

# PCM3051S-DP Intelligent Differential Pressure Transmitter

## Features

- Advanced monocrystalline silicon differential pressure sensor adopted
- Wide pressure range covering -0.1~3MPa
- 2-wire mode, 4~20mA analog output, HART® protocol digital communication
- Intelligent LCD gauge with backlight
- With both remote transmission and local zero and pressure range adjustment
- Complete varieties, high accuracy, good stability
- Isolation ex-proof housing structure, strong resistance to frequency conversion interference
- High static pressure, high overpressure protection
- Patented two pressure ends overpressure protection diaphragm design
- Lightning protection circuit design

## Applications and industries

- Process control fields for the industries of petroleum, chemical industry, metallurgy, electricity, food, papermaking, medicine, machine manufacturing, scientific experiment and military aviation etc.

### Notes:

- 1 Do not touch the diaphragm with hard objects, which may cause damage to the diaphragm.
- 2 Please read the Instruction Manual of the product carefully before installation and check the relevant information of the product.
- 3 Strictly follow the wiring method for wiring, otherwise it may cause product damage or other potential faults.



## Product overview

PCM3051S-DP intelligent differential pressure transmitter is a high performance pressure transmitter based on the international leading technology, adopting the world advanced monocrystalline silicon pressure sensor technology and the patented packaging process. This product adopts the patented two pressure ends overpressure protection diaphragm design, with the internal circuit surge protection design, and can accurately measure the gauge pressure, absolute pressure, flow, vacuum degree, liquid level and density.

### Notes:

- 1 Do not misuse documentation.
- 2 The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- 3 Complete installation, operation, and maintenance information is provided in the instructions of the product.

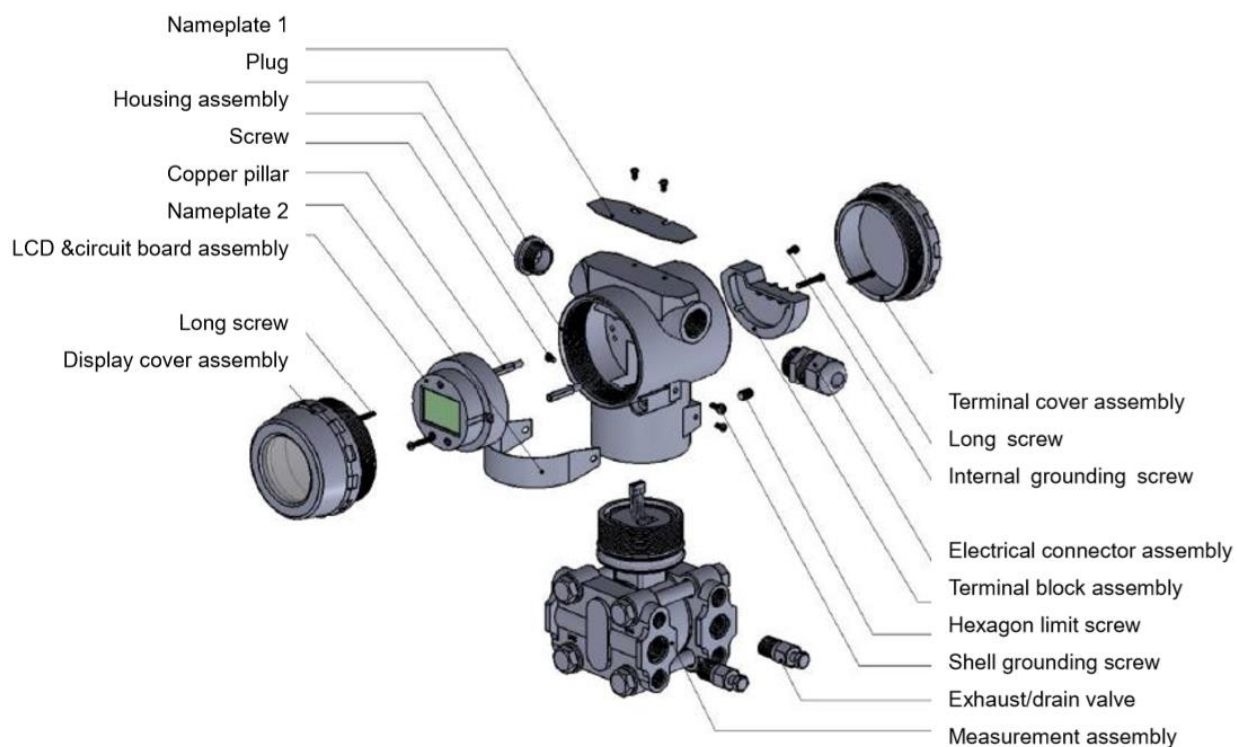
## Performance parameters

Pressure range	$\pm 1\text{kPa}$ ; $\pm 6\text{kPa}$ ; $\pm 40\text{kPa}$ ; $\pm 100\text{kPa}$ ; $\pm 250\text{kPa}$ ; $\pm 1\text{MPa}$ ; $\pm 3\text{MPa}$
Pressure reference	Gauge pressure, Differential pressure
Supply	12~32VDC, recommend 24VDC
Output	4~20mA+HART® protocol
Accuracy	$\pm 1\text{kPa}$ : $\pm 0.2\%\text{FS}$ ; $\pm 6\text{kPa}$ : $\pm 0.1\%\text{FS}$ ; Other ranges: $\pm 0.075\%\text{FS}$ (Standard ranges, $25\pm 5^\circ\text{C}$ )
Temp. drift	$\pm 1\text{kPa}$ : $\pm 0.5\%\text{FS}$ ; $\pm 6\text{kPa}$ : $\pm 0.3\%\text{FS}$ ; Other ranges: $\pm 0.25\%\text{FS}$ (Standard ranges, $-20\sim 70^\circ\text{C}$ )
Ambient temperature	$-30^\circ\text{C}\sim 80^\circ\text{C}$ ; with LCD gauge $-30^\circ\text{C}\sim 70^\circ\text{C}$
Medium temp.	$-40^\circ\text{C}\sim 125^\circ\text{C}$
Storage temp.	$-20^\circ\text{C}\sim 70^\circ\text{C}$
Insulation resistance	$\geq 200\text{M}\Omega/250\text{VDC}$
Protection grade	IP65
Ex-proof grade	Ex d IIB T6 Gb
Static pressure range	16MPa for ranges $\pm 1\text{kPa}$ ; $\pm 6\text{kPa}$ ; $\pm 40\text{kPa}$ ; 25MPa for ranges $\pm 100\text{kPa}$ ; $-100\sim 250\text{kPa}$ ; 40MPa for ranges $-0.1\sim 1\text{MPa}$ ; $-0.1\sim 3\text{MPa}$
Overpressure limitation	16MPa
Long-term stability	$\pm 0.1\%\text{FS}/\text{year}$ (standard ranges)

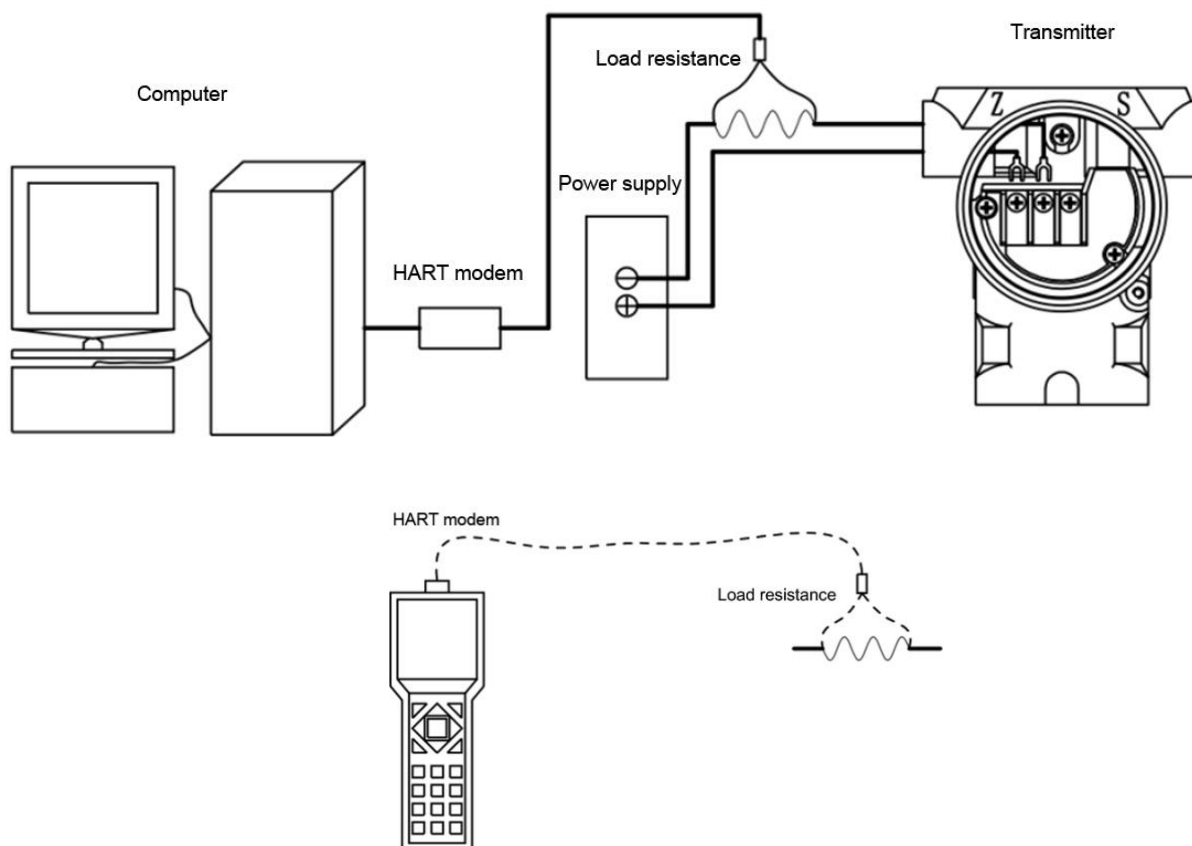
## Structural performance

Diaphragm material	316L, Hastelloy C
Exhaust/Drain valve	304
O-ring	Silicone rubber (contact with measurement medium)
Filling liquid	Silicon oil
Flange and clamp block	304
Housing material	Die-cast aluminium alloy, painted epoxy coating
Electrical connection	M20×1.5 (Female), NPT1/2 (Female)
Pressure connection	M20×1.5 with welded pipe, NPT1/4 (Female), NPT1/2, NPT1/2 (Female), G1/2 with welded pipe, G1/4, tri-valve set M20×1.5 with welded pipe (304/316 options), tri-valve set NPT1/4 (Female) (304/316 options)
Weight	3.5kg (not including accessories)

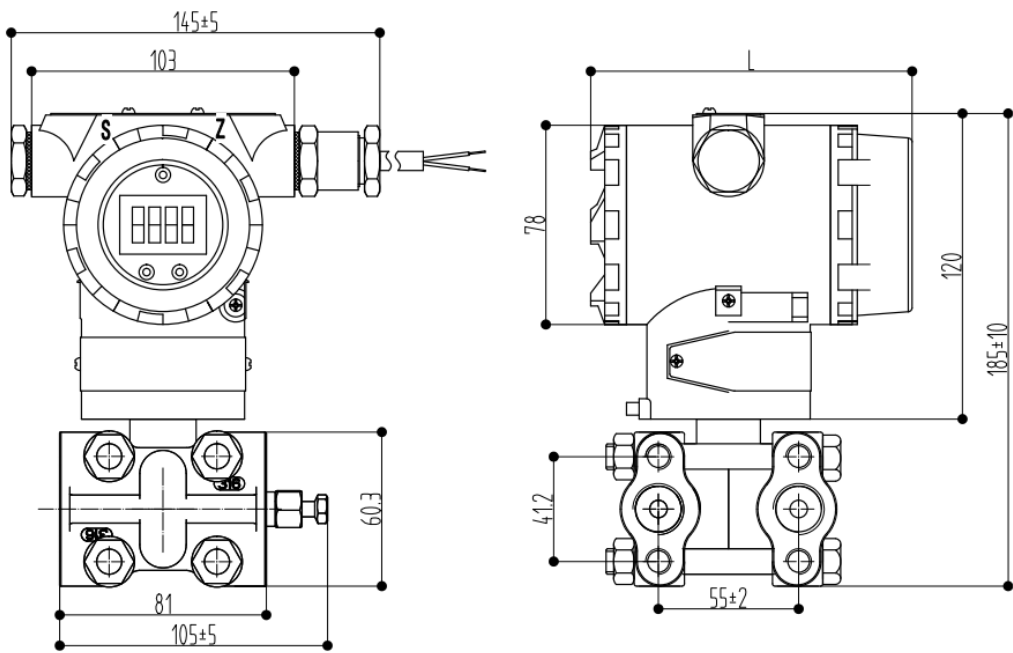
## Component diagram



## HART communication connection diagram



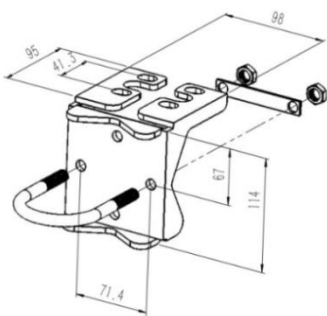
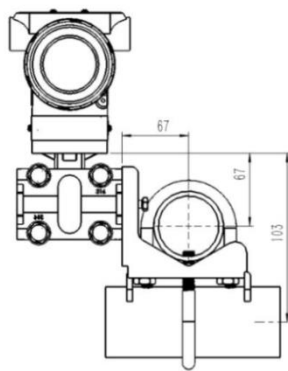
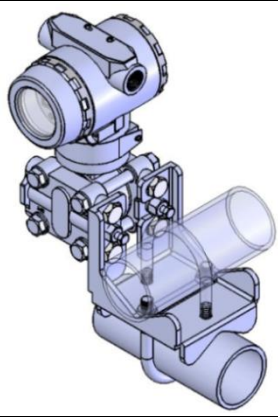
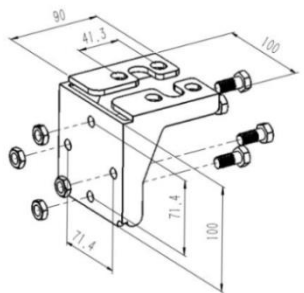
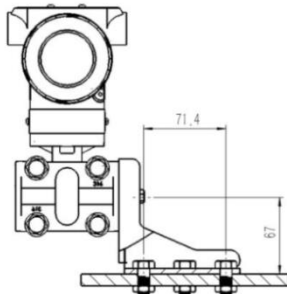
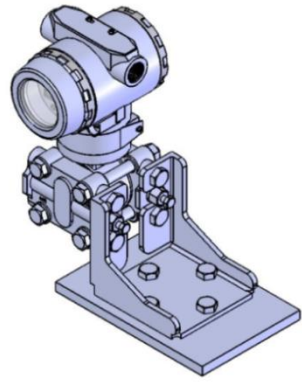
## Dimensional drawing

Product model	Dimensional drawing	In mm
PCM3051S-DP (no accessory)	 <p>Note: L=126±5mm if with display; L=108±5mm if without display</p>	

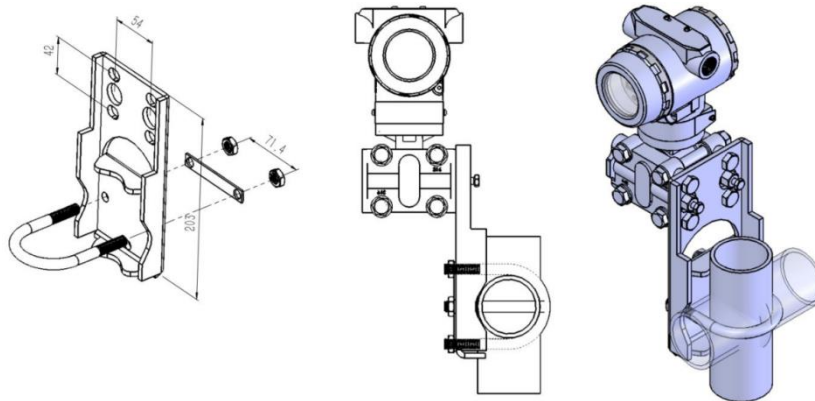
## Accessory

### Mounting bracket

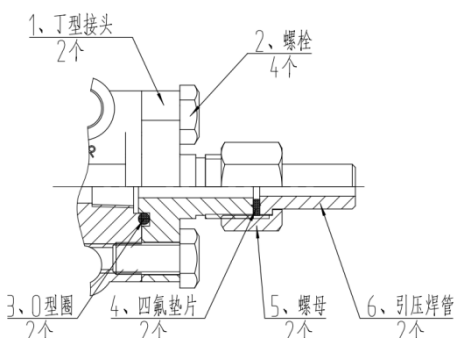
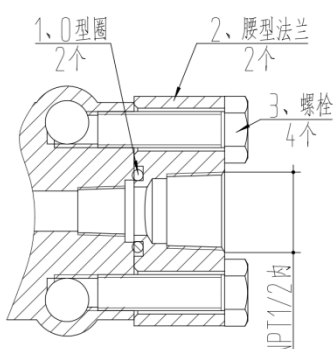
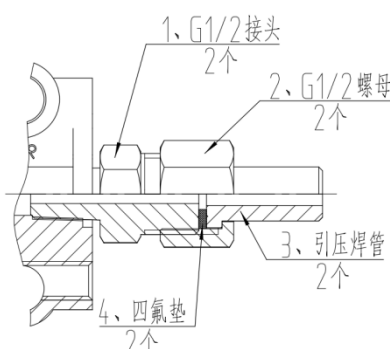
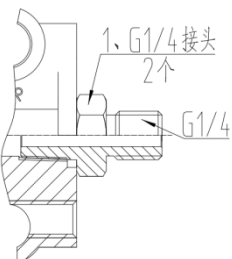
In mm

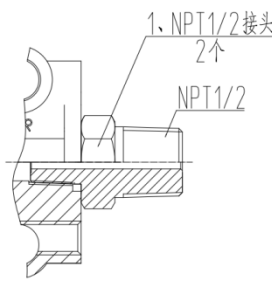
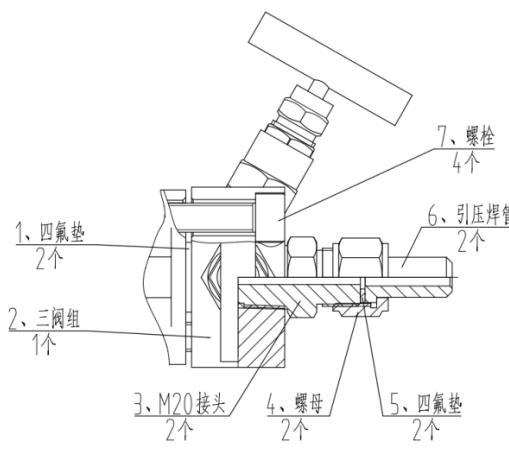
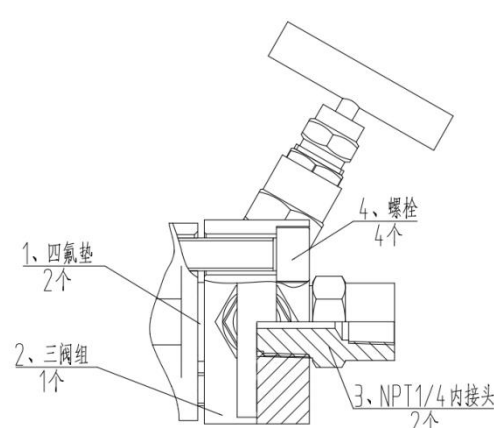
Pipe installation bending bracket: B1	  
Plane installation bending bracket: B2	  

### Pipe installation flat bracket: B3



### Pressure connection

<b>C1:</b> <b>M20×1.5 with</b> <b>welded pipe</b>		Name	Qty.
		1. T shape connector	2
		2. M10×20 bolt	4
		3. O-ring	2
		4. PTFE gasket	2
		5. M20 nut	2
		6. Φ14×4 pressure welded pipe	2
<b>C7F:</b> <b>NPT1/2(F)</b> <b>Waist shape</b> <b>flange</b>		Name	Qty.
		1. O-ring	2
		2. Waist shape flange	2
		3. M10×35 bolt	4
		-	-
		-	-
<b>C2:</b> <b>G1/2 with welded</b> <b>pipe</b>		Name	Qty.
		1. NPT1/4 to G1/2 adaptor	2
		2. G1/2 nut	2
		3. Φ14×4 pressure welded pipe	2
		4. PTFE gasket	2
		-	-
		-	-
<b>C3: G1/4</b>		Name	Qty.
		1. NPT1/4 to G1/4 adaptor	2
		-	-
		-	-

C7: NPT1/2	 <p>1, NPT1/2接头 2个 NPT1/2</p>	Name	Qty.
		1. NPT1/4 to NPT1/2 adaptor	2
		-	-
		-	-
		-	-
SFZC1: tri-valve set M20 with welded pipe (304/316 options)	 <p>1, 四氟垫 2个 2, 三阀组 1个 3, M20接头 2个 4, 螺母 2个 5, 四氟垫 2个 6, 引压焊管 2个 7, 螺栓 4个</p>	Name	Qty.
		1. PTFE gasket	2
		2. tri-valve set	1
		3. M20x1.5 connector	2
		4. M20x1.5 nut	2
		5. PTFE gasket	2
		6. Φ14x4 pressure welded pipe	2
		7. M10x35 bolt	4
		-	-
		-	-
SFZC5F: tri-valve set NPT1/4 Female (304/316 options)	 <p>1, 四氟垫 2个 2, 三阀组 1个 3, NPT1/4内接头 2个 4, 螺栓 4个</p>	Name	Qty.
		1. PTFE gasket	2
		2. tri-valve set	1
		3. NPT1/4 connector	2
		4. M10x35 bolt	4
		-	-
		-	-
		-	-

PC3051S-DP - 6k J8X M1

Product model:  
PCM3051S-DP

Pressure range selection:

1k=±1kPa

6k=±6kPa

40k=±40kPa

100k=±100kPa

250k=±250kPa

1M=±1MPa

3M=±3MPa

Diaphragm material:

NA: 316L

M1: Hastelloy C

Electrical connection:

J8 = 3051 gray white housing without display (M20×1.5 female)

J8X= 3051 gray white housing with display (M20×1.5 female)

J12 = 3051 blue isolation ex-proof housing without display (M20×1.5 female)

J12X = 3051 blue isolation ex-proof housing with display (M20×1.5 female)

J22 = 3051 blue isolation ex-proof housing without display (NPT1/2 female)

J22X = 3051 blue isolation ex-proof housing with display (NPT1/2 female)

## How to order for accessories

C1

Pressure connection:

C1=M20×1.5 with welded pipe

C2=G1/2 with welded pipe

C3=G1/4 (Male)

C5F=NPT1/4 (Female) (default)

C7=NPT1/2

C7F=NPT1/2 (Female)

SFZC1= tri-valve set M20×1.5 with welded pipe

SFZC5F= tri-valve set NPT1/4 (Female)

B3

Mounting bracket:

B1=Pipe installation bending bracket

B2=Plane installation bending bracket

B3=Pipe installation flat bracket



Example: PCM3051S-DP-6kJ8XM1 -Z Accessory C1B3

Refer to product model: PCM3051S-DP, pressure range selection:  $\pm 6\text{kPa}$ , output: 4~20mA+HART® protocol, electrical connection: 3051 housing with display (M20×1.5 female), pressure connection: M20×1.5 with welded pipe, mounting bracket: Pipe installation flat bracket

## Ordering tips

Accessory should be purchased separately.

Wotian reserves the right to make any change in this publication without notice. The information provided is believed to be accurate and reliable as of this product sheet.

## Contact us

Nanjing Wotian Technology Co.,Ltd.

Website: [www.wtsensor.com](http://www.wtsensor.com)

Add: 5 Wenying Road, Binjiang Development Zone, Nanjing, 211161, China