

KPT1000-DP Monocrystalline Silicon Intelligent Differential Pressure Transmitter

1.Introduction

The KPT1000-DP single crystal silicon differential pressure transmitter uses a single crystal silicon sensor chip made of advanced German MEMS technology, a double diaphragm structure, and exquisite production technology to achieve high precision and ultra-high stability of the product. The embedded intelligent signal processing module achieves the perfect combination of pressure and temperature compensation, providing reliable measurement accuracy and excellent long-term stability under a wide range of static pressure and temperature changes.

The KPT1000-DP single crystal silicon differential pressure transmitter can be used to measure the liquid level, density, and pressure of liquid, gas, or steam, and convert it into a 4-20mA DC (superimposed HART communication) current signal output;

Remote and local parameter setting function configuration is realized through Hart or RS485 communication and panel buttons.

2.Features

- High precision level: German high-precision single crystal silicon sensor chip, accuracy $\leq \pm 0.05\%$.
- Strong load resistance: double overload protection diaphragm design, single overpressure can reach 42MPa.
- Excellent environmental adaptability: intelligent static pressure compensation and temperature compensation eliminate the influence of temperature, static pressure and overload on the transmitter, and minimize the comprehensive test error on site.
- Excellent long-term stability: stability can be maintained at 0.1FS%/3 years.
- Flexible remote assistance debugging function: remote and local parameter setting function configuration is realized through Hart or RS485 communication and panel buttons.

3.Applications

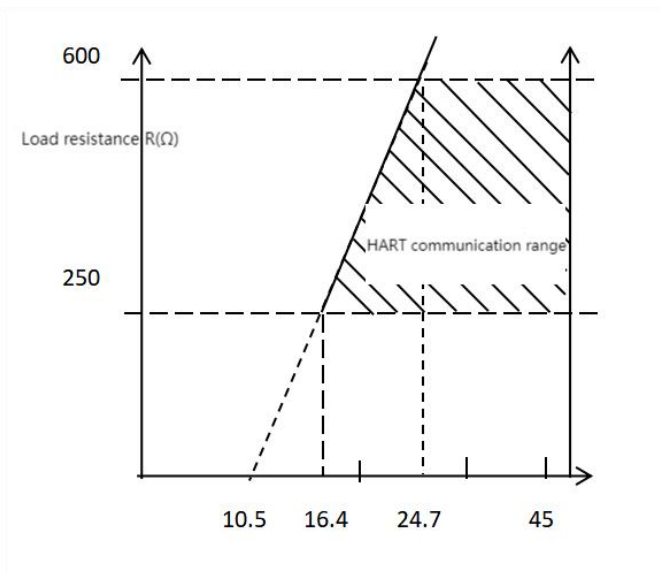
- Petroleum/Chemical/Fossil: Matched with throttling devices, it provides accurate flow measurement of pipeline and tank pressure and liquid level.
- Electricity/City Gas: Places that require high stability and high precision pressure, flow, and liquid level measurement.
- Pulp/Papermaking: Used for furnace pressure, negative pressure measurement and other places that require high stability and high precision measurement.
- Steel/Nonferrous Metals/Ceramics: Used for pressure, flow, and liquid level measurement places that require chemical resistance and corrosion resistance.
- Mechanical Equipment/Shipbuilding: Used for places that require stable measurement under strict control of pressure, flow, liquid level and other indicators.

4. Technical Specifications

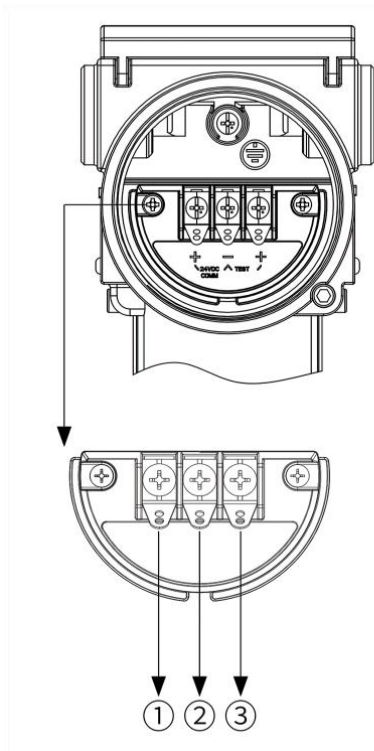
Model	KPT1000-DP high-precision differential pressure transmitter						
Measurement medium	Measures the pressure of liquid, gas or steam						
Measurement type	Differential pressure measurement, absolute pressure measurement						
Output signal	4~20mA+HART protocol digital signal RS485 serial port signal						
Measurement range	Range code	0B	0C	0E	0F	0G	
	Range	(0~0.6)KPa~6 KPa	(0~2)KPa~40 KPa	(0~2.5)KPa~2 50KPa	(0~10)KPa~1 MPa	(0~30)KPa~3 MPa	
	Recommended compression ratio	10:1	20:1	100:1	100:1	100:1	
Reference accuracy	±0.05%	If TD > 10 (TD=maximum range/adjustment range), then:		±(0.005*TD)%	If the range is 0B product, TD > 6, then:		/
	±0.075%			±(0.0075*TD)%			±(0.125*TD)%
	±0.1%			±(0.01*TD)%			±(0.166*TD)%
Ambient temperature effect	The total impact at (-25~+65)℃ is: ±(0.15*TD+0.05)%*Span The total impact at (-40~-25)℃ and (+65~+85)℃ is: ±(0.2*TD+0.05)%*Span						
Overpressure effect	±0.1%*Span						
Static pressure effect	±(0.05%URL+0.075%Span)/10MPa						
Long-term stability	±0.15%URL/10 years						
Power supply effect	±0.001%/10V(12~36)VDC, negligible						
Range limit	It can be adjusted arbitrarily within the upper and lower limits of the range. It is recommended to select a range code with the lowest possible range ratio to optimize performance characteristics.						
Zero setting	Calibration range ≥ Minimum range						
Installation position effect	The change of the installation position parallel to the diaphragm surface will not cause zero point influence. If the installation position is not parallel to the diaphragm surface, it can be eliminated by calibration. No influence on the range						
Alarm current	Offline		3.6mA				
	Online		21mA				
Insulation resistance	100MΩ or more to ground (DC 500V)						
Insulation strength	To ground AC 500V 50/60Hz, 1 minute						
Response time	The damping constant of the amplifier component is 0.1S, and the sensor time constant is: (0.1~1.6)S, depending on the range and range ratio. The additional adjustable time constant is: (0.1~60)S. The						

	impact on nonlinear output (such as square root function) depends on this function and can be calculated accordingly.
Ambient temperature	-40~+85℃ With display: -20~+65℃
Storage temperature	-40~+125℃
storage temperature	-40~+85℃ With display: -20~+65℃
Working pressure (silicone oil)	16MPa 25MPa 42MPa three levels
Static pressure limit	From 3.5KPa absolute pressure to rated pressure, the protection pressure can be greater than 1.5 times the rated pressure and applied to both sides of the transmitter at the same time
Isolation diaphragm	Stainless steel 316L,Hastelloy C-276,Tantalum,Gold plated
Process connection material	Stainless steel 304, 316 optional
Nuts and bolts	Stainless steel (A2-70), galvanized carbon steel (12.8)
Transmitter housing	Aluminum alloy + epoxy resin (surface spraying) Stainless steel
Sealing ring	Nitrile-Butadiene Rubber(NBR),Fluorinated Rubber(FKM),Polytetrafluoroethylene (PTFE)
Filling	Silicone oil, edible oil, FL oil
Process connection	Both ends of the process connection flange have NPT1/4 and UNF7/16 internal threads
Protection level	IP65, IP67(explosion-proof)
Weight	2.6Kg (without mounting bracket, process connection accessories)

Power supply and load conditions:

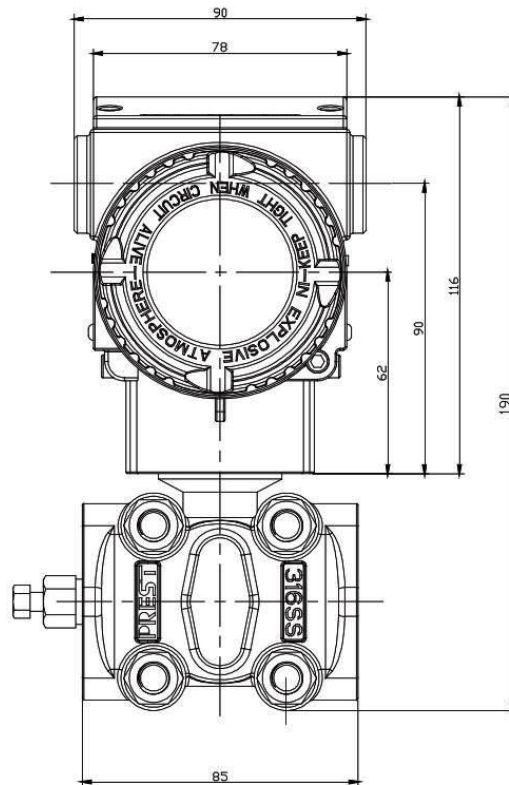
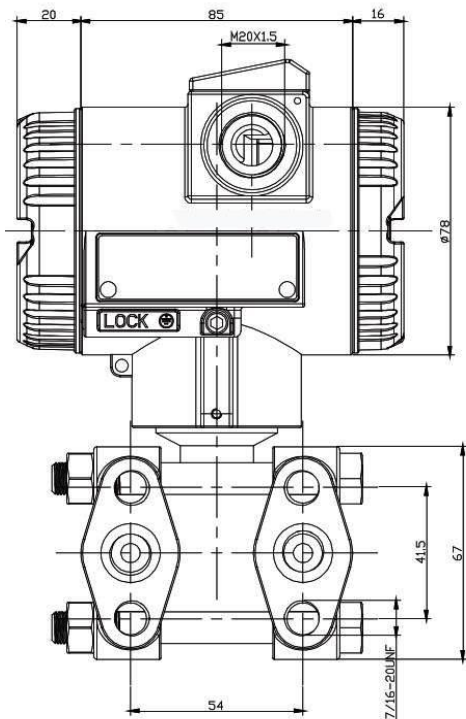


5.Wiring



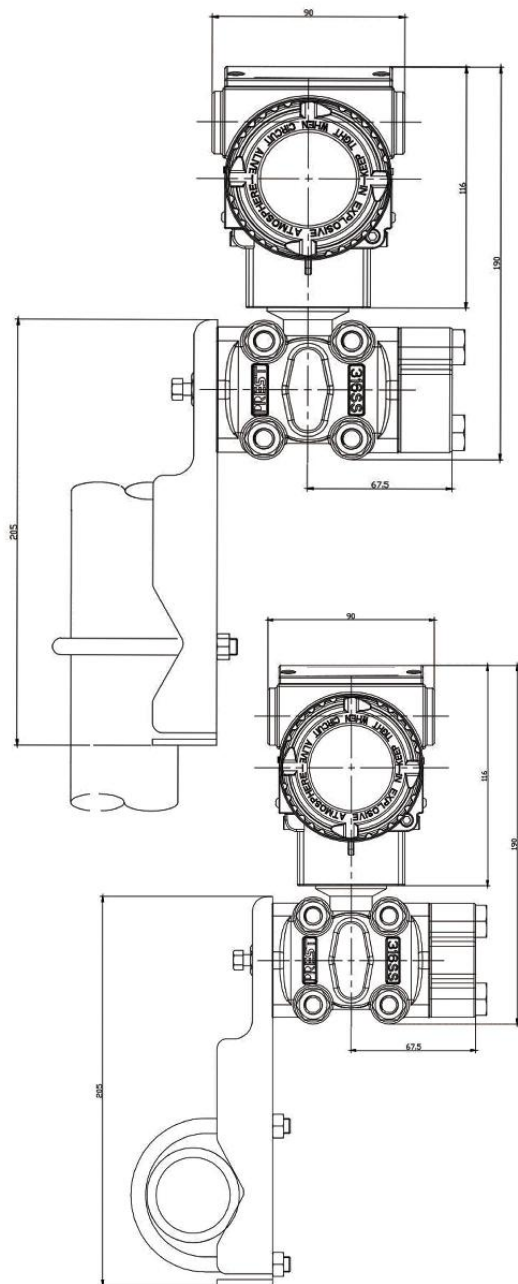
①	+	Power supply and HART digital communication
②	-	output terminals
②	-	External indicator (ammeter) wiring terminals
③	+	

6.Dimensions



6.1 Installation dimensions

(1) Flat panel mounting bracket



(2) Right angle mounting bracket

