

# S-PCM-2051

# SMART LINE

# MONOCRYSTALLINE SILICON PRESSURE TRANSMITTER



## PCM2051-AP/GP

# Monocrystalline Silicon Pressure Transmitter

### Features

- Advanced MEMS monocrystalline silicon pressure sensor chip adopted
- Wide pressure range covering
- Double-wire mode, 4~20mA HART® protocol digital communication option
- Intelligent LCD gauge outfit with backlight
- With local zero and pressure range adjustment
- Complete varieties, high accuracy, good stability,
- Isolation ex-proof housing structure, strong resistance to the frequency conversion interference
- No mechanical transmission parts, strong anti-vibration

### Applications and industries

- Process control fields for the industries such as 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

PCM2051 chip adopts advanced MEMS monocrystalline silicon pressure sensor chip. The sensor signal is converted into a standard signal output by a dedicated signal processing module. After long-term aging and stability screening, the product performance is stable and reliable. It is applied to the outdoor scene where the environment is harsh. At the same time, it can display on-site pressure, zero point and full range migration. The installation port form of PCM2051 monocrystalline silicon pressure transmitter can be processed according to the requirements of users, and can also be compatible with other brands of transmitters. This series of products are widely used in industrial process control, petroleum, chemical, metallurgical and other industries.

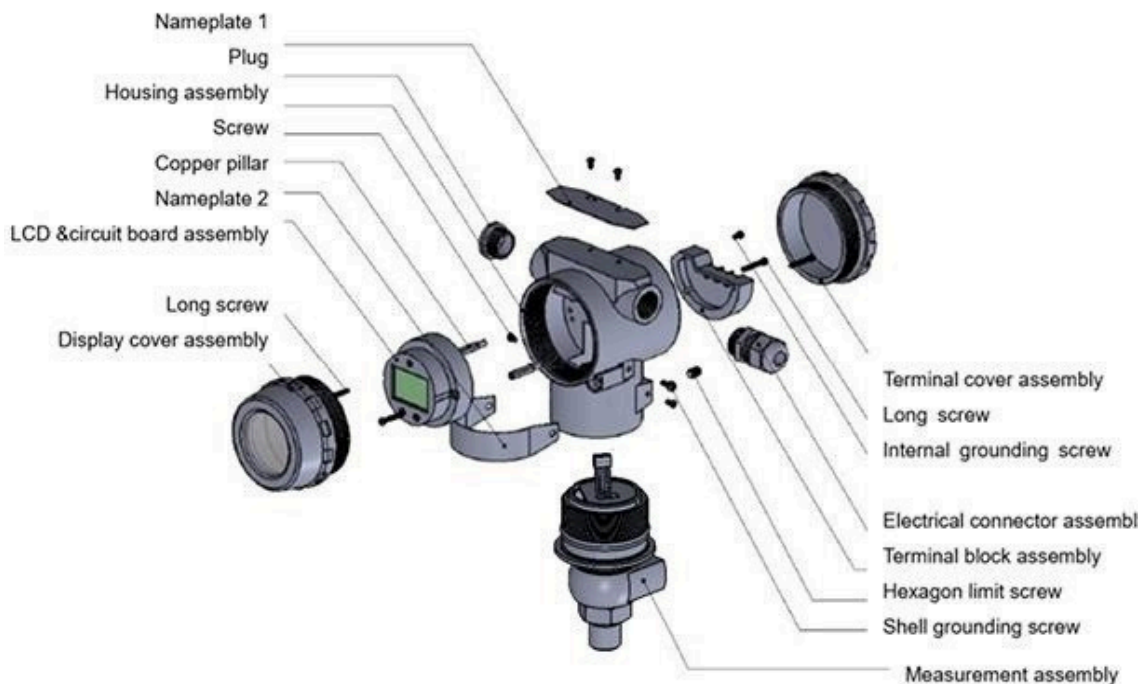
#### Notes:

- 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.

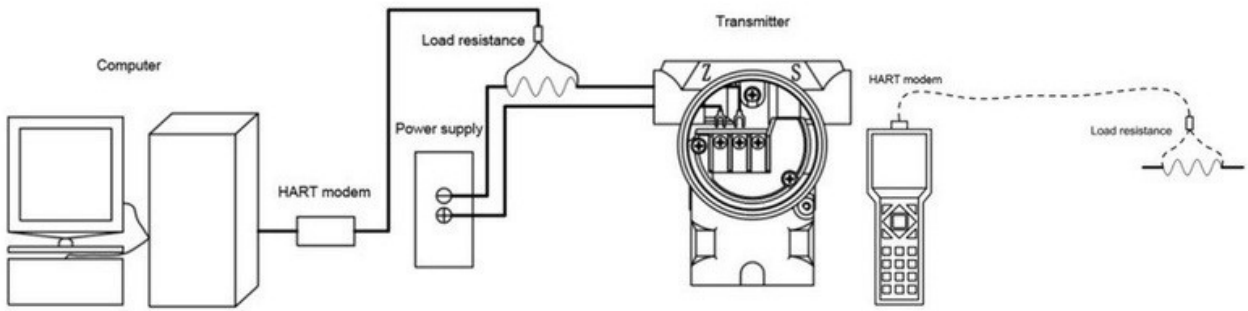
## Performance parameters

Pressure range	±6kPa G, ±40kPa G, ±100kPa G, -100~250kPa G, 0~100kPa A, 0~250kPa A, -0.1~1MPa G, -0.1~3MPa G, 0~10MPa S, 0~20MPa S, 0~40MPa S
Pressure reference	Gauge pressure  Absolute pressure  Sealed gauge pressure
Supply	12V~32V, recommended 24V
Output	4~20mA+HART protocol
Accuracy	±6kPa: ±0.1%FS; Other pressure ranges: ±0.075%FS(Standard pressure range, 25±5℃)
Temperature drift	±6kPa: ±0.3%FS; Other pressure ranges: ±0.25%FS(Standard pressure range, -20~70℃)
Ambient temperature	-30℃~80℃; with LCD gauge outfit: -30℃~70℃
Medium temperature	-40℃~120℃
Vibration resistance	20g (20~5000Hz)
Shock resistance	100g (11ms)
Overpressure	Please see pressure range selection
Long-term stability	±0.1%FS/year
Protection grade	IP67
Ex-proof grade	Ex d IIC T6 Gb
Material	Housing cast aluminum alloy; isolation diaphragm 316L
Medium compatibility	All kinds of media compatible with SS316L
Response time	HART collects data from sensor: 0.1s; HART outputs data: 0.5s

## Component diagram



## HART communication connection diagram



## Outline dimension

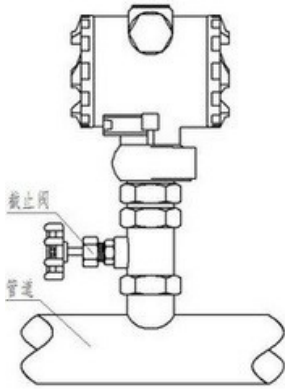
Product model	Dimension drawing	Inmm
	<p>Red wire Green wire</p>	
PCM2051-AP/GP	<p>HEX36</p>	
	Note: L=126±5mm	

**Pressure connection**

Thread code	C1: M20×1.5-6g	C2: G1/2
Dimension Inmm		
Recommended torque	15 ~ 25N m	15~25Nm
Thread code	C7: NPT1/2	C7F: NPT1/2 (Female)
Dimension Inmm		
Recommended torque	15 ~ 25Nm	15 ~ 25Nm

**Bracket (in mm)**

L shape bracket	
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Installation tips:

- (1) The product is installed vertically on pressure port on site.
- (2) When installing outdoor, the transmitter should be placed in a ventilated and dry place as far as possible to avoid direct sunlight and rain, otherwise the performance will be deteriorated or malfunction.
- (3) When the product is installed infrequent lightning areas, it should be marked with "Lightning Protection" when ordering. It is also recommended that users install lightning protection device on site and ensure reliable grounding of product and power supply, which can reduce the probability of lightning damage to the transmitter.
- (4) If the transmitter is found to have no output or the output is abnormal after installation, please check:
  - a Whether the electrical connection is accurate and firm
  - b Is the supply voltage too low or the load resistance is too large

Pressure range selection

Pressure range code	Pressure range	Overload pressure
6kG	±6kPa	300kPa
40kG	±40kPa	1MPa
100kG	±100kPa	2MPa
250kG	-100~250kPa	4MPa
100kA	0~100kPaA	2MPa
250kA	0~250kPaA	2MPa
1MG	-0.1~1MPa	6MPa
3MG	-0.1~3MPa	12MPa
10MS	0~10MPa	20MPa
20MS	0~20MPa	40MPa
40MS	0~40MPa	60MPa

Note: G: Gauge pressure, A: Absolute pressure, S: Sealed gauge pressure

## How to order

PCM2051-GP - 40k C7 M1 J22X

### Product model

PCM2051-GP: Gauge Pressure  
PCM2051-AP: Absolute Pressure

### Pressure range

6k: ±6kPa Gauge Pressure  
40k: ±40kPa Gauge Pressure  
100k: ±100kPa Gauge Pressure  
250k: -100~250kPa Gauge Pressure  
100kA: 0~100kPa Absolute Pressure  
250kA: 0~250kPa Absolute Pressure  
1M: -0.1~1MPa Gauge Pressure  
3M: -0.1~3MPa Gauge Pressure  
10M: 0~10MPa Sealed gauge pressure  
20M: 0~20MPa Sealed gauge pressure  
40M: 0~40MPa Sealed gauge pressure

### Pressure connection

C1: M20×1.5  
C2: G1/2  
C7: NPT1/2  
C7F: NPT1/2Female

### Electrical connection

J12X: Blue isolation ex-proof with display (M20×1.5)  
J22X: Blue isolation ex-proof with display (NPT1/2 female)  
J12: Blue isolation ex-proof without display (M20×1.5)  
J22: Blue isolation ex-proof without display (NPT1/2 female) J8X: Grey non-isolation with the display (M20×1.5)  
J8: Grey non-isolation without the display (M20×1.5)  
Peidan: Orange isolation ex-proof housing

### Diaphragm material

No code: 316L  
M1: Hastelloy C

**Example:** PCM2051-GP-40kC7M1J12X

The product model is PCM2051 Gauge Pressure, 40k: pressure range 40kPa, C7: pressure connection NPT1/2, M1: diaphragm material is Hastelloy C, J12X: electrical connection is blue isolation ex-proof with display (M20×1.5). 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.

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