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Temperature Sensor/Transmitter

Quality Changes
the Future



Company Profile

Ziasiot is an experienced manufacture of pressure and temperature sensors, transmitters; Melt pressure transmitters, melt temperature sensors, Internet of Things, laboratory instruments and automation with variety of brands such as Ziasiot, Holeader, EMPS, Wu Hao MC, etc, which could be used in different industrial fields and process control.

The main products developed and produced by our company consist of multiple series, including wireless sensors, flow sensors, linears, pressure sensors, liquid level sensors, high temperature melt pressure sensors , melt pressure gauge, high temperature melt pressure transmitter, temperature sensor, fusion index instrument, pressure calibration system, smart digital instrument, blasting switch, smart home system, smart module, smart body scale, laboratory instrument, Internet of Things, and Automated complete control system. We strive to innovate, advocate environmental protection, adhere to the concept of high quality and integrity, and are committed to developing into a technology manufacturing group enterprise of sensor Internet of things and automated control systems.

Ziasiot is a high-tech enterprise headquartered in Shanghai, members of whom have many years of experience in automation and extrusion industry. With years of professional knowledge, we established an organizational structure oriented by customer demand, and continuously innovated technology and obtained a number of national patents, which makes zias an innovator in the fields of sensors, Internet of things and automation control. In order to emphasize Our commitment to quality and reputation, the R & D and production process of all zias brands ensure to meet and possess RoHS, ISO, CE, CMC, CPA, ex and other certifications.



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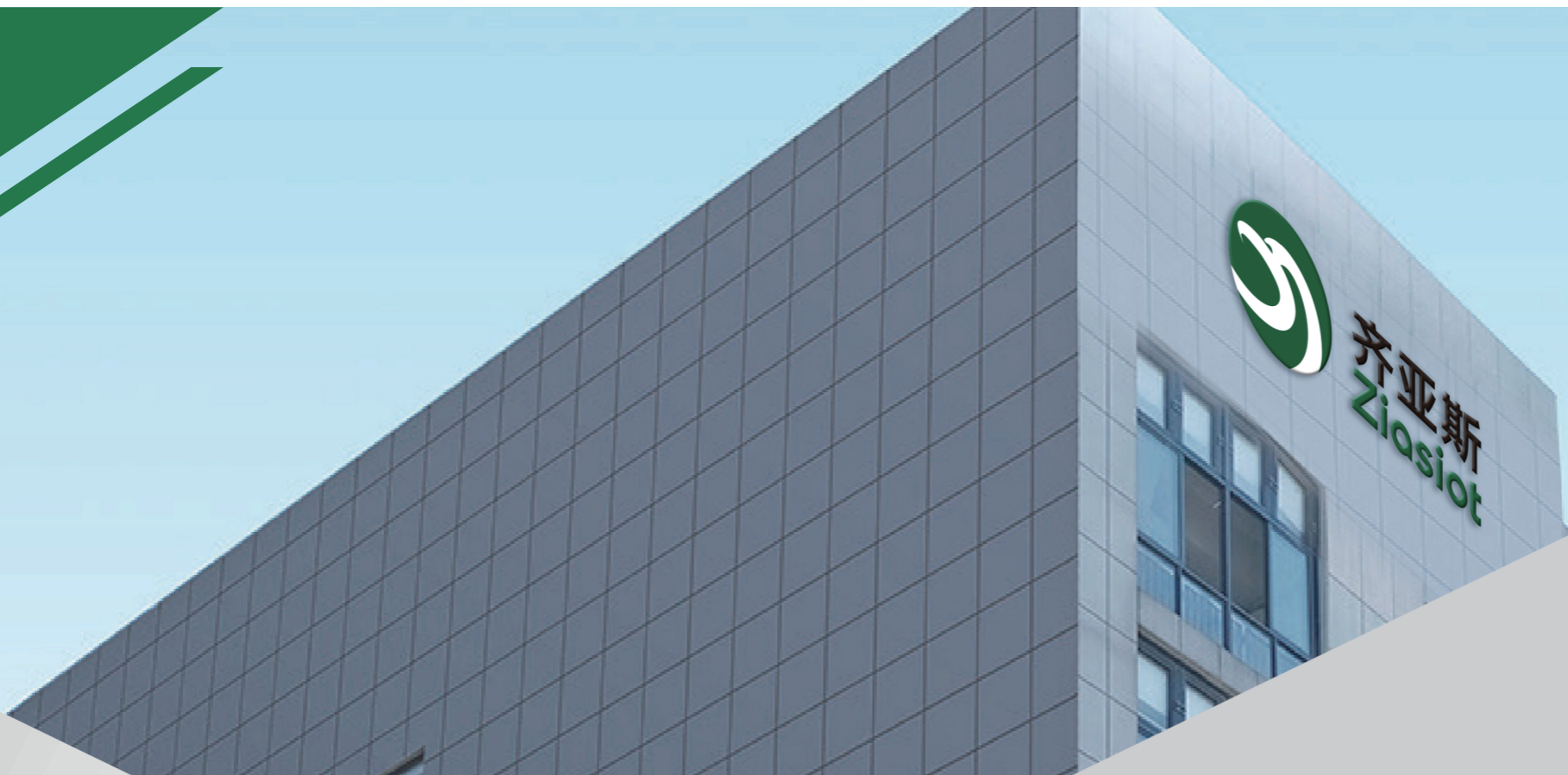
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PT100 Thermal Resistance Table Corresponding to
Temperature Resistance Values

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Application Field

Chemical / Pharmaceutical / Power / Energy / Municipal /
Environmental Protection / Food / Paper / Shipping / Metallurgy



Product Summarize

ZTS series thermal resistance temperature sensor/transmitter is currently the most commonly used temperature detector in the low temperature area, our company uses platinum material PT100 / PT1000 as the measuring core, its main characteristics are high accuracy and stable performance, not only widely used in food and pharmaceutical / industrial temperature measurement, but also made into a standard reference instrument. Products are widely used, mainly used in chemical industry, steel, metallurgy, pharmaceutical, food, new energy and so on.

Working Principle

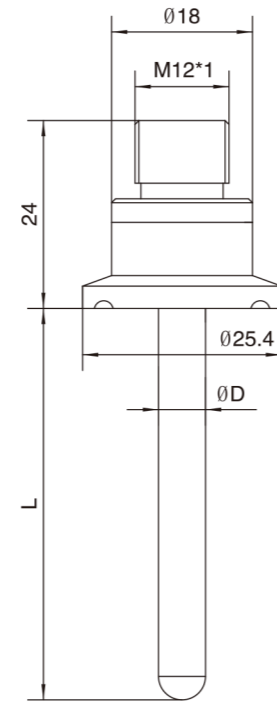
Temperature sensor is the use of temperature and measured between the resistance value of the change into a corresponding relationship. The corresponding temperature value is obtained by measuring the resistance value of the measured element. The temperature transmitter converts the measured resistance value into a 4-20mA current signal, and obtains the corresponding temperature value by measuring the output current signal.

Technical Feature

- Adopt imported temperature sensing element, high precision, good stability
- The structure is simple, easy to install, armored structure is easy to replace
- Good seismic performance
- Large measuring range, high mechanical strength, good pressure resistance



ZTS111 Series



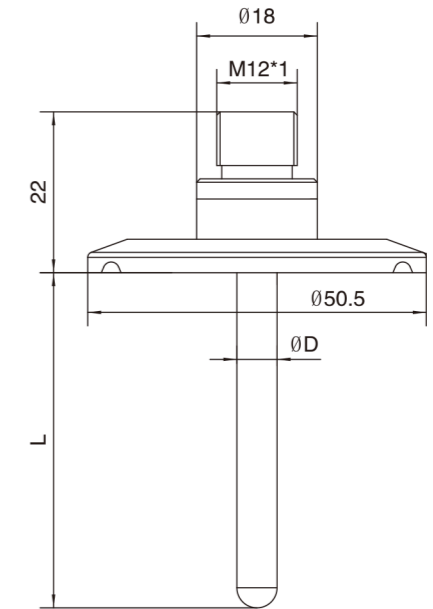
Technical Parameter

Series	ZTS1110	ZTS1111	ZTS1112
Core Type	PT100		PT1000
Core Grade	CLASS A	CLASS1/3B	/
Temperature Range	-20~150°C		
Signal Output	Three-wire Resistance		
Accuracy	±(0.15+0.002x[t])		
Heat Transfer Velocity	1-3S		
Liquid Connection Material	SUS316L		
Process Connection	25.4mm Sanitary Chuck		
Rod Diameter	6mm		
Electrical Connection	M12*1 Aviation Connection		
Compressive Strength	Up to 25bar		
Protection Grade	IP67		

Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth
ZTS1110602	6mm	25mm	ZTS1111602	6mm	25mm	ZTS1112602	6mm	25mm
ZTS1110605		50mm	ZTS1111605		50mm	ZTS1112605		50mm
ZTS1110610		100mm	ZTS1111610		100mm	ZTS1112610		100mm
ZTS1110615		150mm	ZTS1111615		150mm	ZTS1112615		150mm

Note: Special specifications require confirmation of order number

ZTS112 Series



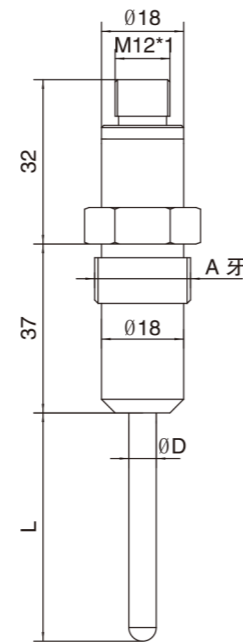
Technical Parameter

Series	ZTS1120	ZTS1121	ZTS1122
Core Type	PT100		PT1000
Core Grade	CLASS A	CLASS1/3B	/
Temperature Range	-20~150°C		
Signal Output	Three-wire Resistance		
Accuracy	±(0.15+0.002x[t])		
Heat Transfer Velocity	1-3S		
Liquid Connection Material	SUS316L		
Process Connection	50.5mm Sanitary Chuck		
Rod Diameter	6mm/8mm		
Electrical Connection	M12*1 Aviation Connection		
Compressive Strength	Up to 25bar		
Protection Grade	IP67		

Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth
ZTS1120603	6mm	30mm	ZTS1121603	6mm	30mm	ZTS1122603	6mm	30mm
ZTS1120605		50mm	ZTS1121605		50mm	ZTS1122605		50mm
ZTS1120610		100mm	ZTS1121610		100mm	ZTS1122610		100mm
ZTS1120615		150mm	ZTS1121615		150mm	ZTS1122615		150mm
ZTS1120805	8mm	50mm	ZTS1121805	8mm	50mm	ZTS1122805	8mm	50mm
ZTS1120810		100mm	ZTS1121810		100mm	ZTS1122810		100mm
ZTS1120815		150mm	ZTS1121815		150mm	ZTS1122815		150mm
ZTS1120820		200mm	ZTS1121820		200mm	ZTS1122820		200mm

Note: Special specifications require confirmation of order number

ZTS113 Series



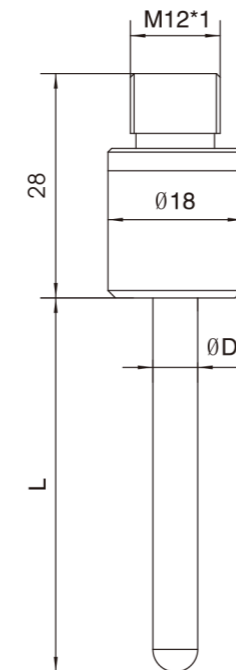
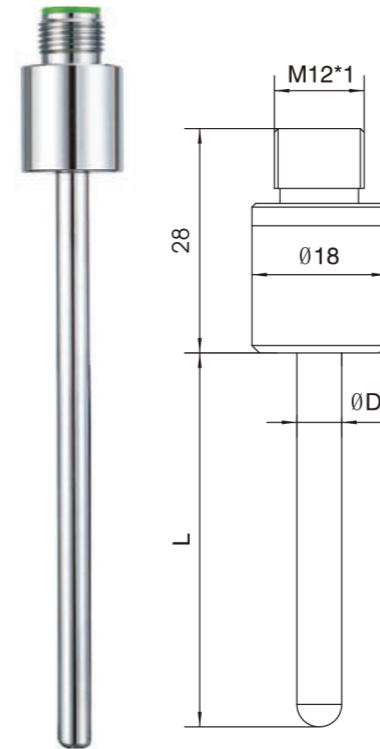
Technical Parameter

Series	ZTS1130	ZTS1131	ZTS1132
Core Type	PT100		PT1000
Core Grade	CLASS A	CLASS1/3B	/
Temperature Range	-50~150°C		
Signal Output	Three-wire Resistance		
Accuracy	±(0.15+0.002x[t])		
Heat Transfer Velocity	1-3S		
Liquid Connection Material	SUS316L		
Process Connection	Sanitary Seal with G1/2 " Taper		
Rod Diameter	6mm/8mm		
Electrical Connection	M12*1 Aviation Connection		
Compressive Strength	Up to 40bar		
Protection Grade	IP67		

Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth
ZTS113000A	/	Flush Mount	ZTS113100A	/	Flush Mount	ZTS113200A	/	Flush Mount
ZTS1130603	6mm	30mm	ZTS1131603	6mm	30mm	ZTS1132603	6mm	30mm
ZTS1130605		50mm	ZTS1131605		50mm	ZTS1132605		50mm
ZTS1130610		100mm	ZTS1131610		100mm	ZTS1132610		100mm
ZTS1130615	8mm	150mm	ZTS1131615	8mm	150mm	ZTS1132615	8mm	150mm
ZTS1130805		50mm	ZTS1131805		50mm	ZTS1132805		50mm
ZTS1130810		100mm	ZTS1131810		100mm	ZTS1132810		100mm
ZTS1130815		150mm	ZTS1131815		150mm	ZTS1132815		150mm
ZTS1130820		200mm	ZTS1131820		200mm	ZTS1132820		200mm

Note: Special specifications require confirmation of order number

ZTS118 Series



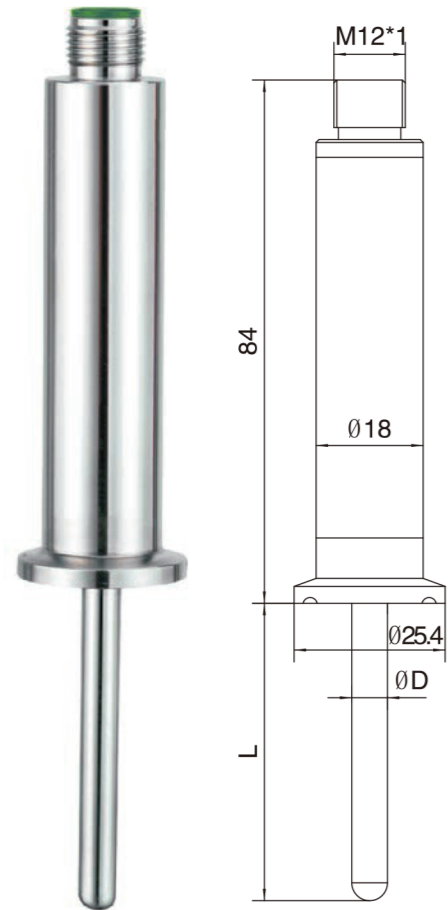
Technical Parameter

Series	ZTS1180	ZTS1181	ZTS1182
Core Type	PT100		PT1000
Core Grade	CLASS A	CLASS1/3B	/
Temperature Range	-50~150°C		
Signal Output	Three-wire Resistance		
Accuracy	±(0.15+0.002x[t])		
Heat Transfer Velocity	1-3S		
Liquid Connection Material	SUS316L		
Process Connection	None (Matching Adapter)		
Rod Diameter	6mm/8mm/10mm		
Electrical Connection	M12*1 Aviation Connection		
Compressive Strength	Up to 25bar		
Protection Grade	IP67		

Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth	Order Number	Rod Diameter	Mounting Depth
ZTS1180605	6mm	50mm	ZTS1181605	6mm	50mm	ZTS1182605	6mm	50mm
ZTS1180610		100mm	ZTS1181610		100mm	ZTS1182610		100mm
ZTS1180615		150mm	ZTS1181615		150mm	ZTS1182615		150mm
ZTS1180620		200mm	ZTS1181620		200mm	ZTS1182620		200mm
ZTS1180625		250mm	ZTS1181625		250mm	ZTS1182625		250mm
ZTS1180630		300mm	ZTS1181630		300mm	ZTS1182630		300mm
ZTS1180805	8mm	50mm	ZTS1181805	8mm	50mm	ZTS1182805	8mm	50mm
ZTS1180810		100mm	ZTS1181810		100mm	ZTS1182810		100mm
ZTS1180815		150mm	ZTS1181815		150mm	ZTS1182815		150mm
ZTS1180820		200mm	ZTS1181820		200mm	ZTS1182820		200mm
ZTS1180830		300mm	ZTS1181830		300mm	ZTS1182830		300mm
ZTS1180840		400mm	ZTS1181840		400mm	ZTS1182840		400mm
ZTS1180115	10mm	150mm	ZTS1181115	10mm	150mm	ZTS1182115	10mm	150mm
ZTS1180125		250mm	ZTS1181125		250mm	ZTS1182125		250mm
ZTS1180135		350mm	ZTS1181135		350mm	ZTS1182135		350mm
ZTS1180145		450mm	ZTS1181145		450mm	ZTS1182145		450mm
ZTS1180155		550mm	ZTS1181155		550mm	ZTS1182155		550mm

Note: Special specifications require confirmation of order number

ZTS121 Series



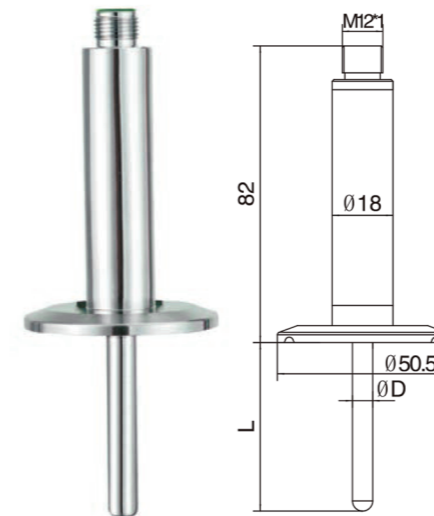
Technical Parameter

Series	ZTS1210	ZTS1211
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~150°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire	
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS316L	
Process Connection	25.4mm Sanitary Chuck	
Rod Diameter	6mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 25bar	
Protection Grade	IP67	

Order Number	Rod Diameter	Mounting Depth	FactoryRange°C	Order Number	Rod Diameter	Mounting Depth	FactoryRange°C
ZTS1210602A	6mm	25mm	0-200	ZTS1211602A	6mm	25mm	0-200
ZTS1210605A		50mm		ZTS1211605A		50mm	
ZTS1210610A		100mm		ZTS1211610A		100mm	
ZTS1210615A		150mm		ZTS1211615A		150mm	
ZTS1210602B	6mm	25mm	0-100	ZTS1211602B	6mm	25mm	0-100
ZTS1210605B		50mm		ZTS1211605B		50mm	
ZTS1210610B		100mm		ZTS1211610B		100mm	
ZTS1210615B		150mm		ZTS1211615B		150mm	
ZTS1210602C	6mm	25mm	-10-150	ZTS1211602C	6mm	25mm	-10-150
ZTS1210605C		50mm		ZTS1211605C		50mm	
ZTS1210610C		100mm		ZTS1211610C		100mm	
ZTS1210615C		150mm		ZTS1211615C		150mm	

Note: Special specifications require confirmation of order number

ZTS122 Series



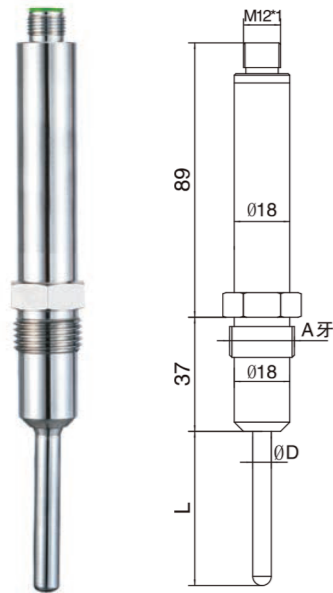
Technical Parameter

Series	ZTS1220	ZTS1221
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~150°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire	
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS316L	
Process Connection	50.5mm Sanitary Chuck	
Rod Diameter	6mm/8mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 25bar	
Protection Grade	IP67	

Order Number	Rod Diameter	Mounting Depth	FactoryRange°C	Order Number	Rod Diameter	Mounting Depth	FactoryRange°C
ZTS1220603A	6mm	30mm	0-200	ZTS1221603A	6mm	30mm	0-200
ZTS1220605A		50mm		ZTS1221605A		50mm	
ZTS1220610A		100mm		ZTS1221610A		100mm	
ZTS1220615A		150mm		ZTS1221615A		150mm	
ZTS1220805A	8mm	50mm	0-200	ZTS1221805A	8mm	50mm	0-200
ZTS1220810A		100mm		ZTS1221810A		100mm	
ZTS1220815A		150mm		ZTS1221815A		150mm	
ZTS1220820A		200mm		ZTS1221820A		200mm	
ZTS1220603B	6mm	30mm	0-100	ZTS1221603B	6mm	30mm	0-100
ZTS1220605B		50mm		ZTS1221605B		50mm	
ZTS1220610B		100mm		ZTS1221610B		100mm	
ZTS1220615B		150mm		ZTS1221615B		150mm	
ZTS1220805B	8mm	50mm	0-100	ZTS1221805B	8mm	50mm	0-100
ZTS1220810B		100mm		ZTS1221810B		100mm	
ZTS1220815B		150mm		ZTS1221815B		150mm	
ZTS1220820B		200mm		ZTS1221820B		200mm	
ZTS1220603C	6mm	30mm	-10-150	ZTS1221603C	6mm	30mm	-10-150
ZTS1220605C		50mm		ZTS1221605C		50mm	
ZTS1220610C		100mm		ZTS1221610C		100mm	
ZTS1220615C		150mm		ZTS1221615C		150mm	
ZTS1220805C	8mm	50mm	-10-150	ZTS1221805C	8mm	50mm	-10-150
ZTS1220810C		100mm		ZTS1221810C		100mm	
ZTS1220815C		150mm		ZTS1221815C		150mm	
ZTS1220820C		200mm		ZTS1221820C		200mm	

Note: Special specifications require confirmation of order number

ZTS123 Series



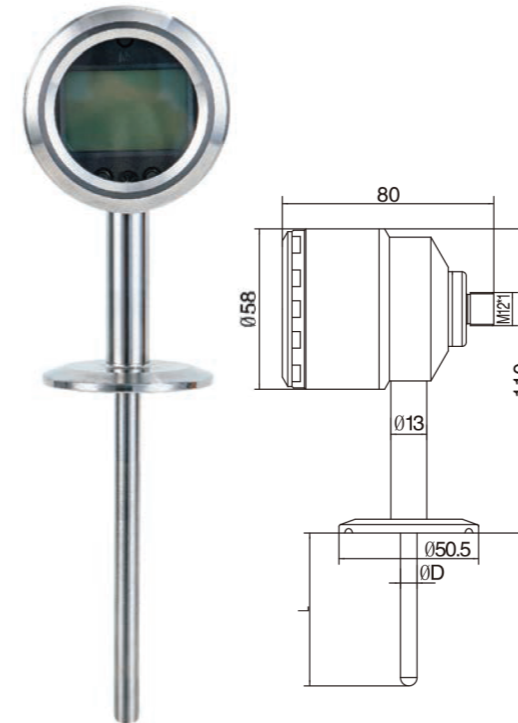
Technical Parameter

Series	ZTS1230	ZTS1231
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~150°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire	
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS316L	
Process Connection	Sanitary Seal with G1/2" Taper	
Rod Diameter	6mm/8mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 40bar	
Protection Grade	IP67	

Order Number	Rod Diameter	Mounting Depth	FactoryRange°C	Order Number	Rod Diameter	Mounting Depth	FactoryRange°C
ZTS123000AA	/	Flush Mount	0-200	ZTS123100AA	/	Flush Mount	0-200
ZTS1230603A	6mm	30mm		ZTS1231603A	6mm	30mm	
ZTS1230605A		50mm		ZTS1231605A		50mm	
ZTS1230610A		100mm		ZTS1231610A		100mm	
ZTS1230615A		150mm		ZTS1231615A		150mm	
ZTS1230805A	8mm	50mm		ZTS1231805A	8mm	50mm	
ZTS1230810A		100mm		ZTS1231810A		100mm	
ZTS1230815A		150mm		ZTS1231815A		150mm	
ZTS1230820A		200mm		ZTS1231820A		200mm	
ZTS123000AB	/	Flush Mount		0-100	ZTS123100AB	/	
ZTS1230603B	6mm	30mm	ZTS1231603B		6mm	30mm	
ZTS1230605B		50mm	ZTS1231605B			50mm	
ZTS1230610B		100mm	ZTS1231610B			100mm	
ZTS1230615B		150mm	ZTS1231615B			150mm	
ZTS1230805B	8mm	50mm	ZTS1231805B		8mm	50mm	
ZTS1230810B		100mm	ZTS1231810B			100mm	
ZTS1230815B		150mm	ZTS1231815B			150mm	
ZTS1230820B		200mm	ZTS1231820B			200mm	
ZTS123000AC	/	Flush Mount	-10-150		ZTS123100AC	/	Flush Mount
ZTS1230603C	6mm	30mm		ZTS1231603C	6mm	30mm	
ZTS1230605C		50mm		ZTS1231605C		50mm	
ZTS1230610C		100mm		ZTS1231610C		100mm	
ZTS1230615C		150mm		ZTS1231615C		150mm	
ZTS1230805C	8mm	50mm		ZTS1231805C	8mm	50mm	
ZTS1230810C		100mm		ZTS1231810C		100mm	
ZTS1230815C		150mm		ZTS1231815C		150mm	
ZTS1230820C		200mm		ZTS1231820C		200mm	

Note: Special specifications require confirmation of order number

ZTS125 Series



Technical Parameter

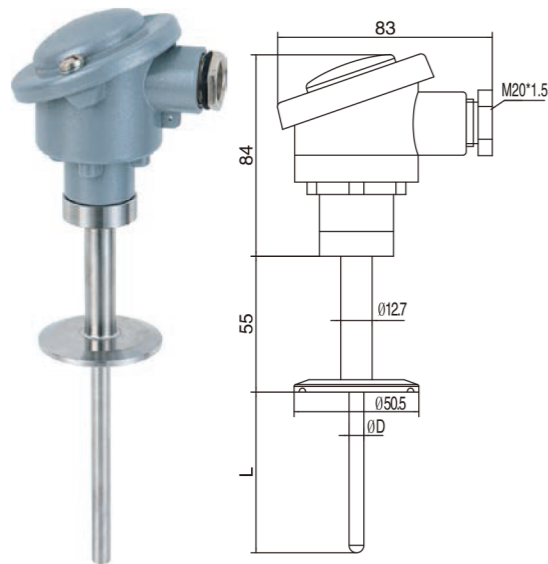
Series	ZTS1250	ZTS1251
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-20~250°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire LCD Display (optional 485/HART)	
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS316L	
Process Connection	50.5mm Sanitary Chuck/Seal with G1/2" Taper	
Rod Diameter	6mm/8mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 40bar	
Protection Grade	IP67	

Order Number	Rod Diameter	Mounting Depth	Mounting Depth	Order Number	Rod Diameter	Mounting Depth	Mounting Depth
ZTS1250A605	6mm	50.5mm Clamp	50mm	ZTS1250B605	6mm	G1/2" Seal Cone	50mm
ZTS1250A610			100mm	ZTS1250B610			100mm
ZTS1250A615			150mm	ZTS1250B615			150mm
ZTS1250A805	8mm		50mm	ZTS1250B805	8mm		50mm
ZTS1250A810			100mm	ZTS1250B810			100mm
ZTS1250A815			150mm	ZTS1250B815			150mm
ZTS1250A820			200mm	ZTS1250B820			200mm
ZTS1250A825	8mm		250mm	ZTS1250B825	8mm		250mm
ZTS1250A830			300mm	ZTS1250B830			300mm
ZTS1251A605			6mm	50mm			ZTS1251B605
ZTS1251A610		100mm		ZTS1251B610		100mm	
ZTS1251A615	150mm	ZTS1251B615		150mm			
ZTS1251A805	8mm	50mm	ZTS1251B805	8mm	50mm		
ZTS1251A810		100mm	ZTS1251B810		100mm		
ZTS1251A815		150mm	ZTS1251B815		150mm		
ZTS1251A820		200mm	ZTS1251B820		200mm		
ZTS1251A825	8mm	250mm	ZTS1251B825	8mm	250mm		
ZTS1251A830		300mm	ZTS1251B830		300mm		

Note: Special specifications require confirmation of order number

ZTS126 Series

Technical Parameter



Series	ZTS1250	ZTS1251
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~300°C	
Power Supply	/	24VDC
Signal Output	Three-wire Resistance	4-20mA two-wire (optional 485/HART)
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS316L	
Process Connection	50.5mm Sanitary Chuck/Seal with G1/2 " Taper	
Rod Diameter	6mm/8mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 40bar	
Protection Grade	IP67	

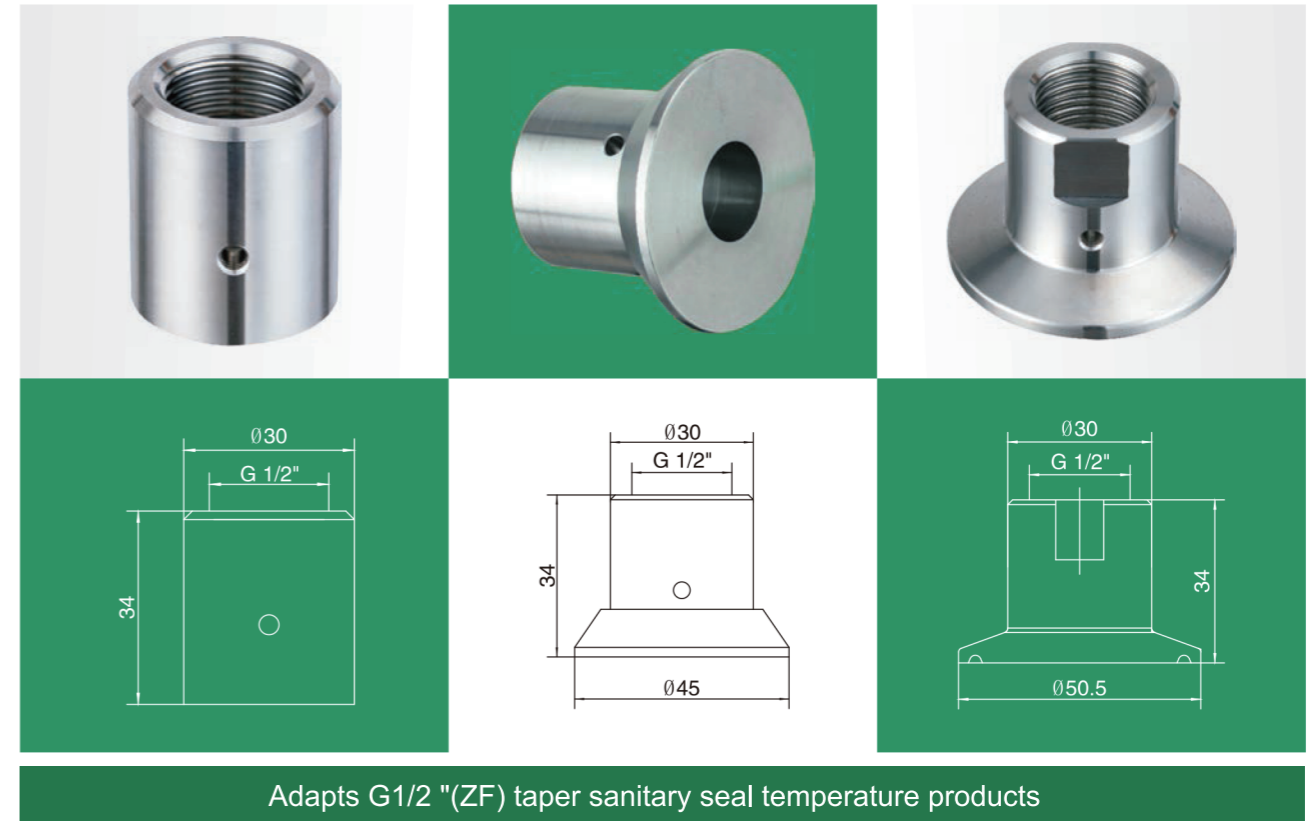
Order Number	Rod Diameter	Process Connection	Insertion Depth	Order Number	Rod Diameter	Process Connection	Insertion Depth
ZTS1260A605-□	6mm	50.5mmKP	50mm	ZTS1260B605-□	6mm	G1/2 " Sealing Cone	50mm
ZTS1260A610-□			100mm	ZTS1260B610-□			100mm
ZTS1260A615-□			150mm	ZTS1260B615-□			150mm
ZTS1260A805-□	8mm		50mm	ZTS1260B805-□	8mm		50mm
ZTS1260A810-□			100mm	ZTS1260B810-□			100mm
ZTS1260A815-□			150mm	ZTS1260B815-□			150mm
ZTS1260A820-□			200mm	ZTS1260B820-□			200mm
ZTS1260A825-□			250mm	ZTS1260B825-□			250mm
ZTS1260A830-□			300mm	ZTS1260B830-□			300mm
ZTS1261A605-□	6mm		50mm	ZTS1261B605-□	6mm		50mm
ZTS1261A610-□			100mm	ZTS1261B610-□			100mm
ZTS1261A615-□			150mm	ZTS1261B615-□			150mm
ZTS1261A805-□	8mm		50mm	ZTS1261B805-□	8mm		50mm
ZTS1261A810-□			100mm	ZTS1261B810-□			100mm
ZTS1261A815-□			150mm	ZTS1261B815-□			150mm
ZTS1261A820-□		200mm	ZTS1261B820-□	200mm			
ZTS1261A825-□		250mm	ZTS1261B825-□	250mm			
ZTS1261A830-□		300mm	ZTS1261B830-□	300mm			

Note * Code for signal output:
 Blank: three-wire resistance signal
 A: 4-20mA two-wire
 B: 4-20mA two-wire HART

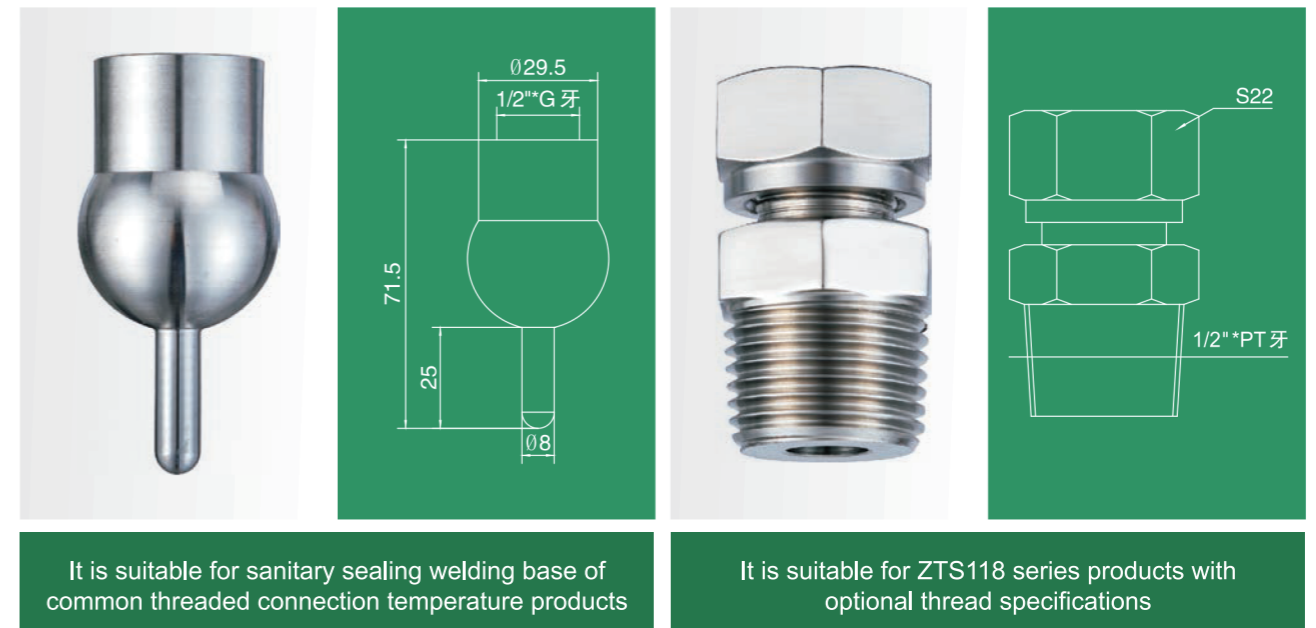
Example: ZTS1260A605 (Temperature sensor 126 series, CLASS A core, 50.5mm outside diameter sanitary chuck, 6mm rod diameter, insert 50mm, standard three-wire resistance signal output) ZTS1260A605-A(Temperature transmitter 126 series, CLASS A core, 50.5mm OD sanitary chuck, 6mm rod diameter, insert 50mm, 4-20mA two-wire current signal output, power supply 24VDC)

Note: Special specifications require confirmation of order number

Installation Accessories



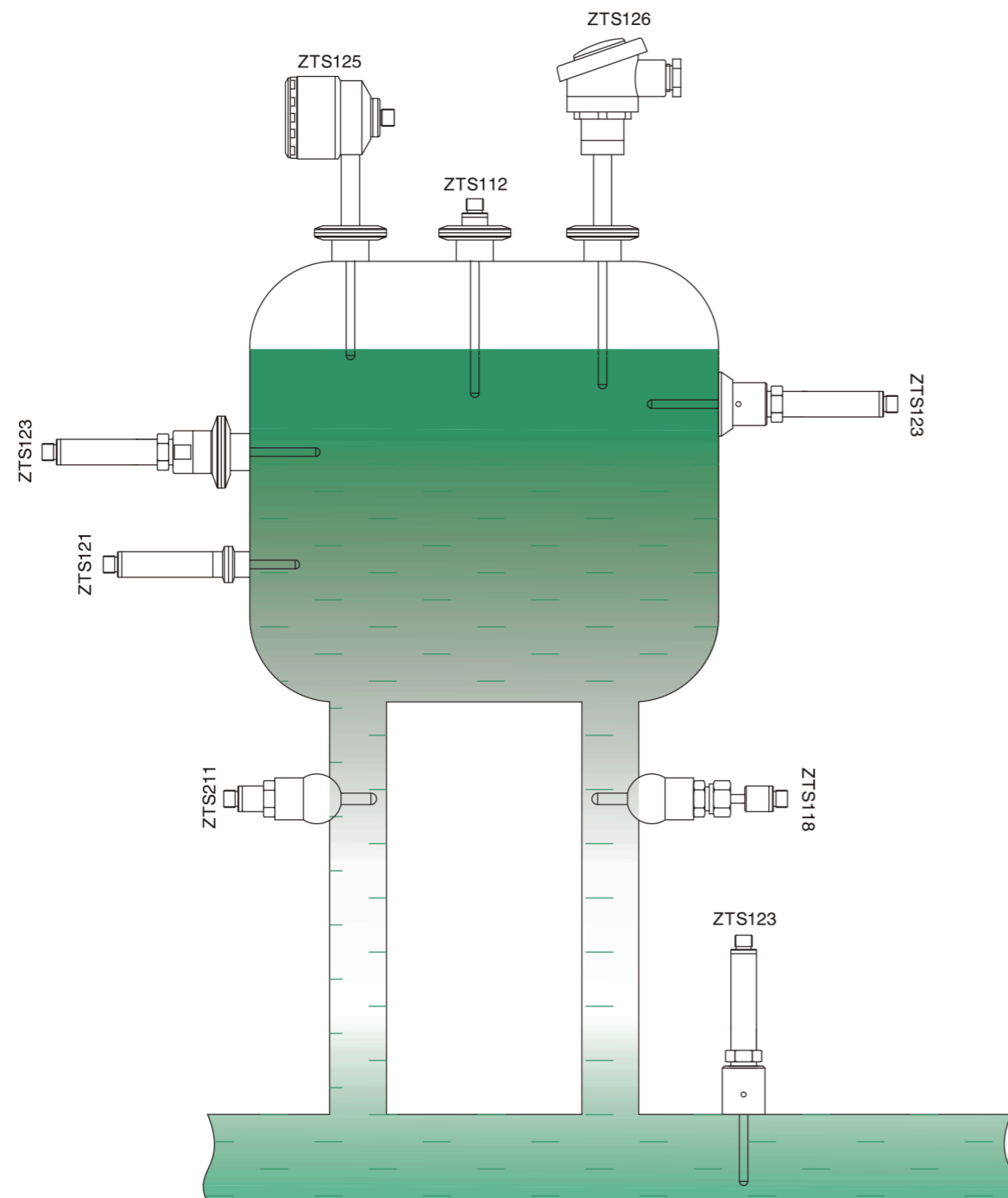
Adapts G1/2 "(ZF) taper sanitary seal temperature products



It is suitable for sanitary sealing welding base of common threaded connection temperature products

It is suitable for ZTS118 series products with optional thread specifications

Sanitary Installation Diagram

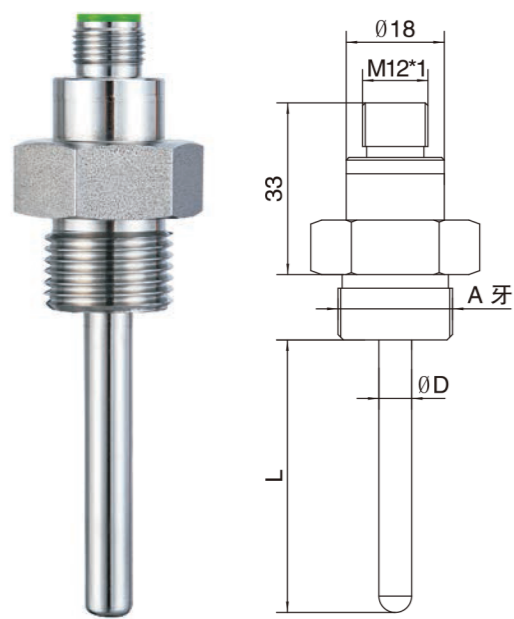


Temperature Sensor/Transmitter

「For Industrial Application」



ZTS211 Series



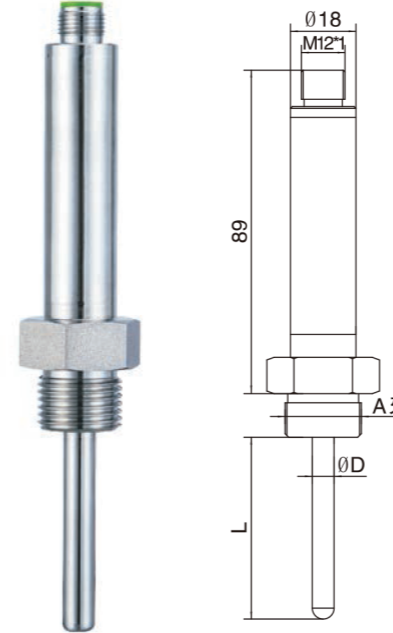
Technical Parameter

Series	ZTS2110	ZTS2111	ZTS2112
Core Type	PT100		PT1000
Core Grade	CLASS A	CLASS1/3B	/
Temperature Range	-50~150°C		
Signal Output	Three-wire Resistance		
Accuracy	±(0.15+0.002x[t])		
Heat Transfer Velocity	1-3S		
Liquid Connection Material	SUS316L		
Process Connection	G1/8"、G1/4"、G1/2"、G3/4"等		
Rod Diameter	6mm/8mm		
Electrical Connection	M12*1 Aviation Connection		
Compressive Strength	Up to 40bar		
Protection Grade	IP67		

Order Number	Rod Diameter	Process Connection	Measuring Length	Order Number	Rod Diameter	Process Connection	Insertion Depth	Order Number	Rod Diameter	Process Connection	Insertion Depth
ZTS2110A605	6mm	G1/8"	50mm	ZTS2111A605	6mm	G1/8"	50mm	ZTS2112A605	6mm	G1/8"	50mm
ZTS2110A610			100mm	ZTS2111A610			100mm	ZTS2112A610			100mm
ZTS2110A615			150mm	ZTS2111A615			150mm	ZTS2112A615			150mm
ZTS2110B605	6mm	G1/4"	50mm	ZTS2111B605	6mm	G1/4"	50mm	ZTS2112B605	6mm	G1/4"	50mm
ZTS2110B610			100mm	ZTS2111B610			100mm	ZTS2112B610			100mm
ZTS2110B615			150mm	ZTS2111B615			150mm	ZTS2112B615			150mm
ZTS2110B805	8mm	G1/4"	50mm	ZTS2111B805	8mm	G1/4"	50mm	ZTS2112B805	8mm	G1/4"	50mm
ZTS2110B810			100mm	ZTS2111B810			100mm	ZTS2112B810			100mm
ZTS2110B815			150mm	ZTS2111B815			150mm	ZTS2112B815			150mm
ZTS2110C605	6mm	G1/2"	50mm	ZTS2111C605	6mm	G1/2"	50mm	ZTS2112C605	6mm	G1/2"	50mm
ZTS2110C610			100mm	ZTS2111C610			100mm	ZTS2112C610			100mm
ZTS2110C615			150mm	ZTS2111C615			150mm	ZTS2112C615			150mm
ZTS2110C805	8mm	G1/2"	50mm	ZTS2111C805	8mm	G1/2"	50mm	ZTS2112C805	8mm	G1/2"	50mm
ZTS2110C810			100mm	ZTS2111C810			100mm	ZTS2112C810			100mm
ZTS2110C815			150mm	ZTS2111C815			150mm	ZTS2112C815			150mm
ZTS2110C820	8mm	G1/2"	200mm	ZTS2111C820	8mm	G1/2"	200mm	ZTS2112C820	8mm	G1/2"	200mm
ZTS2110B825			250mm	ZTS2111B825			250mm	ZTS2112B825			250mm
ZTS2110D805			8mm	G3/4"			50mm	ZTS2111D805			8mm
ZTS2110D810	100mm	ZTS2111D810			100mm	ZTS2112D810	100mm				
ZTS2110D815	150mm	ZTS2111D815			150mm	ZTS2112D815	150mm				
ZTS2110D820	8mm	G3/4"	200mm	ZTS2111D820	8mm	G3/4"	200mm	ZTS2112D820	8mm	G3/4"	200mm
ZTS2110D825			250mm	ZTS2111D825			250mm	ZTS2112D825			250mm
ZTS2110D830			300mm	ZTS2111D830			300mm	ZTS2112D830			300mm

Note: Special specifications require confirmation of order number

ZTS221 Series



Technical Parameter

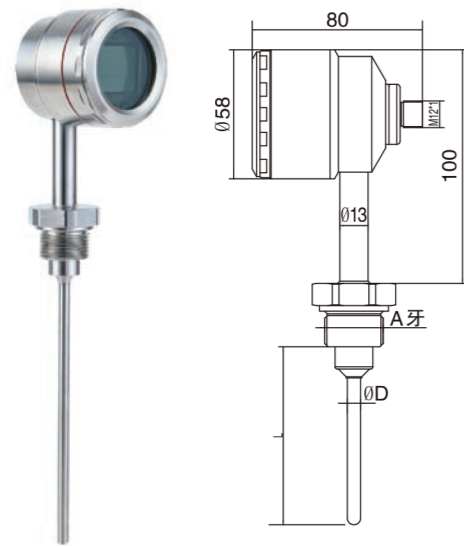
Series	ZTS2210	ZTS2211
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~150°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire	
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS316L	
Process Connection	G1/8"、G1/4"、G1/2"、G3/4"等	
Rod Diameter	6mm/8mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 40bar	
Protection Grade	IP67	

Order Number	Rod Diameter	Process Connection	Measuring Length	Order Number	Rod Diameter	Process Connection	Insertion Depth	Order Number	Rod Diameter	Process Connection	Insertion Depth
ZTS2210A605	6mm	G1/8"	50mm	ZTS2211A605	6mm	G1/8"	50mm	ZTS2212A605	6mm	G1/8"	50mm
ZTS2210A610			100mm	ZTS2211A610			100mm	ZTS2212A610			100mm
ZTS2210A615			150mm	ZTS2211A615			150mm	ZTS2212A615			150mm
ZTS2210B605	6mm	G1/4"	50mm	ZTS2211B605	6mm	G1/4"	50mm	ZTS2212B605	6mm	G1/4"	50mm
ZTS2210B610			100mm	ZTS2211B610			100mm	ZTS2212B610			100mm
ZTS2210B615			150mm	ZTS2211B615			150mm	ZTS2212B615			150mm
ZTS2210B805	8mm	G1/4"	50mm	ZTS2211B805	8mm	G1/4"	50mm	ZTS2212B805	8mm	G1/4"	50mm
ZTS2210B810			100mm	ZTS2211B810			100mm	ZTS2212B810			100mm
ZTS2210B815			150mm	ZTS2211B815			150mm	ZTS2212B815			150mm
ZTS2210C605	6mm	G1/2"	50mm	ZTS2211C605	6mm	G1/2"	50mm	ZTS2212C605	6mm	G1/2"	50mm
ZTS2210C610			100mm	ZTS2211C610			100mm	ZTS2212C610			100mm
ZTS2210C615			150mm	ZTS2211C615			150mm	ZTS2212C615			150mm
ZTS2210C805	8mm	G1/2"	50mm	ZTS2211C805	8mm	G1/2"	50mm	ZTS2212C805	8mm	G1/2"	50mm
ZTS2210C810			100mm	ZTS2211C810			100mm	ZTS2212C810			100mm
ZTS2210C815			150mm	ZTS2211C815			150mm	ZTS2212C815			150mm
ZTS2210C820	8mm	G1/2"	200mm	ZTS2211C820	8mm	G1/2"	200mm	ZTS2212C820	8mm	G1/2"	200mm
ZTS2210B825			250mm	ZTS2211B825			250mm	ZTS2212B825			250mm
ZTS2210D805			8mm	G3/4"			50mm	ZTS2211D805			8mm
ZTS2210D810	100mm	ZTS2211D810			100mm	ZTS2212D810	100mm				
ZTS2210D815	150mm	ZTS2211D815			150mm	ZTS2212D815	150mm				
ZTS2210D820	8mm	G3/4"	200mm	ZTS2211D820	8mm	G3/4"	200mm	ZTS2212D820	8mm	G3/4"	200mm
ZTS2210D825			250mm	ZTS2211D825			250mm	ZTS2212D825			250mm
ZTS2210D830			300mm	ZTS2211D830			300mm	ZTS2212D830			300mm

Note: Special specifications require confirmation of order number

Note: Special specifications require confirmation of order number

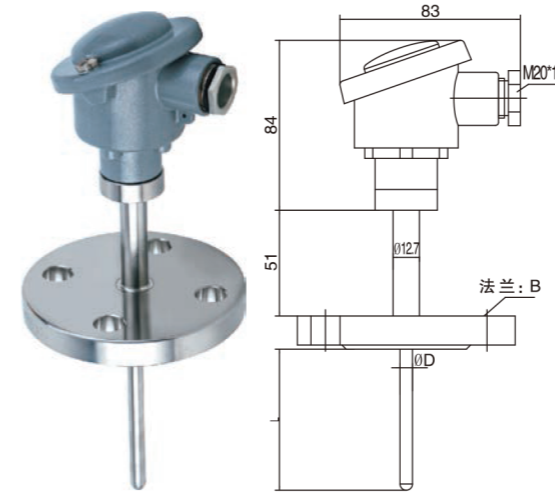
ZTS225 Series



Technical Parameter

Series	ZTS2250	ZTS2251
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~250°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire LCD Display (optional 485/HART)	
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS304/SUS316L	
Process Connection	G1/2"、G3/4"、G1"	
Rod Diameter	6mm/8mm	
Electrical Connection	M12*1 Aviation Connection	
Compressive Strength	Up to 40bar	
Protection Grade	IP67	

ZTS226 Series



Technical Parameter

Series	ZTS2260	ZTS2261
Core Type	PT100	
Core Grade	CLASS A	CLASS1/3B
Temperature Range	-50~300°C	
Power Supply	/	24VDC
Signal Output	Three-wire Resistance	4-20mA two-wire (optional 485/HART)
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS304/SUS316L	
Process Connection	Thread: G1/2"~G2",etc Flange: DN15~DN50 ,etc	
Rod Diameter	6mm/8mm,etc	
Electrical Connection	M20*1.5	
Compressive Strength	Up to 40bar	
Protection Grade	IP65	

225 Series Selection Table

ZTS225																						
Product Category																						
CLASS A Core			0																			
CLASS 1/3B Core			1																			
Power Supply and Output																						
4-20mA two-wire LCD						A																
4-20mA two-wire LCD HART						B																
Special Custom						S																
Liquid Connection Material																						
SUS304						0																
SUS316L						6																
Special Custom						S																
Process Connection																						
Dimension																						
Specification (as per standard combination)																						
M20*1.5																	20					
M27*2																	27					
G1/2"																	G1					
G3/4"																	G2					
G1"																	G3					
1/2"PT																	P1					
3/4"PT																	P2					
1"PT																	P3					
1/2"NPT																	N1					
3/4"NPT																	N2					
1"NPT																	N3					
3/4"(20A)																	2 B					
1"(25A)																	3 C					
1-1/2"(40A)																	4 D					
2"(50A)																	5 E					
Special Custom																	S S					
Measuring Rod Diameter																						
6mm																	6					
8mm																	8					
10mm																	0					
12.7mm																	1					
16mm																	2					
Special Custom																	S					
Measuring Stick Length (UNIT: mm)																						
100mm (Please refer to the technical parameter table for measuring range)																	0	1	0	0		

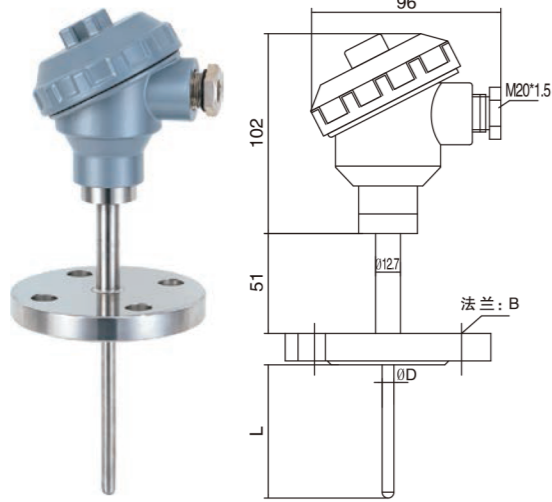
Note: "-" in the selection is not included in the code
 Example: ZTS2250A0G180100(CLASS A core; -20mA two-wire tape LCD liquid crystal display; SUS304; G1/2; Rod diameter 8mm; Insert length 100mm)

226 Series Selection Table

ZTS226																								
Product Category																								
CLASS A Core																								
CLASS 1/3B Core						0																		
Power Supply and Output																								
Three-wire Resistance Signal																								
4-20mA two-wire																	A							
4-20mA two-wire HART																	B							
Special Custom																	S							
Liquid Connection Material																								
SUS304																	0							
SUS316L																	6							
Special Custom																	S							
Process Connection																								
Dimension																								
Specification (as per standard combination)																								
M20*1.5																					20			
M27*2																					27			
G1/2"																					G1			
G3/4"																					G2			
G1"																					G3			
1/2"PT																					P1			
3/4"PT																					P2			
1"PT																					P3			
1/2"NPT																					N1			
3/4"NPT																					N2			
1"NPT																					N3			
3/4"(20A)																					2 B			
1"(25A)																					3 C			
1-1/2"(40A)																					4 D			
2"(50A)																					5 E			
Special Custom																					S S			
Measuring Rod Diameter																								
6mm																					6			
8mm																					8			
10mm																					0			
12.7mm																					1			
16mm																					2			
Special Custom																					S			
Measuring Stick Length (UNIT: mm)																								
100mm (Please refer to the technical parameter table for measuring range)																					0	1	0	0

Note: "-" in the selection is not included in the code
 Example: ZTS2260A0G180100(CLASS A core; 4-20mA two-wire; SUS304; G1/2; Rod diameter 8mm; Insert length 100mm)

ZTS228 Series



Technical Parameter

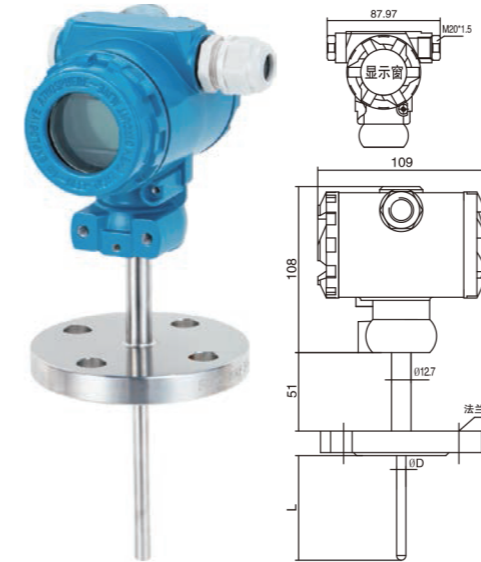
Series	ZTS2280	
Core Type	PT100	
Core Grade	CLASS A	
Temperature Range	-50~300°C	
Power Supply	/	24VDC
Signal Output	Three-wire Resistance	4-20mA two-wire (optional 485/HART)
Accuracy	±0.3+(±0.1%Ms)	±0.2+(±0.1%Ms)
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS304/SUS316L	
Process Connection	Thread: G1/2"-G2",etc Flange: DN15~DN50 ,etc	
Rod Diameter	6mm/8mm,etc	
Electrical Connection	M20*1.5	
Compressive Strength	Up to 40bar	
Protection Grade	IP65	

228 Series Selection Table

ZTS228										
Product Category	CLASS A Core	0								
Power Supply and Output	Three-wire Resistance Signal	T								
	4-20mA two-wire	A								
	4-20mA two-wire HART	B								
	Special Custom	S								
Liquid Connection Material	SUS304	0								
	SUS316L	6								
	Special Custom	S								
Process Connection	Dimension	Specification (as per standard combination)								
	M20*1.5	20								
	M27*2	27								
	G1/2"	G1								
	G3/4"	G2								
	G1"	G3								
	1/2"PT	P1								
	3/4"PT	P2								
	1"PT	P3								
	1/2"NPT	N1								
	3/4"NPT	N2								
	1"NPT	N3								
	3/4"(20A)	Flange GB-PN10	2	B						
	1"(25A)	GB-PN16 Flange GB-PN16	3	C						
	1-1/2"(40A)	GB-PN25 Flange GB-PN25	4	D						
	2"(50A)	GB-PN40 Flange GB-PN40	5	E						
	Special Custom	Special Custom	S	S						
Measuring Rod Diameter	6mm		6							
	8mm		8							
	10mm		0							
	12.7mm		1							
	16mm		2							
	Special Custom		S							
Measuring Stick Length (UNIT: mm)	100mm (Please refer to the technical parameter table for measuring range)		0	1	0	0				

Note: "-" in the selection is not included in the code
 Example: ZTS2280A0G180100(CLASS A core; 4-20mA two-wire; SUS304; G1/2; Rod diameter 8mm; Insert length 100mm)

ZTS229 Series



Technical Parameter

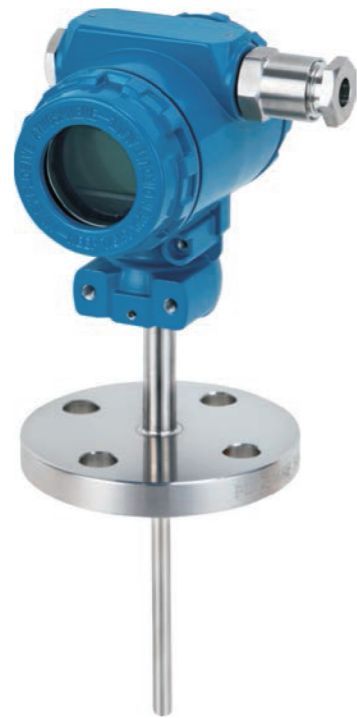
Series	ZTS2290	
Core Type	PT100	
Core Grade	CLASS A	
Temperature Range	-50~250°C	
Power Supply	24VDC	
Signal Output	4-20mA two-wire	LCD Display (optional 485/HART)
Accuracy	±0.3+(±0.1%Ms)	
Heat Transfer Velocity	1-3S	
Liquid Connection Material	SUS304/SUS316L	
Process Connection	Thread: G1/2"-G2",etc Flange: DN15~DN50 ,etc	
Rod Diameter	6mm/8mm,etc	
Electrical Connection	M20*1.5	
Compressive Strength	Up to 40bar	
Protection Grade	IP65	

229 Series Selection Table

ZTS229										
Product Category	CLASS A Core	0								
Power Supply and Output	4-20mA two-wire	A								
	4-20mA two-wire HART	B								
	Special Custom	S								
Liquid Connection Material	SUS304	0								
	SUS316L	6								
	Special Custom	S								
Process Connection	Dimension	Specification (as per standard combination)								
	M20*1.5	20								
	M27*2	27								
	G1/2"	G1								
	G3/4"	G2								
	G1"	G3								
	1/2"PT	P1								
	3/4"PT	P2								
	1"PT	P3								
	1/2"NPT	N1								
	3/4"NPT	N2								
	1"NPT	N3								
	3/4"(20A)	Flange GB-PN10	2	B						
	1"(25A)	GB-PN16 Flange GB-PN16	3	C						
	1-1/2"(40A)	GB-PN25 Flange GB-PN25	4	D						
	2"(50A)	GB-PN40 Flange GB-PN40	5	E						
	Special Custom	Special Custom	S	S						
Measuring Rod Diameter	6mm		6							
	8mm		8							
	10mm		0							
	12.7mm		1							
	16mm		2							
	Special Custom		S							
Measuring Stick Length (UNIT: mm)	100mm (Please refer to the technical parameter table for measuring range)		0	1	0	0				

Note: "-" in the selection is not included in the code
 Example: ZTS2290A0G180100(CLASS A core; 4-20mA two-wire; SUS304; G1/2; Rod diameter 8mm; Insert length 100mm)

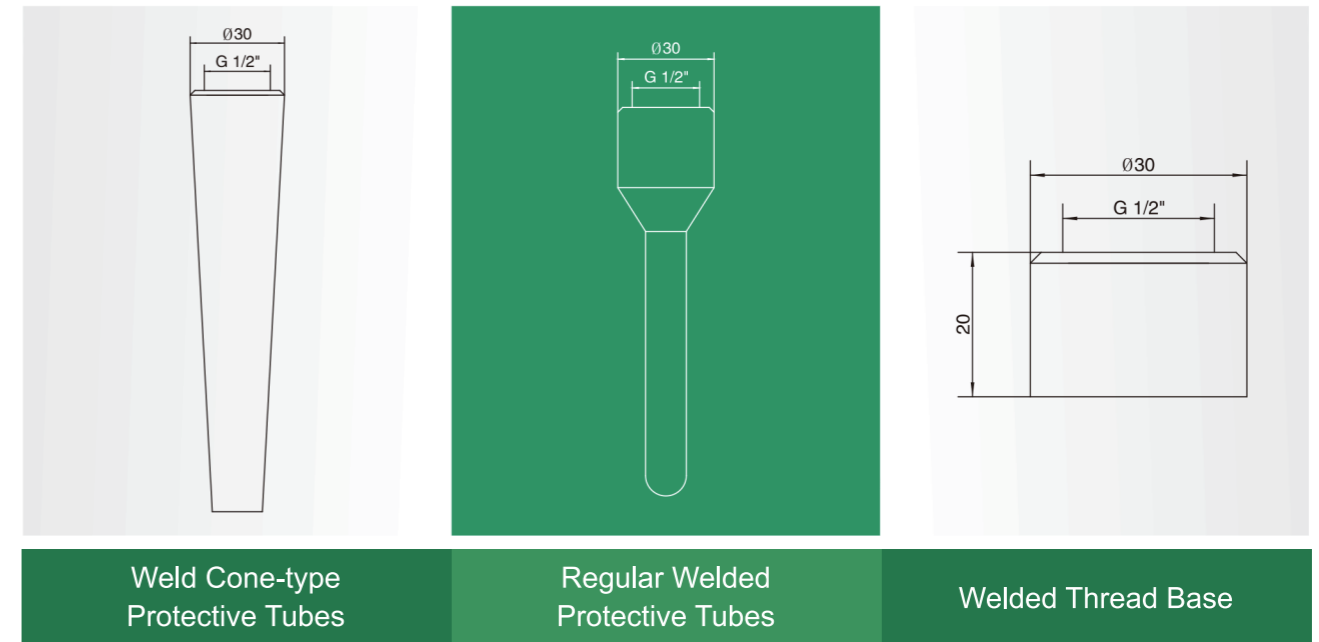
ZTS720 Series



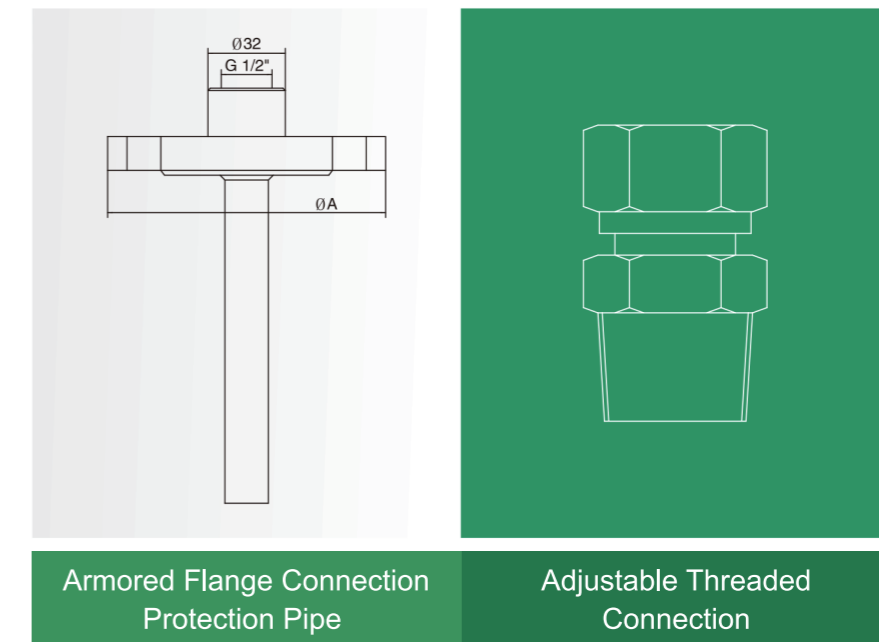
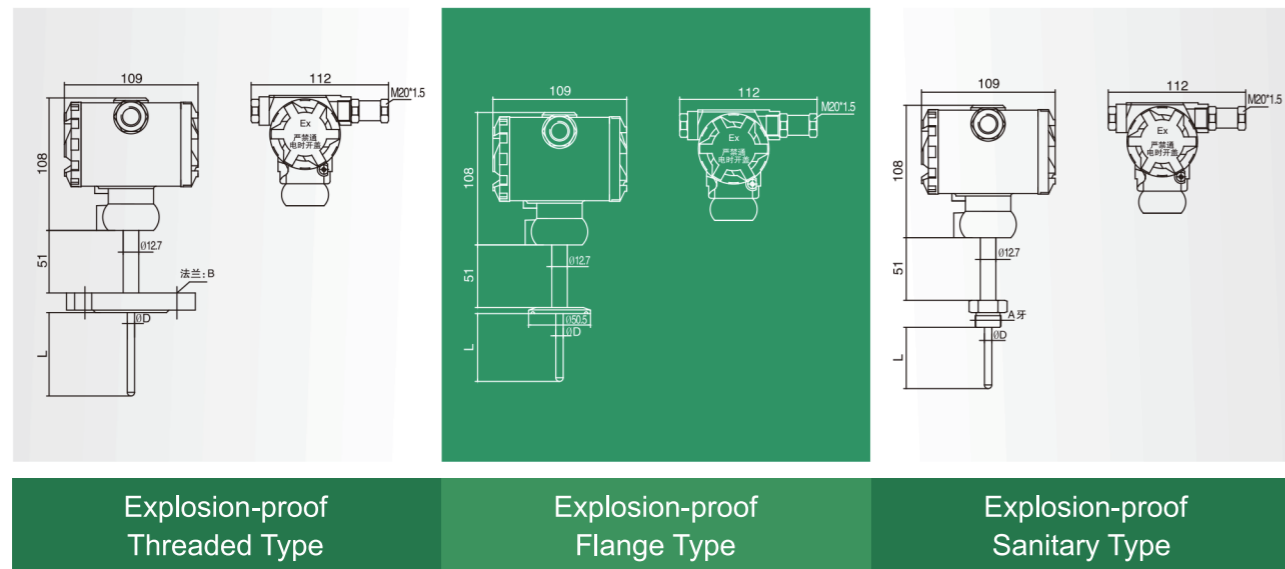
Technical Parameter

Series	ZTS720
Core Type	PT100
Core Grade	CLASS A
Temperature Range	-50~300°C
Power Supply	24VDC
Signal Output	4-20mA two-wire (optional 485/HART)
Accuracy	±0.3+(±0.1%Ms)
Heat Transfer Velocity	1-3S
Liquid Connection Material	SUS304/SUS316L
Process Connection	Thread: G1/2"~G2",etc Flange: DN15~DN50 ,etc It can be matched with sanitary interface
Rod Diameter	6mm/8mm,etc
Electrical Connection	M20*1.5
Compressive Strength	Up to 40bar
Protection Grade	IP65
Explosion-proof Grade	Ex d IIC T6 Gb

Installation Accessories

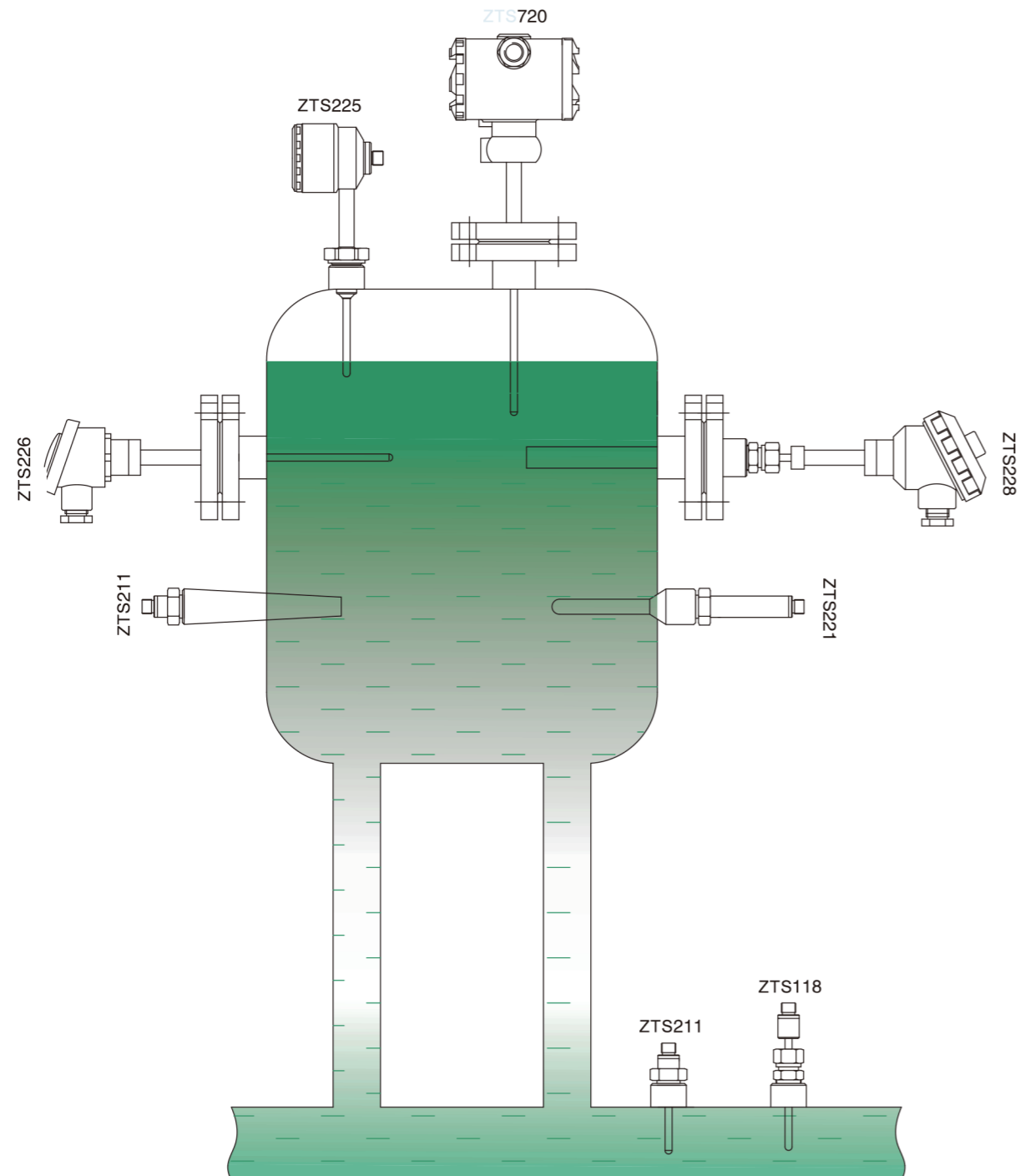


Temperature Welded Fittings



Temperature Connection Fittings

Industrial Type Installation Diagram



Other Notes for Industrial Type

1. Measure the core position and section view
2. Measuring the structural relationship between the temperature and the extension tube (only for the style with junction box)

Number	Temperature range	L1 (Extended Tube Length (mm))
1	-20~150°C	50mm
2	-20~200°C	100mm
3	-20~400°C	150mm

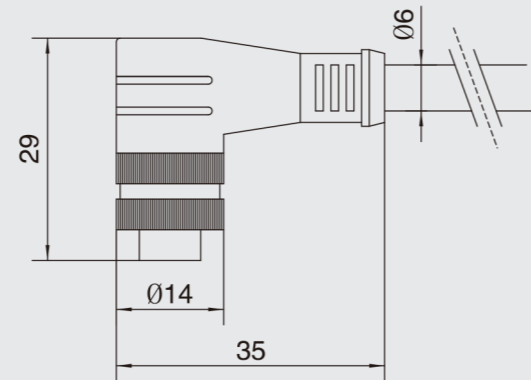
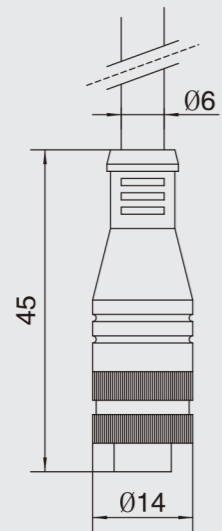
Note: Add -W after no extension tube model at room temperature
The non-standard extension tube length can be added to the model number after -XXX

Example: ZTS226T02080100-W,
"-W" means extension tube without heat dissipation;
ZTS226T02080100-120,
"-120" indicates that the length of the heat dissipation extension tube is 120mm.

3. Requirements for PTFE Covered Type

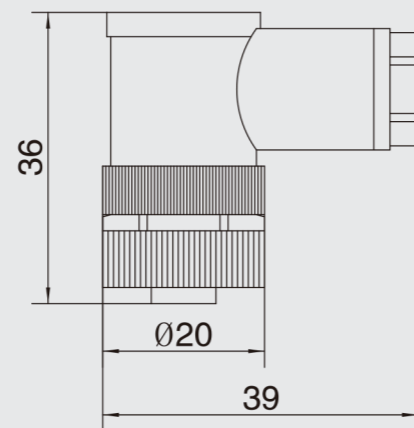
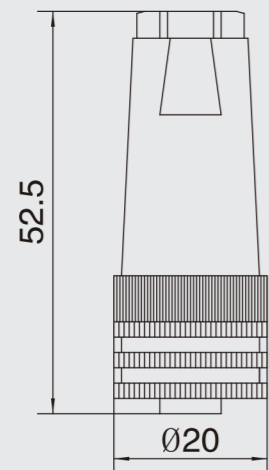
- Flange installation is required for stainless steel PTFE covered type
- The temperature of stainless steel PTFE covered type is required to be less than 200°C
- The pressure requirement for the stainless steel PTFE covered type is less than 10bar

M12*1 Aviation Connection Fittings



Straight head wiring
(line length 1m/2m/4m/5m)

90° elbow wiring
(line length 1m/2m/4m/5m)



Straight head can be self-wired

90° elbows can be self-wired

PT100 Thermal Resistance Table Corresponding to Temperature Resistance Values

	0	1	2	3	4	5	6	7	8	9
Temperature	Resistance (Ω)			Resistance (Ω)			Resistance (Ω)			
-200	18.52									
-190	22.83	22.4	21.97	21.54	21.11	20.68	20.25	19.82	19.38	18.95
-180	27.1	26.67	26.24	25.82	25.39	24.97	24.54	24.11	23.68	23.25
-170	31.34	30.91	30.49	30.07	29.64	29.22	28.8	28.37	27.95	27.52
-160	35.54	35.12	34.7	34.28	33.86	33.44	33.02	32.6	32.18	31.76
-150	39.72	39.31	38.89	38.47	38.05	37.64	37.22	36.8	36.38	35.96
-140	43.88	43.46	43.05	42.63	42.22	41.8	41.39	40.97	40.56	40.14
-130	48.00	47.59	47.18	46.77	46.36	45.94	45.53	45.12	44.7	44.29
-120	52.11	51.7	51.29	50.88	50.47	50.06	49.65	49.24	48.83	48.42
-110	56.19	55.79	55.38	54.97	54.56	54.15	53.75	53.34	52.93	52.52
-100	60.26	59.85	59.44	59.04	58.63	58.23	57.82	57.41	57.01	56.6
-90	64.3	63.9	63.49	63.09	62.68	62.28	61.88	61.47	61.07	60.66
-80	68.33	67.92	67.52	67.12	66.72	66.31	65.91	65.51	65.11	64.7
-70	72.33	71.93	71.53	71.13	70.73	70.33	69.93	69.53	69.13	68.73
-60	76.33	75.93	75.53	75.13	74.73	74.33	73.93	73.53	73.13	72.73
-50	80.31	79.91	79.51	79.11	78.72	78.32	77.92	77.52	77.12	76.73
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.5	81.1	80.7
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.8	89.4	89.01	88.62
-10	96.09	95.69	95.3	94.91	94.52	94.12	93.73	93.34	92.95	92.55
0	100	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48

**PT100 Thermal Resistance Table
Corresponding to Temperature Resistance Values**

	0	1	2	3	4	5	6	7	8	9
Temperature	Resistance(Ω)			Resistance(Ω)			Resistance(Ω)			
0	0	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51
10	103.9	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.4
20	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.9	111.29
30	111.67	112.06	112.45	112.83	113.22	113.61	114	114.38	114.77	115.15
40	115.54	115.93	116.31	116.7	117.08	117.47	117.86	118.24	118.63	119.01
50	119.4	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86
60	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69
70	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52
80	130.9	131.28	131.66	132.04	132.42	132.8	133.18	133.57	133.95	134.33
90	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13
100	138.51	138.88	139.26	139.64	140.02	140.4	140.78	141.16	141.54	141.91
110	142.29	142.67	143.05	143.43	143.8	144.18	144.56	144.94	145.31	145.69
120	146.07	146.44	146.82	147.2	147.57	147.95	148.33	148.7	149.08	149.46
130	149.83	150.21	150.58	150.96	151.33	151.71	152.08	152.46	152.83	153.21
140	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.2	156.58	156.95
150	157.33	157.7	158.07	158.45	158.82	159.19	159.56	159.94	160.31	160.68
160	161.05	161.43	161.8	162.17	162.54	162.91	163.29	163.66	164.03	164.4
170	164.77	165.14	165.51	165.89	166.26	166.63	167	167.37	167.74	168.11
180	168.48	168.85	169.22	169.59	169.96	170.33	170.7	171.07	171.43	171.8
190	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49
200	175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.06
210	179.53	179.89	180.26	180.63	180.99	181.36	181.72	82.09	182.46	182.82
220	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47
230	186.84	187.2	187.56	187.93	188.29	188.66	189.02	189.38	189.75	190.1
240	190.47	190.84	191.2	191.56	191.92	192.29	192.65	193.01	193.37	193.74
250	194.1	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35
260	197.71	198.07	198.43	198.79	199.15	199.51	199.87	200.23	200.59	200.95
270	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55
280	204.9	205.26	205.62	205.98	206.34	206.7	207.05	207.41	207.77	208.13
290	208.48	208.84	209.2	209.56	209.91	210.27	210.63	210.98	211.34	211.7
300	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.9	215.25
310	215.61	215.96	216.32	216.67	217.03	217.38	217.74	218.09	218.44	218.8
320	219.15	219.51	219.86	220.21	220.57	220.92	221.27	221.63	221.98	222.33

**PT100 Thermal Resistance Table
Corresponding to Temperature Resistance Values**

	0	1	2	3	4	5	6	7	8	9
Temperature	Resistance(Ω)			Resistance(Ω)			Resistance(Ω)			
330	222.68	223.04	223.39	223.74	224.09	224.45	224.8	225.15	1225.5	225.85
340	226.21	226.56	226.91	227.26	227.61	227.96	228.31	228.66	229.02	229.37
350	229.72	230.07	230.42	230.77	231.12	231.47	231.82	232.17	232.52	232.87
360	233.21	233.56	233.91	234.26	234.61	234.96	235.31	235.66	236	236.35
370	236.7	237.05	237.4	237.74	238.09	238.44	238.79	239.13	239.48	239.83
380	240.18	240.52	240.87	241.22	241.56	241.91	242.26	242.6	242.95	243.29
390	243.64	243.99	244.33	244.68	245.02	245.37	245.71	246.06	246.4	246.75
400	247.09	247.44	247.78	248.13	248.47	248.81	249.16	249.5	245.85	250.19
410	250.53	250.88	251.22	251.56	251.91	252.25	252.59	252.93	253.28	253.62
420	253.96	254.3	254.65	254.99	255.33	255.67	256.01	256.35	256.7	257.04
430	257.38	257.72	258.06	258.4	258.74	259.08	259.42	259.76	260.1	260.44
440	260.78	261.12	261.46	261.8	262.14	262.48	262.82	263.16	263.5	263.84
450	264.18	264.52	264.86	265.2	265.53	265.87	266.21	26655	266.89	267.22
460	267.56	267.9	268.24	268.57	268.91	269.25	269.59	269.92	270.26	270.6
470	270.93	271.27	271.61	271.94	272.28	272.61	272.95	273.29	273.62	273.96
480	274.29	274.63	274.96	275.3	275.63	275.97	276.3	276.64	276.97	277.31
490	277.64	277.98	278.31	278.64	278.98	279.31	279.64	279.98	280.31	280.64
500	280.98	281.31	281.64	281.98	282.31	282.64	282.97	283.31	283.64	283.97
510	284.3	284.63	284.97	285.3	285.63	285.96	286.29	286.62	286.95	287.29
520	287.62	287.95	288.28	288.61	288.94	289.27	289.6	289.93	290.26	290.59
530	290.92	291.25	291.58	291.91	292.24	292.56	292.89	293.22	293.55	293.88
540	294.21	294.54	294.86	295.19	295.52	295.85	296.18	296.5	296.83	297.16
550	297.49	297.81	298.14	298.47	298.8	299.12	299.45	299.78	300.1	300.43
560	300.75	301.08	301.41	301.73	302.06	302.38	302.71	303.03	303.36	303.69
570	304.01	304.34	304.66	304.98	305.31	305.63	305.96	306.28	306.61	306.93
580	307.25	307.58	307.9	308.23	308.55	308.87	309.2	309.52	309.84	310.16
590	310.49	310.81	311.13	311.45	311.78	312.1	312.42	312.74	313.06	313.39
600	313.71	314.03	314.35	314.67	314.99	315.31	315.64	315.96	316.28	316.6
610	316.92	317.24	317.56	317.88	318.2	318.52	318.84	319.16	319.48	319.8
620	320.12	320.43	320.75	321.07	321.39	321.71	322.03	322.35	322.67	322.98
630	323.3	323.62	323.94	324.26	324.57	324.89	325.21	325.53	325.84	326.16
640	326.48	326.79	327.11	327.43	327.74	328.06	328.38	328.69	329.01	329.32
650	329.64	329.96	330.27	330.59	330.9	331.22	331.53	331.85	332.16	332.48
660	332.79									