GZP6185A

Pressure Transducer

Analog output

Datasheet

Version: V1.2

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Document Revision History

Revision	Description	Date
V1.0	Initial version	2024.05.29
V1.1	Format adjustment	2024.08.19
V1.2	Add category	2026.01.07

The company reserves the right to modify the specifications contained herein without prior notice.

1. Product Description

The GZP618(AH series and AN series) is a metal pressure sensor product developed by Sencoch for the industrial control and automation applications.

The product packaging adopt ceramic diaphragm core. The measured pressure work on the ceramic diaphragm and then generate a voltage signal, where the signal is processed by an automotive-grade signal conditioning chip(ASIC).

The ASIC performs calibration and compensation for raw signal and convert pressure signals into standard analog output signals (range and output is customizable).

The GZP6185 pressure transducer has the advantages of fast response, high reliability and good stability, and is a high cost-effective sensor product.

1.1 Product Features

- High accuracy pressure transducer

  The accuracy over the entire service life at room temperature is better than ±1%FS.

  The full-life accuracy of high and low temperature performance exceeds ±3%FS
- Temperature range: -40°C to 125°C
- Customizable for wide range up to 5Mpa
- Electrical strength: AC 1500V (1 minute) / 1800V (1 second), leakage current ≤0.75mA
- Excellent overvoltage and reverse polarity protection.
- Proportional/Fixed analog voltage output (customizable)
- Output Clamping (customizable)

1.2. Application Fields

- Industrial control

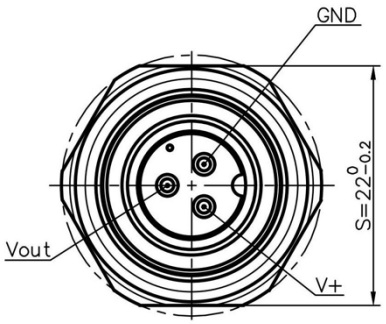
The sensor can be used in water pump, pneumatic device, compressor, air conditioning system, coolant system, hydraulic pressure measurement, process control and monitoring etc,.

2. Function Description

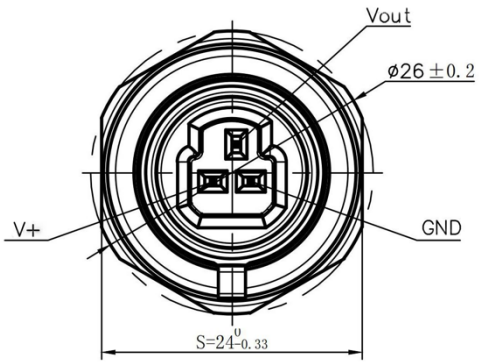
The working principle of GZP6185A is based on the piezoresistive effect of ceramics. The measured medium acts on the ceramic diaphragm through the pressure interface (such as a threaded connection), causing it to deform. The Wheatstone bridge on the back of the diaphragm converts the deformation into a weak differential voltage signal. The built-in dedicated signal conditioning circuit (ASIC) then amplifies, temperature-compensates, linearizes, and zero-adjusts this signal, ultimately outputting a high-precision, high-stability standard analog signal (e.g., 0-5V or 4-20mA). Throughout this process, the robust and corrosion-resistant ceramic diaphragm serves the dual roles of pressure sensing and medium isolation, making it particularly suitable for measuring corrosive, high-viscosity, or contaminated media.

2.1 Electrical Connection

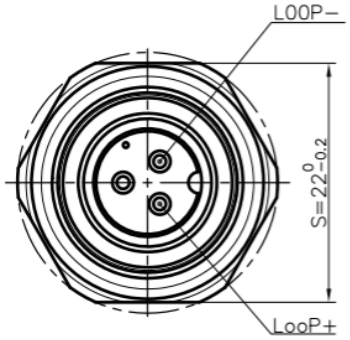
The recommended electrical connector type for this product is as below.



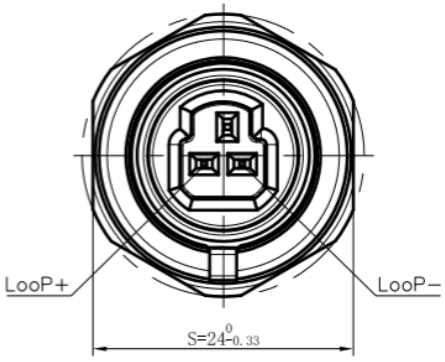
VOLTAGE OUTPUT AVIATION PLUG



VOLTAGE OUTPUT PACKARD



CURRENT OUTPUT AVIATION PLUG



CURRENT OUTPUT PACKARD

Fig. 1. PIN Schematic diagram

Table 1. Plug Pin Definition

PIN Number	Definition	Description	Remark
1	VCC	Positive power input: 5±0.25VDC	Voltage output
2	Vout	Output voltage signal	
3	GND	Negative power input	
4	LooP+	Positive power input: 24±0.25VDC	Current output
5	Loop-	Common port	

Table 1

Table 2. Wire Definition

Wire Colour	Definition	Description
Red	VCC	Positive power input: 5±0.25VDC
White	Vout	Output voltage signal
Black	GND	Negative power input

2.2 Block Diagram

The functional block diagram of the sensor is shown in Figure 2.

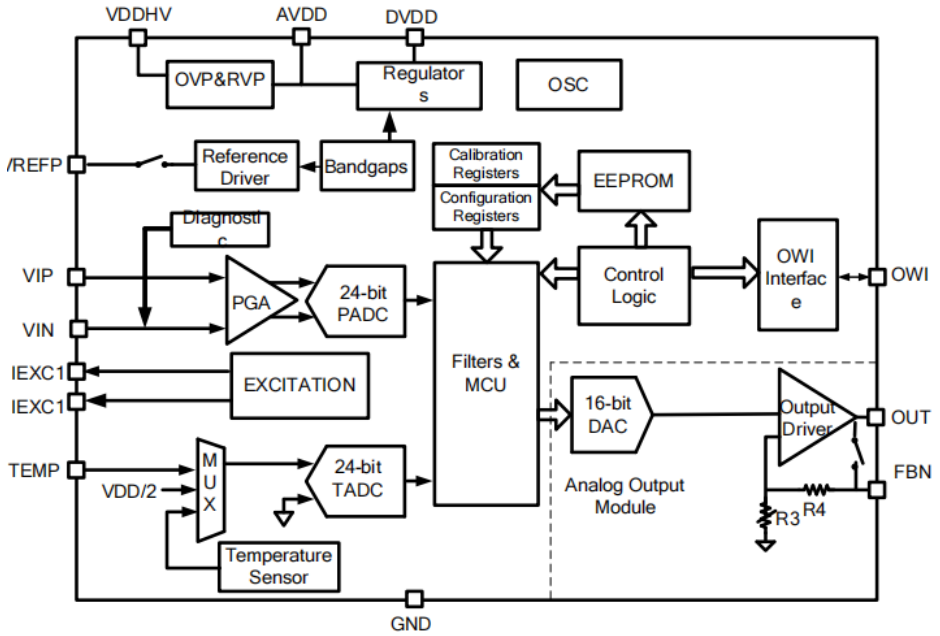


Fig. 2 Sensor Block Diagram

2.3 Pressure Function

Curve equation for voltage output:

$$\text{Voltage Output} = \frac{(Vcc * 80\%)}{\text{Pressure Range(Bar)}} \text{ X Pressure Applied(Bar)} + (Vcc * 10\%)$$

The linear equation is shown in Figure 3:

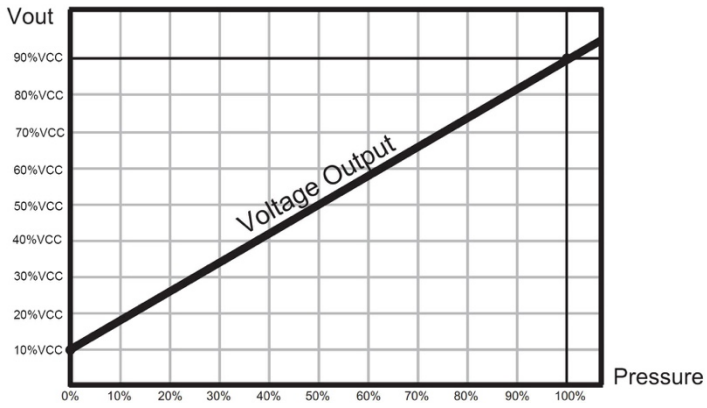


Fig.3 Voltage output curve

Curve equation for current output:

$$\text{Current Output} = \frac{\text{Pressure Applied(Bar)}}{\text{Pressure Range(Bar)}} \text{ X 16 (mA)} + 4\text{mA}$$

The linear equation is shown in Figure 4:

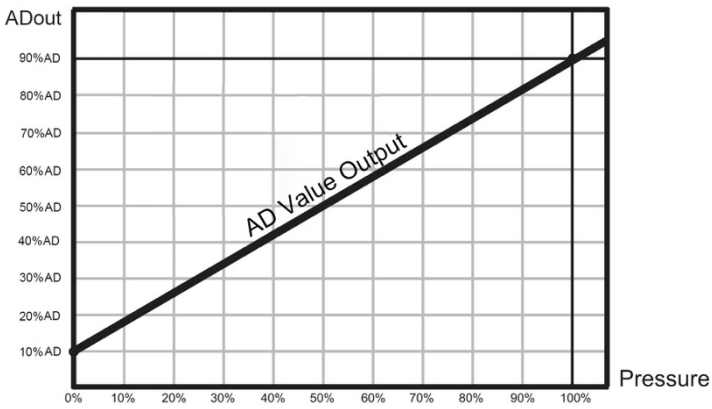


Fig.4 Current output curve

2.4 Accuracy

The accuracy of the GZP6185A pressure sensor is affected by power supply voltage, input pressure, ambient temperature, and aging effects. The value calculated using the transfer function is the sensor's specified value and theoretical value. The sensor's error equals the difference between the actual output voltage value at the specified input pressure and the specified output voltage value.

2.4.1 Overall Accuracy

The overall precision considers the different error sources in the measurement pressure range and working temperature range, which mainly include:

Pressure: The deviation between the actual output voltage and the specified output voltage within the specified pressure range.

Temperature: Output deviation at different temperatures within the specified range.

Aging: parameter drift over time.

The overall accuracy is expressed by the error band, which is composed of three line segments. The data are shown in Figure 4 and Table 2.

Temperature (°C)	**Accuracy (Fs)**
-40	±3%
0	±1%
60	±1%
125	±3%

Table 2 Overall Accuracy

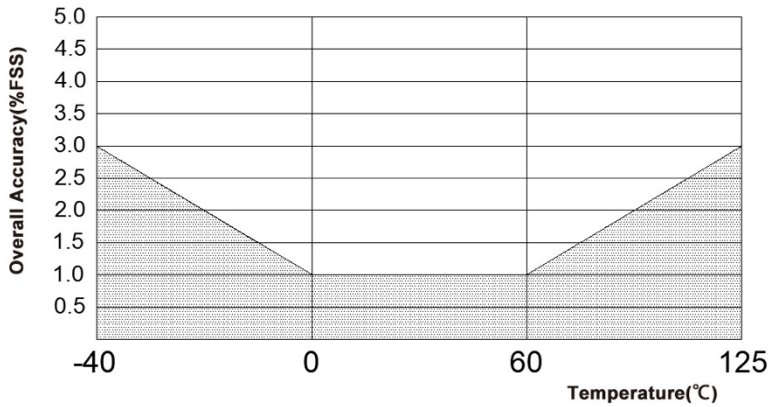


Fig. 4 Relationship between overall accuracy and temperature

3. Technical Indicators

The following sensor parameters were measured under the power supply (5±0.25) VDC(Voltage output) or (24±0.25) VDC(Voltage output) and temperature of 25°C.

3.1 Maximum Rated Parameters

The maximum rated parameters of the sensor are shown in Table 3:

Parameter	Min.	Typ.	Max.	Unit	Remarks
Maximum voltage			18	V	70°C，1h(Voltage Output)
			36	V	70°C，1h(Current Output)
Maximum reverse voltage			-14	V	Voltage Output
			-24	V	Current Output
Overload pressure			2x	FS	60s
Bursting pressure			3X	FS	3s

Table 3

3.2 Performance Indicators

The performance indicators of the sensors are shown in Table 4.

Subject	Value	Unit
Pressure Range	0.1-1.1 (customizable within 5Mpa)	MPaA
Power Supply	4.75 to 5.25V for voltage output	V
	10 to 30(Typ:24) for current output	V
Output Signal	0.5 to 4.5 (output customizable)	V
	4 to 20	mA
Protection Level	IP67	/
Response Time	≤1	ms
Pressure Cycle	1	Million
Insulation Resistance	≥100MΩ/500VDC	MΩ
Working Temperature	-40～125	°C
Storage Temperature	-40～130	°C

Table 4

4. Recommended Assembly Interface

Refer to Figure 5 for recommended sensor matching installation interface

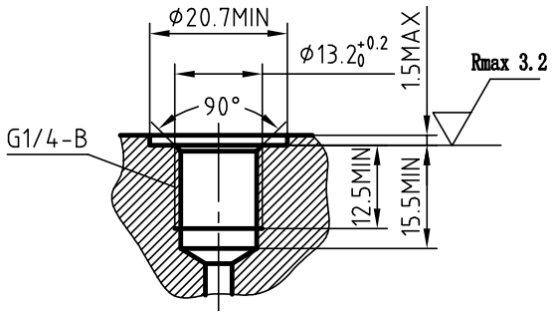
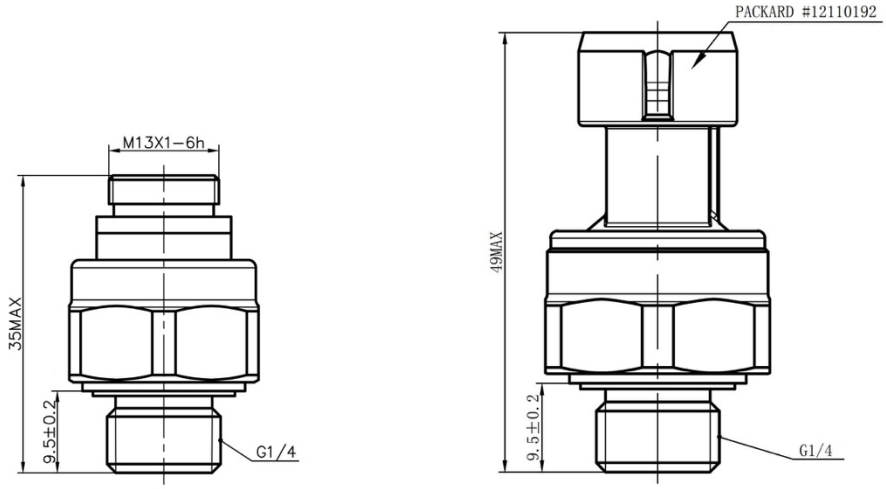


Fig. 5

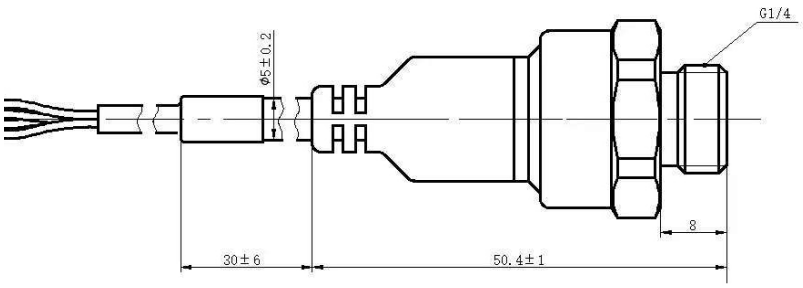
5. Structure Specification(Unit: mm)

Refer to Figure 6(Aviation and Packard plug) and Figure 7(wire lead) for the sensor's external dimensions (unspecified tolerances shall comply with GB/T1804-V).



AVIATION PLUG TYPE PACKARD PLUG TYPE

Fig. 6



WIRE LEAD TYPE

Fig. 7

6. Order Guide

GZP 6185-A-H-S-02-A032 E008 B02 WX

GZP	Sencoch
6185	Product Category
A	Output type A: Analog output
H	Signal Type H: Voltage scheme N: Current scheme
S	S: Stainless Steel
02	Pressure Port and Electrical Port 02: G1/4 S=22 Aviation Plug 04: G1/4 S=24 Packard 07: G1/4 S=22 Wire Lead
A032	Pressure Range A032:0.1~1.1MPa A033:0.1~1.7MPa A265:0.1~2.6MPa
K001	Power Supply and Output K001: 5V input, 0.5~4.5V output E008: 10%~90%Vcc output T236: 4~20mA output
B02	Packaging Method B02: Plastic Tray
WX	Company interior code

*For more customized ranges and special parameter part numbers, please consult Sencoch.

7. Usage Notes

1) The sensor can only be unpacked before installation.

2) The sensor lacks anti-freezing capability when tested in water.

3) The normally packaged pressure sensors can be transported using standard handling equipment. Note: During transportation, protect the product from moisture, impact, sun exposure, and pressure.

4) Confirm under actual usage conditions

As this specification is a standalone product, to ensure reliability in practical use, verify its performance and quality under real-world conditions.

Safety Precautions

This product is made of semiconductor components for general electronic equipment (communication equipment, measuring equipment, working machinery, etc.). Products using these semiconductor components may malfunction and fail due to external interference and surges, so please confirm the performance and quality under actual use. To be on the safe side, please perform safety design on the device (setting of protection circuits such as fuses and circuit breakers, multiple devices, etc.) so that life, body, property, etc. will not be harmed in the event of a malfunction. To prevent injuries and accidents, please be sure to comply with the following matters:

·The driving current and voltage should be used below the rated values.

Please wire according to the electrical definition . In particular, reverse connection of the power supply may cause accidents due to circuit damage such as heat, smoke, and fire, so please be careful.

·Be careful when fixing the product and connecting the pressure inlet .

Warranty and Disclaimer

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