

Vaisala Wind Sensor Technology - Data Available at All Times



Wind speed and direction data are needed in countless situations and activities within, for example, meteorology, aviation, industry, research and construction. Vaisala manufactures wind sensors for different needs, from low cost combined units to sophisticated fully heated sensors for extreme weather conditions.

Ultrasonic wind measurement technology

The Vaisala Ultrasonic Wind Sensor WS425 uses ultrasound to determine horizontal wind speed and direction. The measurement is based on transit time, the time it takes for the ultrasound to travel from one transducer to another, depending on the wind speed along the ultrasonic path. With wind along the sound path, the up-stream transit time increases and the down-stream transit time decreases. Using transit times along three measuring paths, the

Features/Benefits

Vaisala Ultrasonic Wind Sensor WS425

- Excellent reliability and data availability from all wind directions
- No maintenance required

Vaisala mechanical wind sensors

- Data continuity for over 20 years
- Heated wind anemometer and vane for extreme environments
- Combined wind speed and direction sensor available

Vaisala Ultrasonic Wind Sensor WMT52

- Measures horizontal wind speed and wind direction
- No moving parts
- Triangular design ensures excellent data availability and 360° measurement accuracy

WS425 microcontroller computes the horizontal wind speed and direction.

Applications

In meteorology, wind data is needed to support weather forecasts and to predict long-term changes in global climate.

In aviation, wind data is essential in order to determine the safety of landing and takeoff conditions.

In transport safety, wind data has important role as well. Road and railway weather stations measure wind speed and direction for road and railway tunnel safety. Another example is bridge safety.

Wind speed and direction data is of great importance to ships and harbors. In ships wind data is used for navigation and safety. Harbors measure wind for safety and insurance purposes. Occasional local weather forecasts are

also required from harbors.

In power industry wind measurement is essential. In wind energy production, wind speed and direction data is used in controlling the wind turbines. Efficiency of a wind turbine is also verified by comparing the turbine output to the measured wind speed. Wind speed and direction are measured, logged and analyzed over one year period before selection of a suitable wind park location is made. The continuous diagnostic monitoring of a wind park needs wind data also.

In nuclear power plants wind data is essential for safety reasons. In case of environmental hazard, wind data is needed in dispersion modelling of potentially radioactive waste. In addition, the efficiency of power lines is a function of wind speed and direction.

Wind data plays an important role in industry. Chemical plants need to collect wind data for dispersion monitoring. In oil-rigs wind speed and direction data is used to determine safety of landing and takeoff conditions.

Vaisala manufactures wind sensors for all these different needs, from low cost combined units to sophisticated totally heated sensors for extreme weather conditions.



Wind data is important for ships and harbours.



Wind data plays an important role in aviation safety.



In wind energy production wind data is measured at wind park met stations. They provide continuous diagnostic monitoring of the wind park. Measuring wind data is also essential for controlling turbines and the assessment of the best possible location of new wind parks.



At nuclear power plants wind data is used to prevent environmental hazards.



Road and railway weather stations measure wind speed and direction.



The efficiency of the power lines is a function of wind speed and direction.



In chemical plants wind data is collected for dispersion monitoring.