TBF sensor

2025

SOLUTIONS FOR WIND POWER INDUSTRY

Sensors for wind power Industrial

TECHNOLOGY PERCEIVES THE FUTURE

National Specialized Little Giant in Sensor Industry

QUALIFICATIONS

State-level specialized and innovative "little giant" enterprise Beijing Enterprise Technology Center, a "specialized, refined, special and innovative" enterprise.

156 patents.

Company Presentation

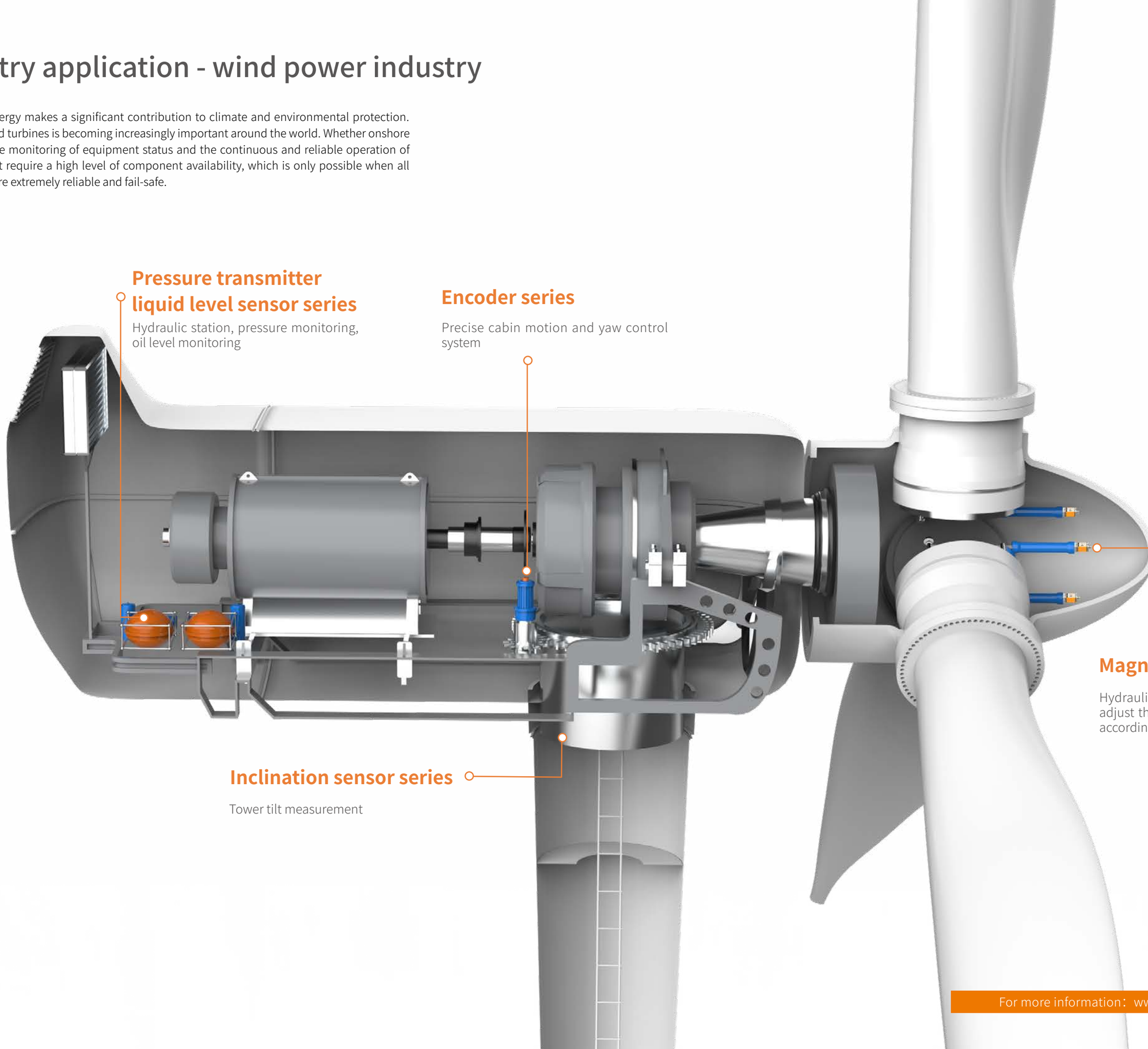
Beijing Tebeifu Electronic Technology Co., Ltd. (located in Beijing Economic and Technological Development Zone) has been committed to the research and development of level sensors and detection technologies for many years, and is a national high-tech enterprise with core technology, integrating production, R&D and sales as one of the intelligent technology solution providers.

The company has four mature technology platforms: magnetostrictive sensor technology platform, rotary encoder technology platform, pressure transmitter technology platform and temperature sensor technology platform. Based on the technology platform and guided by customer needs, the company provides customers with a full range of sensing technology product solutions through professional program design, excellent quality and rapid response ability.The products have also been certified with GB/T19001-2016 , CE, UL, ATEX and IECEx certificates, China National Coal mine safety certification, explosion-proof certification, 3C certification etc.

Products are widely used in rubber and plastics, metallurgy, coking, construction machinery, maritime, coal mines, water conservancy, military industry, petroleum and petrochemical, environmental protection, clean energy and other fields.

Industry application - wind power industry

Renewable energy makes a significant contribution to climate and environmental protection. The use of wind turbines is becoming increasingly important around the world. Whether onshore or offshore, the monitoring of equipment status and the continuous and reliable operation of the equipment require a high level of component availability, which is only possible when all components are extremely reliable and fail-safe.



Pressure transmitter liquid level sensor series

Hydraulic station, pressure monitoring, oil level monitoring

Encoder series

Precise cabin motion and yaw control system

Magnetostrictive series

Hydraulic pitch system to precisely adjust the angle of the rotor blades according to the wind speed

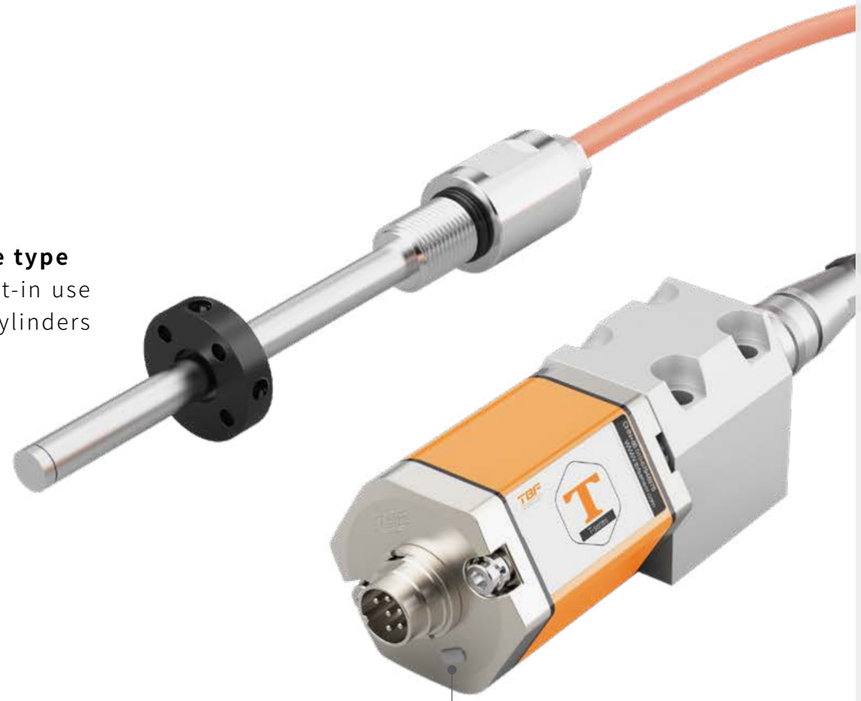
Inclination sensor series

Tower tilt measurement

Hydraulic pitch system application

The hydraulic variable pitch system is realized by changing the radial motion of the piston rod of the cylinder into the circular motion of the propeller, and the magnetostrictive displacement sensor is installed in the hydraulic cylinder, and the pitch adjustment of the system can accurately adjust the angle of the rotor blades according to the wind speed, so as to maximize the power generation and ensure the reliability of the system.

T3H pressure resistance outer tube type
Threaded mounting, suitable for built-in use in hydraulic cylinders or pneumatic cylinders



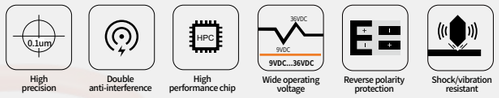
T3D split type sensor
A wide range of rod types for use with U-shaped and other restricted cylinders

T3F flexible sensor
Flexible outer tube type, the maximum capacity is 20 meters, which is convenient for transportation and installation

T-Series

Magnetostrictive series

- High precision: highest resolution 0.1μm
- Double anti-interference
- Resistance to shock and vibration
- Polarity protection, overvoltage protection
- Enhanced monitoring and diagnosis functions
- Wide operating voltage (9VDC~36VDC)



Model	T3H	T3D	T3F
Measured data	Position/ Velocity	Position/ Velocity	Position/ Velocity
Range	25-7650	25-5600	100-20000
Output	Analog SSI EtherCAT. Start-Stop CANopen PROFIBUS PROFINET		

Resolution

Output	Position resolution	None-Linearity	Repeatability
Analog	16 bit D/A	⩽ ±0.01%F.S.	⩽ ±0.001%F.S.
SSI	0.1μm	⩽ ±0.01%F.S.	⩽ ±0.001%F.S.
Start/Stop	**	⩽ ±0.02%F.S.	⩽ ±0.001%F.S.
CANopen	1μm	⩽ ±0.01%F.S.	⩽ ±0.001%F.S.
Profibus-DP	1μm	⩽ ±0.01%F.S.	⩽ ±0.001%F.S.
Profinet	0.5μm	⩽ ±0.01%F.S.	⩽ ±0.001%F.S.
EtherCAT	0.5μm	⩽ ±0.01%F.S.	⩽ ±0.001%F.S.

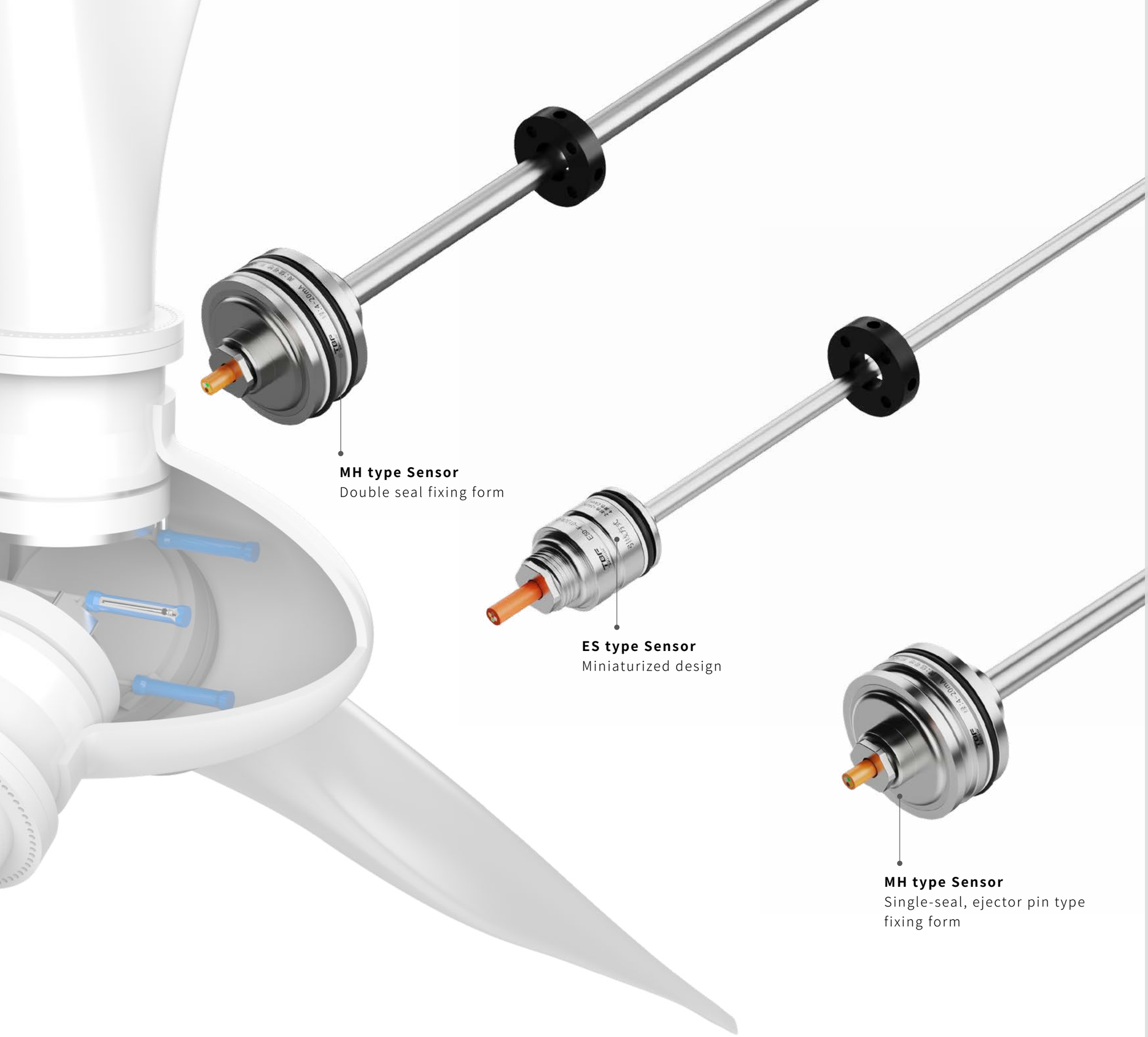
*T3F None-Linearity: ⩽ ±0.02%F.S.

Operating voltage
9VDC~36VDC
*SSI: 24VDC(-15/+20%)

Shock
T3H : 150 g/11 ms
T3D : 100 g/11 ms
T3F : 100 g/6 ms, IEC standard 60068-2-27

Vibration
T3H : 30 g/10...2000 Hz
T3D : 10 g/10...2000 Hz
T3F : 5 g/10...2000 Hz
IEC standard 60068-2-6 (resonant frequencies excluded)

** Depends on controller



MH type Sensor
Double seal fixing form

ES type Sensor
Miniaturized design

MH type Sensor
Single-seal, ejector pin type fixing form

Embedded

Magnetostrictive displacement sensors

In order to meet the integrated application in the cylinder, the product can be embedded in the hydraulic cylinder, and the equipment provides a variety of mounting and fixing methods such as thimble type, double seal type, and single seal type.

Output（Resolution）

Position resolution	**MH**	**ES**
Analog	16 bit D/A	16 bit D/A
CANopen	0.5μm	100μm

None-Linearity	EE	⩽ ±0.02%F.S.
	ES	⩽ ±0.04%F.S.
	MH(Analog)	⩽ ±0.04%F.S.
	MH(CANopen)	⩽ ±0.02%F.S.

Electrical connection

Operating voltage	9VDC~36VDC
Operating temperature	ES -40~85°C MH -40~85°C (Customization for 105°C)
Ingress protection	IP68 (Straight lead cable) IP67（Aviation connector type）,IP69K
Shock	100g(Single impact) IEC standard 60068-2-27
Vibration	15g/10...2000Hz IEC standard 60068-2-6 (resonant frequencies excluded)

Position measurement range

MH	50~4500mm
ES	50~2500mm

Pressure transmitter series

Sensors can be used to monitor the pressure of the hydraulic system to ensure the proper operation and safety of the equipment.

Technical parameters

Model	PC-J	PE	PC
Pressure sensor core	Metal sputtered film	Diffused silicon flat membrance	Diffused silicon
Range	5~600Bar	-1~400Bar	-1~600Bar
Operating voltage	12-32VDC		
Output	4 ～ 20mA; 0~10V	4 ～ 20mA; 1~5V; 0~5V; 0~10V	4 ～ 20mA; 1~5V; 0~5V; 0~10V
Type of pressure	Gauge pressure	Gauge pressure, Absolute pressure	Gauge pressure, Absolute pressure, Sealed gauge pressure
Overload pressure	2 times the full-scale pressure	1.5 times the full-scale pressure	
Measurement accuracy	±0.5%F.S.		
Zero point temperature drift	Typical ±0.01% F.S./℃,±0.02% F.S./℃ MAX.		
Full degree temperature drift	Typical ±0.01% F.S./℃,±0.02% F.S./℃ MAX.		
Long-term stability	±0.3% F.S./year		
Operating temperature	-30℃ ~90℃	-10℃ ~70℃	
Mounting	G1/2"、G1/4"、M20*1.5		
Wiring connection	Straight out cable,Aerial plug connection,Hersman plug		
Ingress protection	IP67 (Highest)		
Temperature compensation	/	0℃ ～ 50℃ /-10~70℃	
Destruction pressure	10...20times full-scale pressure	/	/
High reliability	Resistant to 10 million impacts,and can be continuously compressed	/	/

PC- J type pressure transmitter

Metal sputtered membrane core
Compact design and compact size
Range:5~600Bar
Mounting：G1/2"、G1/4"、M20*1.5

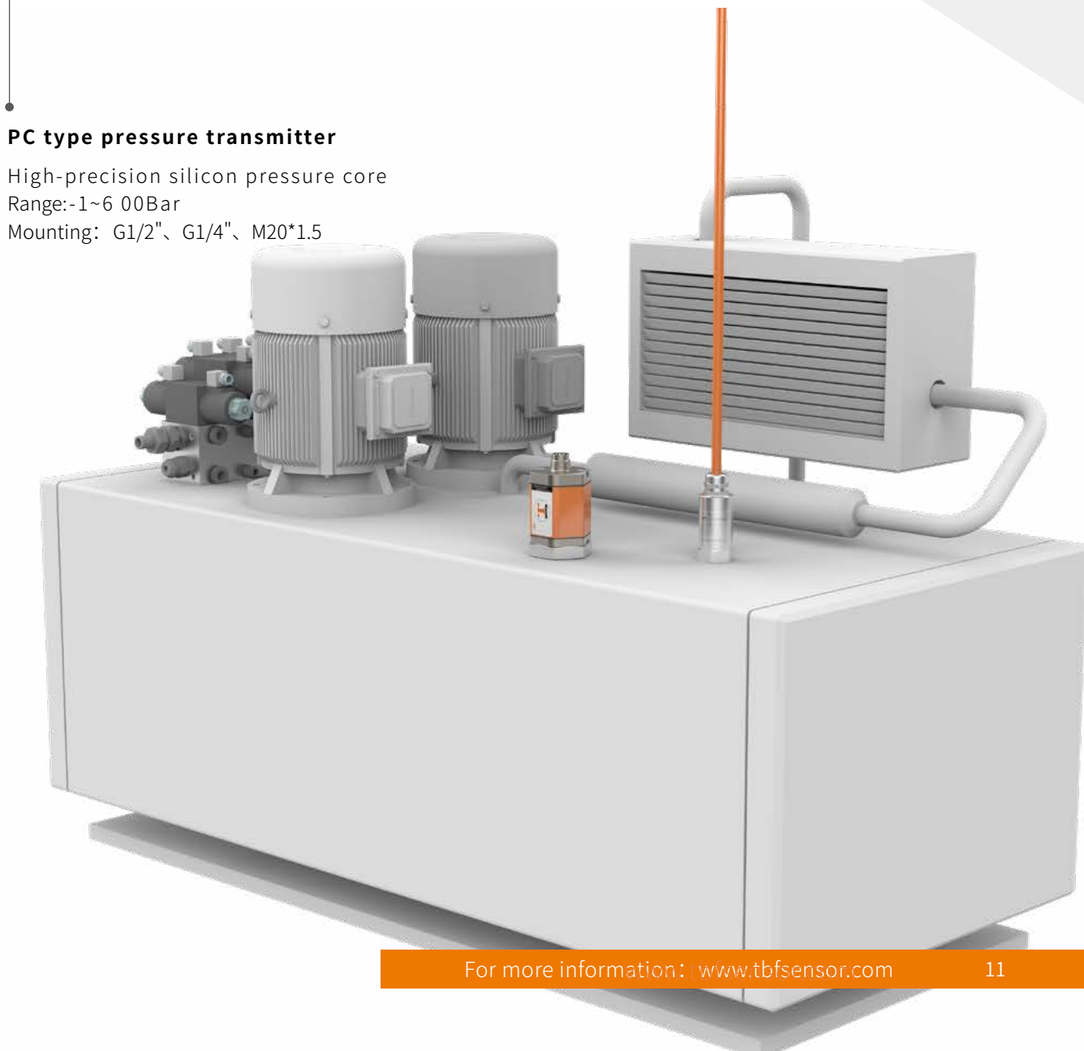
PE type pressure transmitter

High-precision diffusion silicon flat film core
Range:-1~400Bar
Mounting：G1/2"、G1/4"、M20*1.5

The selection of international advanced metal sputtering membrane pressure core, high-precision silicon pressure core and high-precision silicon flat membrane core, the equipment has high long-term stability, small temperature drift, wide temperature range, high precision, high pressure impact resistance, so that the equipment has excellent stability and excellent performance.

PC type pressure transmitter

High-precision silicon pressure core
Range:-1~6 00Bar
Mounting：G1/2"、G1/4"、M20*1.5



Level temperature sensor

Technical parameters

Output	Analog：4～20mA	CANopen：CAN2.0A bus System Protocol
Measured data	Level、temperature	Level、temperature
Level range	50mm...4500mm	50mm...4500mm
Temperature range	-40...125°C	-40...125°C
Temperature element	PT100 platinum resistor	Temperature sensing chip
Resolution	16 bit D/A	100μm
Liquid level accuracy	±0.5% F.S .	±0.04% F.S .
Temperature accuracy	±1°C	±1°C
Update time	1.5s	2ms(Customizable)
Mounting	Metric M35x2 metric M18x1.5 or customizable	Metric M35x2 metric M18x1.5 or customizable
Electronics housing	Stainless steel 304	Stainless steel 304
Measuring rod	304/316L	304/316L
Float	304/316/dingqing rubber	304/316/dingqing rubber
Float pressure	1.6~3.4Mpa	1.6~3.4Mpa
Wiring connection	Straight out cable	Straight out cable
Operating voltage	+24VDC(-15/+20%)	9~36VDC
Polarity protection	Up to -36VDC	Up to -36VDC
Overvoltage	Up to +36VDC	Up to +36V DC
Power consumption	<50mA(varies with range size)	<70mA(varies with range size)
Dielectric strength	500V(DC ground to machine ground)	500V(DC ground to machine ground)
Operating temperature	-40...85°C	-40...85°C
Humidity	90 % relative humidity, no condensation	90 % relative humidity, no condensation
Temperature	<30ppm/°C	<30ppm/°C
Ingress protection	IP68	IP68

Level temperature sensors are used in wind power to monitor the level and temperature of liquids in wind turbines. These sensors are typically installed in the lubrication, cooling, or hydraulic systems of generators to monitor the level and temperature of liquids in real time to ensure proper operation of the equipment.

YW level temperature sensor

CANopen

YW level temperature sensor

Analog

Angle sensor series

Used for monitoring tower tilt measurement.

The dynamic tilt angle sensor is easy to install, stable and reliable, and can be used in applications that pursue safety and high stability under harsh environmental conditions.

Technical parameters

Measurement data	**Inclination, temperature**
Inclination range	0 ～ 360°
Temperature range	-40°C ～ +100°C
Communication protocols	CAN bus system protocol, ISO11898 CAN open CIA standard DS-301 V3.0 encoder profile DS-406 V3.1
Angular resolution	0.1°
Temperature resolution	0.1°C
Wiring connection	Aerial plugging
Cable outlet direction	Two-side cable outlet
Operating voltage	10~36VDC
Operating voltage	24VDC
Power consumption	⩽ 20mA
Polarity protection	Up to -36VDC
Overvoltage protection	Up to +36VDC
Housing material	Aluminum alloy
Operating temperature	-40°C ~ +85°C
Ingress protection	IP67

Internally integrated with 3-axis accelerometer, three-axis gyroscope, and high-performance microcontroller. It can measure the acceleration, angular velocity, and fused attitude angle of the XYZ axis where the sensor is installed, and can achieve stable sensing in harsh environments.

Rotary encoder series

Rotary encoders are used to monitor the speed and angle of the equipment, so that the equipment can be accurately positioned, ensuring the normal operation and safety of the equipment.

Technical parameter

Model	BNMA58 Multi-circle absolute vaule+increment	BNMA36 Multi-circle absolute vaule+increment
Characteristic	ϕ58mm，Magnetoelectric	ϕ36mm，Magnetoelectric
Shaft type	Solid shaft，ϕ10 mm Blind hole-shaft，ϕ10 mm	Blind hole-shaft， ϕ10 mm
Electrical interface	SSI、SSI+increment， CANopen，CANopen +increment，Profinet Incremental output：HTL、TTL	SSI、SSI+increment， CANopen、 CANopen+increment
Precision	Speed precision：0.5%F.S. Repeatability：⩽ 0.1°	Speed precision：0.5%F.S. Repeatability：⩽ 0.1°
Pulse rate	Steps per revolution：8~16bit Number of revolutions： 12~24bit Total resolution：⩽ 32bit	Steps per revolution： 12~14bit Number of revolutions： 13bit Total resolution：⩽ 27bit
Max speed	6000r/min	6000r/min
Range	-40°C ~+85°C	-40°C ~+85°C
Voltage	10~30VDC	10~30VDC
Protection	IP67	IP65 has no shaft and IP67 has shaft seal

Model	BNTI100,BNTI99 Incremental	BNTI58 Incremental
Characteristic	ϕ99mm，Photoelectricity	ϕ58mm，Photoelectricity
Shaft type	Blind hole-shaft，ϕ16mm	Solid shaft，ϕ12 mm
Electrical interface	Incremental output：TTL、HTL Output channel：A A- B B- Z Z-	Incremental output：TTL、 HTL Output channe：A A- B B- Z Z-
Precision	1024PPR；2048PPR； 2500PPR；3600PPR； 5000PPR	1024PPR；5000PPR
Max speed	6000r/min	6000r/min
Range	-20°C ~+85°C	-20°C ~+85°C
Voltage	10~30VDC	10~30VDC
Protection	IP67（Shaft entry is rated IP66）	IP65（Shaft entry is rated IP54）

BNMA36

Diameter：36mm
Steps per revolution：12...14bit
Number of revolutions：13bit
Interface：SSI、SSI+Incremental output、CANopen、CANopen+Incremental output

BNMA58

Diameter：58mm
Steps per revolution：8...16bit
Number of revolutions：＜ 24bit
Interface：SSI/SSI+Incremental output，CANopen/CANopen+Incremental output，Profinet

BNTI58

Diameter：58mm
Pulse rate ：5000PPR
Output circuit：TTL/HTL

BNTI100,BNTI99 Photoelectricity Incremental

Diameter：99mm
Pulse rate：1024/5000PPR
Output circuit：TTL/HTL

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