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Solutions for Wind Power Industry



Incremental and Absolute Encoders with mechanical multiturn gear for pitch and drive control



Metrological instruments for wind speed, wind direction, temperature and humidity. Heavy duty and cold climate versions available



Rotary gear limit switches for yaw (azimuth) and pitch control



**Rope descending devices for personal safety and rescue
Fall prevention devices**



Drive and Inverter engineering and panel building



PLC engineering, software development and panel building

Engineering and installations for wind power industry - System integration

As an engineering company and system integration company MEYLE offers products from a single component up to complete system solutions for wind power industry. System solution mainly focus on pitch control systems, metrological measurements, industrial ethernet connection of wind parks, inverter and PLC control systems.

Wind power - Components

For wind power applications MEYLE offers a wide range of sensors, switches and safety products.

Incremental and absolute encoders are one of the most important products in the field of generator and pitch control. MEYLE offers heavy duty incremental encoders for use in generator control and absolute multiturn encoders for pitch control applications in combination with pitch drives or blade control. The absolute multiturn encoders use a mechanical multiturn gear to avoid any influence of electromagnetic fields or battery life time. Additional most MEYLE encoders can be integrated in MEYLE rotary gear limit switches.

Metrological instruments such as wind speed and wind direction sensors are available as cup versions or ultrasonic anemometer versions from standard temperature ranges up to ice free devices for cold climate regions with 200 W heating.

Rotary gear limit switches are used in the area of yaw control (azimuth control) and pitch control. In yaw control applications they are used to avoid twisted cables. The rotation of the nacelle is monitored and if necessary the movement can be blocked in one direction to prevent the twisting of the hanging cables. For this reason also the term cable twist sensor is used.

If rotary gear limit switches are used in the area of pitch control, round designs with highly accurate gears are possible which fit into the pitch system to enable very accurate monitoring of the rotor position. This is usually achieved through the integration of a MEYLE high resolution multiturn encoder using a mechanical gear without batteries.

The rotary gear limit switch is always connected with the gear box of the nacelle or the rotor respectively, using a specially designed pinion gear. The new free from backlash pinion gears can be supplied according to customer specification, in order to integrate the machine into the existing structure.

Rotary gear limit switches offer many advantages as opposed to other technical solutions. The end positions are secured through the switch contacts of cam switches. In addition to the limiting of the end position, it is possible to determine positions exactly by using encoder or potentiometer signals. In this way a diverse function of high importance can be accommodated in one housing unit. The round or square housings of the rotary gear limit switches have a protection degree of IP65, which allows to be used under harsh conditions. Additional cold climate versions up to -40°C are available.

Personal safety and descending devices are used for the descending of persons from high work locations. MEYLE offers certified single products or complete sets consisting of a descender device, rope, hook, harness and bag of highest quality.

Another product for wind energy are **slip ring collectors** available in different models. The power transmission is transferred from a rotating to a fixed part using the slip ring collector.



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Rotary Gear Limit Switches for Yaw- and Pitch Control



Rotary gear limit switches with up to 12 cam switches and 2 different ratios



Rotary gear limit switch with integrated incremental or absolute encoder and circuit board



Rotary gear limit switch with absolute SSI, CAN or Profibus encoder on extended shaft



Rotary gear limit switch with integrated potentiometer



Rotary gear limit switch with incremental or absolute encoder for pitch control



Rotary gear limit switch with encoder for pitch and yaw control with anti backlash pinion



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Encoders for pitch and generator control



Incremental hollow shaft encoder for generator control - 100 mm housing diameter



Incremental and absolute encoders with double bearing design for heavy duty



Absolute multiturn encoders with mechanical gear – no battery



Incremental and absolute optical and magnetic encoders from 24 to 100 mm housing diameter



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Wind speed and direction sensors



**Wind speed anemometer and wind direction sensor combinations.
Reliable and heavy duty sensors**



**Wind speed anemometers and wind direction sensors without and with heating for cold climate.
Seawater resistant aluminium housing**



**Ultrasonic anemometers with 200 W high power heating for cold climate applications.
Economic compact versions without heating**



**Ultrasonic anemometers for wind speed, wind direction and virtual temperature measurements.
RS 232, RS 422, RS 485, NMEA or 4-20 mA output**

