

# FIBER OPTIC SENSORS MEETING THE SENSING CHALLENGES IN THE NUCLEAR INDUSTRY

Temperature Strain Deformation Displacement Pressure Load Flow



$\epsilon$  °C kg mbar mm  $\mu\epsilon$  psi °F N  $\epsilon$  °C kg mbar mm  $\mu\epsilon$  psi °F N  $\epsilon$  °C kg

**opSens** Solutions

Enlightenment through smart measurements

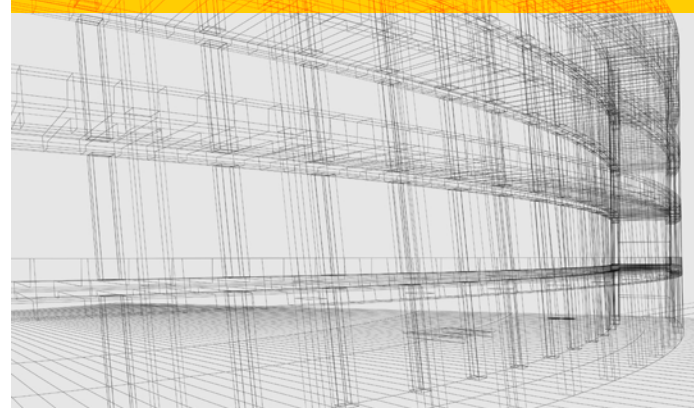


## PRESSURE MAPPING ON TURBINE



Low profile pressure sensor

## STRUCTURE HEALTH MONITORING



Extensometer (embeddable)



Extensometer (insensitive to temperature)



Load cell (insensitive to temperature)



Crackmeter

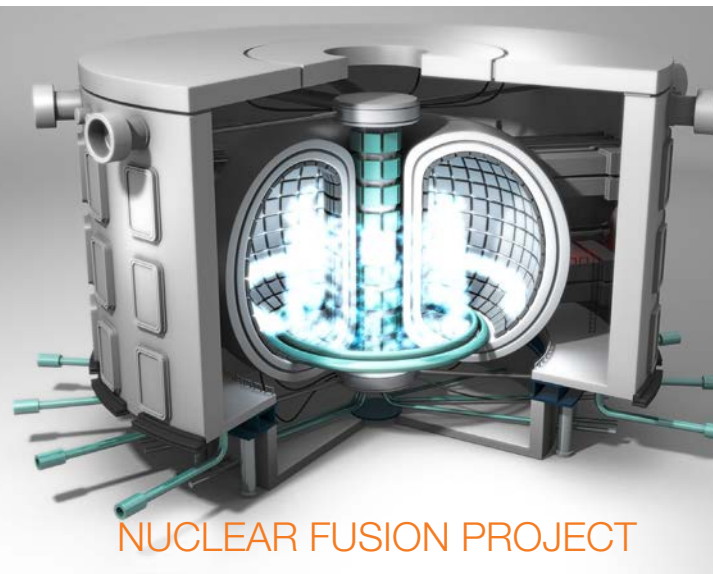
## KEY FEATURES

- Excellent radiation resistance
- Immunity to EMI (tested up to 8 Tesla)
- Temperature range from cryogenic to 300 °C
- Embeddable in concrete
- PLUG and FORGET: No maintenance required and no drift overtime
- Miniature and light weight

## NUCLEAR POWER PLANT



## NUCLEAR FUSION PROJECT



## NUCLEAR WASTE MANAGEMENT



## HEAVY WATER LEVEL



Pressure sensor

## COOLING SYSTEM



Spot weldable strain sensor



Differential pressure sensor



Absolute pressure sensor

## CRYOGENIC APPLICATION



Strain sensor



Temperature sensor



## SIGNAL CONDITIONERS

Opsens Solutions readout units are compatible with all WLPI sensors. Through the same interface, the unit can provide temperature, pressure, strain, position, or displacement measurements to offer maximum versatility.



### OEM CARD

OEM-type signal conditioner that offers a product designed for specific needs. Its compact size and modular assembly give OEM's the best in design flexibility.



### MODULAR PLATFORM

For dynamic testing or large scale monitoring project, the modular design offers scalable sampling rate up to 1000 Hz. These advanced data acquisition systems can support thousands of sensors through a single interface.



### MULTI-CHANNEL

Robust and capable of grouping different sensor type, these ruggedized signal conditioners offer a broad variety of outputs: analog, RS-232 and RS-485.



### HANDHELD UNIT

Ruggedized to provide good mechanical protection against intensive handling in tough environments. These single channel devices are compact and offer maximum portability with battery powered function.

## OUTSTANDING FIBER OPTIC SENSING SOLUTIONS FOR NUCLEAR INDUSTRY

### KEY FEATURES

- Excellent radiation resistance
- PLUG and FORGET: No maintenance required and no drift overtime
- Immunity to EMI (tested up to 8 Tesla)
- Temperature range from cryogenic to 300 °C
- Highly versatile (temperature – pressure – displacement – strain)
- Miniature and light weight

### TO KNOW MORE

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