Monitoring meets stability

For your monitoring the suitable WYLER products:

- ZEROMATIC 2/1 or 2/2
- ZEROTRONIC Type 3 1° or 10°
- BlueLEVEL with 0.001 mm/m sensitivity
- Software DYNAM II

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WYLER

Safeguard your Investments

Monitoring Wind Turbines

Reliability is our`s

WYLER AG
INCLINATION MEASURING SYSTEMS

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Swiss Quality

Version 2014.1

Our reliability is the key for your efficiency

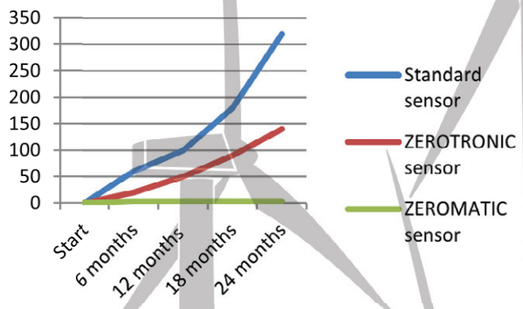
Modern wind turbines, on-shore and even more off-shore, require high investments. Operators of such installations demand therefore a high availability in order to justify the investment. On the other hand, wind turbines are – by nature – exposed to very strong forces.

Thanks to the high precision and robust inclination measuring instruments and sensors of WYLER AG it is possible to monitor such installations permanently and therewith to safeguard the investment.

What are the key success factors when it comes to long term monitoring an object like wind turbines with inclination sensors?

Monitoring an object with permanently mounted inclination sensors requires very stable sensors. WYLER ZEROTRONIC sensors are already superior to other inclination sensors with regards to long term stability (see Fig 1). Nevertheless all electronic inclination sensors show some type of drift over time. Therewith, already after a relatively short period of time, it is no longer possible to distinguish properly between the movement of the object which is monitored and the drift of the sensor itself.

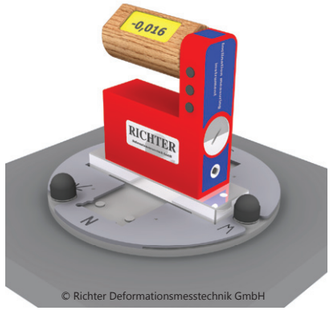
Fig 1: Typical drift over time (in arcsec); considering typical seasonal temperature changes



Solution 1:
Manual reversal measurement at regular intervals

If you have easy access to the wind turbine you can mount a very accurate mechanical reference platform in the wind turbine.

At regular intervals the user places his BlueLEVEL on the reference platform and performs a reversal measurement in X- and Y-direction on this reference. When comparing the result with the last measurements the user can determine whether the object has moved or not.



Solution 2:
ZEROMATIC sensors

For wind turbines, specifically for offshore installation, a manual reversal measurement is very rarely an option due to the difficult accessibility. In these cases the WYLER ZEROMATIC sensor solves this requirement perfectly with a built-in motor which turns the sensor(s) at regular intervals and allows therewith eliminating a possible drift. ZEROMATIC sensors have a proven and excellent track record in applications like dam monitoring as well as the monitoring of buildings like towers. Thanks to its robust and high precision mechanics they guarantee a very stable accuracy over many years.

WYLER can provide solutions for the following applications and measuring tasks with wind turbines:

Application 1: (Building wind turbines)
Concrete elements of the Tower

When building the tower of a wind turbine, each element has to be placed horizontally on top of the element below.

WYLER BlueLEVEL are used to validate this process in the factory of the elements as well as during the construction process on-site.

Application 2: (Building wind turbines)
Embedment of tripods for offshore wind turbines

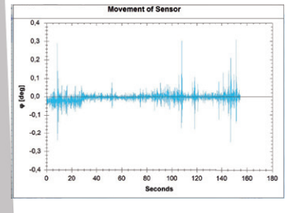
Monitoring of the inclination of a tripod for off-shore wind turbines during the embedding / ramming process of the tripod:

ZEROTRONIC sensors have proven to sustain full functionality during the ramming of a tripod which exposes the sensors to very high g-values. This allows the monitoring of the inclination of the whole structure and therewith to ensure that the wind turbine can be mounted on a horizontal surface.

Application 3: (long term monitoring)
Automatic long term monitoring

Monitoring of the inclination and therewith of the stability of the base of an offshore wind turbine tower with ZEROMATIC sensors.

Our system technology allows the monitoring of complete windparks.



Application 4: (long term monitoring)
Manual long term monitoring

Monitoring the inclination and therewith the stability of the base of an offshore wind turbine tower by carrying out regular measurements on a precision reference platform in the tower with BlueLEVEL. Each measurement has to be a reversal measurement.

For your application; we have the solution!