

# SMP3011 I<sup>2</sup>C output pressure sensor

## ● Overview

SMP3011 uses metal membrane to isolate oil-filled pressure sensor core. The product has built-in temperature compensation sensor, which can compensate the zero error and temperature drift of sensor signal, sensitivity error, temperature drift and nonlinearity error in real time, and output pressure and temperature data in accordance with the I2C interface protocol.

The product is small in size, simple in installation, high in cost performance, accurate and reliable in pressure measurement, and greatly enhances the on-site adaptability of the sensor.



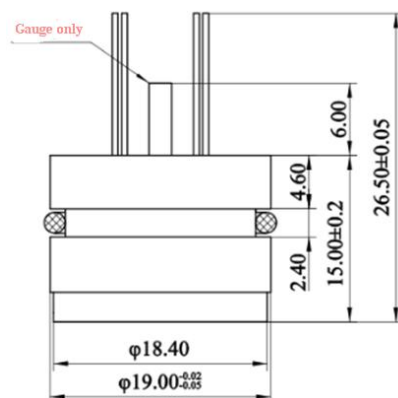
## ● Features

- Ranges: -100kPa...0 ~ 20kPa...70MPa
- 24-bit High precision analog to digital conversion
- Real-time compensation
- Isolated structure for multiple media
- Out put: 15%~85%
- I<sup>2</sup>C Bus protocol

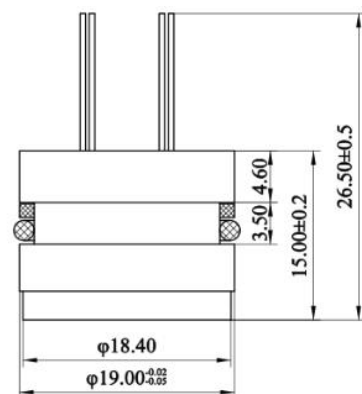
## ● Applications

- Low power, smart device
- Process control
- Construction machinery
- Medicine, food processing, packaging equipment

## ● Outline structure (unit: mm)

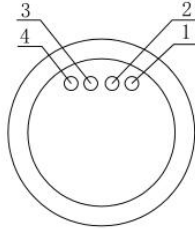


Range<20MPa



Range≥20MPa

## ●Electrical connections



| Item | definition | Wire color |
|------|------------|------------|
| 1    | V+         | Red        |
| 2    | V-         | Black      |
| 3    | SDA        | Yellow     |
| 4    | SCL        | Blue       |

## ● Parameters

| Electrical characteristics |  |
|----------------------------|--|
| Range                      | 0 ~ 100kPa.....0 ~ 60MPa   |
| Overload                   | 1.5 times FS   |
| Accuracy                   | ±0.1%F.S. BFSL@25°C  |
| Total error                | ±1.0%F.S. (Includes calibration error and temperature drift effects) |
| Input voltage              | 1.8V ~ 3.6VDC  |
| Output                     | 15%~85% (I <sup>2</sup> C Bus protocol)                              |
| Working current            | ≤0.3mA, Standby current is about 0.1μA                               |
| Operating temperature      | -10°C ~ 80°C   |
| Storage temperature        | -40°C ~ 125°C  |
| Long-term stability        | ±0.2%FS/year   |

## ●Output conversion

| Percentage output (%) | Digital quantity (decimal) | Digital quantity (hexadecimal) |
|-----------------------|----------------------------|--------------------------------|
| 0                     | 0                          | 0x000000                       |
| 10                    | 1677722                    | 0x19999A                       |
| 15                    | 2516582                    | 0x266666                       |
| 85                    | 14260633                   | 0xD99999                       |
| 90                    | 15099494                   | 0xE66666                       |
| 100                   | 16777215                   | 0xFFFFF                        |

● Order Code:

| SMP3011   |            | OEM metal film isolation pressure sensor |                       |   |                       |                  |  |  |
|---|------------|--|-----------------------|---|-----------------------|------------------|--|--|
|   | Range Code | Measuremen<br>t range                    | Pressure<br>Type      | Range Code  | Measuremen<br>t range | Pressure<br>Type |  |  |
|   | 0B         | 0～20kPa                                  | G                     | 12  | 0～2MPa                | G/A              |  |  |
|   | 0A         | 0～35kPa                                  | G                     | 13  | 0～3.5MPa              | G/A              |  |  |
|   | 02         | 0～70kPa                                  | G                     | 14  | 0～7MPa                | A/S              |  |  |
|   | 03         | 0～100kPa                                 | G/A                   | 15  | 0～15MPa               | A/S              |  |  |
|   | 07         | 0～200kPa                                 | G/A                   | 17  | 0～20MPa               | A/S              |  |  |
|   | 08         | 0～350kPa                                 | G/A                   | 18  | 0～35MPa               | A/S              |  |  |
|   | 09         | 0～700kPa                                 | G/A                   | 19  | 0～70MPa               | A/S              |  |  |
|   | 10         | 0～1MPa                                   | G/A                   |   |                       |                  |  |  |
|   |            | Code                                     | Pressure Type         |   |                       |                  |  |  |
|   |            | G  | Gauge pressure        |   |                       |                  |  |  |
|   |            | A  | Absolute pressure     |   |                       |                  |  |  |
|   |            | S  | Sealed gauge pressure |   |                       |                  |  |  |
|   |            |  | Code                  | Electrical connection   |                       |                  |  |  |
|   |            |  | 1                     | 100mm silicon rubber wire with 4pin terminal                                      |                       |                  |  |  |
|   |            |  | 2                     | others  |                       |                  |  |  |
|   |            |  | Code                  | Special measurement   |                       |                  |  |  |
|   |            |  | Y                     | Gauge pressure type can be used to measure negative pressure<br>Note <sup>①</sup> |                       |                  |  |  |
| SMP3011-0B-G-1-Y the whole spec Note <sup>②</sup> |            |  |                       |   |                       |                  |  |  |