

ZXBAR25M Intelligent Monocrystalline Silicon Pressure/Absolute Pressure Transmitter

◆Summary

The ZAXBAR series intelligent pressure transmitters featured a central sensing unit utilizing advanced high-precision silicon pressure sensor technology. The sensors are positioned at the top of the metal housing, maintaining mechanical and thermal isolation from the medium contact surface. Integrated glass-sintered sensor leads ensure robust electrical insulation from the metal substrate, enhancing circuit flexibility and transient voltage protection capabilities. With platinum-grade accuracy of $\pm 0.05\%$ and unidirectional overpressure capacity up to 25MPa, the transmitters demonstrate exceptional static pressure performance. Their static pressure error is optimally controlled within $\pm 0.05\%/10\text{MPa}$, while temperature influence remains minimal at $\pm 0.04\%/10\text{K}$.



The instrument employs a modular design centered on a microprocessor with advanced digital isolation technology, ensuring exceptional interference resistance and operational stability. Utilizing the Hart protocol for communication, it enables remote operation via a Hart controller or computer equipped with Hart software, allowing flexible configuration of measurement parameters. The system incorporates digital compensation technology and built-in temperature sensors to calibrate transmitters, significantly improving measurement accuracy while minimizing temperature drift. This design delivers long-term stability and high reliability. Its user-friendly one-touch reset function meets safety requirements in hazardous environments. The intuitive quick menu streamlines operations and enables comprehensive parameter configuration, substantially enhancing the transmitter's overall performance.

◆Advantage

- ◆Advanced single-crystal silicon pressure sensor technology and packaging process.
- ◆The modular design with microprocessor as the core and advanced digital isolation technology as the auxiliary makes the instrument have high anti-interference and stability
- ◆A high-performance 24-bit ADC delivers high precision
- ◆Innovative dual compensation technology achieves true 0.075 high precision

◆Functional Parameter

Range	Please select a range code within rated range. Adjustable range within rated range
Zero Point Settings	The zero point and range can be adjusted to any value within the measurement range of the meter, provided that the calibrated range is greater than or equal to the minimum range.
Installation Position Affects	Keep installation position perpendicular to the diaphragm do not cause zero drift. However, if the installation position deviates from the diaphragm by more than 90° , a zero drift of $<0.4\text{kPa}$ may occur. It can be corrected by adjusting the zero point and no effect to full range measurement.
output	Two-wire 4-20mA HART system compliant with NAMIR NE43 standards, linear or square root output are optional.
Output limit	$I_{\text{min}} = 3.9\text{mA}$, $I_{\text{max}} = 21.0\text{mA}$
Warning	If the sensor or circuit fails, The automatic diagnostic function outputs 3.9 or 21 mA.
Alarm current	Low mA mode: 3.9 mA/High mA mode:21mA. Default mode:High mA mode
Response time	The amplifier component has a damping constant of 0.1s; the sensor's response time constant ranges from 0.1 to 1.6 s, depending on the range and range ratio. Additional adjustable response time constant is available from 0 to 100s.
Warm Up time	$<15\text{s}$

◆Performance Parameter

Measuring medium: gas, vapor, liquid

Uncertainty: $\pm 0.05\%$, $\pm 0.075\%$, $\pm 0.1\%$ (including linearity, hysteresis, and repeatability from zero)

Stability: $\pm 0.1\%/3$ years

Temperature effect: $\leq \pm 0.04\%/10^\circ\text{C}$

Power supply: 10 to 36V DC (recommended 24V DC)

Power supply influence: $\pm 0.001\%/10\text{V}$ (10-36V DC), negligible

Referable accuracy for range adjustment: When $\text{TD} > 10$ (where $\text{TD} = \text{maximum range}/\text{adjustment range}$), the output accuracy is $\pm(0.075 \times \text{TD})\%$.

Ambient temperature: $-40^\circ\text{C} \sim 85^\circ\text{C}$

Measuring medium temperature: $-40^\circ\text{C} \sim 120^\circ\text{C}$

Storage temperature: $-40^\circ\text{C} \sim 105^\circ\text{C}$

Display: LCD, OLED

Display module temperature: -20°C to 70°C (LCD) and -40°C to 80°C (OLED)

◆Electromagnetic Compatibility (EMC)

A. Radio Frequency Radiation Test

Test Field Strength	Frequency range	EUT set	Direction of polarization	Detection result
3V/m	80 MHz - 1GHz	Upright	Horizontal polarization	The memory data of the test sample remains unchanged
			Vertical polarization	The memory data of the test sample remains unchanged

B. Power Frequency Magnetic Field Immunity Test

Magnetic field intensity	Result
400A/m (X、 Y、 Z)	The memory data of the test sample remains unchanged

◆Physical parameters

Diaphragm: 316L , Hastelloy C

Process Connection: stainless steel 304,316L

Filling fluid: silicone oil, fluorinated oil, etc.

Transmitter housing: Aluminum alloy, exterior coated with epoxy resin

Enclosure sealing : nitrile rubber

Plate: stainless steel 304

Weight: 1.2kg (Note: No installation bracket, process connection)

Protection rating IP67

Explosion-proof ratings: Exd IIC T6 and Ex ia IIC T4

◆Installation

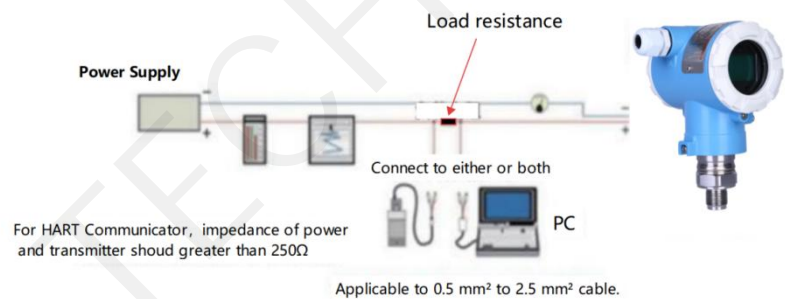
Power and load conditions

The power supply voltage is 24V, with $R \leq (U_s - 10V) / I_{max} \Omega$, where $I_{max} = 21 \text{ mA}$.

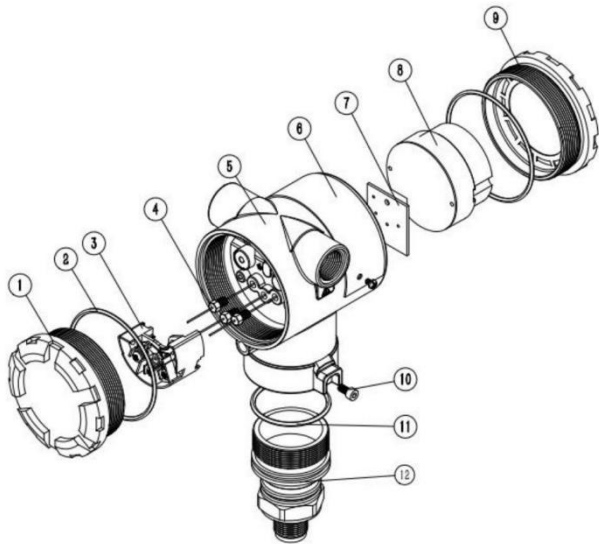
Maximum power supply voltage: 36VDC

Minimum power supply voltage: 10VDC

Digital communication load range: 250 ~ 600 Ω

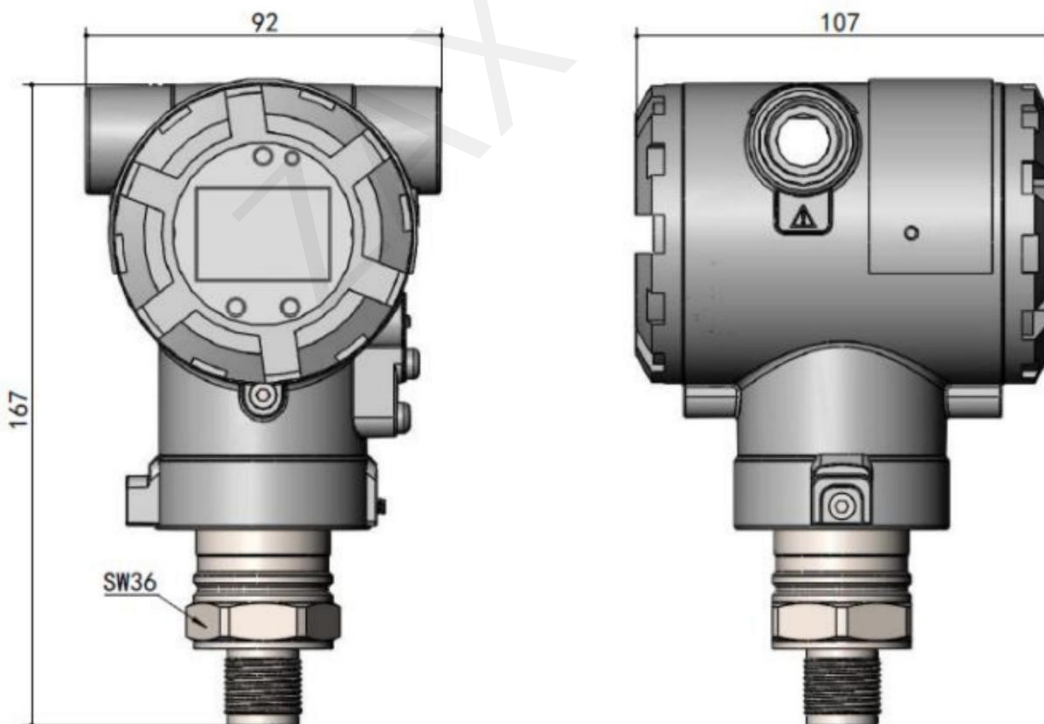


◆ Breakdown Drawing



01	Rear Cover	02	Rear Cover Seal
03	Terminals	04	Feedthru Capacitor
05	Enclosure	06	Plate
07	Anti-interference board	08	Circuit Module
09	Display end Cap	10	Shell locking nut
11	Shell seal	12	Sensor

◆ Dimensions



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◆Rated Gauge Pressure Range and Measuring Range



Code	Rated range (kPa)	Measuring range (kPa)	Accuracy / Stability
A	-6 ~ 6	0 ~ 1 ~ 6	±0.075%F.S/ ±0.1%
B	-40 ~ 40	0 ~ 6 ~ 40	
C	-100 ~ 100	0 ~ 40 ~ 100	
D	-100 ~ 400	0 ~ 100 ~ 400	
E	-100 ~ 4000	0 ~ 400 ~ 4000	
F	-100 ~ 40000	0 ~ 4000 ~ 40000	

◆Rated Absolute Pressure Range and Measuring Range

Code	Rated range (kPa)	Measuring range (kPa)	Accuracy / Stability
A	0 ~ 40	0 ~ 6 ~ 40	±0.075%F.S/ ±0.1%
B	0 ~ 250	0 ~ 40 ~ 250	
C	0 ~ 2000	0 ~ 250 ~ 2000	

◆Overload limit of Gauge Pressure

Range	1KPa A	6KPa B	40KPa C	100KPa D	400KPa E	4000KPa F	40000KPa G
Overload limit	1 MPa	2 MPa	5 MPa	7 MPa	9 MPa	10MPa	50MPa

◆Overload limit of Absolute Pressure

Range	40KPa A	250KPa B	2000KPa C
Overload limit	1 MPa	4 MPa	10MPa

♦Intelligent monocrystalline silicon pressure/absolute pressure transmitter selection table

Model	Code	Parameter Description	
ZAXBAR25M	B	Flameproof Exd IIC T6	
	D	Intrinsically safety Exia IIC T6	
	L	Na	
	GP	Gauge Pressure	
	AP	Absolute Pressure	
Range		Gauge Pressure	Absolute Pressure
	1	0 ~ 1 ~ 6KPa	0 ~ 6 ~ 40KPa
	2	0 ~ 6 ~ 40KPa	0 ~ 40 ~ 250KPa
	3	0 ~ 40 ~ 100KPa	0 ~ 250 ~ 2000KPa
	4	0 ~ 100 ~ 400KPa	
	5	0 ~ 400 ~ 4000KPa	
	6	0 ~ 4000 ~ 40000KPa	
Output	S1	4 ~ 20mA	
	S2	4 ~ 20mA+Hart	
Accuracy	J1	±0.2%	
	J2	±0.1%	
	J3	±0.075%	
	J4	±0.05%	
Display	X1	LCD	
	X2	OLED (Temperature Tolerate to min -40°C)	
Fill fluid	G1	Silicone oil	
	G2	Fluorocarbon oil	
Material		Connection Part	Diaphragm
	21	316L stainless steel	316L stainless steel
	22	316L stainless steel	Hastelloy C
	23	316L stainless steel	Monel

	24	316L stainless steel	Tantalum
	25	316L stainless steel	Titanium
	26	316L stainless steel	Gold Plating
Process Connection	C1	M20*1.5 Male Thread	
	C2	G 1/2 Male Thread	
	C3	G 1/4 Male Thread	
	C4	1/2NPT Male Thread	
	C5	1/2NPT Female Thread	
	C6	Customer Specified	
Electrical Connection	D1	M20*1.5 (standard)	
	D2	1/2NPT	
Bracket	A0	Na	
	A1	Pipe fitting bracket	
Caliberation Range			
Example of selection	ZAXBAR25M-BGP1S2J4X1G121C1D1A0 0~6KPa		

Selection notes:

1. Before selecting the model, users should clarify the temperature, corrosiveness, density, measurement range, explosion-proof requirement etc.
2. Confirm whether the medium is prone to crystallization or viscous.