FIBER OPTIC SENSING SOLUTIONS
PLUG AND FORGET SENSORS
COMPLETE TURNKEY SOLUTIONS TO MEET THE SPECIFIC NEEDS OF WIND FARM APPLICATIONS
Located in remote areas, with difficult and challenging access, wind farms need reliable permanent instrumentation requiring no on-site maintenance or calibration.

The PLUG AND FORGET solution of Opsens Solutions represents a true maintenance free sensing system. Once installed, no intervention is ever required at sensor location.

With the QUICK CONNECT feature, instrumenting a full blade is now very fast and easy. The sensors can even be mounted without cable to facilitate installation in work zone where cable management could be an issue.

**KEY FEATURES**

- **PLUG & FORGET** - Maintenance free and no drift over time
- **QUICK CONNECT** - Very fast installation and deployment
- Strain sensor and extensometer not affected by transverse strain
- Robust industrial design with field-proven long term reliability
- Highly versatile (Temperature, Pressure, Displacement, Strain)
- Intrinsically safe - Immune to lightning
- **LOW COST** fiber optic technology

**STRUCTURAL HEALTH MONITORING**

**SURVEILLANCE OF CRITICAL ASSETS**

- STRAIN SENSOR NOT AFFECTED BY TRANSVERSE STRAIN NOR TEMPERATURE
- INSTANTANEOUS RETURN TO INITIAL STRAIN LEVEL (NO LAG - NO LATENCY)
  - For both static and dynamic testing (kHz sampling rate)
  - Sensors can be welded to surface of fixed with special adhesive for metallic surface
  - Robust stainless steel cable to permanently sustain the harshest environment
**BLADE INSTRUMENTATION**

**RELIABLE LOAD AND STRAIN MONITORING SYSTEM**

- NO TEMPERATURE COMPENSATION REQUIRED
- NO NEED TO PRE-TENSION THE STRAIN SENSOR (OUTSTANDING REPEATABILITY IN BOTH TRACTION AND COMPRESSION)
- FAST and EASY installation
- Sensors can be embedded in composite material, inside the hollow structure or on the blade directly
- Low profile sensors not affecting the blade aerodynamic
- Adjustable strain measuring range for optimal sensitivity (From ±500 µε to 0-15,000 µε)

![Pressure Sensor](image1)
![Strain Sensor](image2)
![Temperature Sensor](image3)

**FOUNDATION AND PILE MONITORING**

**ASSESSMENT OF STRUCTURAL INTEGRITY**

- No cable management during installation: sensors can be fixed on the pile surface without cable.
- Ultra-robust design able to sustain the harsh conditions related to driving pile in the ground
- Strain sensor can sustain a permanent pressure of 300 bars without any effects on strain measurements
- In-situ extensometer to be embedded in fresh concrete
- Pressure sensor for offshore structure or to monitor ground water level

![Load Cell](image4)
![Concrete Embeddable Extensometer](image5)
![Quick Connect](image6)
OUTSTANDING FIBER OPTIC SENSING SOLUTIONS
FOR STRUCTURAL HEALTH MONITORING

KEY FEATURES

- Low cost fiber optic sensing solutions
- Easy installation PLUG AND FORGET solution with no drift overtime (Do not require maintenance)
- Technology immune to lightning and EMI
- Strain sensor can be spot welded on the structure
- Fiber optic covered with stainless steel: perfect for harsh environment
- Quick connect feature, allow easy installation on site and is water proof (300bars)
- Sensor can be up to 3 km away from signal conditioner
- Dynamic monitoring (Up to 1000 Hz)

TO KNOW MORE

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