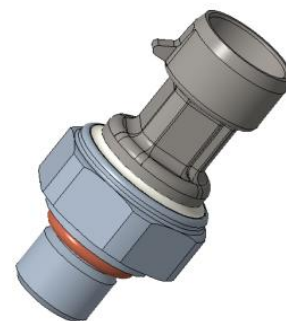


# XGZP6181 PRESSURE TRANSMITTER

## FEATURES

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- Absolute Pressure Type
- 1~11bar(Available to customize range 0~50bar)
- MEMS oil-filling construction
- Fast response
- Anti-overload&Shock&Vibration
- High reliability and stability
- Low Cost.



## APPLICATIONS

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- Cooling Systems.

For data centers, energy storage, battery management and other temperature control systems, this sensor is applied to water-cooled systems to measure coolant pressure to evaluate the system's heat dissipation function.

- Air Conditioning Systems.

Measuring and monitoring the pressure in air conditioning line and feeds this signal back to the ECU, which adjusts the cooling fan speed in time to prevent compressor damage based on this voltage value.

## INTRODUCTION

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XGZP6181 is a finished product of pressure sensor launched by CFSensor for automotive market and industrial control field. The core technology of this product is based on the piezoresistive effect of high temperature resistant MEMS pressure sensor chip and automotive grade signal conditioning AISC chip, which is encapsulated by mature and reliable oil-filled isolation technology, and through the conditioning circuit to calibrate and compensate the sensor signal, the pressure signal is converted to standard analog output signal (range and output can be customized) to ensure the consistency of the output; the product has fast response speed, high reliability and good stability.

## PERFORMANCE PARAMETER

Unless otherwise specified, measurements were taken with a temperature of 25±1°C and humidity ranging from 25% ~ 85%RH(supply voltage:(5±0.25)Vdc)

Item	Data	Unit
Accuracy(non-lin., rep. and hys...) <sup>1</sup>	±1.0	%Span
Long Term Stability(1 Year) <sup>2</sup>	±1	%Span
Insulation Impedance (250Vdc)	50	MΩ
Over pressure <sup>3</sup>	2×	Rated
Burst Pressure <sup>4</sup>	3×	Rated
Pressure Circulation(Zero- Span)	1	Million
Compensation Temp. <sup>5</sup>	-20 ~ 85/-4 ~ 176	°C/°F
Operating Temp.	-40 ~ 125/-40 ~ 257	°C/°F
Storage Temp.	-40 ~ 125/-40 ~ 257	°C/°F
Housing Material	304 Stainless Steel	
Protection Grade	IP67	
Response Time	≤1ms	

1 **Accuracy**: The max. deviation in output from ideal transfer function at any pressure or temperature over the specified ranges, units are in percent of full scale span (%FSS), which mainly consists of: Offset and Span Shift; Linearity(Non-linearity); Repeatability; Pressure Hysteresis ; TcOffset and TcSpan.

1.1. The accuracy in table is the typical output accuracy during specified pressure range. Contact factory for higher accuracy requirement(e.g ±0.5%Span) if need.

1.2 Non-linearity(Linearity): the deviation of measured output from "Best Straight Line" through three points (Offset pressure, FS pressure and ½ FS pressure)at constant temperature.

1.3 Repeatability: the deviation of measured output when the same pressure is applied continuously, with pressure approaching from the same direction within the specified operating pressure range,under the same operating conditions.

1.4 Pressure Hysteresis: the deviation of measured output at any pressure within the specified range, when this pressure is applied continuously, with pressure approaching from opposite directions within the specified operating pressure range, under the same operating conditions.

1.5 TcOffset (TCO:Temp. Coefficient of Offset): the deviation of measured output with minimum rated pressure applied, over the temperature range of 0° to 60°C, relative to 25°C.

1.6 TcSpan (TCS:Temp. Coefficient of Span): the deviation of measured output over the temperature range of 0° to 60°C, relative to 25°C.

2. **Long Term Stability**: the sensor's output deviation when subjected to 1000 hours pressure test.

3. **Over Pressure**: the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element and remain the specification once pressure is returned to the operating pressure range.

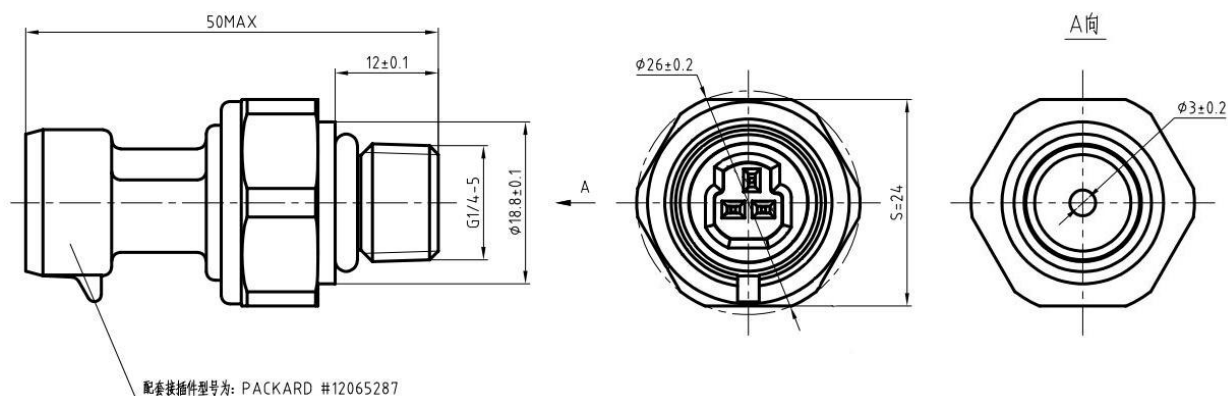
4. **Burst Pressure**: the maximum pressure which may be applied without causing damage to the sensing die or leaks; The sensor should not be expected to recover function after exposure to any pressure beyond the burst pressure.

5. **Compensated Temperature**: the temperature range over which the sensor have an output proportional to pressure within the specified performance limits.

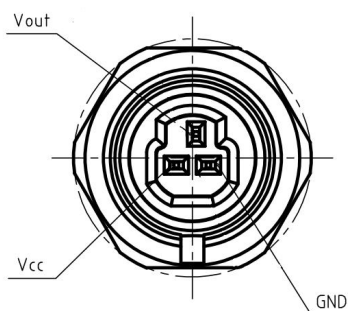
## ELECTRICAL SPECIFICATION

Parameter	Min.	Typ.	Max	Unit	Remark
Power Supply	4.75	5	5.25	V	
Working Current			10	mA	
Overload Voltage			18	V	
Reverse Voltage			-14	V	
Output Current Load			5	mA	
Short-circuit Current Limitation	15	20	25	mA	
Output Load(Pull down)		47		K $\Omega$	
Output Load(Pull up)		100		K $\Omega$	

## DIMENSION (Unit:mm)



## ELECTRICAL CONNECTION



PIN	Description
VCC	Power Supply Input+ 5±0.25VDC
GND	Power Supply Input-
Vout	Output Voltage Signal

## ROUTINE PRESSURE RANGE

Pressure Range (MPa)	Pressure Range (bar)	Pressure Range (kPa)
0.1 ~ 1.1	1 ~ 11	100 ~ 1100
More pressure range( $\leq 5\text{mPa}$ ) is available for customization		

## OUTPUT CURVE

Curve equation:  $V_{out} = (0.02 + 0.8 \cdot P) \cdot V_{in}$

Where:

$V_{in}$  is the supply voltage, unit: V

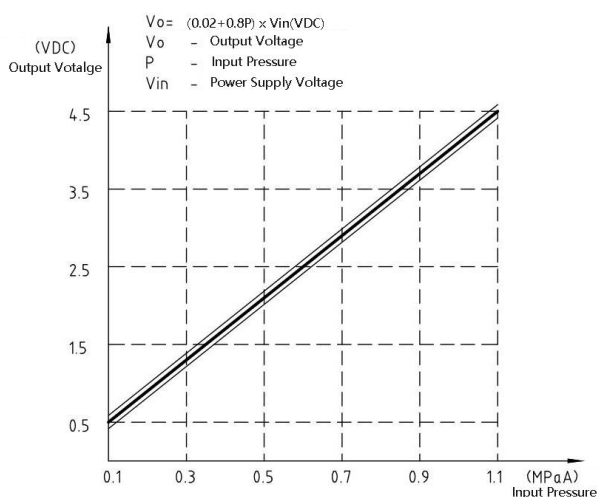
$P$  is the input pressure (absolute pipe pressure),

unit: MPaA.

$V_{out}$  is the output voltage,

unit: V

The linear equation is shown in the figure:



### 【 SAFETY NOTES 】

Using these sensors products may malfunction due to external interference and surges, therefore, please confirm the performance and quality in actual use. Just in case, please make a safety design on the device (fuse, circuit breaker, such as the installation of protection circuits, multiple devices, etc.), so it would not harm life, body, property, etc even a malfunction occurs.

To prevent injuries and accidents, please be sure to observe the following items:

- The driving current and voltage should be used below the rated value.
- Please follow the terminal connection diagram for wiring. Especially for the reverse connection of the power supply, it will cause an accident due to circuit damage such as heat, smoke, fire, etc.
- In order to ensure safety, especially for important uses, please be sure to consider double safety circuit configuration.
- Do not apply pressure above the maximum applied pressure. In addition, please be careful not to mix foreign matter into the pressure medium. Otherwise, the sensor will be discarded, or the media will be blown out and cause an accident.
- Be careful when fixing the product and connecting the pressure inlet. Otherwise, accidents may occur due to sensor scattering and the blowing out of the media.
- Because the Pressure sensor body is sold, please be careful not to hurt your body when using it.

**【 WARRANTY 】**

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. CFSensor reserves the right to make changes without further notice to any product herein. CFSensor makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does CFSensor assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. CFSensor does not convey any license under its patent rights nor the rights of others.

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