Datasheet

Monocrystalline silicon double-flange pressure transmitter

SUP-2051DP-D

Supmea®

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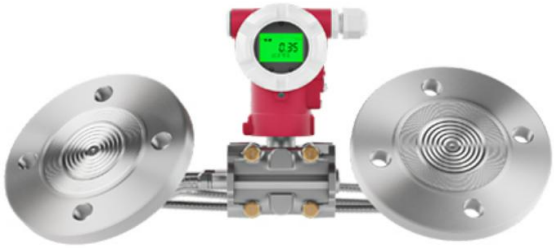
In terms of circuit design, the transmitter adopts a modular design with a microprocessor at its core, complemented by advanced digital isolation technology. This design endows the instrument with extremely high anti - interference and stability. Meanwhile, through an internal temperature sensor, the 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 double-flange 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.

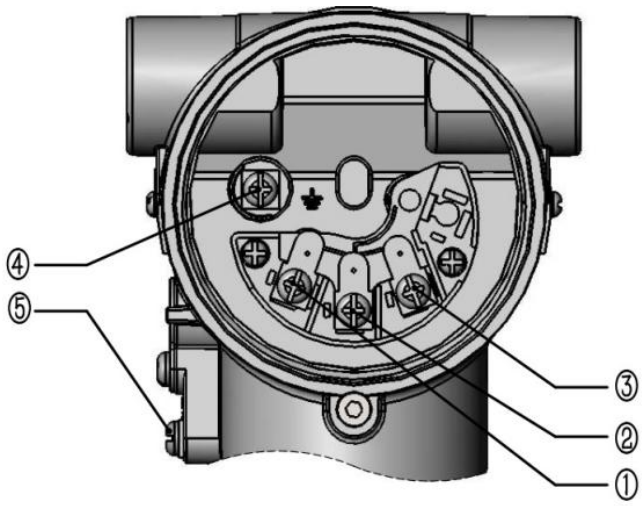
Principle

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



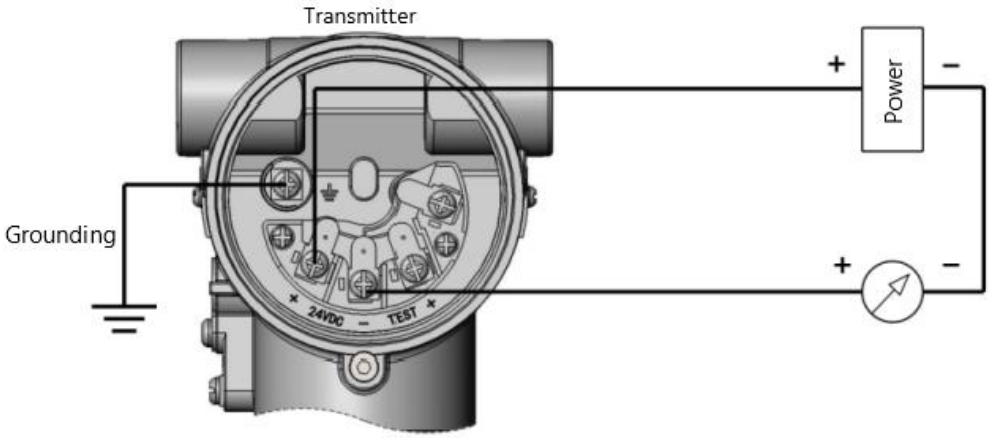
① Transmitter power supply positive
② Transmitter power supply negative

((4～20)mA test terminal negative)

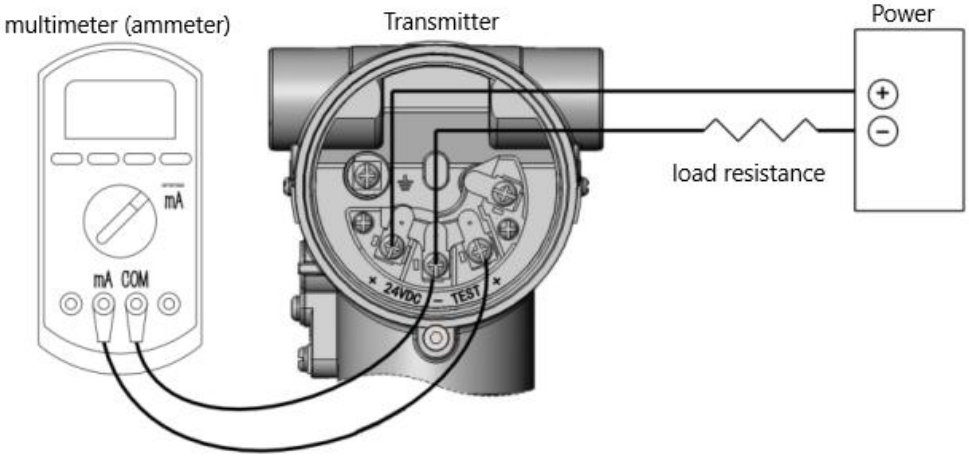
③ (4～20)mA test terminal positive)

④ Internal grounding screw
⑤ External grounding screw

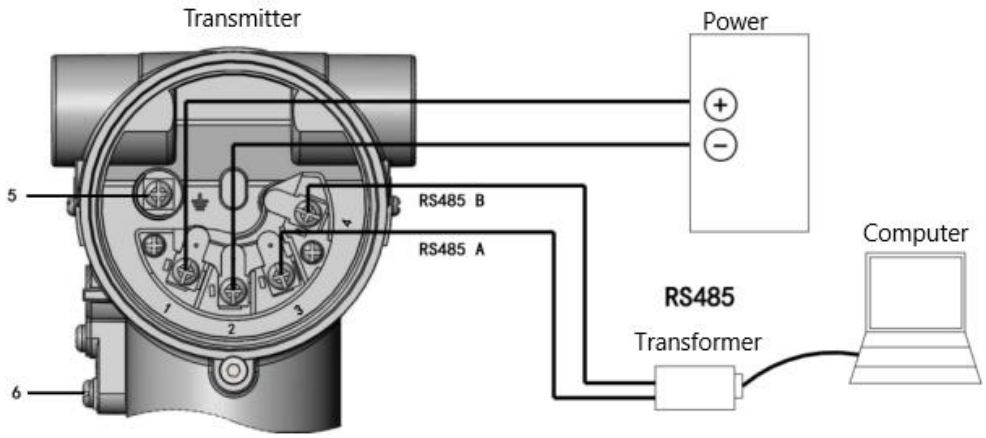
Power cord connection



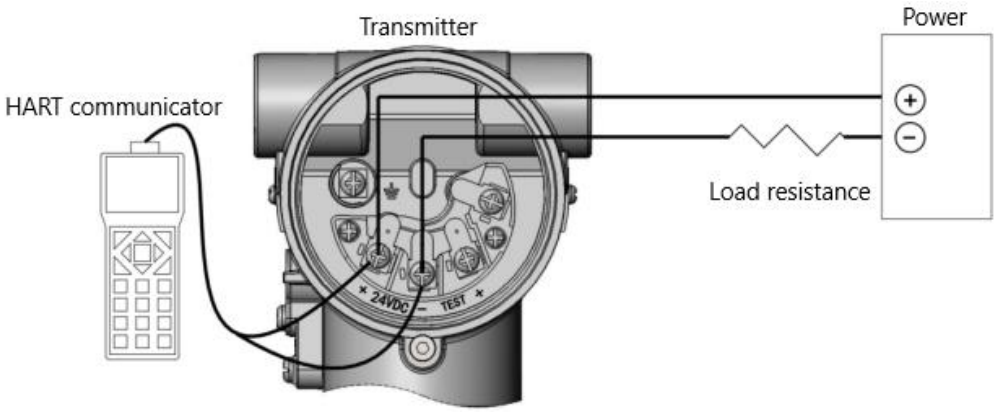
Current Test Meter Connections

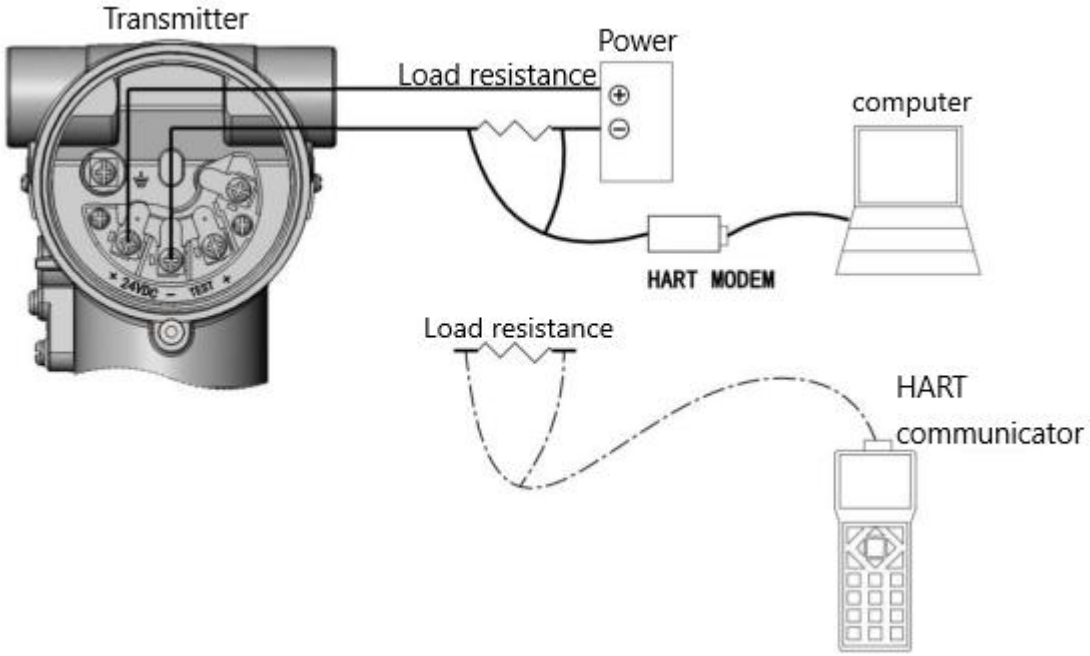


Four-wire RS485 communication connection

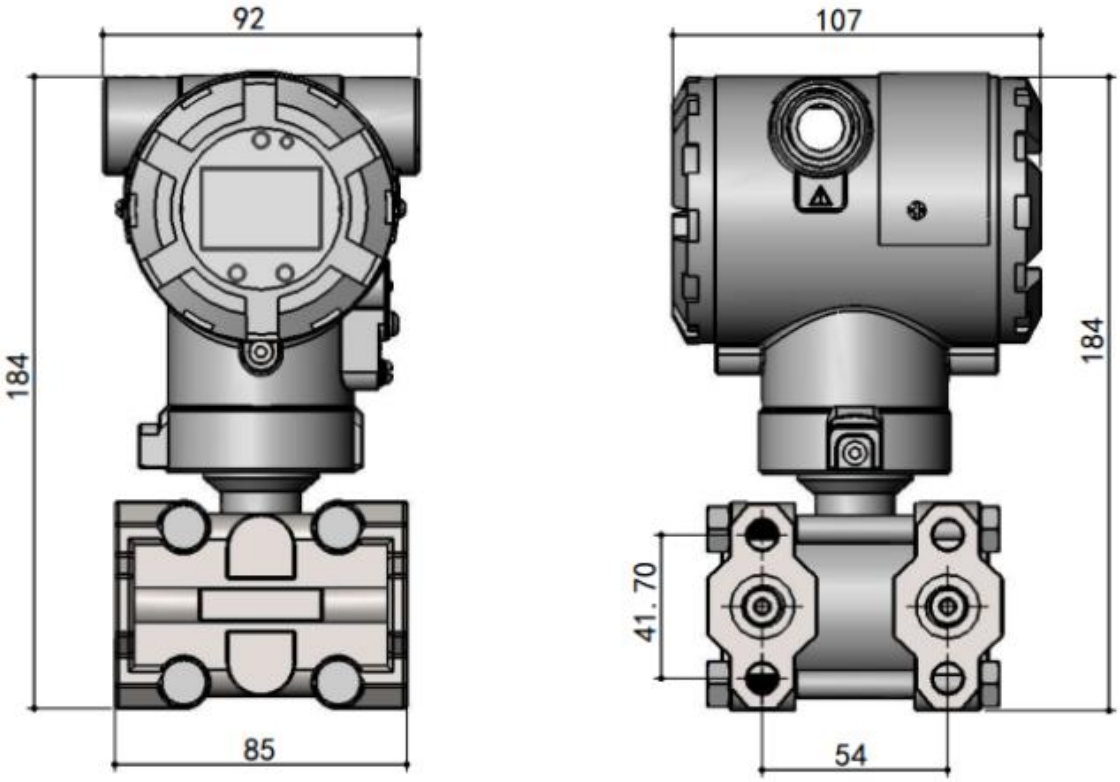


Hart communication connection

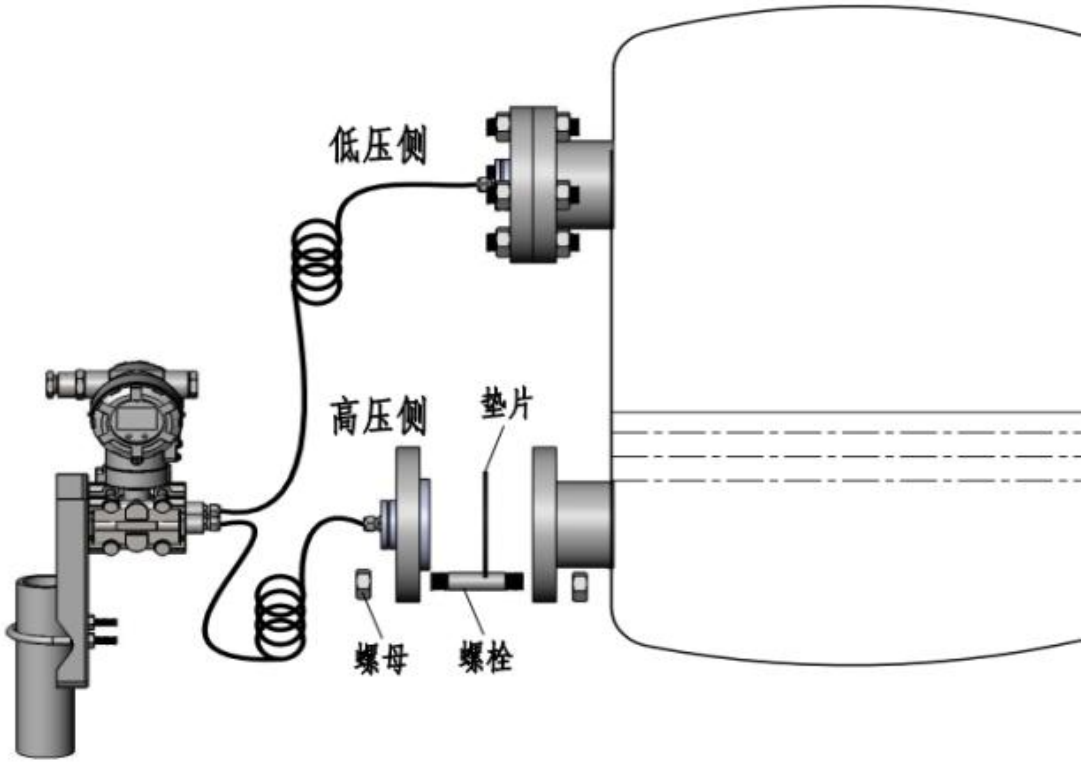




Dimension



Installation



Ordering code

SUP-2051DP-D -3F-F-H1-25-00-M1-A7-W1-M3-A-02-PY														Description
SUP-2051DP-D	-	-	-	-	-	-	-	-	-	-	-	-	-	
Measuring range	3F													20kPa
	3H													40kPa
	3K													60kPa
	3L													100kPa
	3													250kPa
	M													
	3P													1MPa
	3R													3MPa
	XX													Other
Accuracy		F												0.2 Class
Flange Specification			H1											HG/T20592 PN10/16
			H3											HG/T20592 PN25/40
			H4											HG/T20592 PN63
			H5											HG/T20592 PN100
			K1											ANSI Class 150
			K2											ANSI Class 300
			X											Other
Flange Size				25										DN25(1")
				50										DN50(2")
				80										DN80(3")
				1C										DN100(4")
				X										Other
				X										
Diaphragm projection length					00									0mm
					50									50mm
					1H									100mm
					2H									150mm
					X									Other
					X									
Flange Material and processing						M1								304SS
						M								316SS

					2	304SS，Negative Pressure Processing
					F	316SS，Negative Pressure Processing
					M	Available
					FN	Two-Wire 4-20mA+HART
Display Type					1	RS485，24VDC
Output and Power supply					A	M20×1.5 Cable Gland, Aluminum Alloy, IP65
					7	M20×1.5 Cable Gland, Aluminum Alloy, IP67
					A	Other
					5	316LSS
Electrical Interface, Housing Material, and Ingress Protection				W	1	Hastelloy C
					W	Tantalum
					3	Monel
					XX	Titanium
Diaphragm Material			M3			316LSS coated with PFA
			M			316LSS gold plated
			G			Other
			T2			Silicone Oil
			ME			High-Temperature Silicone Oil
			T1			Ultra-High-Temperature Silicone Oil
			NS			Fluorinated Oil
			M			Vacuum Silicone Oil
			A			2m
			XX			1m
Filling Liquid				A		3m
				B		5m
				C		10m
				F		Other
				D		304SS pipe mounted flat bracket + M10*12 bolts
Capillary Length					02	
					01	
					03	
					05	
					10	
					X	
					X	
Accessories						P
						Y