



WIND ENERGY

EFFICIENT APPLICATION SOLUTIONS

SICK
Sensor Intelligence.



CHALLENGES IN THE WIND INDUSTRY

The perfect basis for your automation: SICK sensors, safety technology and system solutions. When movement becomes order, when high productivity is essential, and when you need intelligent, streamlined solutions, you can benefit from SICK's many years of experience. Our industry experts for wind energy are just as rooted in their professions as you are!

That means you always communicate as equals with specialists who understand your applications right away. That is how we create practical yet impressive solutions for your individual tasks in no time.



→ www.sick.com/wind_energy



Recording, monitoring and controlling

SICK offers a wide product portfolio for safely and reliably recording movements or the current position of hydraulic, pneumatic or electrical actuators. Movements and positions can be intelligently monitored and controlled by drive amplifiers and controllers.



Measurement

Reliable and accurate measurement as well as the recording of data on pressure, flow, level and temperature are of fundamental importance for various industries. SICK has the right solutions for these applications: Electronic pressure transmitters and switches, sensor systems for temperature measurement in liquids and gases as well as level and flow sensor systems for different types of media.



Safety

In the field of safety, sensors and systems from SICK ensure that safety requirements are met in compliance with applicable laws and standards. They efficiently protect hazardous areas and enable the highest plant availability at the same time.



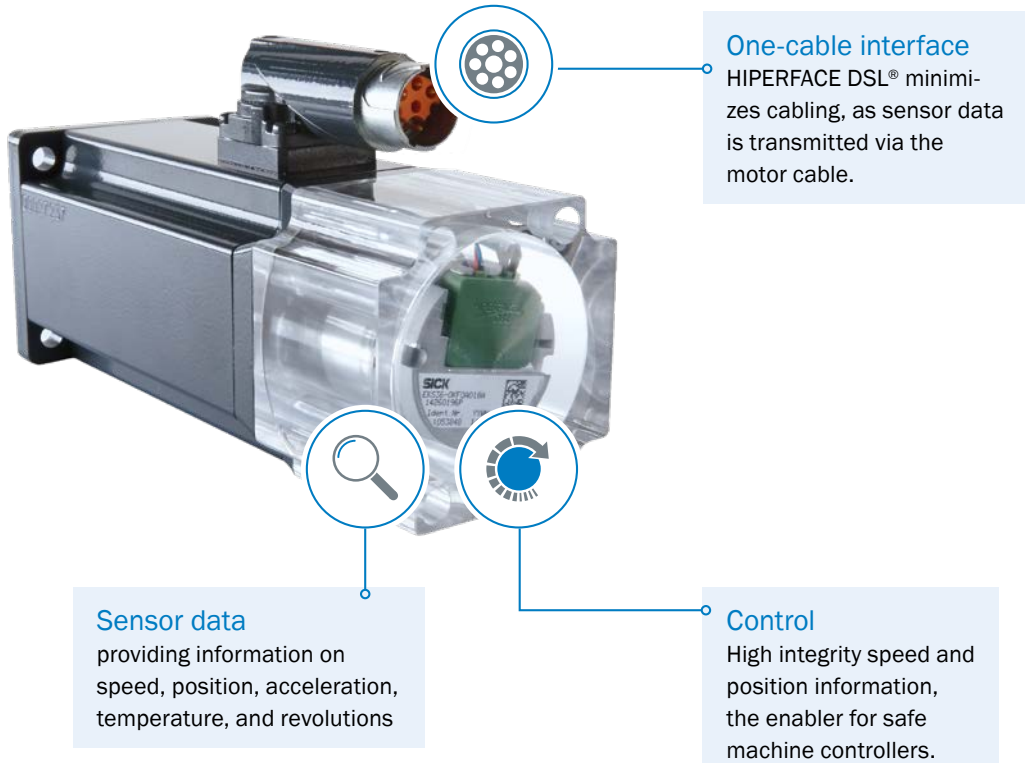
Connectivity

Industry 4.0 is all about digitalization and intelligent networking. The first part of networking involves the integration of the sensor into the overall architecture of an application. A clear description of the required sensor data and how it is combined with the further data world of the application is very important here. With various interfaces, SICK is supporting in the easy and direct transmission of sensor data to the relevant elements within the automation pyramid as well as data transmission to the cloud.

SMART MOTOR SENSORS

Smart motor sensors keep production running

Smart motor sensors are more than just a data source from the center of the drive. Smart Motor Sensors ensure efficient monitoring at any point when something is moving in a process. In many ways, Smart Motor Sensors are therefore the enablers of the future. And the future is here. With HIPERFACE DSL®, Smart Motor Sensors are already enabling condition monitoring and predictive maintenance. Moreover, they transmit reliable speed and position values for intelligent Safe Motion monitoring on the machine. The machine design is more compact thanks to the lack of a second motor connector and a separate encoder cable.



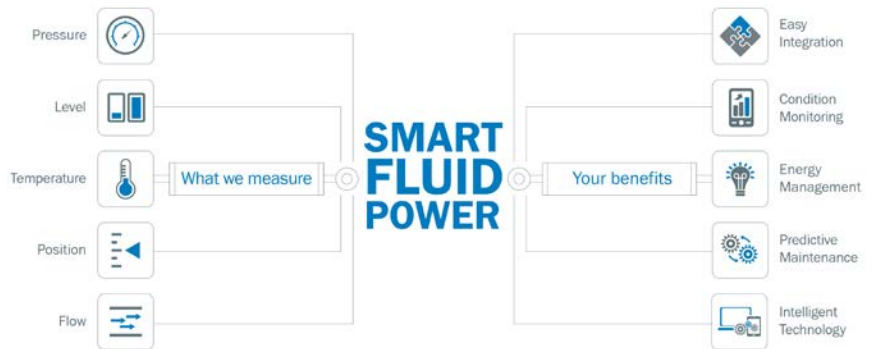
→ www.sick.com/smart-motor-sensors

SMART FLUID POWER

SICK sensors for pneumatic and hydraulic systems make the difference

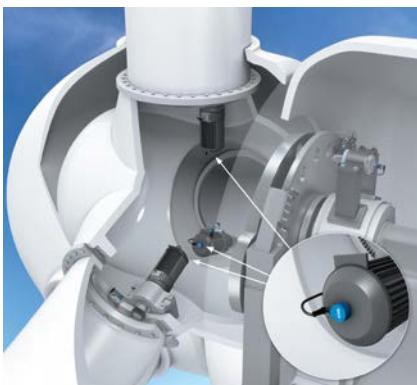
Due to their great flexibility and efficiency, hydraulic and pneumatic systems will become increasingly important in the future in mechanical engineering, the consumer goods sector and the electronics, solar and automotive industries. The list of possible and already realized applications is long. Intelligent sensors from SICK improve plant and machine availability. Whether in automated part handling, injection molding machines, hydraulic presses or CNC machines – fluid power sensors already check important function parameters as part of condition monitoring.

The sensors provide an even more sustainable solution for predictive maintenance, which results from condition monitoring. And that is already possible now thanks to SICK.



→ www.sick.com/fluid-power

ROTOR



Pitch motor control

Pitch motor controls reduce the structural strain of rotor blades and mechanics at maximum energy consumption. Knowing the current blade angle position is important for efficient system control. The AFS/AFM60 absolute encoder reliably and precisely measures this position.

- Absolute encoder AFS/AFM60



→ www.sick.com/AFSAFM60



Blade angle monitoring

The redundant blade angle monitoring function makes it possible to check whether the rotor blades actually turn when the pitch motor is rotating. The AFS/AFM60 absolute encoder does this by measuring the absolute position and speed of the rotor blades.

- Absolute encoder AFS/AFM60



→ www.sick.com/AFSAFM60



Pressure monitoring for hydraulic blade adjustment

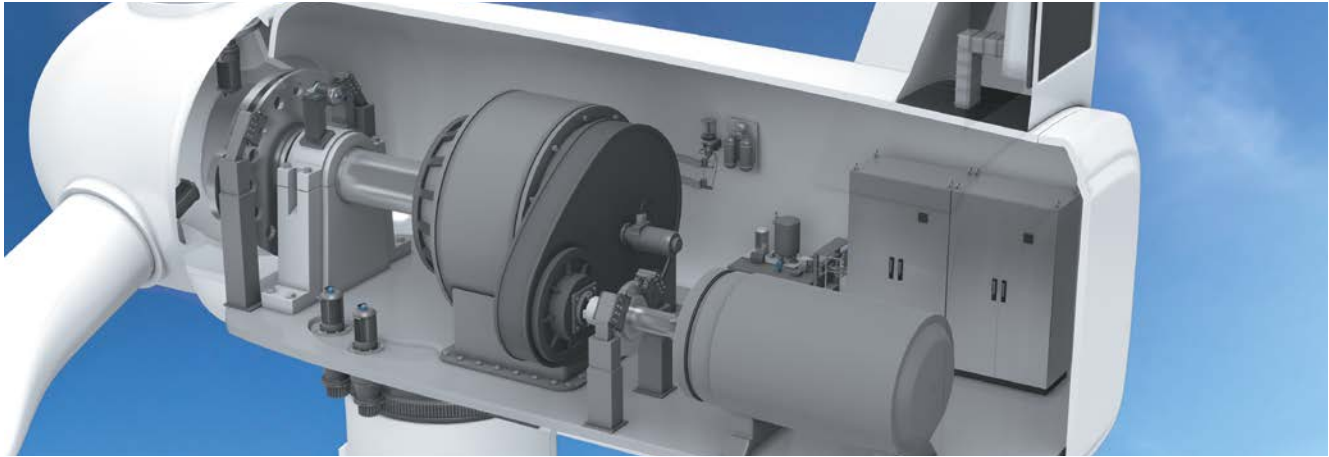
The pressure of the hydraulic system of a wind power plant must be monitored to avoid damaging the hydraulic blade adjustment system and to prevent failures. The PBS pressure switch continuously measures this pressure. Due to the high-resistance stainless steel membrane welded all the way around, it is well-suited for use in the wind power industry.

- Pressure sensor PBS



→ www.sick.com/PBS

NACELLE



Azimuth motor control

Encoders used on azimuth motors should above all be rugged and precise. The AFS/AFM60 absolute encoder is ideally suited for this task. It quickly measures the position and speed of the motor with high precision.

- Absolute encoder AFS/AFM60



→ www.sick.com/AFSAFM60



Monitoring the valve piston openings on the central lubrication system

The role of the central lubrication system in a wind power plant is to adequately and automatically lubricate rotating parts, for example bearings. IMB sensors in the central distributor of the lubrication system monitor whether the valve pistons open. This ensure reliable lubrication of all relevant parts in the wind power plant and prevent unplanned and costly maintenance work.

- Inductive proximity sensors IMB



→ www.sick.com/IMB



Pressure, level, and temperature measurement in hydraulic units

The PBS pressure switch measures the system pressure of the hydraulic pump and compares the actual value with the set value. The CFP Cubic capacitive level sensor monitors the level and temperature of hydraulic oil in the unit within the four programmable switching thresholds at the same time. It therefore prevents pump damage caused by too little oil. Alternatively, the LFP Cubic TDR level sensor can be used together with the TCT temperature sensor.

- Pressure sensor PBS
- Level sensor CFP Cubic



→ www.sick.com/PBS
→ www.sick.com/CFP_Cubic

TOWER



End position monitoring in elevator shafts

The i110R safety position switch detects overrun of the upper or lower end position in wind power plant elevator shafts. If the end position is reached, the elevator drive is safely stopped. Thanks to the rugged metal housing, the i110R is very well suited for harsh environments.

- Electro-mechanical safety switch i110R



→www.sick.com/i110R



Monitoring of protective doors in wind power plants

The STR1 transponder safety switch can be used for monitoring protective doors. It is well-suited for applications in which high manipulation protection is required, such as in wind power plants. With three active sensor surfaces and four actuators of different size, the STR1 offers a very high level of flexibility during mounting.

- Non-contact safety switch STR1



→www.sick.com/STR1



Access monitoring to protect against theft

The SLG switching automation light grid prevents unauthorized access to wind power plants and therefore protects against theft. It is mounted directly behind the entry door to the wind power plant. In combination with the TDC gateway system, unauthorized access is reported directly to the control station of the system operator, either wirelessly or using cables. Entry points can also be monitored and controlled.

- Switching automation light grid SLG
- Gateway system TDC



→www.sick.com/SLG

→www.sick.com/TDC

RENEWABLE ENERGIES



Sustainable measuring solutions in the energy industry

When changes are made in some situations, the results are instantly seen. Wind power plants and solar modules are examples of this. Visible from great distances, they are an eye-catching symbol of the revolution we are experiencing in how we produce energy. There are other important factors in achieving sustainable change, however, such as our efforts to phase out nuclear energy and the bridging technologies we are using to facilitate this – plus our continued use of fossil fuels, especially natural gas. In these areas, the most significant types of modernization and change tend to unfold in ways that we are unable to see. The ongoing development work that is taking place in intelligent sensor technology from SICK is playing a key role in optimizing processes in this field



In order to respond to changes in the methods used for generating energy, companies and electricity producers need to come up with sustainable solutions quickly. The scenarios they face go beyond simply phase-out actions; it is just as important for them to adapt in line with evolving legislative positions and optimize existing processes. Evidence shows that there are potential savings of up to 10% to be made by harnessing energy-efficiency measures. Often left unexploited, these savings increasingly become an economic force to be reckoned with as measurement results improve and more accurate conclusions can be drawn from them. Sensor intelligence from SICK is one decisive step ahead of the game, delivering valid, pre-processed data directly from the point of measurement.

Knowledge is power

Knowledge is what holds the key to both exploiting sources of renewable energy and harnessing the full potential of energy generation chains. A rethink is now happening in areas where energy had previously been squandered – whether this occurred through inefficient processes or burning off natural gas as an unwanted by-product of oil extraction. What this means is adopting a policy of use rather than abuse, and staying open to the latest forms of technology. Gleaning as much efficiency from processes as possible requires smart solutions – anything from Power-to-x technologies to the successful CO₂ neutralization of process chains.

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com