Datasheet

Monocrystalline Silicon Pressure Transmitter

SUP-2051-D

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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

Monocrystalline Silicon Pressure Transmitter

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.

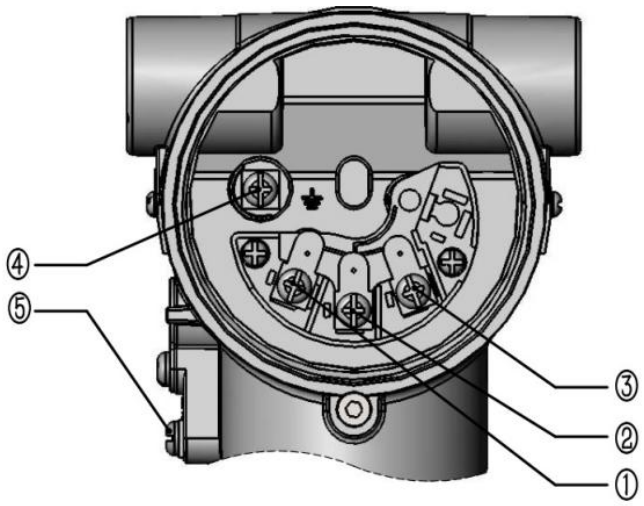
Principle

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%URL/10℃
Static Pressure Influence	±0.05%/10MPa
Power Supply	15VDC - 32VDC
Power Supply Influence	±0.01% / 10V, negligible
Ambient Temperature	-40℃ - 85℃ (General); -40℃ - 60℃ (Explosion-proof)
Measured Medium Temperature	-40℃ - 120℃
Storage Temperature	-40℃ - 85℃
Display	LCD
Display Module Temperature of the Monitor	-20℃ - 70℃

Wiring

Wiring terminals



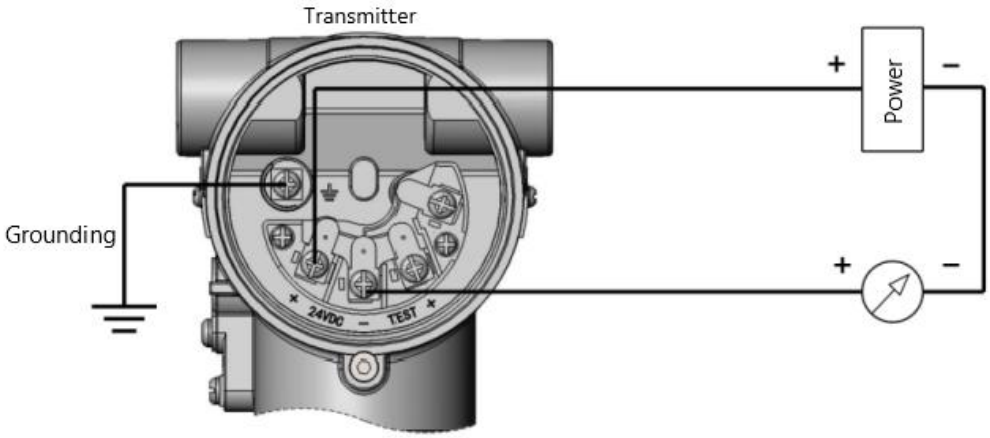
① Transmitter power supply positive
② Transmitter power supply negative

((4～20)mA test terminal negative)

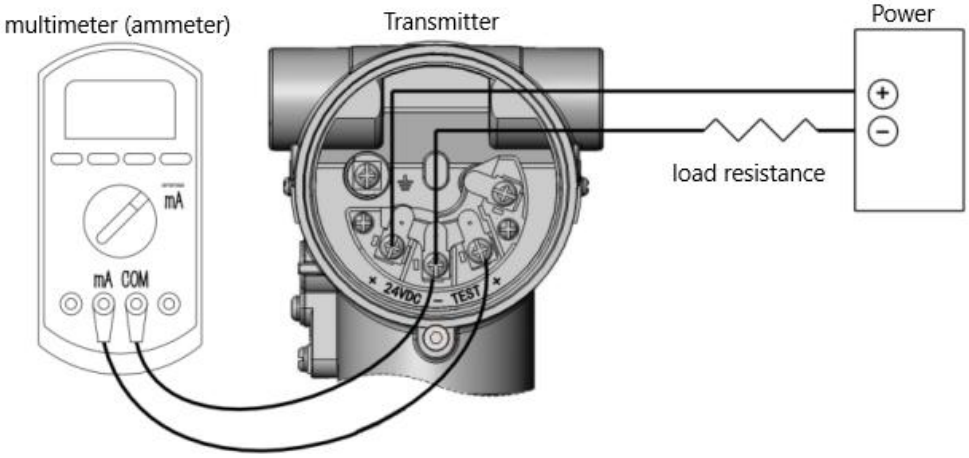
③ (4～20)mA test terminal positive)

④ Internal grounding screw
⑤ External grounding screw

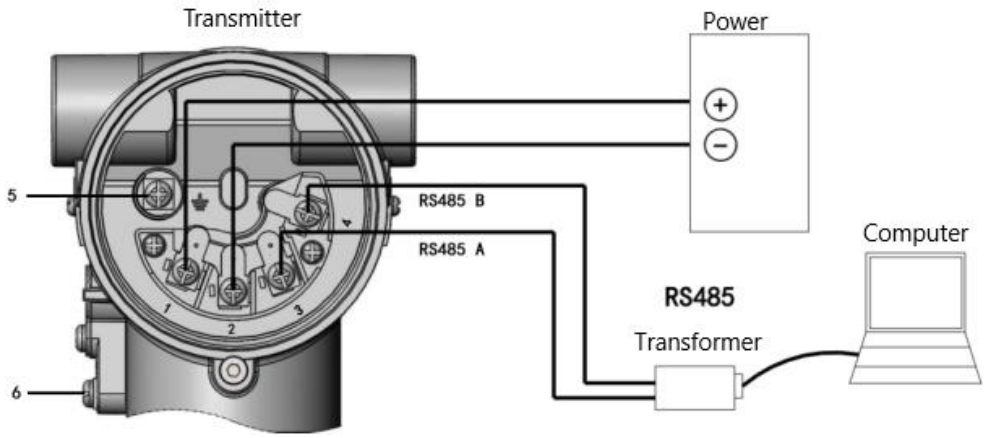
Power cord connection



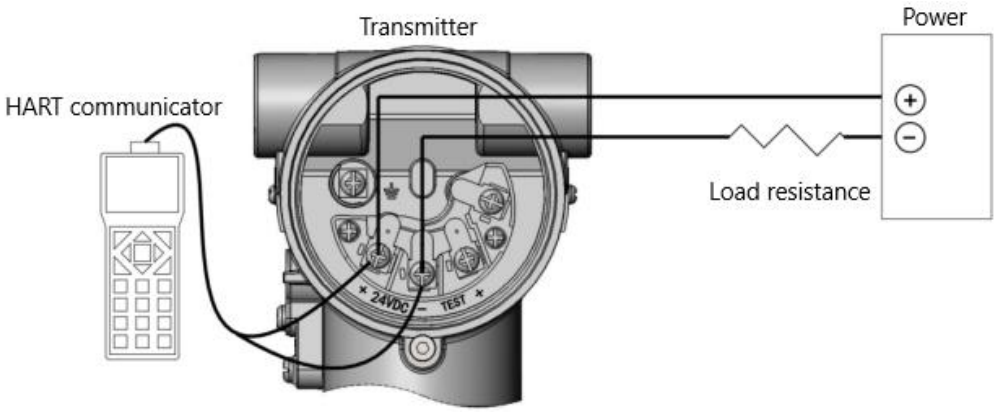
Current Test Meter Connections

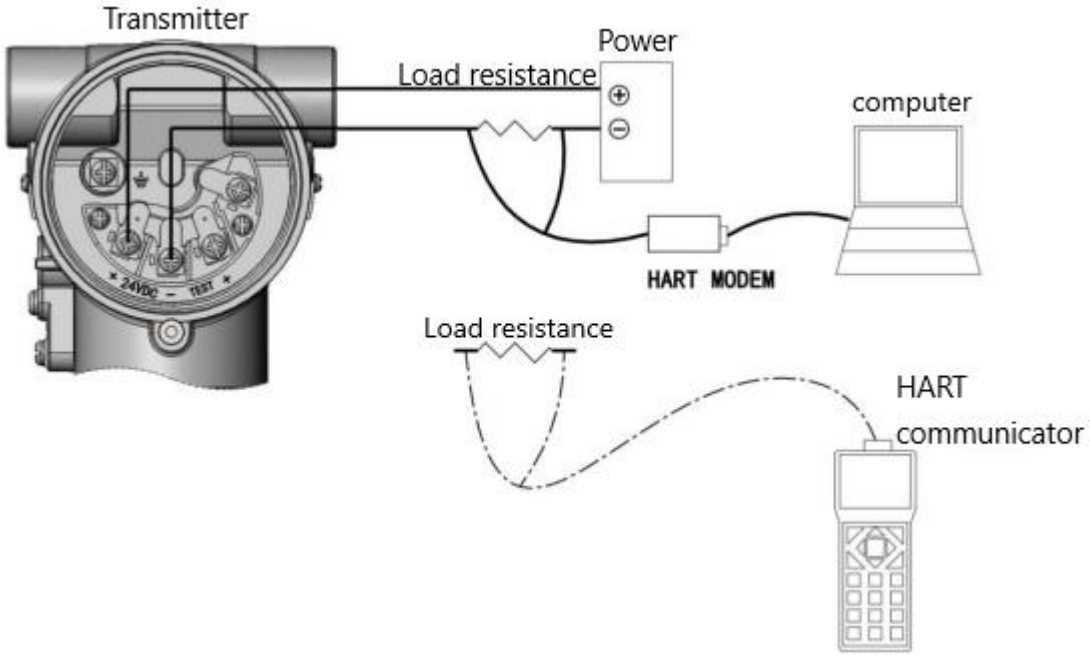


Four-wire RS485 communication connection

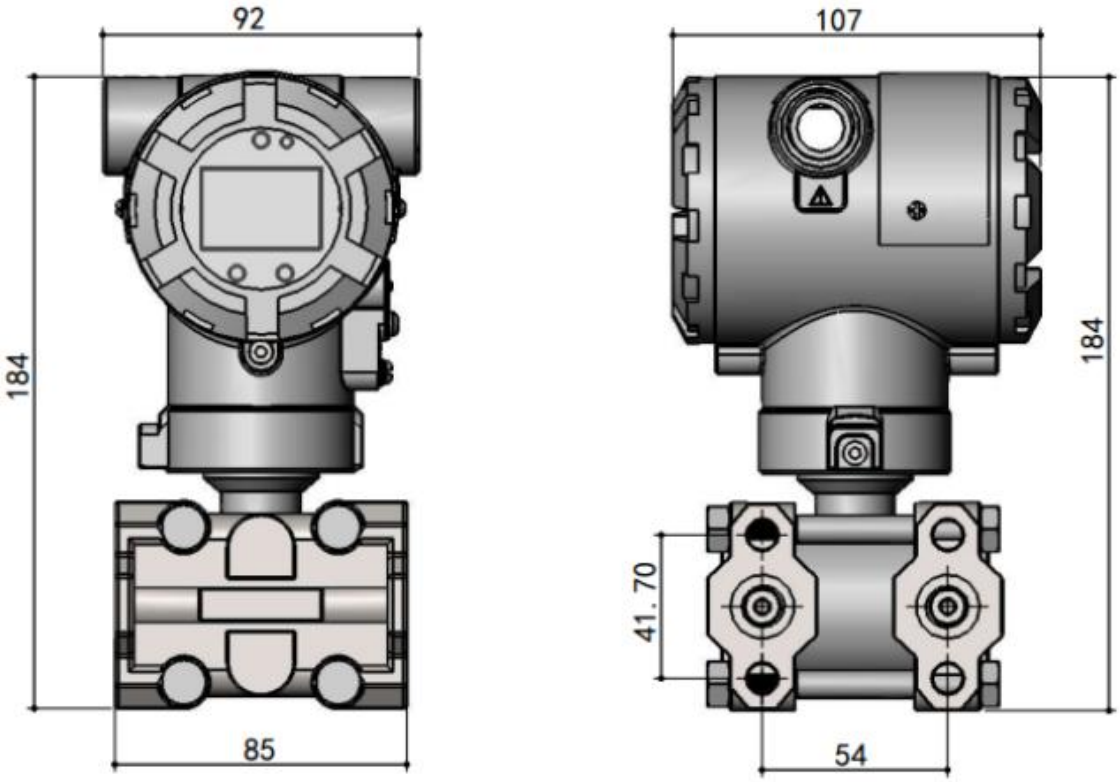


Hart communication connection





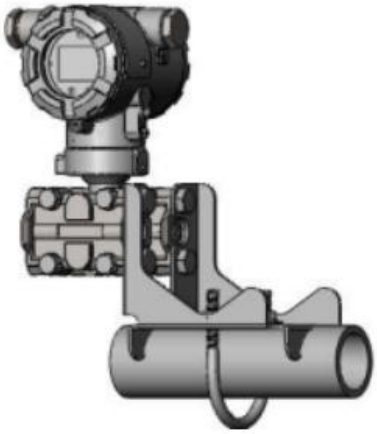
Dimension



Installation

Installation

Pipe mounted bend bracket installation



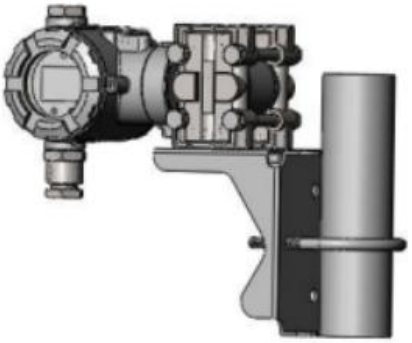
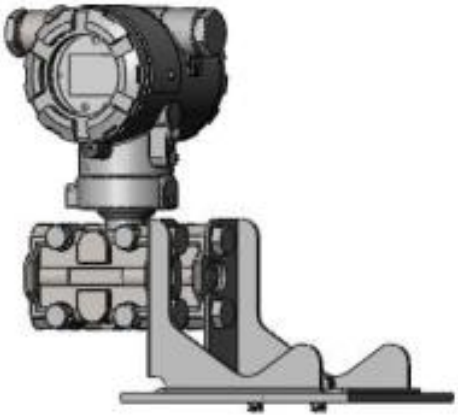
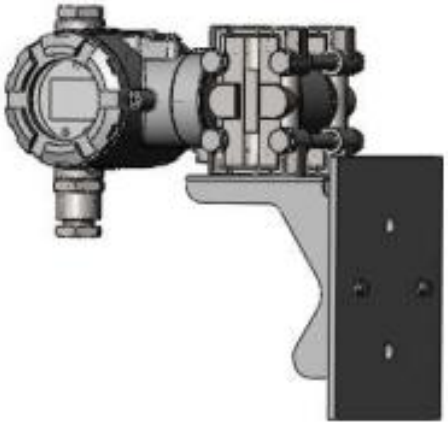
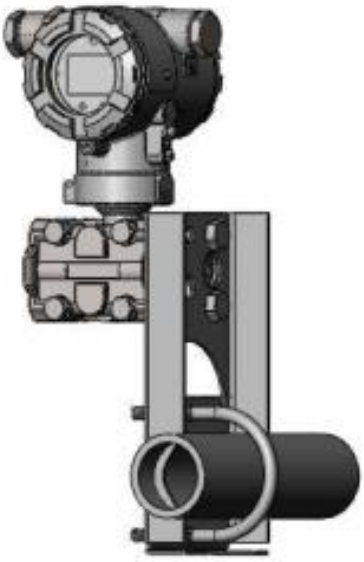


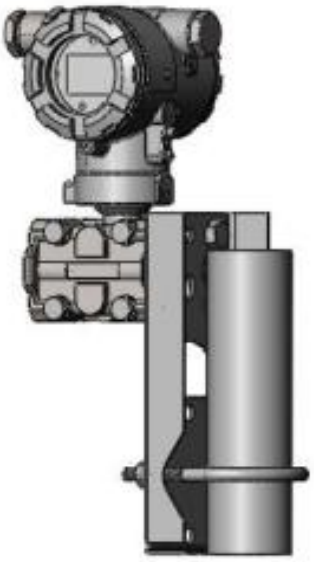
Plate mounted curved bracket installation





Pipe mounted flat bracket installation





Ordering code

SUP-2051-D -3C-E-1-A7-AL-A-W1-A-N4-00-PY											Description
SUP-2051-D	-	-	-	-	-	-	-	-	-	-	-
Pressure Type	3C										3kPa
	3D										5kPa
	3H										40kPa
	3M										250kPa
	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 4-20mA+HART
				A5							RS485，24VDC
Thread Type					AL						NPT1/4 female thread + M8 x 1.25 Rear relief valve
					AM						M20 x 1.5 male thread + M8 x 1.25 Rear drain valve
					AN						NPT1/2 female 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

	XX		alloy, IP65
			other
Filling fluid		A	silicone oil
		F	Fluorinated oil
		X	other
		A	fluoroelastomer
		F	None
			CCRITC Ex db
		X	Ⅱ C T6 Gb/Ex
			tb ⅢC T80℃
			Db
gaskets		N4	3kPa
Explosion-proof options			00 5kPa
			E4 40kPa
Accessories			PY 304SS pipe mounted flat bracket + M10*12 bolts
			PK 304SS Three Valve Manifold
			PR 316SS Three Valve Manifold