

Encoders for wind turbine applications



We have the expertise

The history of Scancon

SCANCON has been manufacturing encoders since 1973, and is well known for its high quality encoders and special solutions. SCANCON exports encoders to more than 78 countries worldwide, from our factory and head office, near Copenhagen.

Introduction:

Today SCANCON encoders are used all over the world in different applications in the turbine control system. Which include: speed measurement of the Generator. Pitch controller, and Sleeve Rings and YAW controller.

SCANCON have many different encoders for the wind turbine:

Your encoder needs	Type
Gear Drive Generator, (incremental encoders)	SCH94 for up to 4 MW generator. SCH108 for up to 6 MW generators. And shaft version SCA115.
Direct Drive, (Semi absolute encoders / and eCode encoders)	SCA94DD eCode 2048
Pitch, (absolute incremental / and eCode encoders)	SAG (optical) or SCH68FW SCM (magnetic)
YAW	SCA24, SCM, SCH58FM, SAG, Analog
Pitch drive motor	SCH32 , SCH50, SCH58FM, SAG

Transient Suppression Module:

All SCANCON encoders (incremental types) for wind turbine are manufactured with built-in over load protection device. Transient Suppression Module: TSM



Wind turbine applications

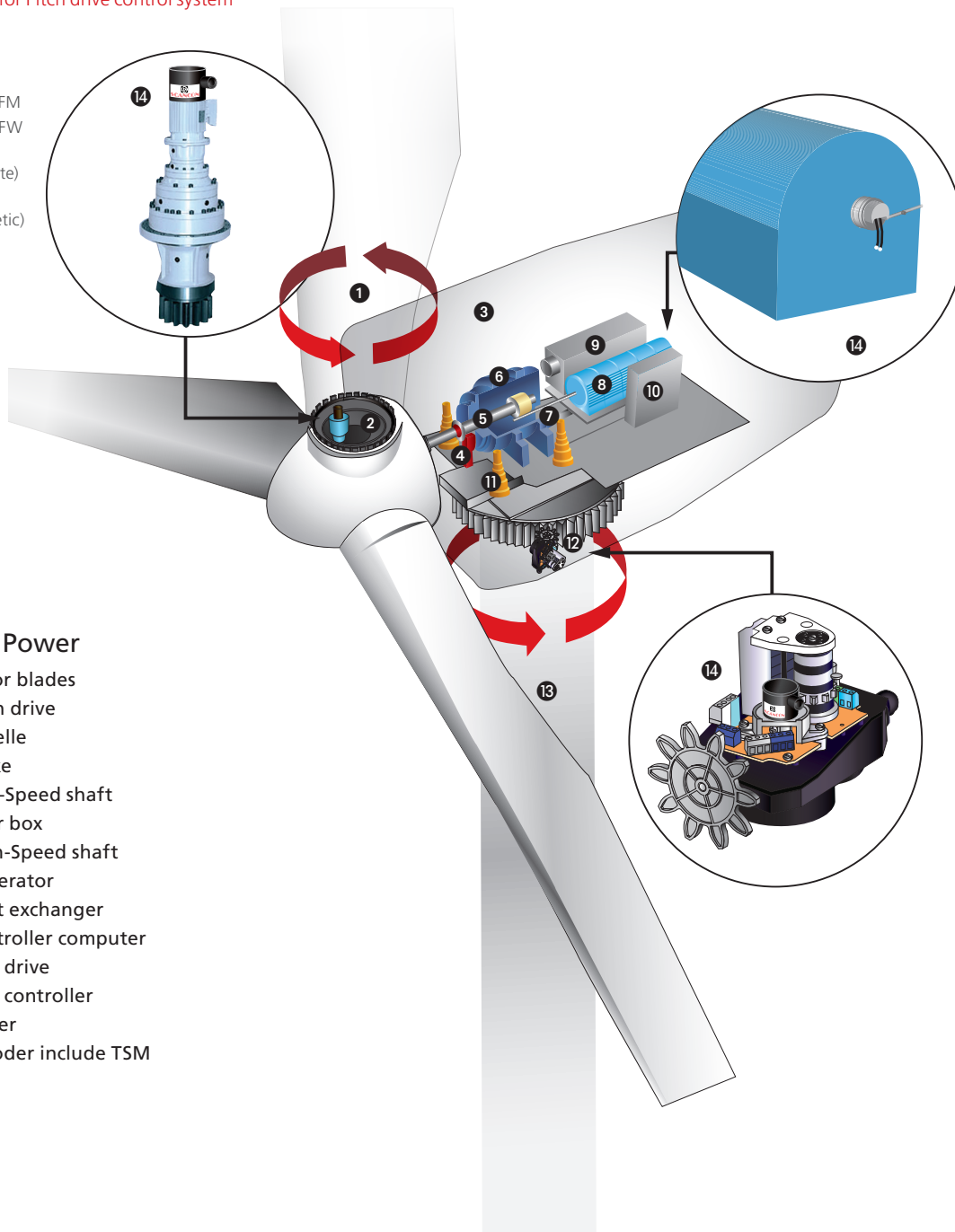
Scancon encoders

Scancon has supplied encoders to the Wind Industry for over 20 years. Satisfied customers have used our encoders in their Pitch Control Systems, their Yaw Control Systems, and for their Generator feedback.

Scancon continues to work with customers to provide innovative solutions to meet the changing demands of the wind industry.

Encoder for Pitch drive control system

- Types:
- SCH32
 - SCH50
 - SCH58FM
 - SCH68FW
 - SAG (absolute)
 - SCM (magnetic)



Encoders for generators

- Types:
- SCH80
 - SCH94
 - SCH94D
 - SCH94DOL
 - SCA94DD
 - SCH94L
 - SCA115
 - SCH108

Wind Power

- ① Rotor blades
- ② Pitch drive
- ③ Nacelle
- ④ Brake
- ⑤ Low-Speed shaft
- ⑥ Gear box
- ⑦ High-Speed shaft
- ⑧ Generator
- ⑨ Heat exchanger
- ⑩ Controller computer
- ⑪ Yaw drive
- ⑫ Yaw controller
- ⑬ Tower
- ⑭ Encoder include TSM

Encoder inside Yaw controller

- Types:
- SCA24
 - SCA24AN
 - SCM Absolute, Magnetic
 - SAG Absolute

Encoders for generators

Wind turbine, gear drive & direct drive



SCH80

Hollow Shaft Encoder - Ø 80 mm

- Hollow Bore - Ø 1/4 in to 10 mm
- Standard IP 65 (IP 66 & IP 67 options)
- Resolution up to 12.500 ppr
- Terminal Shut down at 155° C
- Built-in Transient Suppression Module
- Diameter: Ø 80 mm



SCH94

Hollow Shaft Encoder - Ø 94 mm

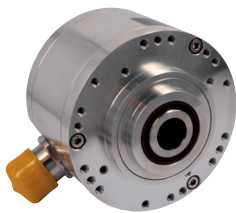
- Hollow bore - Ø 12 mm, Ø 16 mm or Ø 17 mm
- IP 66 (IP 65 & IP 67 options)
- ChromitAL TCP passivation for Offshore Applications
- Built-in Transient Suppression Module
- Diameter: Ø 94 mm



SCH94DOL

Hollow Shaft Encoder - Ø 94 mm

- Hollow bore Ø 16 mm
- IP 66 (IP 65 & IP 67 options)
- Dual Output (Redundant)
- ChromitAL TCP passivation for Offshore Applications
- Built-in Transient Suppression Module
- Diameter: Ø 94 mm



SCH94L

Hollow Shaft Encoder - Ø 94 mm

- Hollow bore - Ø 12 mm, Ø 16 mm or Ø 17 mm
- IP 66 (IP 65 & IP 67 options)
- ChromitAL TCP passivation for Offshore Applications
- Built-in Transient Suppression Module
- Diameter: Ø 94 mm



SCH94FO

Dual Output Option (Incremental & Fiber Optic)

- Hollow Shaft Fiber Optic Encoder - Ø 94 mm
- Fiber Optic Transmission up to 2,000 meters (~ 1.25 miles)
- No Degradation of Encoder Signal from Electrical Disturbances
- High Encoder Frequency and Low Transmission Delay
- Added Safety by use of two Redundant Fibers
- Built-in Transient Suppression Module



Additional products: Junction Box Transmitter for Incremental Encoders

- Transmission of incremental encoder signal, up to 2000 Meters, via Fiber Optic
- No Degradation of Encoder Signal from Electrical Disturbances and no signals delays
- High Encoder Frequency and Low Transmission Delay
- Added Safety by use of two Redundant Fibers
- Compatible with all Scancon Fiber
- Optic Receivers for Incremental Encoders
- DIN Rail Mounting

eCODE



SCA94DD

eCode is a patented product

- Shaft Encoder - Ø 94 mm
- Shaft - Ø 10 mm
- Specifically made for measurement of Speed and Position on slow revolving Direct Drive Generators on Wind Turbines
- High Resolution of Speed and Position
- High Update Rate of Speed, typically 10mSec.
- Profibus Interface for easy Integration with existing PLC's
- Rugged Design for Reliable Operation in Harsh Environments
- Built-in Transient Suppression Module



eCode 2048

Semi-absolute Multiturn Encoder

- High Resolution and Accuracy
- Programmable Functions
- Encoder Diagnostics
- Communication via RS485 Interface
- Field Bus and Point-to-Point Communication
- Fast Response for Real-time Applications
- Available in several housing and shaft / hollow shaft options

The Scancon **eCODE** encoders are a series of optical semi-absolute absolute multiturn encoders. The **eCODE** series are communicating encoders that communicate over a standard RS485 serial interface and therefore do not need any specialized hardware. Only four wires are needed for power and communication.

Encoders for Pitch & Yaw Control

Devices



SCA24

Shaft Encoder

- Diameter: 24 mm
- Resolution: up to 7,500 ppr
- Shaft: \varnothing 1,5 mm to \varnothing 6,35 mm (1/4 inch)
- Temperature: -40° C to 85° C (operating)
- Option: Analog
- Applications: Pick'n place Machines, Packaging, Beverage



SCH32B

Hollow Shaft Encoder

- Diameter: 32 mm
- Resolution: up to 5,000 ppr
- Hollow Shaft: \varnothing 6 mm to \varnothing 9,525 mm (3/8 inch)
- Temperature: -40° C to 85° C (operating)
- Applications: Pick'n place Machines, Packaging, Beverage



SCH68F

Hollow Shaft Encoder

- Diameter: \varnothing 68 mm (2.68")
- Hollow bore \varnothing 20 mm to 1"
- Resolution up to 2048 ppr
- IP 67 option
- Shaft Loads to 222N (50lbs)
- Temperature: -40° C to 85° C (operating)



2RK

Shaft Encoder

- Diameter: 58 mm
- Shaft: \varnothing 1/4 inch to \varnothing 10 mm
- Resolution: up to 12,500 ppr
- IP 67 Option
- Temperature: -40° C to 85° C (operating)



SCH68FW

Hollow Shaft Encoder

- Diameter: \varnothing 68 mm (2.68")
- Hollow bore \varnothing 20 mm to 1"
- Resolution up to 12,500 ppr
- IP 67 environmental protection
- Rugged Harting Connector

Encoders for Pitch & Yaw Controls

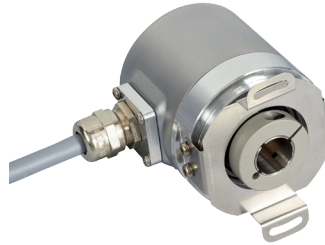
Absolute Encoders



SAG (Profibus, Profitnet, CANbus, DeviceNet, SSI)

Optical

- Diameter: 58 mm
- Resolution: Up to 16 bits (Singleturn) Up to 30 bits (Multiturn)
- Shaft: \varnothing 6 mm or \varnothing 10 mm
- Protocol: Profibus
- Temperature: -40° C to 85° C (operating)



SCM (Profibus, Profitnet, CANbus, DeviceNET, SSI)

Magnetic

- Diameter: 36 mm
- Resolution: up to 12 bits (Singleturn) up to 25 bits (Multiturn)
- Hollow Shaft: \varnothing 4 mm
- Protocol: SSI
- Temperature: -30° C to 85° C (operating)



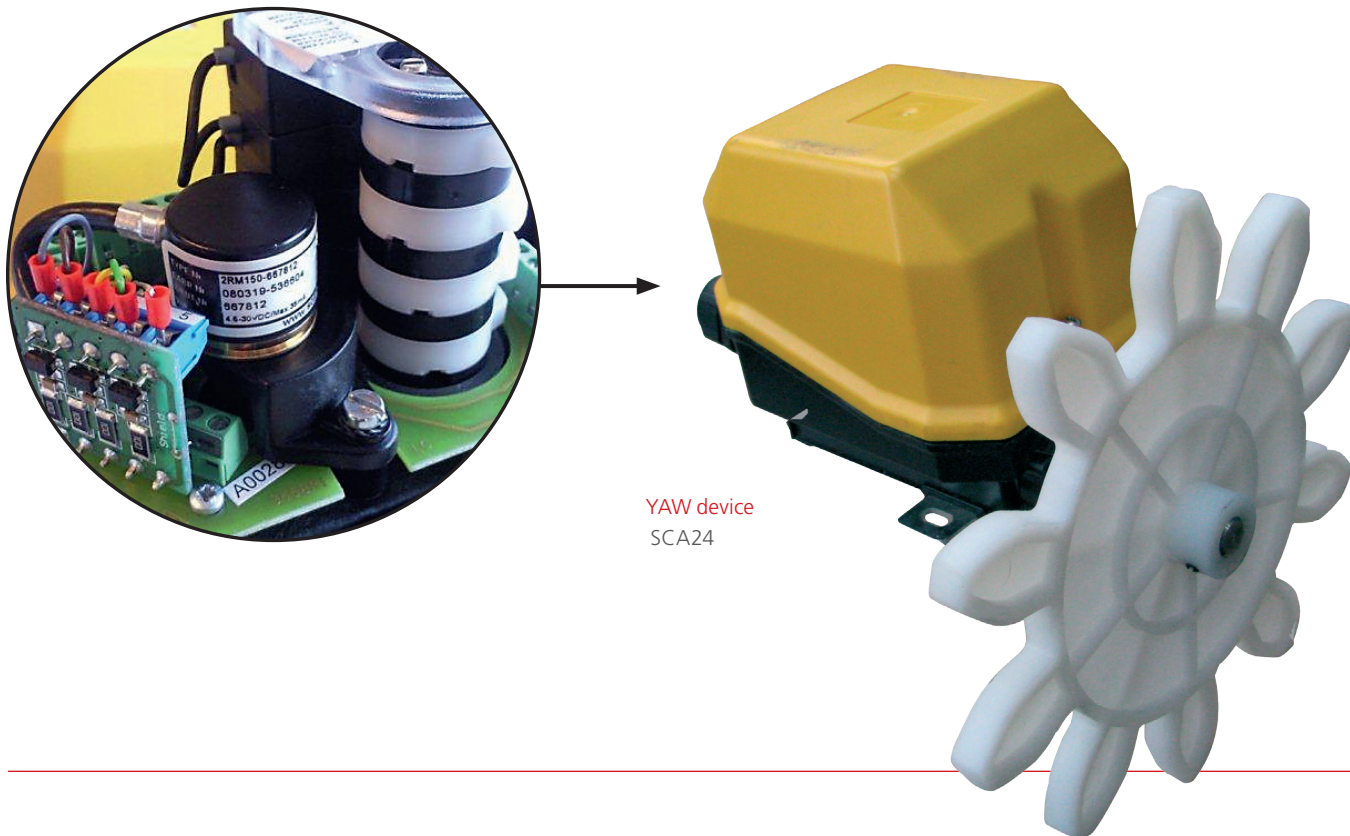
Additional Options

SCH94FO

- Transmission of incremental encoder signal, up to 2000 Meters, via Fiber Optic Cable
- No Degradation of Encoder Signal from Electrical Disturbances and no signals delays

Encoders for YAW Controls

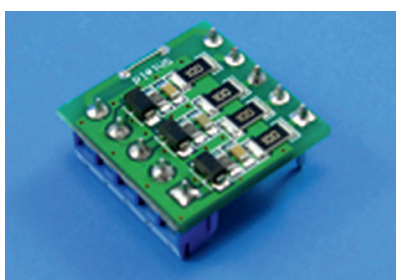
Devices



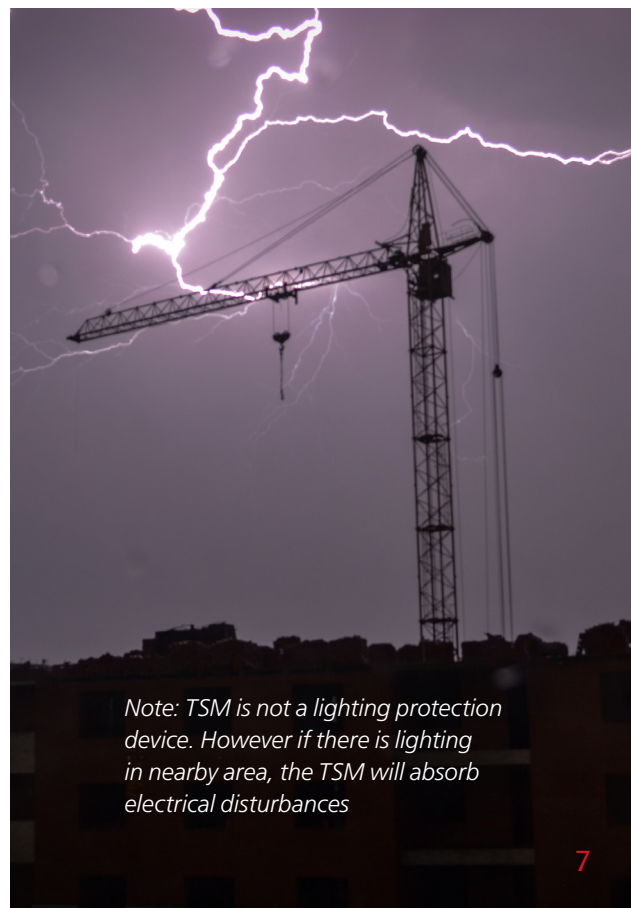
TSM

Transient Suppression Module

Scancon's Transient Suppression Module is intended to be used in environments where severe electrical transient and disturbances are encountered. The module will protect the encoder electronic from malfunctioning due to disturbances coming through the cable. It is available as a stand-alone product and is also incorporated into several encoder models.



All SCANCON incremental encoders for wind turbine have built in TSM



Note: TSM is not a lightning protection device. However if there is lightning in nearby area, the TSM will absorb electrical disturbances

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