

# Prysmian solutions for increased Wind Farms reliability

## **PRYCAM™** GRIDS for Wind Turbine application Fixed monitoring systems for Partial Discharges and Temperatures



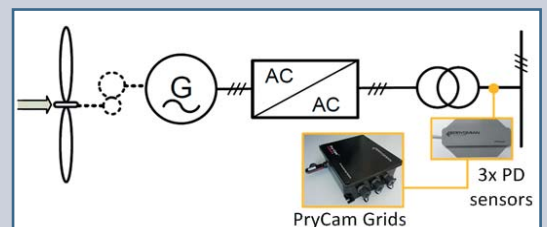
As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as a primary driver in the development of communities.

Wind Turbines are strategic assets whose nuisance outages cause a significant reduction on profitability, decreasing the Owners' Return on Investment. For off-shore wind turbines, profit losses caused by unplanned outages are even more critical due to the high additional costs of reactive maintenance.

Today the wind farm reliability can be increased with the Prysmian innovative fixed monitoring systems for Partial Discharges (PDs) and temperatures. Partial Discharge (PD) measurements are effectively used to predict and prevent faults on medium and high voltage electrical systems and components, such as transformers, generators, cables, joints, etc.

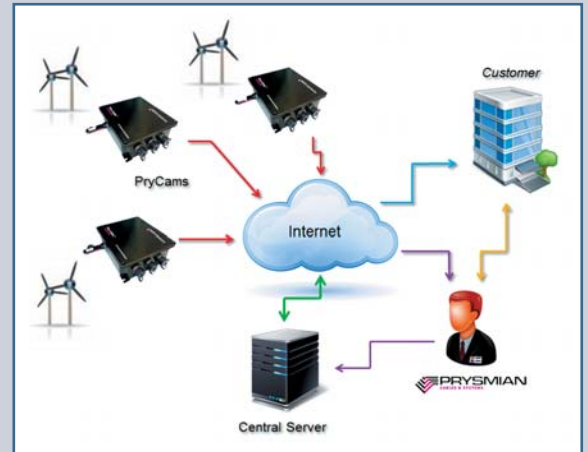
The **Pry-Cam™ Grids** are integrated, autonomous Partial Discharge (PD) monitoring systems for electric components based on the exclusive Prysmian Pry-Cam™ sensing technology. They allow to monitor the conditions of Medium Voltage components of a Wind Turbine by continuously tracking the Partial Discharges activity and local temperatures.

Thanks to the Prysmian exclusive sensing technology, the system is easy to be installed during the wind turbine operation, without service interruption. The system performs periodic measurements that are locally analyzed, stored and sent to a remote server. Thanks to an exclusive algorithm, the background noise and inverter noise are automatically identified and rejected in order to keep the PD diagnosis accuracy to the highest level.



All the information can be shared and/or integrated with any kind of existing monitoring system (SCADA, etc.) or asset management software.

The measurements can be remotely viewed and controlled from any location via an Internet connection thanks to the Prysmian Web Infrastructure.



## Product features

- High resolution acquisition of the entire PD pulse waveforms, providing enhanced diagnostic capabilities
- Robust noise filtering and advanced alarming algorithms available
- Innovative sensors able to remotely detect small PD pulses
- PD synchronization does not require additional sensors (i.e. no need of CTs, Rogowski coils or capacitive couplers)
- Local storage and automatic processing of acquired data
- Intuitive control software for live acquisition and data post-processing
- Web-based interface for monitoring control

## Key advantages for Customers

- **Suitable to prevent failures** and associated costs on critical electrical components
- **Suitable for PD and temperature monitoring**
- **Easy and quick to install during wind turbine operations**
- **Maximum safety** for operators thanks to the galvanic isolation with equipment under test
- **On-line measurements** without wind turbine outage
- **Advanced alarming algorithms** based on the complete PD pattern
- **Maximum flexibility** to monitor several components with one device (e.g. cables, transformers, generators, etc)

# Prysmian PD Wings Sensors

The most convenient and easy solution for fixed PD and temperature monitoring

PD Wings Sensors are the most recent evolution of the Prysmian electromagnetic PD sensor technology. They are flat and soft PD sensors, designed to be "sticked" to electric component to be monitored.

## Key advantages for Customers:

- **Suitable for PD and temperature monitoring**
- **Easy and quick to stick** on the component
- **Easy and quick to install** during wind turbine operations
- **Maximum safety** for operators thanks to the galvanic isolation with equipment under test
- **High sensitivity** to small PDs (down to 1pC)
- **High accuracy** thanks to the complete PD pattern acquisition



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