



Datasheet

Monocrystalline Silicon

Pressure Transmitter

AI-PTD



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Monocrystalline Silicon Pressure Transmitter AI-PTD

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
- The powerful 24-bit ADC achieves high precision.
- affect the electrical protection level, making it safer and more efficient.



**Monocrystalline Silicon Pressure
Transmitter**

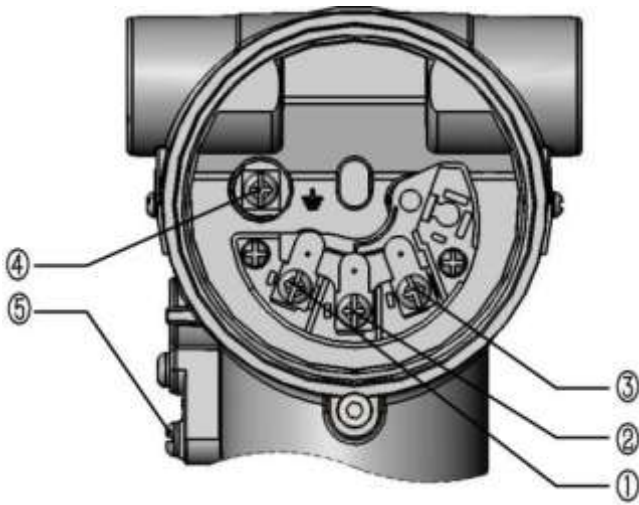
Principle

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

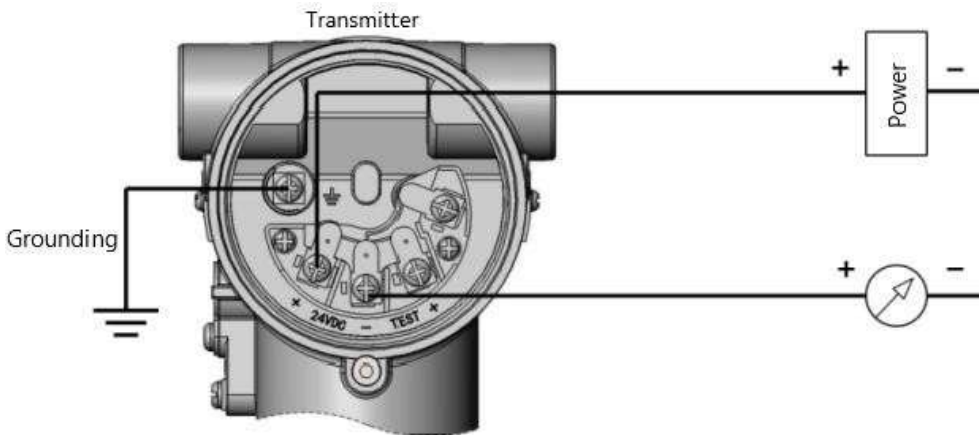
Wiring

Wiring terminals

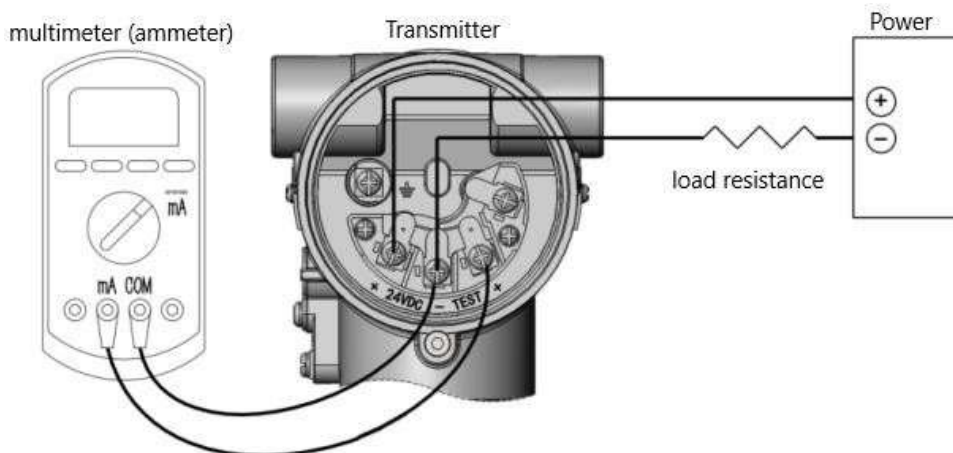


- ① Transmitter power supply positive
- ② Transmitter power supply negative ((4 ~ 20)mA test terminal negative)
- ③ (4 ~ 20)mA test terminal positive)
- ④ Internal grounding screw
- ⑤ External grounding screw

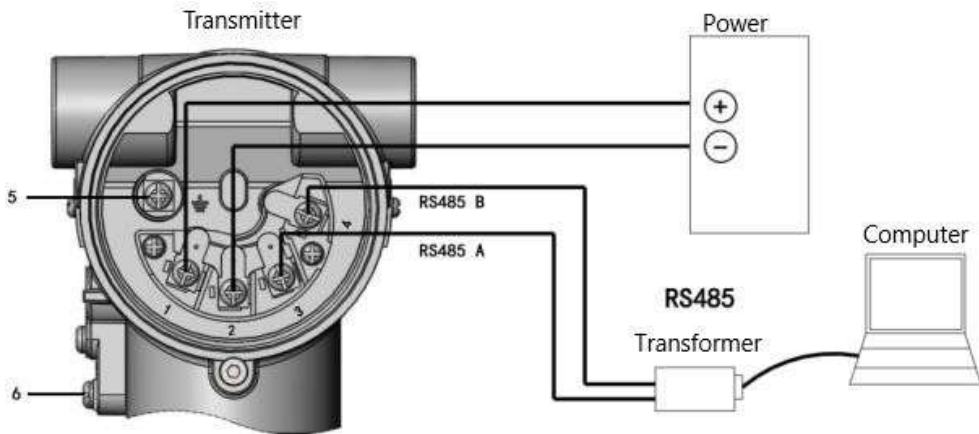
Power cord connection



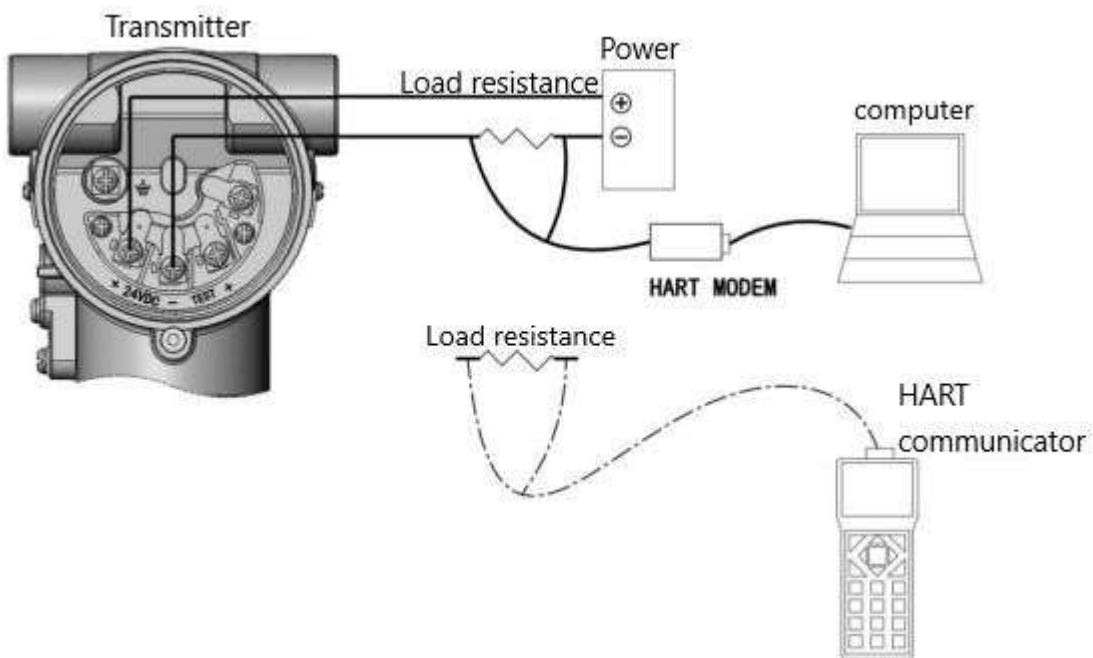
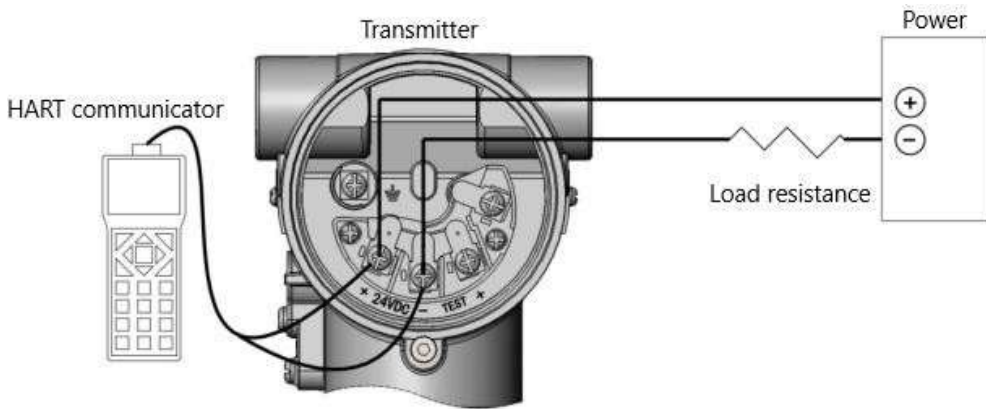
Current Test Meter Connections



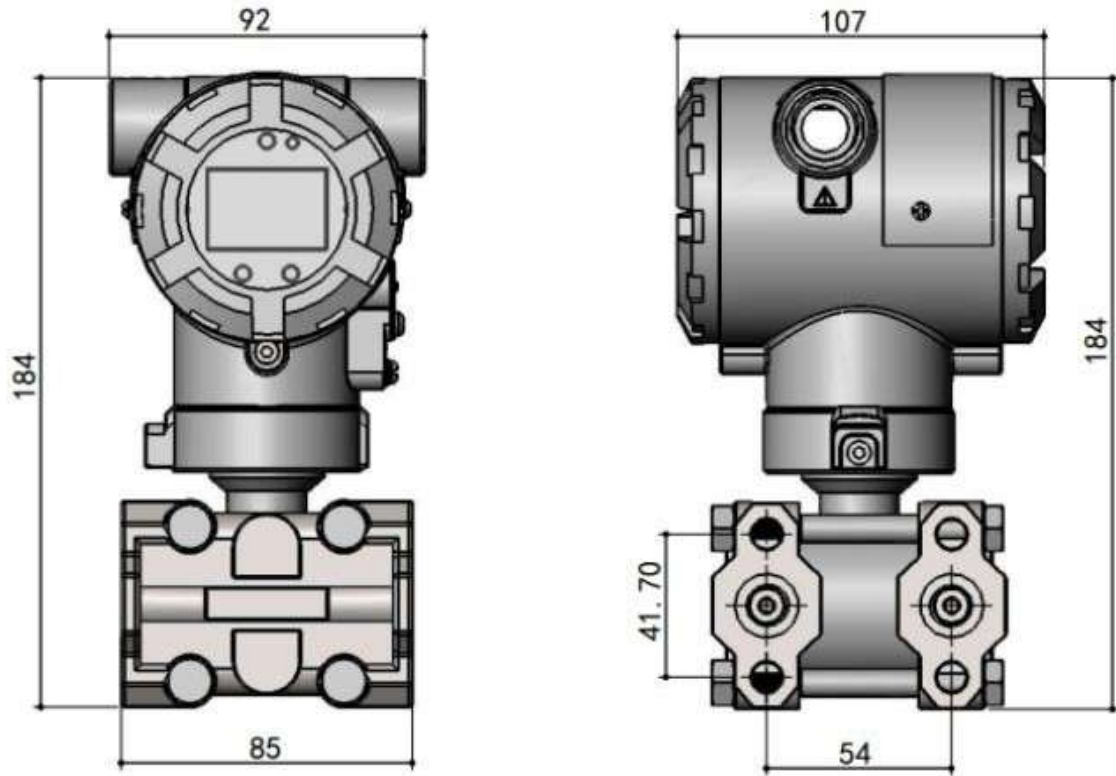
Four-wire RS485 communication connection



Hart communication connection



Dimensions



Installation

Pipe mounted bend bracket installation

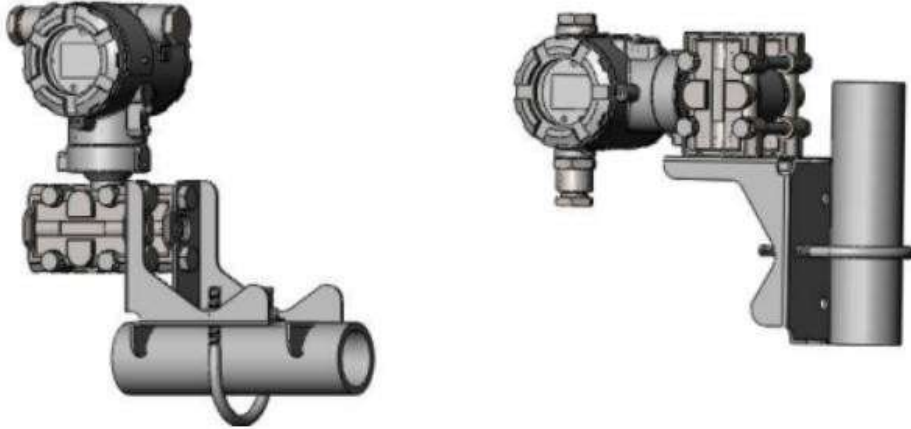
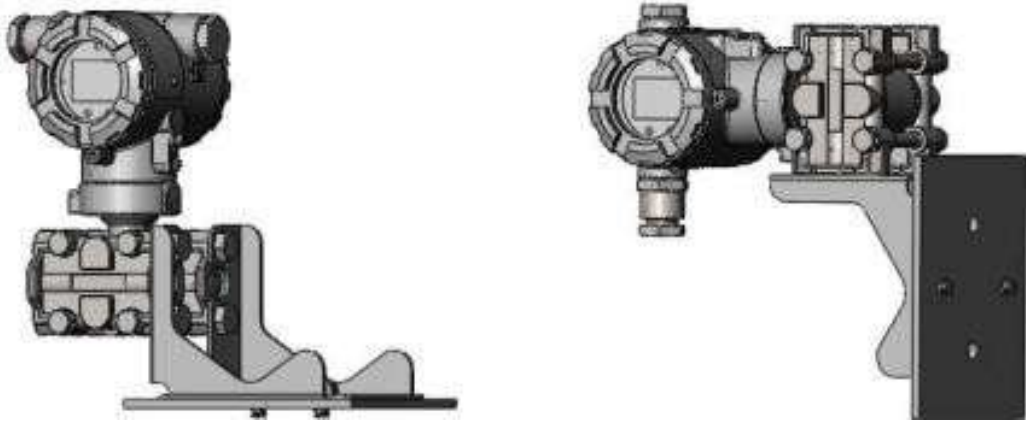


Plate mounted curved bracket installation



Pipe mounted flat bracket installation



Ordering Code

AI-PTD-3C-E-1-A7-AL-A-W1-A-N4-00-PY										Description	
AI-PTD	-	-	-	-	-	-	-	-	-	-	-
	3C										3kPa
	3D										5kPa
	3H										40kPa
	3M										250kPa
Pressure Type	3N										0.6MPa
	3P										1MPa
	3R										3MPa
	3W										4MPa
	XX										other
		accuracy	E								0.1class
			D								0.075class
			X								other
	Display			1							with
		Output and power supply			A7						2-wire
					A5						4-20mA+HART
											RS485, 24VDC
											NPT1/4 female
					AL						thread + M8 x
											1.25 Rear relief
											valve
											M20 x 1.5 male
											thread + M8 x
	Thread Type				AM						1.25 Rear drain
											valve
											NPT1/2 female
					AN						thread + M8 x
											1.25 Rear relief
											valve
					XX						other
						Diaphragm and Thread Type Material	A				316LSS, 304SS
							T				316LSS, 316SS
							L				Hastelloy C,
											304SS
							N				Tantalum Ta,
											304SS
							F				316LSS Gold
											Plated, 304SS
							X				other
								Electrical Interface,	W1		M20 x 1.5 cable
											plug, aluminium

