

2025 INDUSTRIAL SENSORS SELECTED

Sensors for Industrial -Selected



Only part of TBF products are included. For more information, please contact us!

About US

12000m²
Production

5 Mio EUR
R&D

280
Employee

27 Mio EUR
Sales revenue

Trusted by **1,000+** leading companies



Founded in 2014, TBF Electronic Technology specializes in magnetostrictive linear displacement sensors, delivering reliable, certified solutions worldwide.

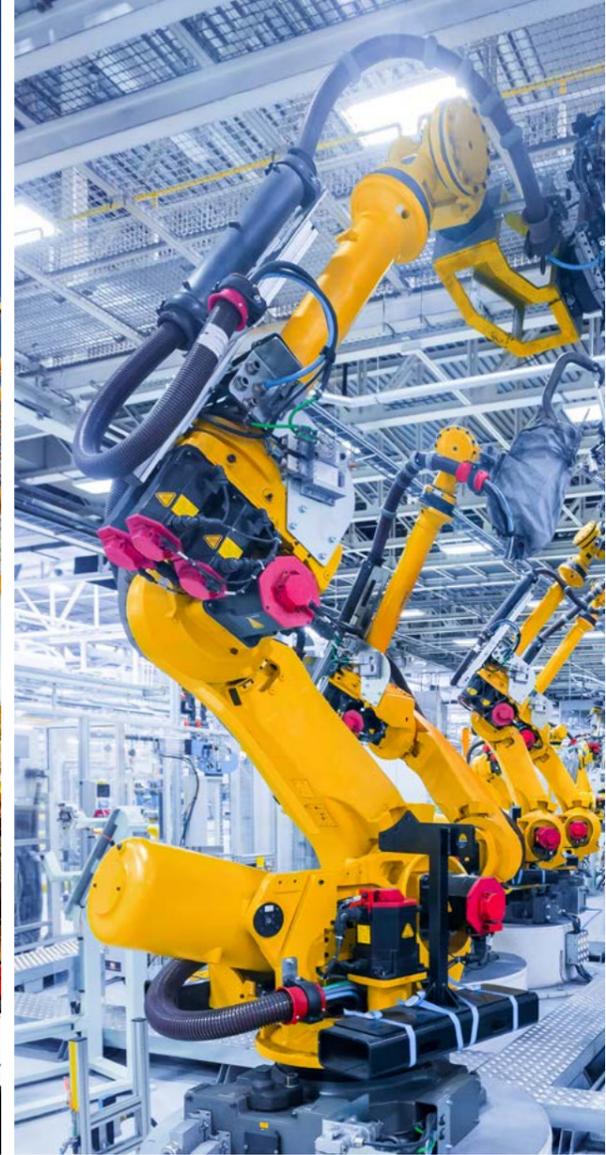
Nationally high-tech enterprise

Five sensing platforms, led by ultra-high-resolution magnetostrictive sensors (down to 0.1µm) designed for stable performance in demanding environments.

High-reliability product solutions

With a European subsidiary in Munich, TBF supplies customers across Europe, North America, the Middle East, and Southeast Asia, serving a global customer base that includes leading multinational industrial groups.

A global market presence



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.



Dedicated to the research and development of sensors and detection technologies

Beijing Tebeifu Electronic Technology Co., Ltd. (located in Beijing Economic and Technological Development Zone) has been committed to the research and development of sensors and detection technology for many years, and is a national hightech enterprise with lots of sensor core technologies. The products produced by the TBF have been unanimously recognized by users all over the world for their advanced technology, complete categories, quick response and service ability.

Our company has five mature technology platforms: magnetostrictive sensor technology platform, rotary encoder technology platform, pressure sensor technology platform, and LVDT sensor technology platform and temperature sensor technology platform. Based on the technology platform and guided by customer demand, the company provides customers with all-round sensor technology product solutions through professional scheme design, excellent quality and quick response ability.

T-Series

Magnetostrictive displacement sensor

T-Series III is an upgraded product based on the second generation products. It has been innovated while maintaining our consistent high quality, and the new generation products are more reliable and stable, with strong performance.

- + High precision: highest resolution 0.1μm
- + Double anti-interference
- + Resistance to shock and vibration
- + Support 30 magnets online at the same time
- + Polarity protection, overvoltage protection
- + Enhanced monitoring and diagnosis functions
- + Wide operating voltage (9VDC~36VDC)

Type	T3H	T3P	T3D	T3F
Output	Position, speed			
Measuring length	25-7650	25-5600	25-5600	100-20000
Interface type	Analog Start-Stop	SSI CANopen	EtherCAT PROFINET IO-Link	IO-Link
precision	Interface	Resolution	Nonlinear degree	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.
	IO-Link	5μm	0.01%F.S.	0.001%F.S.
EtherCAT	0.5μm	0.01%F.S.	0.001%F.S.	
EtherNet/IP	1μm	0.01%F.S.	0.001%F.S.	
				T3F Nonlinear degree 0.02%F.S.
Operating voltage	9VDC~36VDC			*SSI: 24VDC(-15/+20%)
Shock	T3H/T3P: 150 g/11 ms T3D : 100 g/11 ms T3F : 100 g/6 ms, IEC standard 60068-2-27			
Vibration resistance	T3H/T3P: 30 g/10~2000 Hz T3D : 10 g/10~2000 Hz T3F : 5 g/10~2000 Hz IEC standard 60068-2-6 (excluding resonance frequency)			

** Depending on the controller



T3P External guide rail type
Aluminum profile shell, easy to install on the machine surface or outside.



T3H Pressure-resistant outer tube type
Threaded installation, suitable for use in hydraulic cylinder or cylinder.



T3D Split type
A variety of rod types, suitable for U-shaped and other limited hydraulic cylinders.



T3F Flexible outer tube type
Flexible outer tube type, the maximum range is 20 meters, which is convenient for transportation and installation.

IO-Link

Integral pressure-resistant outer tube type

Magnetostrictive displacement sensor

The compact or flat electronic component shell is convenient for the sensor to be installed in a limited space;

The integrated design makes the equipment have higher durability and higher protection level(Max IP68/IP69K);

The whole machine is made of 304/316L stainless steel, which has excellent corrosion resistance and is suitable for various harsh working environments.



GB
Horizontal organization design,
flange installation

CH
All stainless steel shell, high
reliability is widely used in
metallurgical industry.

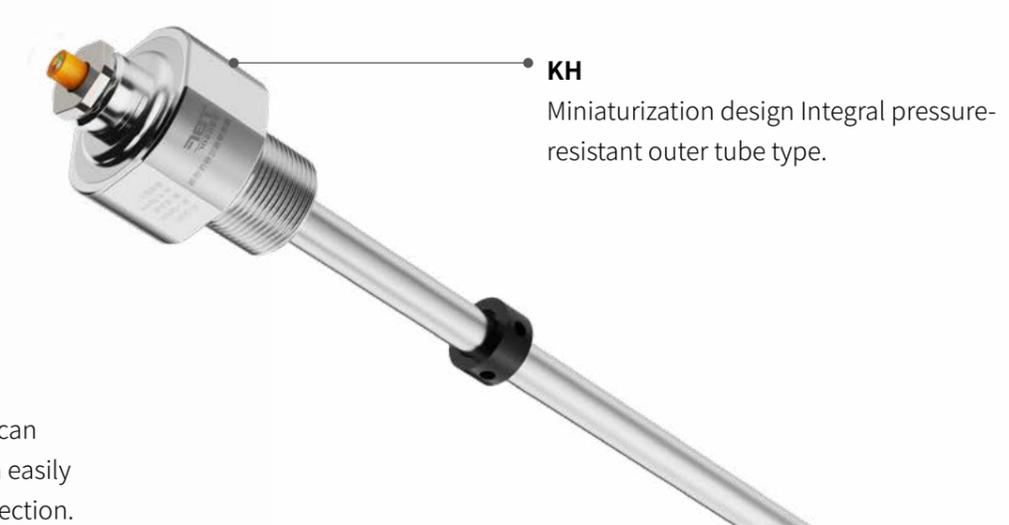
DH
Miniaturization design
Integral pressure-resistant outer



GA
IO-Link interface sensor with
LED indication function



GBM
The electronic compartment can
rotate 360 degrees, which can easily
realize the required wiring direction.



KH
Miniaturization design Integral pressure-
resistant outer tube type.

Output (accuracy)

Resolution	GB/GBM	CH	DH	KH	GA
Analog	16 bit D/A				
Start/Stop	-	**	-	-	-
SSI	0.5μm	0.5μm	0.5μm	-	0.5μm
CANopen	2μm	-	2μm	-	-
IO-Link	-	1μm	-	-	1μm

Nonlinear degree $\leq \pm 0.02\%F.S.$

*KH $\leq \pm 0.04\%F.S.$

Working conditions

Operating voltage	9VDC~36VDC	*GA/GB/CH(SSI):24VDC(-15/+20%)
Temperature	-40~85°C	*CH(Start/Stop) : -40~120°C
Ingress protection	IP68(Direct-out cable) IP67(Aerial insertion type)	*CH: IP69K
Shock	100 g/6 ms, IEC standard 60068-2-27	
Vibration	15 g/10~2000 Hz IEC standard 60068-2-6 (excluding resonance frequency)	

Effective range

Effective range 50~4500mm

** Depending on the controller

Embedded type

Magnetostrictive displacement sensor

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 installation and fixation methods such as thimble type, double seal type and single seal type.

Equipment is widely used in mobile machinery.

EE

ES

Miniaturization design

MHT

Safe and redundant design with two independent outputs.

MH

Various sealing and fixing forms
Shock resistance and vibration resistance
Widely used in engineering equipment industry

Output (accuracy)

Resolution	EE	ES	MH	MHT
Analog	16 bit D/A	16 bit D/A	16 bit D/A	16 bit D/A
Start/Stop	-	-	-	-
SSI	0.5μm	-	-	-
CANopen	-	100μm	0.5μm	0.5μm

Nonlinear degree	EE	$\leq \pm 0.02\%F.S.$
	ES	$\leq \pm 0.04\%F.S.$
	MH/MHT(Analog)	$\leq \pm 0.04\%F.S.$
	MH/MHT(CANopen)	$\leq \pm 0.02\%F.S.$

Working conditions

Operating voltage	9VDC~36VDC	
Temperature	EE/ES	-40~85°C
	MH/MHT	-40~85°C (105°C customized)
Ingress protection	IP68(Direct-out cable)	IP67(Aerial insertion type)
	IP69K	
Shock	100 g/6 ms, IEC standard 60068-2-27	
Vibration	15 g/10~2000 Hz IEC standard 60068-2-6 (excluding resonance frequency)	

Effective range

EE/MH/MHT	50~4500mm
ES	50~2500mm

Integral external profile type

Magnetostrictive displacement sensor

- + Convenient installation,integrated design,no prominent electronic warehouse.
- + Linear measurement,absolute output,no need to return to zero.
- + Application in forgin,building materials,rubber and plactic machinery and other fields.

Type	EP2/GP2/GL2	GR	ZF
Output	Location, Speed	Location	Location
Measuring length	50~5600	50~1500	50~1500
Interface type	 Analog	 SSI	 Analog
	 EtherCAT	 IO-Link	 IO-Link
	 CANopen		 Analog
	 Start/Stop		
Resolution	Analog	16 bit D/A	16 bit D/A
	SSI	0.5μm	--
	CANopen	--	1μm
	EtherCAT	0.5μm	--
	IO-Link	1μm	1μm
Shock	EP2/GP2/GL2/GR : 100 g (Single impact)		
	ZF : 50 g/6 ms, IEC standard 60068-2-27		
Vibration	EP2/GP2/GL2/GR : 15 g/10~2000 Hz		
	ZF : 5 g/10~2000 Hz IEC standard 60068-2-6 (excluding resonance frequency)		

EP2
Integral aluminum shell type

GR
Push-pull rod aluminum profile cylinder design,providing a variety of installation options

GL2
Miniaturized design,optional slider magnet or suspension magnet

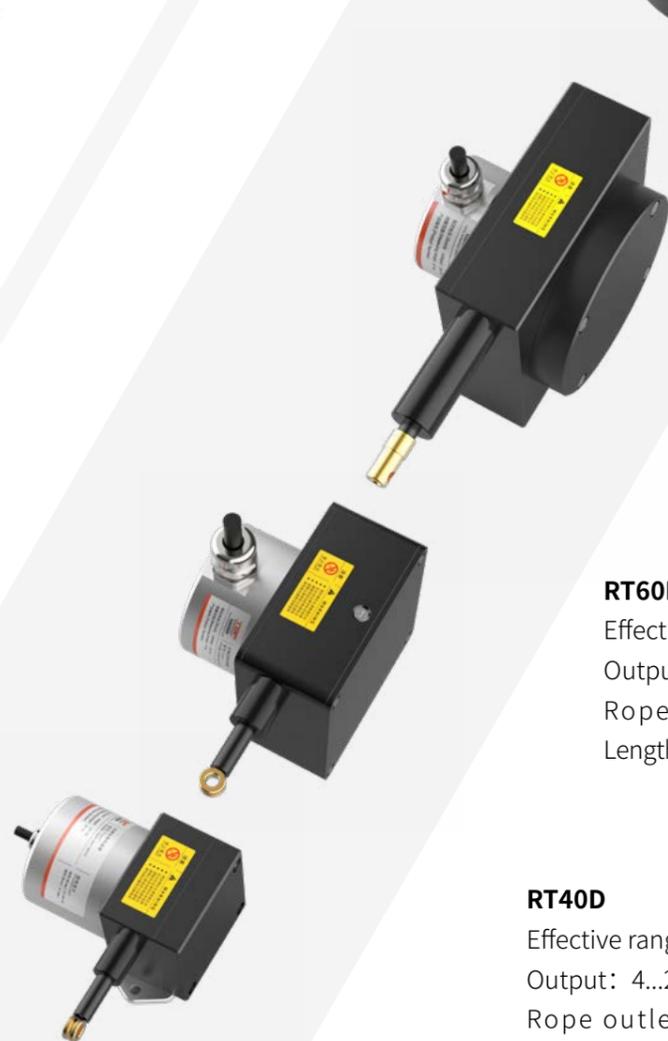
ZF
Compact design,suitable for external installation,optional slider magnet or suspension magnet

GP2
High precision,integrated aluminum shell type,optional slider magnet or suspension magnet

Draw wire sensor

Long angle sensor

The cable displacement sensor has the characteristics of compact structure, high precision and long measuring stroke. Its principle is to convert mechanical motion into electrical signals that can be measured, recorded or transmitted. RTQ7 and RTQ12 are long-angle sensors with the function of measuring length and inclination.



Rotary encoder

Universal encoder, Servo encoder, Heavy-duty encoder

Encoder is used to record the angle and rotation speed, so as to realize accurate control, facilitate real-time monitoring and adjustment of component state, and thus improve the automation degree and work efficiency of construction machinery.



BNMA36
 Diameter: 36mm
 Single lap resolution: 12...14bit
 Number of pturns: 13bit
 Interface: SSI, SSI+increment, CANopen, CANopen+increment



BNTI100, BNTI99
 Diameter: 99mm
 Resolution: 1024/5000PPR
 Output: TTL/HTL



BNMA58
 Diameter: 58mm
 Single lap resolution: 8...16bit
 Number of pturns: < 24bit
 Interface: SSI/SSI+increment, CANopen/CANopen+increment, Profinet



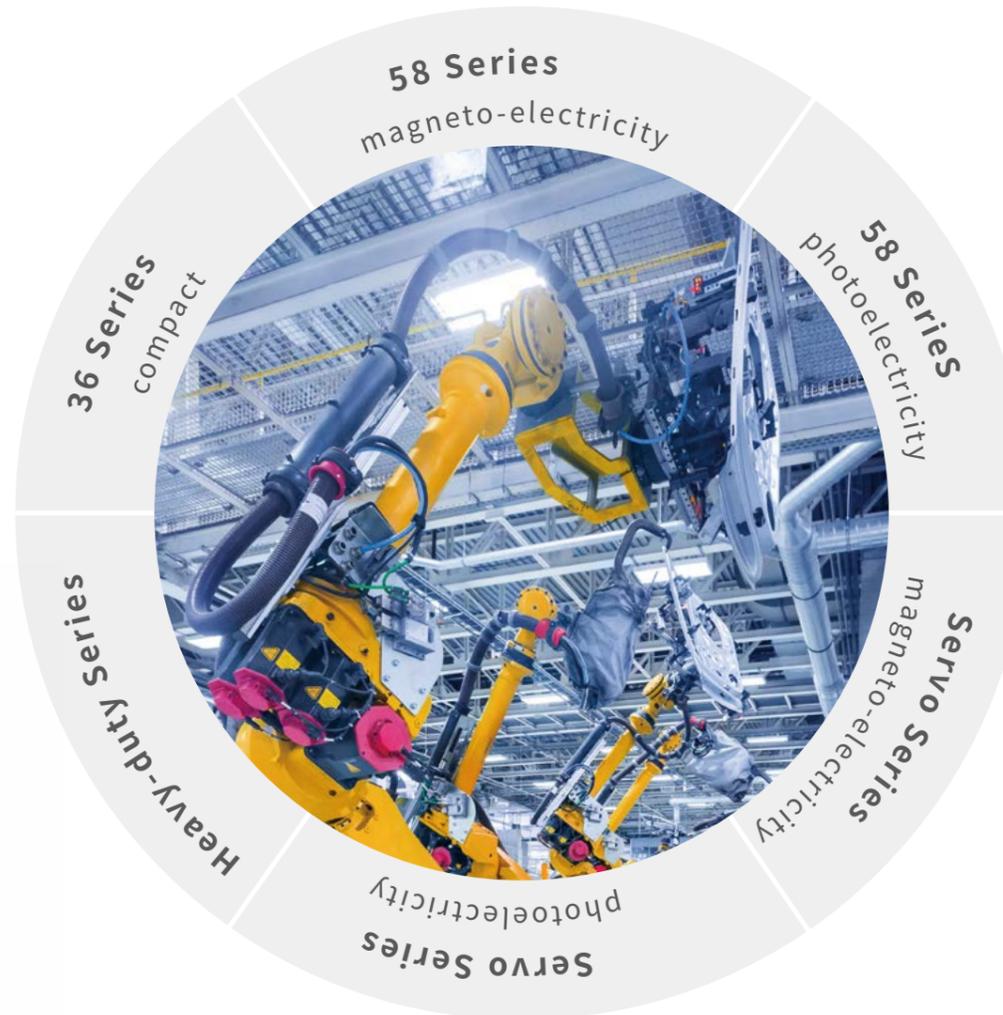
BNTI58
 Diameter: 58mm
 Single lap resolution: 5000PPR
 Output: TTL/HTL



Servo series-magneto-electricity Absolute value
 Outside diameter: 34/35mm
 Single lap resolution: 17bit
 Number of pturns: 16bit
Increment
 Outside diameter: 36mm
 Resolution: 1...4096C/T



Servo series-photoelectricity Absolute value
 Outside diameter: 35/44/46/79mm
 Single lap resolution: 17...23bit
 Number of pturns: 16bit
Increment
 Outside diameter: 35/44/46/79mm
 Resolution: 1024/2500/5000 C/T



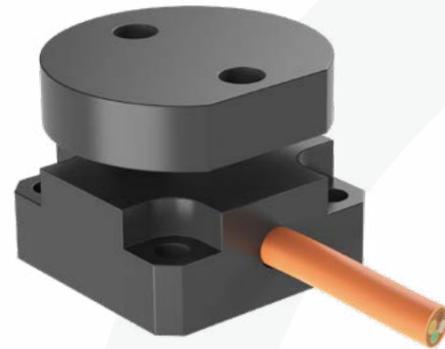
Inclination sensor

It can be used in the application field of pursuing safety and high stability under harsh environmental conditions. A 3-axis gyroscope and a high-performance microcontroller are integrated inside. It can measure the attitude angle of xyz axis at the position where the sensor is installed, and can achieve stability in harsh environment. Fixed sensing.

Angle sensor

The angle sensor is a device for measuring the rotation angle, which measures the change of the angle based on the physical principle. When there is a change between the rotating magnetic field and the Hall sensor, the Hall sensor can measure different magnetic field signals to determine the rotation angle.

QM Angle sensor



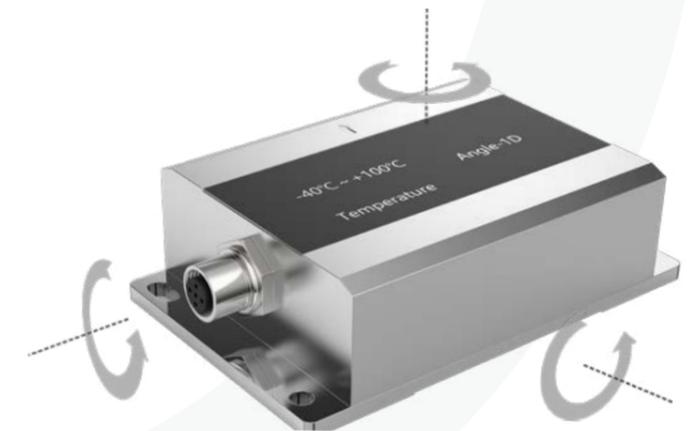
BNS74 Angle sensor



QF Angle sensor



DAT12076-1D Angle temperature sensor



Type	QM Angle sensor	DAT12076 Angle temperature sensor	QF Angle sensor	BNS74 Angle sensor
Measurement data	Angle	Inclination and temperature	Angle	Angle
Output	Analog	CANopen	Analog	CANopen
Measuring range	0° -360°	X-axis: -180° ...+180°, Y-axis:-90° ...+90°, Z-axis:0...360° Temperature:-40°C ...+100°C	0° -90°	0~360°
Resolution	inclination: 0.09°	inclination: 0.1° Temperature: 0.1°C	Angle: 0.1°	0.1° /0.01° /0.001°

Pressure transmitter series

Pressure transmitter, digital display pressure, pressure switch

Adopting international advanced metal sputtering film pressure core, high-precision silicon pressure core and high-precision silicon flat film core, the equipment has high long-term stability, small temperature drift, wide temperature range, high precision and high pressure impact resistance.



Mechanical pressure switch

High precision, reliability and durability, and output alarm and control signals.



Digital pressure transmitter

The electronic compartment can rotate freely 330°
Analog+Two-way switch output



Hessman digital display pressure transmitter

Adapting hessman connector of pressure transmitter



PC-type pressure transmitter

High precision silicon pressure core
Measuring range:-1~600Bar



PE-type pressure transmitter

High precision diffusion silicon flat film core
Measuring range:-1~400Bar



PC-J-type pressure transmitter

Metal sputtering film pressure core, compact design, small size
Measuring range:5~600Bar



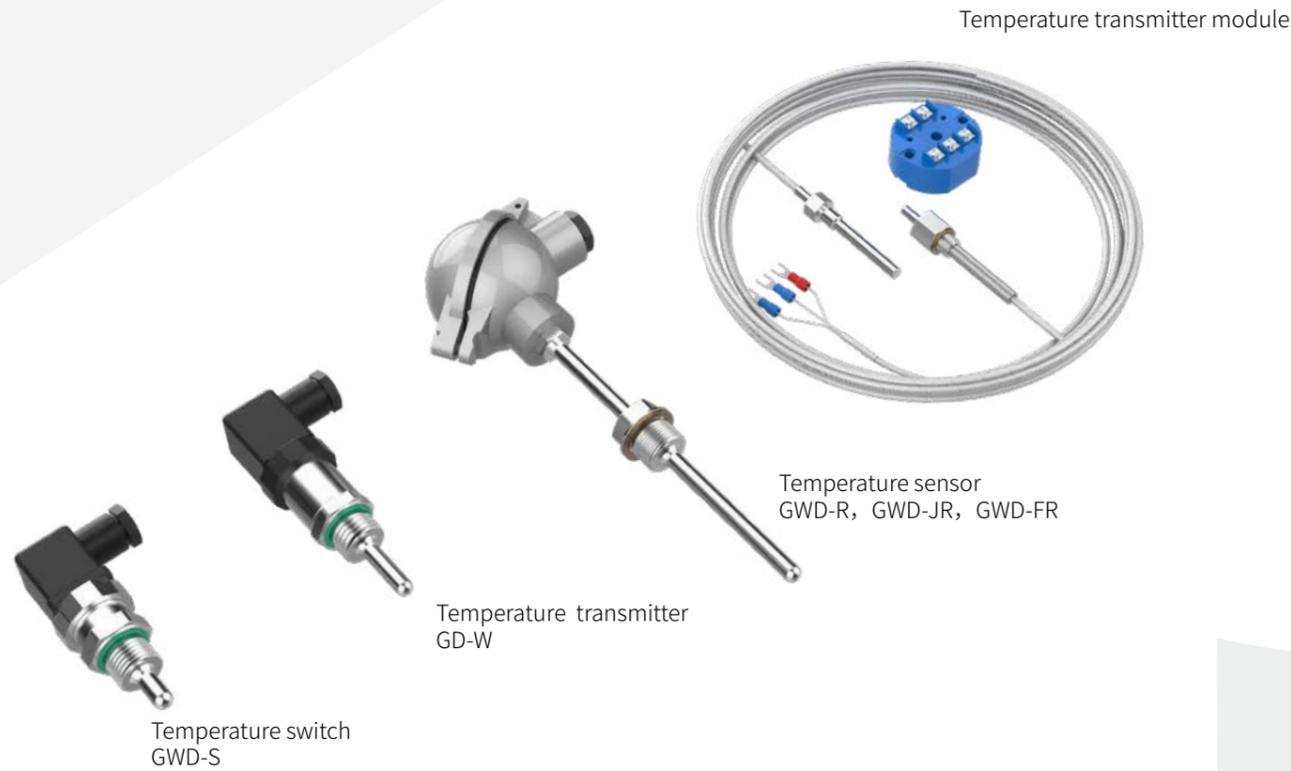
Type	PC-J	PE	PC
Pressure core	Metal sputtering film	Diffused silicon flat film	Diffused silicon
Measuring range	5~600Bar	-1~400Bar	-1~600Bar
Pressure Type	Gauge pressure	Gauge pressure and absolute pressure	Gauge pressure, absolute pressure and sealed gauge pressure



Type	PC-D	PC-T / PE-T	PC / PE / PC-J
Name	Mechanical pressure switch	Digital pressure transmitter	Hessman digital display pressure transmitter
Explain	When measuring the pressure value, the user can adjust it at will within the measuring range. Adjust the measured pressure by rotating the pressure regulating thumbwheel. After the pressure regulation is completed, the thumbwheel can be fixed to prevent the pressure from changing during use.	Digital display pressure transmitter with integrated display; The electronic compartment can rotate freely by 330 degrees.	Adapted to hessman connector of pressure sensor, it can set pressure unit, zero/full position correction point, upper/lower range and other functions.

Temperature Series

Temperature sensor/Transmitter/Switch
Liquid level temperature sensor

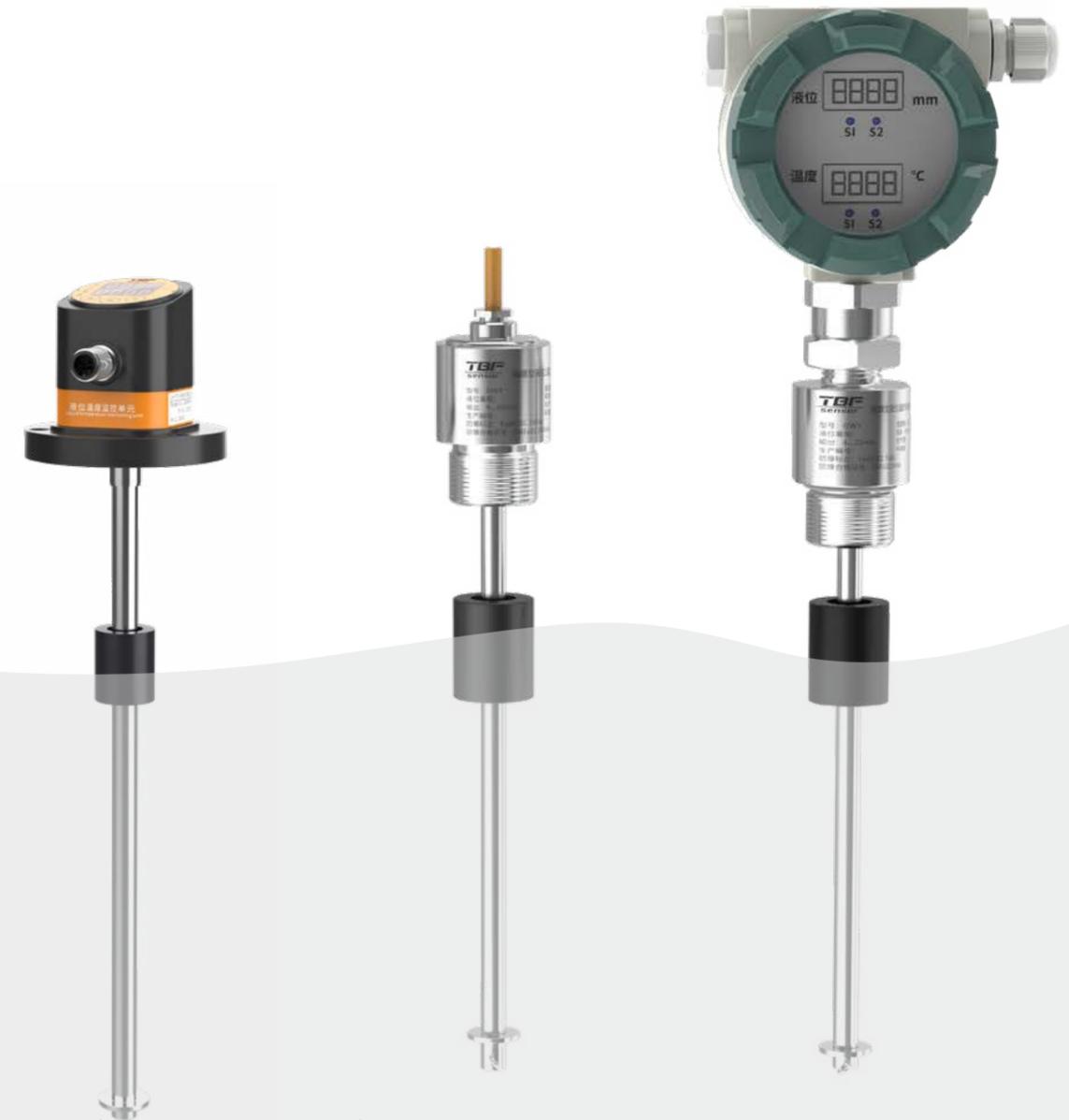


Temperature measuring range	-50~300°C (normal -50~250°C)					
Graduation number/resistance value		The standard resistance value R at 0°C	The standard resistance value R at 100°C			
	PT100	100.00	138.51			
	PT1000	1000.00	1385.1			
Measurement Error	Grade	Error of resistance at zero degree%		Temperature error °C		
	A	±0.06		± (0.15+0.002 t)		
	B	±0.12		± (0.30+0.005 t)		
Response time	Rod diameter mm	5	6	8	10	12
	Thermal response times (T0.5)	≤ 8	≤ 15	≤ 30	≤ 30	≤ 30

Liquid level temperature series

—Precise monitoring of liquid level and temperature, stable and reliable.

The float-type liquid level temperature sensor adopts the integrated design of float and temperature probe, which can measure liquid level height and liquid temperature at the same time, and has the characteristics of simple structure, corrosion resistance, strong antiinterference and long service life.



Type	LH-YT	YW	YW+ SSET
Liquid level range	40...2000mm	50...4500mm	50...4500mm
Temperature range	-40...125°C	-40...125°C	-40...125°C
Output	4 channels of NPN/PNP+2 channels of analog signals	Analog、CANopen	Analog、CANopen

Product overview

Construction machinery

- Magnetostrictive displacement sensor
- Rope displacement sensor
- Encoder
- Angle/inclination sensor
- Pressure transmitter

Position detection-magnetostrictive displacement sensor

Bild	Type	Range	Electrical interface
	T3H/T3P	50...7650	Analog, SSI, Start/Stop, CANopen, EtherNet/IP, IO-Link, PROFINET, EtherCAT
	T3D	50...5600	Analog, SSI, Start/Stop, CANopen, EtherNet/IP, IO-Link, PROFINET, EtherCAT
	T3F	100...20000	Analog, SSI, Start/Stop, CANopen, EtherNet/IP, IO-Link, PROFINET, EtherCAT
	CH2	50...4500	Analog, SSI, Start/Stop
	DH2	50...5600	Analog, SSI, CANopen
	K	50...5600	Analog
	GB	50...4500	Analog, SSI, Start/Stop, CANopen
	GBM	50...4500	Analog, SSI, Start/Stop, CANopen
	GA	50...4500	Analog, SSI, IO-Link
	MH	50...4500	Analog, CANopen
	ES	50...2500	Analog, CANopen

	EE	50...4500	Analog, SSI, CANopen
	MHT	50...4500	Analog, CANopen
	EP2	50...5600	Analog, SSI, Start/Stop, IO-Link, EtherCAT
	GL2	50...5600	Analog, SSI, Start/Stop, IO-Link, EtherCAT
	GP2	50...5600	Analog, SSI, Start/Stop, IO-Link, EtherCAT
	GR	50...1500	Analog, CANopen
	ZF	50...1500	Analog

Position detection-Draw wire sensor

Draw wire sensor	Type	Range	Electrical interface
	RT40D	0..1m	Analog
	RT60	0...5m	Analog, CANopen
	RT60B	0...3m	Analog, CANopen
	RT120S	0...4m	Analog, CANopen
	RT80D	0...8.3m	Analog, CANopen
	RT90S	0...3.5m	Analog
Long angle sensor	Type	Range	Electrical interface
	RTQ7	Length: 0...7m Angle: 0...360°	CANopen
	RTQ12	Length: 0...12m Angle: 0...360°	CANopen

Rotational position monitoring-encoder

Absolute value	Type	Output	Resolution
	BNMA36 (magneto-electricity)	CANopen	Single circle: 12-14bit Multi-circle: 13bit
	BNMA58 (magneto-electricity)	Profinet	Single circle: 12-16bit Multi-circle: ≤ 20bit
Increment	Type	Output	Resolution
	BNTI58 (photoelectricity)	TTL / HTL Channel: A A- B B-Z Z-	10000, 5000, 2500, 1250 8192, 4096, 2048, 1024 7200, 3600, 1800, 900 PPR
	BNTI99 (photoelectricity)	TTL / HTL Channel: A A- B B-Z Z-	5000 PPR
	BNTI100 (photoelectricity)	TTL / HTL Channel: A A- B B-Z Z-	1024 PPR
Absolute value+increment	Type	Output	Resolution
	BNMA58 (magneto-electricity)	SSI/SSI+increment CANopen/CANopen+increment increment Channel: A A- B B-	Single circle: 8-16bit, Multi-circle: ≤ 24bit increment : 512PPR, 1024PPR, 2048PPR, 4096 PPR (Other values can be customized)
	BNMA36 (magneto-electricity)	SSI/SSI+increment increment Channel: A A- B B-	Single circle: 12-14bit, Multi-circle: 13bit increment : 512PPR, 1024PPR, 2048PPR, 4096 PPR (Other values can be customized)

Monitoring of angle/inclination

Angle sensor	Type	Range	Output
	QM	0...360°	Analog
	QF	0...90°	Analog
	BNS74	0...360°	CANopen
Inclination sensor	Type	Range	Output
	DAT12076 (uniaxial/biaxial/ triaxial)	Inclination: 0...360° Temperature: -40°C....+100°C	CANopen

Process state detection-Pressure

Liquid, Gas	Type	Range	Output
	PC-J	5...600Bar	Analog current/voltage output
	PE	-1...400Bar	Analog current/voltage output
	PC	-1...600Bar	Analog current/voltage output
	PC-T	-1...600Bar	Analog current/voltage output
	PC-D	0.014...12.40Mpa	SPDT

Process state monitoring-Temperature

Temperature series	Name	Type	Range	Output
	Temperature switch	GWD-S	-20~120°C	SPST
	Temperature transmitter	GD-W	0~100°C	Analog
	Temperature sensor	GWD-JR	-50~300°C	Resistance signal
	Temperature sensor	GWD-R	-50~250°C	Resistance signal
	Temperature sensor	GWD-FR	-50~250°C	Resistance signal
	Liquid level temperature sensor	YW	Liquid level : 50...4500mm temperature : -40...125°C	Analog
	Liquid level temperature sensor	YW+digital display	Liquid level: 50...4500mm temperature : -40...125°C	Analog
	Liquid level temperature sensor	LH-YT	Liquid level: 40...2000mm temperature : -40...125°C	4-way switch value+2-way Analog



Beijing Tebeifu Electronic Technology Co., Ltd.
Building 6, Dazhu Enterprise Bay,
8th yard of Liangshuihe 2nd street, BDA P.R.China
Tel: +86 10-67948976/67948916
Fax:+86 10-67948979
Mailbox: sale@tbfsensor.com
Web: www.tbfsensor.com

TBF Electronic Technology GmbH(German branch)
Moosacher Str.82a,80809 Munich ,Germany
Tel: 00491783135698
Mailbox: info@tbfsensor.com
Web: en.tbfsensor.com

Website



Wechat

