



Datasheet

Monocrystalline silicon

flange-mounted pressure

transmitter

AI-PTLT-D



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### Monocrystalline silicon flange-mounted pressure transmitter AI-PTLT-D

In terms of circuit design, the transmitter adopts a modular design with a microprocessor at its core, complemented by advanced digital isolation technology. This design endows the instrument with extremely high anti-interference and stability. Meanwhile, through an internal temperature sensor, the transmitter is compensated, which improves the measurement accuracy, reduces temperature drift, and gives it the characteristics of good long-term stability, high reliability, and strong self-diagnostic capabilities.

#### Applications

- Food and Beverage Processing
- Aerospace
- Energy transmission and utilisation
- Petrochemical industry
- Automobile manufacturing
- Water treatment industry
- Building automation system



#### Features

- Advanced monocrystalline silicon pressure and differential pressure sensor technology and packaging processes, and a super high-performance pressure and differential pressure transmitter developed with painstaking efforts and leading-edge technology.
- The one-way overpressure can reach up to 25 MPa.
- The design with a microprocessor at the core and supplemented by advanced digital isolation technology enables the instrument to have extremely high anti-interference and stability.
- The latest one-click zeroing function does not affect the electrical protection level, making it safer and more efficient.

**Monocrystalline silicon  
flange-mounted pressure  
transmitter**

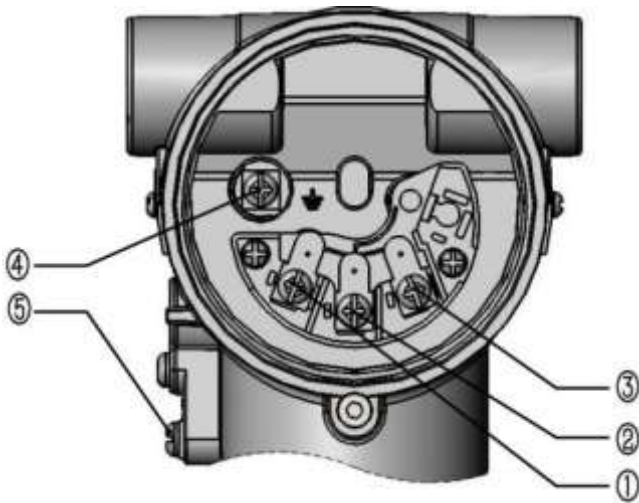
## Principle

The working principle of a single crystal silicon differential pressure transmitter is relatively straightforward. It mainly makes use of the piezoresistive effect of single crystal silicon. Inside the transmitter, there is a sensitive diaphragm made of single crystal silicon. When there is a differential pressure applied across the diaphragm, it causes deformation. This deformation leads to a change in the stress within the single crystal silicon, and according to the piezoresistive principle, the resistance of the silicon changes correspondingly. The resistance change is then converted into an electrical signal through a Wheatstone bridge circuit. After that, the signal goes through further conditioning and amplification to be output as a standard electrical signal, like 4 - 20 mA or 0 - 5 V, which can be used to precisely measure and monitor the differential pressure.

Parameters	
Measured Medium	Gas, Steam, Liquid
Measuring Range	-100kPa...0~0.1kPa...4MPa
Accuracy	±0.075%, ±0.1% (including linearity, hysteresis and repeatability starting from zero point)
Stability	±0.1% / 3 years
Ambient Temperature Influence	≤±0.04%/10°C
Static Pressure Influence	±0.05%/10MPa
Power Supply	15VDC - 32VDC
Power Supply Influence	±0.01% / 10V, negligible
Ambient Temperature	-40°C - 85°C (General); -40°C - 60°C (Explosion-proof)
Measured Medium Temperature	-40°C - 120°C
Storage Temperature	-40°C - 85°C
Display	LCD
Display Module Temperature of the Monitor	-20°C - 70°C

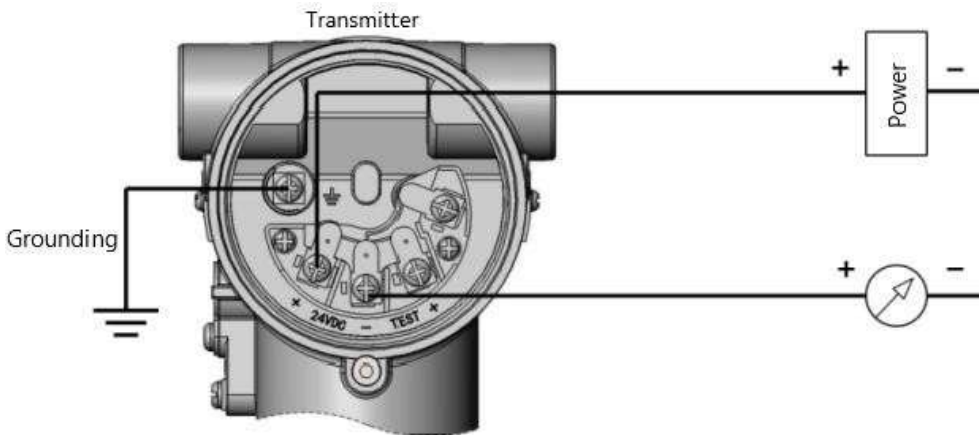
## Wiring

### Wiring terminals

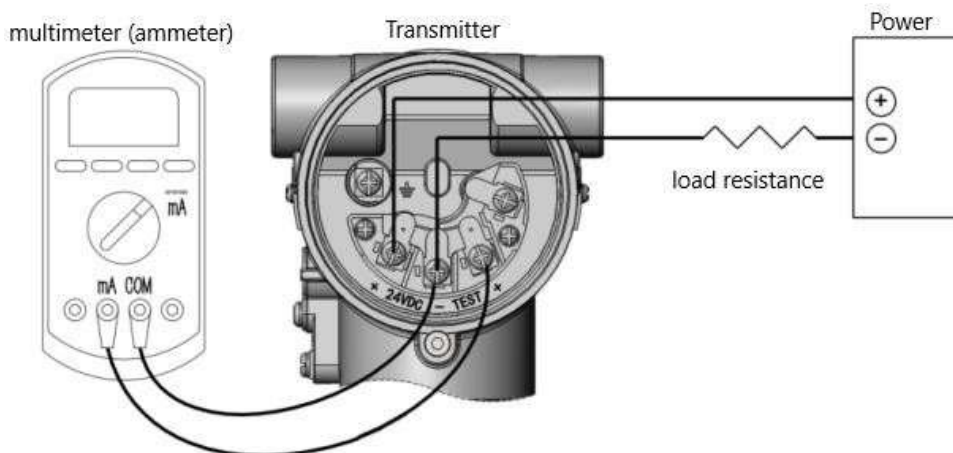


- ① Transmitter power supply positive
- ② Transmitter power supply negative ((4 ~ 20)mA test terminal negative)
- ③ (4 ~ 20)mA test terminal positive)
- ④ Internal grounding screw
- ⑤ External grounding screw

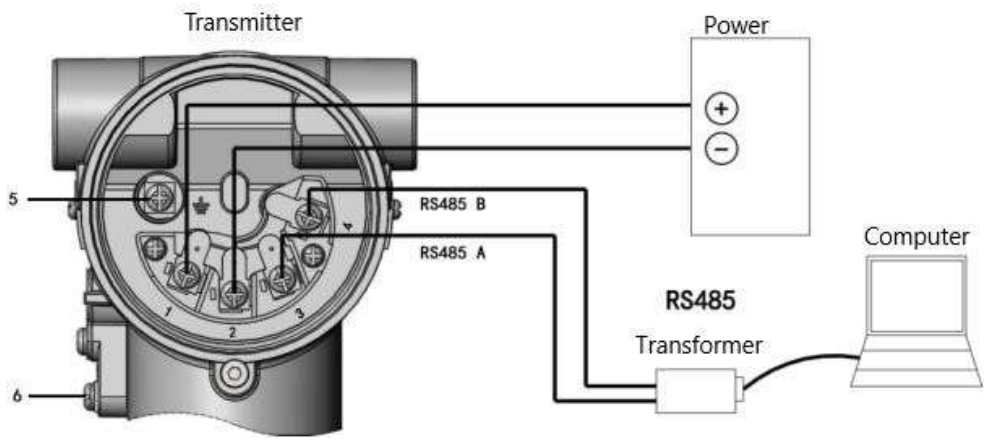
### Power cord connection



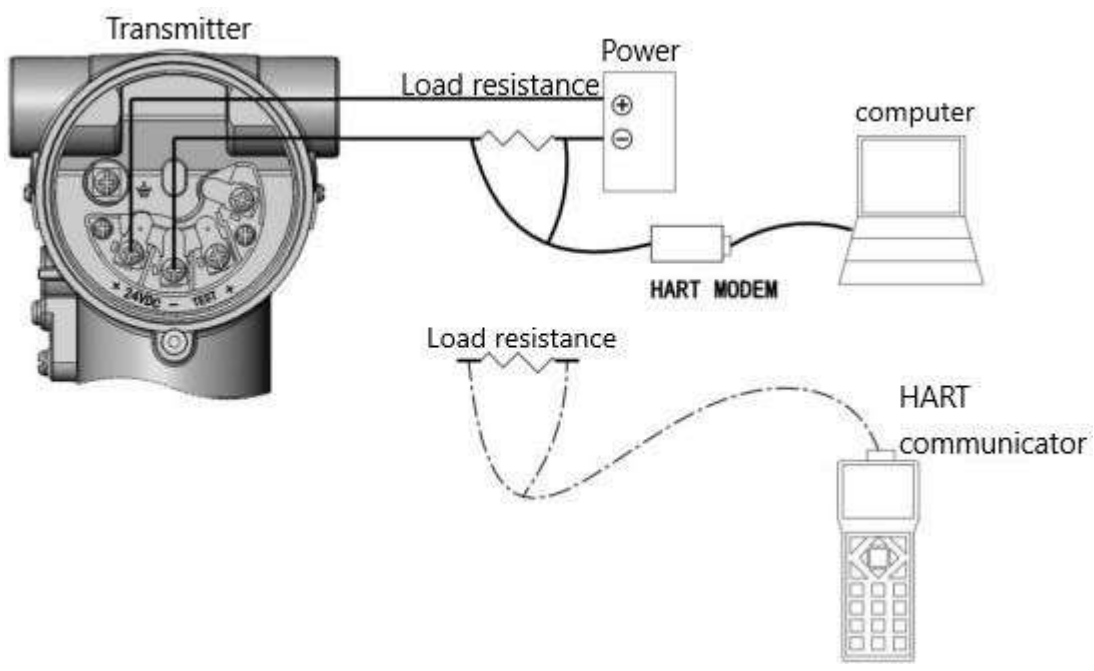
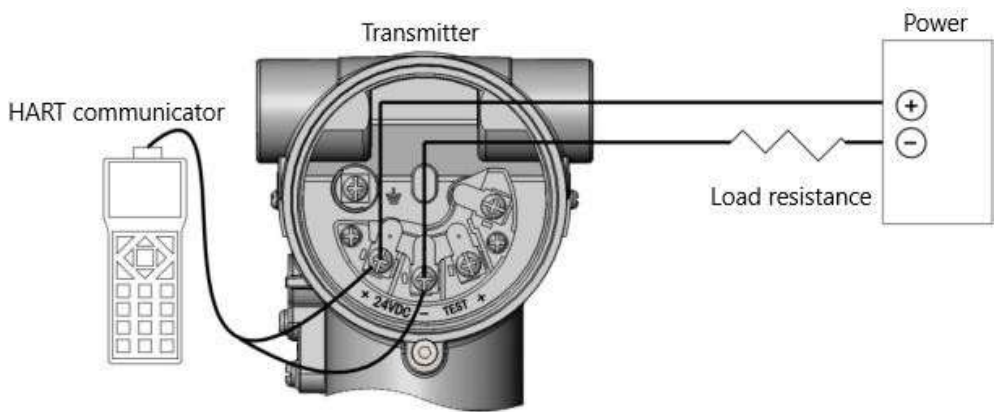
### Current Test Meter Connections



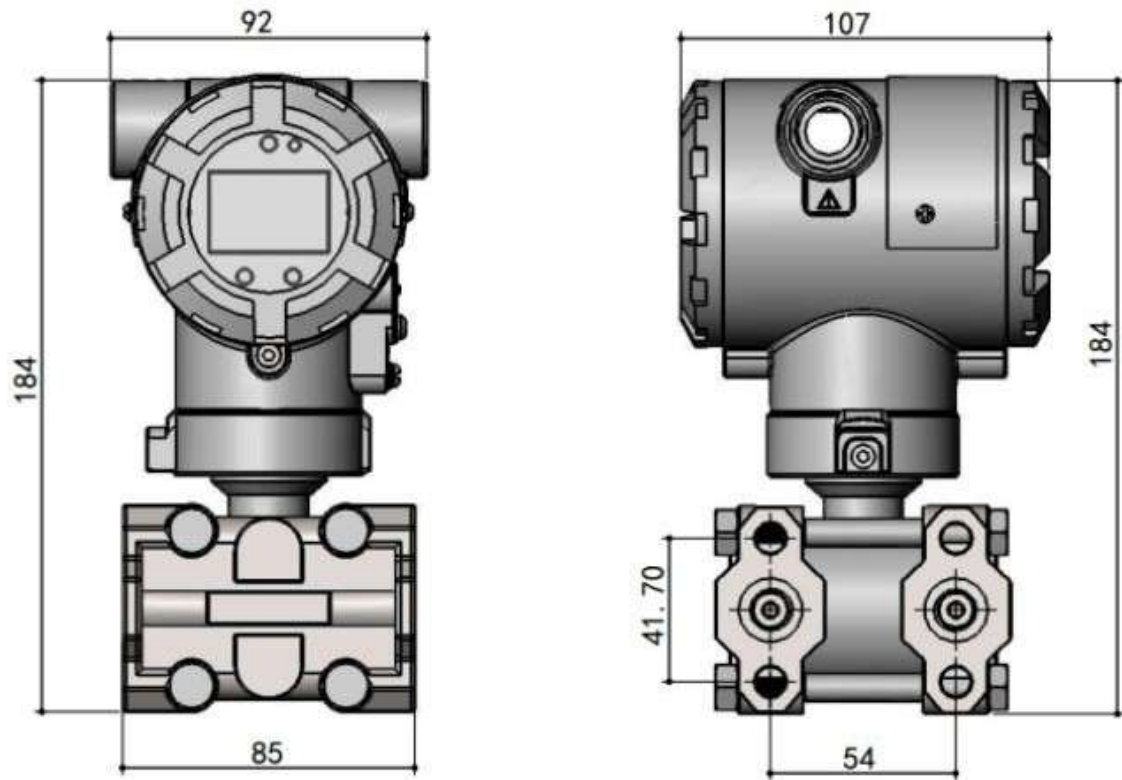
Four-wire RS485 communication connection



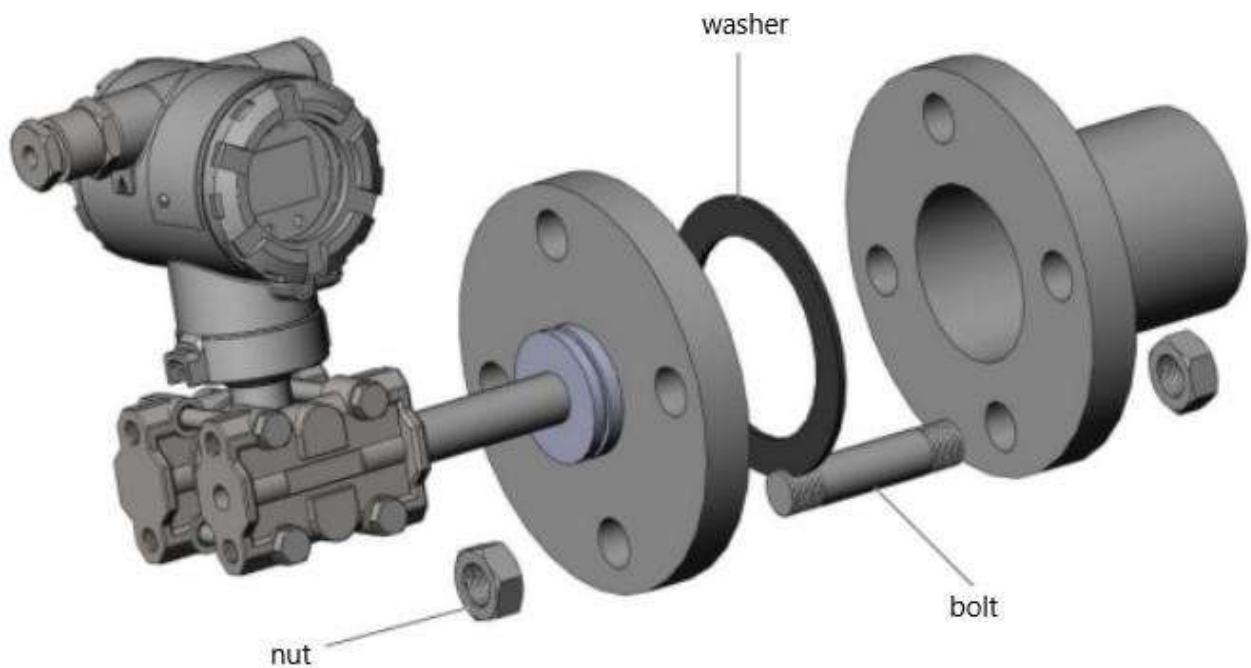
Hart communication connection



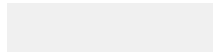
## Dimensions



## Installation



## Ordering Code



SUP-2051LT-D -D-3F-F-H1-25-00-M1-1-A7-W1-M3-A-00-PX													Description	
AI-PTLT-D	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>Differential Pressure</b> Pressure 20kPa 40kPa 60kPa 100kPa 250kPa 1MPa 3MPa 10MPa Other 0.2 Class 0.1 Class HG/T20592 PN10/16 HG/T20592 PN25/40 HG/T20592 PN63 HG/T20592 PN100 ANSI Class 150 ANSI Class 300 Other DN25(1") DN50(2") DN65(2.5") DN80(3") DN100(4")
Pressure Type	D													
Measuring range		3F												
		3												
		H												
		3L												
		3												
		M												
		3P												
		3R												
		3T												
		XX												
Accuracy			F											
			E											
Flange Specification				H										
				1										
				H										
				3										
				H										
				4										
				H										
				5										
				K										
				1										
				K										
				2										
				X										
				X										
Flange Size					2									
					5									
					5									
					0									
					6									
					5									
					8									
					0									
					1									
					C									
					X									
					X									

Diaphragm projection length	00					Other
	50					0mm
	1					50mm
	H					100mm
	2					150mm
	H					
X						
Flange Material	X					Other
	M					304SS
	1					316LSS
Display Type	M					Available
	3					Two-Wire
Output and Power Supply	1					4-20mA+HART
	A					RS485, 24VDC
	7					M20×1.5 Cable Gland, Aluminum Alloy, IP65
Electrical Interface, Housing Material, and Ingress Protection	A					M20×1.5 Cable Gland,, Aluminum Alloy, IP67
	5					Other
	3					316LSS
	W					Hastelloy C
Diaphragm Material	1					Tantalum
	W					Monel
	3					Titanium
	XX					316LSS coated FEP
	M					316LSS coated PFA
	3					316LSS gold-plated
	M					Other
	G					Silicone Oil
	T2					High-temperature Silicone Oil
	M					Ultra-High-Temperature
	E					Silicone Oil
T1	Fluorinated oil					
NC						
NS						
M						
A						
XX						
Filling Liquid						A
						B
						C
						F
						X

	0		Other
	0		0m
	0		2m
	2		5m
	0		10m
Capillary Length	5		
	1		
	0		
	X		
	X		
		PX	Galvanized Carbon Steel Pipe-Mounted Flat Bracket+M10*12 bolts 304SS pipe mounted flat bracket + M10*12 bolts
Accessories		PY	Galvanized Carbon Steel Pipe Mounted Bending bracket + M8*1.25 bolts
		P W	



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