

Product information

Cyyz32 protective pressure transmitter



Cyyz32 pressure transmitter adopts double isolation diaphragm inside and integral welding process outside, which makes it have superior anti condensation function. It is mainly used in pressure measurement sites with large medium temperature changes and humid environment.

Range: -100kpa ~ 0 ~ 2.5MPa (see range selection table for details)

Output: 4 ~ 20mA, RS485

Power supply: 9 ~ 36VDC、15~24VDC

Accuracy: 0.25% FS, 0.5% FS

In addition, we can also provide customized products that meet the application needs of customers in a short time according to their applications.

Typical applications

▲General industry.

Instructions

Cyyz32 series pressure transmitter can measure negative pressure and gauge pressure according to different models. It is suitable for pressure measurement of liquid level, gas and process industry. The operator is responsible for checking whether the equipment is suitable for the working conditions of the application. If you have any questions, please contact our sales department to ensure the correct application of the transmitter. The company will not bear any responsibility for the impact caused by improper model selection.

The user must ensure that the measured medium is compatible with the contact material of the transmitter.

⚠ Warning!

Improper use will lead to danger!

Icon description

⚠ Danger! - A dangerous situation that could result in death or serious injury.

⚠ Warning! - A potentially hazardous situation that could result in death or serious injury.

! Be careful! A potentially hazardous situation that could result in minor injury.

🔔 Reminder! - A potentially hazardous situation that could result in personal injury.

⚠ Tips! - Tips and information to ensure trouble free operation of the equipment.

User

⚠ Warning! This information is applicable to technicians

Product features

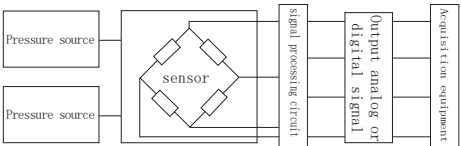
- a) Adopt diaphragm isolation technology
- b) Integrated chip, wide voltage power supply
- c) It is waterproof and easy to install
- d) Frequency cut-off design, strong anti-interference ability, lightning protection
- e) Current limiting, voltage limiting and reverse connection protection (current limiting output)
- f) High precision, good stability, fast response and impact resistance
- g) Moisture proof and dew proof

Product overview

Cyyz32 series pressure transmitter adopts OEM pressure sensor with stainless steel double isolation diaphragm as signal measuring element, with internal sealing treatment and external integral laser welding process, so that it has the function of anti condensation in the cavity. After computer automatic test, the zero point and sensitivity temperature compensation in a wide temperature range are carried out with laser resistance adjustment process. It has anti-interference, small temperature drift, high stability and high measurement accuracy. It is an ideal pressure measuring instrument in the field of industrial automation.

Working principle

The pressure sensor diffuses a Wheatstone bridge on the monocrystalline silicon chip. The pressure of the measured medium (gas or liquid) changes the resistance value of the bridge wall (piezoresistive effect) to generate a differential voltage signal. This signal is transformed into a standard analog signal (as shown in the figure below) or digital signal through a special amplifier.



Technical parameter

Measuring medium: liquid or gas (compatible with contact material)
Pressure mode: gauge pressure, negative pressure
Pressure range: -100kpa ~ 0 ~ 2.5MPa
Medium temperature: -40 ~ 85 °C
Response frequency: analog signal output ≤ 50Hz, digital signal output ≤ 5Hz
Connection time: 400ms
Accuracy grade: 0.25% FS normal (range ≥ 100KPA)
0.5% FS normal (10KPA ≤ range < 100KPA)
Note: reference conditions: temperature 15 ~ 25 °C, atmospheric pressure 86 ~ 106kpa, humidity 45 ~ 75% RH. Stability: ± 0.1% FS / year
Overload capacity: 200% of full scale
Power supply voltage: 9 ~ 36VDC、15~24VDC
Signal output: 4 ~ 20mA, RS485
Temperature drift: ± 0.01% FS / °C (within the temperature compensation range)
± 0.05% FS / °C (outside the temperature compensation range)
Explosion proof type: Intrinsically safe Ex ia IIC T6 Ga (limited to 4-20mA output)
Protection grade: IP68
Durability:10X10⁶ times (cycle times from lower range to upper range)
Overall weight: ≈ 710g (including 4m connecting wire)

Maximum power

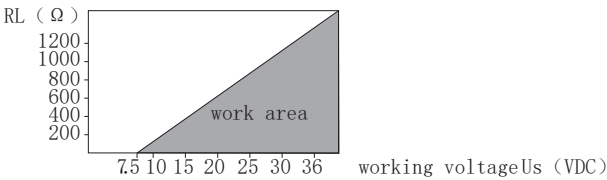
output \ power	≤0.02Us(W)	≤0.015Us(W)
4~20mA	✓	
RS485		✓

Note: us= supply voltage.

Load characteristics

Current type: load ≤ {(us-7.5) ÷ 0.02} Ω (us= supply voltage)

Load resistance (4~20) mA DC



Environment condition

Ambient temperature: -40 ~ 85 °C

Electromagnetic compatibility_(EMC)

Serial number	Test items	Basic standards	Test conditions	Performance level
1	Radiated interference (enclosure)	GB/T 9254/CISPR22	30MHz-1000MHz	qualified
2	Conducted interference (DC power port)	GB/T 9254/CISPR22	0.15MHz-30MHz	qualified
3	Electrostatic discharge (ESD)	GB/T 17626.2/IEC61000-4-2	4kV (Contact), 8kV (air)	B(Note 2)
4	Radio frequency electromagnetic field immunity	GB/T 17626.3/IEC61000-4-3	10V/m (80MHz-1GHz)	A(Note 1)
5	Power frequency magnetic field immunity	GB/T 17626.8/IEC61000-4-8	30A/m	A(Note 1)
6	Electrical fast transient burst immunity	GB/T 17626.4/IEC61000-4-4	2kV (5/50ns, 100kHz)	B(Note 2)
7	Surge immunity	GB/T 17626.5/IEC61000-4-5	500V (Between lines) 1000V (Between ground wires) (1.2us/50us)	B(Note 2)
8	Conducted interference immunity induced by RF field	GB/T 17626.6/IEC61000-4-6	3V (150kHz-80MHz)	A(Note 1)

Note 1: when the performance grade is a, the performance is normal within the limits of technical specifications.

Note 2: when the performance level is level B, the function or performance is temporarily reduced or lost, but can be recovered by itself, and the actual operation condition, storage and data will not change.

Overall material

Diaphragm: 316L stainless steel (contact with the measured medium)

Process connection: 304 stainless steel (contact with the measured medium)

Shell: 304 stainless steel

Sealing of the core body: nitrile rubber (contact with the measured medium)

Cable: Φ 7.2mm polyurethane gas shielded cable (UV resistant)

Mechanical stability

Seismic performance: 10g (20... 2000Hz) in line with iec60068-2-6 standard

Impact resistance: 500g/ms, complying with iec60068-2-27 standard

Electrical protection

Short circuit protection: permanent

Reverse pole protection: no damage, but it does not work

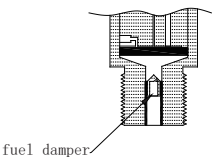
Insulation resistance: ≥ 100m Ω 500VDC

Insulation strength: 500VAC

Output limit

	Output minimum	Maximum output
4-20mA	4mA	20mA
RS485	0	2000

fuel damper



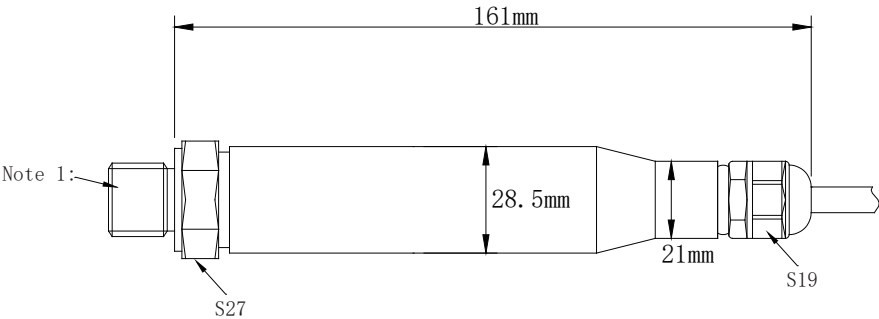
application
Cavitation, liquid hammer and peak pressure may occur in the liquid filling system, such as when the valve is closed quickly, Or when the pump is started and shut down. It may mainly occur at the inlet end and outlet end, even if it works
The pressure is very low, and it is no exception. A pulse buffer is installed inside the sensor to solve this kind of problem.
Note: after adding a pulse buffer, the medium pulse frequency will drop below 30Hz.

Explosion proof instructions

Intrinsically safe (limited to 4-20mA output)

Conforming to standards GB/T3836.1-2021 and GB/T3836.4-2021
Explosion proof sign: Ex ia II C T6 Ga
Intrinsic safety parameters: Ui: 28V, Ii: 93mA, Pi: 0.65W, Ci: 60nF, Li: 0 μ H
Associated device parameters: $U_o \leq U_i$ $I_o \leq I_i$ $P_o \leq P_i$ $C_o = C_c + C_i$ $L_o = L_c + L_i U_o$, I_o , P_o , C_o , L_o are safety barrier parameters, and CC and CC are distribution parameters for connecting cables.
Explosion proof certificate number: CLEx23.5924

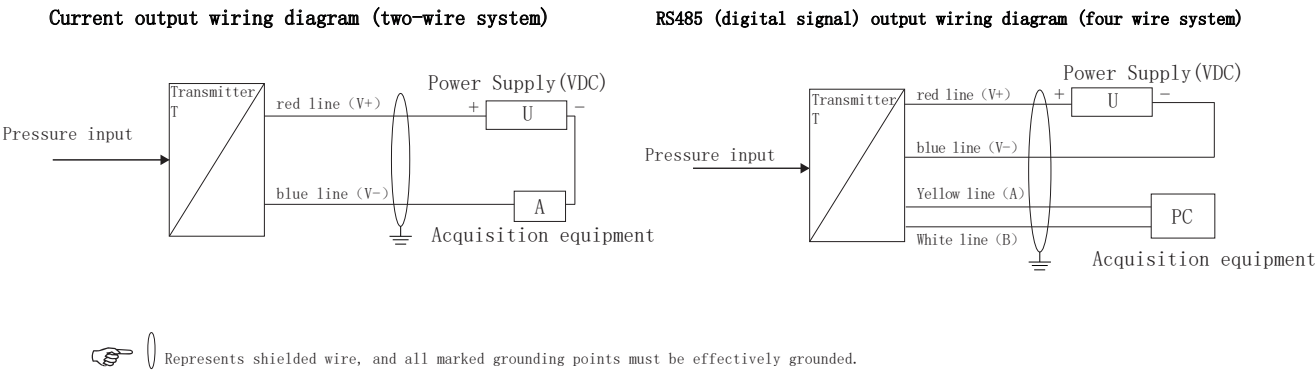
Shape and dimension



Note 1:

Thread size			
Thread specification	M20*1.5	G1/2	G1/4

Wiring diagram



Represents shielded wire, and all marked grounding points must be effectively grounded.

Protocol description (limited to RS485 signal output, the address is 01 by default, and the data is hexadecimal)

Basic technical parameters of transmitter

- This protocol complies with Modbus communication protocol and adopts the centralized RTU mode in Modbus protocol RS485 half duplex working mode
- a) Output signal: RS485 (the distance can be up to 1000m. 32 channels at most)
 - b) Standard Modbus RTU protocol (03 function reads data, 06 function writes setting data)
 - c) Data format: 9600, N, 8,1 (9600bps, no verification, 8 data bits, 1 stop bit)
 - d) Measuring range: 0-x (MPa, kPa...)
 - e) Resolution: 0.05%
 - f) Output data: 0... 2000 (customized for other ranges)
 - g) Response frequency: ≤ 5Hz
 - h) Response speed: ≥ 10m

Modbus RTU read data 03 command description

	Device address	Function code	Data address	Number of read data	16crc code (low front high rear)
Host command	Address	03	00 00	CN	CRC0 CRC1
	Device address	Function code	Data byte	Sensor data	16crc code (low front high rear)
Host command	Address	03	02*CN	S_HN , S_LN	CRC0 CRC1

Communication examples

The address of 0-1.6mpa sensor communication equipment is set to 01, i.e. [address] = 01 (address range 01-254); At this time, crc0 = 84, crc1 = 0A.
Then the sending and returning data are as follows:
Send: 01 03 00 01 84 0A
Return: 01 03 02 AC B9 59
02ac is hexadecimal and converted to decimal 684;
Data output: 0-2000 corresponds to 0-1.6mpa, so the current pressure is $p = 1.6 * 684 / 2000 = 0.5472\text{mpa}$
Calculation formula: $(\text{upper range} - \text{lower range}) \div 2000 * \text{current data} + \text{lower range} = \text{current pressure value}$

Query example

Reading the current device address can only be completed independently by a single offline sensor
Send FF 03 00 0f 00 01 A1 D7 return FF 03 02 00 01 50 50
Then: the address of this device is 01 (hexadecimal)

Detailed description of Modbus RTU write 06 command

	Device address	Function code	Data address	new address	16crc code (low front high rear)
Host command	Address	06	00 0F	H L	CRC0 CRC1
	Device address	Function code	Data address	new address	16crc code (low front high rear)
Host command	Address	06	00 0F	H L	CRC0 CRC1

Modification example

If the 01 address is changed to 09 address:
Send 01 06 00 0f 00 09 79 CF return 01 06 00 0f 00 09 79 CF
Then the original address 01 is changed to 09 successfully. The modified address can be modified offline or online.
After completion, it can work directly without power on again.

Parameter selection

CYYZ	Pressure transmitter										
	code	Transmitter type									
	32	Protective type (default 4-meter connector)									
		code	Measuring range								
		04	0~10kPa								
		05	0~20kPa								
		06	0~50kPa								
		07	0~100kPa								
		08	0~200kPa								
		10	0~0. 5MPa								
		11	0~0. 6MPa								
		12	0~1MPa								
		13	0~1. 6MPa								
		14	0~2. 5MPa								
		66	-100~0kPa								
		67	customized								
			code	signal output							
			A1	4-20mA				Two wire system			
			RS	RS485 communication interface, (standard Modbus RTU protocol) four wire system							
			DZ	customized							
				code	Connection mode						
				14	M20*1.5 external thread (length 18mm)						
				17	G1/4 external thread (length 13mm)						
				19	G1/2 external thread (length 18mm)						
				44	customized						
					code	Accuracy class					
					B	0. 25% FS normal (range ≥ 100KPa)					
					C	0. 5% FS normal (10KPA ≤ range < 100KPa)					
						code	Supply voltage				
						G5	9-36VDC				
						G9	15-24VDC (intrinsic safety only)				
						DZ	customized				
							code	Explosion proof type			
							B	Intrinsically safe (current output only)			
							No	Standard type (without explosion-proof)			
								code	customized		
								D	Other customization requirements		
								No	routine		
CYYZ	32	12	A1	14	B	G5		Example of model selection			
For example: cyyz32-12-a1-14-b-g5 (protective pressure transmitter, range 0-1mpa, output 4-20mA, connection m20*1.5, accuracy 0.25, power supply 9-36vdc)											

Ordering Instructions

⚠ Warning!

When ordering pressure transmitters, users should pay attention to selecting appropriate specifications according to the pressure, temperature and environmental conditions of the medium.

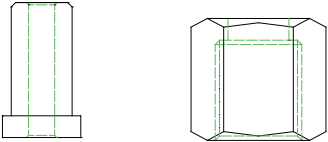
ordering information

Model / range / output signal / connection mode / accuracy level / power supply voltage / Explosion proof type/Customization

enclosure (Purchase separately)

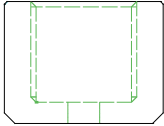
Welded base

Dz01 union welding base



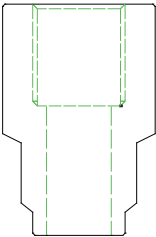
Main purpose: base welding and positioning

Dz05 column welding base



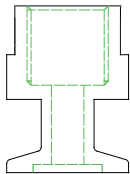
Main purpose: base welding

Dz03 pagoda welded base



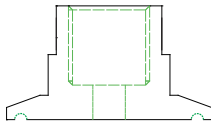
Adapter

Zb06 adapter kf16



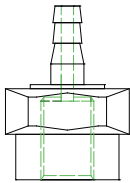
Main purpose: transfer and conversion

Zb08 adapter clamp



Main purpose: transfer and conversion

Zb05 pagoda mouth adapter



Main purpose: transfer and conversion

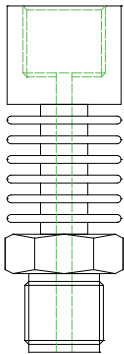
F101 adapter flange



Main purpose: transfer and conversion

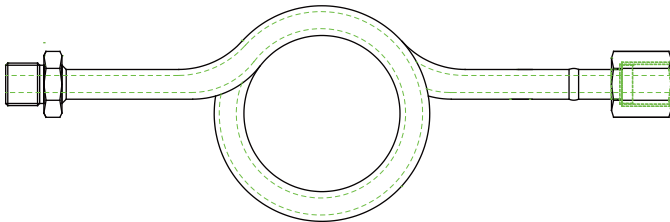
Heat transfer

Zb03 heat sink adapter



Main uses: switching and heat dissipation

Zb02 union buffer pipe



Main uses: switching, heat dissipation and buffering