# PZP190 Silicon Pressure Sensors

ProZa

## Introduction

The PZP190 pressure sensor is based on a high-sensitivity silicon piezoresistive chip. The chip is protected against aggressive media by a stainless steel housing sealed with a concentrically corrugated diaphragm. Silicon oil filled in the housing is for transferring the pressure from the diaphragm to the chip.

Its profile, installation dimension and sealing method make PZP190 be freely interchangeable and widely used for measuring pressure field.

## Features

- Pressure range : -1~0bar, 0~0.1bar, … , 0~600bar
- Pressure types: gauge, absolute and sealed gauge
- Accuracy up to 0. 25%fs
- 0~70°C standard compensated temperature range
- Excited by either current or voltage
- Isolated construction to measure various liquid or gas
- Φ19mm OEM pressure sensor
- 316L stainless steel material

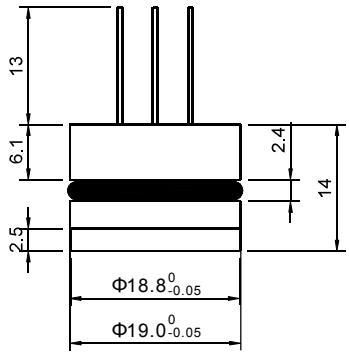
## Applications

- Industrial process control
- Liquid pressure system and switch
- Gas, liquid pressure measurement
- Level measurement
- Refrigeration equipment and air conditioner
- Pressure calibrator

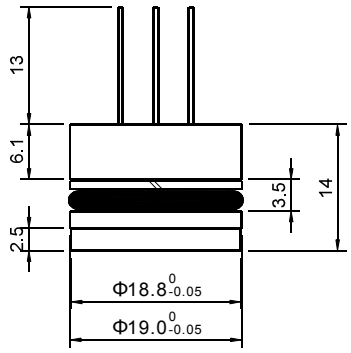
## Environment Effect

- Position effect: deviate 90° from any orientation, zero change ≤ 0.1%FS
- Shock effect: no change at 10gRMS, 20～2000Hz
- Impact: 100g，for 10 ms

## Dimensions




for pressure range < 250 bar




for pressure range ⩾250 bar

Notes: All dimensions are in mm.

## Basic Condition

- Media temperature: 25 ± 1℃
- Environment temperature: 25 ± 1℃
- Shock: 0.1g (1m/s/s) Max
- Humidity: 50%RH ± 10%RH
- Barometric pressure: 86～106 kPa
- Excitation: 1.5±0.0015mA

# Proza Electronic Technology

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## Specifications

| Parameter | Units | Data (*) | Notes |
|---|---|---|---|
| Pressure types and ranges | bar | Gauge(G): -1~0, 0~0.2, ~0.35, ~0.7, ~1, ~2.5,~4,~6,~10,~16,~25,~40 | [1] |
| | | Absolute(A): 0~1, ~2.5, ~4, ~6, ~10, ~16, ~25 | |
| | | Sealed Gauge（S）: 0~10,~16,~25,~60,~100,~160,~250,~400,~600 | |
| Overload pressure | %fs | 200 (≤ 200 bar), 150 (>200 bar) | [2] |
| Full scale output (fso) | mV | ≥ 60, optional output signal: 0.5~4.5 Vdc, 4~20mA, others on request | |
| Zero offset | mV | ≤ ±2 | |
| Excitation | mA | Current: 1.5 (max. 2) | |
| | V | Voltage: 5 (max. 10) | |
| Accuracy | %fs | ≤ ±0.25 (standard), ≤ ±0.5 | [3] |
| Long-term stability | %fs/year | ≤ ±0.2 | |
| Input resistance | kΩ | 3~8 | |
| Output resistance | kΩ | 2.5~6 | |
| Insulation resistance | MΩ | 100 @ 100Vdc | |
| Compensated temperature range | °C | 0~70 (standard) | |
| Operating temperature range | °C | -40 ~ +125 | |
| Storage temperature range | °C | -40 ~ +125 | |
| Temperature coefficient of zero offset | %fso/°C | ≤ ±0.03(≤ 100kPa), ≤ ±0.02(>100kPa) | |
| Temperature coefficient of span | %fso/°C | ≤ ±0.03(≤ 100kPa), ≤ ±0.02(>100kPa) | |
| Response time（10% to 90%fs) | ms | ≤ 1 | |
| Process sealing | / | by Viton O-ring or welding | [4] |
| Electrical interface | / | 4 colored silicon rubber flying wires, 100mm (standard) | |
| | / | 6 gold-plated copper pins, Φ0.5mm, 13mm | |
| Pressure diaphragm | / | 316L SS (standard), Tantalum, Titanium | |
| Wetted parts material | / | 316L SS (standard), Titanium, Hastelloy-C | |
| Filling oil | / | silicon oil | [5] |
| Pressure medium | / | compatible with pressure diaphragm and O-ring | |
| Life time | cycles | $10x10^6$ | |
| Net weight | gram | ~23 | |

Notes:

(*). Testing at Basic Condition.

[1]. For customized pressure ranges, please consult Proza.

[2]. “fs” refers to full scale pressure or rated pressure.

[3]. Accuracy = sqrt (non-linearity$^2$+ hysteresis$^2$+ repeatability$^2$).

[4]. Other O-ring material on request.

[5]. Other filled liquid on request.


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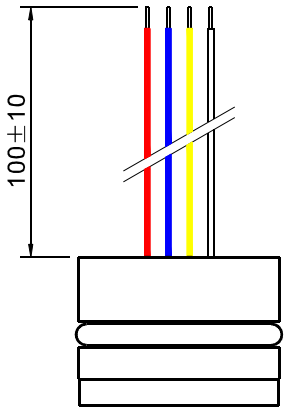
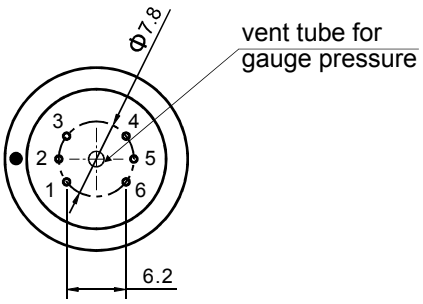
## Electrical Connection

4 colored  silicon rubber flying wires(4W)




| wire color | connection |
|---|---|
| red | excitation + |
| blue | excitation - |
| yellow | signal + |
| white | signal - |

6 gold-plated copper pins (6P)




I: Excitation= Current

| pin | connection |
|---|---|
| 3 | excitation + |
| 5 | excitation - |
| 2 | signal + |
| 4 | signal - |

II: Excitation= Voltage

| pin | connection |
|---|---|
| 5 | excitation + |
| 1 or 6 | excitation - |
| 2 | signal + |
| 4 | signal - |

Notes: - All dimensions are in mm.

- In case of alterations, please refer to the label on the package delivered.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# PZP190 Silicon Pressure Sensors

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## Ordering Guide

model: silicon piezoresistive pressure sensor PZP190

| pressure ranges | | | | |
|---|---|---|---|---|
| (-1) = -1~0 | bar | G | 25 = 0~25 bar | G, A, S |
| 0.2 = 0~0.2 | bar | G | 40 = 0~40 bar | G |
| 0.35 = 0~0.35 | bar | G | 60 = 0~60 bar | S |
| 0.7 = 0~0.7 | bar | G | 100 = 0~100 bar | S |
| 1 = 0~1 | bar | G, A | 160 = 0~160 bar | S |
| 2.5 = 0~2.5 | bar | G, A | 250 = 0~250 bar | S |
| 4 = 0~4 | bar | G, A | 400 = 0~400 bar | S |
| 6 = 0~6 | bar | G, A | 600 = 0~600 bar | S |
| 10 = 0~10 | bar | G, A, S | Customized ranges are available. | |
| 16 = 0~16 | bar | G, A, S | | |

| pressure types |
|---|
| G = Gauge |
| A = Absolute |
| S = Sealed Gauge |

| accuracy |
|---|
| 0.25 = 0.25 %fs (standard) |
| 0.5 = 0.5 %fs |

| temperature compensation |
|---|
| T0 = 0 ~ 70 °C (standard) |
| NT = no temperature compensation |

| excitation |
|---|
| C = 1.5 mA (standard) |
| V = 10 Vdc |

| electrical interface |
|---|
| 4W = 4 colored silicon rubber flying wires, 100mm (standard) |
| 6P = 6 gold-plated copper pins, Φ0.5mm, 13mm |

| customized parameter |
|---|
| “(*)” is necessary only for any customized parameter. |

**ordering code**:**PZP190-10-G-0.25-T0-C-4W-(*)**

**Examples of Ordering Code**

model-pressure range-pressure type-accuracy-compensation-excitation-electrical interface-customized parameter

**PZP190-30-G-0.25-T0-V-4W-(*)**

(*): Customized diaphragm material = Tantalum.

## Order Notes

1. For any critical working environment or pressure media, please inform me before order.
2. Please pay attention to protect the diaphragm. Do not touch the diaphragm by fingers and other hard objects, or it may be damaged.


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