

00 PRESSURE MEASUREMENT CYB-YL4200 SERIES

Product introduction

CYB-YL4200 series pressure transmitter is a rod-shaped small-profile pressure transmitter. Select high-reliability silicon piezoresistive pressure sensor as the sensitive core, after temperature compensation, digital circuit correction and signal conditioning, output standard industrial applications and networking signals.



Each type of product has undergone careful design, component screening, process verification and curing, cyclic loading to remove stress, aging, environmental simulation testing and other processes to ensure that each product is stable and reliable.

Features

- Pressure form: gauge pressure, absolute pressure, sealed gauge pressure
- Range: -0.1MPa ...0kPa~10kPa ... 100MPa
- Overload capacity: ≤ 2 times ($< 10\text{MPa}$), ≤ 1.5 times ($\geq 10\text{MPa}$)
- Electrical connection: Hirshman socket, Aviation socket, direct cable outlet, Waterproof interface
- Accuracy: $\pm 0.1\%\text{FS}$ (customized) , $\pm 0.25\%\text{FS}$, $\pm 0.5\%\text{FS}$
- Output signal: 4mA~20mA, 0V~5VDC, 0V~10VDC, I2C, RS485
- Response time: $\leq 3\text{ms}$ (10%~90%)
- Measuring medium: fluids compatible with SS304 or SS316L

Applications

- Coal mine
- Environmental protection
- Oil field
- Medicine
- Chemical industry
- Water affairs
- Civil explosion
- Food
- Sticky liquid

Output signal and supply voltage

Form	Output signal	Supply voltage
Current (2 wire)	4mA ~ 20mA	12V ~ 30V DC
Voltage (3 wire)	0V ~ 5V DC	6V ~ 24V DC
	0V ~ 10V DC	12V ~ 30V DC
I ² C (4 wire)	I ² C	3.3V ~ 5V DC
RS485 (4 wire)	RS485	5V ~ 30V DC

Load resistance (Ω)

Current (2 wire): $R \leq (U-10)/0.02-RD$ (U: power supply voltage, RD: internal resistance of the cable) **Total current consumption**

Current(2 wire): The maximum signal current is approximately 23mA

Voltage (3 wire): < 5mA

I²C (4 wire): < 1.3mA (low power consumption can be customized < 5μA)

RS485 (4 wire): < 5mA (low power < 1.1mA)

Product accuracy and performance index

Item	Parameter		
Accuracy	0.1 (customized)	0.25	0.5
Non-linearity (%FS)	≤0.1	≤0.2	≤0.4
Hysteresis (%FS)	≤0.05	≤0.05	≤0.1
Repeatability (%FS)	≤0.05	≤0.05	≤0.1
Long-term stability (%FS/year)	≤0.1	≤0.2	≤0.5
Zero-point temperature drift (%FS/°C)	≤0.01	≤0.03	≤0.05
Sensitivity temperature drift (%FS/°C)	≤0.01	≤0.03	≤0.05

Reference conditions

Temperature: 20°C ~ 25°C

Relative humidity: 45%RH ~ 75%RH

Power supply voltage: 24V±0.24V, 5V±0.05V

Installation direction: pressure interface straight down

Environmental conditions

Item	Parameter
Compensation temperature	0℃~+50℃ (≤200kPa), -10℃~70℃ (>200kPa)
Medium temperature	-40℃ ~ +85℃
Ambient temperature	-40℃ ~+85℃
Storage temperature	-40℃ ~ +85℃

Note: the measured medium icing will cause irrecoverable damage to the product.

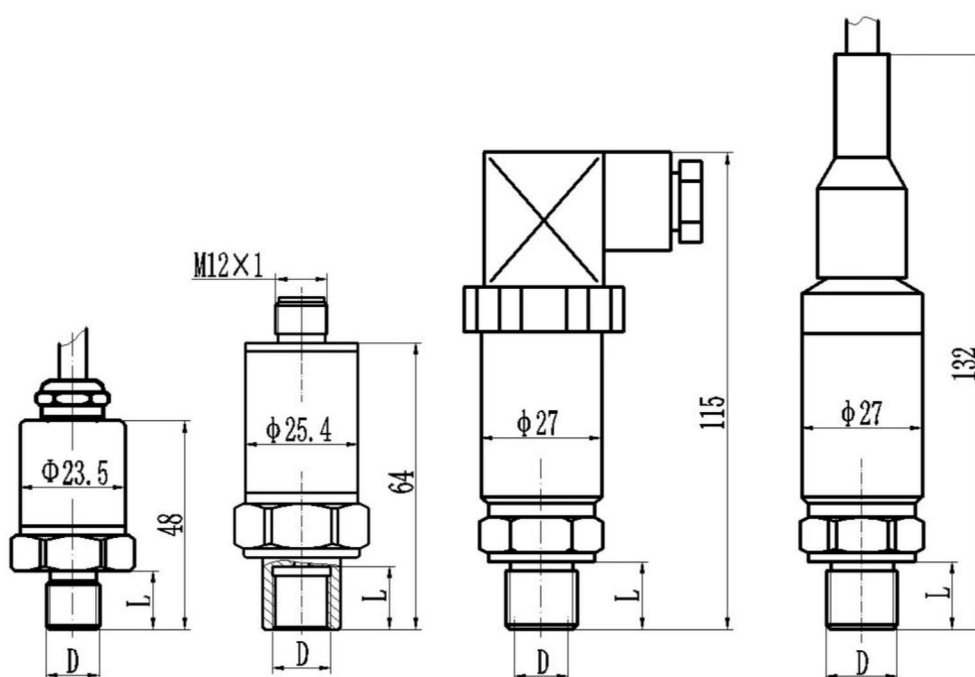
- When the pressure transmitter is operating normally, it is required that the measured medium cannot be solidified.

Operating conditions

Item	Parameter
Protection level	IP65 (IP68 customized)
Atmospheric pressure	86kPa ~ 106kPa
Vibration environment	10g (@10Hz ~ 2000Hz)
Shock resistance	100g/11ms
Service life	> 10 million cycles of load capacity (within measurement range)

Typical appearance structure drawing (unit: mm)

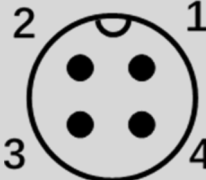
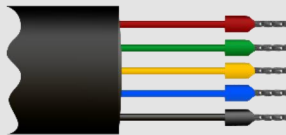
The following figures show the typical product structure, other structures please contact Sibo.X for consultation and customization.



Optional pressure port size description

Size D	Length L	Size D	Length L
M22× 1.5	15 mm	M20× 1.5	15 mm
M18× 1.5	15 mm	M16× 1.5	15 mm
M14× 1.5	15 mm	M12× 1	15 mm
M10× 1	12 mm	M8× 1	12 mm
Size D	Length L	Size D	Length L
G1/2	15 mm	G3/8	15 mm
G1/4	15 mm	G1/8	12 mm
Size D	Length L	Size D	Length L
1/2NPT	18 mm	1/2 PT	18 mm
3/8NPT	15 mm	3/8 PT	15 mm
1/4NPT	15 mm	1/4 PT	15 mm
1/8NPT	12 mm	1/8 PT	12 mm

Wiring diagram of electrical connection

Hirschman socket					
Structure diagram	Wiring post	Current (2 wire)	Voltage (3 wire)	IIC (4 wire)	RS485 (4 wire)
	1	Vcc	Vcc	Vcc	Vcc
	2	Iout	GND	GND	GND
	3	/	Vout	SCL	RS485A
		PE	PE	SDA	RS485B
Round Aviation socket					
Structure diagram	Wiring post	Current (2 wire)	Voltage (3 wire)	IIC (4 wire)	RS485 (4 wire)
	1	Vcc	Vcc	Vcc	Vcc
	2	Iout	GND	GND	GND
	3	PE	Vout	SCL	RS485A
	4	/	PE	SDA	RS485B
Cable direct outlet					
Structure diagram	Cable color	Current (2 wire)	Voltage (3 wire)	IIC (4 wire)	RS485 (4 wire)
	Red	Vcc	Vcc	Vcc	Vcc
	Green	Iout	GND	GND	GND
	Yellow	/	Vout	SCL	RS485A
	Blue	/	/	SDA	RS485B
	Black	PE	PE	PE	PE

Selection guide

CYB-YL4200			Series pressure transmitter					
	Range		Measuring range is -0.1MPa ... 0MPa ~ 0.01MPa ... 100MPa					
	xxn		In kPa,the first two digits XX value is multiplied by the n-square of 10, and n is the third digit value.					
			Code name	Form of pressure				
			G	Gauge pressure				
			A	Absolute pressure				
			S	Sealed gauge pressure				
				Code name	Supply voltage			
				U ₁	24VDC			
				U ₂	12VDC			
				U ₃	5VDC			
				U ₄	3VDC (3.3VDC)			
				U ₅	Other power supply modes			
					Code name	Output signal		
					E ₁	4mA ~ 20mADC		
					E ₂	0mA ~ 10mADC		
					E ₃	0mA ~ 20mADC		
					V ₁	1VDC ~ 5VDC		
					V ₂	0VDC ~ 5VDC		
					V ₃	0VDC ~ 10VDC		
					V ₄	0.5VDC ~ 4.5VDC		
					V ₅	Other voltage output		
					R ₄	RS485 communication interface		
					H	HART® protocol communication		
					II	I ² C protocol communication		
								Code name
	Electrical interface	Pressure port						
	Hirschmann socket (LJ ₁)		G¼					
Aviation socket (LJ ₂)		G½						
Waterproof interface (LJ ₃)		G1						
Direct cable outlet (LJ ₄)		M20× 1.5						
Others (LJ ₅)		Others (direct marking)						
			Code name	Additional features				
			M ₁	4 Bit LCD digital display meter (only 4mA ~ 20mADC output)				
			M ₂	4 Bit LED digital display meter (only 4mA ~ 20mADC output)				
			d	Flameproof ExdIICT5				
			i	Intrinsically safe ExiaIICT6				
			QT	Other functions				
YL4200 [102]	G	U1	V3	LJ1G½	Complete model and specification			

⊙ Note: Order model CBY-YL4200 [102] G U₁ V₃ LJ₁G₁/2 refers to the product with CYB-YL4200, measuring range

of 1MPa, gauge pressure, 24V power supply, 0 ~ 10V output, Hirschman connector, G₁/2 pressure port.

Precautions

- When the range of the product is within $-5\sim 5\text{kPa}$, and the product can only measure non corrosive gas.
- The thread of pressure interface of flat film products is limited to $M20\times 1.5$ or $G1 / 2$, please consult Sibo.X if you need other special threads.
- When the product is at risk of being immersed or submerged, please order the liquid level outlet type or consult.
- For the compatibility of product seal material and the measured medium, please contact Sibo.X for consultation
- When selecting high-temperature products, there must be good ventilation at the heat sink.
- Gauge pressure products with a range of 3MPa or less are equipped with vent holes or vent cables, which need to be prevented from clogging to avoid affecting the accuracy of the product test.
- The C Y B - YL4200 series has 4 electrical interfaces, with different protection levels, customers can choose according to actual needs.