

Product information

CYYZ501C ceramic capacitive pressure transmitter



The CYYZ501C ceramic capacitive pressure transmitter is carefully designed with high precision, high voltage resistance, and vacuum resistance. Very suitable for vacuum degree and high pressure field pressure measurement. It has a variety of explosion-proof function options, including intrinsic safety, dust intrinsic safety, explosion-proof, and explosion-proof dust. It can also choose the Hart protocol communication, which is cost-effective.

Range: -0.1~0~7MPa (see range selection table for details)

Output: 4-20mA, 4-20mA Hart, RS485, 0-10VDC, 0-5VDC

1-5VDC

Power supply: 9-28VDC, 15-28VDC, 13-28VDC, 15-24VDC

Accuracy: 0.1% FS, 0.25% FS

In addition, we can also provide customized products that meet the application needs of our customers in a short period of time based on their applications.

Typical applications

▲General industry.

Instructions for use

The CYYZ501C series pressure transmitter can measure absolute pressure, negative pressure, and gauge pressure according to different models. Suitable for pressure measurement in liquid or gas and process industries. The operator is responsible for verifying whether the equipment is suitable for the operating conditions of the application. If you have any questions, please contact our sales department to ensure the correct application of the transmitter. We do not assume any responsibility for any impact caused by improper selection.

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

⚠ Warning!

Improper use can 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 technicia

Product features

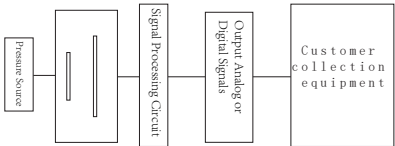
- a) Using ceramic capacitive pressure sensing core body
- b) Integrated chip, wide voltage power supply
- c) Multiple explosion-proof options
- d) Frequency cutoff design, strong anti-interference ability, and lightning protection
- e) Current limiting, voltage limiting, and reverse connection protection
- f) High precision, high voltage resistance, and vacuum resistance
- g) Can be equipped with Hart communication function

Product Overview

The CYYZ501C series pressure transmitter product uses a ceramic capacitive pressure sensing core as a signal measurement element, and is automatically tested by a computer to achieve temperature compensation for zero and sensitivity over a wide temperature range. The amplification circuit is located inside the casing, converting the sensor signal into a standard output signal, fully leveraging the technological advantages of the sensor, making the CYYZ501C series pressure transmitter highly accurate, high voltage resistant, and vacuum resistant. Very suitable for vacuum degree and high pressure field pressure measurement.

Operational principle

The ceramic capacitive sensor adopts a fixed ceramic base and a movable ceramic membrane structure, with the movable membrane sealed and fixed together with the base. The inner electrode pattern is printed between the two to form a variable capacitance. When the pressure of the medium on the membrane changes, the capacitance between the two changes accordingly. The signal is converted into a standard analog signal or digital signal through a signal processing circuit (as shown in the figure below).



Technical parameter

Measurement medium: liquid or gas (compatible with contact materials)
Pressure range: -0.1~0~7MPa (see range selection table for details)
Pressure methods: gauge pressure, absolute pressure, negative pressure
Medium temperature: -40~85 ℃
Connection time: 20ms
Stability performance: ± 0.1% FS/year
Temperature drift: ± 0.01% FS/℃ (within temperature compensation range)
± 0.05% FS/℃ (outside temperature compensation range)
Temperature compensation: -20~80 ℃
Explosion proof type: Ex db II C T6 Gb
Explosion proof dust type Ex tb IIIC T80 ℃ Db
Intrinsically safe Ex ia IIC T6 Ga (limited to 4-20mA/4-20mA Hart output only)
Dust Intrinsically Safe Ex iaD 20 T80 ℃ (limited to 4-20mA/4-20mA Hart output only)
Note: Intrinsic safety must be powered by safety barriers or intrinsic safety power sources
Protection level: IP66
Note: The above protection levels refer to the level achieved after the electrical connection is complete
Accuracy level: 0.1% FS, 0.25% FS
Meter accuracy: 0.05% FS liquid crystal (LCD with backlight) display
Response frequency: Analog signal output ≤ 30Hz Digital signal output ≤ 5Hz Hart communication ≤ 10Hz
Overall weight: No display ≈ 1.25kg, with display ≈ 1.4kg
Resolution: Analog output 0.01% FS, digital output 0.05% FS

Output power supply

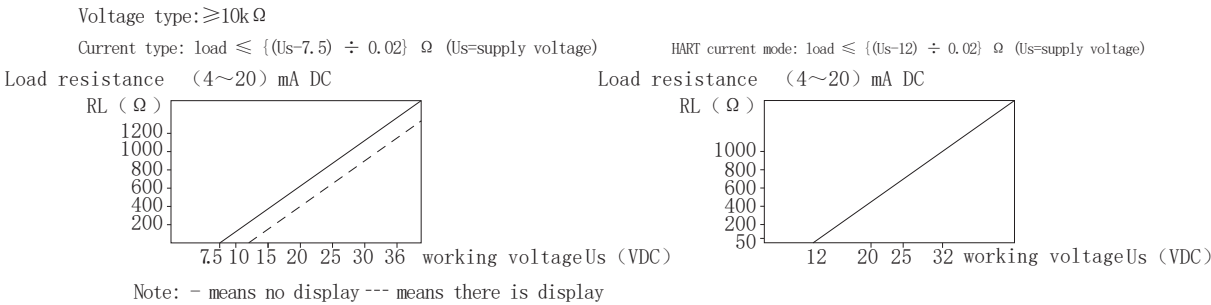
power supply output	9~28VDC	13~28VDC	15~28VDC	15~24VDC
4~20mA	No display	×	With display	Intrinsic safety type
RS485	With/Without Display	×	×	×
0~10VDC	×	×	With/Without Display	×
0~5VDC	With/Without Display	×	×	×
1~5VDC	With/Without Display	×	×	×
4~20mA HART	×	With/Without Display	×	Intrinsic safety type

Maximum power

output power	$\leq 0.02U_s$ (W)	$\leq 0.015U_s$ (W)	$\leq 0.008U_s$ (W)
4~20mA	With/without display		
RS485	With display	No display	
0~10VDC	With display		No display
0~5VDC	With display		No display
1~5VDC	With display		No display
4~20mA HART	With/without display		

Note: U_s =supply voltage.

Load characteristics



environment condition

Ambient temperature: - 40~85 ℃

Ambient humidity: 0% ~ 95% RH (non condensing and non condensing)

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	1kV(Between lines) 2kV(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.

Overpressure and blasting

Pressure type	Range range	Overload pressure	Burst pressure	Anti vacuum (A)	Sealing gasket
G	-2. 5~2. 5kPa	0. 2MPa	0. 3MPa	0. 08MPa	Fluorogel
G	-10~10kPa	0. 27MPa	0. 4MPa	0. 07MPa	Fluorogel
G	-25~25kPa	0. 33MPa	0. 5MPa	0. 05MPa	Fluorogel
G	-40~40kPa	0. 53MPa	0. 8MPa	0	Fluorogel
G	-0. 1~0. 1MPa	0. 67MPa	1MPa	0	Fluorogel
G	-0. 1~0. 2MPa	1. 2MPa	1. 8MPa	0	Fluorogel
G	-0. 1~0. 4MPa	1. 67MPa	2. 5MPa	0	Fluorogel
G	-0. 1~1MPa	2. 67MPa	4MPa	0	Fluorogel
G	-0. 1~4MPa	4MPa	6MPa	0	Fluorogel
G	-0. 1~7MPa	7MPa	8MPa	0	Fluorogel
A	10kPa	0. 27MPa	0. 4MPa	0	Fluorogel
A	25kPa	0. 33MPa	0. 5MPa	0	Fluorogel
A	40kPa	0. 53MPa	0. 8MPa	0	Fluorogel
A	0. 1MPa	0. 67MPa	1MPa	0	Fluorogel
A	0. 2MPa	1. 2MPa	1. 8MPa	0	Fluorogel

- △ Hint! Note ①: Overload pressure, not damaged but not working properly;
- △ danger Note 2: Burst pressure, damage or damage to pressure relief.
- △ Hint! Note ③: G gauge pressure, A absolute pressure.

Overall material

Diaphragm: Al₂O₃Ceramic (in contact with the measured medium)
Process connection: 304 stainless steel (in contact with the measured medium)
Shell: Die cast aluminum
Core sealing element: pressure and burst chart (in contact with the tested medium)
E D ring: fluorine glue
Display window: ≈ 6mm explosion-proof glass

Mechanical stability

Vibration resistance performance: 10g (20... 2000Hz) in accordance with IEC60068-2-6 standard
Impact resistance: 500g/ms in accordance with IEC60068-2-27 standard

Electrical protection

Short circuit protection: permanent
Reverse pole protection: no damage, but does not work
Insulation resistance: ≥ 100M Ω 500VDC
Insulation strength: 500VAC

Output Limits

	Output minimum	Output Max
4-20mA	4mA	20mA
RS485	0	2000
0~10VDC	0.001VDC	10VDC
0~5VDC	0.001VDC	5VDC
1~5VDC	0.001VDC	5VDC
4-20mA HART	3.8mA	22mA

Note: Other restrictions can be customized.

Explosion proof description

Flameproof type

Conforming to standards GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.31-2021, GB/T 4208-2017
Explosion proof sign: Ex db IIC T6 Gb
Explosion proof certificate number: CCRI 22.1623X

Explosion proof dust type

Conforming to standards GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.31-2021, GB/T 4208-2017
Explosion proof sign: Ex tb IIIC T80 °C Db
Explosion proof certificate number: CCRI 22.1623X

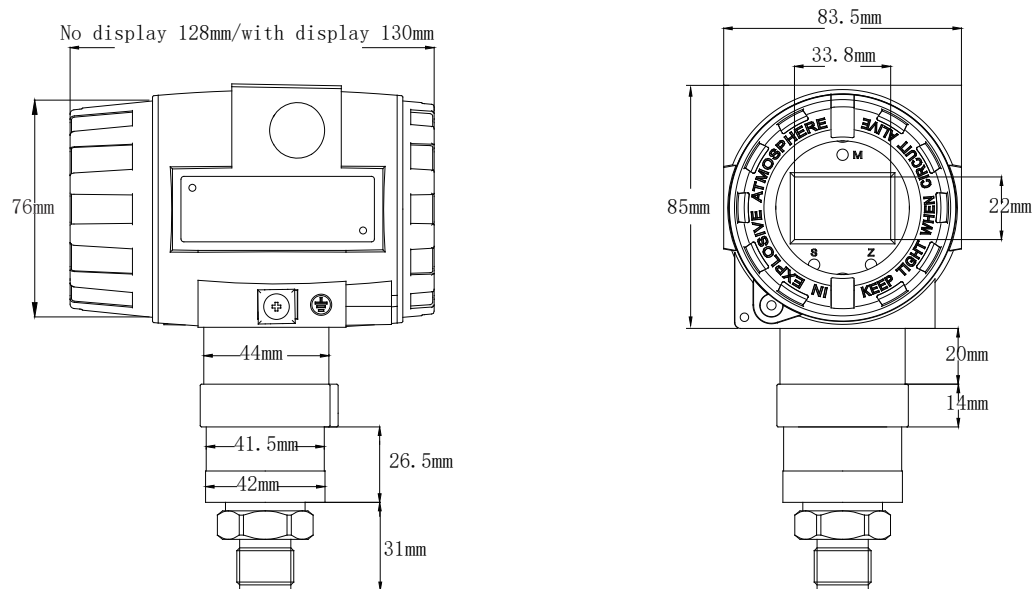
Intrinsically safe (limited to 4-20mA/4-20mA HART output)

Complies with standards GB3836.1-2010 and GB3836.4-2010
Explosion proof sign: Ex ia II C T6 Ga
Intrinsic safety parameters: Ui: 28V, Ii: 93mA, Ci: 0nF, Li: 0uH
Associated equipment 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 C_c, L_c are distribution parameters of connecting cables.
Explosion proof certificate number: CLEx22.3302

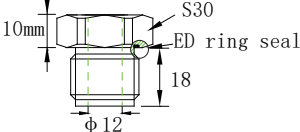
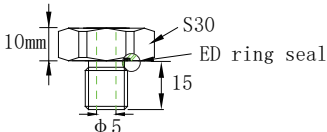
Dust Intrinsically Safe (limited to 4-20mA/4-20mA HART output)

Complies with standards GB3836.1-2010, GB3836.4-2010, GB12476.1-2013, GB12476.4-2010
Explosion proof sign: Ex iaD 20 T80 °C
Intrinsic safety parameters: Ui: 28V, Ii: 93mA, Ci: 0nF, Li: 0uH
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 C_c, L_c are distribution parameters of the connecting cable.
Explosion proof certificate number: CLEx22.3302

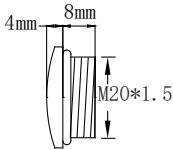
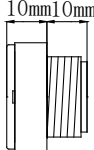
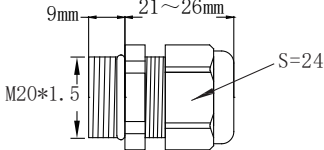
Appearance and dimensions

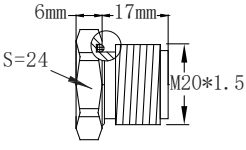
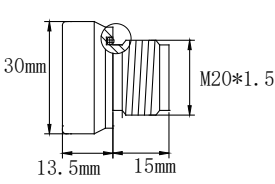
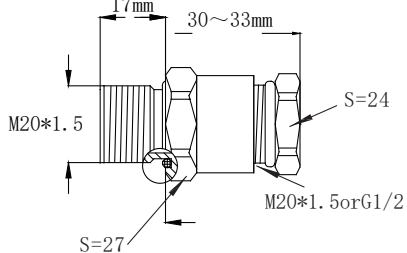


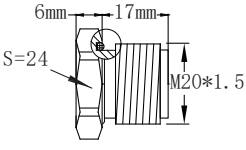
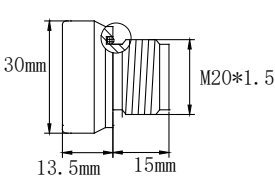
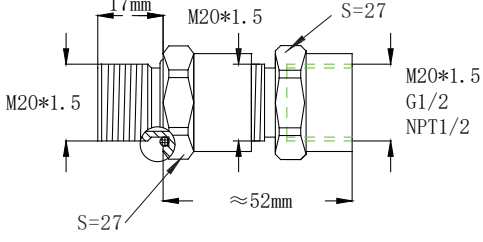
Note 1

Thread specifications	M20*1.5、G1/2	G1/4
Thread size		

Plug and electrical interface

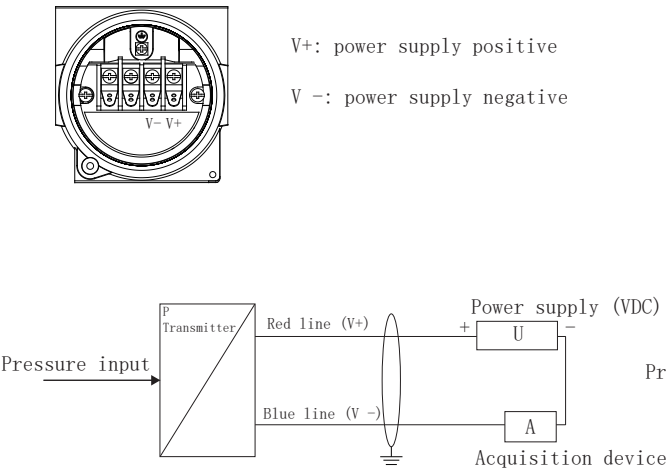
Applicable standard type and intrinsic safety type		
plug		electrical interface
 When the range is greater than 2.5MPa Material: Nylon	 When the range is ≤ 2.5MPa Material: 6061 aluminum	 Material: Nylon Lock wire diameter 5-9mm

Suitable for dust intrinsic safety type		
plug		electrical interface
 When the range is greater than 2.5MPa Material: 304 stainless steel	 When the range is greater than 2.5MPa Material: 304 stainless steel	 Material: 304 stainless steel Lock wire diameter 5-6mm

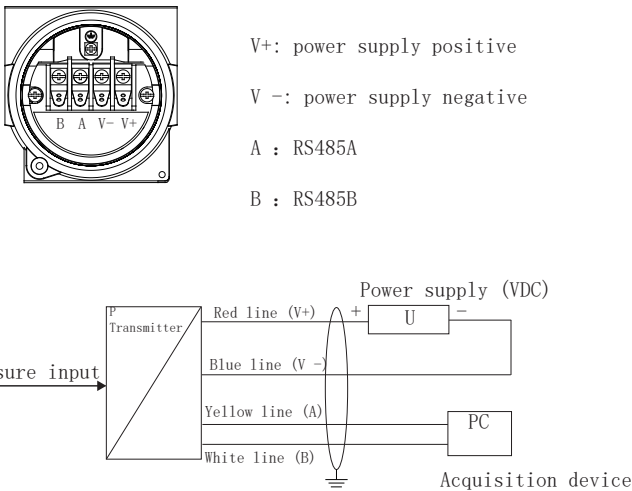
Suitable for explosion-proof and dustproof types		
plug		electrical interface
 When the range is greater than 2.5MPa Material: 304 stainless steel	 When the range is ≤ 2.5MPa Material: 6061 aluminum	 Material: 304 stainless steel Lock wire diameter 5-6mm

Wiring diagram

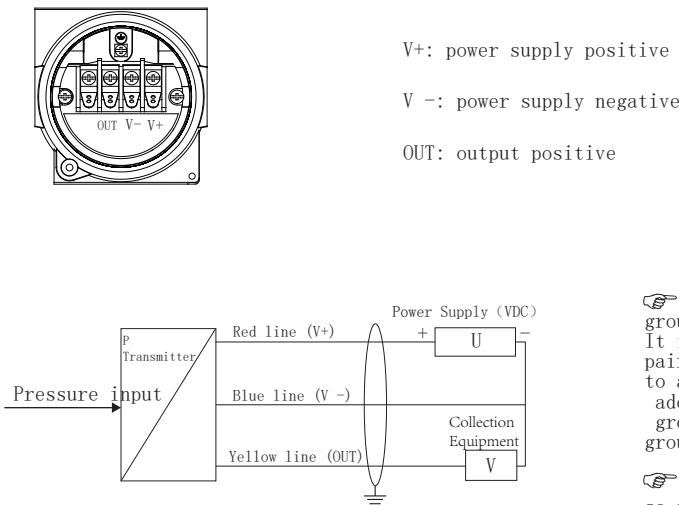
Current output wiring diagram (two-wire system)



RS485 (digital signal) output wiring diagram (four wire system)



Voltage output wiring diagram (three wire system)



⚡ Represents shield wire, and all marked grounding points must be effectively grounded. It is recommended to select shielded twisted pair signal cable for the best effect. In order to avoid grounding circuit, the shielding layer adopts single end grounding, insulated floating grounding at the pressure transmitter end, and grounding at the control cabinet end.

🔌 The transmitter shell is grounded by default, so the field equipment is required to be effectively grounded. If the field equipment cannot be grounded, the marked grounding point shall be effectively grounded.

Parameter selection

CYYZ	Pressure transmitter												
	Code	Type of transmitter											
	501C	Ceramic capacitive type											
		Code	display										
		P	No display										
		X	With display										
			Code	Range range									
				Please refer to the range selection table for details									
				Code	signal output								
				A1	4-20mA two wire system								
				HART	4-20mA Hart two wire system								
				V4	1-5VDC three wire system								
				V5	0-5VDC three wire system								
				V10	0-10VDC three wire system								
				RS	RS485 communication interface, (standard Modbus RTU protocol) four wire system								
				DZ	customization								
					Code	Connection method							
					14	M20 * 1.5 external thread (commonly used)							
					17	G1/4 external thread (commonly used)							
					19	G1/2 external thread (commonly used)							
					44	customization							
						Code	Accuracy level						
						S	0.1%FS						
						B	0.25%FS						
						DZ	customization						
							Code	Power supply voltage					
							G9	15-24VDC (intrinsic safety only)					
							G17	9-28VDC					
							G18	13-28VDC					
							G19	15-28VDC					
							DZ	customization					
								Code	Explosion proof type				
								L	The explosion-proof electrical interface is M20 * 1.5 internal thread				
								L1	The explosion-proof electrical interface is G1/2 internal thread				
								L2	The explosion-proof electrical interface is NPT1/2 internal thread				
								LF	The explosion-proof dust type electrical interface is M20 * 1.5 internal thread				
								LF1	The explosion-proof dust type electrical interface is G1/2 internal thread				
								LF2	The explosion-proof dust type electrical interface is NPT1/2 internal thread				
								B	Intrinsically safe (current output only)				
								F	The dust intrinsic safety electrical interface is M20 * 1.5 internal thread (limited to current output)				
								F1	The dust intrinsic safety electrical interface is G1/2 internal thread (limited to current output)				
								No	Standard type (without explosion-proof)				
									Code	customization			
									D	Other customization requirements			
									No	convention			
CYYZ	501C	P	12	A1	14	B	G17		Example of selection				
For example: CYYZ501C-P-12-A1-14-B-G17 (ceramic capacitive pressure transmitter, no display, range 0-1MPa, output 4-20mA, connection M20 * 1.5, accuracy 0.25 level, power supply 9-28VDC).													

Range Selection Appendix

Code	Range		Code	Range		Code	Range		Code	Range
111	0~2. 5kPa		03	0~5kPa		04	0~10kPa		05	0~20kPa
06	0~50kPa		07	0~100kPa		08	0~200kPa		09	0~0. 4MPa
12	0~1MPa		103	0~2MPa		15	0~4MPa		104	0~7MPa
105	10kPa (A)		106	20kPa (A)		107	40kPa (A)		31	100kPa (A)
32	200kPa (A)		110	±2. 5kPa		38	±5kPa		39	±10kPa
40	±20kPa		43	±50kPa		44	±100kPa		45	-100~200kPa
46	-0. 1~0. 5MPa		47	-0. 1~1MPa		88	-0. 1~2MPa		108	-0. 1~4MPa
109	-0. 1~7MPa		112	-2. 5kPa~0		60	-5kPa~0		61	-10kPa~0
62	-20kPa~0		65	-50kPa~0		66	-100kPa~0		67	customization
Note: A represents absolute pressure; Unmarked represents gauge pressure;										

Ordering Notice

 Warning!

Users should pay attention to selecting appropriate specifications based on the pressure, temperature, and environmental conditions of the medium when ordering pressure transmitters.

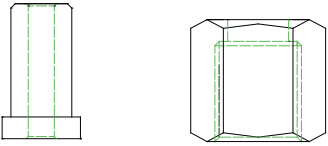
Ordering information

Model/Display/Range/Signal Output/Connection Method/Accuracy Level/Power Supply Voltage/
Explosion proof Type/Customization

Accessories (to be purchased separately)

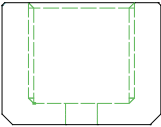
Welded base

Dz01 union welding base



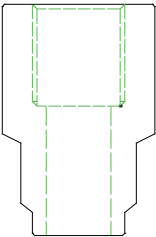
Main purpose: base welding and positioning

Dz05 column welding base



Main purpose: base welding

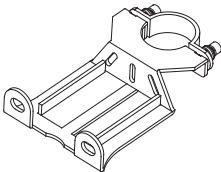
Dz03 pagoda welded base



Main purpose: base welding

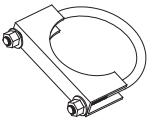
Mounting bracket

ZJ03 mounting bracket



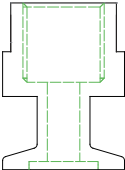
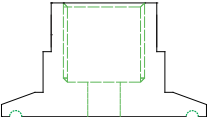
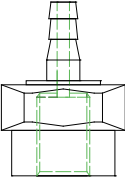
Main application: transmitter installation

ZJU01U card

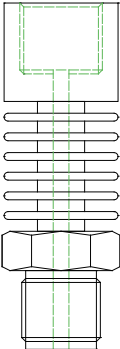
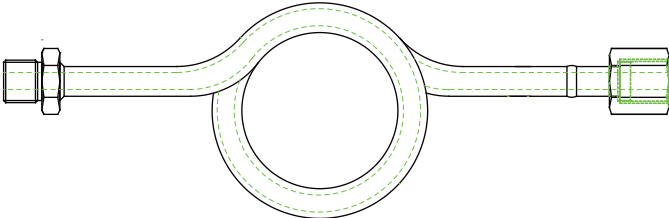


Main use: pipe support

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	FI01 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