

4300T Smart In-Line Pressure Transmitter

Product Introduction

EST4300T Smart Pressure Transmitter GP/AP type adopts the piezoresistive sensing method; the piezoresistive effect in silicon is due primarily to changes at the atomic level and is approximately two orders of magnitude larger than in metals¹.

As stress is applied, the average effective mass of the carriers in the silicon either increases or decreases (depending on the direction of the stress, the crystallographic orientation, and the direction of current flow). This change alters the silicon's carrier mobility and hence its resistivity.

When piezoresistors are placed in a Wheatstone bridge configuration and attached to a pressure-sensitive diaphragm, a change in resistance is converted to a voltage/current output which is proportional to the applied pressure.

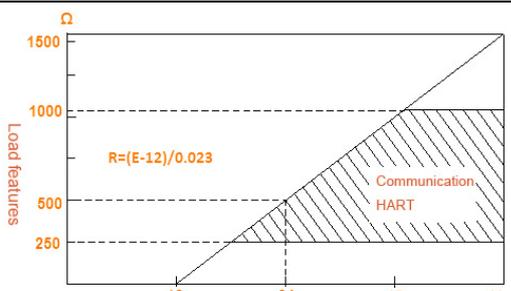


Applications

- Food
- Beverage
- Protection
- Pharmacy
- Sanitary
- Environmental
- Dairy
- Health

Technologies

Service	Liquid, gas, and vapor applications	Range
Output Signal	Two-wire 4~20mA dc output, superimposed on HART digital signal	2 0-0.10~1.5kPa(0-10~150mmH2O)
		3 0-0.7~7.0kPa(0-70~700mmH2O)
Power Supply	External Power Supply 24V dc; Power supply range 12V~45V	4 0-4.0~40kPa(0-400~4000mmH2O)
		5 0-20~200kPa(0-2000~20000mmH2O)
Installation	Explosion-Proof ExdIIBT5; Intrinsic Safe Exiall	5 0-70~700kPa(0-0.7~7kgf/cm2)

Locations:	CT5		0-210~2100kPa(0-2.1~21kgf/cm2)
Zero shift	At minimum span, the maximum positive zero shift is 0.975 * URL, the maximum negative zero shift could be the LRL. (After positive/negative shift, neither the URL or the LRL may exceed the limits of the span no matter what the output is.)	6	0-700~7000kPa(0-7.0~70kgf/cm2)
		7	0-2.1~21MPa(0-21~210kgf/cm2)
		8	0-4.1~41MPa(0-41~4100kgf/cm2)
		9	
		0	
Temp. Limits	Electronics Temperature Operating Limits: -40~85°C Sensing Element Operating Limits: -40~104°C; Memory Temperature: -40~85°C Digital Display: -20~65°C (normal operating); -40~85°C (Non-Destructive)		
Overpressure Limits	Range 3-8: 13.78 MPa Rang 9: 31.29 MPa Rang 0: 51.4 MPa Operating Pressure range is between 3.43kPa (absolute pressure) and URL.		
Load Limitations	Damping	Time constant: 0.2~32.0s	
	Volumetric	Less than 0.16 cm3	
	Relative Humidity	0~100%	
	Booting Time	3s, No warm up	

Performance

Under the condition of non-transference, 316 SST isolating diaphragm and others

Rangeability	40: 1	
Accuracy	Span 3, 4, 5	Span 6, 7, 8, 9, 0
	For span between 1:1 and 10:1, accuracy=± 0.1% of Calibrated Span; For span between 10:1 and 40:1, accuracy=± 0.05(1+0.1 URL/Span)% of Span	For span between 1:1 and 10:1, accuracy=± 0.15% of Calibrated Span; For span between 10:1 and 40:1, accuracy=± 0.075(1+0.1 URL/Span)% of Span
Stability	Maximum Span ± 0.15% 12 months (exclude other ambient effects)	
Temperature Effect	Zero Temperature Error per 55°C = ± 0.25 of Maximum Span; Total Temperature Error per 55°C (Zero and Span) = ± 0.5 of URL. Note, for range 3, the temperature error is doubled.	
Overpressure Effect	Applying static pressure 140kgf / cm2, the error is systematic, which is ± 0.25% of the maximum range and can be eliminated by zero trim based on actual static pressure.	
Power Supply	Less than ± 0.005% of calibrated span per volt.	
Vibration effect	For vibration of 200Hz in any axis, the error caused is ± 0.05%/g of the maximum span	
Load Effect	No load effects in the working area when the voltage transferred to transmitter is higher than 12V.	

Mounting position effects	Zero shifts up to 0.25kPa, which can be calibrated out. No span effect.
Electromagnetic Radiation	Conform to IEC801 standards

Constructions

Wetted Part Materials	Isolating Diaphragm	316 SST, Alloy C, Monel and Tantalum
	Drain/Vent Valves	316 SST, Alloy C and Monel
	Flange and Connectors	316 SST, Alloy C and Monel
	O-rings:	Fluororubber, NBR
Non-Wetted Parts	Fill Fluid	Silicone
	Bolt	Zinc Plated CS
	Electrical housing	Low copper aluminum
	O-rings:	NBR
Impulse Piping Connections	Clamped Tube	1+1 / 2" or 2"
Electrical Connections	1 / 2—14NPT threaded end conduit	
Weight	4.8 kg (Options not included)	

Ordering Procedure

EST4300T	In-Line Smart Pressure Transmitter					
	Code	Rang				
	4	0-4.0~40kPa(0-400~4000mmH2O)				
	5	0-20~200kPa(0-2000~20000mmH2O)				
	6	0-70~700kPa(0-0.7~7kgf/cm2)				
	7	0-210~2100kPa(0-2.1~21kgf/cm2)				
	8	0-700~7000kPa(0-7.0~70kgf/cm2)				
		Code	Output Type			
		E	Linear Output 4-20mAdc			
		S	Linear Output 4-20mAdc+HART signal			
		F	Fieldbus Signal			
		Code	Construction Materials			
			Flange Adapter	Drain/Vent Valves	Isolating Diaphragm	Fill Fluid
		12	CS	CS	316 SST	Silicone
		14	CS	CS	Monel	
		22	316 SST	316 SST	316 SST	
		23	316 SST	316 SST	Hastelloy Alloy C	
		24	316 SST	316 SST	Monel	
		25	316 SST	316 SST	Tantalum	
		33	Hastelloy Alloy C	Hastelloy Alloy C	Hastelloy Alloy C	

				35	Hastelloy Alloy C	Hastelloy Alloy C	Tantalum					
				44	Monel	Monel	Monel					
				Code		Impulse Piping Diameter						
				A1		1+1/2" O-Rings 44						
				A2		2" O-Rings 56						
						Code	Options					
						M1	0~100% Linear Meter					
						M4	LCD Digital Meter					
						B1	Pipe Mounting Bracket					
						B2	Panel Mounting Bracket					
						B3	Pipe Mounting Bracket					
						D1	Side-mounted Drain/Vent Valve (TOP)					
						D2	Side-mounted Drain/Vent Valve (TOP)					
						X1	Oil Forbidden					
						Da	Explosion-Proof ExdSIIBT5					
		Fa	Intrinsically Safe ExialICT5									
EST4300T	4	S	24	A1	M4B3X1	0~40kPa						