially in those operating at harsh and explosive environments?



Looking for improving or creating breakthrough medical innovation and creativity in modern medical equipment used in non-Invasive surgeries etc?

If the answer is yes, then we are the correct people to reach out to.

What are Optical Fibers?

Optical Fibers are made of transparent dielectric whose function is to guide light over long distances.

What are Fiber Optic Sensors?

A Fiber Optic Sensor is used to monitor quantities such as temperature, Strain, Angular Rate etc., the sensors consist of an encapsulated Fibre Bragg Grating (FBG).

Why Fiber Optic Sensors?

Highly Reliable & Secure due to immunity of the sensed Signal to Electromagnetic Interference. Safe in Explosive & Demanding Harsh Environments, Free from risk of Fire & Sparks. Corrosion resistant, Small size and weight, High accuracy & Sensitivity, Robust construction.



How do we Record, Analyse and Compute the Data from these Sensors?

An Interrogator is a device used for Analysing and Computation of the obtained light Signal from Sensors for useful Interpretation of engineering parameters. The Interrogation System consists of a Broad-Band Source, An Optical Circulator, and an Optical Spectrum Analyser.

How the Mechanism Actually Works?

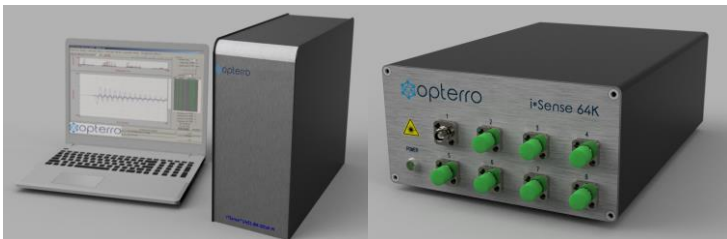
Light from Broad Band Source is guided through the optical circulator to the sensor and is reflected at the sensor head back to the optical circulator again. From the Optical Circular the reflected spectrum of the Fiber optic sensor is transferred to the Optical Spectrum Analyzer. The Optical Spectrum Analyzer captures and normalises the reflected Fiber Optic Sensor Spectrum. A computer is used to acquire and analyse the spectrum.

Importance of having High Sampling Rate for your Interrogation System:

In conventional Analog Signal Communication Technique, we generally implement the Nyquist criterion which requires that the sampling frequency be at least twice the highest frequency contained in the signal if not the information about the signal will be lost. If the sampling frequency is less than twice the maximum analog signal frequency, a phenomenon known as aliasing will occur. Eventually the same phenomenon applicable to Optical Instrumentation as the more the sampling frequency the better your accuracy of the critical data and experts recommend going for frequency in the range of MHz. Higher the sample rate the better and accurate the measured value will be. Which can be achieved at Opterro without distorting the signal. When the signal is distorted, we get false measurement values. Opterro assures a max of 1.3 MS/s which means per second it will be collecting 1.3 million samples.

Why Opterro Inc?

Pressures to 1 kBar, temperatures to 1000°C, angular rates, strains as small as sub micro strain and as large as 10,000 micro-strain and several other parameters can be measured accurately at MHz sampling rates simultaneously across large numbers of sensors in the extreme environments of space, energy and human body.



Expertise of Opterro Inc in

1 ENERGY

Opterro optical fiber sensing systems measure temperature, static load, dynamic strain and acoustic emission monitoring and NDT of critical infrastructural assets in oil & gas boreholes, directional drilling, wind turbines, nuclear plants, smart grid, high-voltage cables and many other energy applications.

2 MEDICAL

Opterro has developed console instrumentation and means of sensorizing medical implements so that they can be actively sensed and steered, provide real-time haptic feedback of tip force as well as full shape and position information resulting in excellent patient outcomes and clinical economics.

3 AEROSPACE

The environment of space involves harsh conditions with extremes of temperature, acceleration and radiation. Opterro fiber optic interrogators and fiber optic gyroscopes are made to withstand the harsh environment of space and are used for structural health monitoring, prognostics, NDT and other applications requiring access to difficult areas, electromagnetic interference immunity, low size, weight and power packaging.

Sampling Speed	1.3 MS/s
Sensing Temperature	250°C (option for up to 800°C)
Strain Range	±1,060 µε (5 FBGs/fiber) ±2,650 µε (2 FBGs/fiber)
Resolution	0.1 pm (0.1 µε)
Absolute Accuracy	± 2 pm (± 2 µε)
System Noise Floor (broadband RMS amplitude)	<0.40 µε @ 0-566 kHz <0.15 µε @ 0-100 kHz
Dynamic Range	96 dB
Optical Connectors	FC or E2000 APC
Operating Temp. Range	0°C to 65°C
Source Optical Power	10 dBm
Wavelength Range	C Band (1540 to 1566 nm)

Contact Us

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