ZAXBAR27M Hygienic Intelligent Monocrystalline Silicon Pressure Transmitters

◆Summary

The Hygienic Pressure and Level Transmitters are high-performance devices developed by our company for on-site cleaning (CIP) and disinfection (SIP) in the pharmaceutical and food industries. These processes represent the most effective methods for cleaning and processing systems, ensuring safety and efficiency while preventing product contamination by toxic substances and minimizing recontamination risks. The system employs high-temperature steam disinfection (up to 150°C/302°F).

The health-grade pressure and level transmitter is designed to ensure that food and pharmaceutical products do not come into contact with toxic, harmful, or contaminated substances through the transmitter. The materials, structural design, and cleaning processes of the transmitter that directly contact food and pharmaceutical products must comply with EHEDG and FDA standards. The selected sealing rings, adhesives, and conductive fluids must be free from toxic or harmful components. The structural design requires smooth surfaces, no dead corners, minimal scaling, and easy cleaning and sterilization. The central sensing unit employs high-precision monocrystalline silicon pressure sensor technology and packaging processes. The monocrystalline silicon pressure sensor is positioned at the top of the metal housing, away from the medium contact surface, achieving mechanical and thermal isolation. The glass-sintered integrated sensor leads provide high electrical insulation from the metal substrate, enhancing the flexibility of electronic circuits and transient voltage protection capabilities. Temperature influence is minimal, optimally controlled within ±0.05%/10K. The circuit design features a microprocessor core with advanced digital isolation technology, ensuring exceptional anti-interference performance and stability. Communication via the Hart protocol enables remote operation through a Hart controller or computer with Hart software, allowing configuration of measurement data. Digital compensation technology and built-in temperature sensors improve measurement accuracy while reducing temperature drift, offering long-term stability and high reliability.

◆Advantage

◇The sanitary design complies with EHEDG and FDA standards, featuring a seamless stainless steel , and the material's surface finish meets sanitary-grade requirements.

◇Cutting-edge monocrystalline silicon pressure sensor technology and packaging processes.

◇The modular design with microprocessor as the core and advanced digital isolation technology as the auxiliary makes the instrument have excellent anti-interference and stability

◇A high-performance 24-bit ADC delivers high precision

◆ Parameters

Range limit	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 location 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 <0.4kPa 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	Imin=3.9mA， Imax=21.0mA
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	<15s

◆performance parameter

Measuring medium: gas, vapor, liquid

Inaccuracy: ±0. 1% (including linearity, hysteresis, and repeatability from zero)

Stability: ±0.2%/3 years

Temperature effect: ≤±0.05%URL/10℃

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

Power supply influence: ±0.001% /10V (10-36V DC), negligible

Reference accuracy for the adjustment range: If TD> 10 (where TD = maximum range divided by adjustment range), the tolerance is ±(0.075 × TD)%.

Ambient temperature: -20℃ ~ 85℃

Measuring medium temperature: -20℃ ~ 150℃

Storage temperature: -20℃ ~ 105℃

Display ： LCD

Display module temperature: -20℃ ~ 70℃

◆Electromagnetic Compatibility (EMC)

A. Radio Frequency Radiation Test

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

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 stainless steel, Hastelloy C, etc.

Process flange: stainless steel 304,316L

Filler fluid: sanitary oil

Transmitter housing: stainless steel

Outer shell sealing ring: nitrile rubber

IP65 protection rating

◆Installation

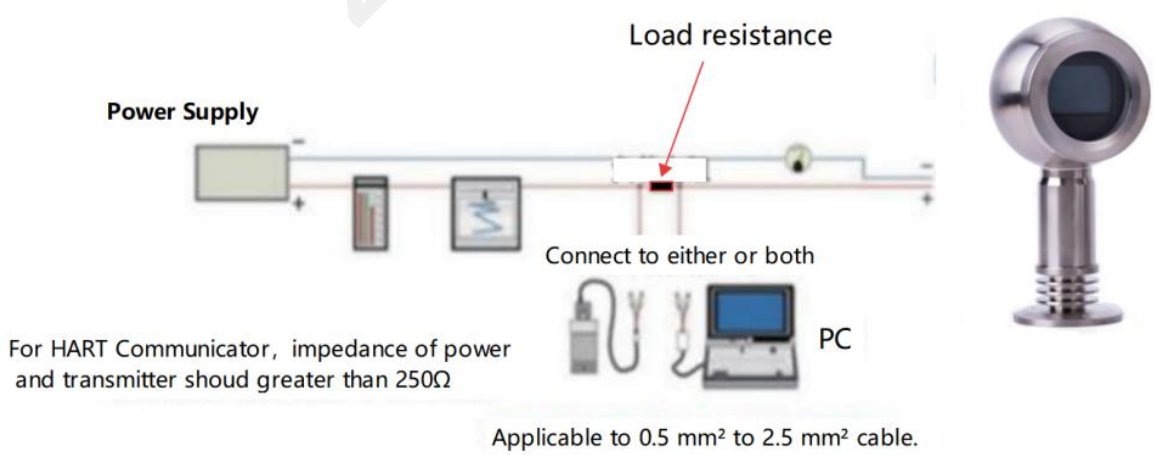
Power Supply and load conditions

The power supply voltage is 24V, with R ≤ (Us-10V) / Imax Ω, where Imax =21 mA

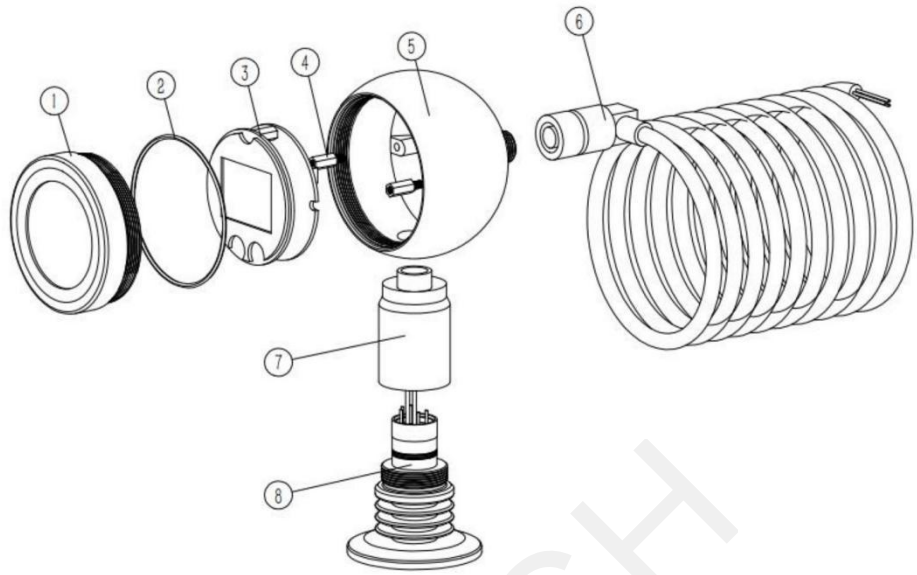
Maximum power supply voltage: 36VDC

Minimum power supply voltage:10VDC

Digital communication load range: 250 ~ 600Ω



◆Breakdown Drawing



01	Display end Cap	02	Cover Seal
03	Circuit Header	04	Copper Pillar
05	Enclosure	06	Cable
07	Connection Tube	08	Sensor

◆Gauge pressure/Rated Range and Measuring Range

Code	Rated Range (kPa)	Measuring Range (kPa)	Accuracy / Stability
A	-40 ~40	0 ~ 10 ~40	±0.075%F.S/ ±0.1%
B	-100 ~ 100	0 ~40 ~ 100	
C	-100 ~400	0 ~ 100 ~400	
D	-100 ~2000	0 ~400 ~2000	

◆Flange and Min Range Comparison Table

Fange Type	Procedure linkage	Minimum range
Without Extension	DIN 32676 DN40	0 ~ 10KPa
	DIN 32676 DN50	0 ~ 10KPa
	DIN 11851 DN40	0 ~ 10KPa
	DIN 11851 DN50	0 ~ 10KPa
With Extension	DIN 32676 DN40	0 ~ 10KPa
	DIN 32676 DN50	0 ~ 10KPa
	DIN 11851 DN40	0 ~ 10KPa
	DIN 11851 DN50	0 ~ 10KPa

Nominal pressure of process connection

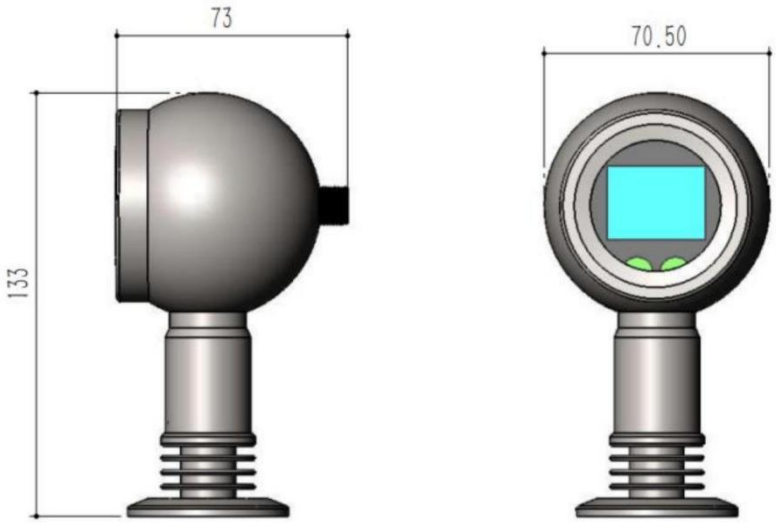
DIN 32676 : 1.6 MPa

ISO2852 : 2 MPa

DIN 11851 : 2.5 MPa

One-way overload limit

Rated pressure of process connections



•ZAXBAR27M Hygienic Intelligent Monocrystalline Silicon Pressure Transmitters Selection Table

Model	Code	Parameter Description
ZAXBAR27M	LT	Flat Diaphragm
	CY	Flat Diaphragm with Extension
Range	1	0 ~ 10 ~ 40KPa
	2	0 ~ 40 ~ 100KPa
	3	0 ~ 100 ~ 400KPa
	4	0 ~ 400 ~ 2000KPa
Output	S1	4 ~ 20mA
	S2	4 ~ 20mA+Hart
Accuracy	J1	±0.1%
	J2	±0.2%
Display	X1	LCD
	X2	OLED (Temperature Tolerate to min -40℃)
Electrical Connection	D1	M12 connector with two meters cable
	D2	User specified
Connection material	22	304 stainless steel
	23	316L stainless steel
Diaphragm Material	N1	316L stainless steel
	N2	Hastelloy C
	N3	Monel
	N4	Tantalum
	N5	Titanium
	N6	Customized
Coating	T1	Na
	T2	Teflon Coating

Installation size	C1	DIN32676 DN32
	C2	DIN32676 DN40
	C3	DIN32676 DN50
	C4	ISO2852 DN38
	C5	ISO2852 DN40
	C6	ISO2852 DN51
	C7	DIN11851DN40
	C8	DIN11851DN50
	C9	Customer-specified
Extension Length	L10	0 (No Extension)
	L11	30mm
	L12	50mm
	LX	Customer-specified
Extension Material	Z0	No Extension
	Z1	304 stainless steel
	Z2	316L stainless steel
Capillary length	F0	No capillaries
	F1	1m
	F2	2m
	F3	3m
	FX	Customer-specified
Fill fluid	G1	Silicone oil
	G2	Fluorocarbon oil
	G3	Hygienic oil
Example of selection	**ZAXBAR27M-LT2S2J2X1D122N1T1C1L10Z0F0G3 0～50KPa**	