



Maximum reliability for the most aggressive environments

Encoder and motor feedback systems for wind power systems

Distribué par :



Contact :
hvssystem@hvssystem.com

Tél : 0326824929
Fax : 0326851908

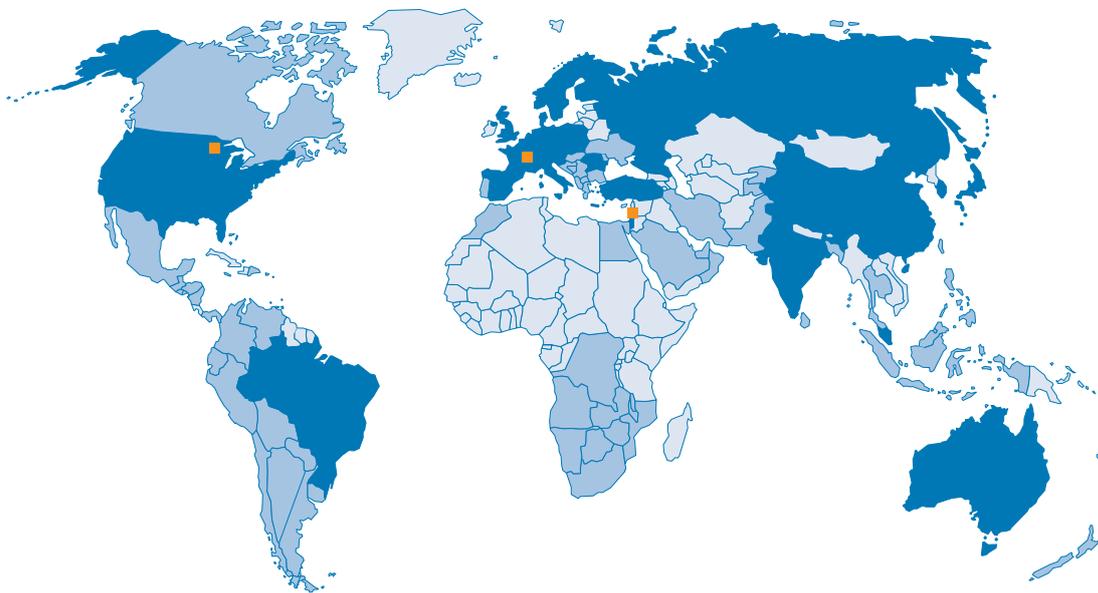
Siège social :
2 rue René Laennec
51500 Taissy
France

www.hvssystem.com

SICK | **STEGMANN**

SICK STEGMANN – a successful SICK Group company

With customer-focused products, SICK-STEMANN has been an essential partner of industry worldwide for more than five decades. Over 400 employees based in Germany, Italy, Israel and the USA jointly develop, design and manufacture absolute and incremental encoders, motor feedback systems and format adjustment drives.



International distribution network – SICK AG

- Subsidiaries
- Distributors
- Production and development sites

A wide distribution and service network, with subsidiaries and agents throughout the world, offers qualified support wherever the customer needs it.





Since 2002, SICK-STEMMANN has been a wholly-owned subsidiary of SICK AG. Globally, SICK is one of the leading manufacturers of sensors and sensor systems for industrial applications.

Both in Factory and Process Automation, SICK is a technology- and market leader – the competent, tried and tested partner, especially where application in harsh environments is concerned.



Knowing where the wind blows from

Variable-speed, pitch-controlled systems are the current state of the art in wind energy system construction. They are best suited to the harsh conditions in onshore and offshore operations.

Build on SICK-STEGMANN's competence, demonstrated by over ten years' experience in this segment and more than 20,000 encoders installed in pitch-controlled systems.

Our "star": the ATM60 absolute multiturn encoder – extremely robust and extremely reliable

The tendency for offshore wind energy systems is increasing, as are requirements in terms of robustness and resistance to environmental effects.

The ATM60 absolute multiturn encoder from SICK-STEGMANN reliably provides the speed data required, even under harsh environmental conditions. In this rotary system for measuring distances, angles and positions, a sensor scans permanent magnet elements arranged to provide angular position information. The encoder's multiturn feature is achieved by several reduction gear units with additional magnets and sensors.

In contrast to encoders with battery-buffered counters, SICK-STEGMANN multiturn encoders operate reliably in electrically noisy environments, whilst being maintenance-free and long-lasting.



ATM60 blind hollow shaft



ATM60 zero set button



SRS/SRM64



SRS/SRM50 stand-alone

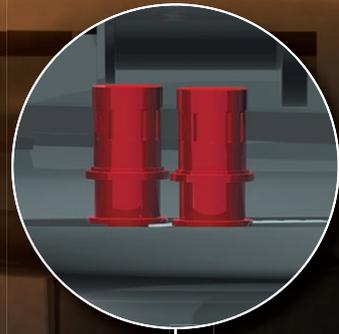
Using the zero set button the encoder can be comfortably set, in situ, to zero or a user-programmed value.

Magnetic scanning, a robust housing (IP67 rating) and high shock and vibration resistance make the ATM60 ideal for use in wind energy systems in onshore and offshore operations.

Whether for wind direction adaptation via azimuth adjustment or for pitch adjustment, thousands of ATM60 encoders from SICK-STEGMANN have been successfully operating in wind energy systems for many years. Quality and reliability – see for yourself!



PITCH SYSTEM



AZIMUTH SYSTEM

Small helpers for great performance

Wind power systems must operate at near 100 % availability. Hence quality and reliability are extremely important.

Opt for the proven SICK-STEGMANN solutions:

Rotor blade adjustment and gondola adaptation with absolute singleturn and multiturn encoders

Absolute encoders generate data related to position, angle and speed, with a unique digital code allocated to each angular position. The number of unique codes for each revolution determines the resolution capability. Since an absolute position is allocated to each unique code, a reference run is not required. This means that the current position value is available even after voltage failure.

In the case of multiturn encoders, the multiturn information is determined using gear stages with magnets attached.

The absolute position is mapped onto the magnet, by the unique structure, and thus is completely independent of the encoder's voltage state.

With SSI, Profibus, CANopen and DeviceNet, all common interfaces are available for data transmission to the respective control system.

Measuring the rotor speed with incremental encoders

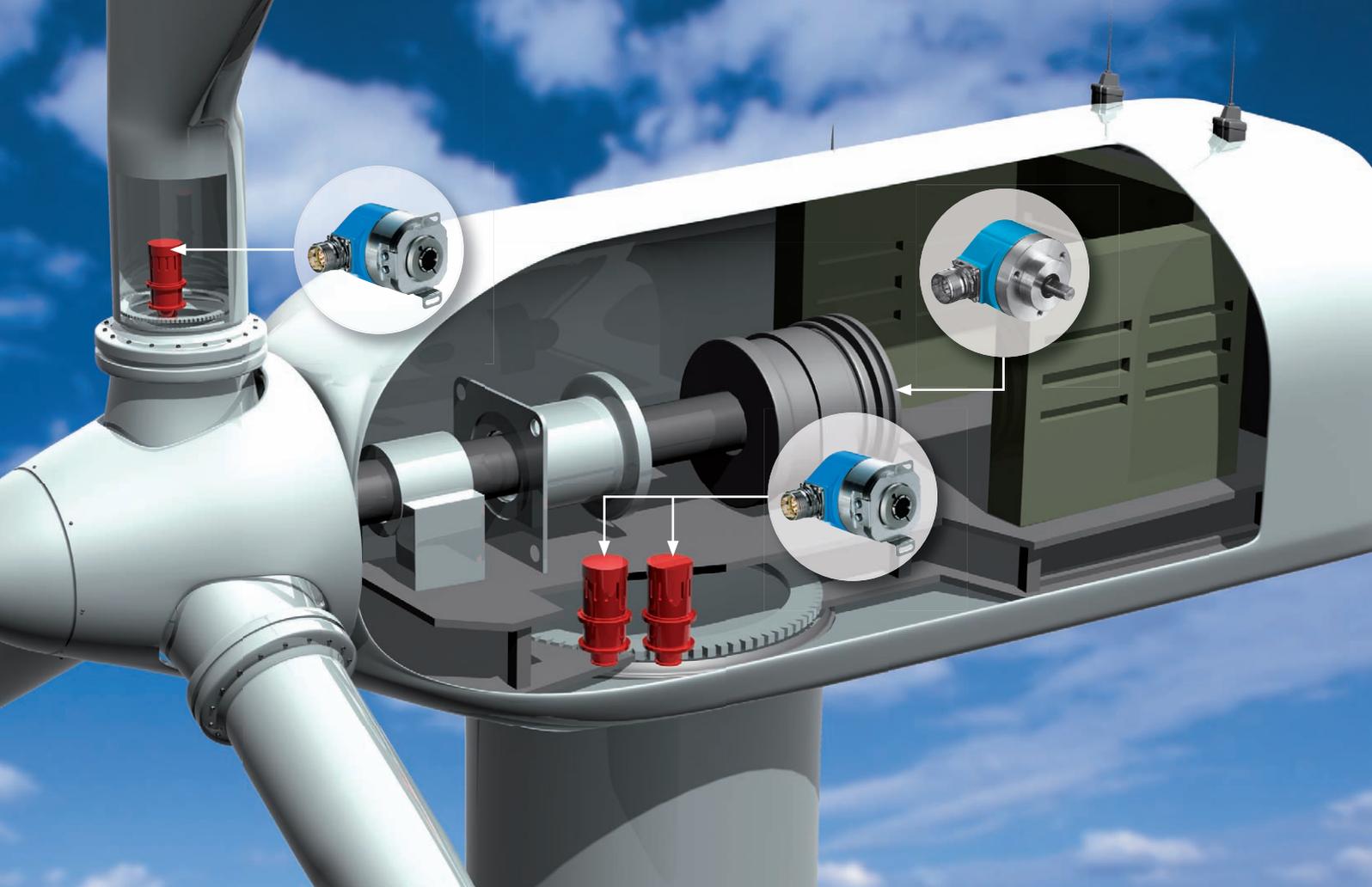
Incremental encoders generate data related to position, angle and speed using a number of lines on a code disc.

The number of lines per revolution determines the resolution capability. The respective position is determined by counting the pulses produced by scanning the lines from a defined reference point. Following power down, a reference run is required in order to determine the absolute position.



Stand-alone motor feedback systems, singleturn and multiturn, with HIPERFACE® interface.

SRS/SRM series motor feedback systems are particularly suited to absolute position finding, with the number of steps being 32,768 per revolution as well as a maximum of 4,096 revolutions – giving a total resolution of 134,217,728 steps. Sine/cosine signals are used to fulfil the speed monitoring function. The storing of motor-specific data in the electronic type label and programming both are important features of these series.



DRS60/DRS61



Number of lines
1 to 8,192

Incremental encoder

- Solid, blind hollow or through hollow shaft
- Axial/radial cable or screw-in connector system axial/radial
- Protection up to IP66
- Electrical interfaces TTL/RS 422 and HTL/push pull
- Number of lines and zero pulse width freely programmable (DRS 61)



ATM60



Resolution
up to 26 bits

Absolute encoder multiturn

- Solid or blind hollow shaft
- Radial Cable or screw-in Connector system
- Protection up to IP67
- Electrical interfaces SSI, RS 422, Profibus, DeviceNet, CANopen



SRS/SRM64



1,024 sine/
cosine periods

Motor Feedback Systems

- Hollow shaft up to \varnothing 14 mm
- Absolute position with a resolution of 32,768 steps per revolution
- Up to 4,096 revolutions can be measured (multiturn)
- Programming of the position value
- Electronic type label
- HIPERFACE[®] interface

HIPERFACE[®]
by SICK|STEGMANN



**SRS/SRM50
STAND-ALONE**



1,024 sine/
cosine periods

Motor Feedback Systems

- Solid shaft 6 or 10 mm
- Absolute position with a resolution of 32,768 steps per revolution
- Up to 4,096 revolutions can be measured (multiturn)
- Programming of the position value
- Electronic type label
- HIPERFACE[®] interface

HIPERFACE[®]
by SICK|STEGMANN

Detailed info see www.sick-stegmann.de | or contact us directly.

FACTORY AUTOMATION

With its intelligent sensors, safety systems, and auto ident applications, SICK realises comprehensive solutions for factory automation.

- Non-contact detecting, counting, classifying, and positioning of any types of object
- Accident protection and personal safety using sensors, as well as safety software and services



LOGISTICS AUTOMATION

Sensors made by SICK form the basis for automating material flows and the optimisation of sorting and warehousing processes.

- Automated identification with bar code and RFID reading devices for the purpose of sorting and target control in industrial material flow
- Detecting volume, position, and contours of objects and surroundings with laser measurement systems



PROCESS AUTOMATION

Analyzers and Process Instrumentation by SICK MAIHAK provides for the best possible acquisition of environmental and process data.

- Complete systems solutions for gas analysis, dust measurement, flow rate measurement, water analysis or, respectively, liquid analysis, and level measurement as well as other tasks



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Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com

SICK | STEGMANN

7496 Webster Street
Dayton, Ohio 45414
Toll Free: 800-811-9110
Phone: 937-454-1956
Fax: 937-454-1955
www.stegmann.com

Distribué par :

HVS
PRECONISATEUR DE SOLUTIONS DEPUIS 1986

2 rue René Laennec 51500 Taissy France
Fax: 03 26 85 19 08, Tel : 03 26 82 49 29

Email : hvssystem@hvssystem.com
Site web : www.hvssystem.com