

ICE DETECTION FOR WIND TURBINES



Monitoring of the external temperature and relative humidity is essential for the smooth running of wind energy systems. In order to ensure the safe and efficient operation of wind turbines, the weather conditions must be continuously monitored.

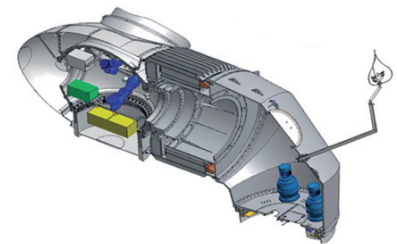
In particular, bad weather conditions (high humidity, mist or temperatures around freezing point) produce ice on the rotor blades of wind turbines. This ice is almost always porous and therefore not a typical "ice block". Within a short time a considerable thickness of ice can form on the rotor blades or the tower during operation. In case of freezing fog, ice layers with a thickness of 30 cm are by no means rare.

Pieces of ice with a weight of several kilogrammes can break off and be thrown for distances of up to a hundred metres. This presents a great hazard for people, buildings or roads. The additional weight of the ice is also a great strain on the turbine bearings, and therefore reduces their service life.

Modern wind energy systems are equipped with sensors to detect the forma-

tion of ice deposits in order to shut down the turbine or de-ice the rotor blades as required.

In Austria there are legal directives which specify that all wind energy systems must be equipped with an ice detector.



Electricity generator

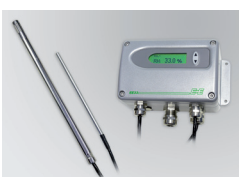
For example, there are heated rotor blades or blades with special non-stick coatings for turbines which are used in cold climates.

The EE33 humidity measuring transducer is used to monitor the rotor blades. The protected and heated sensor makes it ideal for this demanding application.

• Application conditions

Measurement range: -40...40 °C / 0...100 % rel. hum.
 Output: 0 - 10 V
 Operating temperature: -40...0000.40 □
 Accuracy: ± 3 %

• E+E Product



EE33-MFTJ

Humidity measuring transducers for high-humidity and chemical applications

High accuracy measurement of relative humidity, dewpoint and temperature even at high humidity close to the condensation or at high chemical load.