Mersen
Expertise, our source of energy

WIND TURBINE SOLUTIONS

PITCH CONTROL SLIP RINGS

ELECTRICAL SLIP RINGS FOR WIND TURBINES

KEY COMPONENTS FOR WIND TURBINE PERFORMANCE

The Signal and Power Transfer System (SPTS) is part of the wind turbine's electrical pitch drive system. Also referred to as "electrical slip rings" or "pitch slip rings" or "hub slip rings", their primary function is to transfer power and signals to the wind turbine hub and components. These systems facilitate communication between the hub and the turbine controller.

A turbine constantly adjusts its blade orientation (also called pitch) to both the wind speed and rotation speed to optimize the aerodynamics and maximize power production. Therefore, the accurate control of blade pitch for a wind turbine is critical to proper operation and optimum production.

The robust design and engineered quality of the SPTS ensure reliable communication between the hub and the turbine controller during regular operation and through any environmental conditions.

The most important features and capabilities of Mersen's SPTS units are:

+ High reliability of contact hardware for both the power and the signal transfer
+ Ability to operate in a wide range of environmental conditions
+ Quick and easy maintenance

+ WHY MERSEN

- All of Mersen's electrical slip ring systems are equipped with premium carbon brushes using carbon grades developed and produced in-house, with over 130 years of advanced carbon brush expertise.
- Mersen is a proud 'Company Member' of the APQP4Wind network.

  Please see below link for reference:
  https://apqp4wind.org/company-membership
- Mersen is a key partner supplying these systems to major wind turbine OEMs on their next generation platforms as well as legacy turbines in operation around the world today.

+ WINDTRACKER, A SERVICE DEDICATED TO WIND POWER

- Our objective: support wind farm OEMs and owner-operators through a dedicated wind power service program for onshore fleets.
- The Windtracker teams are dedicated Subject Matter Experts, wind engineers and technicians that bring up tower services, diagnostics capabilities, specialized technical support and training, allowing to optimize wind turbine performance.

MERSEN'S PITCH CONTROL SLIP RINGS

+ Mersen offers a highly reliable carbon brush technology system. High data rates can be applied by integration of contactless, maintenance-free systems such as capacitive systems or Fiber Optic Rotary Joints (FORJ).

+ Mersen's Pitch Control Slip Rings are developed for onshore and offshore wind turbines. They cover blade heating, power transfer during standstill, with data rates up to 10 Gbit/s.

+ Mersen pitch control slip rings are capable of transferring real time Ethernet data such as CAN Bus, Sercos III and others, based on your application.
  Ask us how we can customize a system for your turbine.

+ Our Hub Slip Rings are designed and manufactured in compliance with international standards DIN, IEC, UL, and others. They are tested to pass the most demanding enclosure protection standards up to IP 65 and shock vibration tests according to IEC 61373 standards.

01

CARBON BRUSH SYSTEMS

SALIENT FEATURES

- Cost efficient
- Mersen's in-house grades field-proven over the decades in the wind industry
- Resistance to harsh environmental conditions
- Tested for millions of revolutions on test benches and field-proven for the same
- Easy adaptation to different slip ring diameters ("hollow shaft")
- Quick and easy maintenance
- Special solutions for standstill applications are available

SIGNAL TRANSMISSION

Contact-driven analog and digital signals

POWER TRANSMISSION

Special grades realize standstill to high rotation speeds

02

CAPACITIVE SIGNAL TRANSMISSION SYSTEMS

SALIENT FEATURES

- Maintenance-free
- Reduced TCO (Total Cost of Ownership)
- Non-contact systems which work without brushes and hence provide a dust-free environment
- Long lifetime (200 million revolutions)
- Near field transmission (low electromagnetic impact)
- Very low bit error rate (BER $\leq 1x10^{-12}$)
- Plug & Play system, eliminates the need for auxiliary interface electronics to adapt to standard industrial bus systems
- Possibility to have a hollow shaft configuration
- Self diagnostic

DATA TRANSMISSION

High reliability of data transmission up to 1 Gbit. Able to transfer all standard protocols (CAN Bus, Ethernet, Profinet Multichannel), with the possibility to combine different types of protocols (for example Ethernet with CAN).

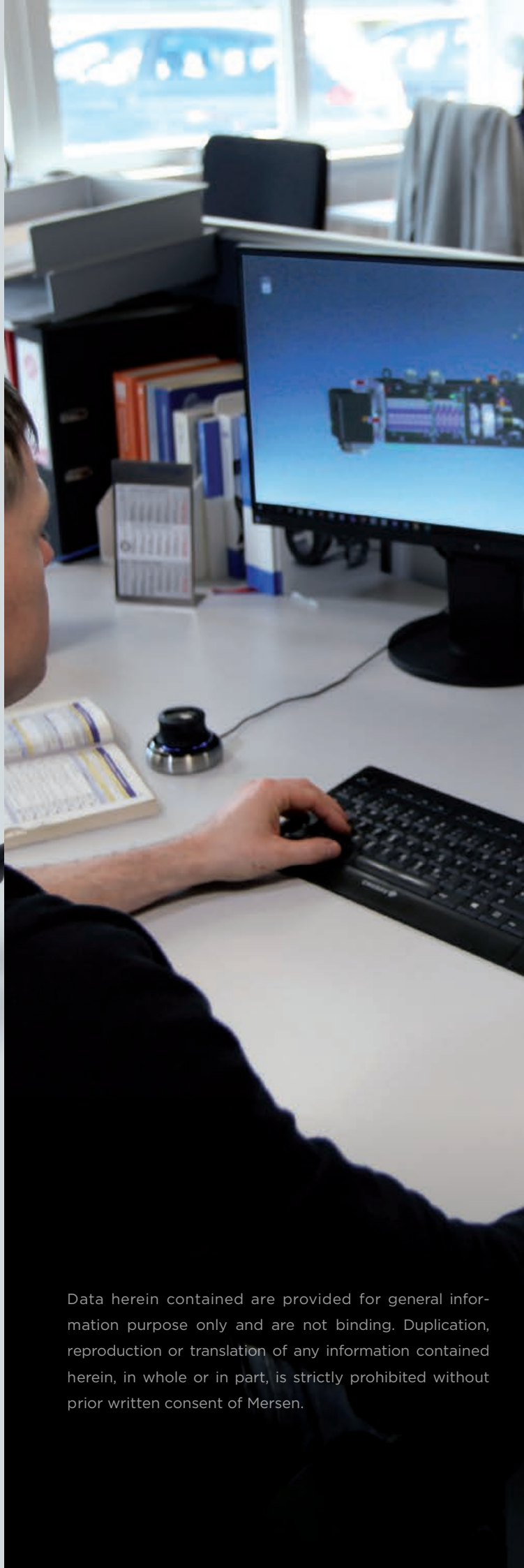
03 FIBER OPTIC SYSTEMS

SALIENT FEATURES

- Maintenance-free
- High-speed data transfer
- Data transfer in Electro Magnetic Interference (EMI) sensitive environments
- Runs without an external power supply
- The most compact type of system amongst all options
- Proven lifetime of 200 million revolutions for one channel and 100 million revolutions for multichannel systems

DATA TRANSMISSION

Very high frequencies (up to 10 Gbit).
Single and multi-mode up to 20 channels, with the option to do more based on demand.



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GLOBAL EXPERT IN ELECTRICAL
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