

## Vaisala instruments for wind farms



Wind energy is one of the fastest growing renewable energy systems. Vaisala technology is being leveraged by wind developers and operators all over the world to assess, measure and optimize critical wind resources.

From power transformer monitoring tools to a full suite of industry leading wind lidars, Vaisala solutions help you harness the wind.

### Monitoring of power transformers

The wind farm transformers act as a link between wind turbines and distribution grid.

Using Vaisala DGA Monitors, moisture-in-oil, hydrogen-in-oil, temperature, dew point, pressure and density meters, utilities can safely increase equipment performance and prepare timely maintenance plans to prevent unexpected outages.

#### Optimus™ DGA Monitor OPT100

A multi-gas DGA monitor, like the Optimus™ DGA Monitor OPT100, is the best choice for your critical transformers providing a comprehensive understanding of the condition of your transformer.

#### Moisture, Hydrogen and Temperature Transmitter MHT410

A single-gas monitor, Moisture, Hydrogen and Temperature Transmitter MHT410, can be used as a simple early warning indicator of a fault condition.



*Reliable multi-gas DGA monitor*



*Single-gas monitor MHT410 measures hydrogen, moisture and temperature accurately in real time*

### MM70 Hand-held Moisture and Temperature Meter

MM70 is an ideal tool for the preventive maintenance of oil-filled systems for transformers and oil pipelines. One of biggest benefits of spot-checking oil with the MM70 Hand-held Moisture and Temperature Meter is that water activity measurement is independent of oil type, age and temperature.

### Moisture and Temperature Transmitter for Oil MMT162

The Moisture and Temperature Transmitter for Oil MMT162 is an excellent economical solution for reliable on-line detection of moisture in oil even in the most demanding applications.

### HUMICAP<sup>®</sup> Humidity and Temperature Probe HMP155

HUMICAP<sup>®</sup> Humidity and Temperature Probe HMP155 provides reliable humidity and temperature measurement and is designed specifically for demanding outdoor applications.

## Condensation prevention in wind turbine tower and nacelle

### Vaisala Humidity and Temperature Meter Series HMT330

The Vaisala Humidity and Temperature Meter Series HMT330 is designed for demanding industrial applications where stable measurements and extensive customization are essential.

## Wind assessment and measurement

Leverage Leosphere lidars for wind development and operations.

The **Windcube** is the reference remote sensor in the wind industry, providing accurate wind measurements up to 200 meters. It is accepted onshore and offshore by all international standards and guidelines, including IEC, IEA, Measnet, TR6, and Stage 3 DNV-GL.

The **Scanning Windcube** 100S/200S/400S systems are versatile, high-precision instruments offering a range from 100 m to 3.5 km, 6 km or 10 km as well as multiple scanning patterns choices. They are eminently suitable for: the wind power industry, climate and severe weather research and wind shear detection at airports.

The **Wind Iris** mounts temporarily on the nacelle of a turbine. Built to a highly reliable design and with no moving parts, it measures the horizontal wind speed and direction at hub height ahead of the turbine, and generates accurate data to optimize wind turbine performance.

The **Wind Iris TC** (Turbine Control) provides real-time characterization of wind up to 200 meters and several seconds in front of the rotor plane, enabling turbine manufacturers to make significant improvements to the wind turbine design and efficiency of wind energy production both on and offshore.



*MMT162 is excellent economical solution for reliable on-line detection of moisture in oil*



*HMP155 is a plug-and-play sensor that has excellent stability and withstands well even in harsh environments*



*HMT330 measures humidity in harsh environments*



*Offshore Windfarm Windcube*



*Wind Iris*

# VAISALA

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