

CYB1800 Series

Micro Differential Pressure Transmitter



Brief introduction

Micro differential pressure transmitter adopts silicon MEMS micro-pressure chip, after temperature compensation, linear compensation, signal amplification, V/I conversion, and other signal processing, output industrial standard 4mA ~ 20mA, RS485 and other signals, increased anti-surge, reverse polarity protection and other functions to improve product reliability; using temperature compensation, digital calibration, temperature drift performance and product stability has been improved.

This series of products chip adopts two types of isolation protection. Range less than 5kPa, mainly for non-corrosive gas differential pressure measurement; range 5kPa and above range, suitable for stainless steel and sealing ring materials non-corrosive media measurement.

Features

- Pressure type: differential pressure
- Range: 0Pa ~ ±100Pa, 500Pa ... 1000Pa
0kPa, 2kPa, 10kPa ... 100kPa
- Overload capacity: ≤ 2 times
- Static pressure: ≤100kPa
- Electrical connection: waterproof connector
- Accuracy: ±0.25%FS / ±0.5%FS / ±1.0%FS
- Output signal: 4mA ~ 20mA / 0 ~ 5VDC / 0 ~ 10VDC / RS485 / I²C
- Response time: ≤3ms (10% ~ 90%)
- Measuring medium: < 5kPa, non-corrosive gas
≥5kPa, fluids compatible with ss316L, silicon

Main applications

- HVAC plumbing
- Chemical
- Metallurgy
- Electricity
- Light textile
- Pharmaceuticals
- Food
- Environmental protection

Product certifications



Output signal and supply voltage

Item	Output signal	Power supply
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	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: supply voltage, RD: internal resistance of cable)

Bus current consumption

Current (2 wire): signal current, approx. 23mA max

Voltage (3 wire): < 5mA

I²C (4 wire): < 1.3mA

RS485 (4 wire): < 5mA

Product accuracy and performance

Item	Parameter	
Accuracy	0.5	1.0
Non-linearity (%FS)	≤0.4	≤0.8
Hysteresis (%FS)	≤0.1	≤0.2
Repeatability (%FS)	≤0.1	≤0.2
Long-term stability (%FS/year)	≤0.5	≤1.0
Zero-point temperature drift (%FS/°C)	≤0.05	≤0.08
Sensitivity temperature drift (%FS/°C)	≤0.05	≤0.08
Static pressure effect (%FS/100kPa)	≤0.05	

Reference conditions:

Temperature: 20°C ~ 25°C

Relative humidity: 45%RH ~ 75%RH

Power voltage: 24V±0.24V / 5V±0.05V

Environmental conditions

Item	Temperature range
Compensation temperature	0°C ~ +50°C
Medium temperature	-40°C ~ +85°C
Ambient humidity	-40°C ~ +85°C
Ambient temperature	-40°C ~ +85°C

Note: Icing of the measured medium can cause irreversible damage to the product.

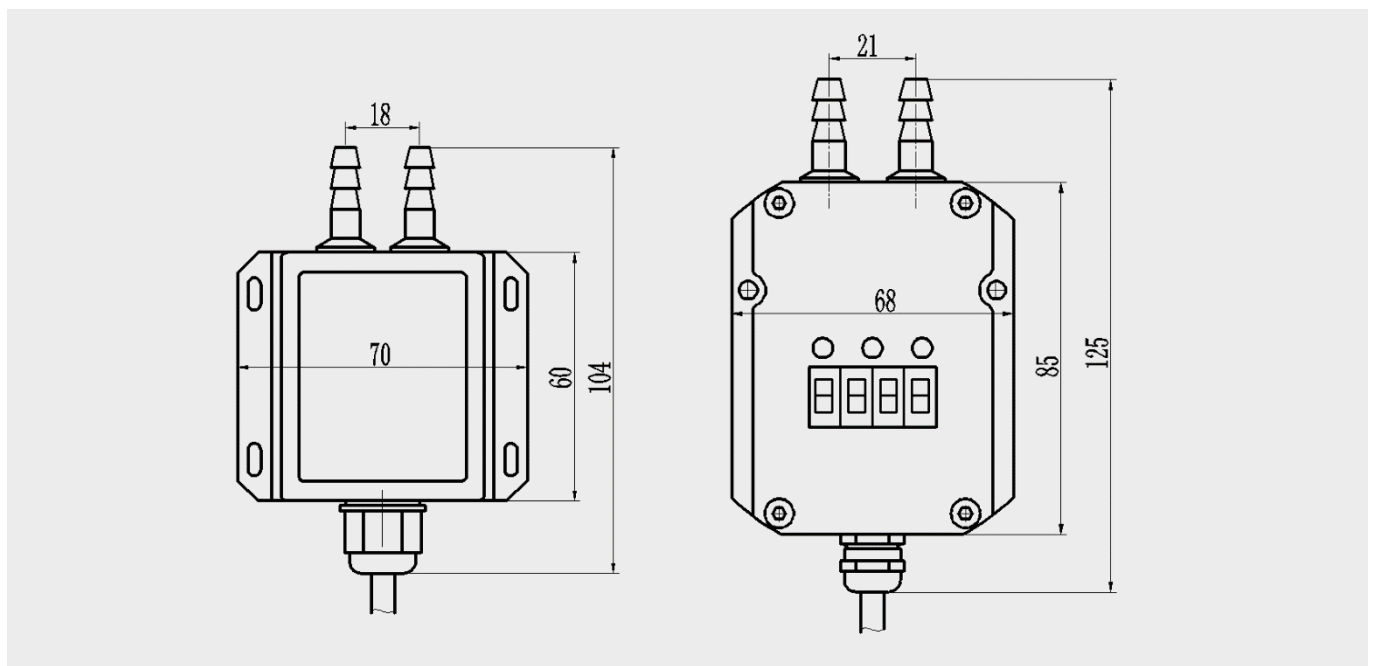
- When the pressure transmitter works normally, it is required that the measured medium cannot be solidified.

Working conditions

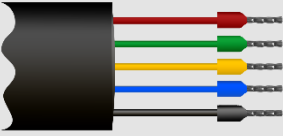
Item	Parameter
Protection degree	IP66
Atmospheric pressure	86kPa ~ 106kPa
Vibrating environment	10g (@10Hz ~ 2000Hz)
Impact resistance	100g/11ms
Service life	> 10 million load cycles (within the measurement range)
Maximum static pressure	≤200kPa (related to the actual range of the product)

Dimension and structure diagram (unit: mm)

⊙ The outline structures in the picture are the recommended models, other structures can contact Huatian Sensor.



Electrical connection wiring diagrams

Waterproof connector					
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

CYB1800		Series Micro Differential Pressure Transmitter			
Range	±100Pa...100kPa				
xxn	The unit Pa, the first two digits xx value multiplied by n squared by 10, n is the third value.				
	Code	Pressure form			
	D	Differential pressure type			
		Code	Supply voltage		
		U ₁	24VDC		
		U ₂	12VDC		
		U ₃	5VDC		
		U ₄	3VDC(3.3VDC)		
		U ₅	Other power supply methods		
		Code	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 outputs		
		R ₄	RS485 communication interface		
		II	I ² C Protocol Communication		
CYB1800 [102]	D	U₁	E₁	Complete model specifications	

© Order Model CYB1800 [102] D U₁ E₁ indicates CYB1800 series micro differential pressure products, range 1kPa, differential pressure, 24V power supply, 4mA~20mA output.

Cautions

- Please check whether the package is intact when you receive the product, and verify that the transmitter model and specifications match those you have purchased.
- Please keep the calibration datasheet and return it with the product if you need to repair it.
- Please contact us for information on the compatibility of the product sealing ring material and the media to be measured.
- Pay attention to the installation direction of the transmitter when installing. Usually, the transmitter is commissioned horizontally and should be installed horizontally; vertical installation should be specified when ordering or adjust the zero point in the instrument.
- Avoid bumping the product during installation and operation as to avoid affecting the measurement accuracy of the product.
- Avoid installing the transmitter in an environment of mechanical vibration and strong electromagnetic interference.
- Under low-temperature environment, it is important to ensure the fluidity of the measured medium in order to ensure accurate pressure measurement
- Transmitter is a precision instrument, should be stored in a dry and ventilated indoor environment, avoid direct sunlight.